R92-19

MIT

CLIMATOLOGY OF STATION STORM RAINFALL IN THE CONTINENTAL UNITED STATES:

PARAMETERS OF THE BARTLETT-LEWIS AND POISSON RECTANGULAR PULSES MODELS.

by
KELLY LYNN HAWK
and
PETER S. EAGLESON

RALPH M. PARSONS LABORATORY

HYDROLOGY AND WATER RESOURCE SYSTEMS

DEPARTMENT OF CIVIL ENGINEERING

SCHOOL OF ENGINEERING
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Cambridge, Massachusetts 02139

Report Number 336

Prepared under the support of the
National Aeronautics and Space Administration
Subcontract No. NAS 5-31721

May 1992

R92-19

CLIMATOLOGY OF STATION STORM RAINFALL IN THE CONTINENTAL UNITED STATES:

PARAMETERS OF THE BARTLETT-LEWIS AND POISSON RECTANGULAR PULSES MODELS

by

Kelly Lynn Hawk

and

Peter S. Eagleson

RALPH M. PARSONS LABORATORY
HYDROLOGY AND WATER RESOURCE SYSTEMS

Report Number 336

Prepared under the support of the
National Aeronautics and Space Administration
Subcontract No. NAS 5–31721

May, 1992

ABSTRACT

The parameters of two stochastic models of point rainfall, the Bartlett–Lewis model and the Poisson rectangular pulses model, are estimated for each month of the year from the historical records of hourly precipitation at more than seventy first–order stations in the continental United States. The parameters are presented both in tabular form and as isopleths on maps.

The Poisson rectangular pulses parameters are useful in implementing models of the land surface water balance (eg. Eagleson, 1978). The Bartlett–Lewis parameters are useful in disaggregating precipitation to a time period shorter than that of existing observations (Rodriguez–Iturbe et al., 1987).

ACKNOWLEDGMENTS

This work has been supported by the National Aeronautics and Space Administration subcontract No. NAS 5–31721. We thank Dr. Dara Entekhabi of the MIT Ralph M. Parsons Laboratory for his assistance with the computer codes. We thank Michael Morgan, Dennis Boccippio and Chris Forest of the MIT Earth, Atmospheric and Planetary Sciences Department for their kind assistance running the GEMPAK3 software.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Bartlett–Lewis Notation

λ	Poisson arrival rate of storms, 1/hr
β	exponential rate of arrival of cells, 1/hr
γ	exponential rate of the termination of arrivals of cells, 1/hr
η	rate of duration of a cell, 1/hr
κ	dimensionless, β/η
ϕ	dimensionless, γ/η
E[c]	mean number of cells per storm
$p_r(t)$	probability storm live with r active cells at time t
$q_r(t)$	probability storm terminated, r cells active at time t
$G_p^*(z,s)$	moment generating function of $p_r(t)$
$G_q^*(z,s)$	moment generating function of $q_r(t)$
$q_o^*(s)$	Laplace transform of the probability the storm is complete before time t
u_t	mean duration of storm, hour
R	number of active cells at a given instant
$G_R(z)$	probability generating function of R
E[R]	expected number of active cells at a particular instant
N(t)	number of storms in time t
π_0	probability there is no rainfall at an arbitrary time
E[Y]	expected storm depth at an arbitrary time, mm

var(Y)	variance of storm depth at an arbitrary time, mm^2
$\tilde{\omega}_h$	probability of zero depth in time interval [0,h]
$C_Y(t)$	autocovariance of total depth of storm
$E[Y_i^{(h)}]$	mean of 2nd order process of the aggregates, mm
$cov[Y_i^{(h)},Y_{i+k}^{(h)}]$	covariance of 2nd order process of the aggregates
α	shape parameter of the gamma distribution for η
ν	scale parameter of the gamma distribution for η, (1/hour)
u_x	mean cell depth, mm

Poisson Model Notation

$cov[i,t_r]$	covariance of storm intensity and storm duration
$CV[\cdot]$	coefficient of variation
$E[\cdot]$	expected value
σ	standard deviation
var	variance
i	storm intensity, mm/hr
t_r	storm duration, hr
h	storm depth, mm
t_a	storm interarrival time, hr
v	number of storms
ω	mean storm arrival rate, 1/hr

t_b	time between storms, hr
t_{b_0}	minimum time between independent storms, hr
$t_{b_{min}}$	minimum time between storms, hr
$f_H(h)$	two–statistic gamma distribution for storm depth
κ	shape parameter of $f_H(h)$
λ	scale parameter of $f_H(h)$, 1/mm
α or m_i	mean storm intensity, mm/hr
δ or m_{t_r}	mean storm duration, hr
β or m_{t_b}	mean interarrival rate of storms, hr
N	average number of storms per month

CHAPTER 1 INTRODUCTION

Applications of hydrologic models often call for the statistics of precipitation at a time scale (say hourly) different from that of the available precipitation observations (say daily). Under such circumstances it is necessary to disaggregate (as in the case cited) or aggregate the statistics of the observations to the time scale of the model. Stochastic models of point precipitation are used for this purpose.

Perhaps the simplest model of point precipitation is the Poisson rectangular pulses model (see Eagleson, 1978b) in which rectangular pulses of precipitation intensity have Poisson arrivals at the point. Because it is analytically simple the model has been used extensively for study of the land surface water balance. However, it differs in two important respects from the behavior of observed point precipitation sequences; 1. the rectangular pulses are assumed to be independent with no allowance for clustering, and 2. the intensity and duration of the pulses are assumed to be independent.

A more complex representation of point precipitation is the Bartlett–Lewis model (Cox and Isham, 1980), which represents each independent storm by a cluster of rectangular pulses.

Rodriguez–Iturbe et al. (1987) have shown the Bartlett–Lewis model to be superior to the Poisson rectangular pulses model when compared on their ability to disaggregate the statistics of observed point (ie. station) precipitation.

To facilitate the use of both of these models in the continental United States, the historical records of observed hourly precipitation at seventy–four first–order stations are analyzed in this work; the parameters of both models are estimated for each month of the year at each station. The estimated parameters are presented in tabular form and as interpolated isopleths on maps.

CHAPTER 2 Bartlett–Lewis Model

2.1 Introduction

We are interested in the representation of storm rainfall with time at a given station. The "first order" features of such a time series are captured by representing each independent storm as a single rectangular pulse of precipitation at constant intensity. Assuming the pulses to have Poisson arrivals at the station we have what is known as the "rectangular pulses" model.

The observations of cumulative precipitation from which the parameters of this, or any other, point precipitation model are estimated have a specific time scale such as hourly, daily, or monthly. In practical applications of the model it is often necessary to generate the rainfall statistics at a time scale other than that of the underlying observations. It is important that the model be robust in the accuracy of this aggregation or disaggregation process.

Rodriguez–Iturbe et al. (1987) have demonstrated the weakness of the rectangular pulses model in such aggregation or disaggregation applications in comparison with a more complex model which incorporates certain "second order" features of the time series. The particular model they investigated is the Bartlett–Lewis model which considers each independent storm to consist of a cluster of rectangular pulses. That is the storms still arise in a Poisson process but associated with the origin of each storm is a random of cells which themselves arrive in exponential fashion.

We will now summarize the mathematics of the Bartlett–Lewis model as given by Rodriguez–Iturbe et al. (1987) in their original work.

2.2 Mathematics

2.2.1 *Introduction of Parameters*

Suppose that storm origins arise in a Poisson process of rate λ. Each such origin triggers the origin of cells exponentially distributed in time with rate β. The generation of these cells terminates with an exponential distribution of rate γ. Each cell has an exponentially–distributed duration with "rate" η. It is then convenient to introduce two dimensionless parameters, $\kappa = \beta/\eta$ and $\phi = \gamma/\eta$. Finally, assuming one cell is associated with the origin of a storm, we can represent the mean number of cells per storm through a geometric distribution

$$E[c] = 1 + \kappa/\phi \ . \qquad (2\text{–}1)$$

2.2.2 *Single storm trajectory*

Before we look at the totality of the system let us observe the features of one storm. Assume the storm begins at time $t = 0$. After the start of the storm, cell origins begin arriving at a rate β and terminating at a rate γ. While the cell origins cease at time $t = t_p$, some cells of the storm may exist behond the time t_p. These two distinctive time periods can be defined by the following probability expressions,

$$p_r(t) \quad = \quad p\ \{\text{storm live, r cells active at time t}\}$$

$$q_r(t) \quad = \quad p\ \{\text{storm terminated, r cells active at time t}\}$$

where

$$p_r(0) = \delta_{r1} \quad = \begin{cases} 1 & r = 1 \\ 0 & \text{otherwise} \end{cases}$$

$$q_r(0) = 0 \ .$$

Suppose we treat a storm like an immigration–death process (Cox and Miller, 1965). This is a process that determines the change of $p_r(t)$ with time, where

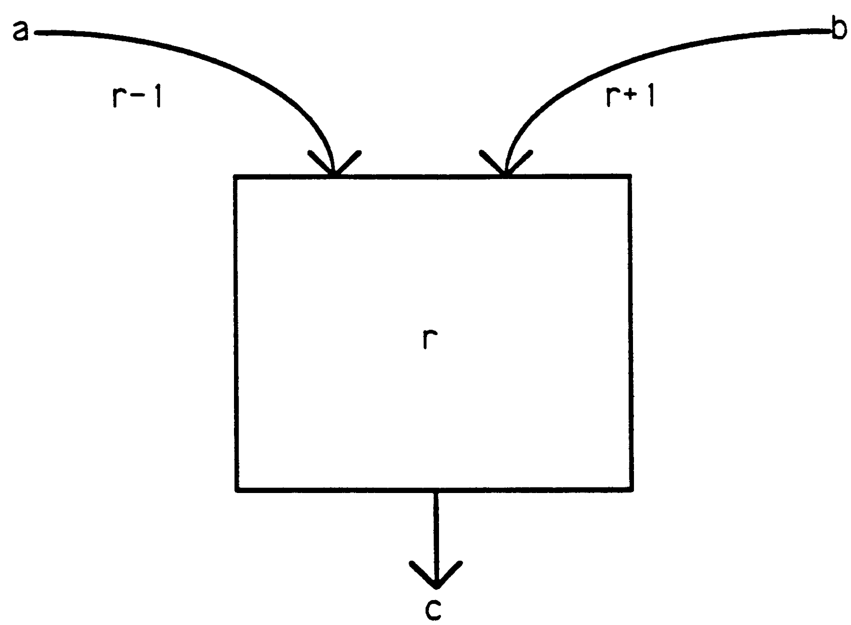


Figure 2-1. Box model of the creation and termination of storm cells

immigration, the arrival of a new storm cell, doesn't depend on the structure of the storm, but death, the termination of a cell, does. This is easily demonstrated in Fig. 2–1. In this figure, the box is a model of a storm at time t with r, r + 1 or r – 1 cells. The change of time, Δt, is so small that the probability of the storm gaining or losing greater than one cell during that time is zero. Therefore, during Δt, we could enter the r state either by having a cell originate (immigration: a), or by having a cell terminate (death: b), or we could leave the r state by either means (c).

If we enter the r state by creating a cell origin it would come at the rate β or $\kappa\eta$. Thus our first term in $dp_r(t)/dt$ is

$$\kappa\eta p_{r-1}(t) \ . \tag{2–2a}$$

If we terminate a cell, it would be at the rate of the duration of a cell, η. Recall in the death process, the number of cells is also an important component. Thus our second term in $dp_r(t)/dt$ is

$$(r + 1)\eta p_{r+1}(t) \ . \tag{2–2b}$$

The last term, where it leaves state r is more complex. There are three things that could happen to the storm. It could lose a cell, $r\eta$, gain a cell, $\kappa\eta$, or the entire storm could terminate, $\phi\eta$. Thus our last term in $dp_r(t)/dt$ is

$$-(\kappa + \phi + r)\eta p_r(t) \ . \tag{2–2c}$$

The minus sign is there because we are leaving state r.

Combining 2–2a through 2–2c the following equation is found

$$\frac{dp_r(t)}{dt} = -(\kappa + \phi + r)\eta p_r(t) + (r+1)\,\eta p_{r+1}(t) + \kappa\eta p_{r-1}(t)\,. \tag{2-2d}$$

The same thought process goes into the equation for $dq_r(t)/dt$, except that no cells are created because the storm is considered terminated.

$$dq_r(t)/dt = -r\eta q_r(t) + \phi\eta p_r(t) + (r+1)\,\eta q_{r+1}(t)\,. \tag{2-3}$$

We would like to be able to utilize Eqs. 2–2d and 2–3 to give us more information about the storm. This can be done by taking the moment generating function of each probability

$$G_p^*(z,s) = \sum_{r=0}^{\infty} \int_0^{\infty} z^r e^{-st} p_r(t)\, dt \tag{2-4a}$$

$$G_q^*(z,s) = \sum_{r=0}^{\infty} \int_0^{\infty} z^r e^{-st} q_r(t)\, dt \tag{2-4b}$$

where

z^r is the z–transform for number of cells

e^{-st} is the s–transform for time at r cells .

Substituting 2–4a and 2–4b for equivalent terms in Eqs. (2–2d) and (2–3), the following expressions are found:

$$0 = \frac{\partial G_p^*(z,s)}{\partial z} - [\kappa + (\phi\eta + s)\eta^{-1}(1-z)^{-1}]G_p^*(z,s) + z\eta^{-1}(1-z)^{-1} \tag{2-5}$$

$$0 = \frac{\partial G_q^*(z,s)}{\partial z} - s\eta^{-1}(1-z)^{-1}G_q^*(z,s) + \phi(1-z)^{-1}G_p^*(z,s)\,. \tag{2-6}$$

Solving Eqs. (2.5) and (2.6) at boundary conditions $G_q^*(1,s) + G_p^*(1,s) = s^{-1}$, the equations for $G_p^*(z,s)$ and $G_q^*(z,s)$ are found:

$$G_p^*(z,s) = \eta^{-1} e^{-\kappa(1-z)} \int_0^1 t^{\phi+s/\eta-1} [1 - (1 - z)t]e^{\kappa(1-z)t} \, dt \tag{2-7}$$

$$G_q^*(z,s) = \eta^{-1} \int_0^1 dv\phi v^{s/\eta-1}e^{-\kappa(1-z)v}\int_0^1 dt \, t^{\phi+s/\eta-1}[1 - (1 - z) \, vt]e^{vt\kappa(1-z)} \, . \tag{2-8}$$

If we set $z = 0$ in Eq. (2–8), we find the Laplace transform of the probability $q_0(t)$ that the storm is complete before time t:

$$q_0^*(s) = G_q^* \, (0,s) = \eta^{-1} \int_0^1 dv\phi v^{s/\eta-1}e^{-\kappa v} \int_0^1 dt \, t^{\phi+s/\eta-1} \, (1 - vt) \, e^{\kappa vt} \, . \tag{2-9}$$

It is now possible, using Eqs. (2–7) through (2–9) to get the mean duration of a storm

$$u_t = \sum_{r=0}^{\infty} \int_0^{\infty} p_r(t) \, dt + \sum_{r=0}^{\infty} \int_0^{\infty} q_r(t) \, dt \tag{2-10}$$

$$u_t = G_q^*(1,0) + G_p^*(1,0) - q_0^*(0)$$

$$u_t = \phi\eta^{-1}\int_0^1 dv \int_0^1 dt \, v^{-1}t^{\phi-1}[1 - (1 - vt) \, e^{-kv(1-t)}] \tag{2-11}$$

To expand Eq. (2–11) we first make the assumption that κ and ϕ are small, so to the third order in κ and ϕ

$$u_t = (\phi\eta)^{-1}[1 + \phi(\kappa + \phi) - \tfrac{1}{4}\phi(\kappa + \phi)(\kappa + 4\phi) + \tfrac{1}{72}\phi \, (\kappa + \phi)(4\kappa^2 + 27\kappa\phi + 72\phi^2)] \, . \tag{2-12}$$

Note that the term $\phi\eta$ is actually γ, the rate in which the formation of cells terminates. The additional terms take into account the overlap of cells still in existence after rate γ.

In order to superimpose storms we need an equation for the number of active cells, R, at a certain instant in time. This probability takes the form

$$P(R = r) = u_t^{-1}\int_0^{\infty} p_r(t) + q_r(t)\, dt \qquad (r \geq 1)$$

$$P(R = 0) = u_t^{-1}\int_0^{\infty} p_0(t)\, dt \tag{2-13}$$

in which the probability generating function for R is

$$G_R(z) = u_t^{-1} \lim_{s\to 0}[G_q^*(z,s) + G_p^*(z,s) - q_0^*(s)] . \tag{2-14}$$

In the form of Eq. (2-14), the moments of R are easily attainable by differentiating $G_R(z)$ and setting $z = 1$. The moments are:

$$E(R) = \frac{(\phi + \kappa)}{(u_t \eta \phi)}$$

$$E(R^2) = \frac{(\kappa + \phi)(\kappa + \phi + 1)}{\{u_t \eta \phi(\phi + 1)\}} \tag{2-15}$$

$$E(R^3) = \frac{\kappa^2\{2\phi(\phi + 3) - \kappa(\phi - 3)(\phi + 2)\}}{\{u_t \eta \phi(\phi + 1)(\phi + 2)(\phi + 3)\}} + 3E(R^2) - 2E(R) .$$

2.2.3 *Superposition of storm trajectories*

If more than one storm is occurring at a particular instant, the mean number of storms equals the arrival rate of a storm λ times its duration, u_t. Therefore, λu_t is the mean number of storms active at a particular instant . Recall Eq. (2-14), the probability generating function (pgf) of the number of active cells at an instant in time. In time t, we have a number of cells, N(t), equal to the m-fold convolution of the pgf in Eq. (2-14)

$$N(t) = [G_r(z)]^m . \tag{2-16}$$

Combining Eq. (2-16) with λu_t, the rate for the Poisson distribution for the number of storms active at a particular time, we can find the number of active cells for all storms at a given time

$$N(t) = \sum_{m=0}^{\infty} \{G_r(z)\}^m \frac{e^{-\lambda u_t}(\lambda u_t)^m}{m!} .$$

Rearrangiong terms

$$N(t) = \sum_{m=0}^{\infty} \left\{ \frac{G_r(z)\lambda u_t}{m!} \right\}^m e^{-\lambda u_t}$$

and taking a Taylor series on the first term we arrive at the pgf for the total number of active cells arising from all active storms (Cox and Miller, 1965)

$$\exp\{\lambda u_t[G_R(z) - 1]\} . \tag{2-17}$$

From Eq. (2–17) we can calculate the probability, π_0, that there is no rainfall at an arbitrary time

$$\pi_0 = \exp\{-\lambda u_t[1 - G_R(0)]\} = \exp[-\lambda u_t + \lambda G_p^*(0,0)] . \tag{2-18}$$

For small κ and ϕ, π_0 can be approximated by

$$\pi_0 \approx \exp[-\frac{\lambda}{\eta}(1 + \frac{\kappa}{\phi})(1 - \tfrac{1}{2}\kappa)] . \tag{2–19}$$

Using expression (2–17) we can also calculate the total depth of a storm Y at an arbitrary instant, where z is replaced by $E(e^{-\zeta x})$, the corresponding function for the depth x of a single cell

$$E(e^{-sY}) = \exp\left[-\lambda u_t \{1 - G_R[E(e^{-\zeta x})]\}\right] . \tag{2-20}$$

The most practical way to obtain moments for the depth of a storm is to take the cumulant generating function of Y, $-\lambda u_t\{1 - G_R[E(e^{-\zeta x})]\}$, and differentiate with respect to x, and set $\zeta = 0$. Thus, the moments for the depth of a storm, Y, are

$$E(Y) = \lambda u_t u_r u_x$$

$$Var(Y) = \lambda u_t E(R^2) u_x^2 + \lambda u_t u_r \sigma_x^2 \tag{2-21}$$

$$E\{[Y - E(Y)]^3\} = \lambda u_t[E(R^3) - u_r]u_x^3 + 3\lambda u_t[E(R^2)] - u_r]u_x \sigma_x^2 + \lambda u_t u_r E(x^3) .$$

If we take the terms $u_t u_r$ from Eq. (2-21), we can express E(Y) as follows:

$$u_t u_r = \frac{\phi + \kappa}{(u_t \lambda \phi)} \cdot u_t$$

$$u_t u_r = \frac{1}{\eta}(1 + \frac{\kappa}{\phi})$$

where $(1 + \kappa/\phi)$ is actually u_c, the mean number of cells per storm. Therefore

$$E(Y) = \lambda u_x u_c \frac{1}{\eta}$$

$$E(Y) = \lambda u_x E(\text{number of cells per storm})\ E(\text{cell length}) . \tag{2-22}$$

Suppose instead of looking at an instant in time, we look at an arbitrary time h in which during the time interval [0,h], no rain falls. For this to occur, three things must be considered. First, there must be storms active at t = 0, a Poisson distribution with rate λu_T. Second, there must be a storm active at time zero, but no cells from it arriving during the interval [0,h]. The probability that this occurs is

$$P\begin{bmatrix}\text{no cells become}\\ \text{active during } [0,h]\end{bmatrix} = \int_0^1 \gamma^{-\gamma u} e^{-\beta u} du + e^{-\gamma h} e^{-\beta h}$$

$$= \frac{\gamma}{\gamma+\beta}[1 - e^{-h(\gamma+\beta)}] + \frac{(\gamma+\beta)e^{-h(\gamma+\beta)}}{\gamma+\beta}$$

$$= \frac{[\gamma + \beta e^{-h(\beta+\gamma)}]}{\beta+\gamma} . \tag{2-23}$$

Third, there must be a storm active at time zero but no active cells must be present at time zero. Recall this probability,

$$u_t^{-1} \int_0^\infty p_0(t)\, dt = \frac{G_p^*(0,0)}{u_t} . \tag{2-13}$$

Combining these three terms, the probability of zero depth throughout the interval [0,h] given a storm at time zero is

$$\tilde{\omega}_h = e^{-\lambda h}\left\{ \sum_{r=0}^{\infty} \frac{e^{-\lambda u_t} (\lambda u_t)^r}{r!} \left[\frac{G_p^*(0,0)}{u_t}\right]^r \left[\frac{\gamma + \beta e^{-h(\beta+\gamma)}}{\beta+\gamma}\right]^r \right\} .$$

Using a Taylor expansion

$$\tilde{\omega}_h = \exp\left\{-\lambda(h + u_t) + \frac{\lambda G_p^*(0,0)\left[\gamma + \beta e^{-(\beta+\gamma)h}\right]}{\beta + \gamma}\right\} . \qquad (2\text{-}24)$$

The quantity $\tilde{\omega}_h$ can be evaluated at h = 0 to find that it agrees with π_0, the probability that an instant in time is dry (Eq. (2–18)).

2.2.4 *Autocovariance Structure*

The covariance to be used in this model is that for the total depth of the storms.

$$C_Y = \text{cov}[Y(t), Y(t + \tau)] = \iint E[x_{t-u}(u)x_{t+\tau-v}(v)]\ \text{cov}[dN(t\text{-}u)\ dn(t + \tau - v)] \qquad (2\text{-}25)$$

where Y is the total depth of storm, x is depth of a cell, and N counts the occurrences of cell arrivals. The intensity of N(t) is equivalent to the rate of arrival of an event times the expected number of cells per event, λu_c. The covariance of N(t) is calculated by

$$\text{cov}[N(t), N(t + u)] = \rho\delta(u) + \rho h(u) - \rho^2 \qquad (2\text{-}26)$$

where ρ is the rate of the process, λu_c, $\delta(u)$ is the Dirac delta function and h(u) is the conditional intensity function. The probability of a cell origin in $(u, u + \delta)$ given that a cell origin occurs at the origin is h(u) (Cox and Miller, 1965). The cell origin can occur in the same storm as the cell origin at zero (rate , $\beta e^{-\gamma u}$), or in a different storm, (rate λu_c). Thus, h(u) is equivalent to

$$h(u) = \lambda u_c + \beta e^{-\gamma u} . \qquad (2\text{–}27)$$

Substituting terms into Eq. (2–26) we can obtain the covariance factor in Eq. (2–25).

$$\mathrm{cov}[N(t),N(t+u)] = \lambda u_c[\delta(u) + \beta e^{-\gamma u}] \,. \qquad (2\text{-}28)$$

The first factor in Eq. (2–25) is obtained from

$$x_{t-u}(u) = \begin{cases} x \text{ with probability } e^{-\eta u} \\ 0 \text{ with probability } 1 - e^{-\eta u} \end{cases}$$

$$C_Y(\tau) = \frac{\lambda}{\eta} u_c[E(x^2) + \kappa\phi(\phi^2 - 1)^{-1}u_x^2]\, e^{-\eta\tau} - \frac{\lambda}{\eta} u_c \kappa(\phi^2 - 1)^{-1} u_x^2 e^{-\gamma\tau} \,. \qquad (2\text{-}29)$$

2.2.5 *Aggregated Process*

The second order properties of the aggregated process are calculated by

$$E[Y_i^{(h)}] = hE[Y(t)]$$

$$\mathrm{Var}[Y_i^{(h)}] = 2\int_0^h (h - u)C_Y(u)\, du \qquad (2\text{-}30)$$

$$\mathrm{Cov}\left[Y_i^{(h)}, Y_{i+k}^{(h)}\right] = \int_{-h}^{h} C_Y(kh + v)[h - |v|]\, dv \,.$$

From Eqs. (2–21) and (2–30) the second order equations become

$$E\left[Y_i^{(h)}\right] = h\lambda u_t u_R u_x = h\rho u_c u_x$$

$$\mathrm{Var}\left[Y_i^{(h)}\right] = 2\rho u_c\left[E(X^2) + \frac{\beta u^2{}_x}{\gamma}\right]\frac{h}{\eta} + 2\rho u_c u_x^2 \beta\eta \frac{1 - e^{-\gamma h}}{\gamma^2(\gamma^2 - \eta^2)}$$

$$- 2\rho u_c\left[E(X^2) + \frac{\beta\gamma u^2{}_x}{\gamma^2 - \eta^2}\right]\left[\frac{1 - e^{-\eta h}}{\eta^2}\right]$$

$$\mathrm{Cov}\left[Y_i^{(h)}, Y_{i+k}^{(h)}\right] = \rho u_c\left[E(X^2) + \frac{\beta\gamma u^2{}_x}{\gamma^2 - \eta^2}\right](1 - e^{-\eta h})^2\,\frac{e^{-\eta(\kappa-1)h}}{\eta^2}$$

$$-\rho u_c u_x^2 \beta\eta(1 - c^{-\gamma h})^2\,\frac{e^{-\eta(\kappa-1)h}}{[\gamma^2(\gamma^2 - \eta^2]}$$

where $\rho = \frac{\lambda}{\eta}$. (2–31)

2.3 *The Modified Bartlett–Lewis Model*

A modification to the Bartlett–Lewis model was needed because its predictions of zero–probability rain were too high compared to historical data. It did not estimate well the distribution of the lengths of dry periods. This has been improved by allowing the parameter η, governing the distribution of storm cell durations, to vary from storm to storm (Rodriguez–Iturbe et al., 1988). The gamma function was chosen to represent the random duration of η because of its variety of distributions.

$$f_\eta(\eta) = \frac{\nu^\alpha \eta^{\alpha-1} e^{-\eta\nu}}{\Gamma(\alpha)} . \quad (2\text{-}32)$$

As shown in Eq. (2–32) the parameter α is the index or "shape" parameter and ν is the scale parameter. The expected value of the distribution in Eq. (2–32) is $E(\eta) = \alpha/\nu$.

The effect of a random η comes into play first with the dimensionless parameters κ and ϕ. Recall that $\kappa = \beta/\eta$ and $\phi = \gamma/\eta$. To allow η to vary randomly we must keep κ and ϕ fixed and let β and γ vary randomly between storms. This allows for a common structure between storms to occur on different timescales. To see how this could occur, we hold the mean number of cells per storm constant. Thus a long duration storm must have a higher rate of interarrival times between cells, β, and higher rate of termination of cells γ, to maintain a constant E[c]; just as a shorter duration storm would have smaller rates for β and γ to maintain the same value for E[c]. Therefore, even if the storms varied in duration, κ and ϕ would remain fairly consistent throughout each storm, keeping a common structure between storms at different timescales (Rodriguez et al., 1988).

If we examine Section 2–2 and its equations, we find Eq. (2–12) is the first equation that contains the random variable η. Thus $E(1/\eta)$ becomes $\nu/(\alpha-1)$, the expected cell duration. Proceeding to Eq. (2–15), the expected number of active cells, R, at an instant in time, we find the term $(\eta u_t)^{-1}$. Because $u_t = 1/\eta \cdots$, E(R) is not affected by either the fixed η or a random η model, supporting the concept that storms have common structures but on a timescale that varies from storm to stormRodriguez–Iturbe, et al. (1988). Other equations which are affected by the model's modifications are:

$$\tilde{\omega}_h = \exp\left\{-\lambda h + E_\eta\left[-\lambda u_t(\eta) + \lambda G_p^*(0,0,\eta)\left[\phi + \kappa e^{-(\kappa+\phi)\eta h}\right]\right]\right\} \qquad (2\text{-}33)$$

where

$$E_\eta[u_t(\eta)] = \frac{\nu}{1-\alpha}\,\phi^{-1}[1 + \phi(\kappa+\phi) - \tfrac{1}{4}\phi(\kappa+\phi)(\kappa+4\phi) + \tfrac{1}{72}\phi(\kappa+\phi)(4\kappa^2 + 27\kappa\phi + 72\phi^2)]$$

$$E_\eta[G_p^*(0,0;\eta)] \cdot \phi] = \frac{\nu}{1-\alpha}(1 - \kappa + \phi + \tfrac{3}{2}\kappa\phi + \phi^2 + \tfrac{1}{2}\kappa^2)$$

$$E_\eta[G_p^*(0,0;\eta) \cdot \kappa \cdot e^{-(\kappa+\phi)\eta h}] = \frac{\nu}{\alpha-1}\left[\frac{\nu}{\nu+h(\kappa+\phi)}\right]^{\alpha-1} \cdot \kappa\phi^{-1}(1 - \kappa-\phi + \tfrac{3}{2}\kappa\phi + \phi^2 + \tfrac{1}{2}\kappa^2)$$

$$\mathrm{Cov}[Y(t),Y(t+\tau)] = \lambda u_c\left[E(X^2) + \frac{\kappa\phi}{\phi^2-1}u_x^2\right] E\left[\frac{1}{\eta}e^{-\eta\tau}\right] - \frac{\lambda u_c \kappa u_x^2}{\phi^2 - 1} E\left[\frac{1}{\eta}E^{-\eta\phi\tau}\right], \tag{2-34}$$

where

$$E\left[\frac{1}{\eta}\, e^{-\eta\tau}\right] = \left[\frac{\nu}{\alpha - 1}\right]\left[\frac{\nu}{\nu + \tau}\right]^{\alpha-1}$$

and

$$E\left[\frac{1}{\eta}\, e^{-\eta\tau\phi}\right] = \left[\frac{\nu}{\alpha - 1}\right]\left[\frac{\nu}{\nu + \phi\tau}\right]^{\alpha-1}.$$

$$E\left[Y_i^{(h)}\right] = h\lambda u_x u_c \cdot \frac{\nu}{\alpha-1}$$

$$\mathrm{Var}\left[Y_i^{(h)}\right] = \frac{2\nu^{2-\alpha}}{(\alpha-2)}\left[k_1 - \frac{k_2}{\phi}\right] - \frac{2\nu^{3-\alpha}}{(\alpha-2)(\alpha-3)}\left[k_1 - \frac{k_2}{\phi}\right] +$$

$$\frac{2}{(\alpha-2)(\alpha-3)}\left[k_1(h+\nu)^{3-\alpha} - \frac{k_2}{\phi^2}(\phi h + \nu)^{3-\alpha}\right] \tag{2-35}$$

(Rodriguez-Iturbe, et al. (1988)).

$$\mathrm{Cov}[Y_i^{(h)},Y_{i+S}^{(h)}] = \frac{k_1}{(\alpha-2)(\alpha-3)}\left\{[h(S-1) + \nu]^{3-\alpha} + [h(S+1) + \nu]^{3-\alpha} - 2(hS + \nu)^{3-\alpha}\right\}$$

$$+ \frac{k_2}{\phi^2(\alpha-2)(\alpha-3)}\left\{2(\phi hS+\nu)^{3-\alpha} -[\phi h(S-1)+\nu]^{3-\alpha} -[\phi h(S+1)+\nu]^{3-\alpha}\right\} \qquad S \geq 1$$

where

$$k_1 = \left[\lambda u_c E[x^2] + \frac{\lambda u_c \kappa\phi \cdot u_x^2}{(\phi^2 - 1)}\right]\left[\frac{\nu^\alpha}{(\alpha - 1)}\right]$$

$$k_2 = \frac{\lambda u_c \kappa^3 u_x^2}{\phi^2 - 1}, \left[\frac{\nu^2}{(\alpha - 1)}\right] .$$

CHAPTER 3 Poisson Rectangular Pulses Model

3.1 Introduction

The Poisson rectangular pulses model is a second, and simpler, stochastic approach to modeling rainfall events at a point. The model represents rainfall events as independent rectangular pulses of duration, t_r, and constant intensity, i, whose arrivals at the point follow a Poisson process (see Figure 3-1) (Eagleson, 1978). It differs from the Bartlett-Lewis model primarily in its lack of event clustering and has been shown by Rodriguez-Iturbe et al. (1987) to be inferior to the Bartlett-Lewis model when aggregating or disaggregating to statistics at time periods different from the observations. However, its simplicity makes it useful in many analytical studies of the land surface water balance (Eagleson, 1978). In these and other studies using the Poisson rectangular pulses model, the intensity and duration of a storm were modeled as independent. First order improvements to the Poisson rectangular pulses model will require removal of this unrealistic constraint. Accordingly, the value of $\mathrm{cov}[i,t_r]$ is included among the model parameters estimated in this work.

3.2 Mathematics

Figure 3-1 illustrates how the Poisson rectangular pulses model behaves. Details are given by Eagleson (1987-b). In defining the model's parameters, we must first define the Poisson arrival process of the storms as given by

$$P_{\theta/t}(v) = (\omega t)^v e^{-\omega t}/v!\ , \quad v = 0,1,2,... \tag{3-1}$$

in which $P_{\theta/t}(v)$ is the probability of obtaining exactly v storms in time t with a mean arrival rate of ω. This distribution leads to the definition of t_a, the interarrival time of storms, which takes on an exponential distribution with

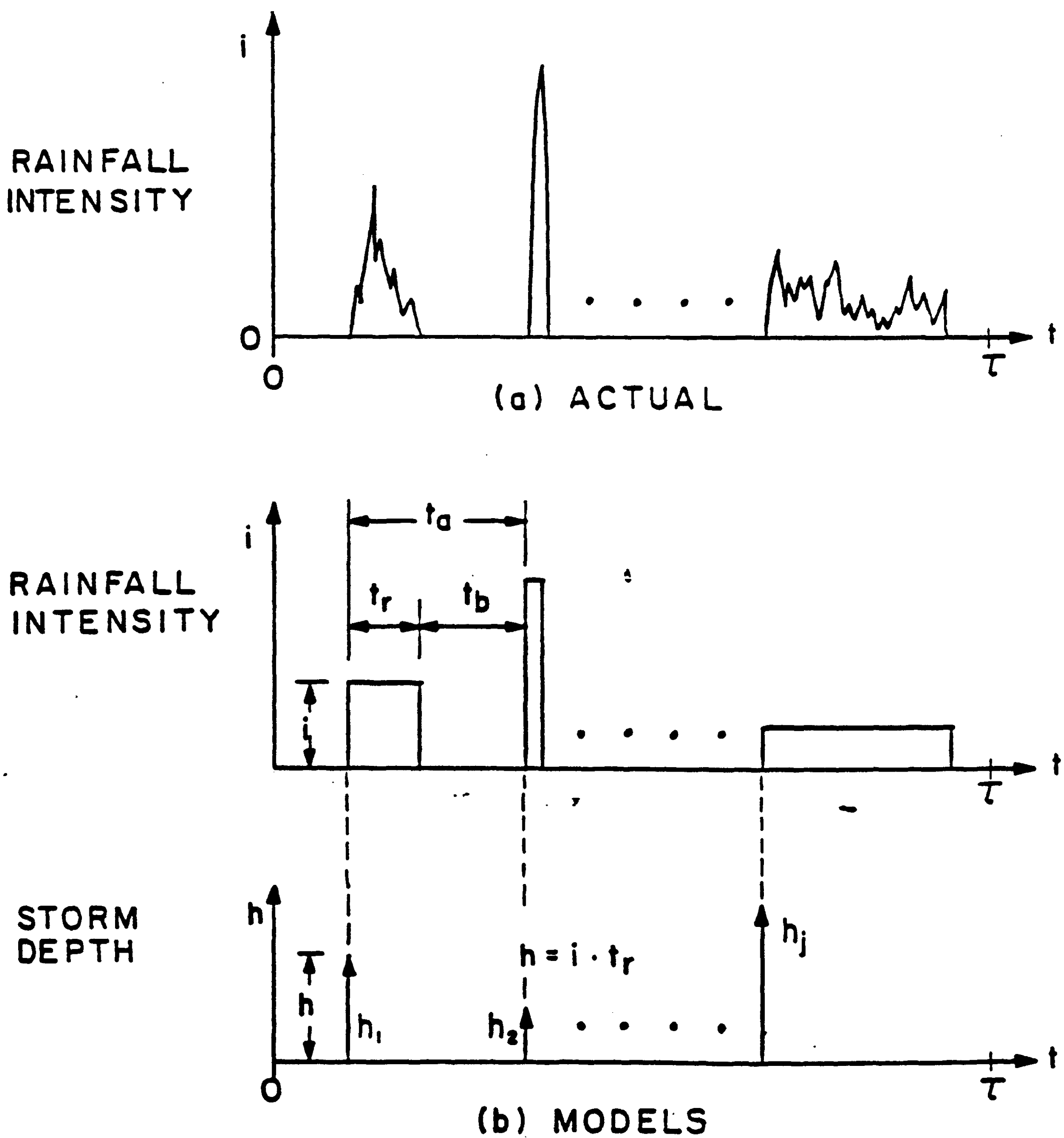


FIGURE 3-1 Idealization of Precipitation Event Series

(Eagleson, 1978)

parameter, $\omega = E[t_a]^{-1}$. For more details of the Poisson arrival process, see Cox and Miller, 1965.

Observations show that both the storm duration, t_r, and the storm intensity, i, follow exponential distributions with parameters $\delta=E[t_r]^{-1}$ and $\alpha=E[i]^{-1}$ respectively. Because h, the storm depth, equals it_r, the distribution of h is determined but its form is inconvenient for analytical manipulations. Accordingly, the model as developed by Eagleson (1978) assumes a tractable distribution for h, the two parameter gamma distribution

$$f_H(h) = G(\kappa,\lambda) = \lambda(\lambda h)^{\kappa-1}e^{-\lambda h}/\Gamma(\kappa)\ , \quad h > 0 \qquad (3\text{-}2)$$

Even though this distribution is analytically inconsistent with the exponential distributions of t_r and i, Eq. (3-2) is found to represent the observations very well.

The dry time, t_b, between rainfalls is $t_b = t_a - t_r$. Once again, with the distributions of t_a and t_r fixed (as exponential) the distribution of t_b is determined. Again this is analytically inconvenient and we assume t_b to be exponentially distributed with parameter $\beta=E[t_b]^{-1}$.

Before we can determine the rate, β, we must establish a minimum time between two successive rainfalls in order for them to be considered independent. We call this $t_{b_{min}}$. To establish the time, $t_{b_{min}}$, for each station we use the method of Restrepo and Eagleson (1982). This method tests successively larger $t_{b_{min}}$ until a value $t_{b_{min}} = t_{b_0}$ is found for which all larger t_b satisfy the necessary (but not sufficient) condition for exponential distributions

$$CV[t_{b_0}] = \sigma[t_b]/E[t_b] = 1 \qquad (3\text{-}3)$$

where CV is the coefficient of variation and σ_{t_b} is the standard deviation for t_b. This value of $t_b = t_{b_0}$ is then the criterion for distinguishing between independent rainfall events.

The final parameter estimated for the Poisson rectangular pulses model is the coefficient of (linear) correlation $\rho[i,t_r]$ of storm intensity and storm duration. This is estimated as shown in Chapter 4.

Chapter 7 supplies tables of estimated values of the parameters of the Poisson rectangular pulses model at selected first-order weather stations in the continental United States.

CHAPTER 4 Parameter Estimation

4–1 Historical Data

The goal of this research is to develop, for the continental United States, a monthly climatology of the parameters of two different stochastic precipitation models. We will present these parameters on contour maps. Continued work with these models may include drawing correlations between the models' parameters and hourly climatic data (ie: cloud cover, temperature, wind speed, etc) in the United States. It is with further research in mind that we chose stations throughout the United States that have both hourly rainfall data and hourly climatic data to analyze for historical statistics. Such stations are referred to as primary stations.

In the United States, there are over 200 primary stations, each having approximately forty years of hourly rainfall data available. Table 7–1 gives an index of the primary stations used in the production of the contour maps in Chapters 5 and 6. The stations were chosen randomly and the number of stations used was dependent upon the stability of the contour maps. As the addition of a station changed the contours of the modified Bartlett–Lewis model's parameters, another station was added. This continued until the addition of another station caused no significant change in the contours. The total number of stations used was seventy–four for the maps in Chapters 5 and 6.

The primary stations used in forming the maps and tables (Chapters 5, 6 and 7) were taken from a collection of compact disks containing hourly rainfall data throughout the United States (Earthinfo, 1989). The data were taken from the National Climatic Data Center (NCDC) in Asheville, North Carolina and put onto compact disks by Earthinfo, Inc. of Boulder, Colorado.

The NCDC event format is presented in Table 4–1a. The flags used in position forty–one of this format are listed in Table 4–1b. When changing from the NCDC format to a time series format, all flags, except for the missing data flags, are given the value zero. The missing data and data which read 0.99999 are given values of minus one. Thus, when the programs (Appendix A) encounter a minus one value, the minus one takes on a new value equal to the average daily rainfall for that particular month divided by twenty–four.

After the hourly data are put into their proper form in the time series, they are used to tally one, six, twelve, twenty–four and forty–eight hour statistics. The statistics produced are the mean of the cumulative depth, variance of the cumulative depth, lag–one hour correlation of the cumulative depth, lag–two hour correlation of the cumulative depth, lag–three hour correlation of the cumulative depth and probability dry. The statistics are calculated for each month and then averaged throughout the years by months except for the correlations. In calculating the correlations, a continuous time series of all years for each month was used and then averaged. This approach is most effective in dealing with dry months. A table of the historical statistics can be found in Chapter 7.

TABLE 4-1a. The NCDC Event Format

Field	Position	Name	Remarks
1	1 - 3	Record type	always HPD
2	4 - 11	Station ID	
	4 - 5	State code	
	6 - 9	Coop	network index #
	10 - 11	Division #	always 00
3	12 - 151	Element type	always HPCP
4	16 - 17	Element unit	HI-taken stored=1/100in HT-taken 1/10, stored 1/100 in. TI-taken 1/10, stored 1/100 in.
5	18 - 21	Year	1900 earliest; mostly 1948
6	22 - 23	Month	01 - 12
7	24 - 27	Day	0001-0031, right justified, 0-filled
8	28 - 30	# of values	2 - 100
9	31 - 34	Time	0100-2500, left justified, 0-filled, 2400=midnight,2500= daily total
10	35 - 40	Data value	decimal implied by the units field;099999=unknown value;000000 only used on 1st day of a month with observations but no precipitation
11	41	Flag1	data measurement flag;

TABLE 4-1b. Flags in the NCDC Format

A	Accumulation
D	Data deleted
E	Estimated value
I	Incomplete
M	Missing

4–2 Introduction to the Contour Maps

The contour maps in Chapter 5 and Chapter 6 show the geographical variation of the modified Bartlett–Lewis parameters and the Poisson parameters. From the maps and the respective models' equations, a fairly good representation of the historical data for any location in the continental United States can be found.

The six parameters presented on the modified Bartlett–Lewis maps are: λ, E[x], E[c], $E[\eta]$, γ and ν. These "derived" parameters are used because they have more physical meaning than the parameters actually appearing in the modified Bartlett–Lewis model. The latter are obtained from the former by use of the following relationships:

$$\phi = \gamma/E[\eta]$$

$$\alpha = \nu/E[\eta]$$

$$\kappa = (E[c]-1)\phi$$

$$\beta = \kappa E[\eta]$$

The seven parameters presented on the Poisson maps are: λ, κ, v, m_i, m_{t_r}, m_{tb} and $cov[i,t_r]$ and will be defined in Section 4.4.

Notations on the map are easy to use. The title of the map is shown on the bottom of the page and gives the following information

Time	= 740101/0000 = month = Jan.	
# of stations	= 740100/0000 = 74	

Parameters:

Modified Bartlett–Lewis Model:	EXEX	= E[x]
	ECEC	= E[c]
	LAMD	= λ
	GAMM	= γ
	ETAA	= $E[\eta]$
	NUNU	= ν

Poisson Model:		
	LAMD	$= \lambda$
	KAPP	$= \kappa$
	VVVV	$= v$
	STMI	$= m_i$
	TRTR	$= m_{t_r}$
	TBTB	$= m_{t_b}$
	RHOO	$= cov[i,t_r]$

Maximums and minimums for the parameter

The notations on the map itself include the contour intervals, points locating the seventy–four stations and minimum and maximum values of the parameters calculated by the objective analysis of the mapping program. Further details concerning the maps will be given in Chapters 5 and 6.

4–3 Modified Bartlett–Lewis Model

4.3.1 Parameters and the Method of Their Estimation

The modified Bartlett Lewis model has six independent parameters: λ, E[x], α, ν, κ and ϕ.

Their values are estimated from historical data using the method of moments. Due to the complex nature of the model equations and the high number of unknowns, an unconstrained nonlinear minimization program is utilized to determine the best estimates of the parameters. This minimization takes the form

$$\min_x\{(F_1(x)/\theta_1-1)^2+(F_2(x)/\theta_2-1)^2+\ldots+(F_i(x)/\theta_i-1)^2\} \qquad (4\text{–}1)$$

in which $F_i(x)$ is the best model estimate of the historical statistic θ_i. Due to the different magnitude of each statistic, each $F_i(x)$ is normalized by its corresponding historical value, θ_i.

The program to determine the "best" estimates (Appendix A) works in the following manner. Two different tables, one which contains the historical statistics, θ_i, and one which contains the initial parameter guesses, are input to the program. The statistics, calculated from historical data, vary month to month, station to station. The average duration of the storm in a particular month as given by the parameter estimation for the Poisson model (see Section 4–4), has been found useful as an indicator of the best θ_i to choose for estimating the modified Bartlett–Lewis parameters. If the average duration of a storm in that month is less than six hours, the recommended θ_is are, 1 hour mean of cumulative depth, 1 hour probability dry and 24 hour probability dry, plus 1 hour variance of cumulative depth, 1 hour correlation of cumulative depth and either 6 hour variance of cumulative depth or 6 hour correlation of cumulative depth. However, if the average storm duration is greater than six hours, the recommended θ_is are, 1 hour mean of cumulative depth, 1 hour probability dry and 24 hour probability dry, plus 1 hour variance of cumulative depth, 1 hour correlation of cumulative depth and either 24 hour variance of cumulative depth or 24 hour correlation of cumulative depth.

Using the poisson parameter estimation of storm duration in this way works as an effective guide for the modeler. Sometimes, though, if the model does not produce a reasonable minimum, it may be attributed to the fact the Poisson model and the modified Bartlett–Lewis model use different definitions of storm length. In such cases, a new storm duration should be tried.

The weakness in this estimation procedure is the subjectivity in deciding if the final parameter set gives the best representation of the historical data. In a model where six parameters are calculated, it is difficult to establish a global minimum or even to know if and when one has found a global minimum. Therefore the modeler must rely on the physical meanings of the parameters and on intuition. Unfortunately, two out of the six parameters are dimensionless gamma parameters, so they carry very little physical meaning. However, the derived parameters contain the extra physical meaning required to make the necessary subjective judgements. The derived parameters are:

$$u_c = 1 + \kappa/\phi, \text{ cells/storm}$$

$$E[\eta] = \nu/\alpha, \text{ where } \eta = (\text{cell duration})^{-1}, \text{ (1/hour)}$$

$$\beta = \kappa\eta, \text{ the rate of cell origin arrivals, (1/hour)}$$

$$\gamma = \phi\eta, \text{ the rate of termination of cell origins, (1/hour)}$$

$$u_t = 1/\gamma(1+\phi(\kappa+\phi)-1/4\phi(\kappa+\phi)(\kappa+4\phi)+1/72\phi(\kappa+\phi) \cdot (4\kappa^2+27\kappa\phi+72\phi^2)), \text{ the mean duration of a storm, (hour)}$$

A table of the derived parameters for each station can be found in Section 7–4.

The first step in finding a good set of parameters is to achieve some arbitrarily small value for minx (see Eq. 2–26). We used 10^{-3}. After this is accomplished, through repetitive trials using different initial parameter guesses, the estimated parameters are examined to see if their values are reasonable for that time of year. For example, in summer months, one should see, in comparison with winter months, shorter storm events, higher intensity storms, a smaller number of cells per storm, etcetera. If we examine Table 4–2, which presents both the original and derived parameters for each month in Tucson,

TABLE 4-2
Parameters of the Modified Bartlett Lewis Model
for Tucson, Arizona

Model's ("original") parameters							Derived Parameters				
Month	λ	ν	α	E[x]	ϕ	κ	E[c]	E[η]	β	γ	E[u_t]
Jan	0.0059	4.71	25.58	1.49	0.077	1.259	17.38	5.43	6.84	0.451	2.58
Feb	0.0065	3.37	5.93	1.31	0.066	0.429	7.45	1.76	0.75	0.117	8.80
March	0.0046	2.69	7.60	1.65	0.057	0.379	7.62	2.82	1.07	0.162	6.31
April	0.0023	1.18	8.06	4.05	0.025	0.149	7.07	6.79	1.01	0.167	6.01
May	0.0017	4.23	37.70	4.71	0.030	0.112	4.67	8.90	0.99	0.270	3.71
June	0.0025	4.51	21.99	7.19	0.591	0.709	2.20	4.87	3.46	2.880	0.55
July	0.0120	5.89	21.79	10.74	0.049	0.064	2.28	3.70	0.24	0.184	5.45
Aug	0.0130	4.95	30.11	14.44	0.165	0.192	2.16	6.08	1.16	0.999	1.05
Sept	0.0053	2.81	17.48	13.06	0.037	0.115	4.08	6.21	0.72	0.233	4.32
Oct	0.0025	3.08	16.92	6.21	0.034	0.324	10.49	5.50	1.78	0.188	5.37
Nov	0.0038	4.41	16.26	1.63	0.094	1.072	12.43	3.69	3.95	0.345	3.13
Dec	0.0055	5.16	35.40	1.76	0.055	1.140	21.76	6.86	7.82	0.376	2.79

Arizona, we see a good example of how the model should behave. Examining the expected intensity of a cell, E[x], notice how the values increase from winter to summer months. The expected number of cells per storm, E[c], behaves in a similar fashion with cells decreasing in number with the approach of the summer season. It is such behavior patterns, which closely mirror nature, that help the modeler determine that a suitable parameter set has been found.

The final test is comparing each parameter for consistency with the parameter values of surrounding stations. The contour maps constructed in Chapter 5 serve that function. A more detailed description of the maps can be found in Chapter 5.

After all steps are taken to ensure the best possible parameter set, the model gives a very good representation of historical data as can be seen in Table 4–3 through Table 4–6.

For example, Table 4–5 gives the historical statistics for various levels of aggregation plus its corresponding table of statistics estimated from the modified Bartlett–Lewis model for Chicago, Illinois in January. The tables show that the model does very well in fitting the historical data set, especially the one–hour statistics. Even at the higher levels of aggregation, the model fits well, except for the variance. The model predicts much lower variances than are observed historically. One reason for this large discrepancy is the particular θ_is used for the fitting. Fitting the Poisson model gives a mean storm duration of 6 hours for Chicago in January. Using the modeling guide previously described, twenty–four hour correlation was chosen as a θ (rather than twenty–four hour variance, 6 hour correlation or 6 hour variance). This made for a good fit in the correlation column but a poor fit in the variance column, even though the model minimized to an error less than 10^{-7}. If we look at Table 4–6, Chicago in June,

TABLE 4-3a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Spokane, Washington, January, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0777	0.0858	0.7155	0.5247	0.4138	0.8889
6	0.4660	1.8747	0.4165	0.1463	0.0683	0.7712
12	0.9319	5.3453	0.2547	0.0632	0.0722	0.6827
24	1.8638	12.2267	0.2306	0.0933	0.0913	0.5427
48	3.6112	28.2738	0.2056	0.1291	0.0842	0.3781

TABLE 4-3b. Model-Estimated Stastics for Spokane in January

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0784	0.0856	0.7111	0.5072	0.3903	0.9030
6	0.4703	1.8153	0.3833	0.0933	0.0253	0.8086
12	0.9407	5.0222	0.2151	0.0154	0.0016	0.7090
24	1.8814	12.2052	0.1019	0.0008	0.0000	0.5452
48	3.7627	26.8973	0.0470	0.0000	0.0000	0.2224

Estimated Parameters are λ = 0.0219 hr^{-1}, ν = 7.3711, α = 19.665, E[x] = 0.3028 mm h^{-1}, ϕ = 0.1020, κ = 2.951. θ_is = 1 h mean, 1 h var, 1 h corr, 1 h prob dry, 24 h prob dry, 24 h var. Minimized error = 10^{-3}.

TABLE 4-4a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Spokane, Washington, June, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0445	0.1514	0.3924	0.1862	0.1415	0.9596
6	0.2670	1.8786	0.2479	0.0800	0.0765	0.8948
12	0.5339	4.7094	0.1849	0.0283	-0.0058	0.8346
24	1.0678	11.1043	0.0831	0.0055	0.0607	0.7450
48	2.1356	23.8081	0.0445	0.0400	-0.0307	0.5967

TABLE 4-4b. Model-Estimated Statistics for Spokane in June

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0445	0.1514	0.3924	0.1968	0.1397	0.9596
6	0.2670	1.9561	0.2329	0.0589	0.0271	0.9071
12	0.5340	4.8235	0.1511	0.0186	0.0048	0.8495
24	1.0680	11.1045	0.0838	0.0039	0.0007	0.7450
48	2.1360	24.0709	0.0426	0.0006	0.0001	0.5730

Estimated Parameters are λ = 0.0109 hr^{-1}, ν = 1.006, α = 5.520, E[x] = 3.146 mm h^{-1}, ϕ = 0.0747, κ = 0.3590. θ_i s = 1 h mean, 1 h var, 1 h corr, 1 h prob dry, 24 h prob dry, 24 h var. Minimized error = 10^{-9}.

TABLE 4-5a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Chicago, Illinois, January, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0624	0.1426	0.5825	0.4508	0.3752	0.9336
6	0.3742	2.7178	0.4500	0.1473	0.0860	0.8554
12	0.7484	8.3616	0.2394	0.0348	-0.0136	0.7867
24	1.4968	21.5613	0.0882	0.0140	-0.0281	0.6718
48	2.9001	43.3305	0.0531	-0.0539	-0.0176	0.4984

TABLE 4-5b. Model-Estimated Statistics for Chicago in January

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0624	0.1426	0.5825	0.3120	0.2120	0.9338
6	0.3744	2.3505	0.2828	0.0715	0.0221	0.8644
12	0.7488	6.0304	0.1746	0.0154	0.0019	0.7947
24	1.4976	14.1662	0.0882	0.0011	0.0000	0.6718
48	2.9953	30.8313	0.0415	0.0000	0.0000	0.4801

Estimated Parameters are $\lambda = 0.0140\ hr^{-1}$, $\nu = 12.330$, $\alpha = 19.41$, $E[x] = 1.220\ mm\ h^{-1}$, $\phi = 0.1534$, $\kappa = 0.6850$. θ_i s = 1 h mean, 1 h var, 1 h corr, 1 h prob dry, 24 h prob dry, 24 h corr. Minimized error = 10^{-7}.

TABLE 4-6a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Chicago, Illinois, June, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1347	1.6803	0.3425	0.1298	0.0697	0.9560
6	0.8083	18.1366	0.1429	0.0158	0.0124	0.8773
12	1.6167	43.0592	0.0651	-0.0151	-0.0044	0.8079
24	3.2334	89.1022	0.0209	-0.0080	-0.0066	0.6900
48	6.4668	170.6323	0.0364	-0.0153	-0.0040	0.5050

TABLE 4-6b. Model-Estimated Statistics for Chicago in June

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1347	1.6796	0.3424	0.1026	0.0585	0.9562
6	0.8080	18.1457	0.1153	0.0100	0.0013	0.8892
12	1.6161	40.4752	0.0613	0.0008	0.0000	0.8170
24	3.2322	85.9102	0.0296	0.0000	0.0000	0.6898
48	6.4644	176.9070	0.0144	0.0000	0.0000	0.4917

Estimated Parameters are $\lambda = 0.0141\ hr^{-1}$, $\nu = 10.69$, $\alpha = 29.66$, $E[x] = 10.83\ mm\ h^{-1}$, $\phi = 0.1500$, $\kappa = 0.2050$. θ_i s = 1 h mean, 1 h var, 1 h corr, 1 h prob dry, 24 h prob dry, 6 h var. Minimized error = 10^{-6}.

that the fit is good in both the variance and correlation columns with a minimized error less than 10^{-6}. The reason why the model fits the statistics better in June than in January is due to the structure of the storm compared to the structure of the model. First, the modified Bartlett–Lewis model represents a cluster or cellular model, which is common in summer storms and uncommon in winter storms and second, the model cannot differentiate between snowfall and rainfall, bringing into question the validity of the model in winter months.

One should view these tables carefully and decide for oneself if the use of this model in winter months is practical or not. Even though the Bartlett–Lewis model may fit the winter historical data well, the physical meaning of the model may become invalid.

4.3.2 Sensitivity of the Parameter Estimates to the Estimation Process

In utilizing a minimization program to estimate six parameters from six very highly nonlinear equations, model sensitivity to certain parameters becomes a concern. Rodriguez et al. (1988) performed a sensitivity analysis of the model by perturbing five of the six θ_is by ±2%. They found that ν and α, the gamma parameters for the duration of a cell, showed the greatest sensitivity. The following analysis gives further examples of the model's sensitivity and demonstrates how the model reacts to different initial guesses of ν and α and different choices of θ_i.

1) Different initial guesses of ν and α

In the first sensitivity analysis of the model, we change the initial guesses of ν and α and keep the fitted statistics, θ_i, constant at: 1 hour mean, 1 hour variance, 1 hour correlation, 1 hour probability dry, 24 hour probability dry and

24 hour variance. Table 4–7 gives three trials of the model for Salt Lake City, Utah in June with different initial guesses of ν and α. The trials show that the estimated values of ν and α do not change greatly from their initial guesses but that the remaining parameters may change significantly with the initial guess for ν and α. Let's examine Table 4–7:

Looking at only the minimization error, trial number three seems to be the "best" run. If we examine the parameters more closely however, we find that trial number one and trial number two mirror each other well while trial number three gives quite different parameter estimations. If we focus on the derived parameter, E[c], the expected number of cells per storm, we find that trial number three gives an average of fifteen cells per storm while trial number one and number two give an average of about six. Recognizing that June is a summer month, we might expect E[c] to be low, closer to six than fifteen. Even though trial number three gives the best representation of historical data, (see Table 4–8), the parameter values of trials number one and number two make the most sense physically.

To prove the validity of the last statement, Figures 4–1a and 4–1b display two contour maps of the United States in June for the parameter E[c]. Figure 4–1a uses trial number three as its parameters for Salt Lake City and Figure 4–1b uses trial number two as its parameters. These parameter changes occur while all other stations' parameters remain untouched. Figure 4–1a exhibits contours with a bulls–eye shape around Salt Lake City. These bulls–eye shapes represent anomalies in the parameters. Therefore the value fifteen in Salt Lake City is an anomaly for the parameter E[c] and is suspect. Figure 4–1b contours, however, are smoother and show that the value six for E[c] is comparable with

TABLE 4-7
Three Trial Estimations of the Modified Bartlett-Lewis Parameters
Salt Lake City, Utah - June

Initial Guesses

Parameters	Trial 1	Trial 2	Trial 3
ν	3.590	6.590	0.590
α	14.80	20.80	4.8

Model's Output

Esimated Parameters	Trial 1	Trial 2	Trial 3
λ (1/hr)	0.0068	0.0067	0.0079
ν	5.0050	7.4630	0.2525
α	14.2929	20.3691	4.9100
E[x] (mm/hr)	1.9358	1.9160	4.1010
ϕ	0.0733	0.0740	0.0278
κ	0.3923	0.3980	0.3872
E[c]	6.3541	6.3810	14.9200
E[η] (1/hr)	2.8560	2.7290	19.4300
β (1/hr)	1.1200	1.0880	7.5230
γ (1/hr)	0.2090	0.2020	0.5400
E[u_t] (hr)	4.9180	5.0940	1.8696
Min. error	$.27\times10^{-3}$	$.34\times10^{-3}$	$.16\times10^{-5}$

TABLE 4-8a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Salt Lake City, Utah, June, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0314	0.0825	0.4415	0.2443	0.1446	0.9730
6	0.1886	1.1408	0.2515	0.1634	0.1455	0.9210
12	0.3771	2.8629	0.2757	0.1588	0.1007	0.8804
24	0.7542	7.1857	0.2685	0.0999	0.0519	0.8117
48	1.5084	17.2144	0.2191	0.0482	-0.0091	0.7200

TABLE 4-8b. Model-Estimated Statistics for Salt Lake City in June Using Parameters From Trial Number One

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0315	0.0826	0.4421	0.2221	0.1686	0.9624
6	0.1891	1.1561	0.2901	0.0952	0.0361	0.9277
12	0.3782	2.9831	0.2002	0.0278	0.0052	0.8905
24	0.7563	7.1608	0.1087	0.0032	0.0002	0.8207
48	1.5127	15.8784	0.0520	0.0001	0.0000	0.7008

Estimated Parameters are λ = 0.0068 hr^{-1}, ν = 5.01, α = 14.29, E[x] = 1.936 mm h^{-1}, ϕ = 0.073, κ = 0.392.

TABLE 4-8c. Model-Estimated Statistics for Salt Lake City in June Using Parameters From Trial Number Two

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0315	0.0826	0.4420	0.2219	0.1694	0.9626
6	0.1893	1.1567	0.2908	0.0936	0.0340	0.9284
12	0.3785	2.9861	0.1983	0.0252	0.0040	0.8918
24	0.7571	7.1565	0.1055	0.0024	0.0001	0.8230
48	1.5142	15.8229	0.0499	0.0001	0.0000	0.7008

Estimated Parameters are λ = 0.0067 hr^{-1}, ν = 7.46, α = 20.37, E[x] = 1.920 mm h^{-1}, ϕ = 0.074, κ = 0.399.

TABLE 4-8d. Model-Estimated Statistics for Salt Lake City in June Using Parameters From Trial Number Three

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0314	0.0825	0.4415	0.2825	0.2007	0.9742
6	0.1884	1.2115	0.2723	0.0632	0.0225	0.9362
12	0.3768	3.0829	0.1656	0.0187	0.0050	0.8927
24	0.7536	7.1866	0.0893	0.0042	0.0009	0.8116
48	1.5072	15.6561	0.0452	0.0008	0.0001	0.6708

Estimated Parameters are λ = 0.0079 hr^{-1}, ν = 0.253, α = 4.910, E[x] = 4.101 mm h^{-1}, ϕ = 0.028, κ = 0.387.

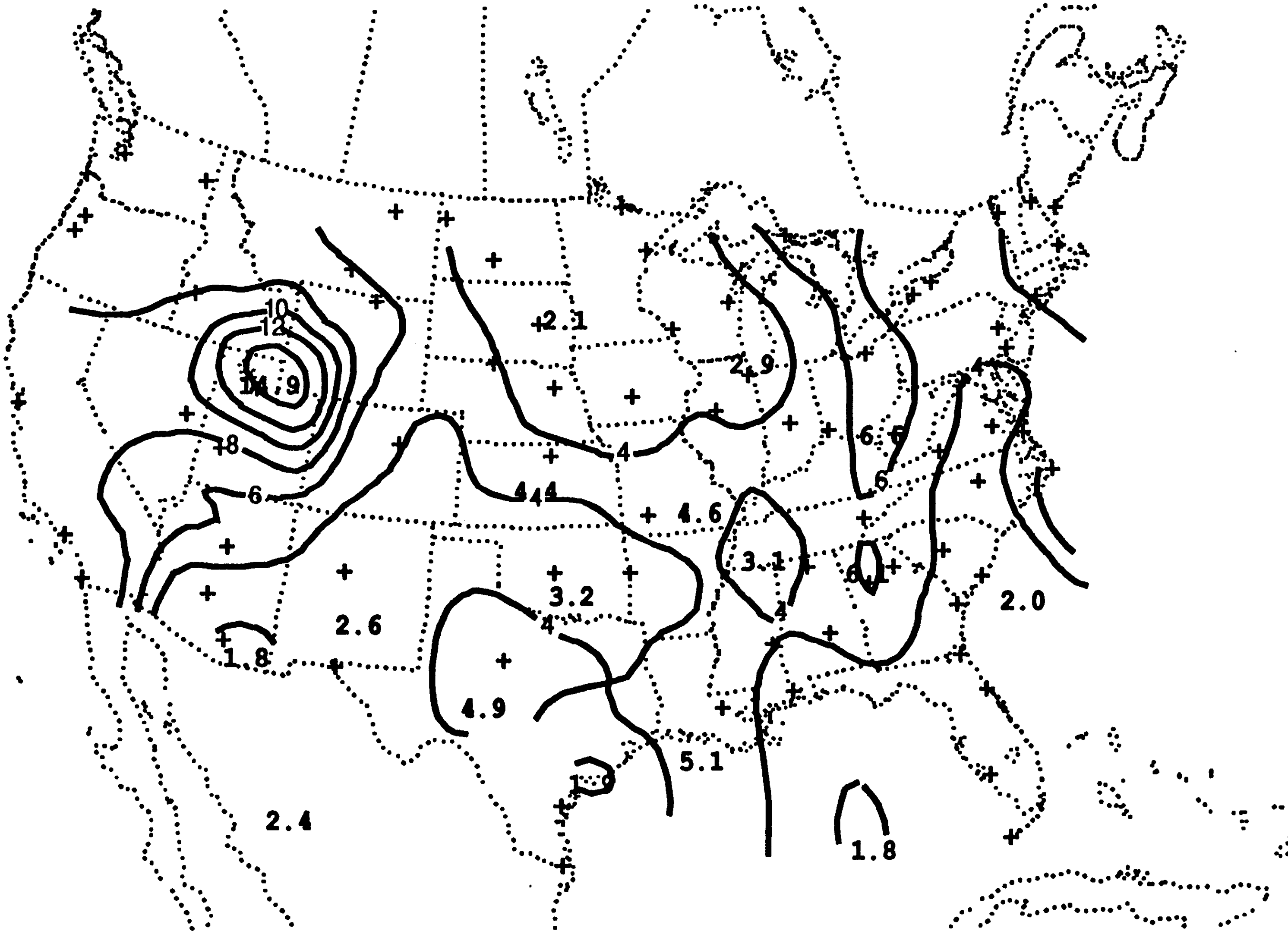


Figure 4-1a. Contour Map of the Modified Bartlett-Lewis Parameter E(c)-Using Trial #3 Parameter Values for Salt Lake City in June

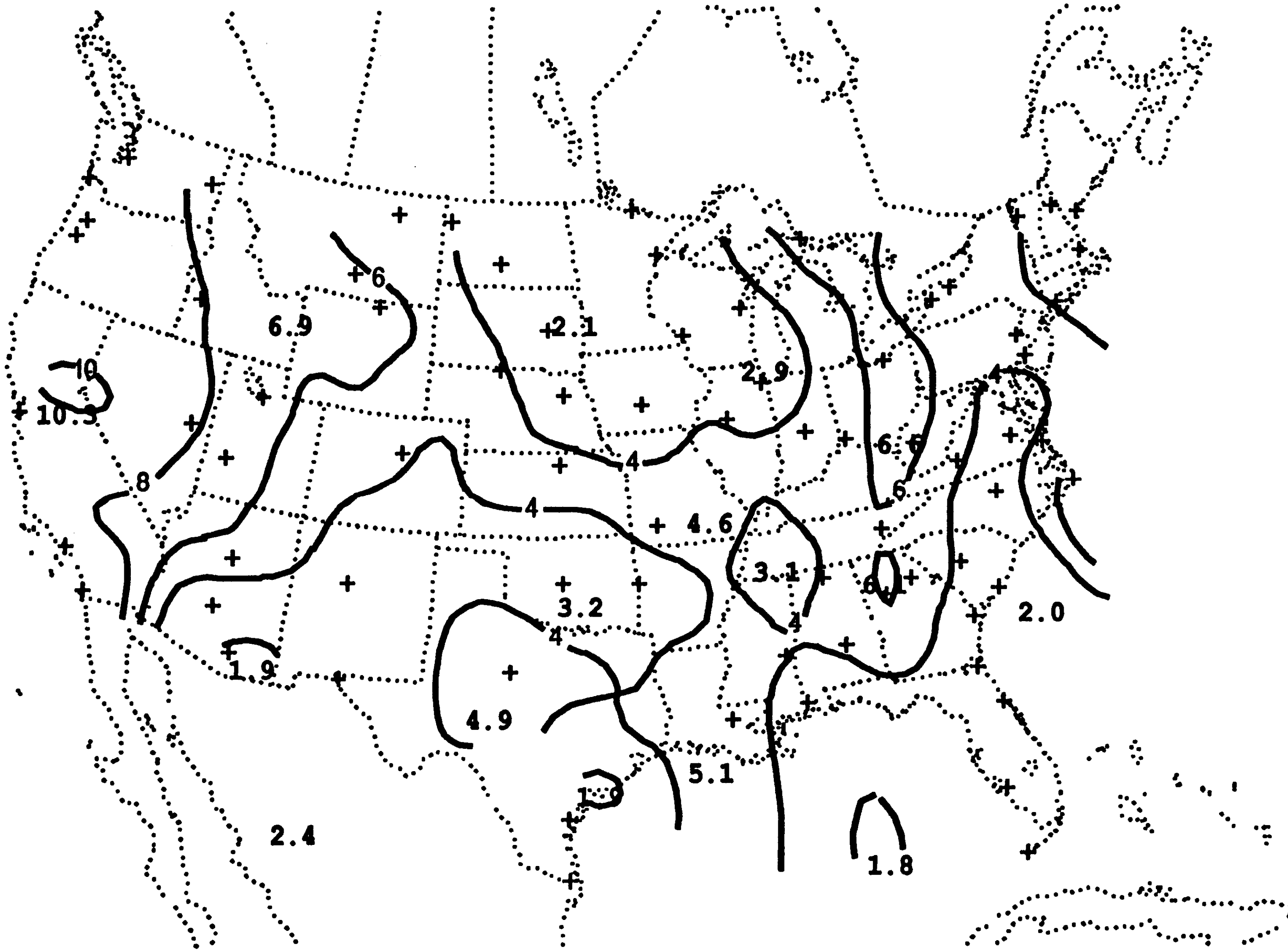


Figure 4-1b. Contour Map of the Modified Bartlett-Lewis Parameter E(c)-Using Trial #2 Parameter Values for Salt Lake City in June

that for other stations surrounding Salt Lake City. These figures demonstrate how sensitive the maps can be to a poor choice of a final parameter set.

It is important, therefore, not only to find the best representation of the historical data but also the best physical interpretations of the parameters with respect to the time of year and surrounding stations' parameters.

2) Different Choices of the Fitted Statistics θ_i

In the second sensitivity analysis of the modified Bartlett–Lewis model, we change the fitted statistics θ_i while keeping the initial guesses of the parameters constant at: $\lambda = 0.00565\ h^{-1}$, $\nu = 6.59$, $\alpha = 20.8$, $E[x] = 0.9719\ mmh^{-1}$, $\phi = 0.0710$ and $\kappa = 1.3810$. Table 4–9 gives four trials of the model for Salt Lake City, Utah in June.

This table suggests that any set of θ_i would yield a good parameter set for Salt Lake City. The only major differences in the four trials are in $E[u_t]$, the duration of a storm, and λ, the interarrival rate of a storm. This example does not demonstrate that all stations behave in this manner, however. Frequently one encounters high minimization errors, negative values or undefined values in both the final parameter set and the model–estimated statistics when trying different sets of θ_is, (see Table 4–10). If one follows the guide from Section 4–3a, using the Poisson parameter estimation of storm duration to chose the θ_is, going through all the different sets of θ_is should not be necessary.

Both sensitivity analyses have shown that the model can be sensitive to both the initial guesses of the model's parameters and the choice of historical fitting statistics θ_i. Therefore, care must be taken to see that the parameter set is a good representation of the physical aspects of a storm in addition to being an accurate representation of historical statistics.

TABLE 4-9. Parameter Sets for the Modified Bartlett-Lewis Model for Salt Lake City, Utah in June Using Different Levels of Aggregation as Input to the Model

trial #	Levels of Aggregation, hours: h=1	h=6	h=24	Estimated Parameters: λ 1/h	ν	α	E[x] mm/h	ϕ	κ	E[c]	E[η] 1/h	β 1/h	γ 1/h	E[u_r] h
1	mean, var, prob dry, corr		prob dry, var	0.0069	7.46	20.36	1.91	.074	.399	6.38	2.73	1.09	.202	5.09
2	mean, var prob dry, corr		prob dry, corr	0.0044	9.73	19.56	1.94	.030	.183	7.02	2.01	0.37	.061	16.51
3	mean, var prob dry corr	var	prob dry	0.0080	5.57	21.22	1.95	.097	.608	7.28	3.81	2.32	.369	2.87
4	mean, var prob dry corr	corr	prob dry	0.0076	6.24	20.96	1.93	.091	.533	6.89	3.36	1.79	.304	3.44

TABLE 4-10. Parameter Sets for the Modified Bartlett-Lewis Model for Phoenix, Arizona in June Using Different Levels of Aggregation as Input to the Model

trial #	Levels of Aggregation, hours: h=1	h=6	h=24	Estimated Parameters: λ 1/h	ν	α	E[x] mm/h	ϕ	κ	E[c]	E[η] 1/h	β 1/h	γ 1/h	E[u_r] h
1	mean, var, prob dry, corr	var	prob dry	0.0040	1.90	12.07	9.41	.051	.346	7.73	6.35	2.19	.326	3.12
2	mean, var, prob dry, corr		prob dry, corr	-0.0038	4.13	13.88	7.57	.053	.234	5.41	3.36	0.79	.178	5.69
3	mean, var, prob dry, corr		prob dry, var	0.0009	4.31	11.31	7.17	.180	.167	1.93	2.63	0.44	.473	2.22
4	mean, var, prob dry, corr	corr	prob dry	undefined parameters - could not minimize										

Note: Trial 1 minimized to 10^{-5}, trial 2 minimized to 10^{-5} and trail 3 minimized to 10^{-8}.

4–4 Poisson Model

4.4.1 Parameters and the Method of their Estimation

The Poisson rectangular pulses model is very simple to manipulate. The only difficulty comes in evaluating t_{b_0}, the minimum time between independent storms. Once t_{b_0} is established, the model's parameters

v = number of storms/month

m_{t_0} = mean storm duration (hour)

m_i = mean storm intensity (mm/hr)

m_{t_b} = mean time between storms (hour)

κ = shape parameter for the gamma distribution of storm depth

λ = scale parameter for the gamma distribution of storm depth (mm^{-1})

$cov[i,t_r]$ = covariance of storm intensity and storm duration

can easily be evaluated.

All the Poisson model's parameters are evaluated monthly, therefore, a t_{b_0} must be calculated for each month of the year. To calculate t_{b_0} for each month, not only are all the storms for that month used but also the first storm in the following month. This convention is used primarily to deal with dry months at some stations where one might encounter only one rainfall event in the entire month.

The minimum time between independent storms is then calculated by trying successive larger $t_{b_{min}}$s, starting with one hour, until the relationship in Eq. (3–3) is satisfied. After a t_{b_0} is found for a particular month, the end of that month is checked again for storms. If a storm is found which starts in month X and ends in month Y, the criterion for independence of events, t_{b_0}, is used to establish the duration of that particular storm. Once the duration of the storm is found, month X claims the entire storm for use in its month's statistics, while month Y loses that event from its series. This convention is followed throughout every month.

The remaining parameters can now be estimated. The storm duration encompasses both the dry (ie. $t_b < t_{b_0}$) and wet periods of the storm. The storm intensity is averaged over the entire length of the storm including the internal dry periods. The coefficient of (linear) correlation $\rho[i,t_r]$ of storm intensity and storm duration is calculated using the following equation

$$\rho[i,t_r] \equiv \mathrm{cov}[i,t_r]/\sigma_i\sigma_{t_r} = \sum_{j=1}^{N} (i_j - m_i)(t_{r_j} - m_{t_r})/N\sigma_i\sigma_{t_r} \qquad (4\text{–}2)$$

where N is the mean number of storms for that particular month, σ_{t_r} is the standard deviation for storm duration and σ_i is the standard deviation for storm intensity. The time between storms is calculated using the criterion of independent storms, t_{b_0}. The final calculations are the two–statistic gamma parameters in the depth distribution. The mean storm depth is found from the total precipitation divided by the number of independent storms and then the first two moments of the gamma distribution are used to calculate λ and κ:

$$\lambda = m_h/\mathrm{var}[h] \qquad (4\text{–}3)$$

$$\kappa = m_h\lambda \, . \qquad (4\text{–}4)$$

Chapter 7 gives the values for all the rectangular pulse model parameters for seventy–five stations in the continental United States.

CHAPTER 5 Modified Bartlett–Lewis Contour Maps

5–1 Set–up

Seventy–two maps have been constructed of the continental United States which show the geographical variation of the modified Bartlett–Lewis model parameters (shown below) for each month of the year.

$E[c]$ = mean number of cells per storm

$E[x]$ = mean cell intensity, mmh^{-1}

$E[\eta] = \nu/\alpha$, where η = (cell duration)$^{-1}$, (1/hour)

λ = Poisson arrival rate of storms, (1/hour)

γ = exponential rate of the termination of cell origins, (1/hour)

ν = scale parameter of the gamma distribution for cell duration, (1/hour)

A review of the maps' notations can be found in Section 4–2.

Seventy–four primary stations have been selected randomly to draw the contour maps. There is a discrepancy, though, between the number of stations found in the index in Chapter 7 (75 stations) and the number of stations used in the maps construction (74 stations). Paducah, Kentucky was omitted from the contour mapping because the station consistently produced parameter values which were inconsistent with surrounding station values. Figure 5–1 gives an example of one such anomaly when Paducah, Kentucky is included in the production of the maps. These inconsistencies may be attributed to erroneous data entry for Paducah. Paducah, Kentucky is not used in the mapping of the modified Bartlett–Lewis parameters even though it is listed in the index of stations.

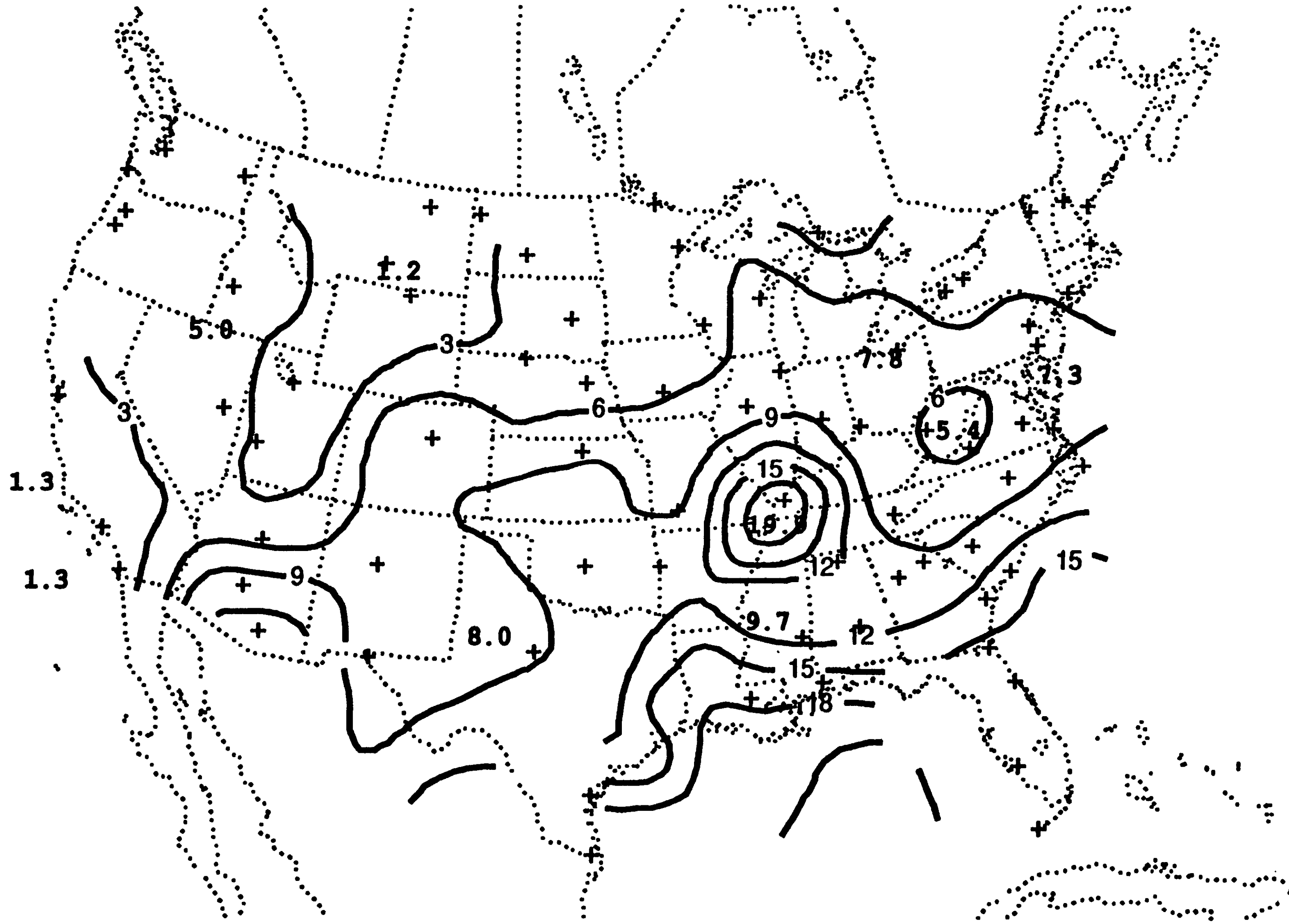


Figure 5-1. A Contour Plot Using Paducah, Kentucky In The Objective Analysis.

750901/0000 SFC EXEX Max= 23.6 Min= 1.2

The maps were constructed using a mapping software package, GEMPAK3 (NASA, 1989). GEMPAK3 first performs a Barnes objective analysis on the modified Bartlett–Lewis parameters for a particular month (Koch et al., 1983). Two passes of the analysis interpolates data from the primary stations to the grid points using the following weighing function:

$$\text{WTFUNC} = [\text{Exp}(\text{DIST**2})/\text{WEIGHT}] \qquad (5\text{–}1)$$

where

$$\text{DIST**2} = [(\text{lat(grid)}-\text{lat(stn)})^2+(\text{lon(grid)}-\text{lon(stn)})^2 \ \text{coslsq(grid)}]$$

$$\text{coslsq} = \cos[\text{lat(grid)}]$$

$$\text{WEIGHT} = 5.051457^*(\text{DELTAN}^*2/\pi)^2$$

DELTAN = station spacing read from grid file analysis block

A convergence parameter, gamma, ranging from 0 to 1 is a multiplier for the weight and search radius for passes after the first pass. The search radius is defined as the maximum distance that a station may be from a grid point for that station to be used in the analysis of that grid point. Therefore, if the weighing factor is greater than Exp[–search radius], the station will not be used for that grid point. In construction of the modified Bartlett–Lewis maps, gamma and the search radius were kept constant at 0.2 and 30, respectively. After the objective analysis is performed for a parameter, GEMPAK3 is able to plot the contours for the modified Bartlett–Lewis parameters.

5–2 Sensitivity analysis

Four stations around the United States were chosen to demonstrate how the maps are read and how well the maps' parameters predict local precipitation statistics for a particular month. The stations used in this analysis were Lewiston, Idaho, Grand Junction, Colorado, Shreveport, Louisiana and Elkins, West Virginia. The locations were chosen to represent the different sections of the United States (see Fig. 5–2).

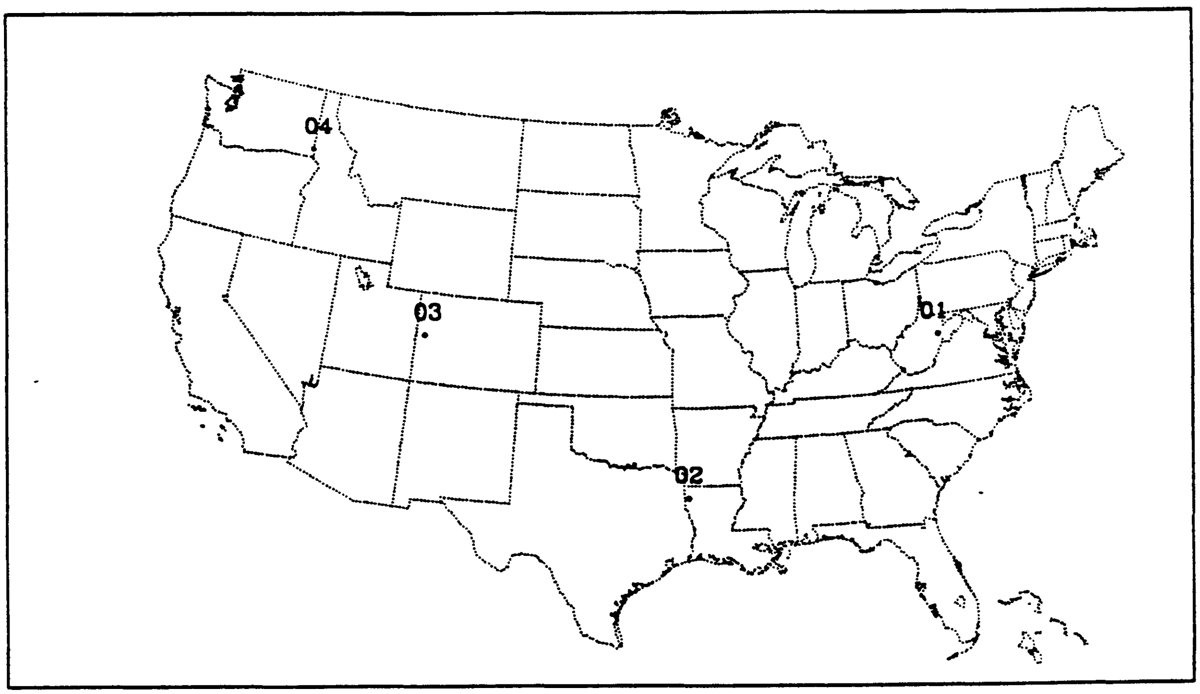
Once the four stations are located on the map and parameters read from it, estimates of the stations' precipitation statistics can be found using the equations in Section 2–3 (see Appendix A). Table 5–1 through Table 5–8 display the four stations with their respective historical statistics and their estimated values as obtained from the parameters taken from the contour maps for the months of January and July. The tables show, for both January and July, that the use of these maps for predicting historical statistics is fairly good.

A sensitivity analysis was performed on the many interpretations of the modified Bartlett–Lewis parameters one finds in reading the maps for Lewiston, Idaho in January and Grand Junction, Colorado in July (see Table 5–9 and Table 5–10). This analysis show that slight changes in the parameters change the values of the estimated statistics but that the changes are not significant enough to discourage the use of the maps. The parameter lambda, the interarrival rate of a storm, affects the most statistics in the model. Fortunately, lambda is a very stable parameter, thus its value, when taken from the map, is very reliable (notice the smooth contour lines and similar patterns between months for the parameter lambda).

The maps are therefore an effective estimator for historical rainfall statistics around the continental United States. With only seventy–four primary stations, contour lines have been drawn for the modified Bartlett–Lewis parameters for each month of the year that make possible the estimation of storm precipitation statistics for many other stations within the United States.

FIGURE 5-2

Station Locations for Testing the Reliability
Of the Bartlett-Lewis Maps



Station ID	Name
01	Elkins, West Virginia
02	Shreveport, Louisiana
03	Grand Junction, Colorado
04	Lewiston, Idaho

TABLE 5-1a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation,

Grand Junction, Colorado, January, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0206	0.0202	0.5893	0.3744	0.2436	0.9626
6	0.1233	0.3542	0.3025	0.1088	0.0707	0.9065
12	0.2466	0.9007	0.2176	0.0901	0.0113	0.8593
24	0.4933	2.1656	0.1564	0.0038	0.0371	0.7774
48	0.9557	4.5691	0.1184	0.0042	0.0199	0.6531

TABLE 5-1b. Model-Estimated Statistics for Grand Junction in January Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0228	0.0230	0.7174	0.4764	0.3454	0.9691
6	0.1368	0.4708	0.3550	0.0986	0.0376	0.9176
12	0.2736	1.2759	0.2176	0.0296	0.0077	0.8693
24	0.5471	3.1070	0.1168	0.0059	0.0011	0.7803
48	1.0943	6.9400	0.0580	0.0008	0.0001	0.6287

Estimated Parameters are $\lambda = 0.009\ hr^{-1}$, $\nu = 3.9$, $E[c] = 9.0$, $E[x] = 0.30\ mm\ h^{-1}$, $\gamma = 0.35\ hr^{-1}$, $E[\eta] = 1.5\ hr^{-1}$.

TABLE 5-2a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Shreveport, Louisiana, January, 1959-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1204	0.5747	0.5044	0.3589	0.2636	0.9239
6	0.7226	9.2917	0.3372	0.1134	0.0770	0.8551
12	1.4452	25.4635	0.2239	0.0332	0.0015	0.7998
24	2.8903	64.4269	0.0962	0.0402	-0.0099	0.7019
48	5.6000	134.8916	0.0669	0.0643	0.0252	0.5431

TABLE 5-2b. Model-Estimated Statistics for Shreveport, Louisiana in January Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1229	0.6280	0.5434	0.3277	0.2419	0.9501
6	0.7374	10.3749	0.2984	0.0614	0.0146	0.8964
12	1.4747	26.9409	0.1678	0.0090	0.0007	0.8371
24	2.9494	62.9236	0.0799	0.0004	0.0000	0.7301
48	5.8988	135.8961	0.0373	0.0000	0.0000	0.5553

Estimated Parameters are $\lambda = 0.011\ hr^{-1}$, $\nu = 7.0$, $E[c] = 11.0$, $E[x] = 2.8\ mm\ h^{-1}$, $\gamma = 0.30\ hr^{-1}$, $E[\eta] = 3.0\ hr^{-1}$.

TABLE 5-3a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Lewiston, Idaho, January, 1954-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0427	0.0449	0.6686	0.4456	0.3313	0.9309
6	0.2560	0.8469	0.4807	0.2847	0.1755	0.8399
12	0.5121	2.4536	0.4183	0.1744	0.0632	0.7609
24	1.0242	6.9077	0.2909	0.0628	0.0093	0.6385
48	1.9844	15.7475	0.2001	0.1039	0.1389	0.4963

TABLE 5-3b. Model-Estimated Statistics for Lewiston, Idaho in January Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0497	0.0400	0.6851	0.4333	0.3139	0.8825
6	0.2982	0.7832	0.3649	0.1221	0.0498	0.7736
12	0.5964	2.1379	0.2414	0.0380	0.0083	0.6778
24	1.1928	5.3078	0.1312	0.0054	0.0005	0.5205
48	2.3856	12.0079	0.0629	0.0003	0.0000	0.3070

Estimated Parameters are $\lambda = 0.022\ hr^{-1}$, $\nu = 10.0$, $E[c] = 7.1$, $E[x] = 0.3\ mm\ h^{-1}$, $\gamma = 0.20\ hr^{-1}$, $E[\eta] = 1.2\ hr^{-1}$.

TABLE 5-4a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Elkins, West Virginia, January, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1135	0.1984	0.5639	0.4011	0.3179	0.8499
6	0.6809	3.6980	0.3272	0.1160	0.0713	0.6857
12	1.3619	9.8904	0.2122	0.0548	0.0175	0.5810
24	2.7237	23.2673	0.1543	-0.0276	0.0084	0.4161
48	5.2772	48.7713	0.0688	-0.0143	0.0325	0.2359

TABLE 5-4b. Model-Estimated Statistics for Elkins, West Virginia in January Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0943	0.2176	0.5105	0.3106	0.2362	0.9102
6	0.5657	3.4915	0.3226	0.0915	0.0324	0.8213
12	1.1314	9.2358	0.2034	0.0244	0.0050	0.7285
24	2.2629	22.2282	0.1069	0.0034	0.0004	0.5730
48	4.5257	49.2076	0.0516	0.0003	0.0000	0.3546

Estimated Parameters are $\lambda = 0.020\ hr^{-1}$, $\nu = 2.0$, $E[c] = 11.0$, $E[x] = 1.5\ mm\ h^{-1}$, $\gamma = 0.30\ hr^{-1}$, $E[\eta] = 4.0\ hr^{-1}$.

TABLE 5-5a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation,

Grand Junction, Colorado, July, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0198	0.1090	0.1280	0.0518	0.0242	0.9844
6	0.1188	0.8597	0.0893	0.0356	0.0776	0.9419
12	0.2375	1.8852	0.1083	0.0395	0.0216	0.8988
24	0.4750	4.1556	0.0755	0.0551	0.0131	0.8290
48	0.9204	8.4890	0.0912	-0.0068	0.0385	0.7266

TABLE 5-5b. Model-Estimated Statistics for Grand Junction in July Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0218	0.1183	0.1175	0.0120	0.0043	0.9791
6	0.1310	0.8644	0.0229	0.0001	0.0000	0.9220
12	0.2621	1.7684	0.0113	0.0000	0.0000	0.8580
24	0.5242	3.5768	0.0056	0.0000	0.0000	0.7429
48	1.0483	7.1935	0.0028	0.0000	0.0000	0.5570

Estimated Parameters are $\lambda = 0.012\ hr^{-1}$, $\nu = 2.0$, $E[c] = 1.30$, $E[x] = 10.5\ mm\ h^{-1}$, $\gamma = 1.25\ hr^{-1}$, $E[\eta] = 8.0\ hr^{-1}$.

TABLE 5-6a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation,

Shreveport, Louisiana, July, 1959-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1236	2.0380	0.3121	0.0969	0.0746	0.9708
6	0.7414	21.6413	0.1179	0.0082	-0.0008	0.9132
12	1.4829	51.4337	0.0134	0.0080	0.0314	0.8593
24	2.9562	63.1367	0.0428	0.0447	-0.0308	0.7531
48	5.7462	186.8244	0.0733	-0.0437	-0.0621	0.6078

TABLE 5-6b. Model-Estimated Statistics for Shreveport in July Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1610	2.1300	0.2593	0.1096	0.0594	0.9619
6	0.9663	21.2883	0.1001	0.0036	0.0002	0.8876
12	1.9325	46.8395	0.0489	0.0001	0.0000	0.8064
24	3.8651	98.2584	0.0234	0.0000	0.0000	0.6655
48	7.7302	201.1197	0.0114	0.0000	0.0000	0.4533

Estimated Parameters are $\lambda = 0.016\ hr^{-1}$, $\nu = 2.2$, $E[c] = 4.00$, $E[x] = 21.0\ mm\ h^{-1}$, $\gamma = 0.70\ hr^{-1}$, $E[\eta] = 8.8\ hr^{-1}$.

TABLE 5-7a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Lewiston, Idaho, July, 1954-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0233	0.0758	0.3637	0.2150	0.1537	0.9799
6	0.1399	0.9908	0.2016	0.0337	0.0512	0.9438
12	0.2798	2.5038	0.1136	0.0190	0.0117	0.9113
24	0.5596	5.3688	0.0898	0.0068	-0.0200	0.8482
48	1.0842	10.9962	0.0321	0.0086	-0.0037	0.7592

TABLE 5-7b. Model-Estimated Statistics for Lewiston in July Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.0166	0.0778	0.4469	0.1763	0.0893	0.9916
6	0.0993	0.9856	0.1252	0.0049	0.0004	0.9742
12	0.1986	2.2182	0.0602	0.0003	0.0000	0.9540
24	0.3972	4.7034	0.0286	0.0000	0.0000	0.9148
48	0.7945	9.6761	0.0139	0.0000	0.0000	0.8411

Estimated Parameters are $\lambda = 0.004$ hr^{-1}, $\nu = 3.9$, $E[c] = 4.80$, $E[x] = 2.90$ mm h^{-1}, $\gamma = 0.78$ hr^{-1}, $E[\eta] = 3.2$ hr^{-1}.

TABLE 5-8a. Historical Statistics of Cumulative Precipitation at Various Levels of Aggregation, Elkins, West Virgina, July, 1948-1988

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1573	1.2090	0.2320	0.0949	0.0684	0.9308
6	0.9438	11.6032	0.1573	0.0385	-0.0041	0.8103
12	1.8877	26.3894	0.1023	0.0222	-0.0114	0.7101
24	3.7754	56.9148	0.0568	-0.0311	-0.0247	0.5565
48	7.3148	110.0519	0.0111	-0.0045	0.0199	0.3719

TABLE 5-8b. Model-Estimated Statistics for Elkins in July Using Parameters Taken from the Maps

Hour	Mean mm	Variance mm^2	Corr(1)	Corr(2)	Corr(3)	Prob(dry)
1	0.1348	1.4061	0.2510	0.0959	0.0524	0.9564
6	0.8090	13.6963	0.0923	0.0029	0.0001	0.8735
12	1.6179	29.9222	0.0450	0.0001	0.0000	0.7841
24	3.2359	62.5366	0.0216	0.0000	0.0000	0.6317
48	6.4718	127.7742	0.0106	0.0000	0.0000	0.4101

Estimated Parameters are $\lambda = 0.018$ hr^{-1}, $\nu = 3.0$, $E[c] = 3.00$, $E[x] = 14.3$ mm h^{-1}, $\gamma = 0.55$ hr^{-1}, $E[\eta] = 6.5$ hr^{-1}.

Table 5-9. Sensitivity analysis on reading the maps' parameters
Lewiston, Idaho - January

E[c]	E[x] mm/hr	E[η] 1/hr	γ 1/hr	v	λ 1/hr	mean 1hr	vari 1hr	corr 1hr	prob dry 1hr	prob dry 24hr	vari 24hr
						.0427	.0449	.6686	.9309	.6385	6.908
7.1	0.40	1.2	20.20	9.0	0.022	.0574	.0529	.6883	.8820	.5199	7.104
7.5						.0606	.0573	.6943	.8822	.5196	7.848
7.0						.0566	.0518	.6867	.8819	.5199	6.924
7.1	0.30					.0430	.0298	.6883	.8820	.5199	3.996
	0.35					.0502	.0405	.6883	.8820	.5199	5.439
	0.35	0.9				.0693	.0648	.7636	.8963	.5164	10.39
		1.5				.0394	.0281	.6244	.8802	.5224	3.315
		1.2	0.19			.0502	.0399	.6852	.8772	.5167	5.377
			0.20	8.5		.0505	.0408	.6901	.8817	.5194	5.518
				10.0		.0497	.0400	.6851	.8825	.5025	5.308
				10.0	0.021	.0474	.0382	.6851	.8875	.5362	5.067

Table 5-10. Sensitivity analysis on reading the maps' parameters
Grand Junction, Colorado - July

E[c]	E[x] mm/hr	E[η] 1/hr	γ 1/hr	v	λ 1/hr	mean 1hr	vari 1hr	corr 1hr	prob dry 1hr	prob dry 24hr	vari 24hr
						.0198	.1090	.1280	.9844	.8290	4.156
3.0	11.5	8.0	1.25	2.0	0.012	.0552	.4429	.2258	.9786	.7425	16.99
2.5						.0460	.3408	.2003	.9787	.7426	12.42
1.3						.0239	.1420	.1175	.9791	.7429	4.291
1.3	10.0					.0208	.1073	.1175	.9791	.7429	4.291
	10.5					.0218	.1183	.1175	.9791	.7429	3.578
	10.5	7.0				.0252	.1543	.1356	.9791	.7429	4.809
		8.8				.0197	.0978	.1066	.9791	.7429	2.903
		8.8	1.35			.0197	.0981	.1065	.9798	.7434	2.904
			1.20			.0197	.0976	.1066	.9787	.7426	2.902
			1.25		0.0123	.0202	.1002	.1066	.9786	.7374	2.975

5–3 Helpful Guidelines on the Use of the Maps

1 – Incomplete contour lines

GEMPAK3's contouring package produced three areas in the United States with incomplete contour lines: Florida, the Northwest and the North (middle, bordering Canada). When dealing with stations in these areas it is suggested that one either connect the incomplete contour lines (Florida) or extend them to the United States/Canadian border (the Northwest and Mid–North) (see Fig. 5–3).

2 – Using known statistics as guides

Before working with the maps and finding parameters for a particular station, it is highly recommended to obtain either the hourly or daily average precipitation for that station in the month of interest. It will enable one to decide if the estimated statistics obtained from the maps' parameters are reasonable or not.

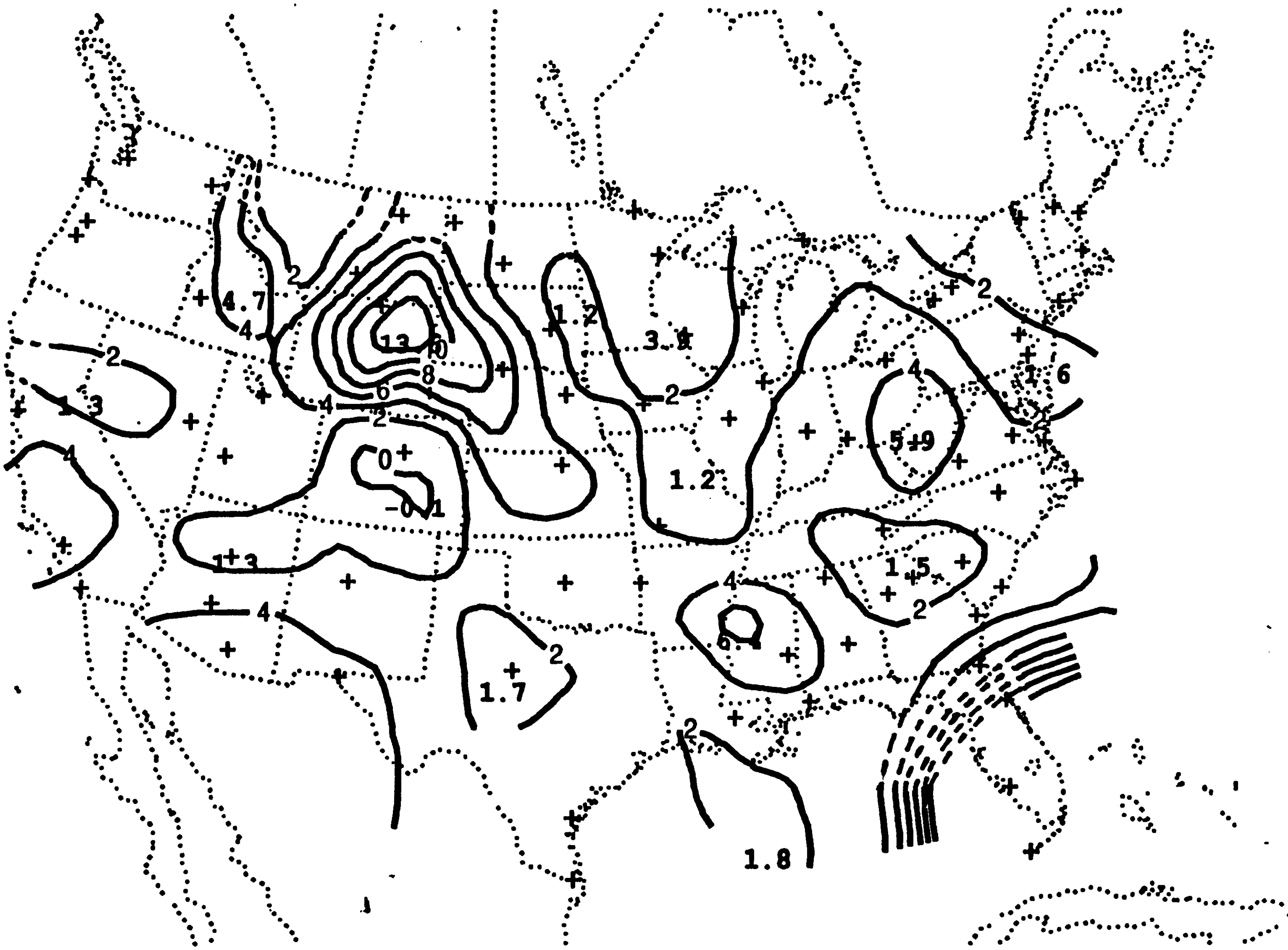
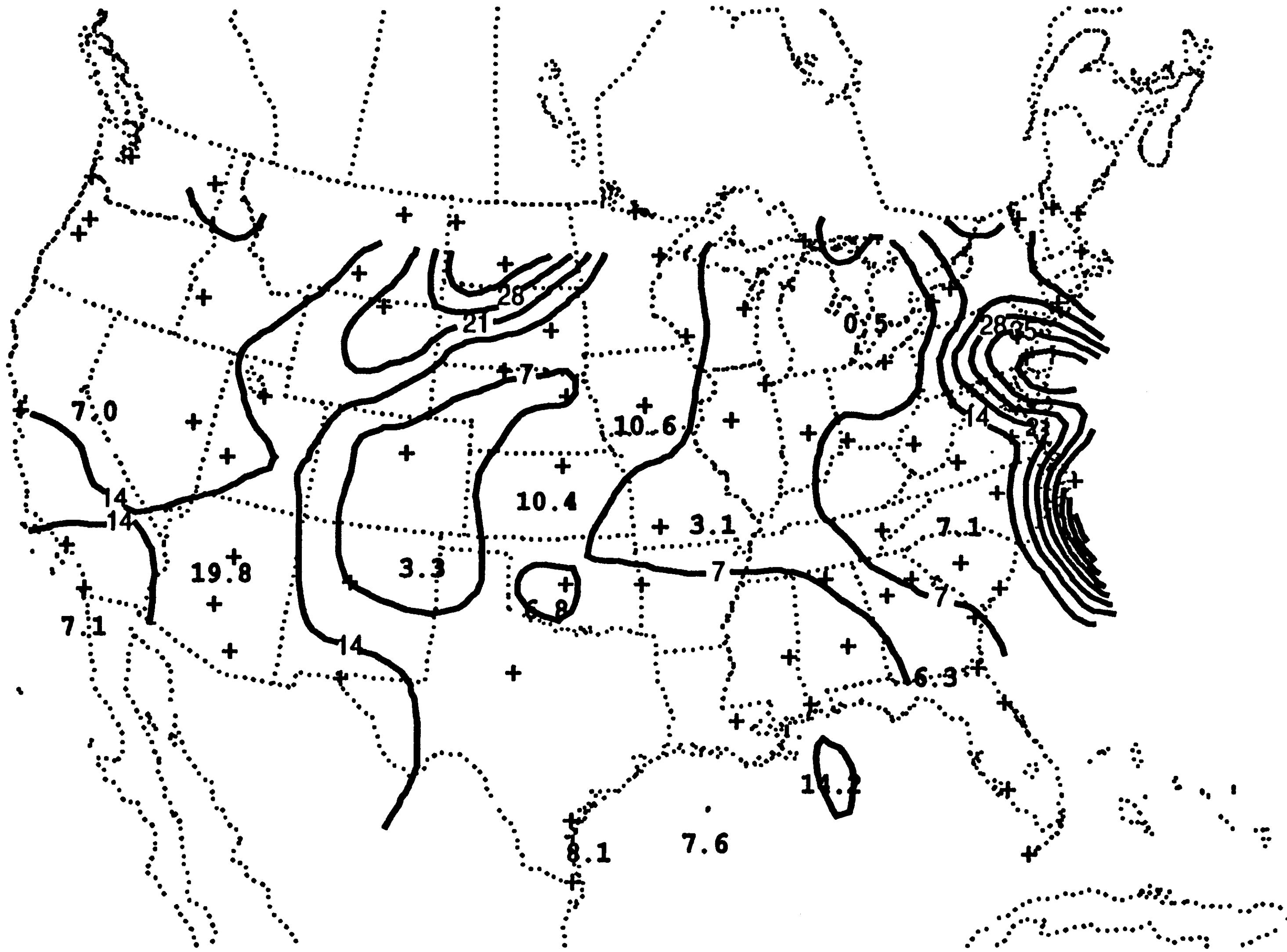


Figure 5-3. An Example of Drawing
In Incomplete Contour Lines

741201/0000 SFC ETAA Max= 19.7 Min= 0.0

Figure 5-3

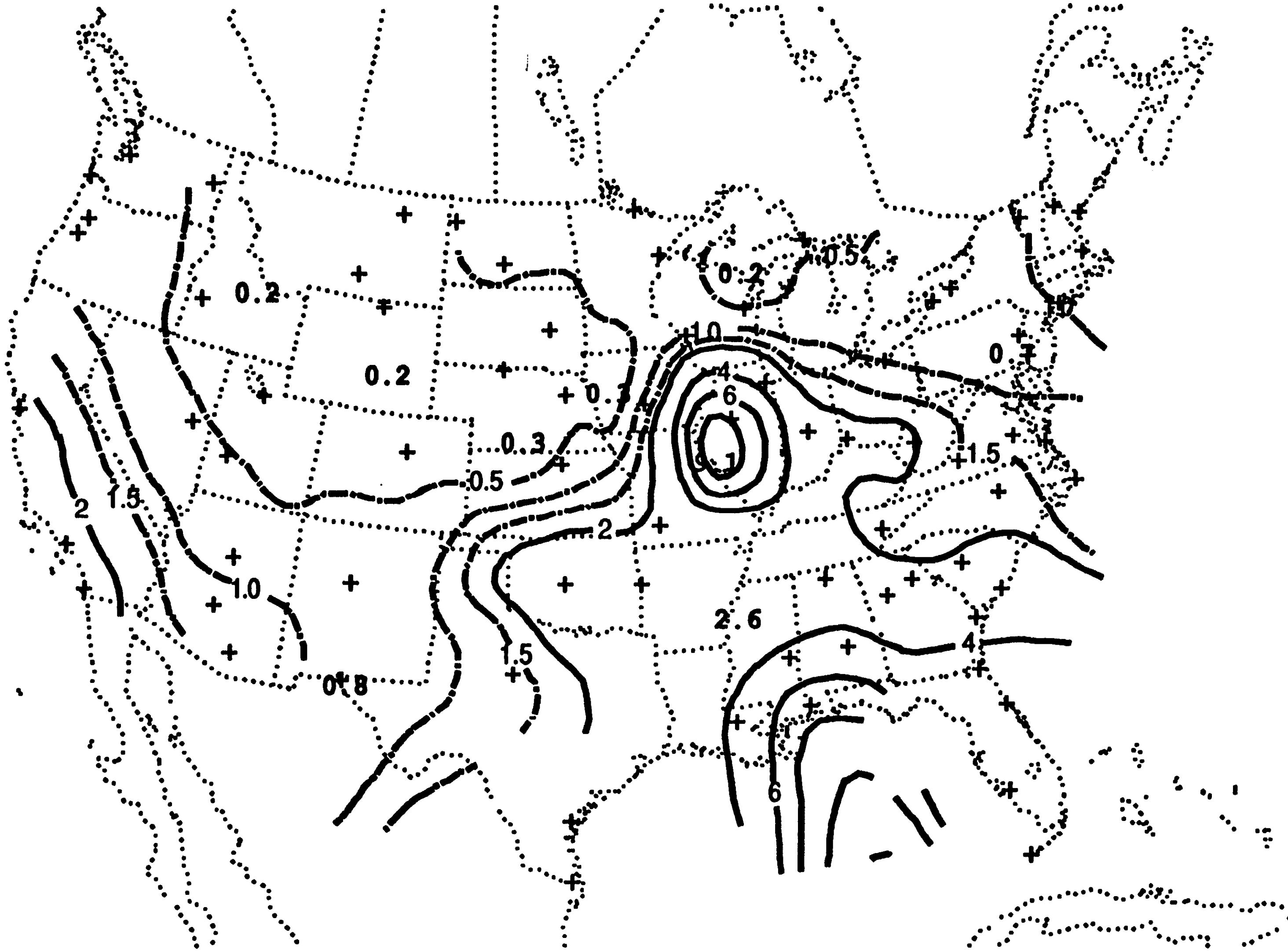
Index of the Modified Bartlett–Lewis Maps



740101/0000 SFC ECEC Max= 66.2 Min= 0.8

Figure 5-4 - January - E[c]

Figure 5-5 - January - E[x]



740101/0000 SFC EXEX Max= 12.0 Min= 0.2

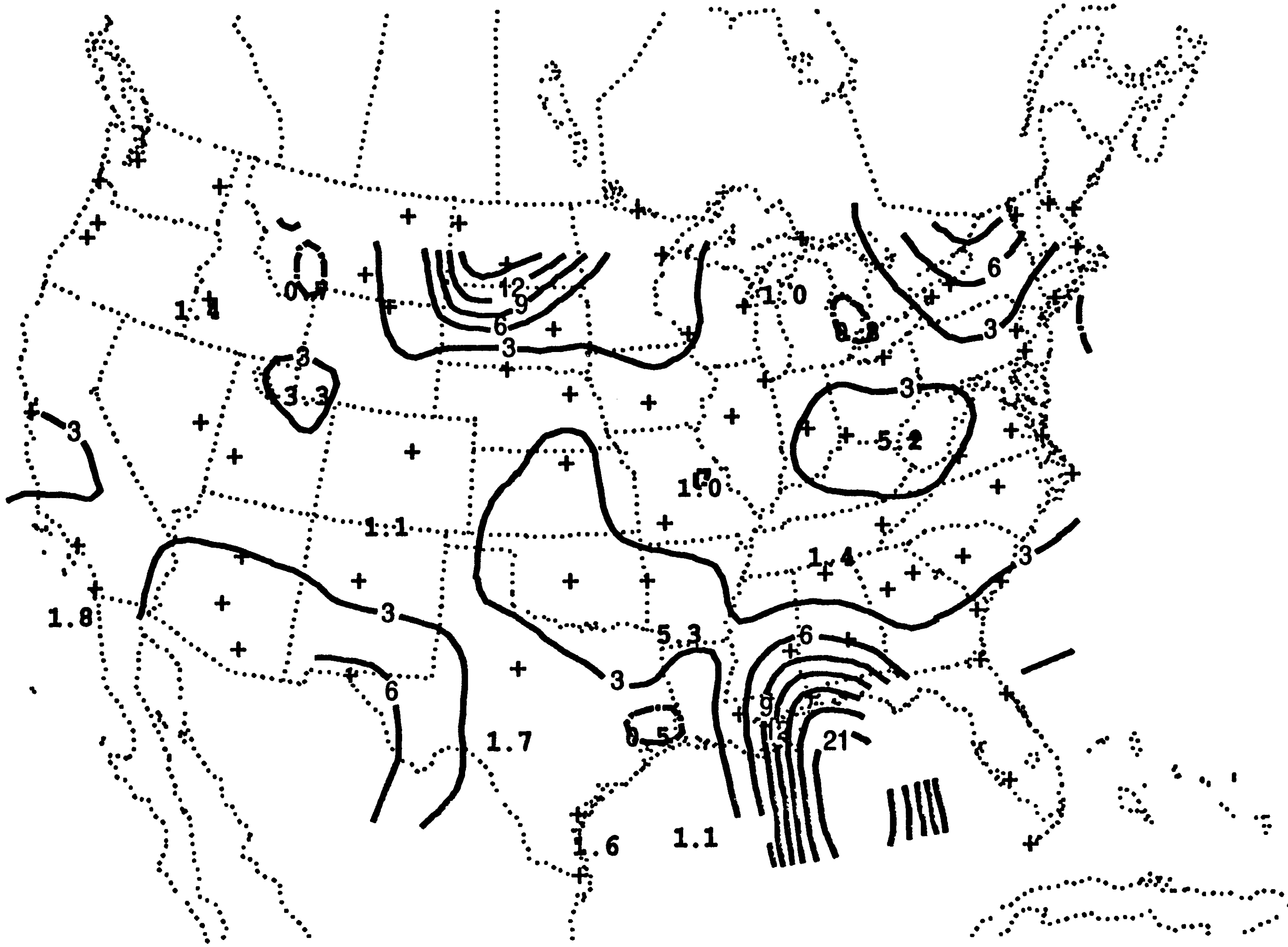
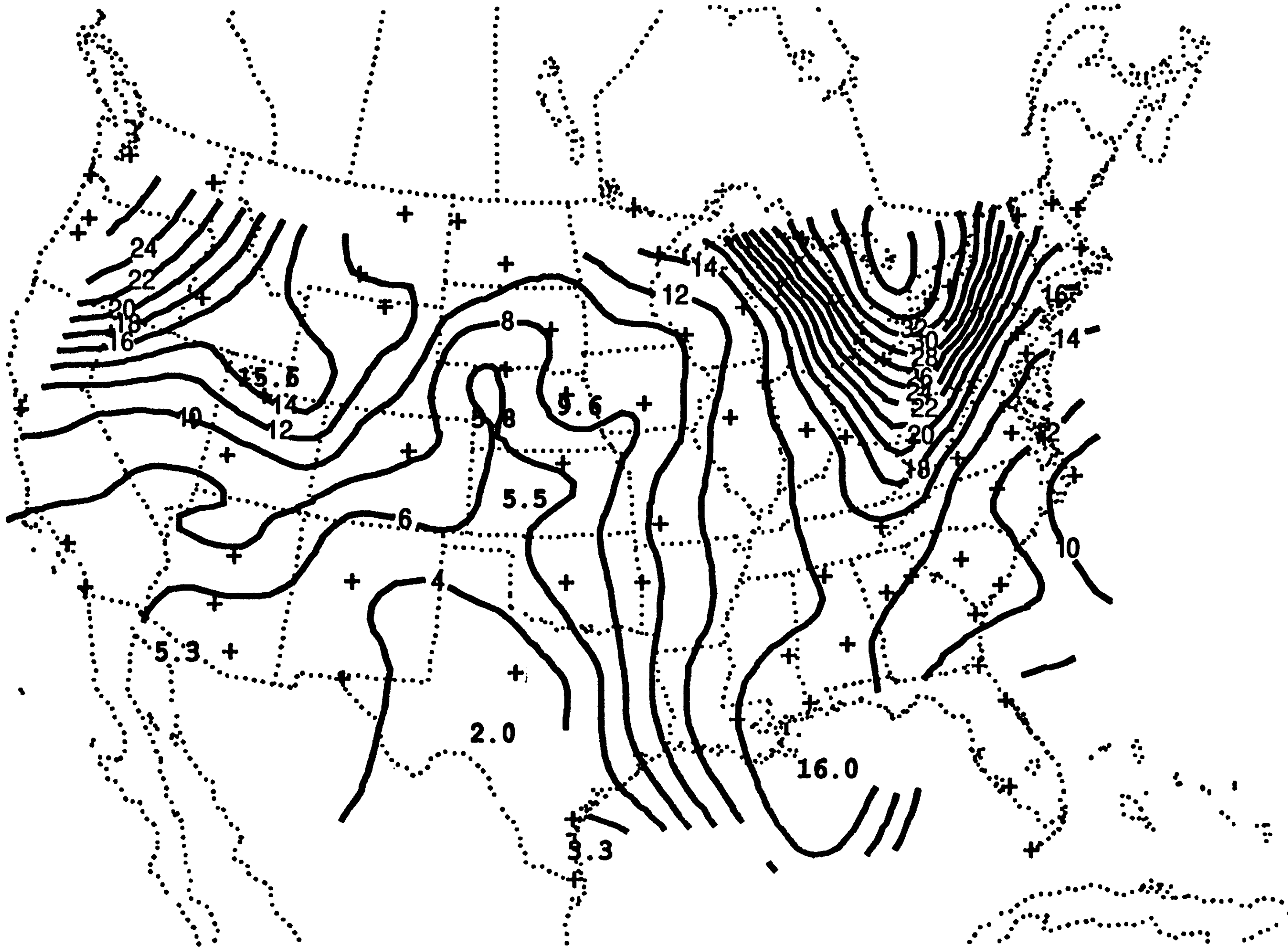


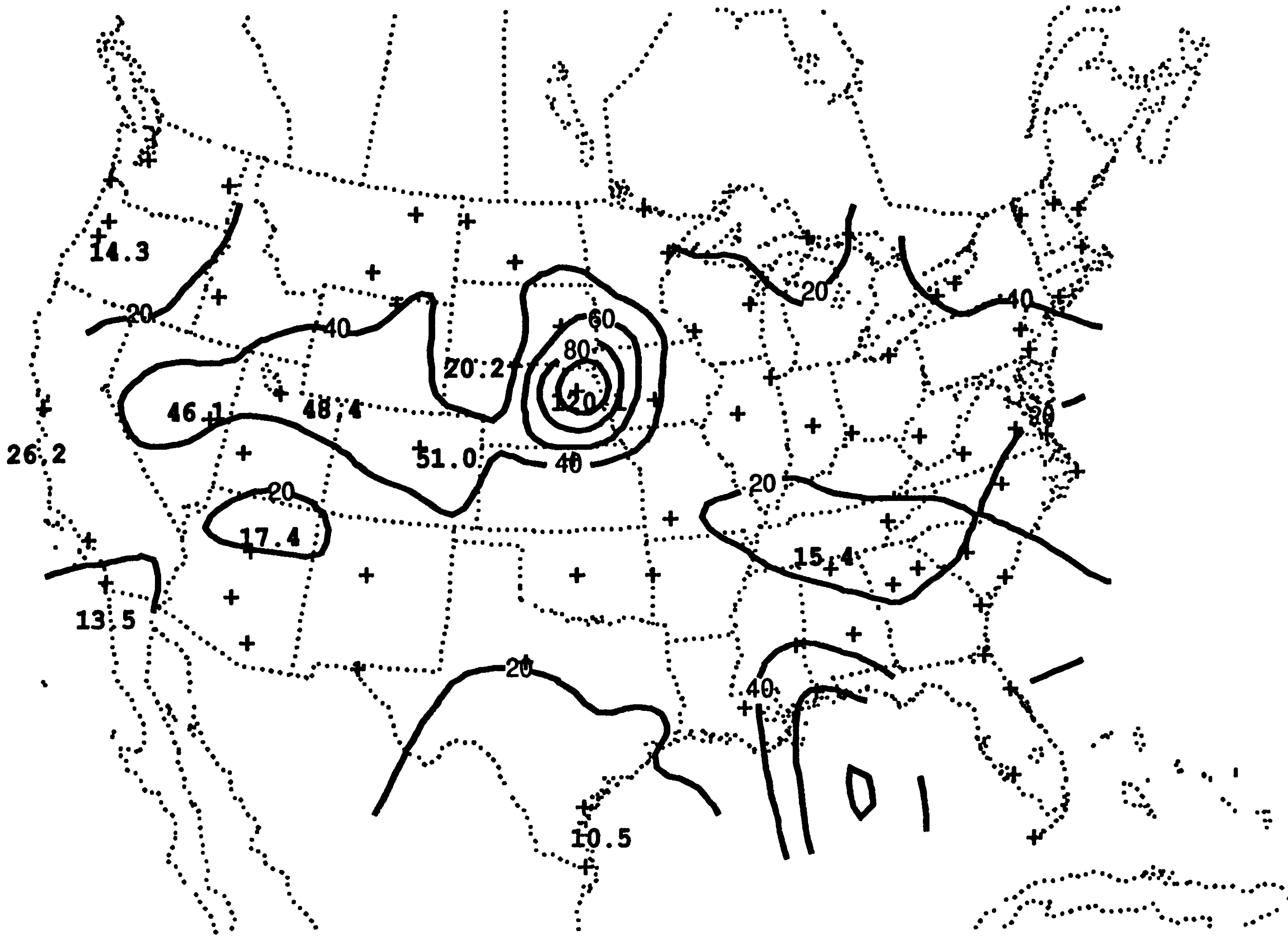
Figure 5–6 – January – $E[\eta]$



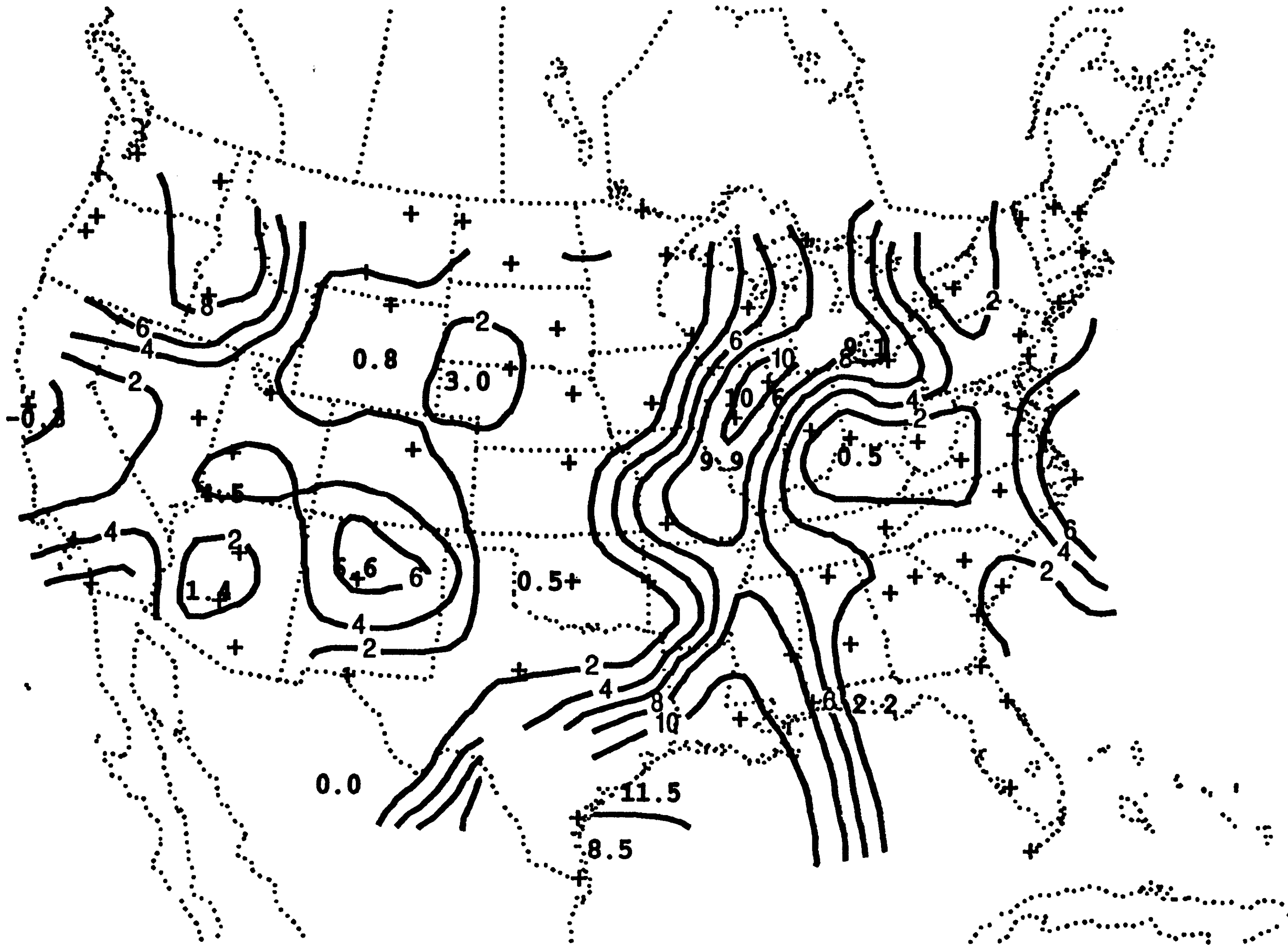
740101/0000 SFC LAMD (*10**3) Max= 37.0 Min= 2.1

Figure 5-7 - January - λ

Figure 5-8 - January - γ

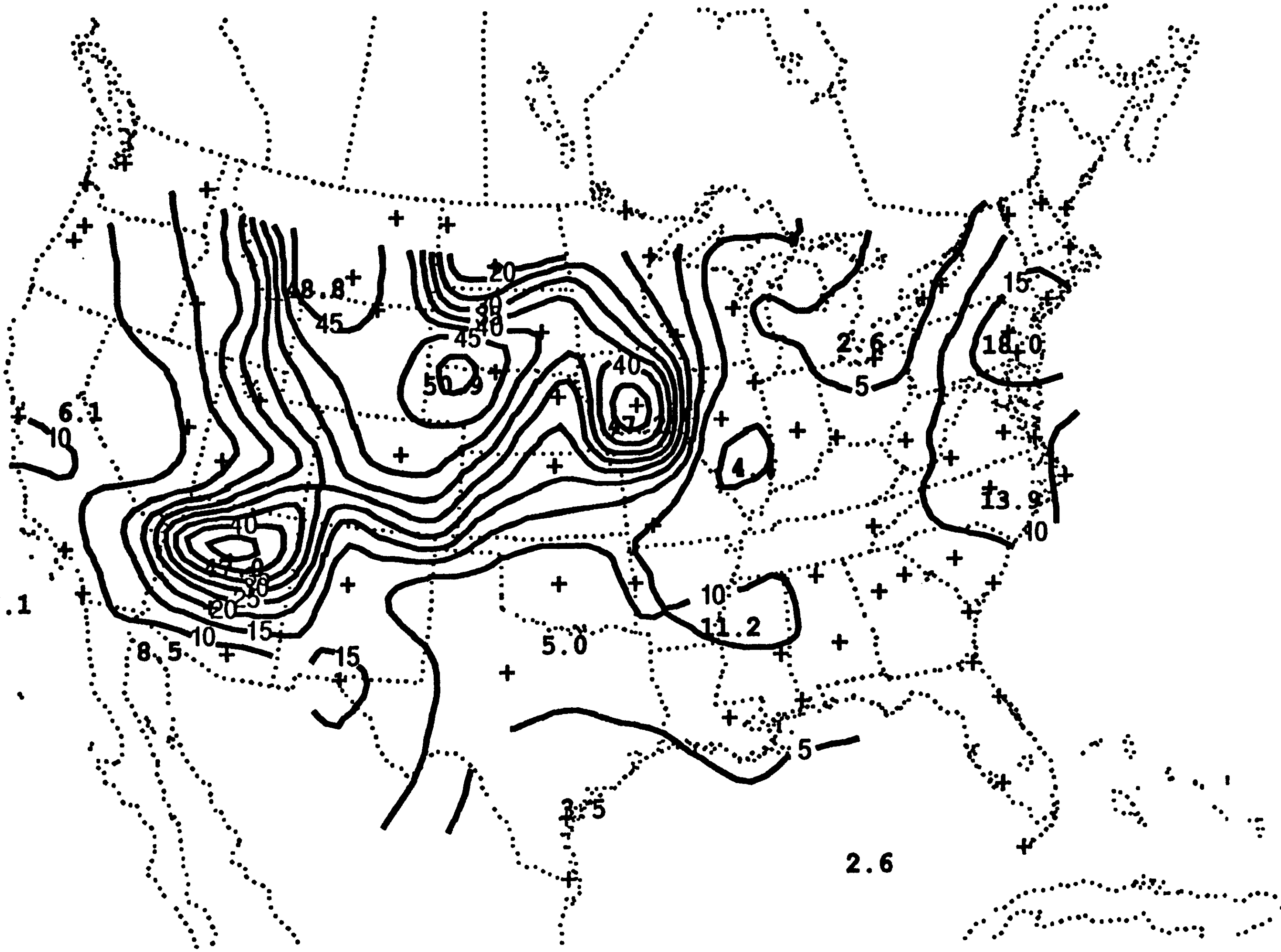


740101/0000 SFC GAMM (*10**2) Max= 120.1 Min= 6.1



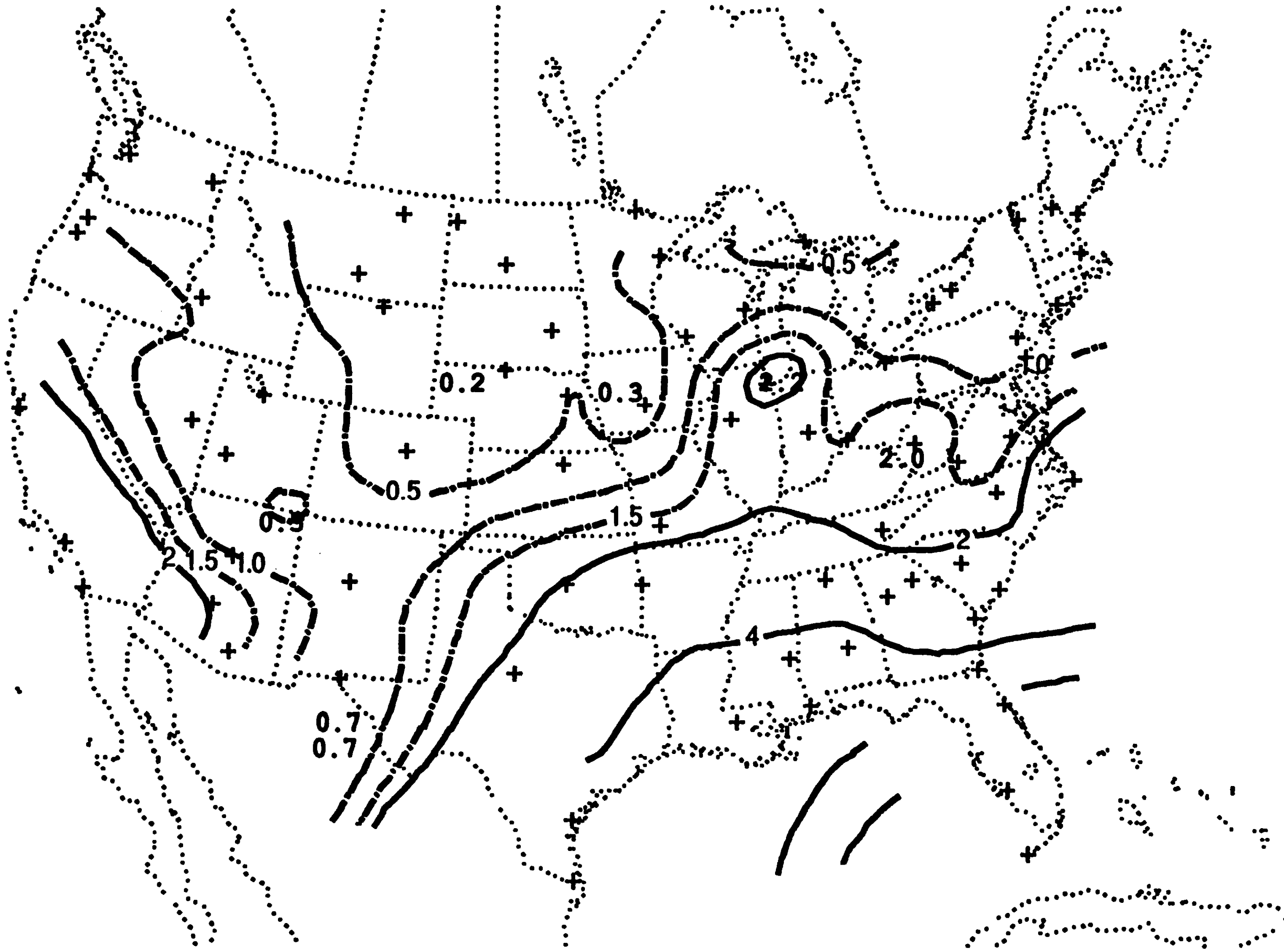
740101/0000 SFC NUNU Max= 11.5 Min= -0.2

Figure 5-9 - January - ν



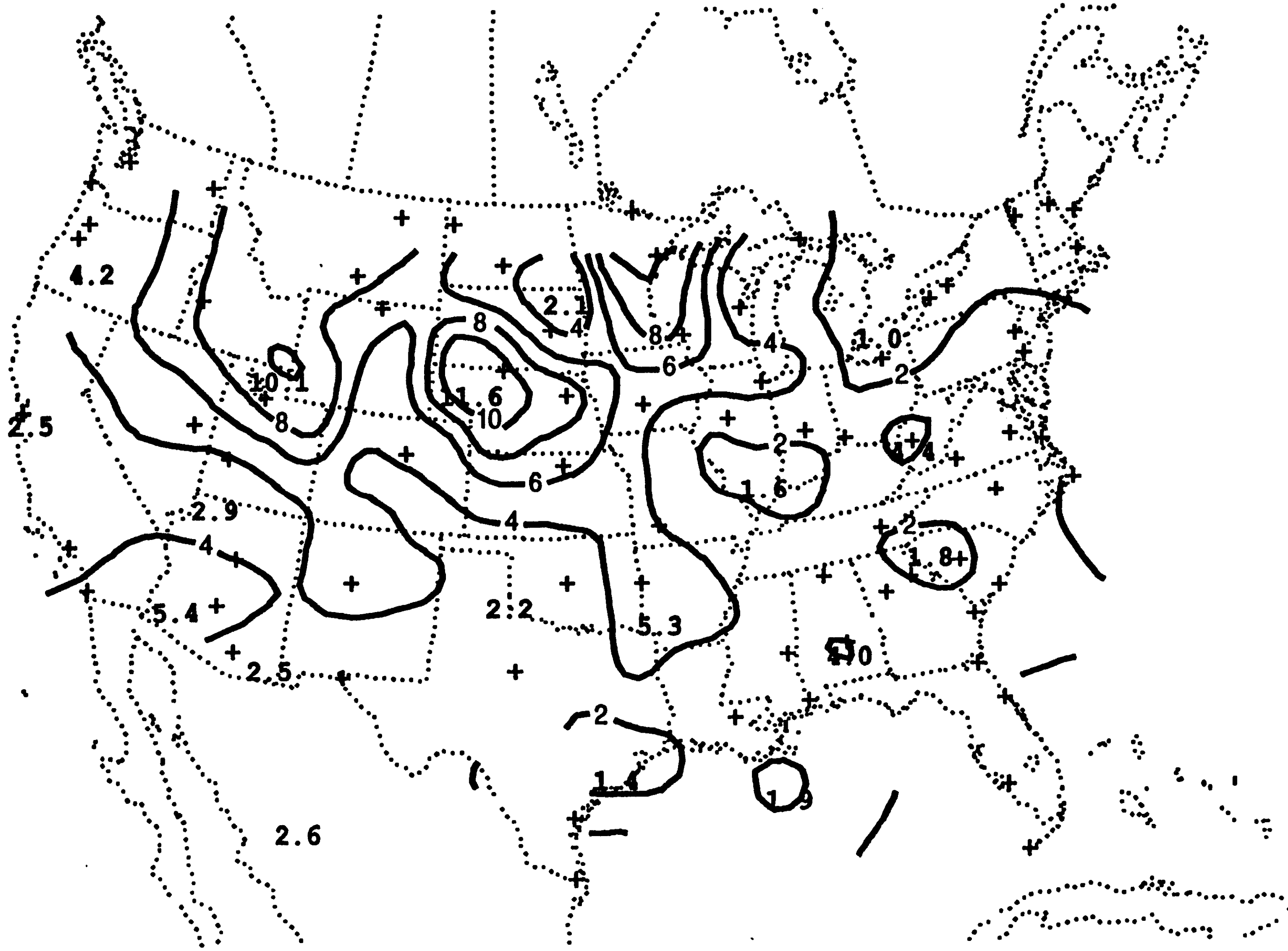
740201/0000 SFC ECEC Max= 50.0 Min= 2.6

Figure 5-10 - February - E[c]



740201/0000 SFC EXEX Max= 10.8 Min= 0.2

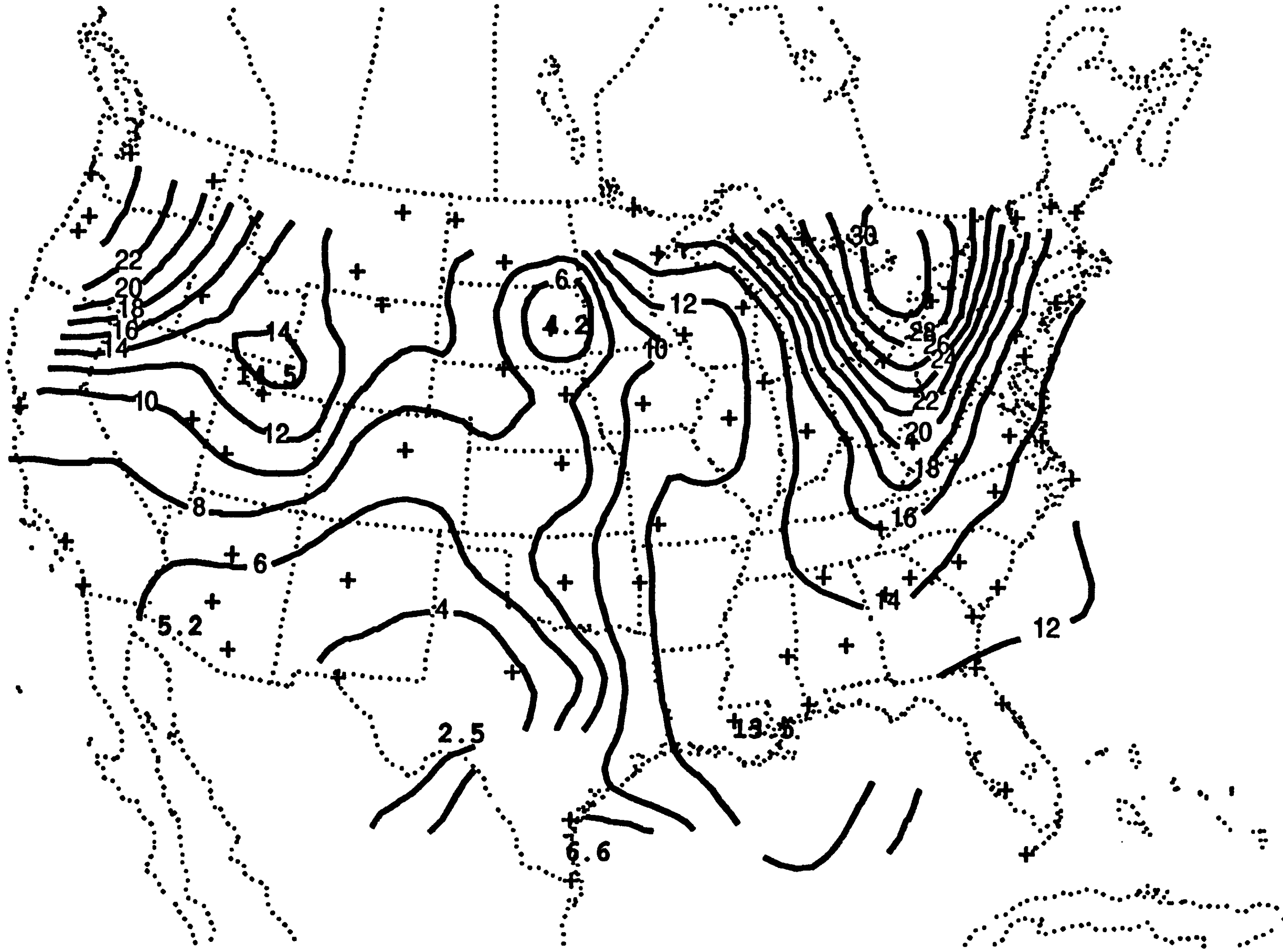
Figure 5-11 - February - E[x]



740201/0000 SFC ETAA Max= 11.5 Min= 1.1

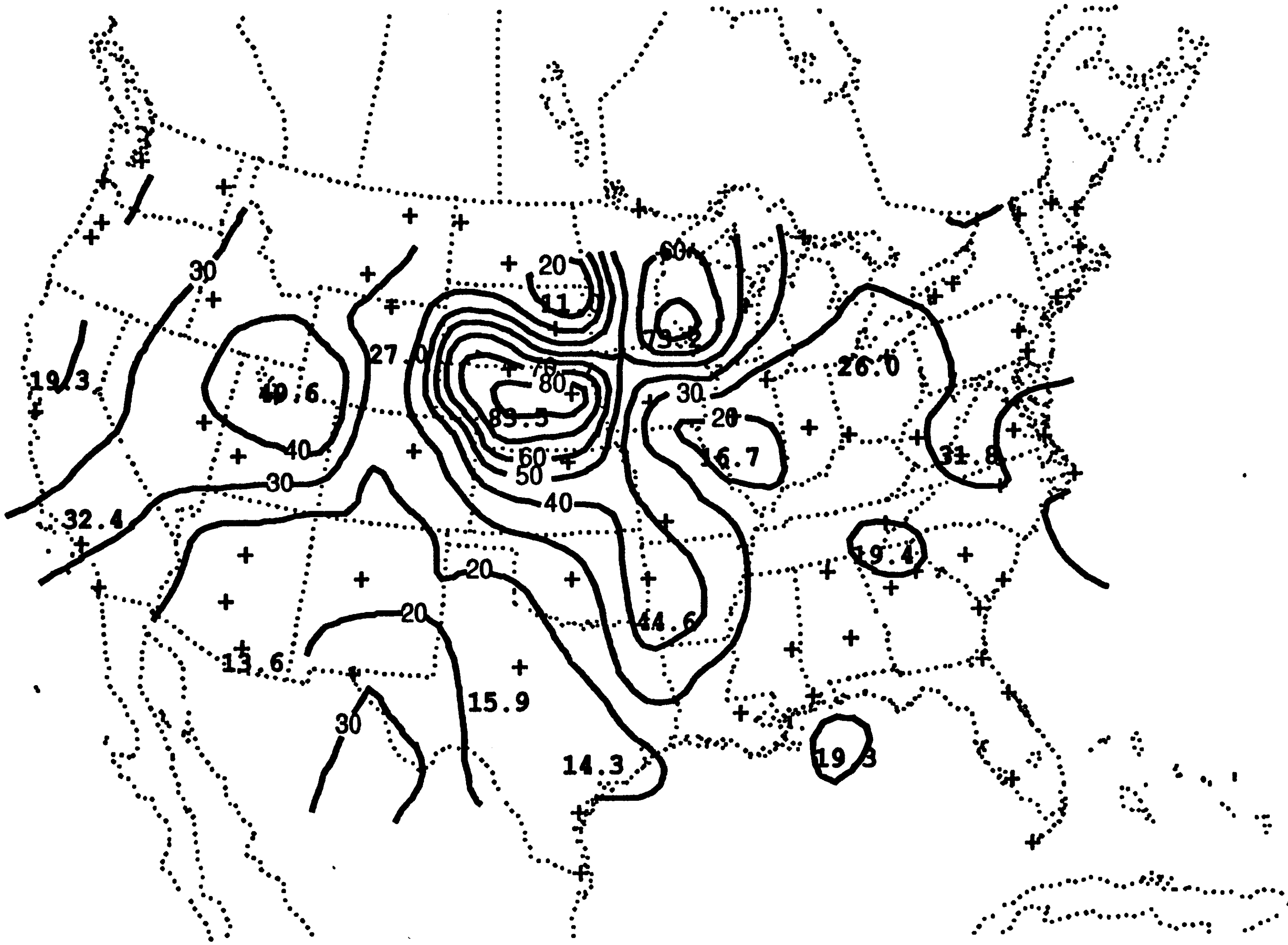
Figure 5-12 - February - E[η]

Figure 5-13 - February - λ



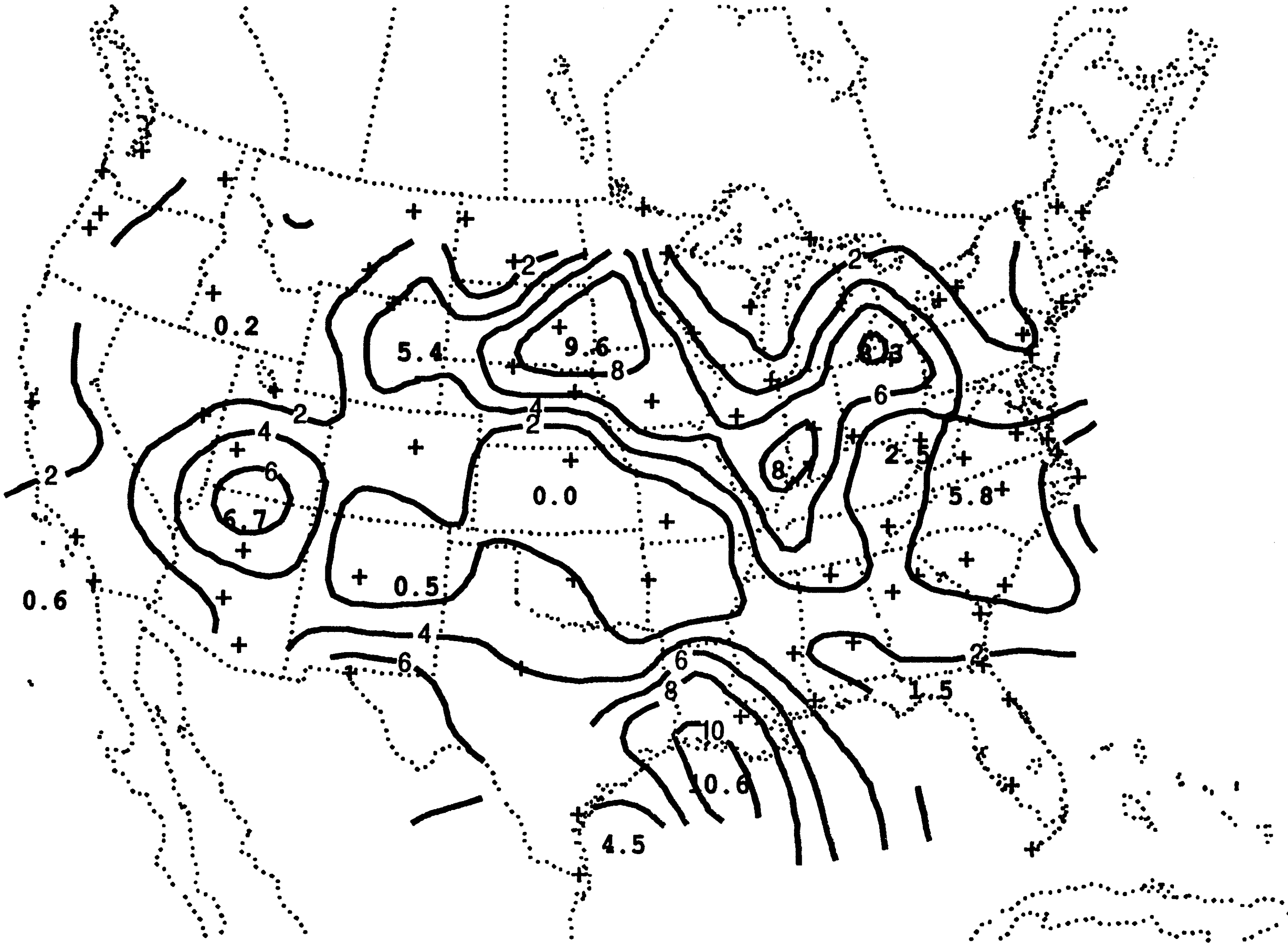
740201/0000 SFC LAMD (*10**3) Max= 31.3 Min= 2.8

Figure 5-14 - February - 7



740201/0000 SFC GAMM (*10**2) Max= 82.6 Min= 13.4

Figure 5-15 - February - ν



740201/0000 SFC NUNU Max= 10.5 Min= 0.0

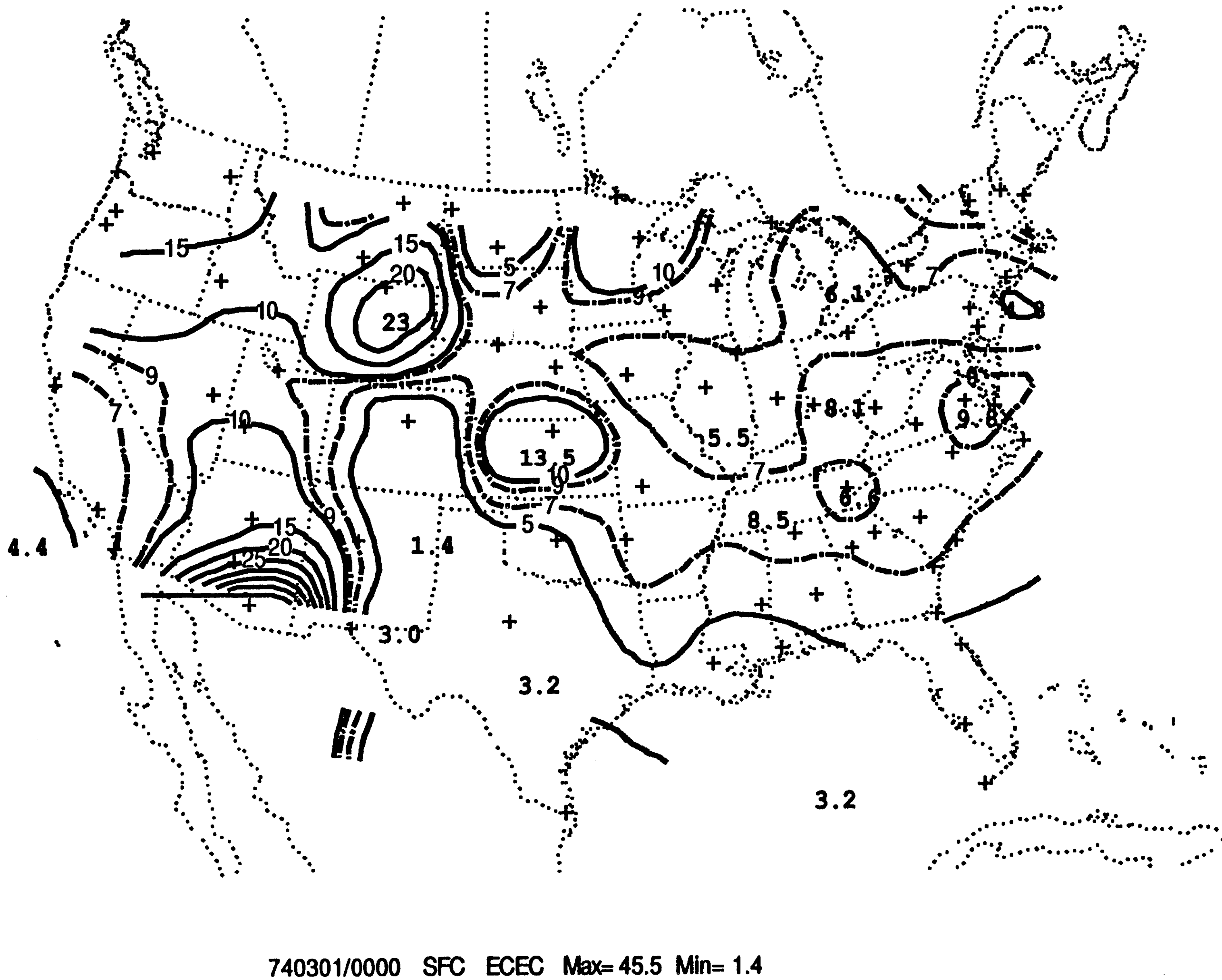


Figure 5-16 - March - E[c]

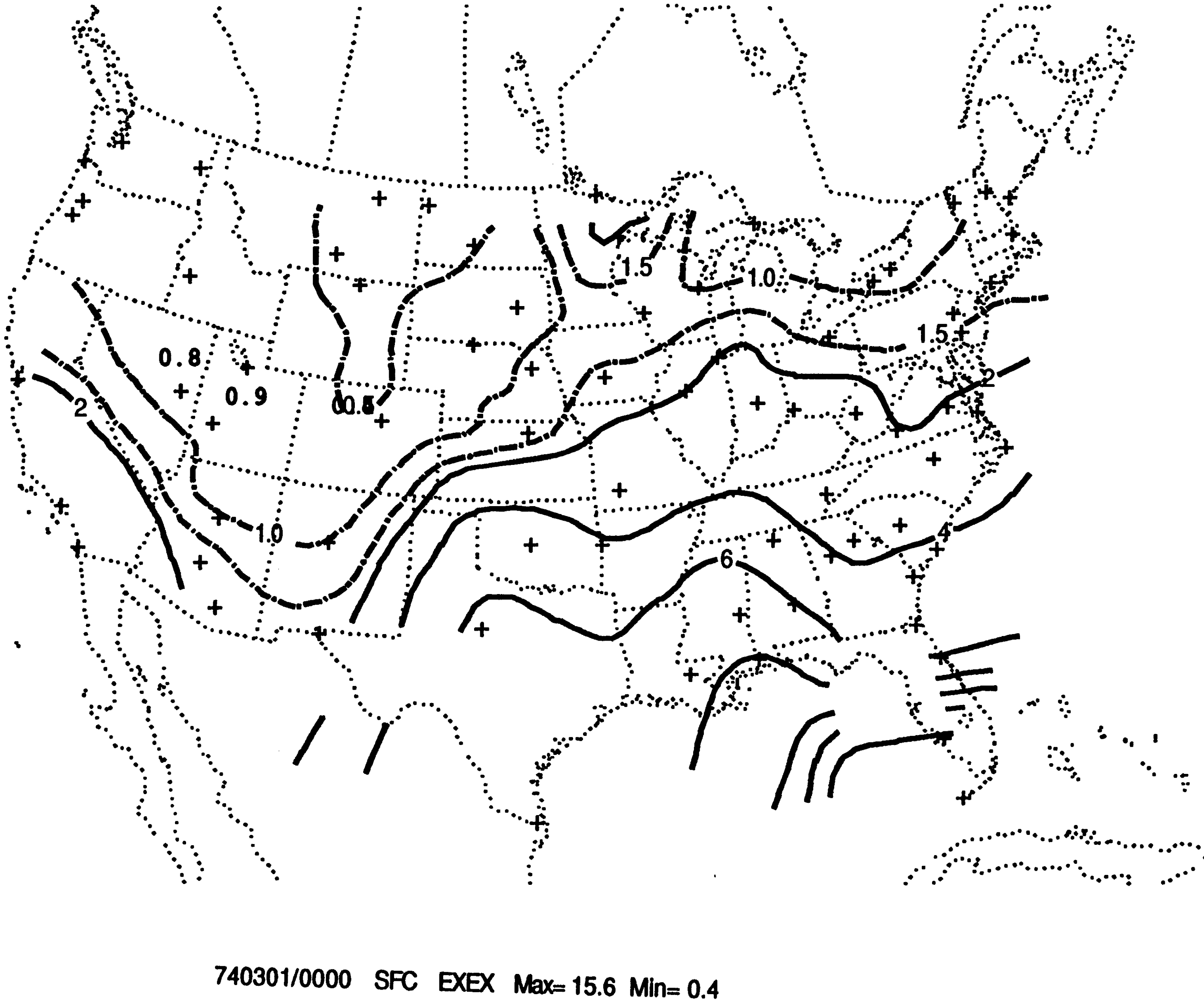
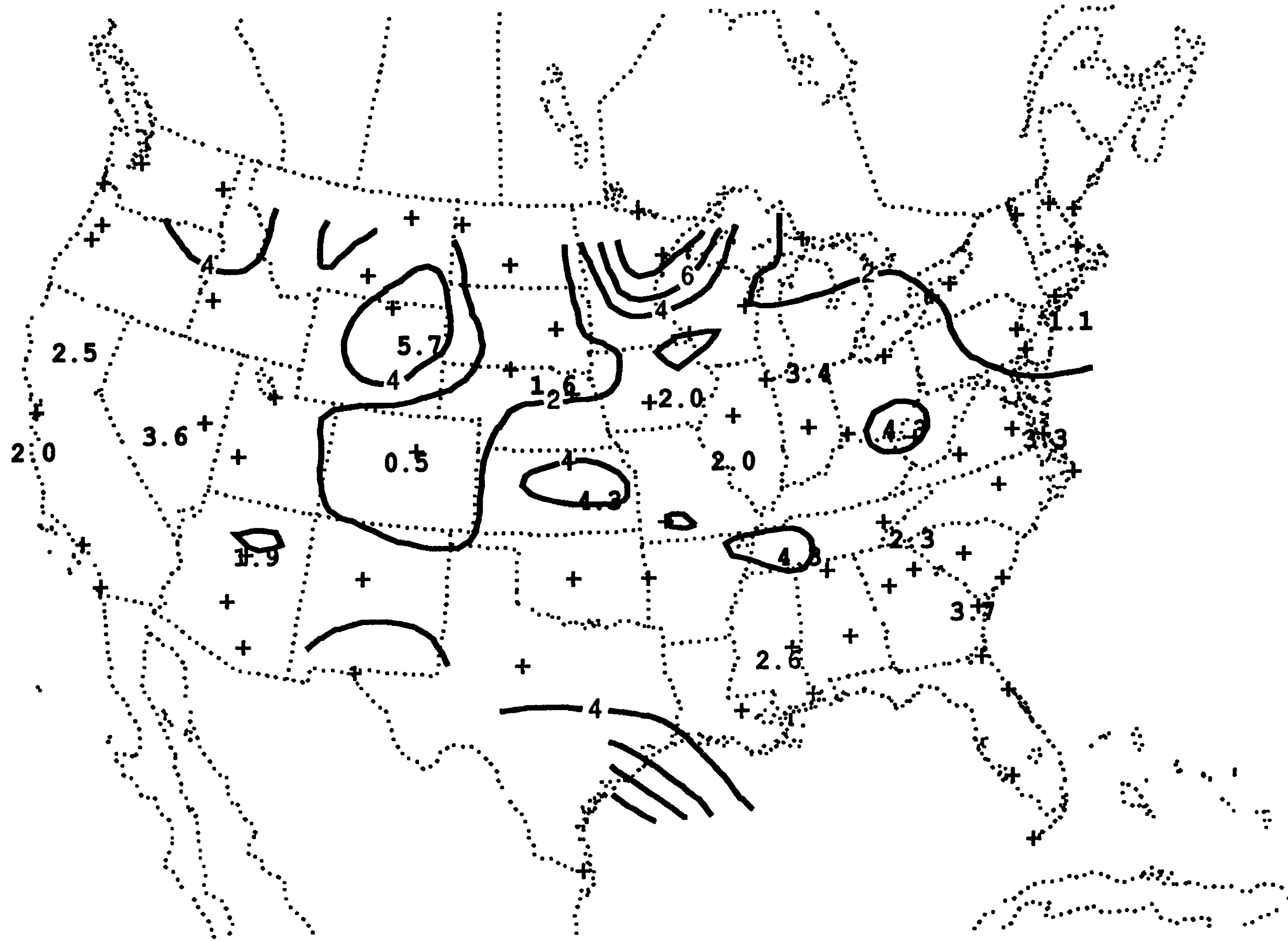


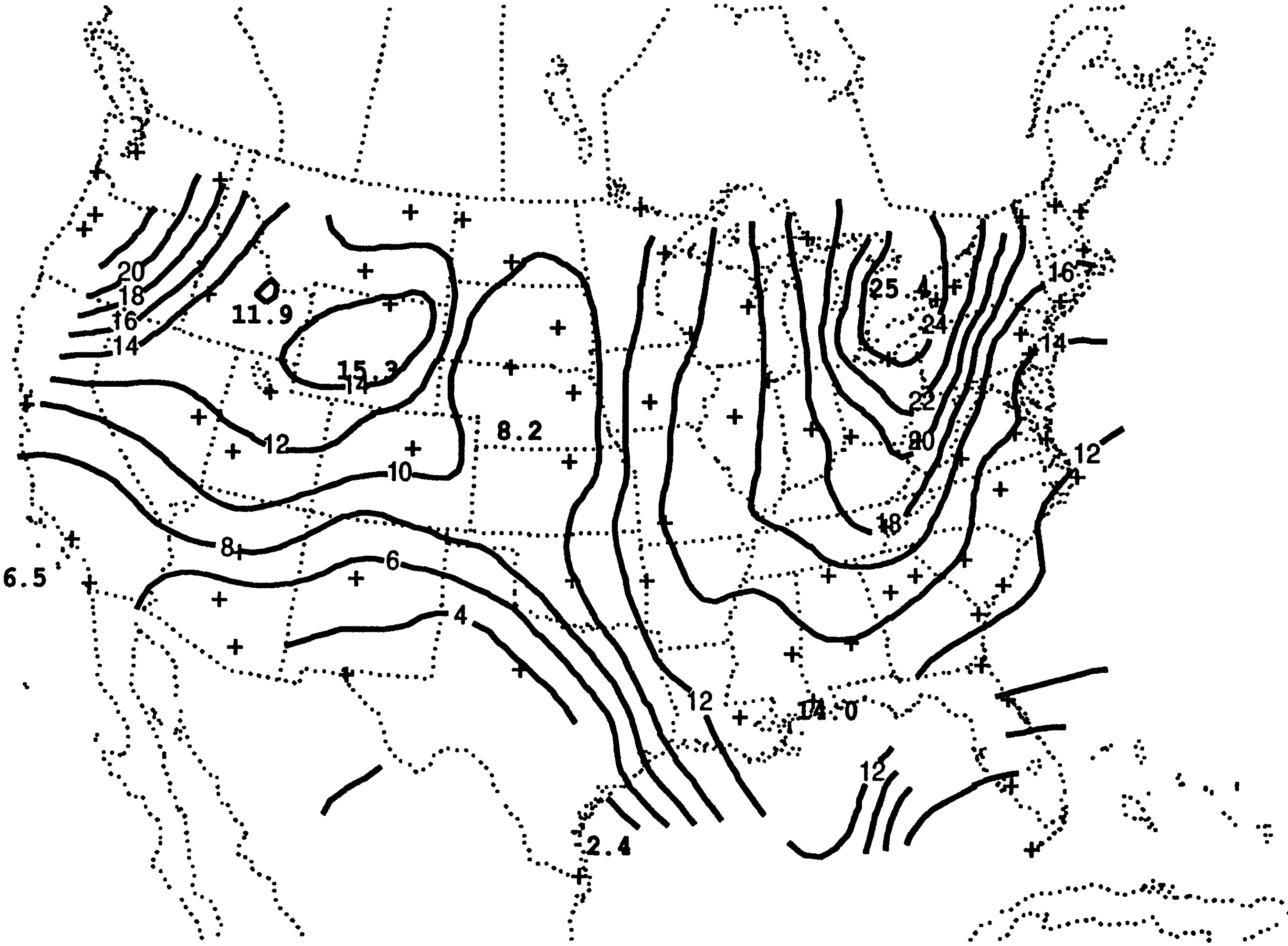
Figure 5–17 – March – E[x]



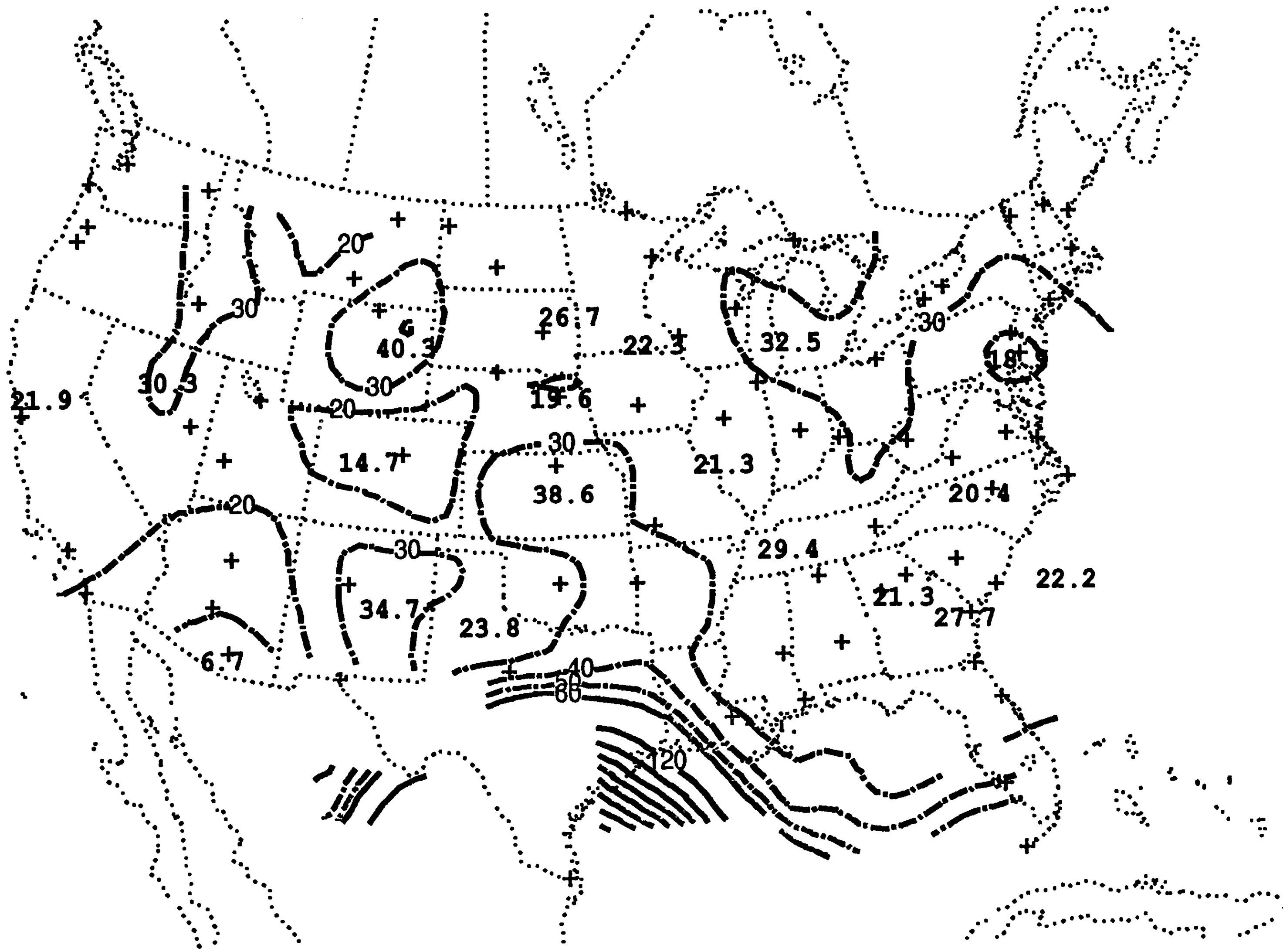
740301/0000 SFC ETAA Max= 11.7 Min= 0.6

Figure 5–18 – March – $E[\eta]$

Figure 5–19 – March – λ

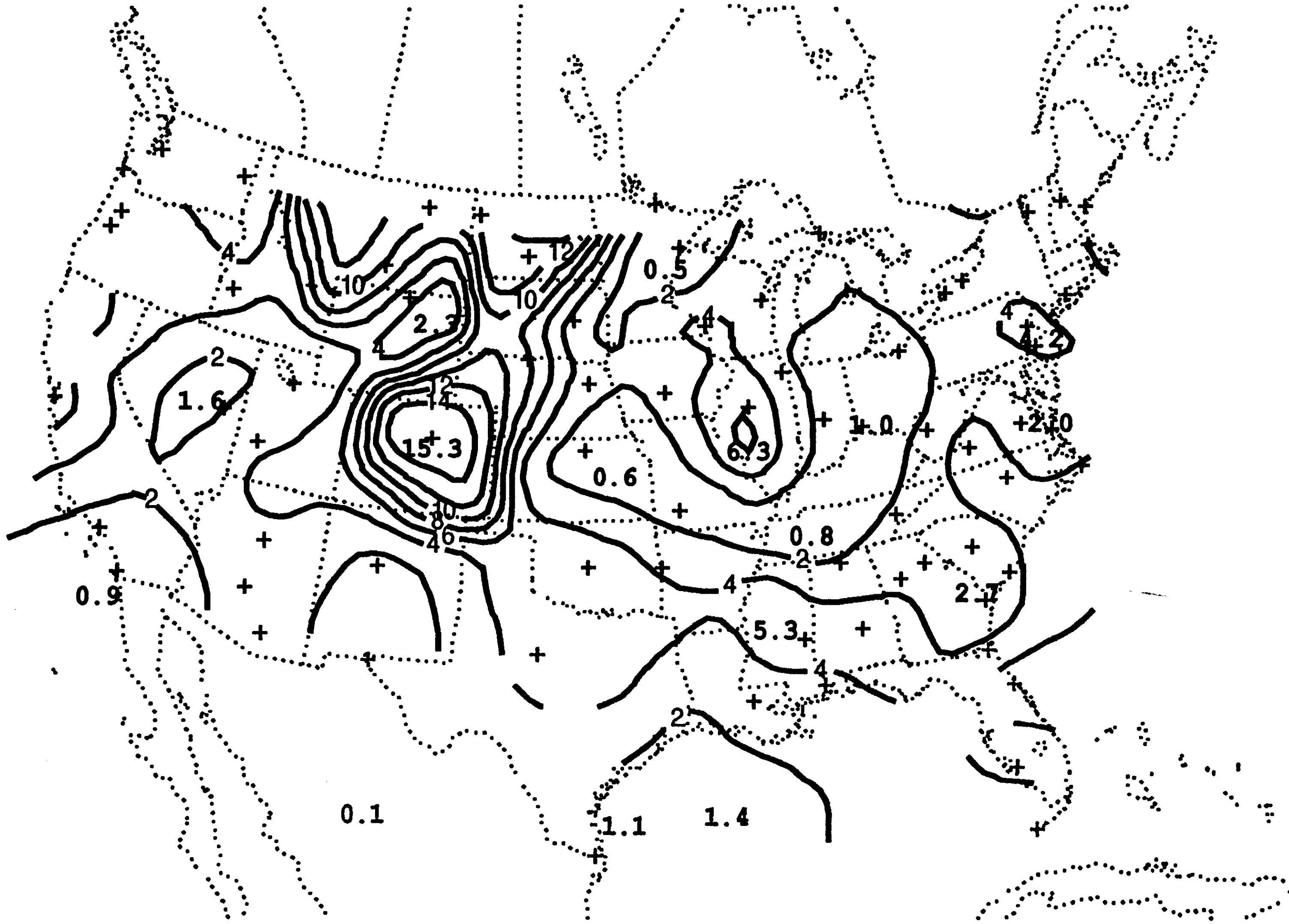


740301/0000 SFC LAMD (*10**3) Max= 25.2 Min= 1.3



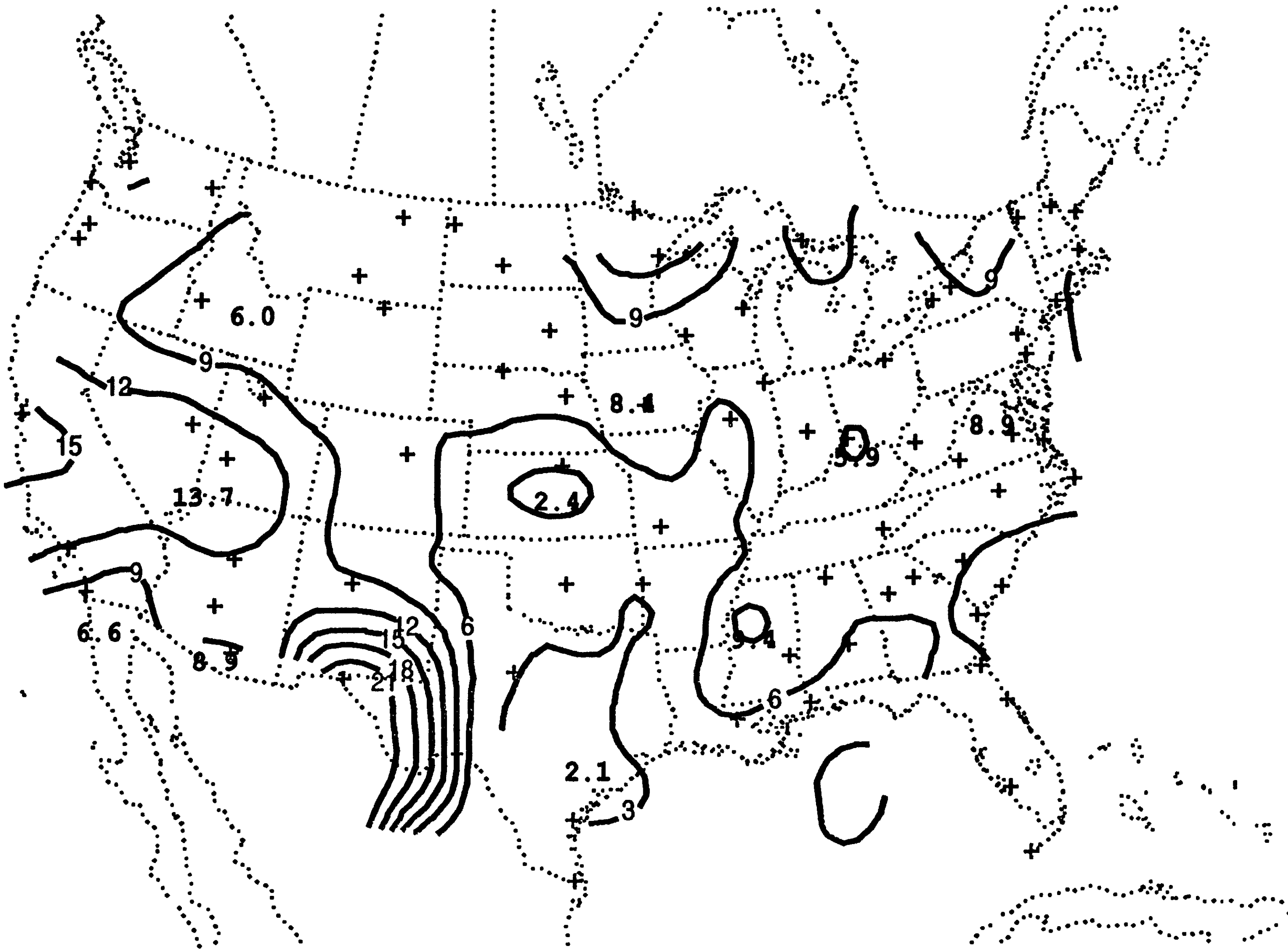
740301/0000 SFC GAMM (*10**2) Max= 557.4 Min= 6.7

Figure 5–20 – March – γ



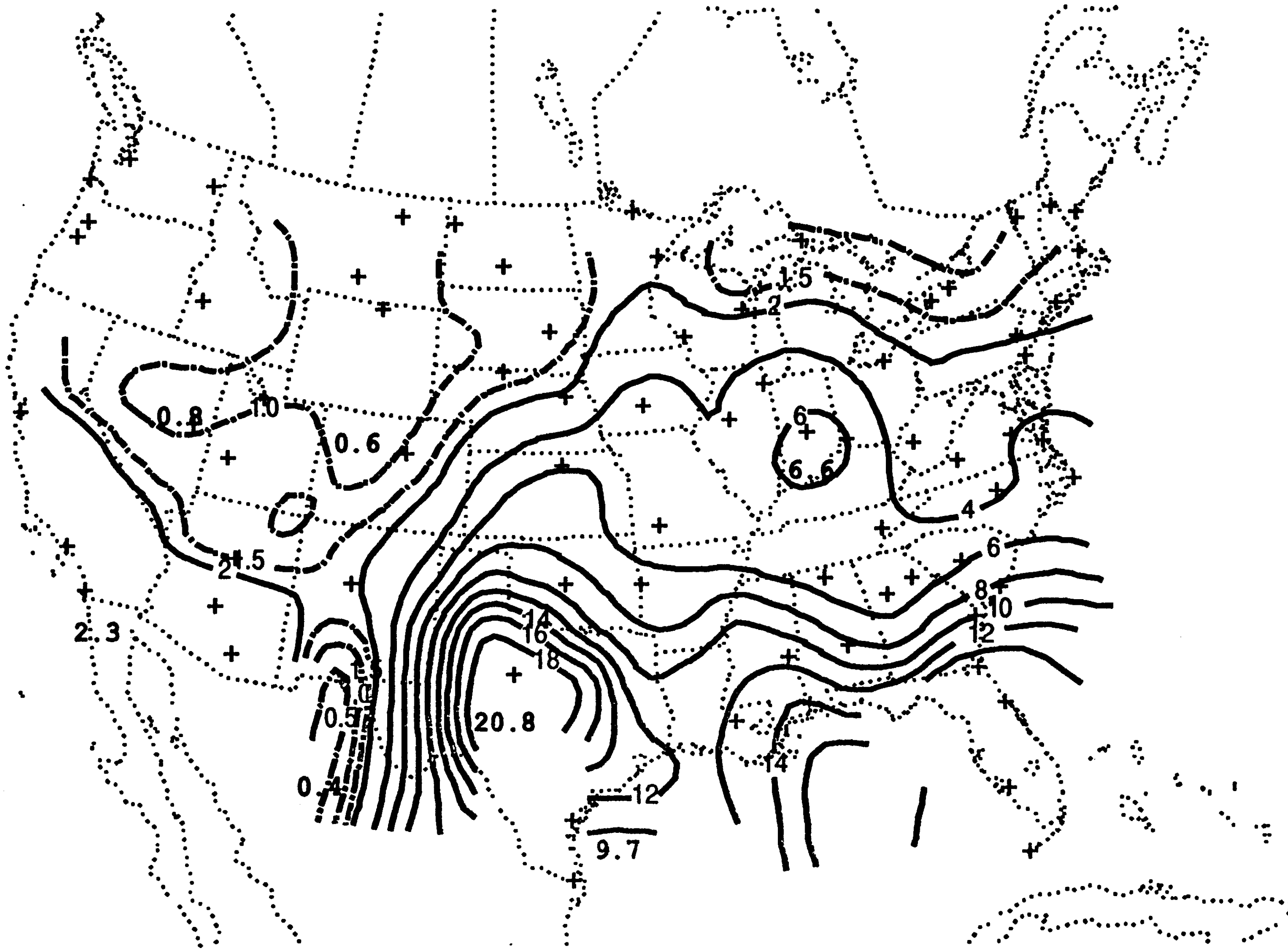
740301/0000 SFC NUNU Max= 14.8 Min= 0.3

Figure 5–21 – March – v



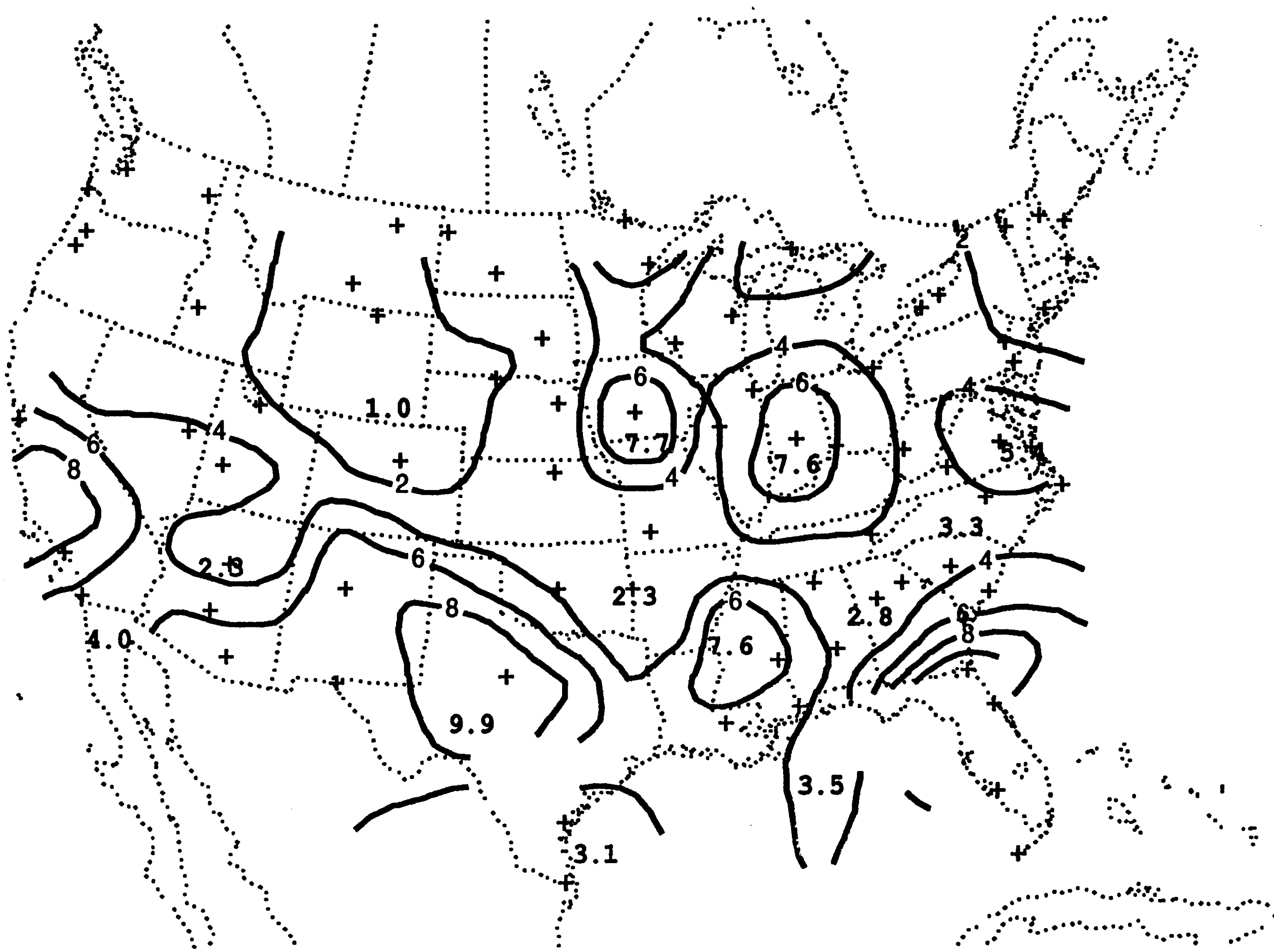
740401/0000 SFC ECEC Max= 23.8 Min= 2.2

Figure 5–22 – April – E[c]



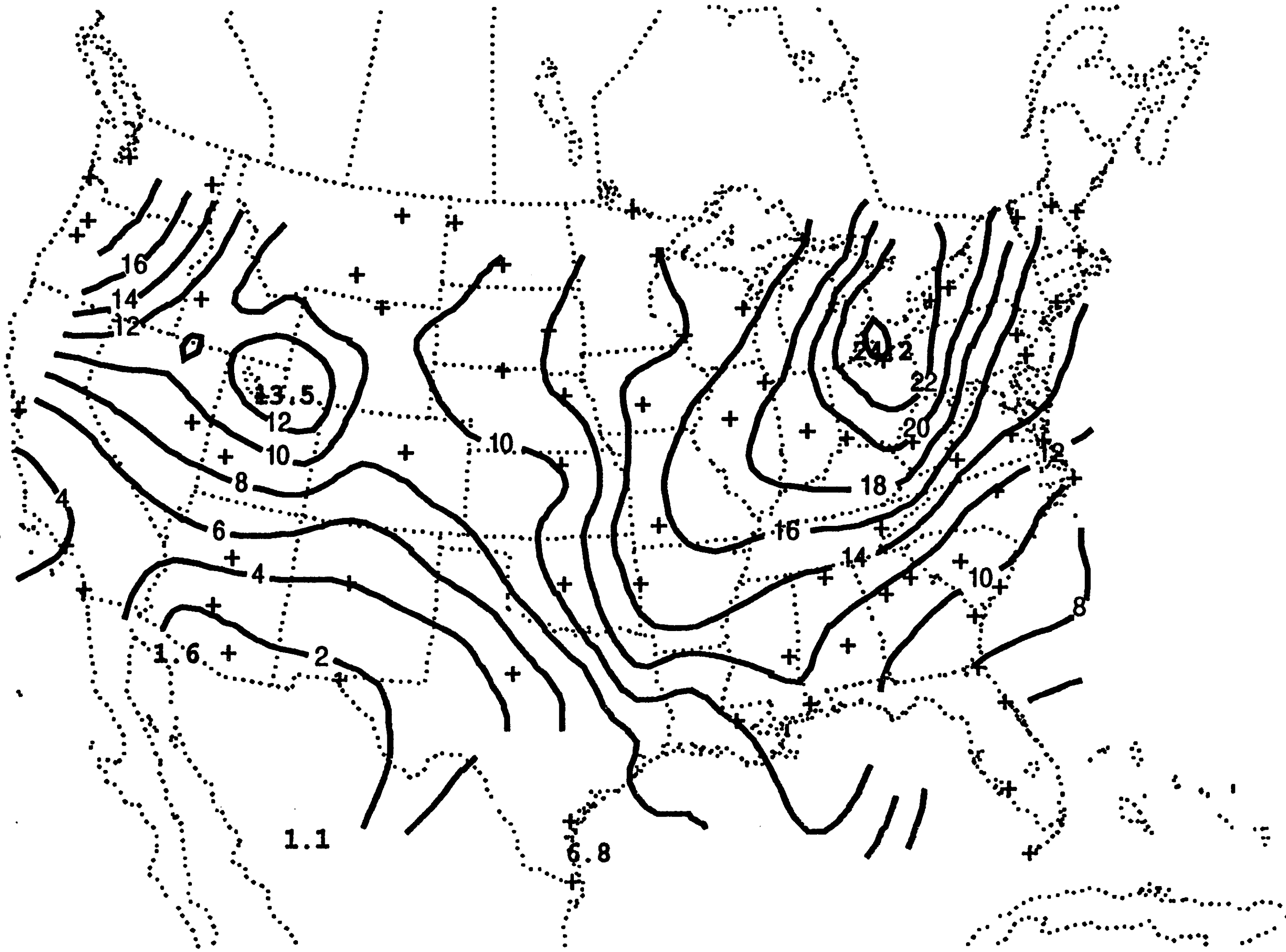
740401/0000 SFC EXEX Max= 19.8 Min= 0.4

Figure 5–23 - April - E[x]



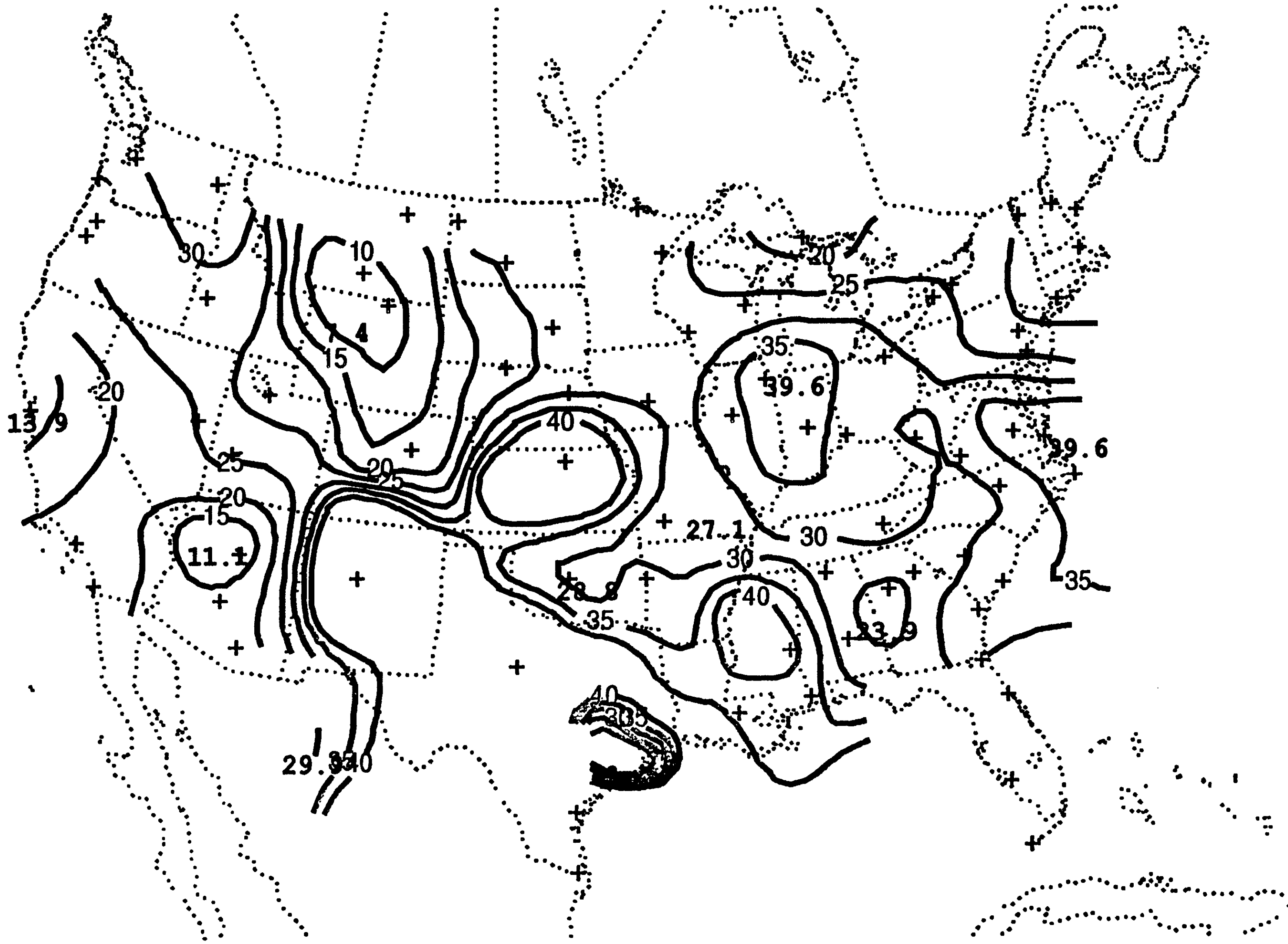
740401/0000 SFC ETAA Max= 12.0 Min= 0.8

Figure 5–24 – April – E[η]



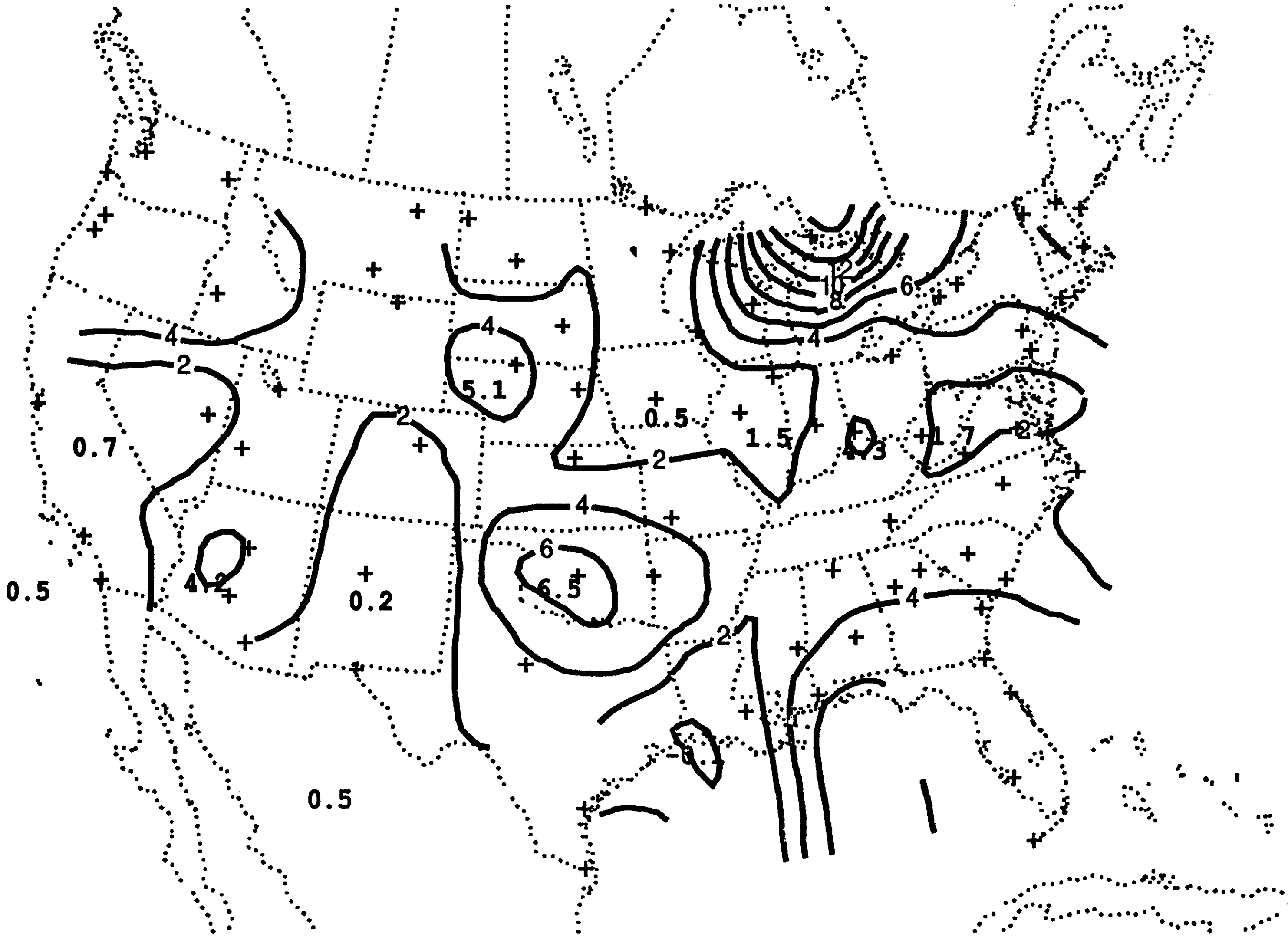
740401/0000 SFC LAMD (*10**3) Max= 24.2 Min= 1.1

Figure 5–25 – April – λ



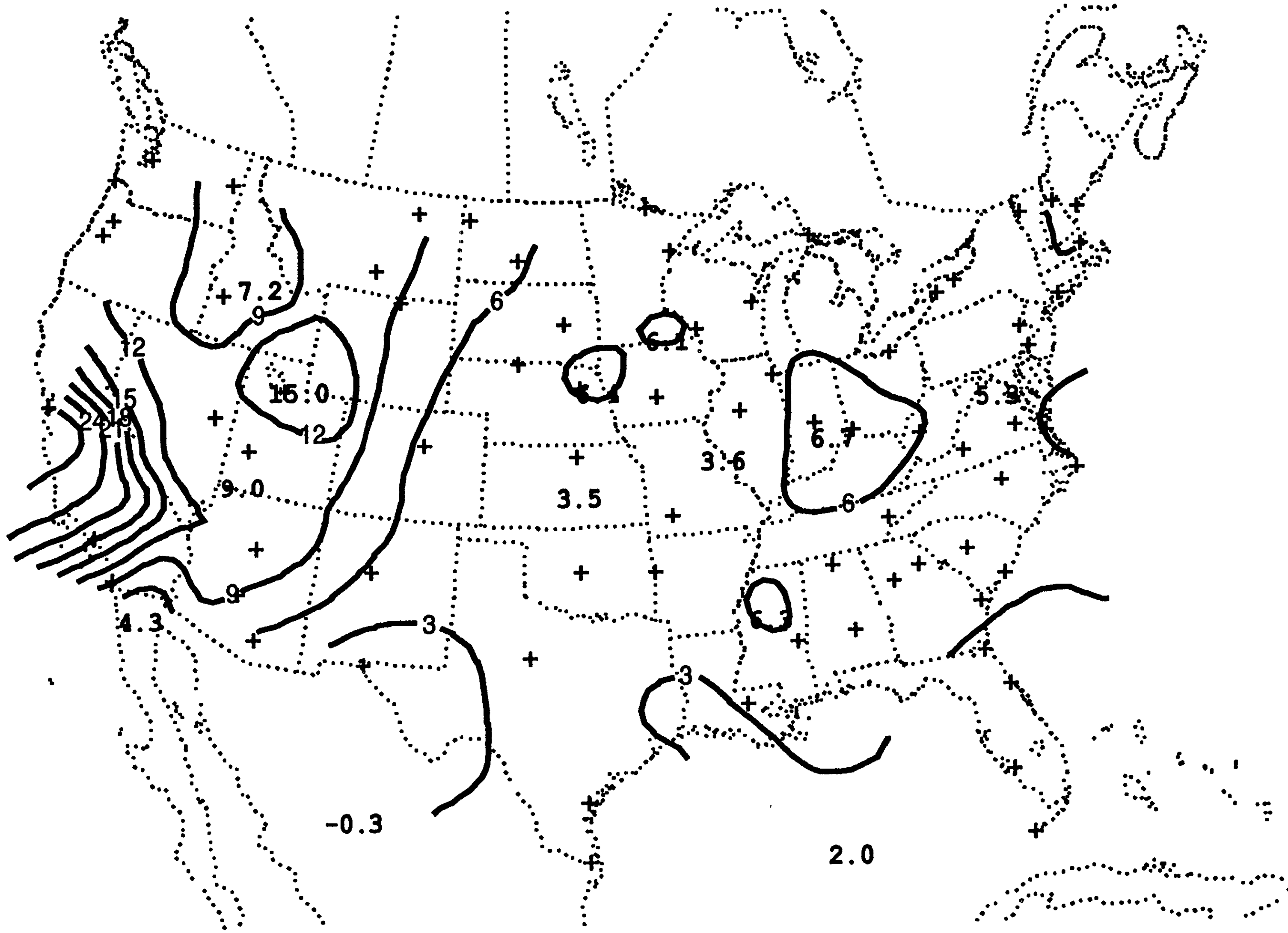
740401/0000 SFC GAMM (*10**2) Max= 147.3 Min= 8.2

Figure 5–26 – April – 7



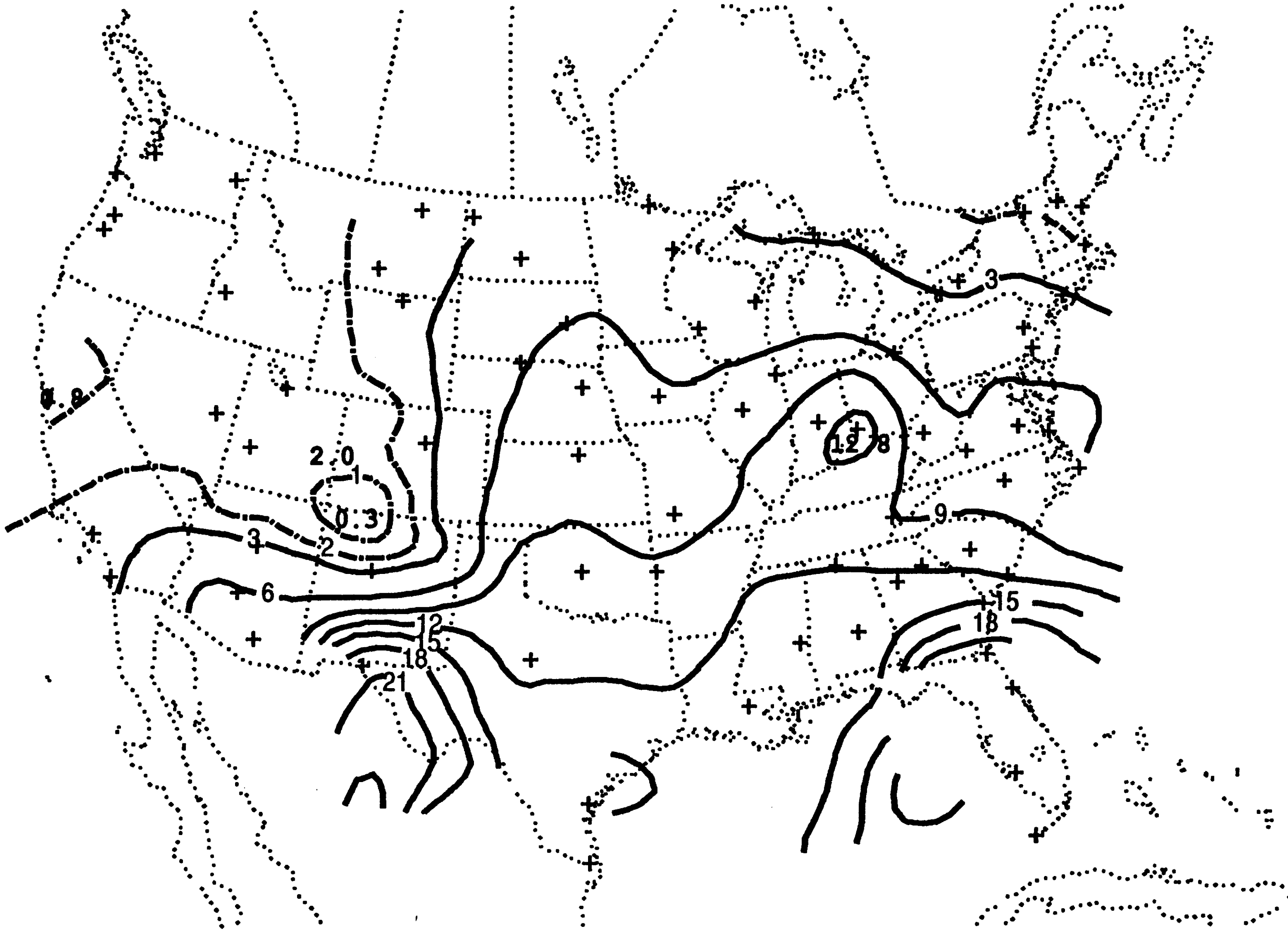
740401/0000 SFC NUNU Max= 16.2 Min= -0.1

Figure 5-27 – April – v



740501/0000 SFC ECEC Max= 28.1 Min= 0.0

Figure 5-28 – May – E[c]



740501/0000 SFC EXEX Max= 24.1 Min= 0.3

Figure 5–29 – May – E[x]

Figure 5–30 – May – E[η]

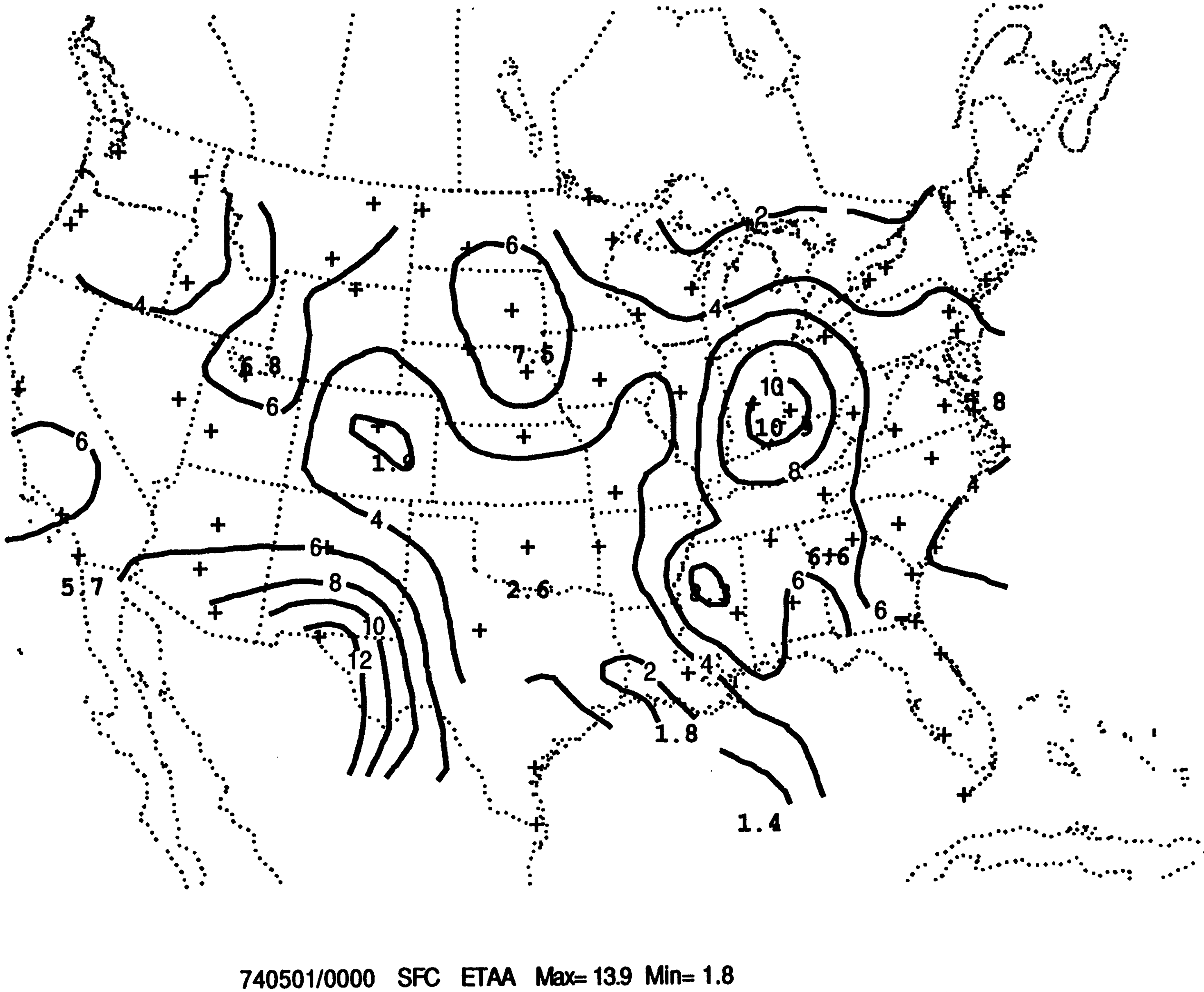
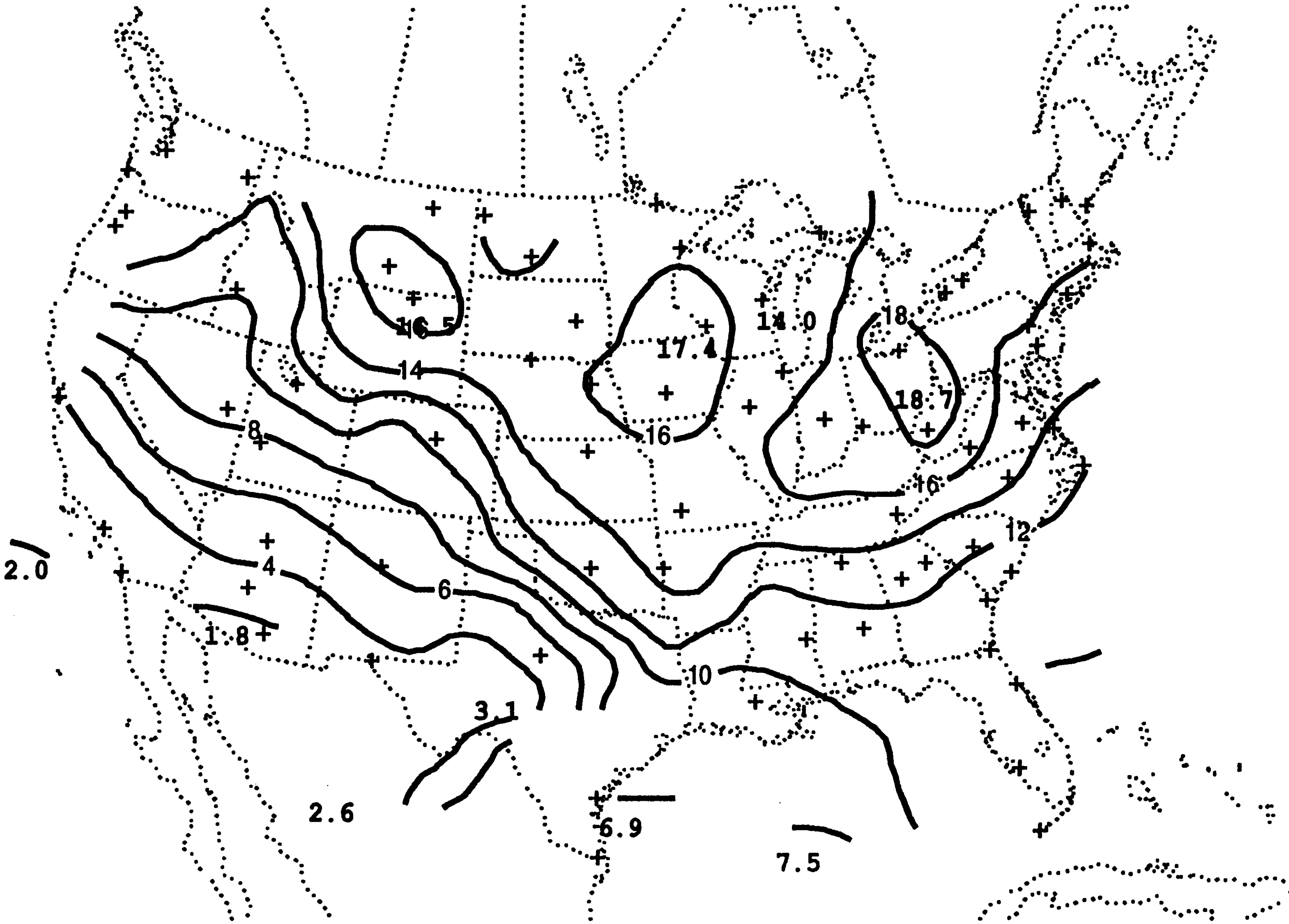
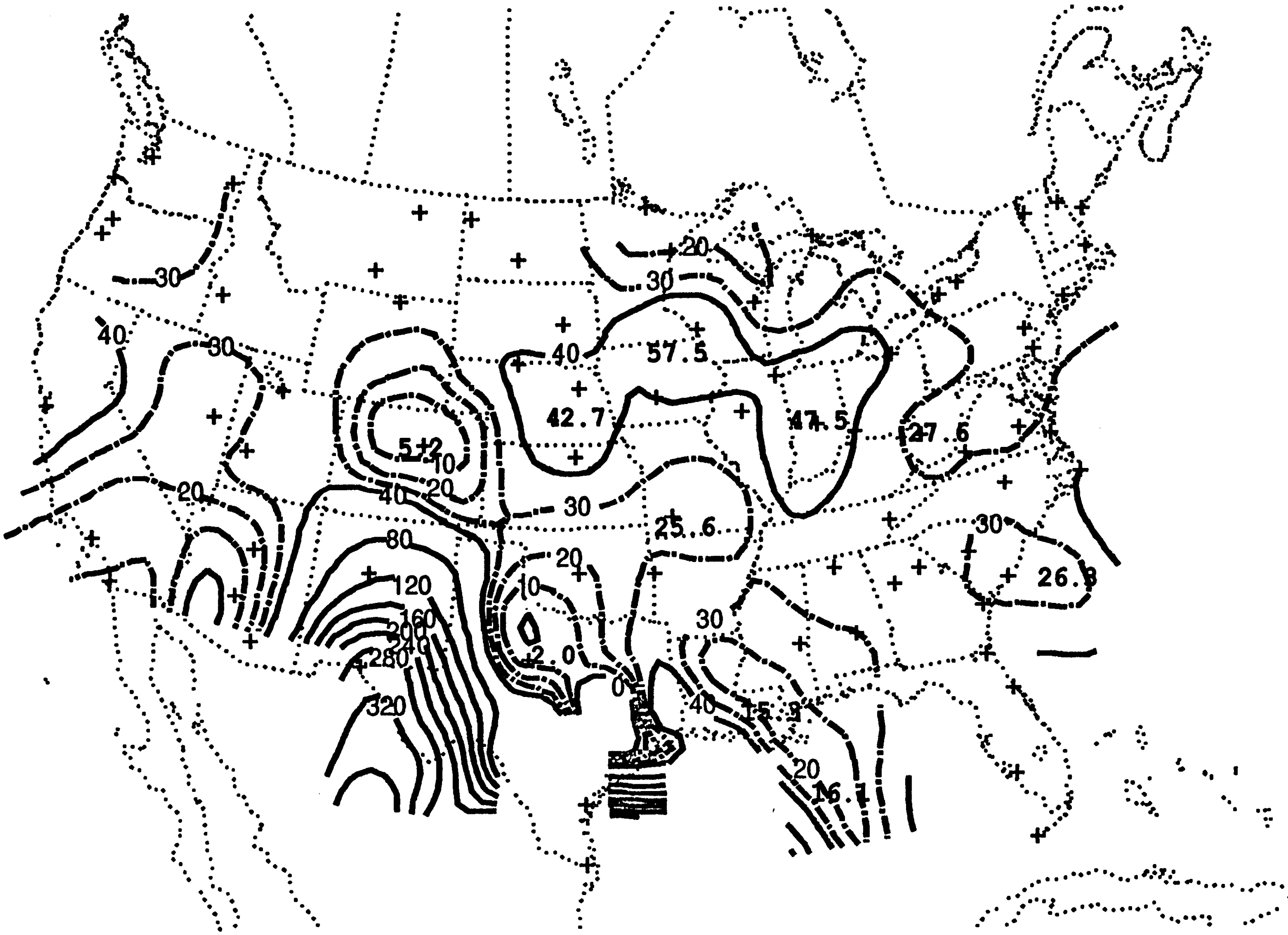


Figure 5–31 – May – λ



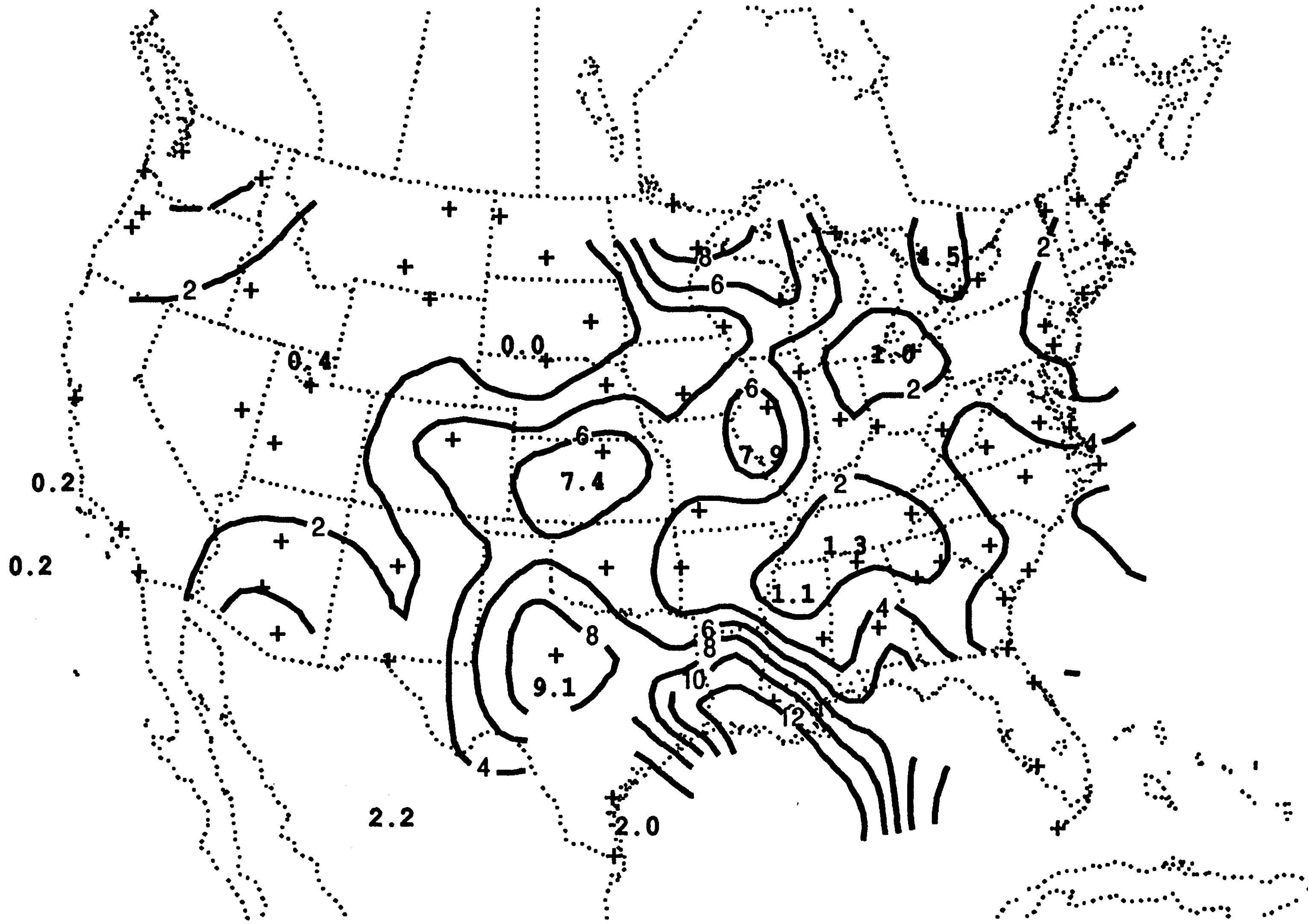
740501/0000 SFC LAMD (*10**3) Max= 18.7 Min= 1.9



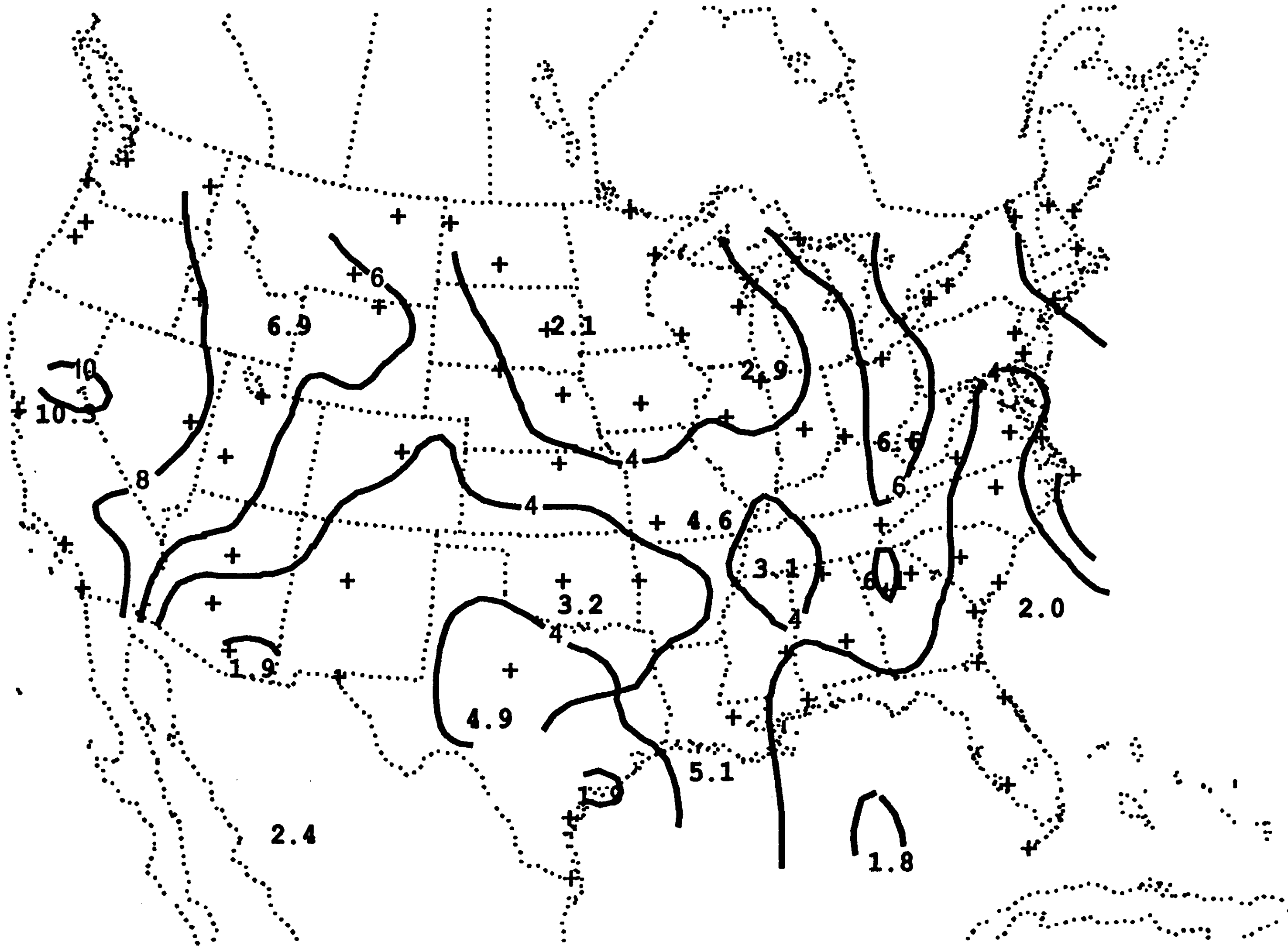
740501/0000 SFC GAMM (*10**2) Max= 393.5 Min= -41.6

Figure 5–32 – May – γ

Figure 5–33 – May – ν



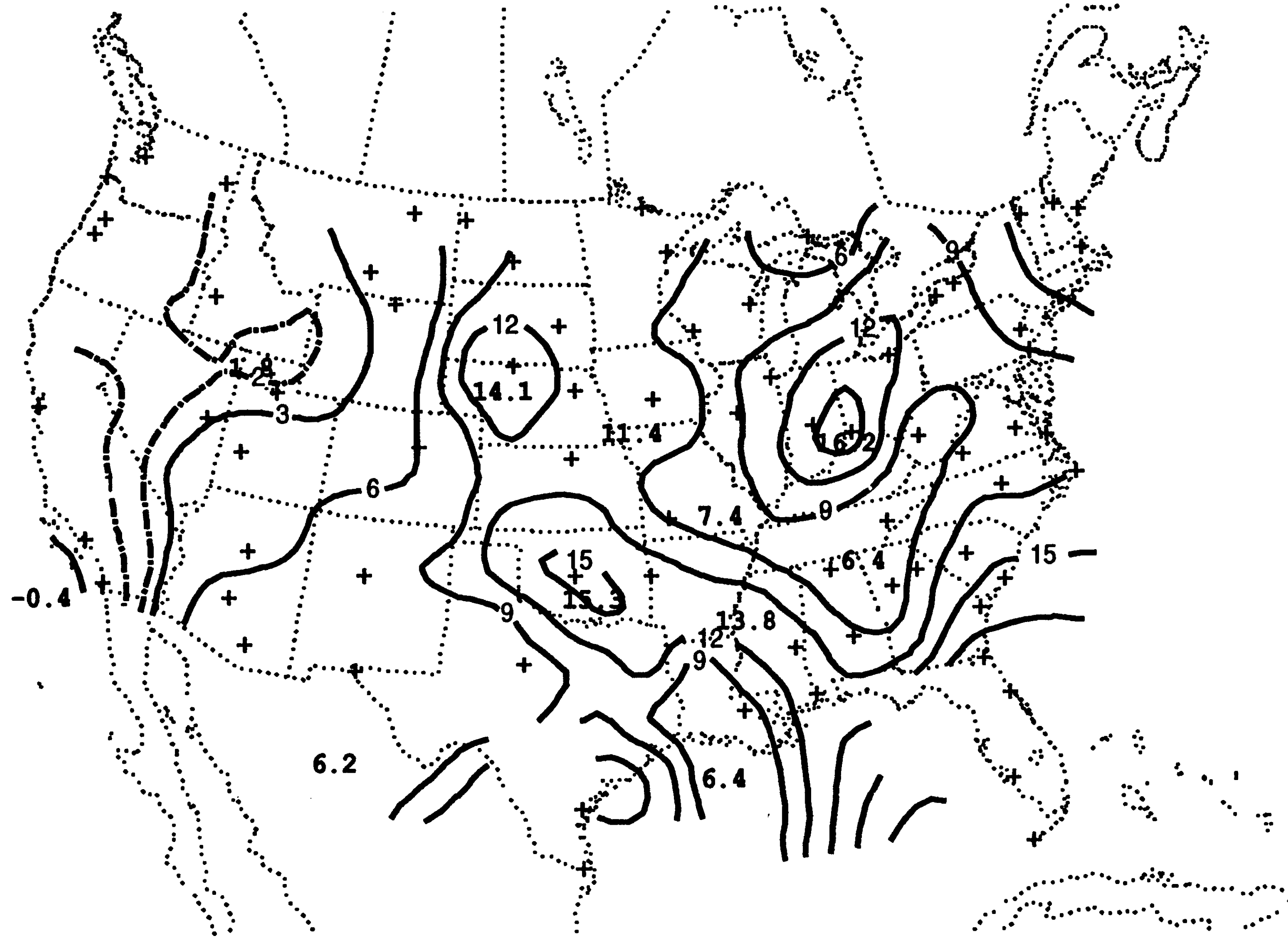
740501/0000 SFC NUNU Max= 13.4 Min= 0.0



740601/0000 SFC ECEC Max= 10.3 Min= 1.8

Figure 5–34 – June – E[c]

Figure 5–35 – June – E[x]



740601/0000 SFC EXEX Max= 21.2 Min= -0.4

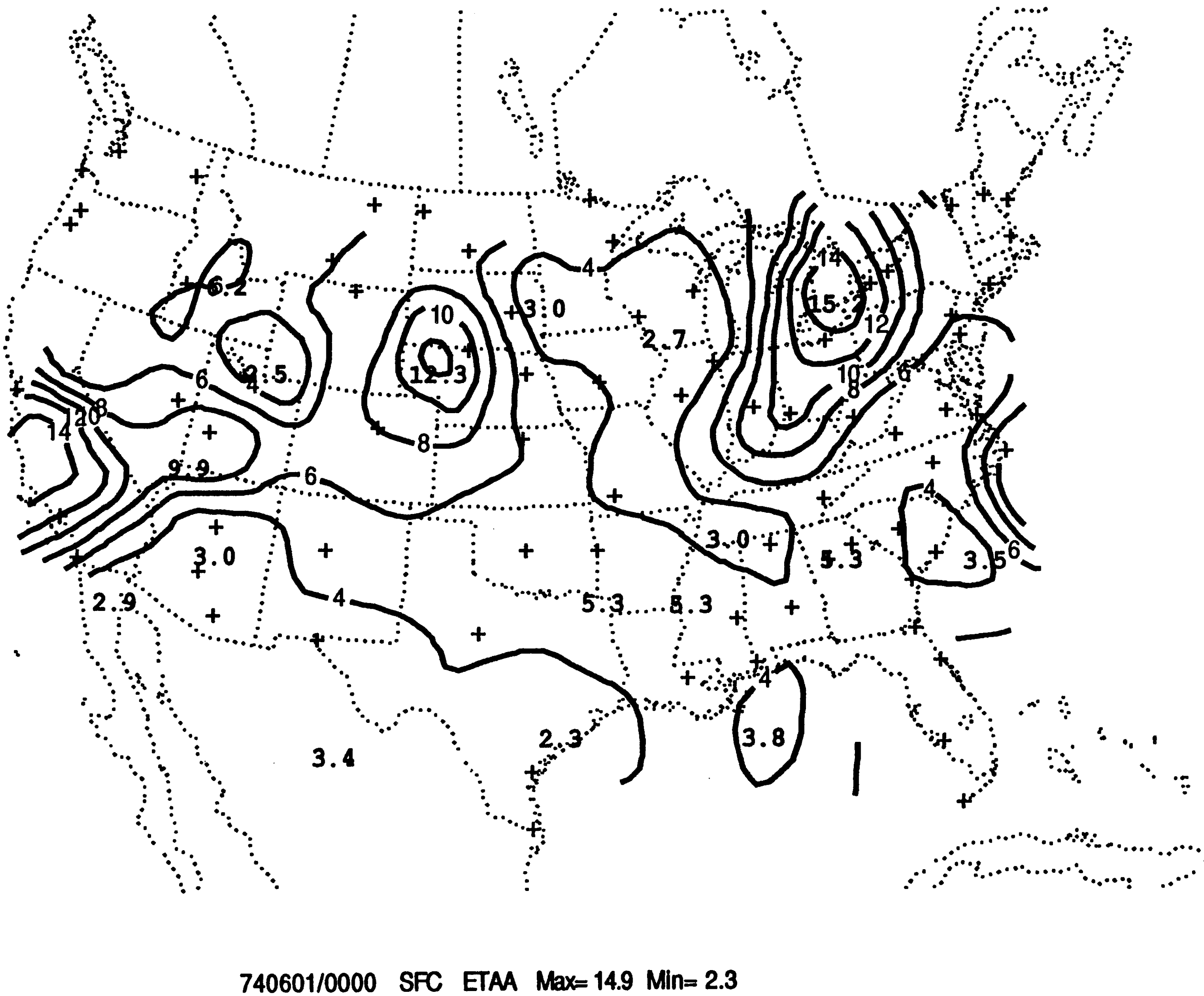
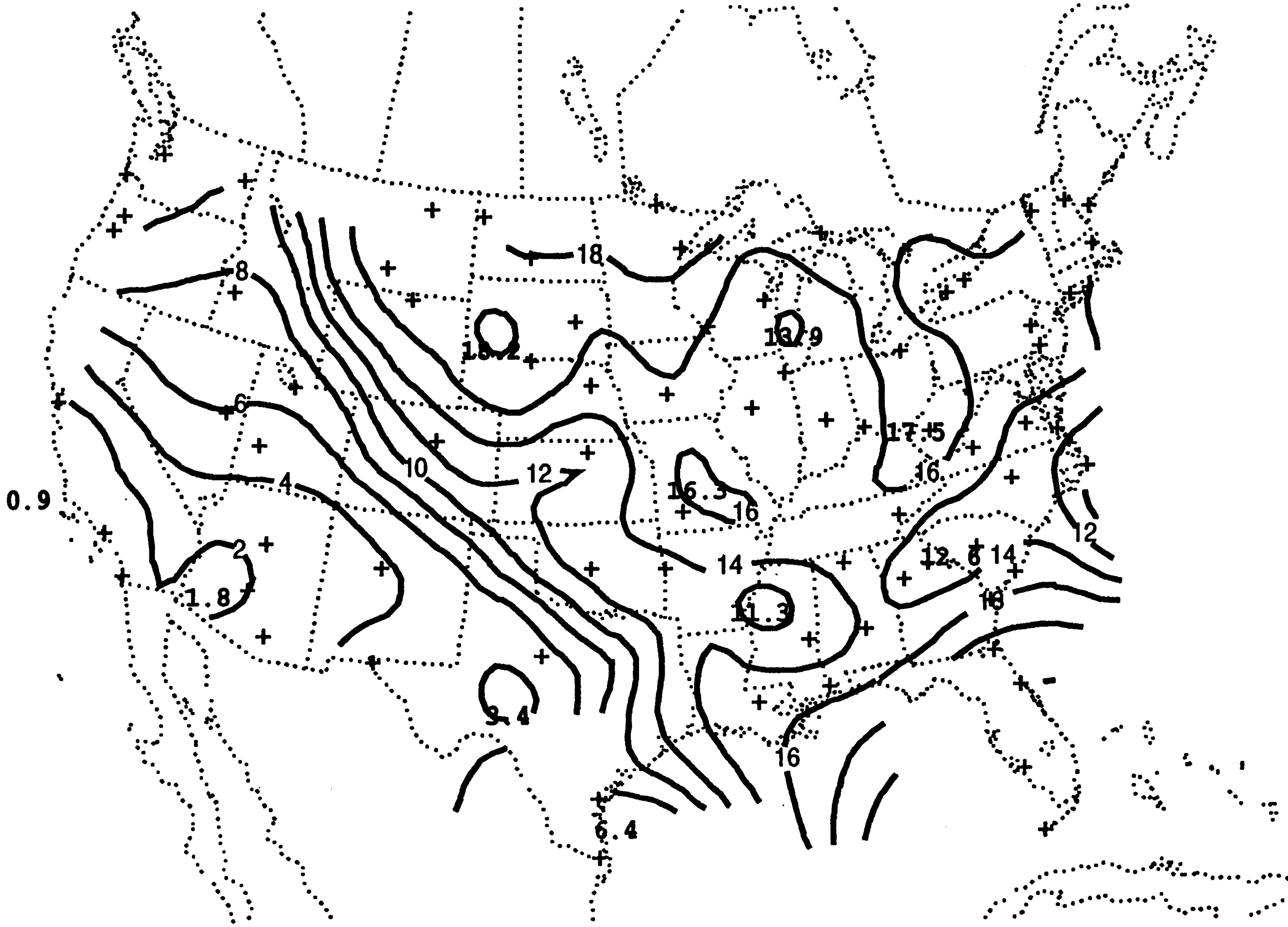
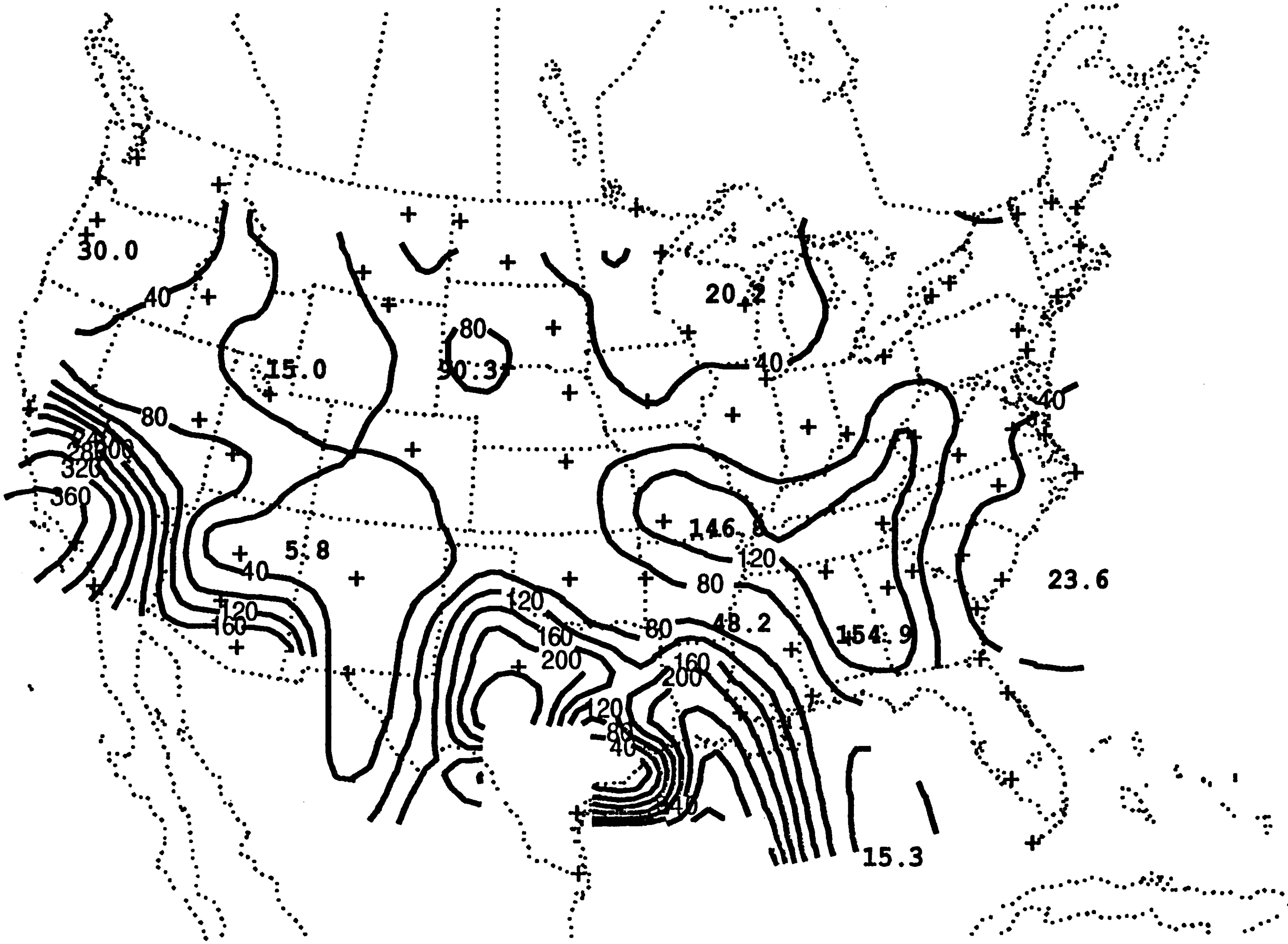


Figure 5-36 - June - E[η]

Figure 5-37 – June – λ

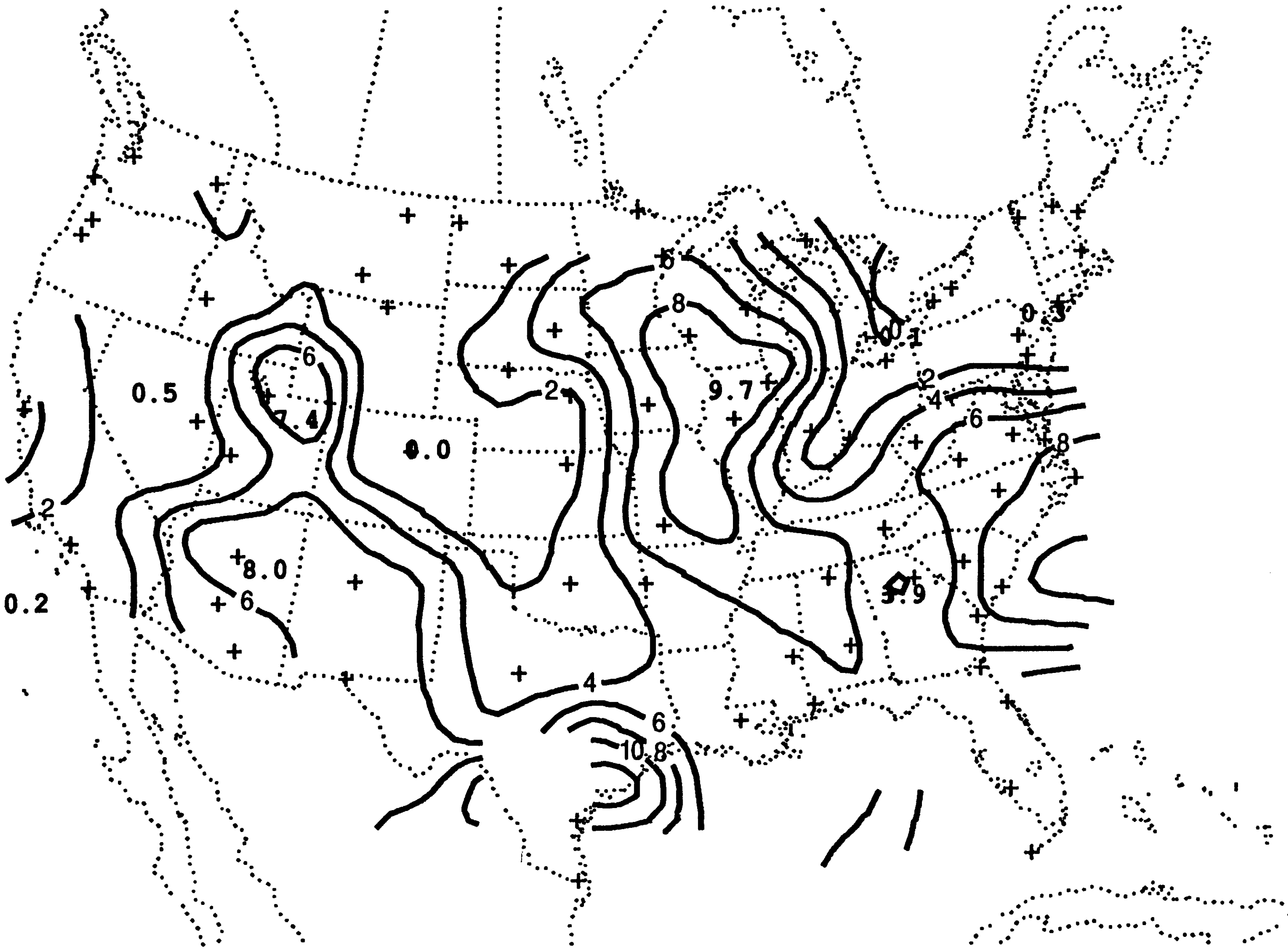


740601/0000 SFC LAMD (*10**3) Max= 21.9 Min= 0.9



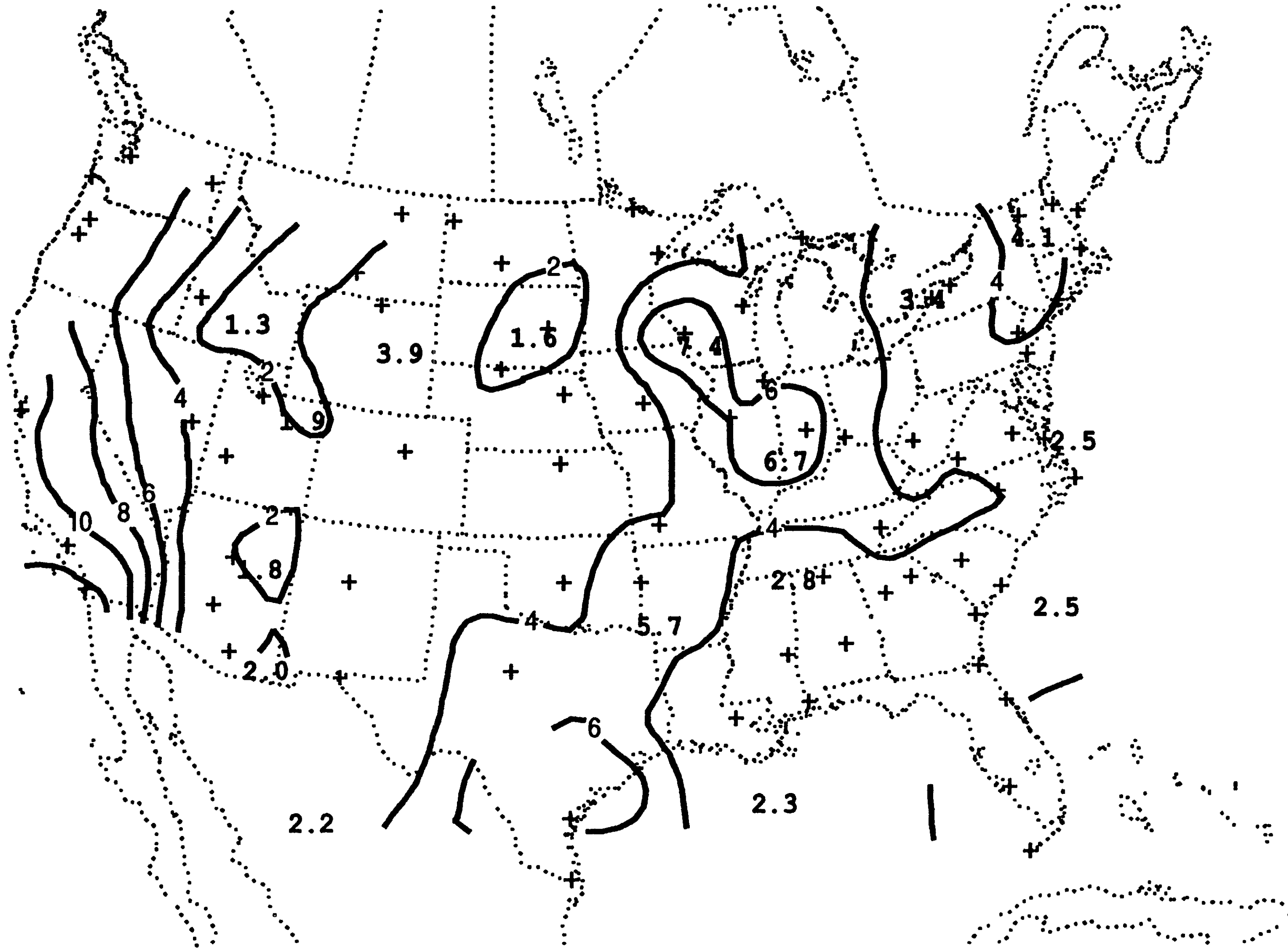
740601/0000 SFC GAMM (*10**2) Max= 386.8 Min= 10.1

Figure 5-38 - June - γ



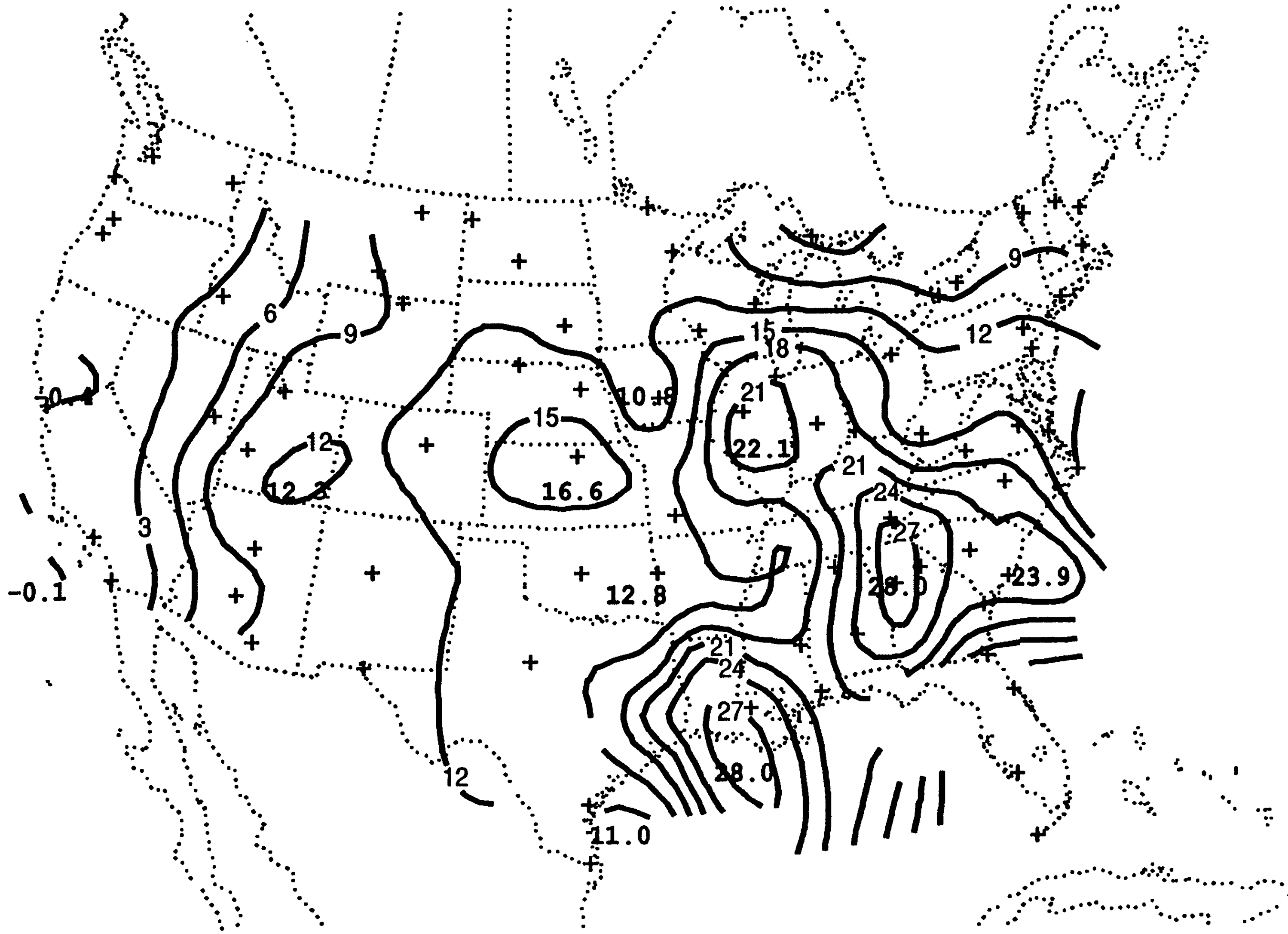
740601/0000 SFC NUNU Max= 12.6 Min= -0.8

Figure 5-39 – June – v



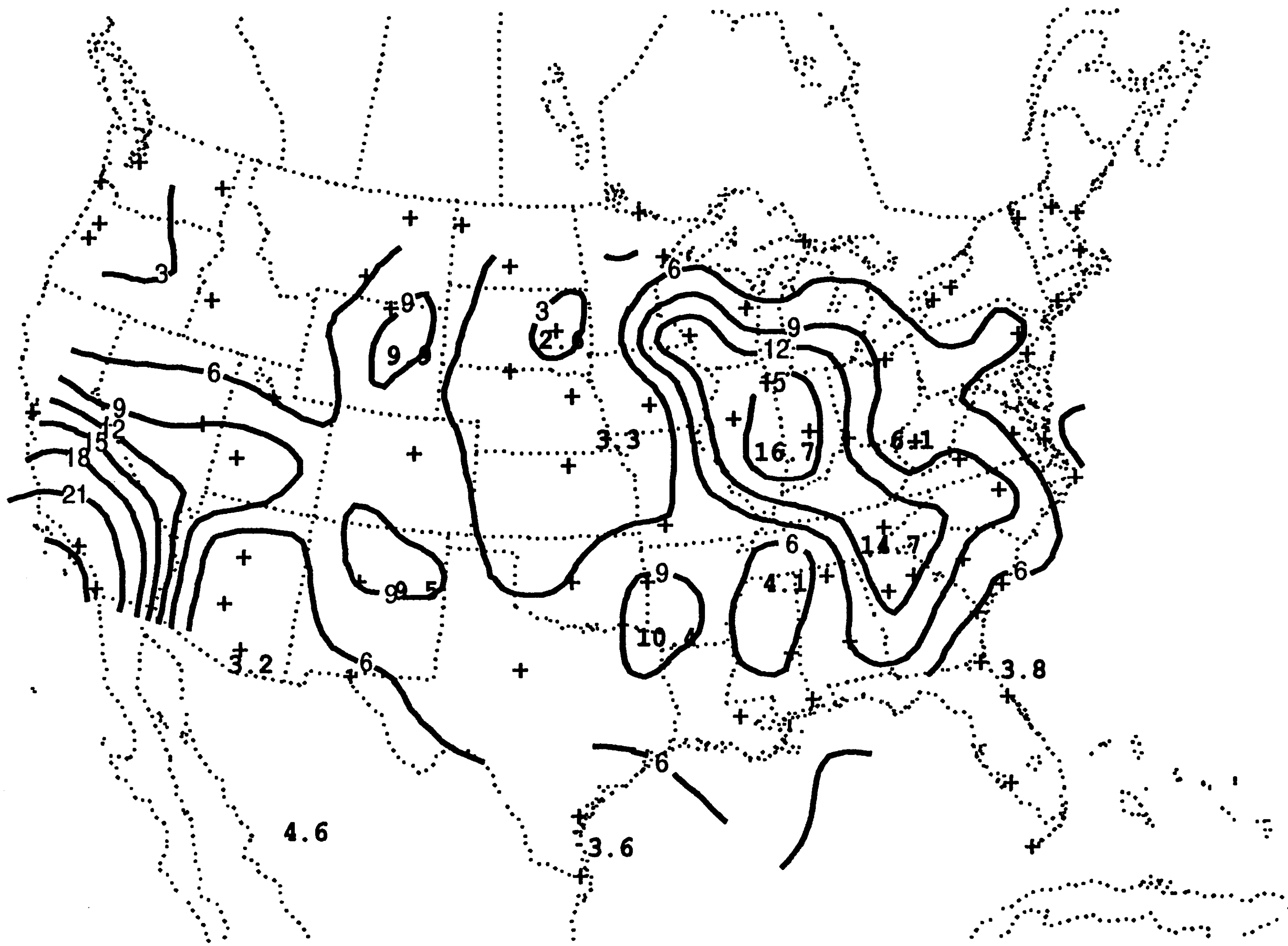
740701/0000 SFC ECEC Max= 13.0 Min= 1.3

Figure 5-40 - July - E[c]



740701/0000 SFC EXEX Max= 28.0 Min= -0.4

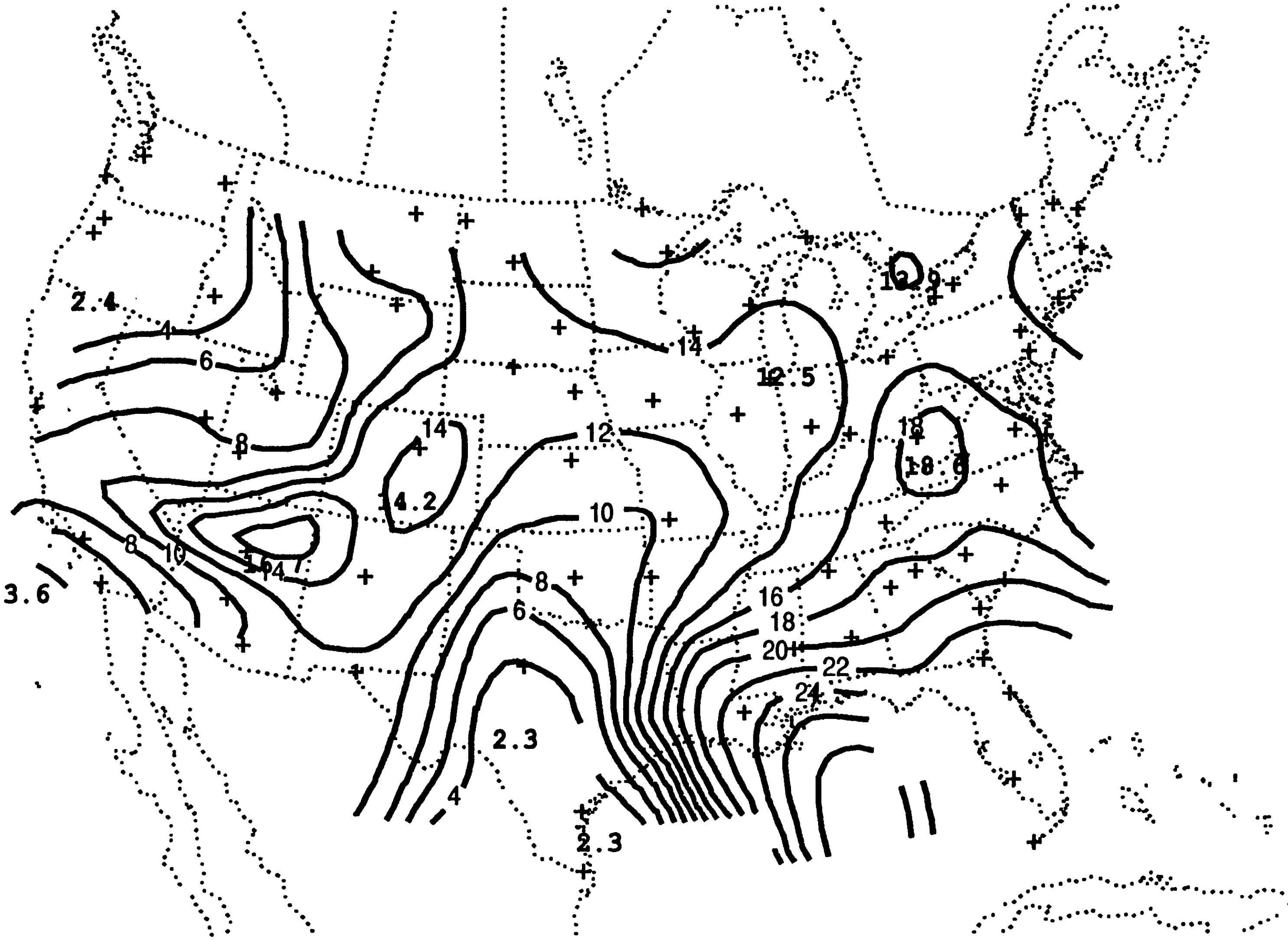
Figure 5-41 - July - E[x]



740701/0000 SFC ETAA Max= 25.8 Min= 2.6

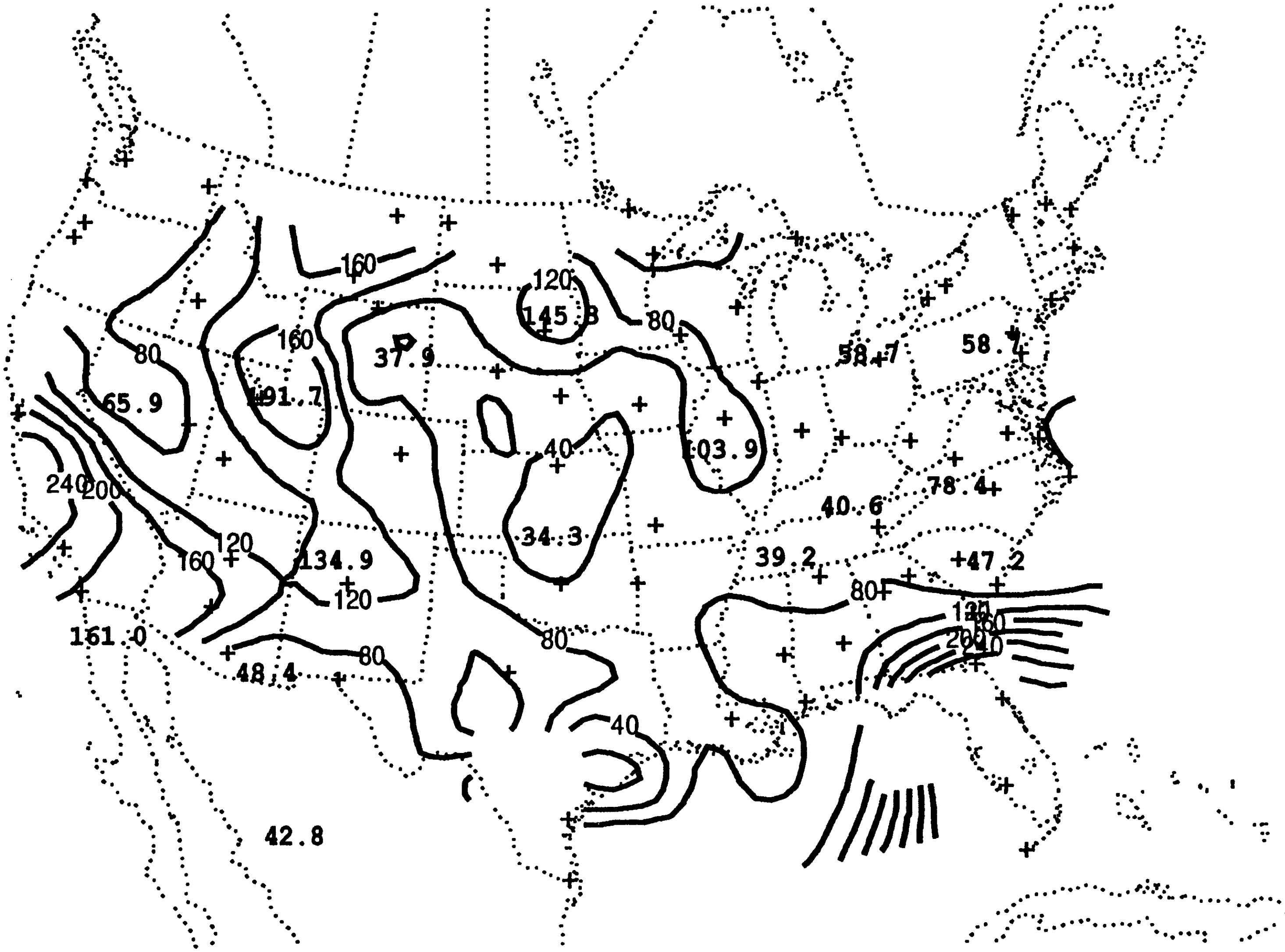
Figure 5-42 - July - E[η]

Figure 5-43 – July – λ



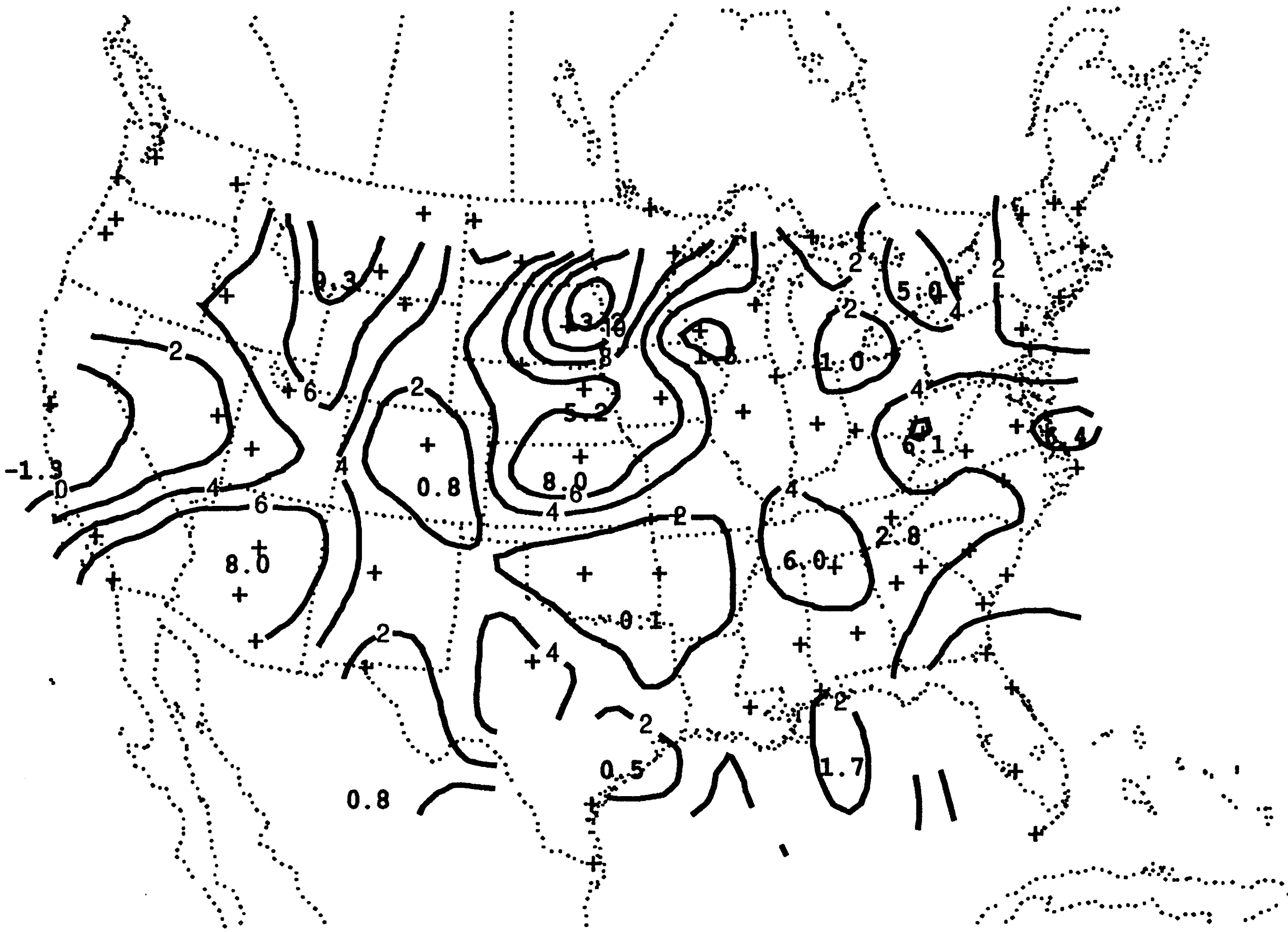
740701/0000 SFC LAMD (*10**3) Max= 29.2 Min= 2.0

Figure 5-44 - July - γ

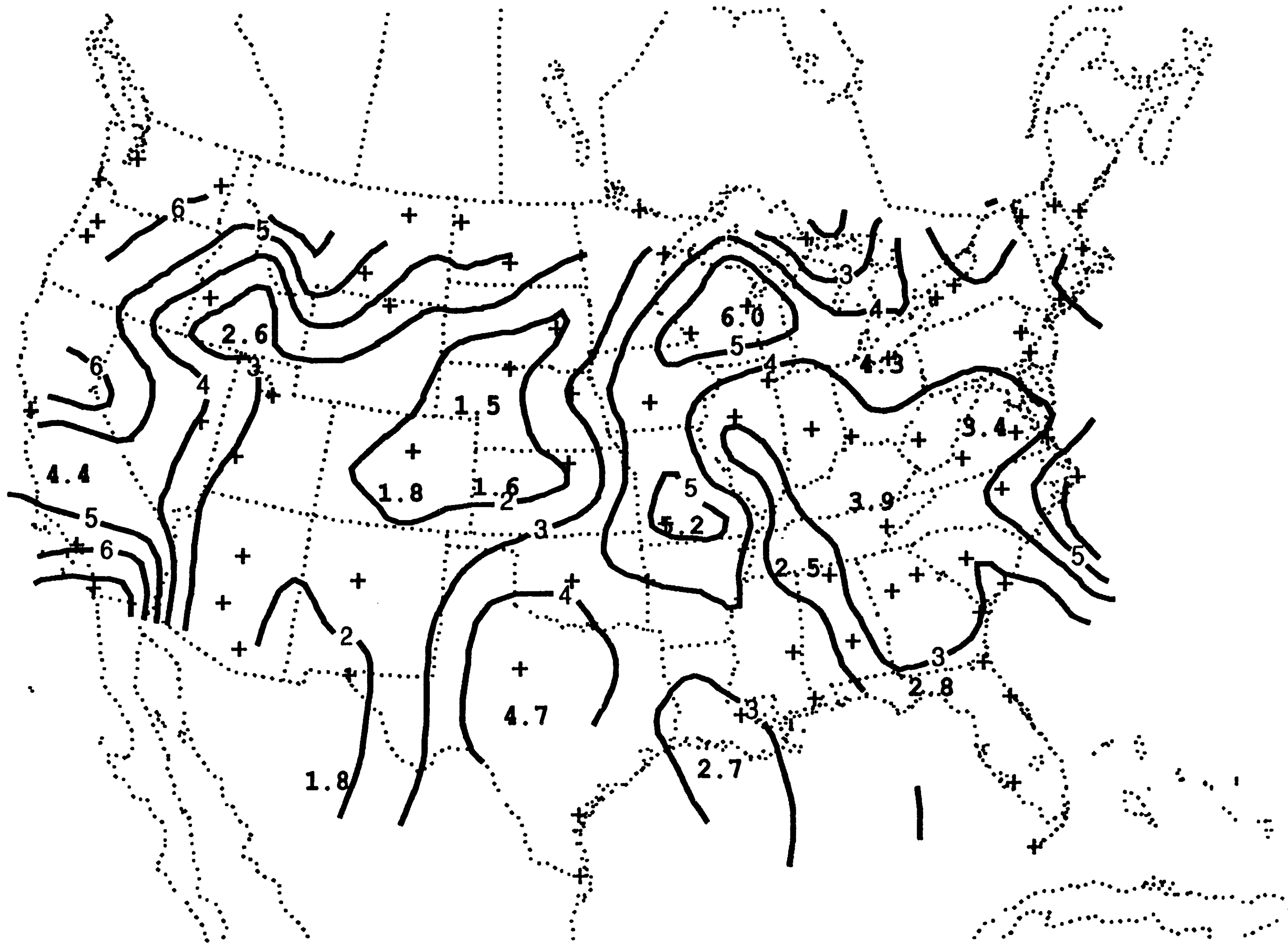


740701/0000 SFC GAMM (*10**2) Max= 384.2 Min= -3.4

Figure 5-45 - July - v

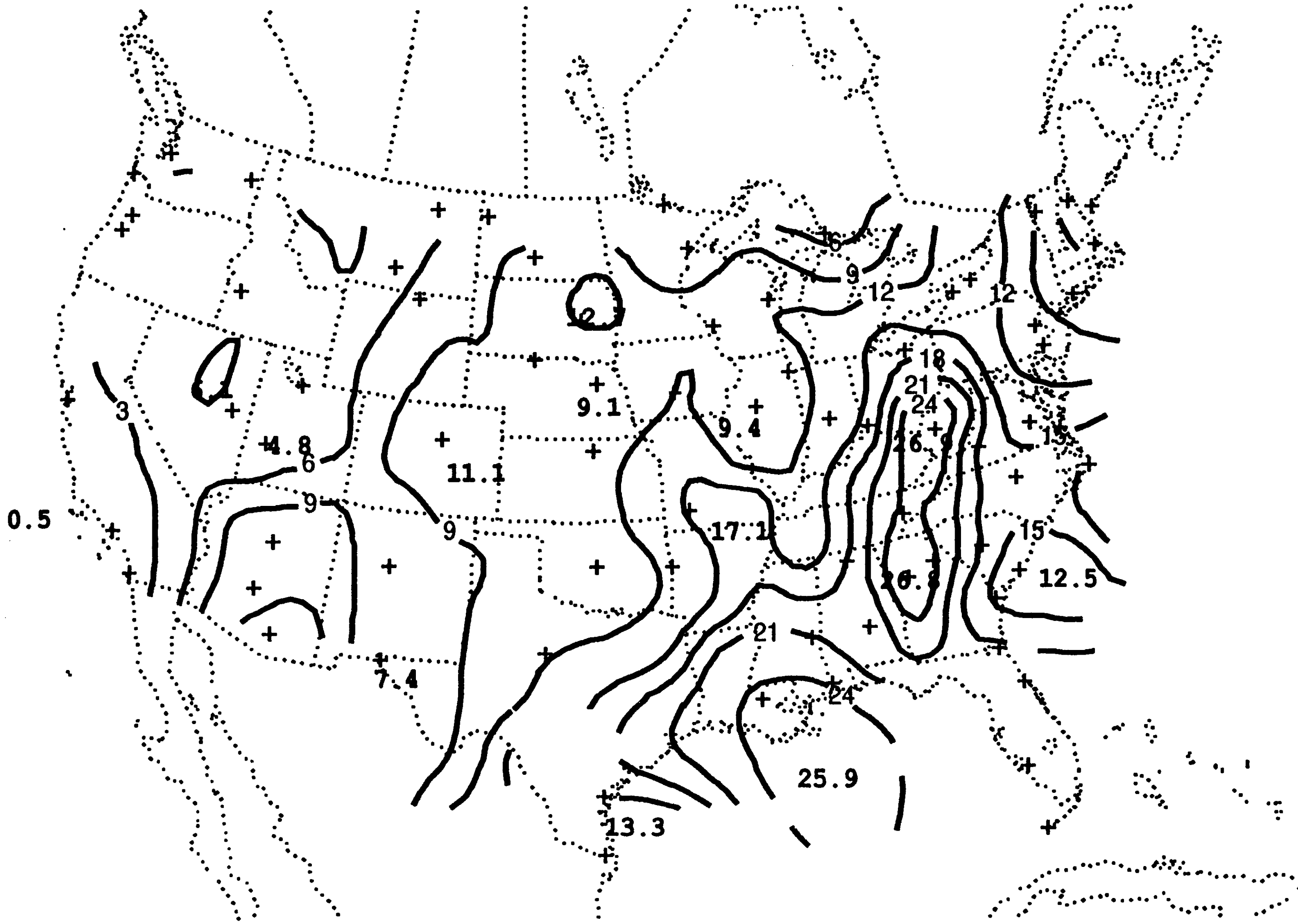


740701/0000 SFC NUNU Max= 13.1 Min= -1.2



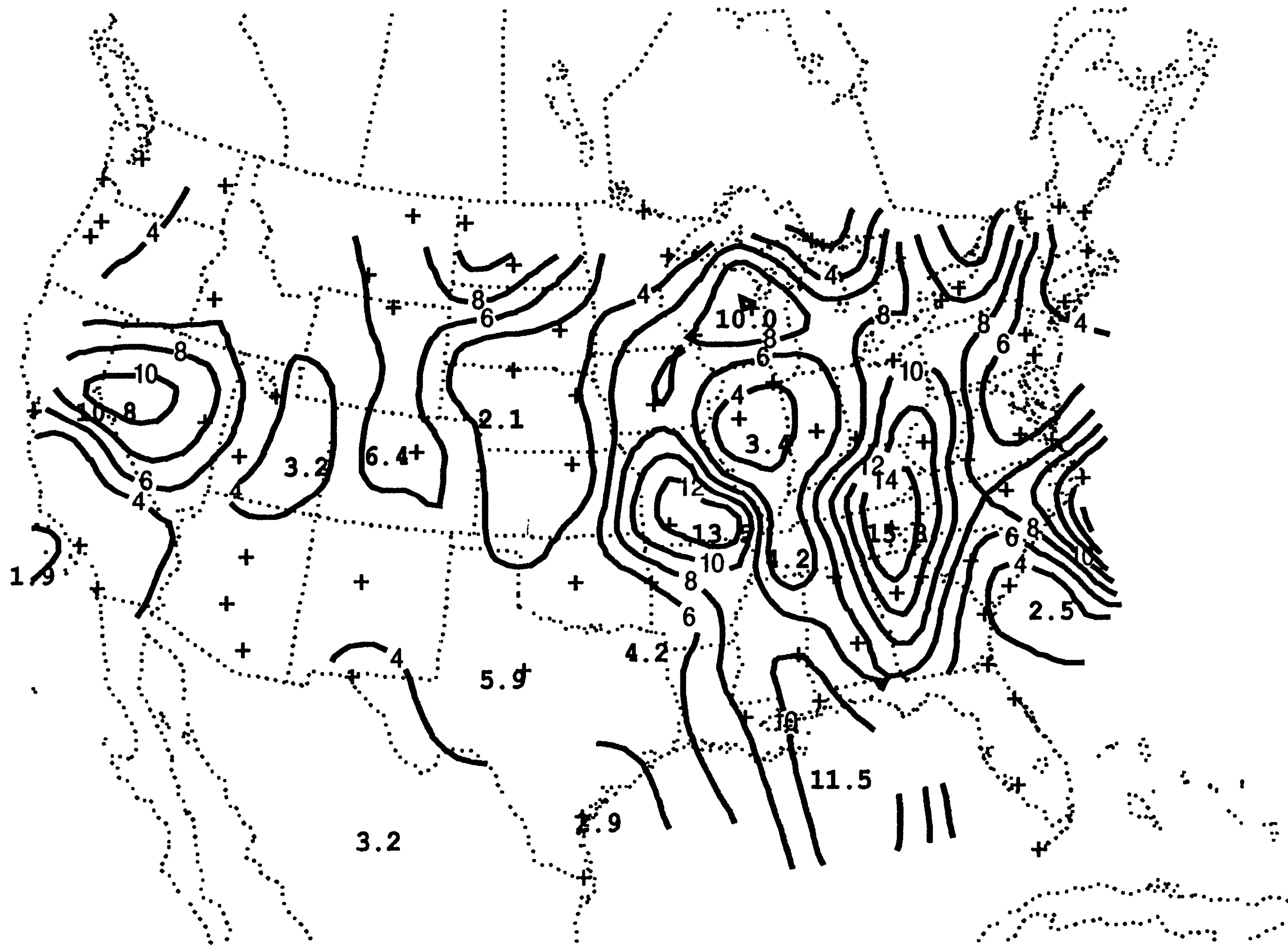
740801/0000 SFC ECEC Max= 7.8 Min= 1.6

Figure 5-46 - August - E[c]



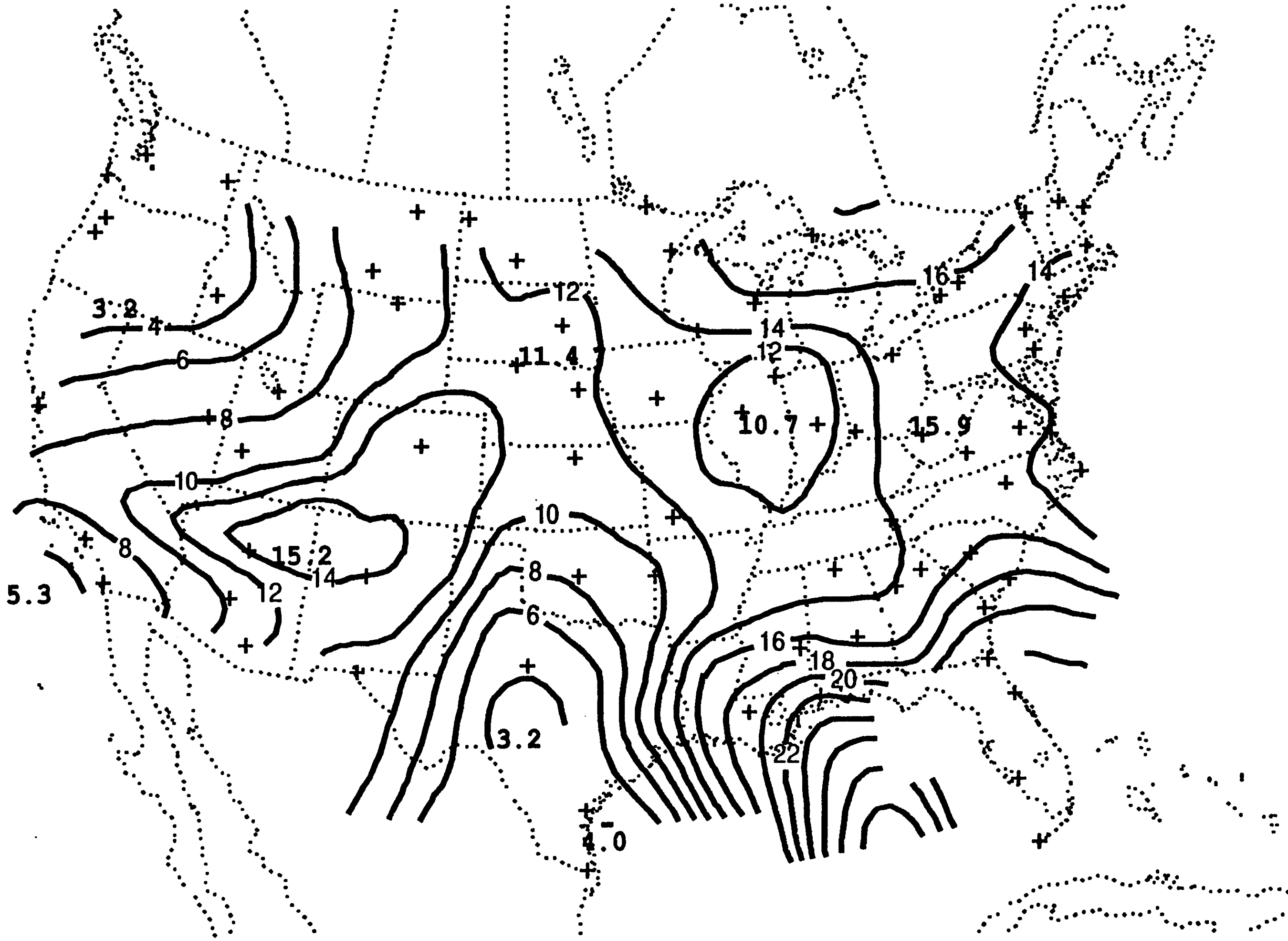
740801/0000 SFC EXEX Max= 26.8 Min= 0.5

Figure 5-47 - August - E[x]



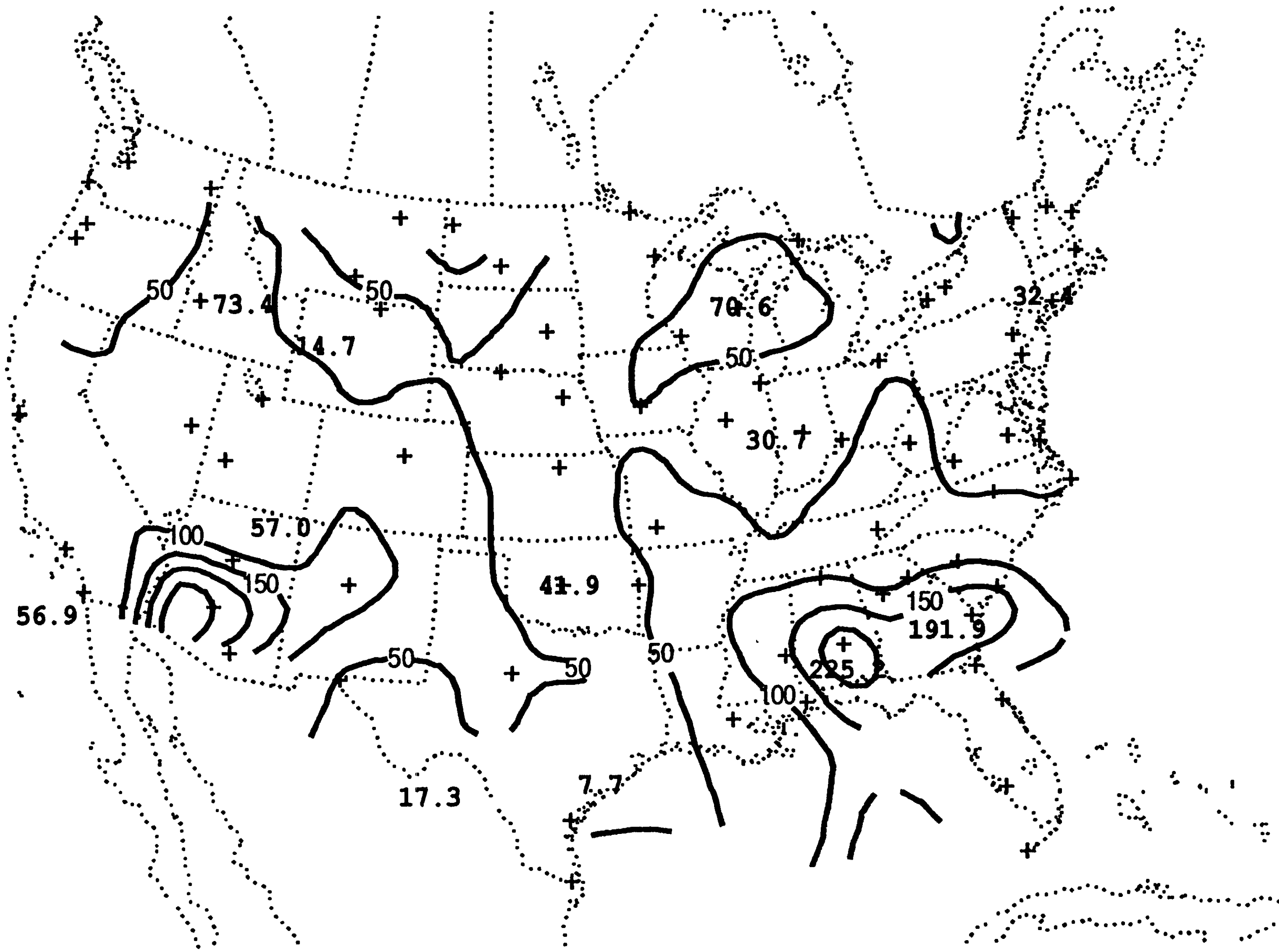
740801/0000 SFC ETAA Max= 16.4 Min= 1.6

Figure 5-48 – August – E[η]



740801/0000 SFC LAMD (*10**3) Max= 31.3 Min= 3.3

Figure 5-49 - August - λ



740801/0000 SFC GAMM (*10**2) Max= 264.0 Min= 8.6

Figure 5-50 - August - γ

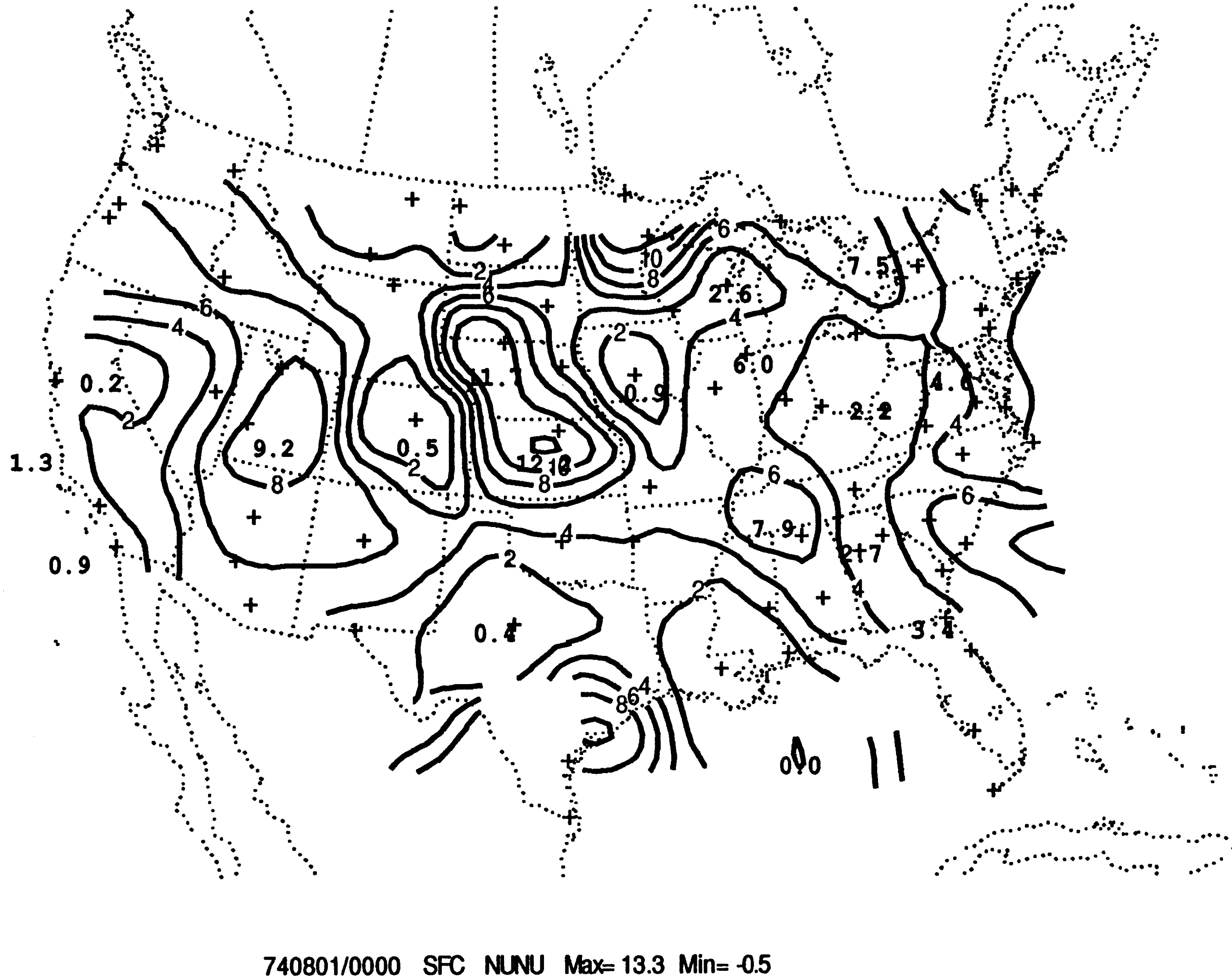
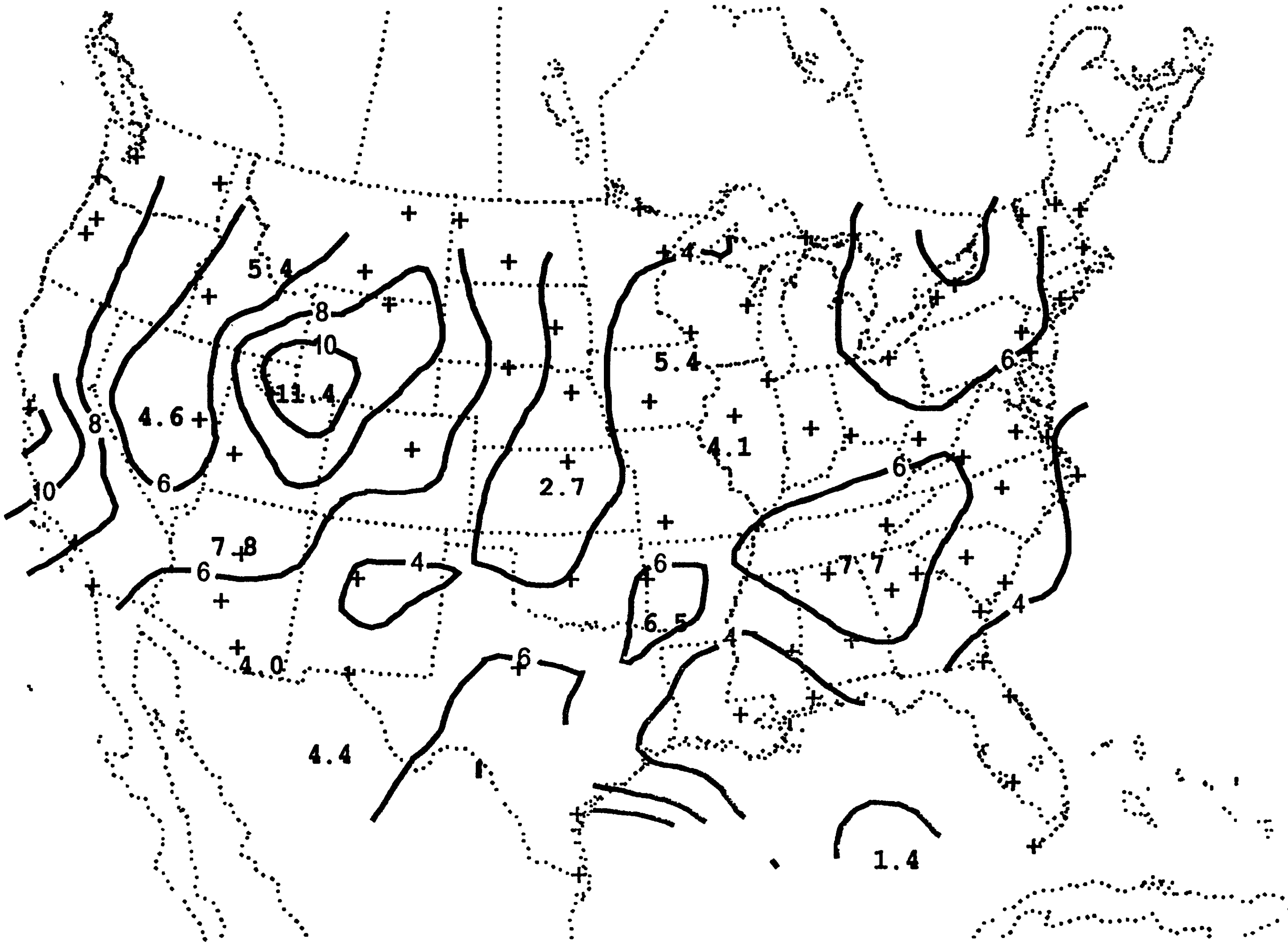


Figure 5–51 – August – ν



740901/0000 SFC ECEC Max= 12.5 Min= 1.4

Figure 5–52 - September - E[c]

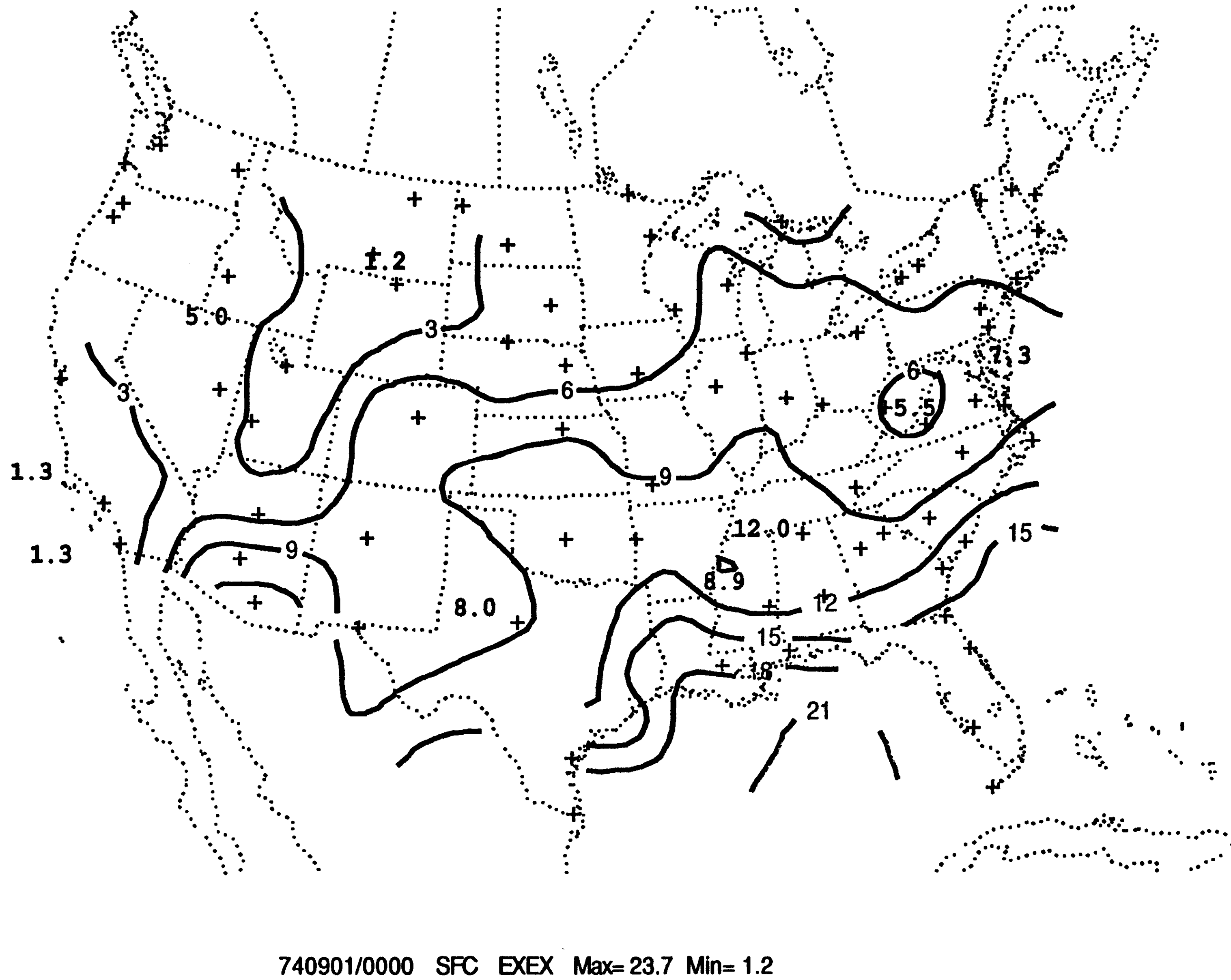
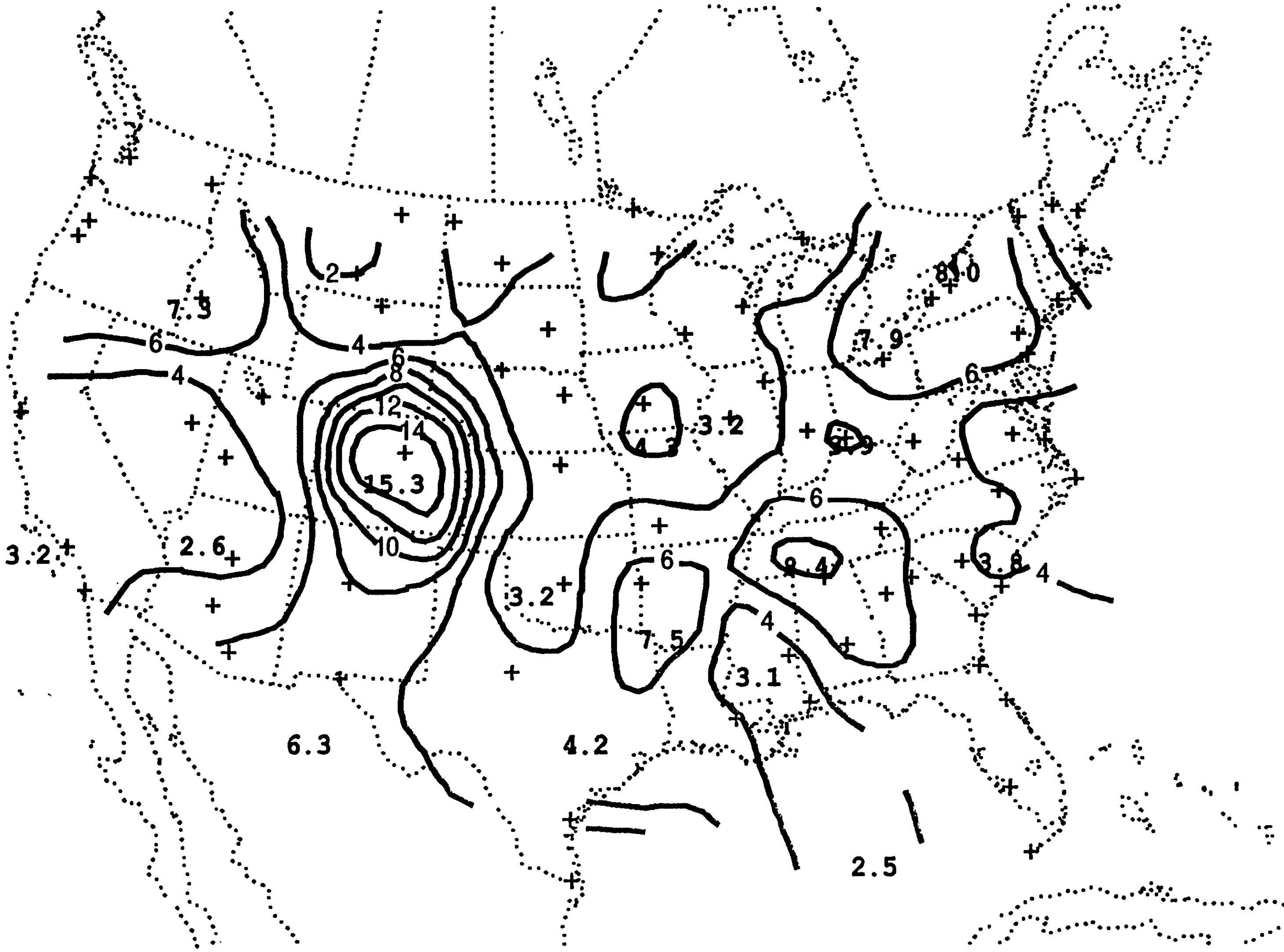
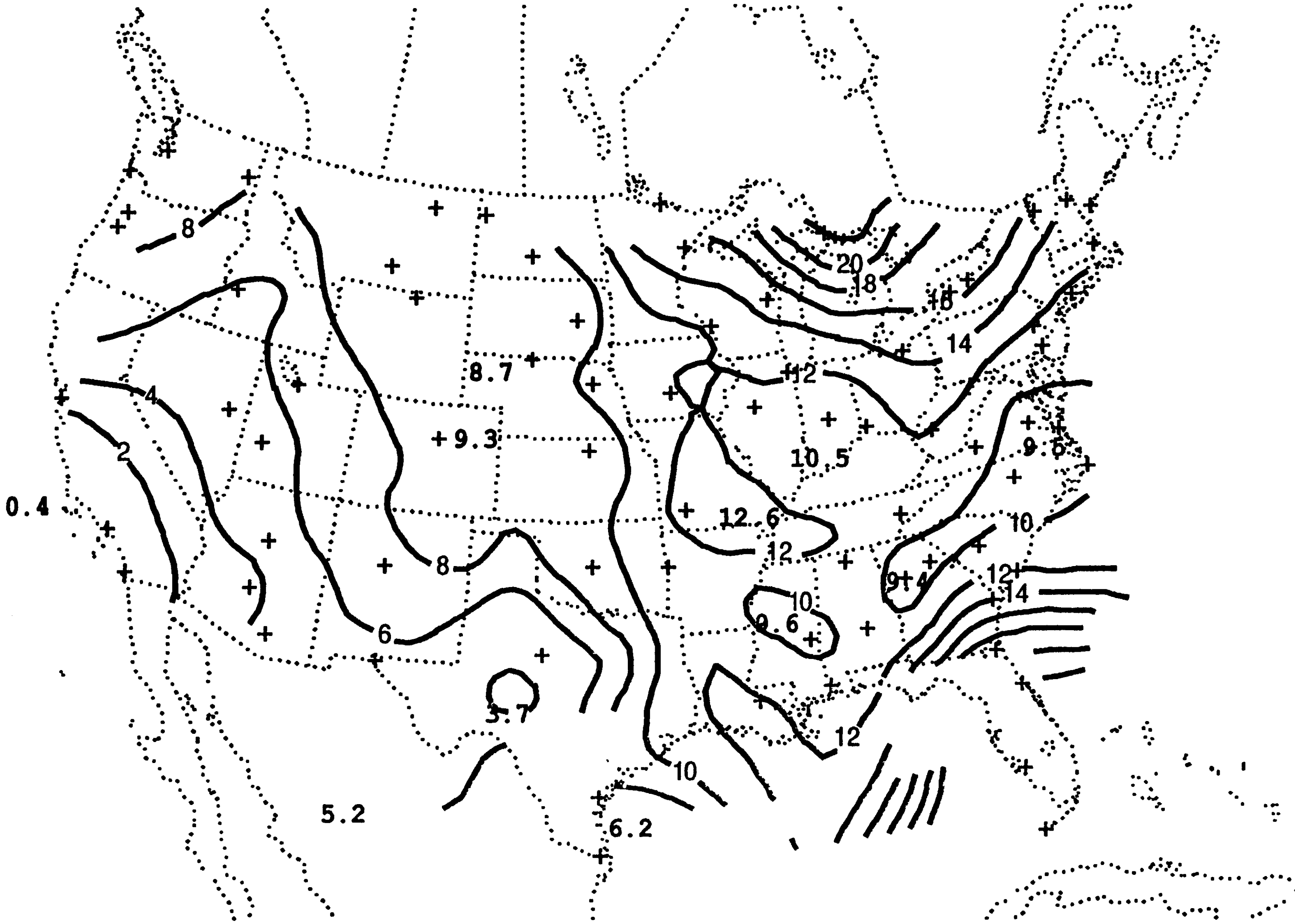


Figure 5–53 – September – E[x]



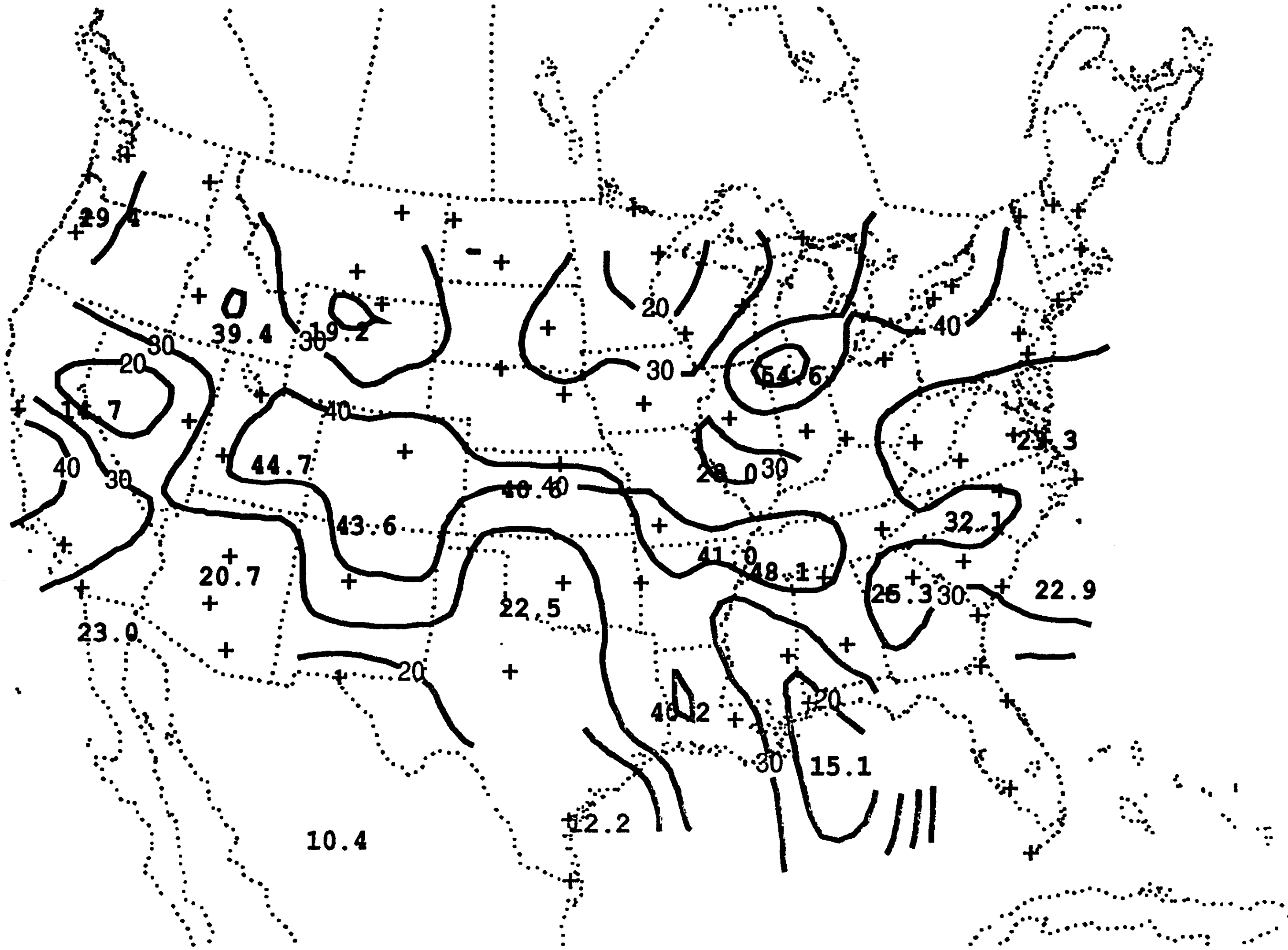
740901/0000 SFC ETAA Max= 15.2 Min= 1.8

Figure 5-54 – September – E[η]



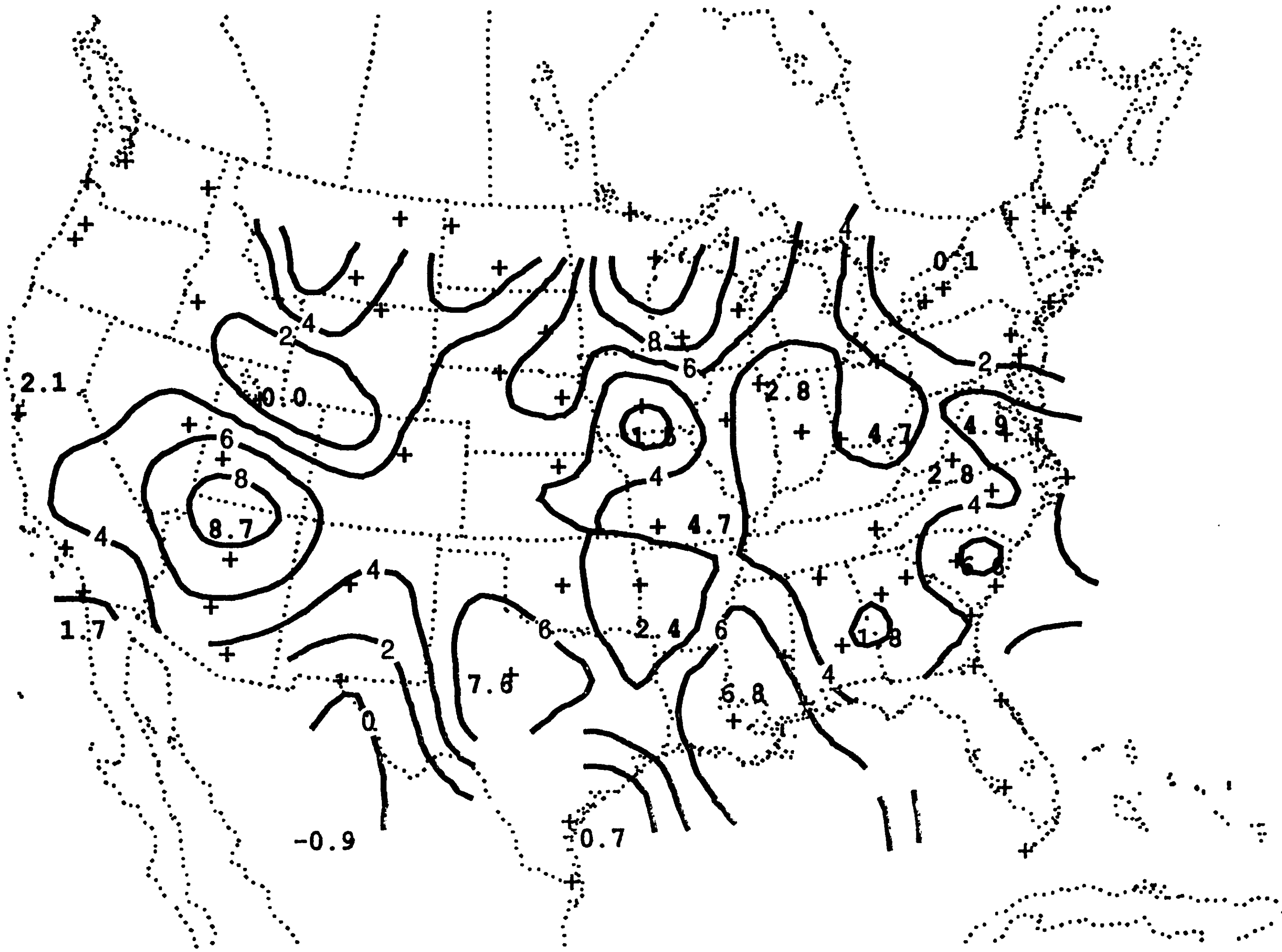
740901/0000 SFC LAMD (*10**3) Max= 26.1 Min= 0.4

Figure 5-55 - September - λ



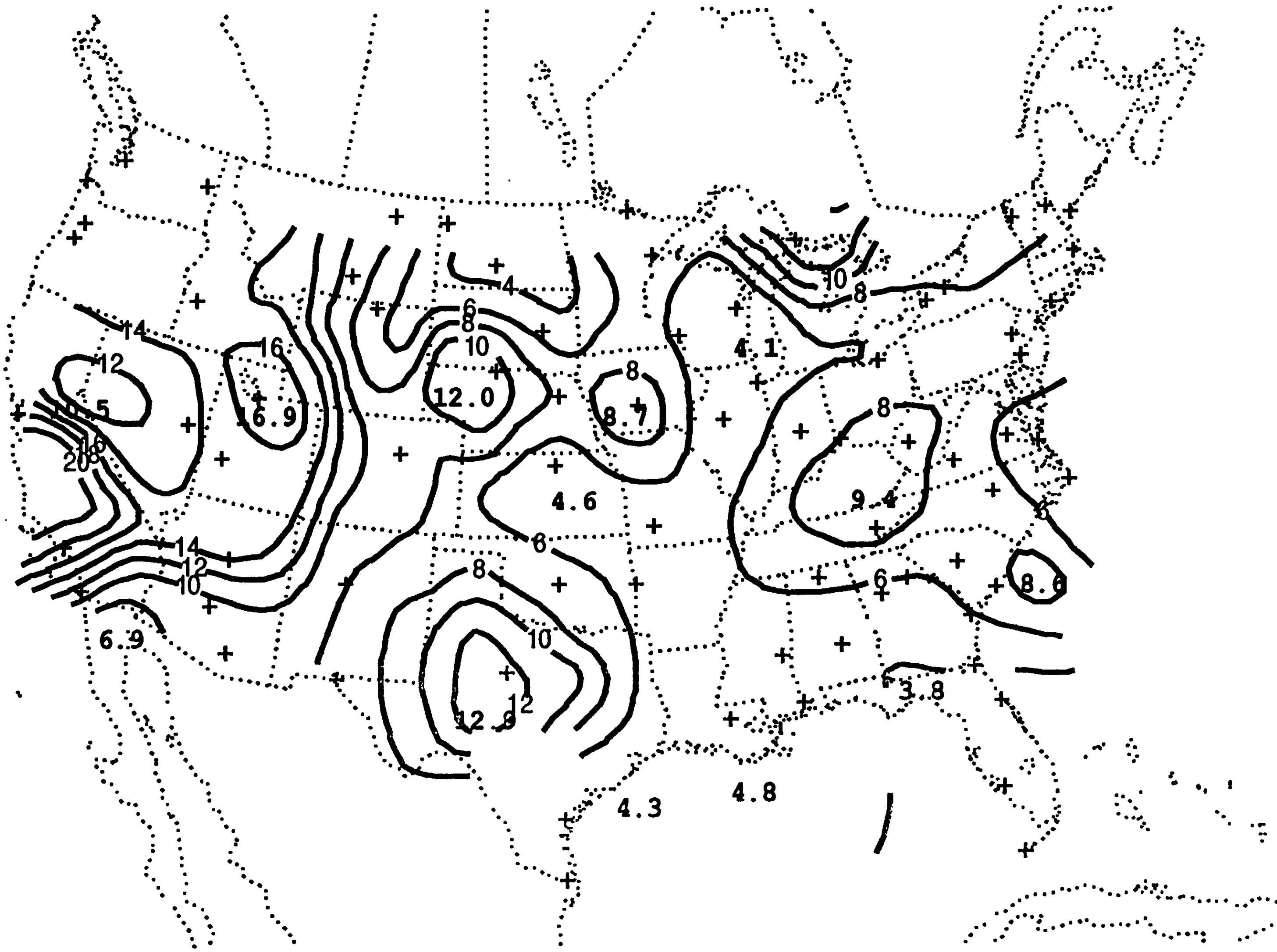
740901/0000 SFC GAMM(*10**2) Max= 60.5 Min= 10.4

Figure 5–56 – September – γ



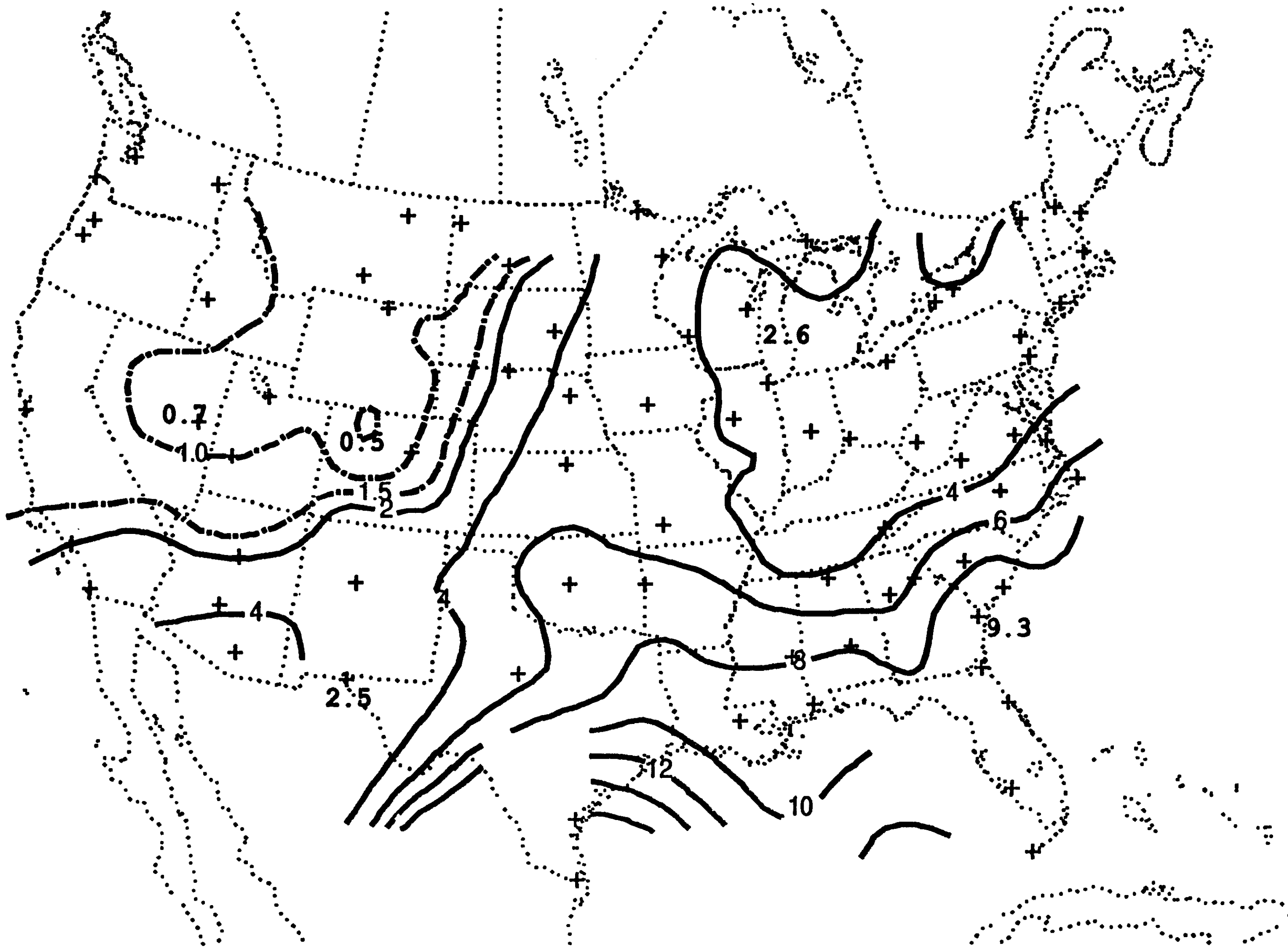
740901/0000 SFC NUNU Max= 10.9 Min= -0.8

Figure 5–57 – September – v



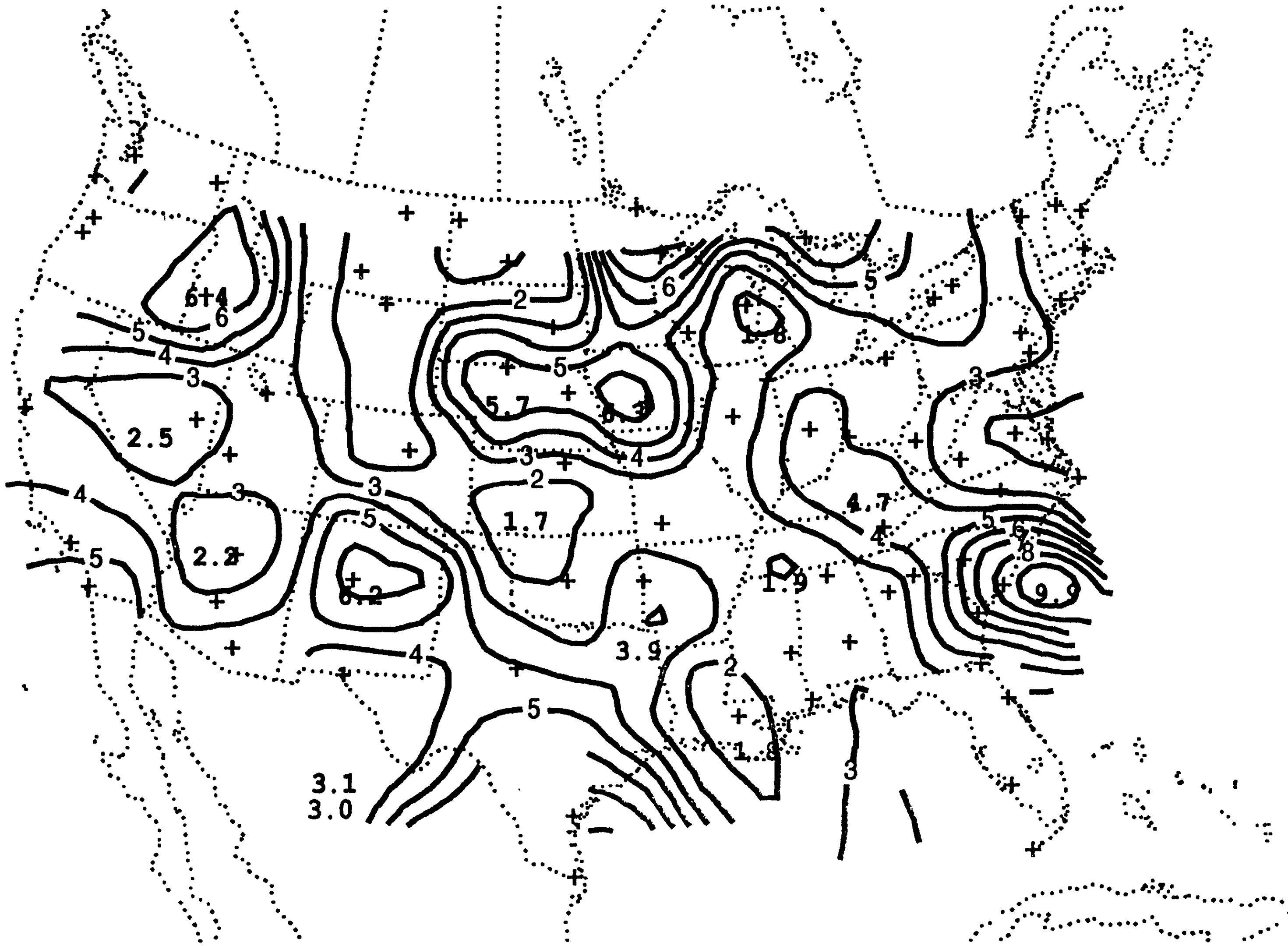
741001/0000 SFC ECEC Max= 21.5 Min= 1.8

Figure 5–58 – October – E[c]



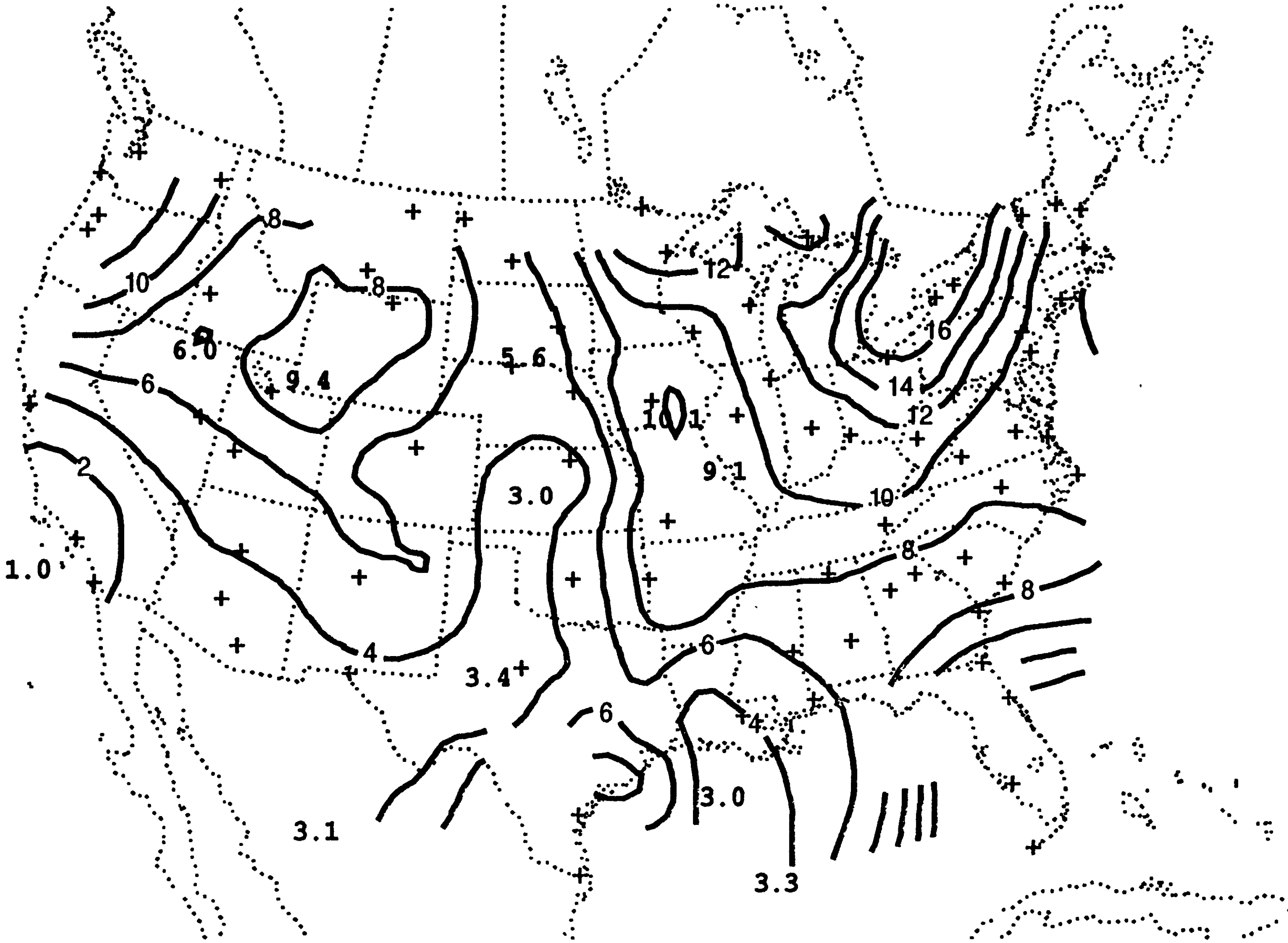
741001/0000 SFC EXEX Max= 17.1 Min= 0.5

Figure 5–59 – October – E[x]



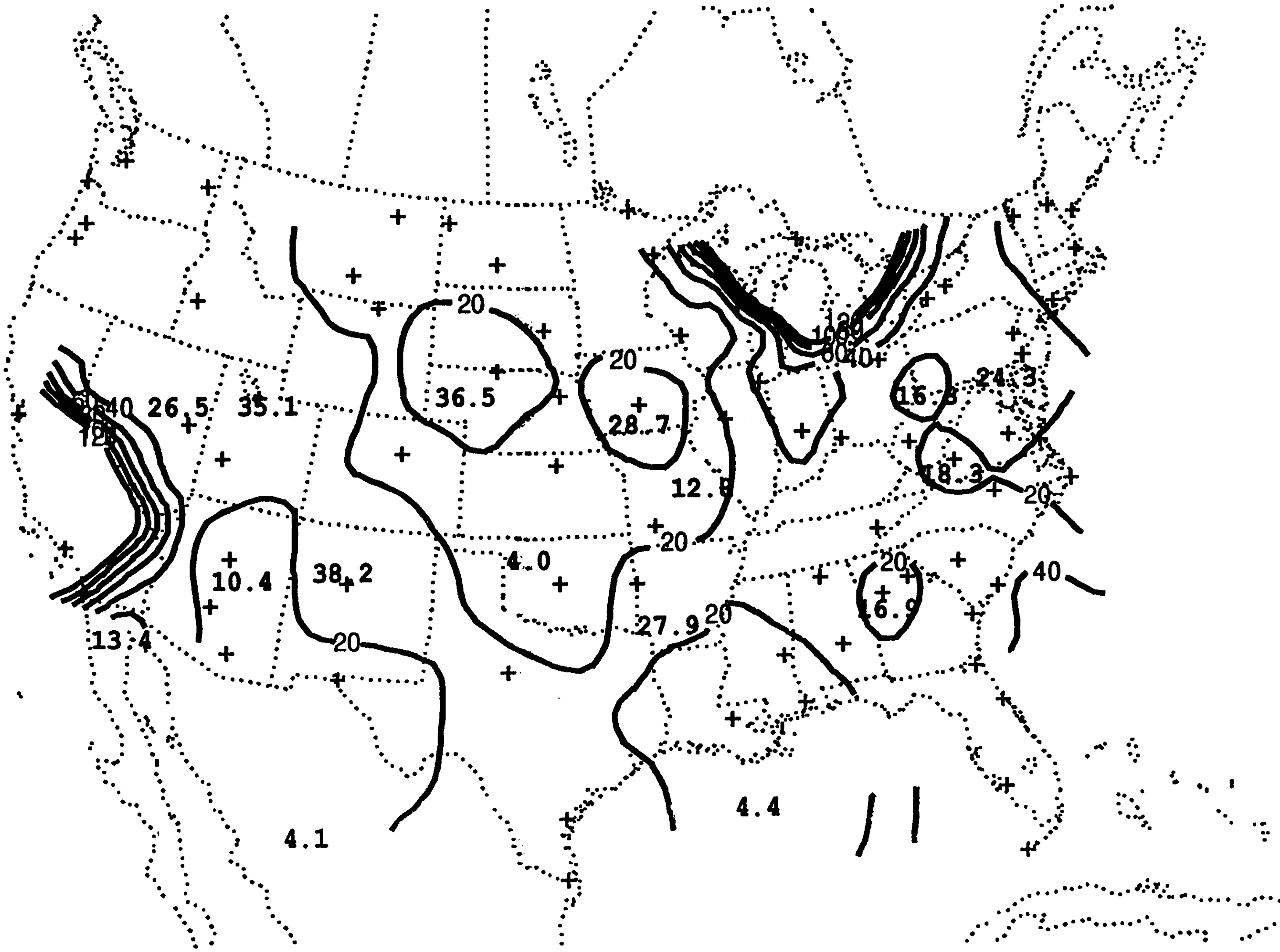
741001/0000 SFC ETAA Max= 9.9 Min= 0.6

Figure 5–60 – October – E[η]



741001/0000 SFC LAMD (*10**3) Max= 17.8 Min= 1.0

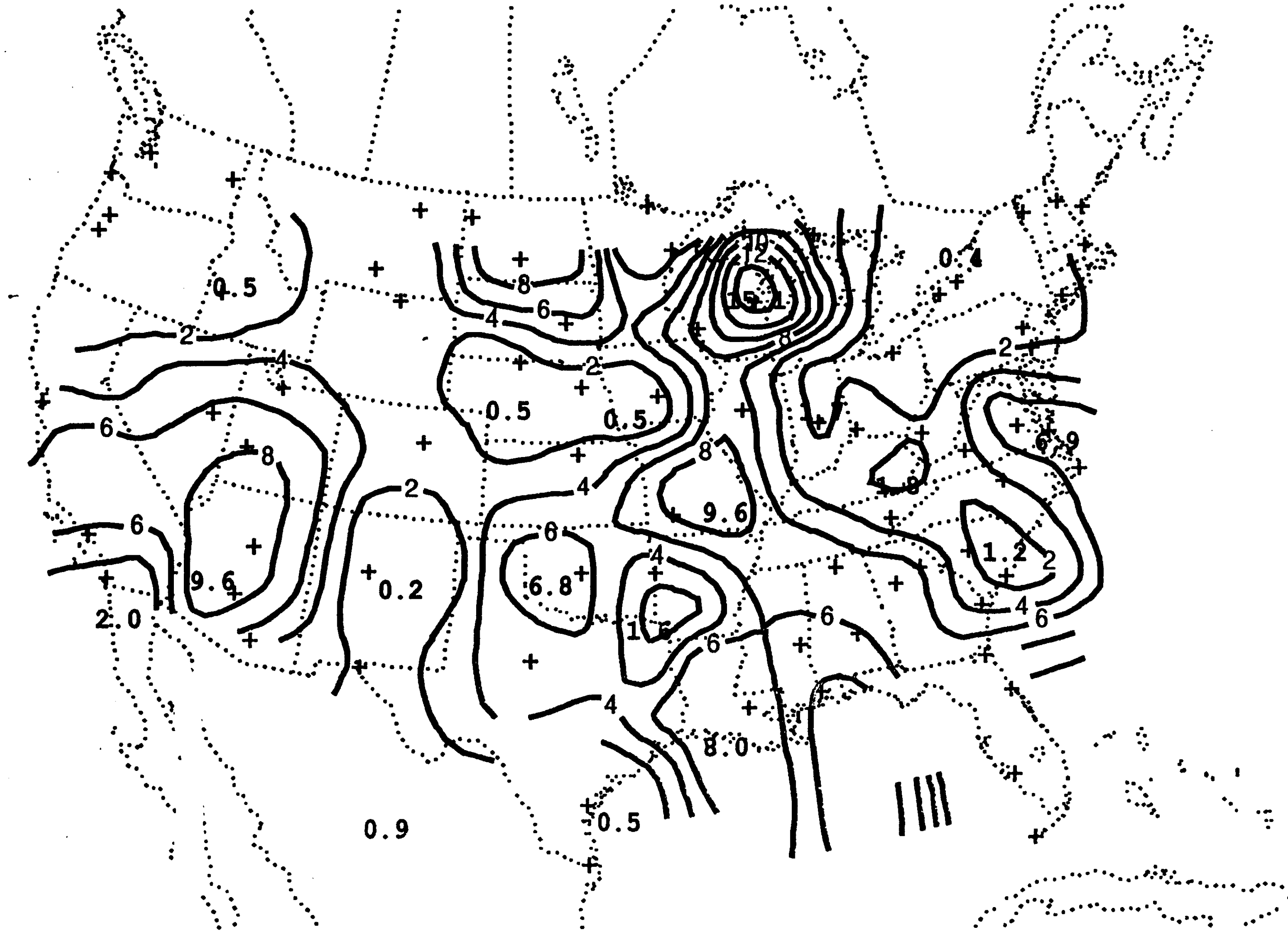
Figure 5–61 – October – λ



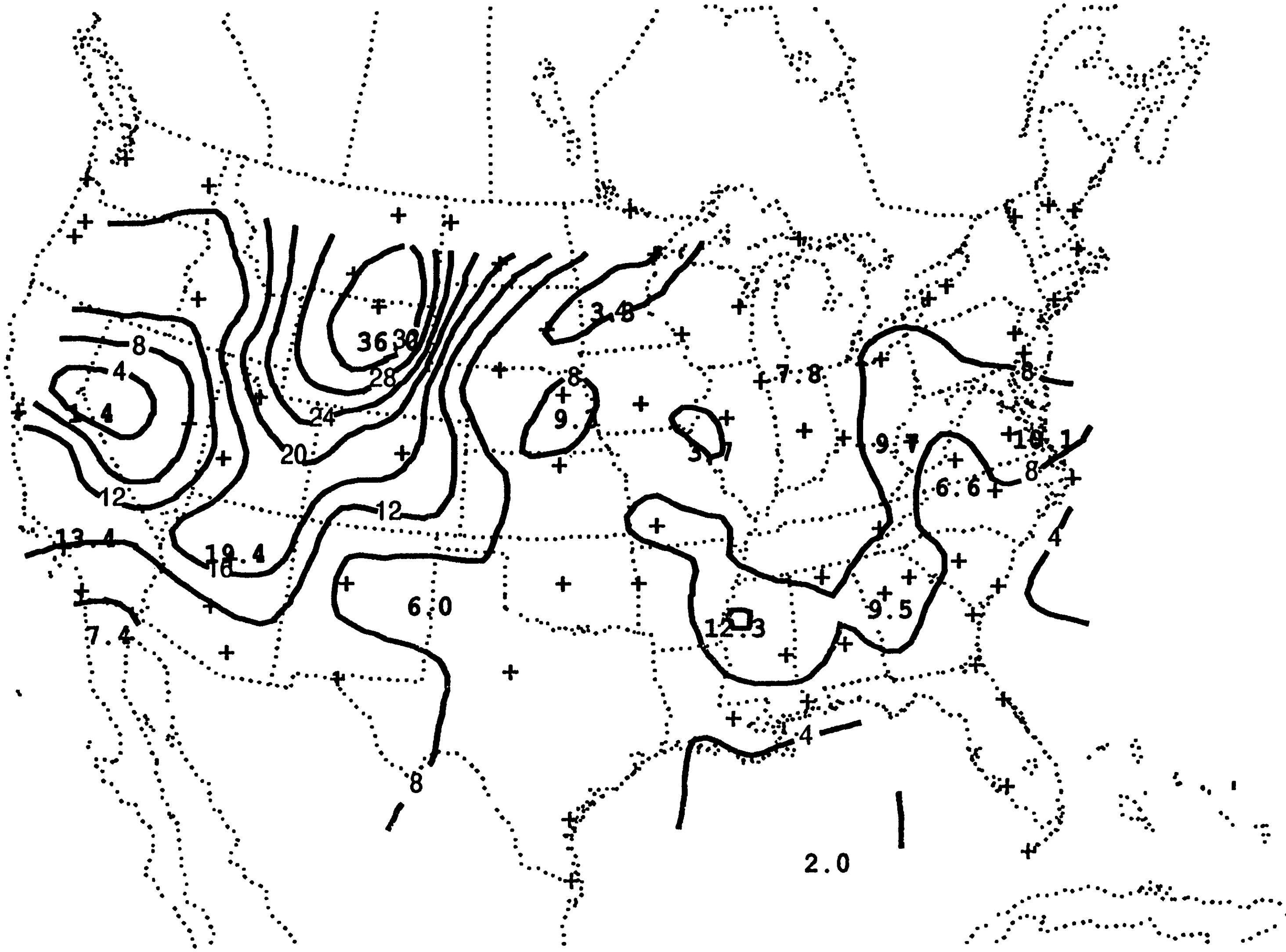
741001/0000 SFC GAMM (*10**2) Max= 888.4 Min= 4.0

Figure 5-62 – October – γ

Figure 5–63 – October – ν

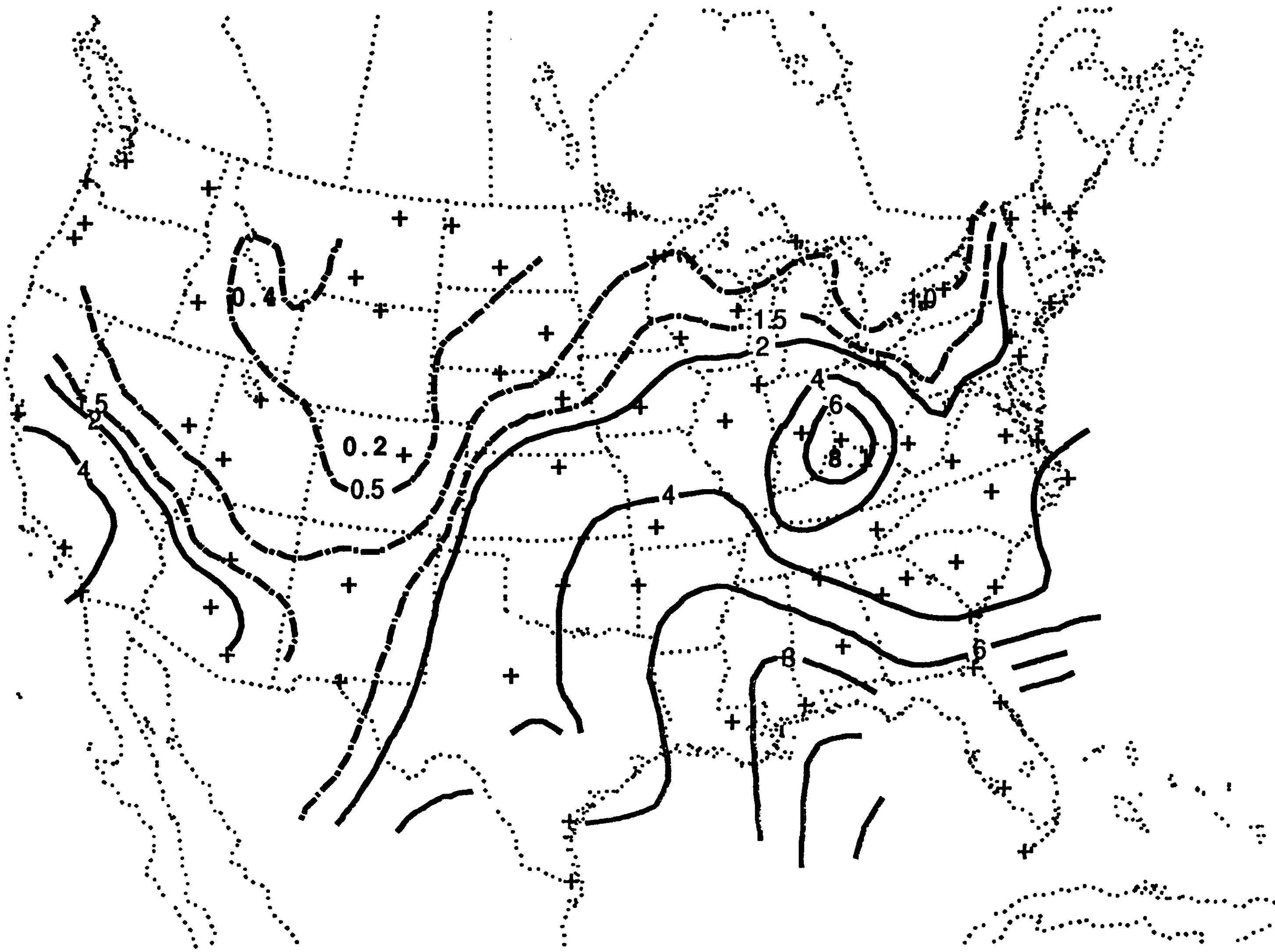


741001/0000 SFC NUNU Max= 14.7 Min= 0.2



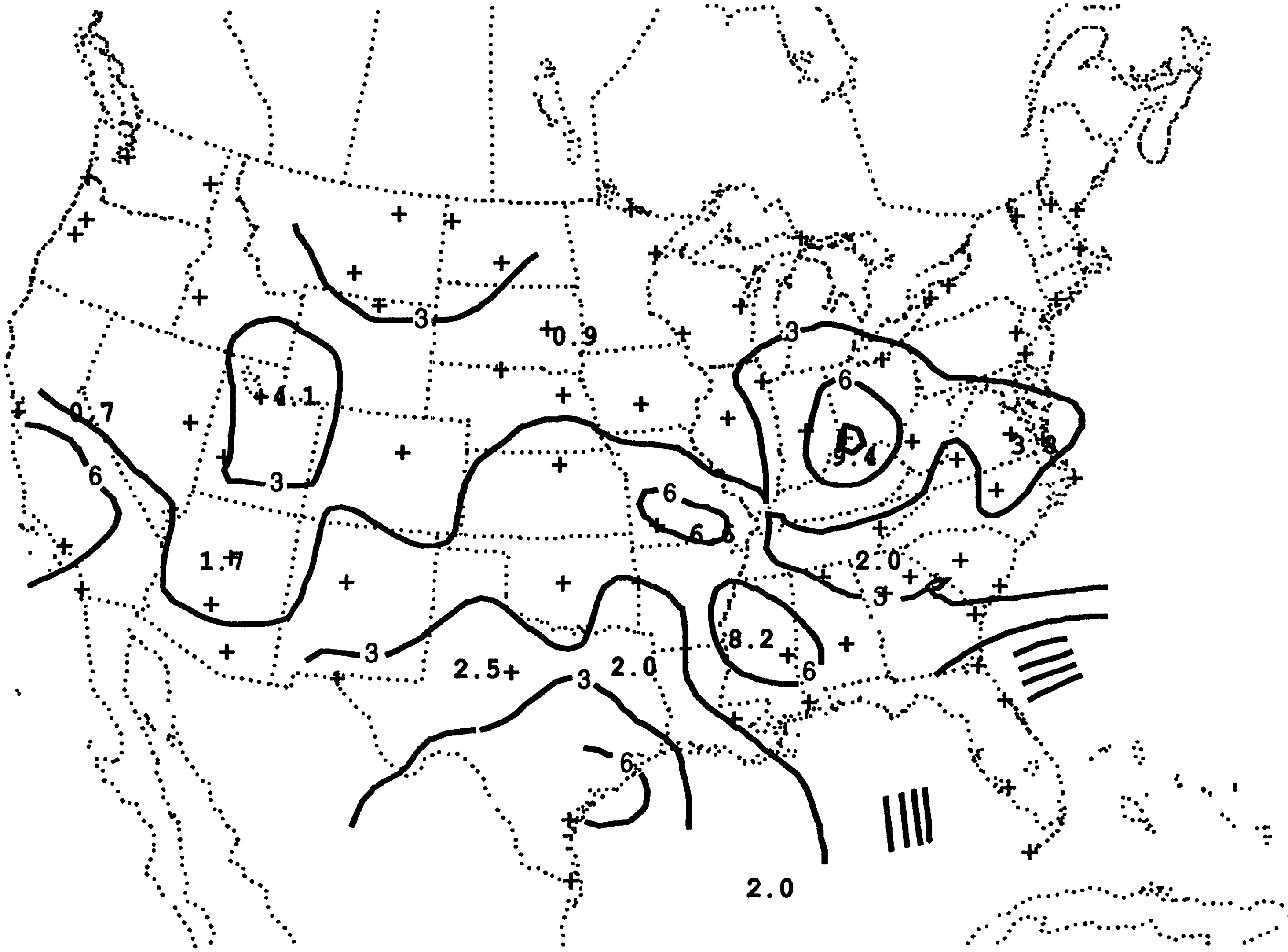
741101/0000 SFC ECEC Max= 35.2 Min= 1.5

Figure 5-64 - November - E[c]



741101/0000 SFC EXEX Max= 13.8 Min= 0.2

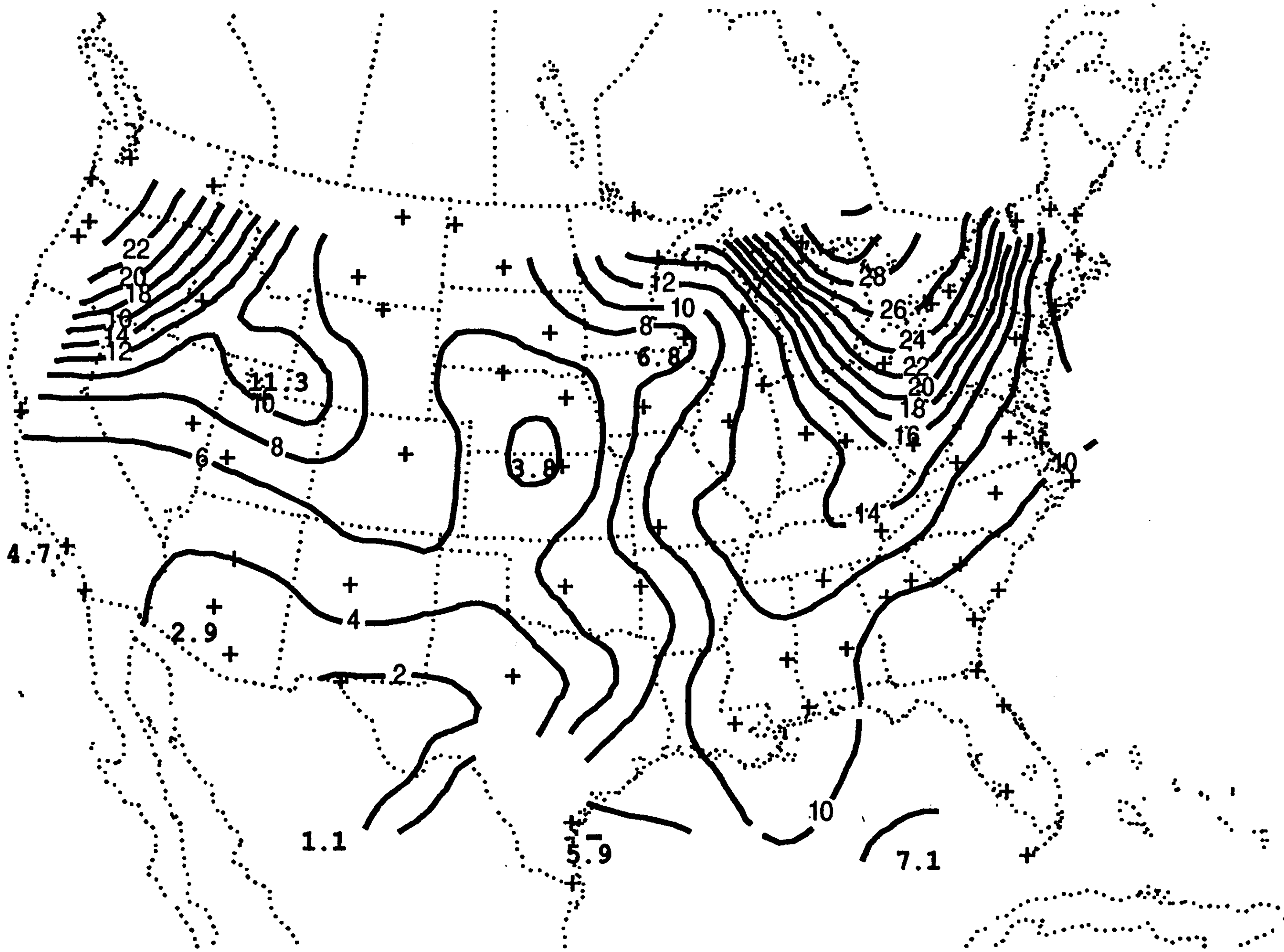
Figure 5–65 – November – E[x]



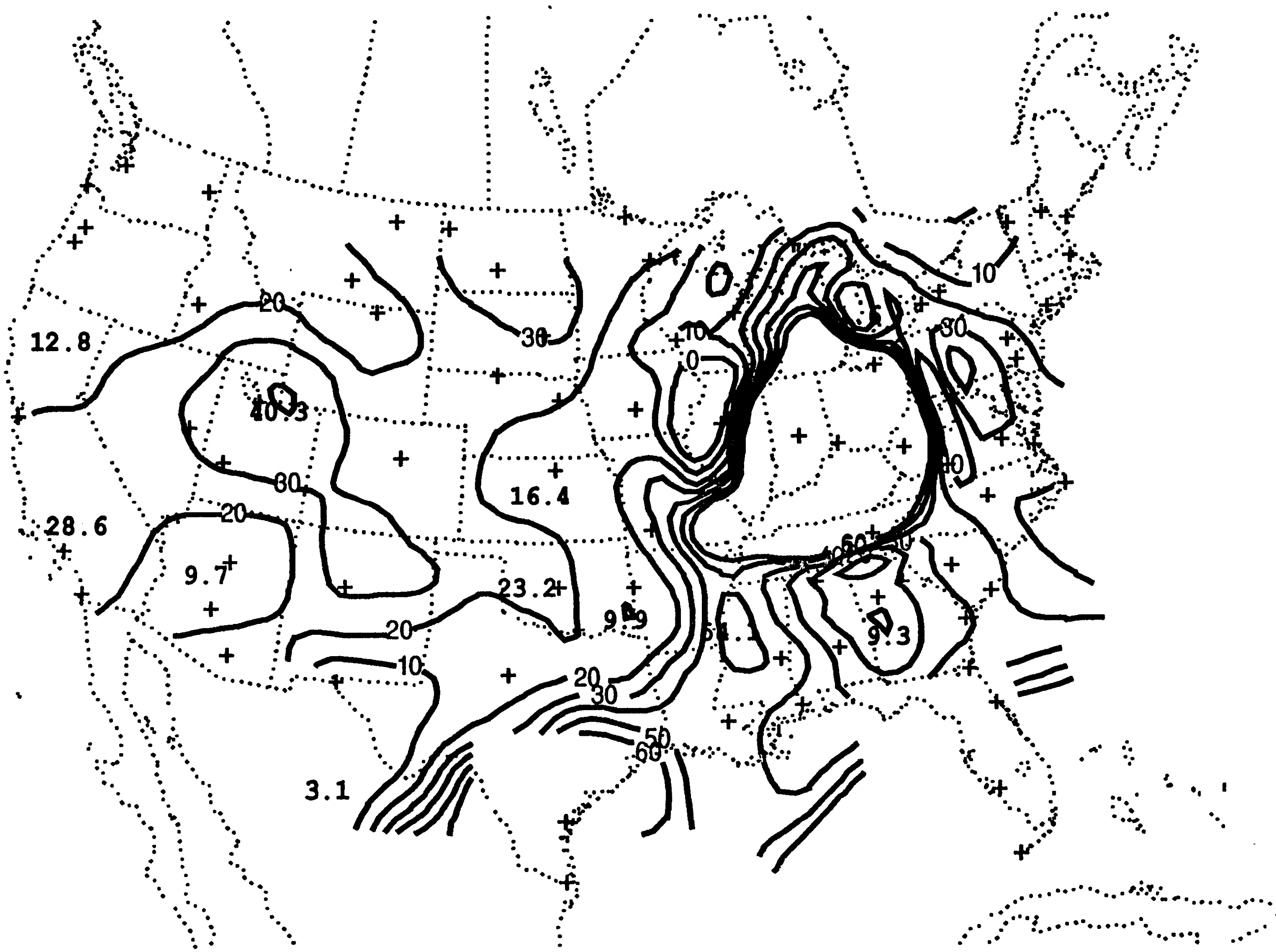
741101/0000 SFC ETAA Max= 21.8 Min= 0.9

Figure 5–66 – November – E[η]

Figure 5-67 - November - λ

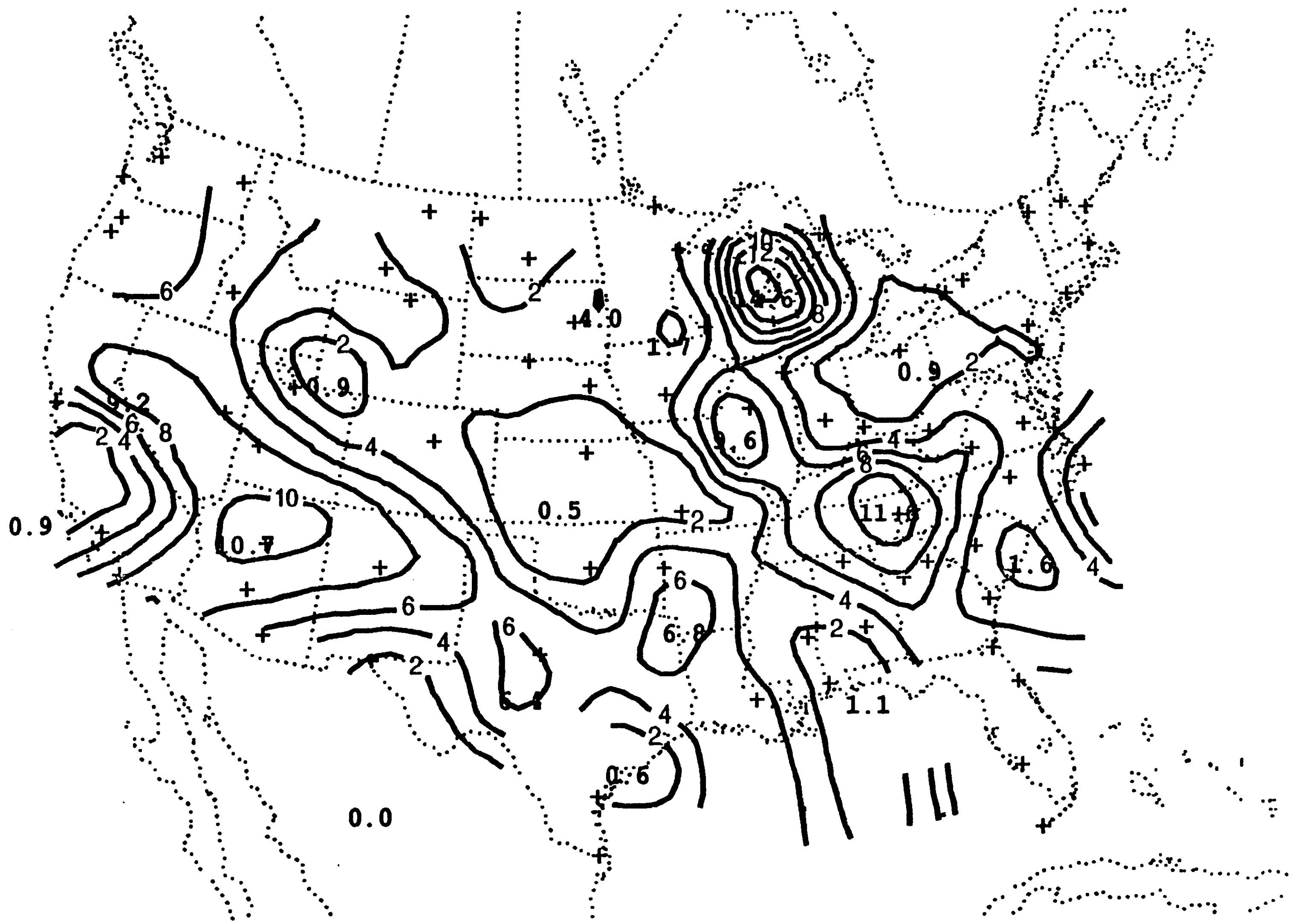


741101/0000 SFC LAMD (*10**3) Max= 32.2 Min= 1.4



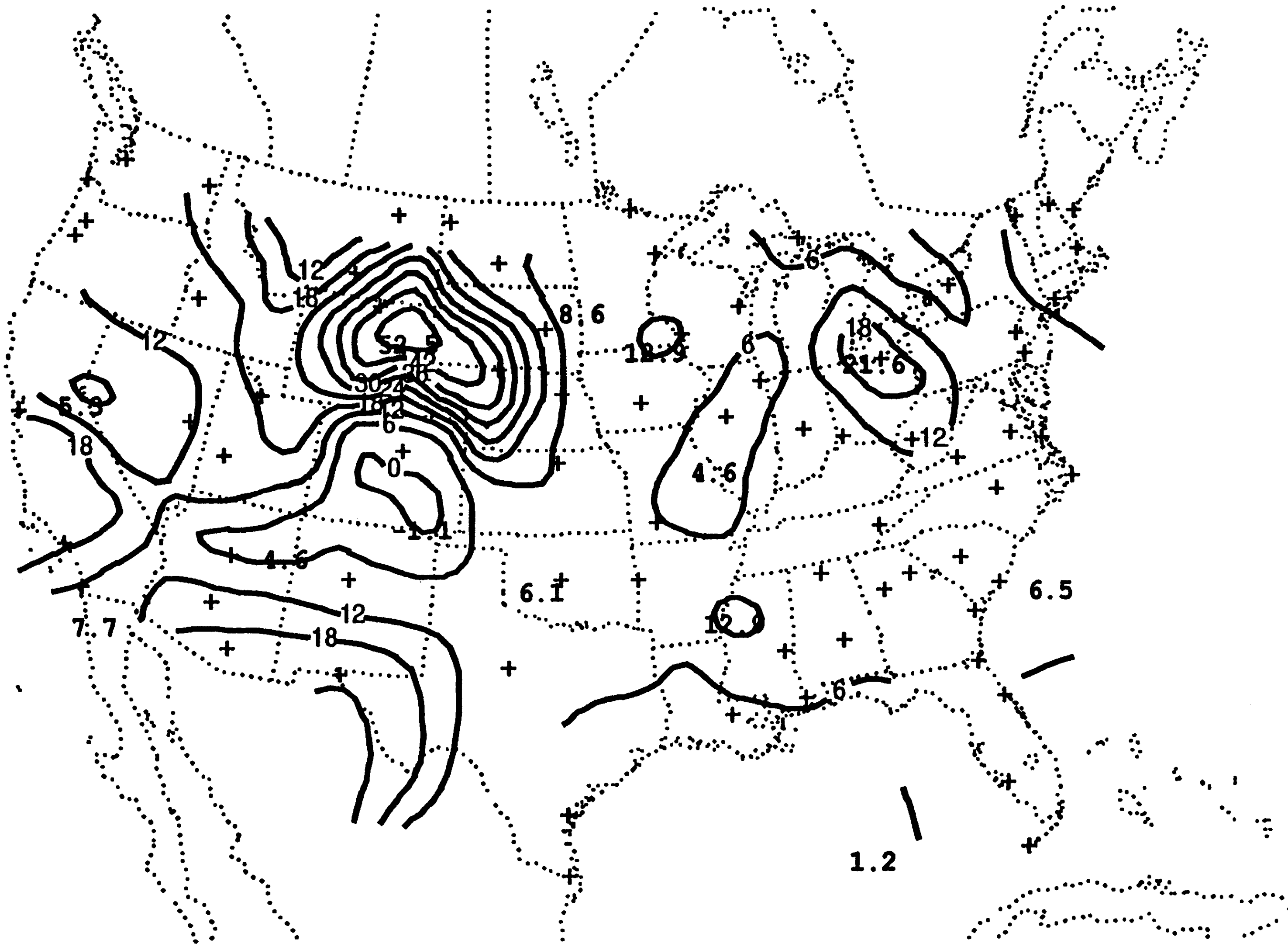
741101/0000 SFC GAMM (*10**2) Max= 1259.3 Min= -14.6

Figure 5–68 - November - γ



741101/0000 SFC NUNU Max= 14.2 Min= 0.1

Figure 5-69 - November - ν



741201/0000 SFC ECEC Max= 52.0 Min= -0.5

Figure 5-70 - December - E[c]

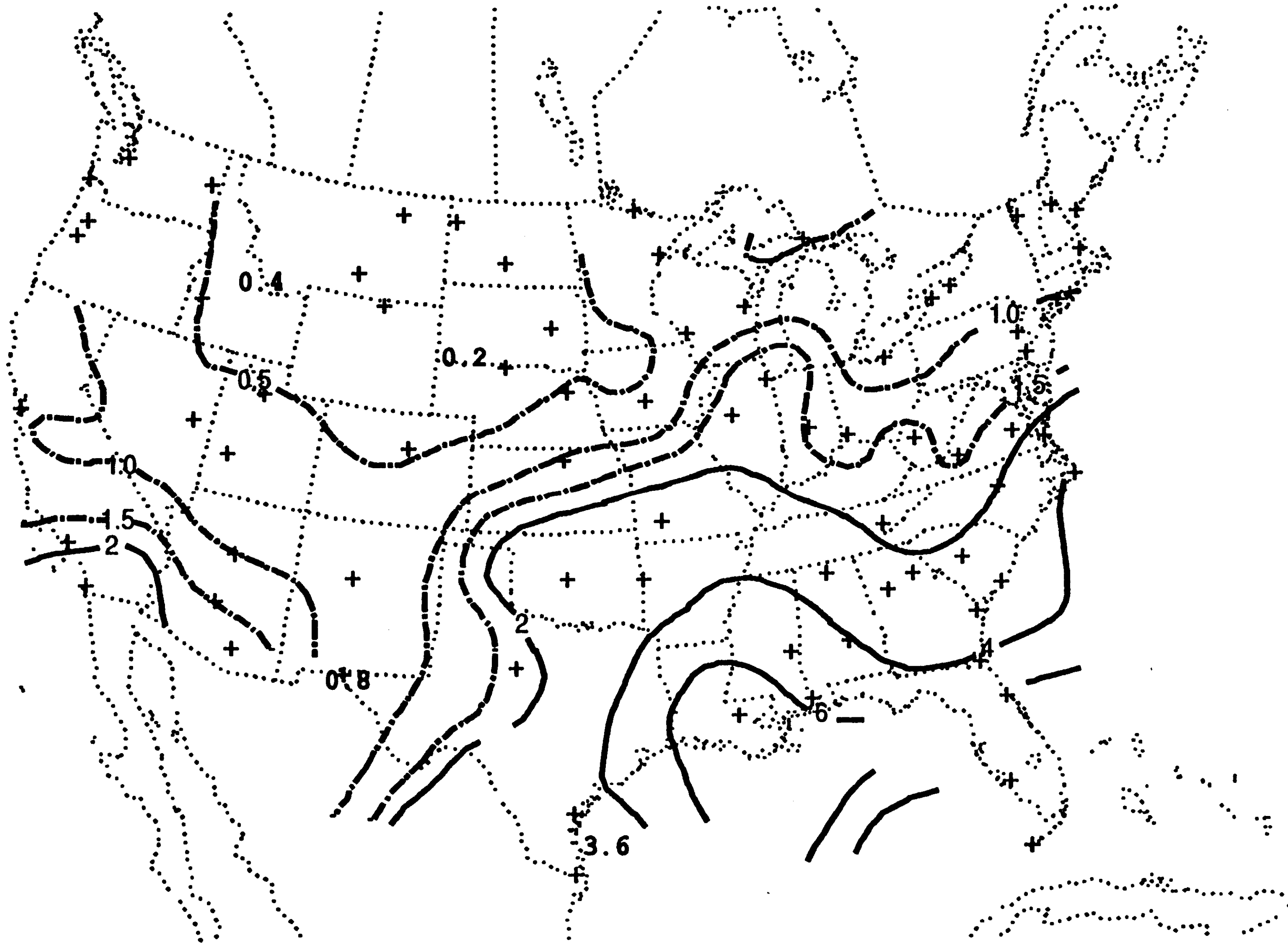
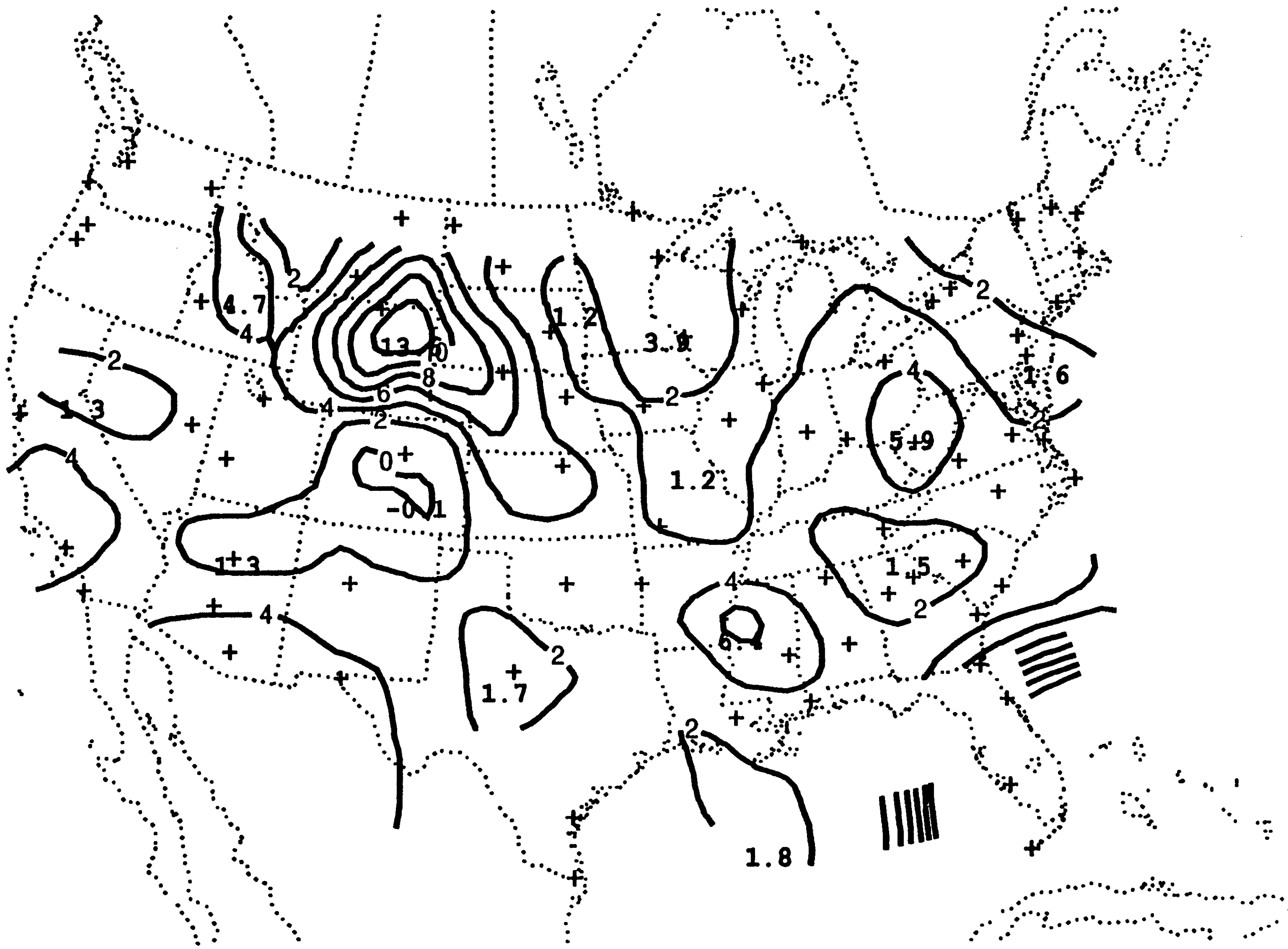
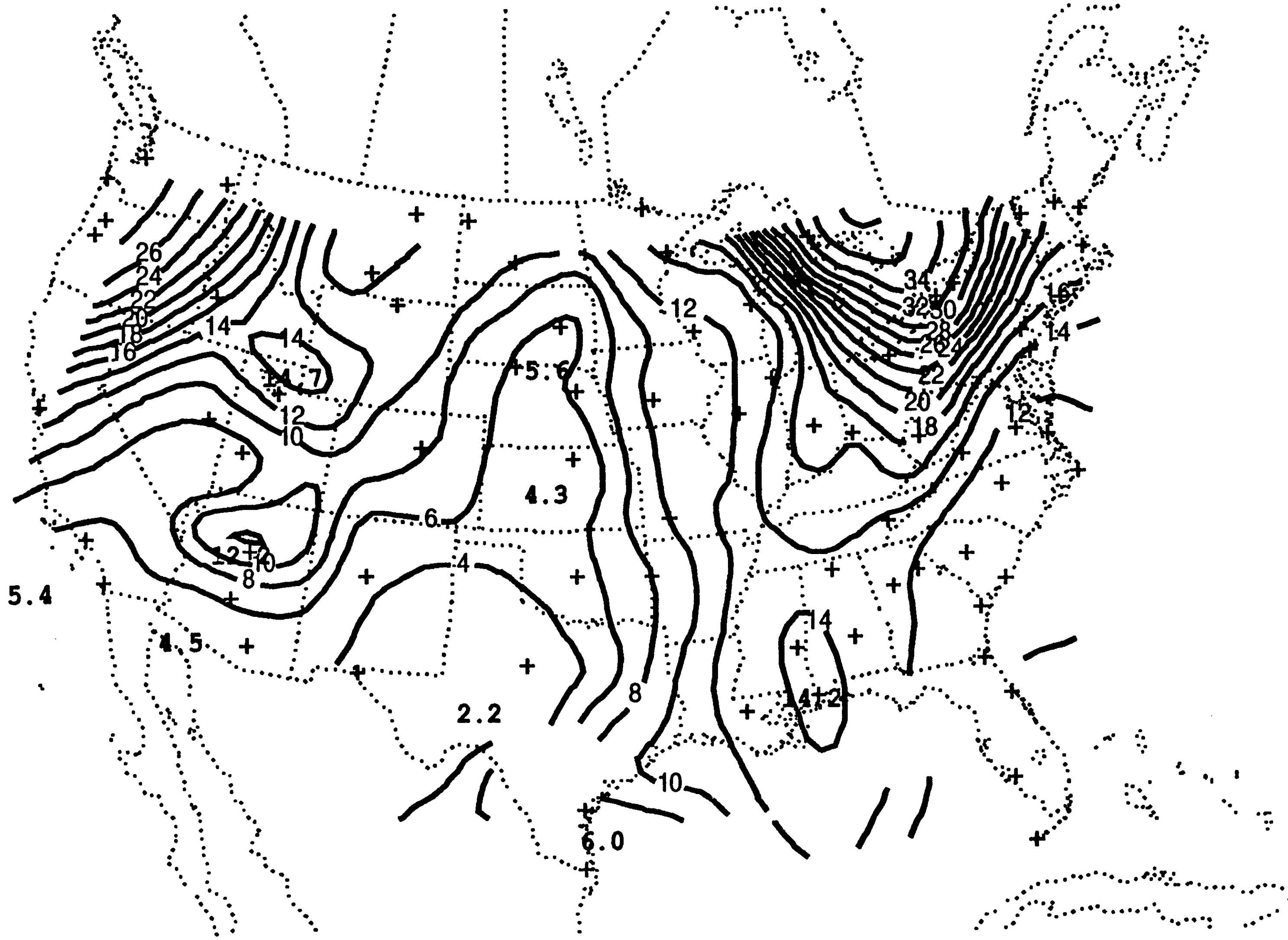


Figure 5–71 – December – E[x]



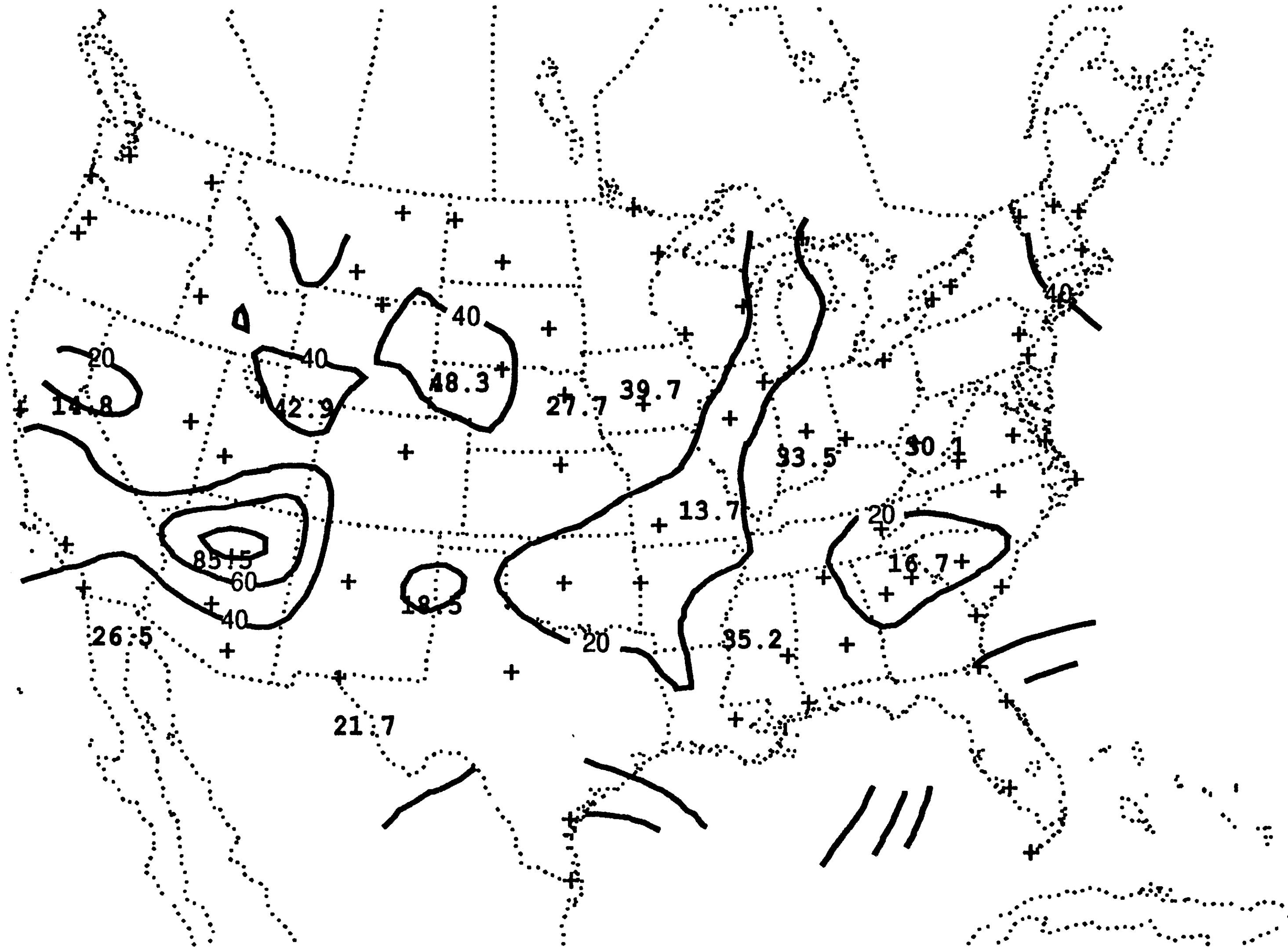
741201/0000 SFC ETAA Max= 19.7 Min= 0.0

Figure 5–72 - December - E[η]



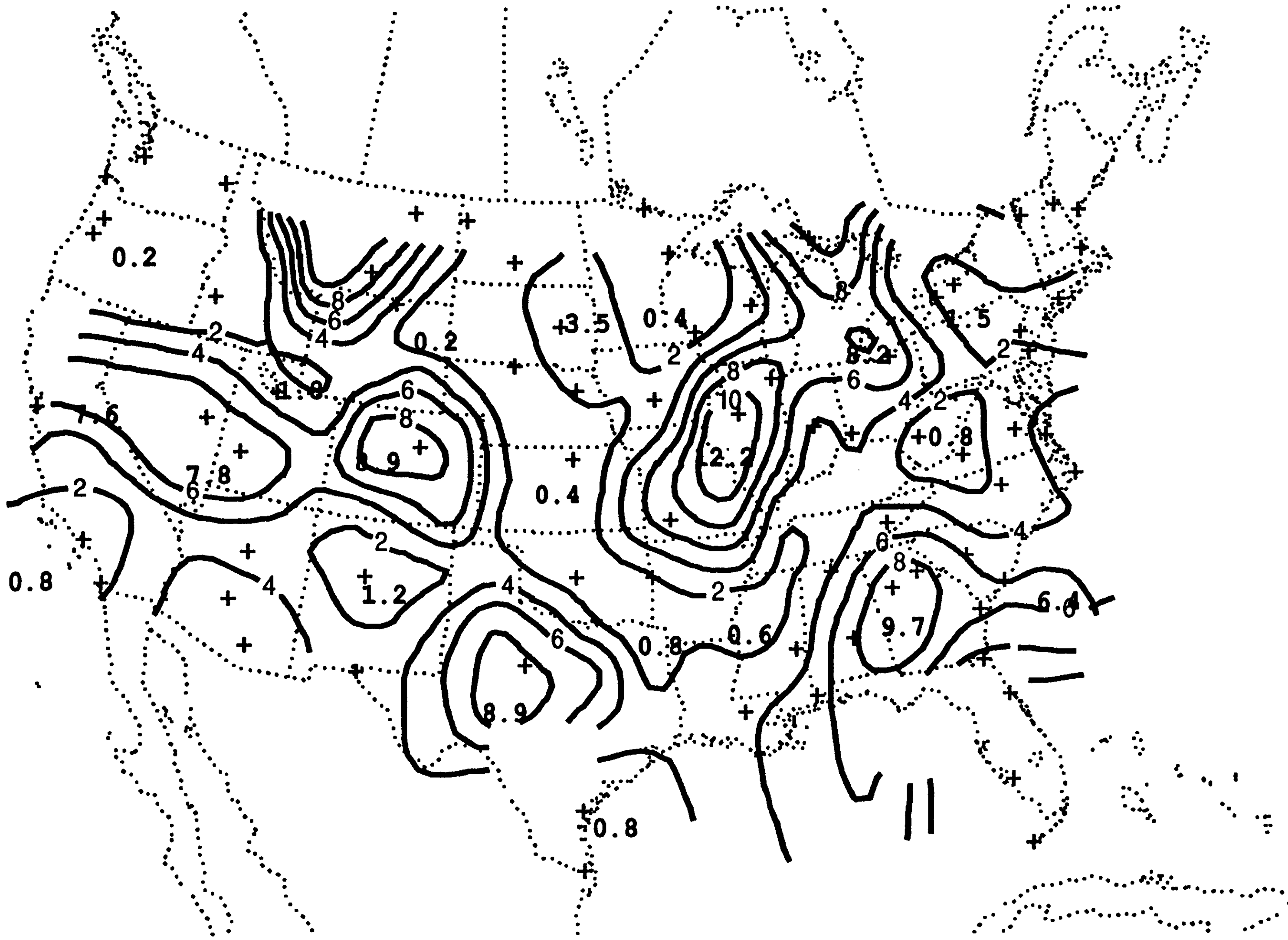
741201/0000 SFC LAMD (*10**3) Max= 39.0 Min= 2.3

Figure 5-73 - December - λ



741201/0000 SFC GAMM (*10**2) Max= 109.8 Min= 14.3

Figure 5–74 – December – γ



741201/0000 SFC NUNU Max= 11.9 Min= -0.3

Figure 5-75 – December – v

CHAPTER 6 Poisson Contour Maps

6–1 Set–up

Eighty–four maps have been constructed of the continental United States which show the geographical variations of the Poisson rectangular pulses model parameters:

m_{t_r} = average storm duration, h

m_{t_b} = average time between storms, h

m_v = average number of storms per month

m_i = average storm intensity, mmh^{-1}

κ = shape parameter for the gamma distribution

λ = scale parameter for the gamma distribution of storm depth

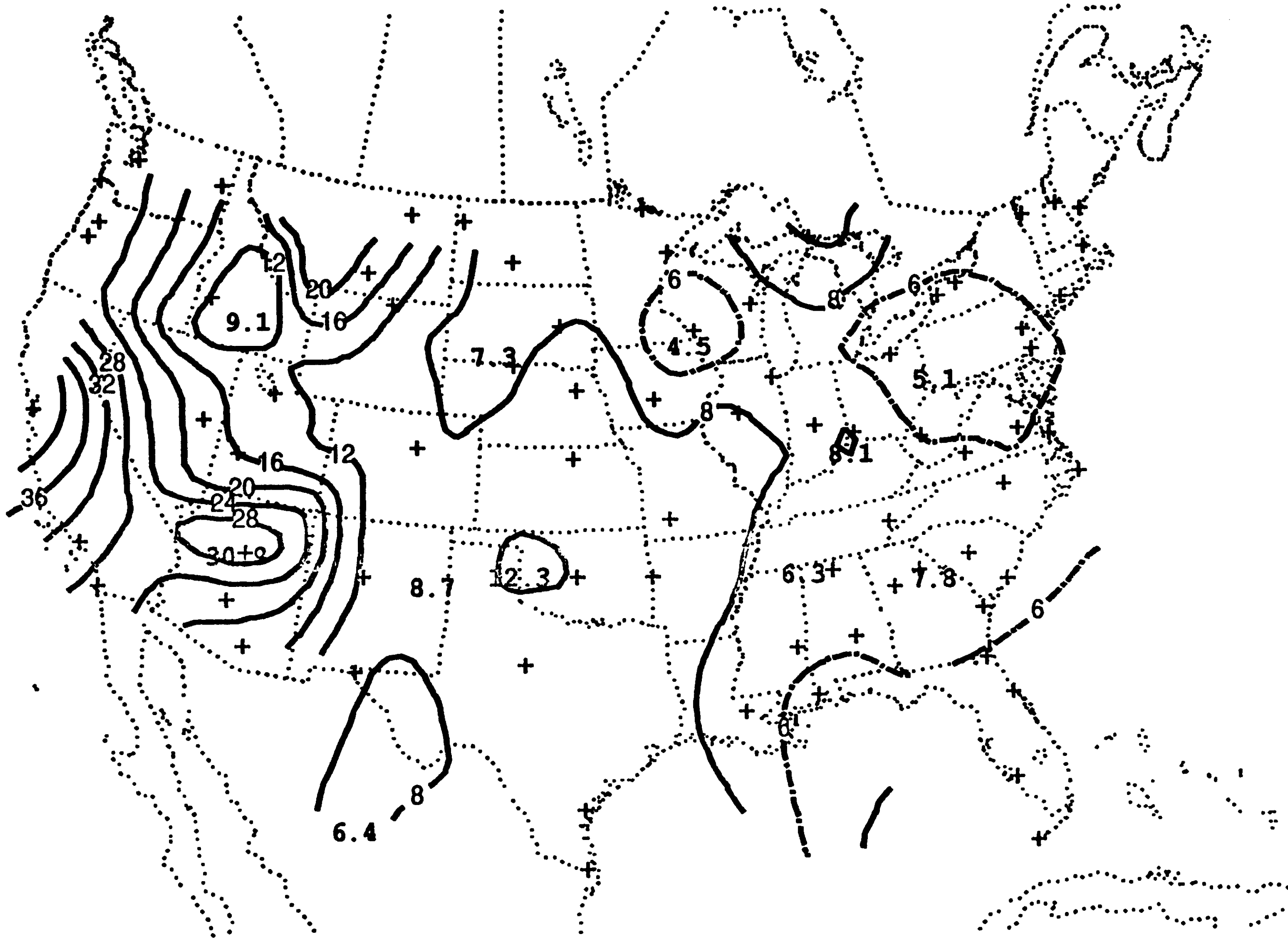
$cov[i,t_r]$ = covariance of storm intensity and storm duration, mm

for each month of the year. A review of the maps' notations can be found in Section 4–2.

Section 5–1 gives the details of the maps' construction. Just as in the modified Bartlett–Lewis maps, only seventy–four stations were used.

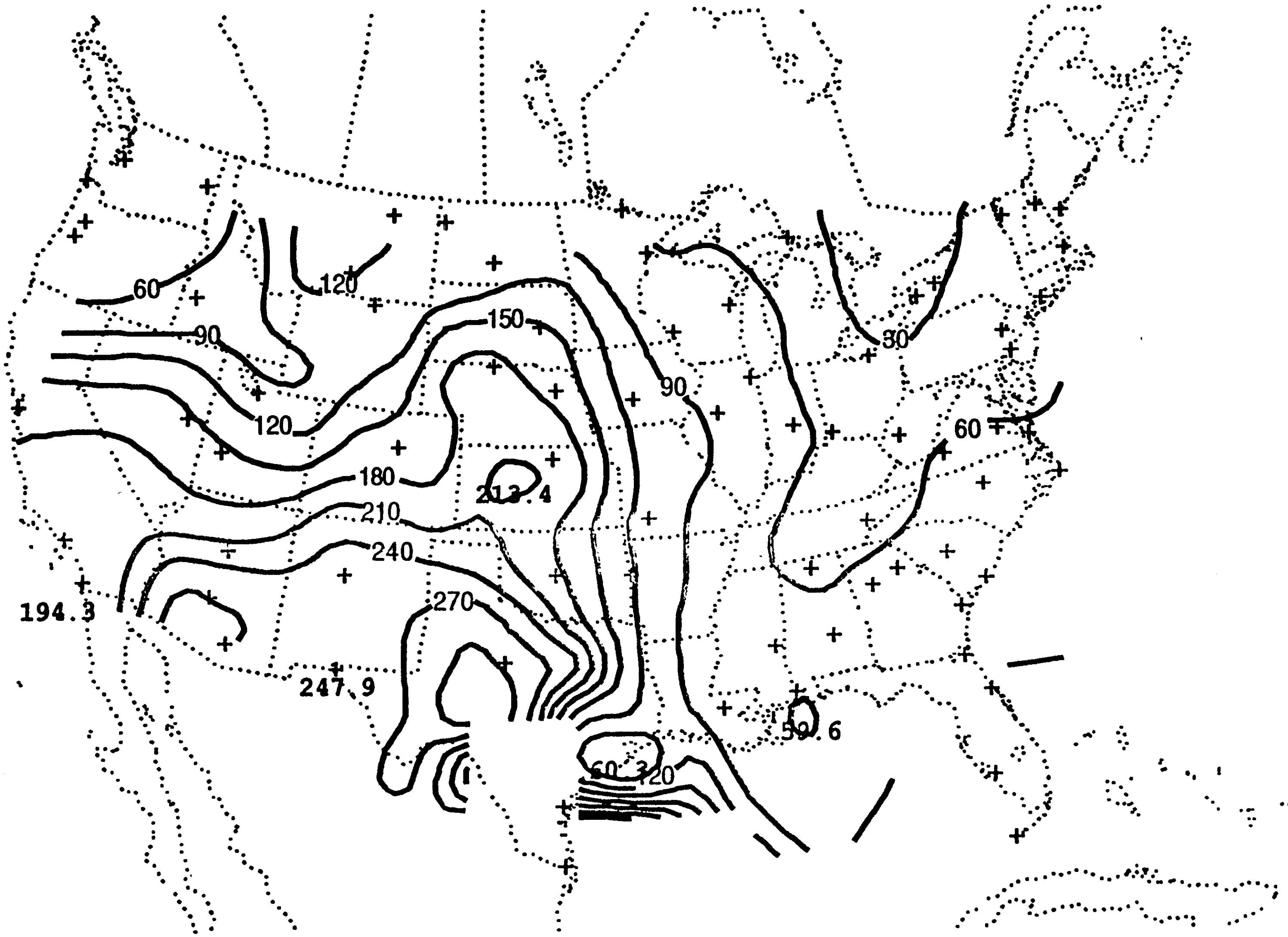
Index of the Poisson Rectangular Pulses Maps

Index of the Poisson Rectangular Pulses Maps (Continued)



740101/0000 SFC TRTR Max= 42.5 Min= 2.9

Figure 6–1 – January – m_{tr}



740101/0000 SFC TBTB Max= 316.2 Min= 23.7

Figure 6–2 – January – m_{tb}

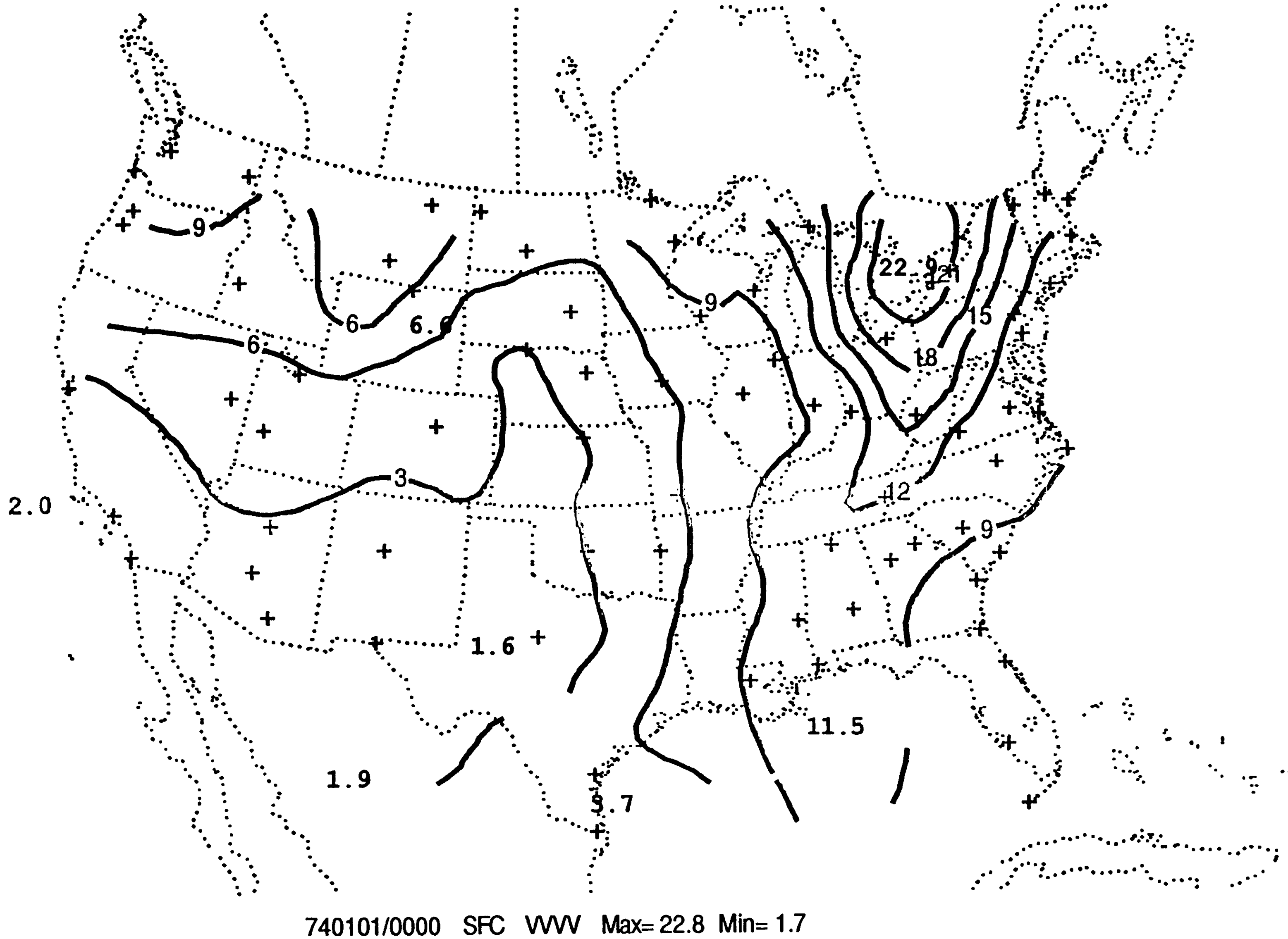
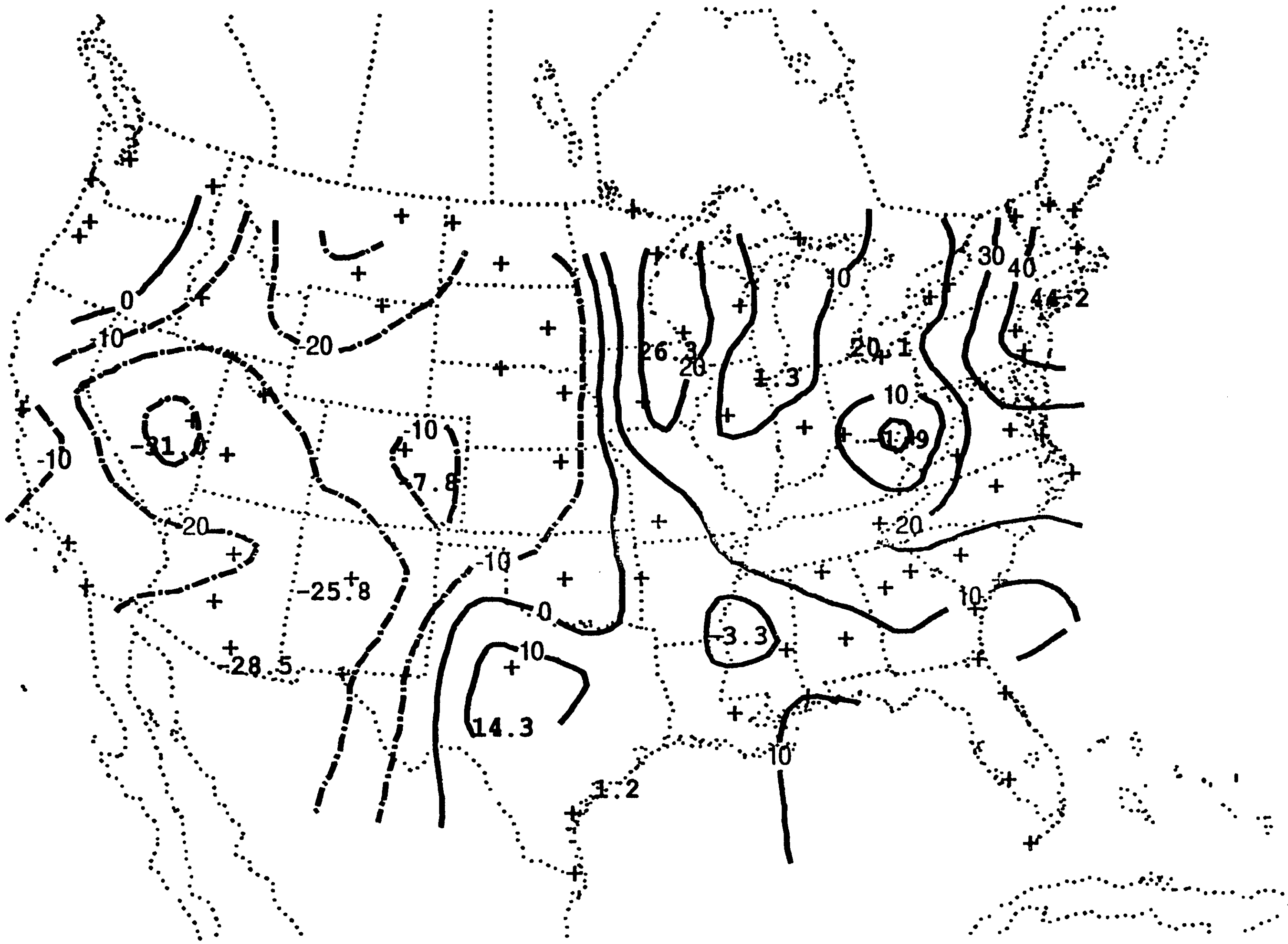
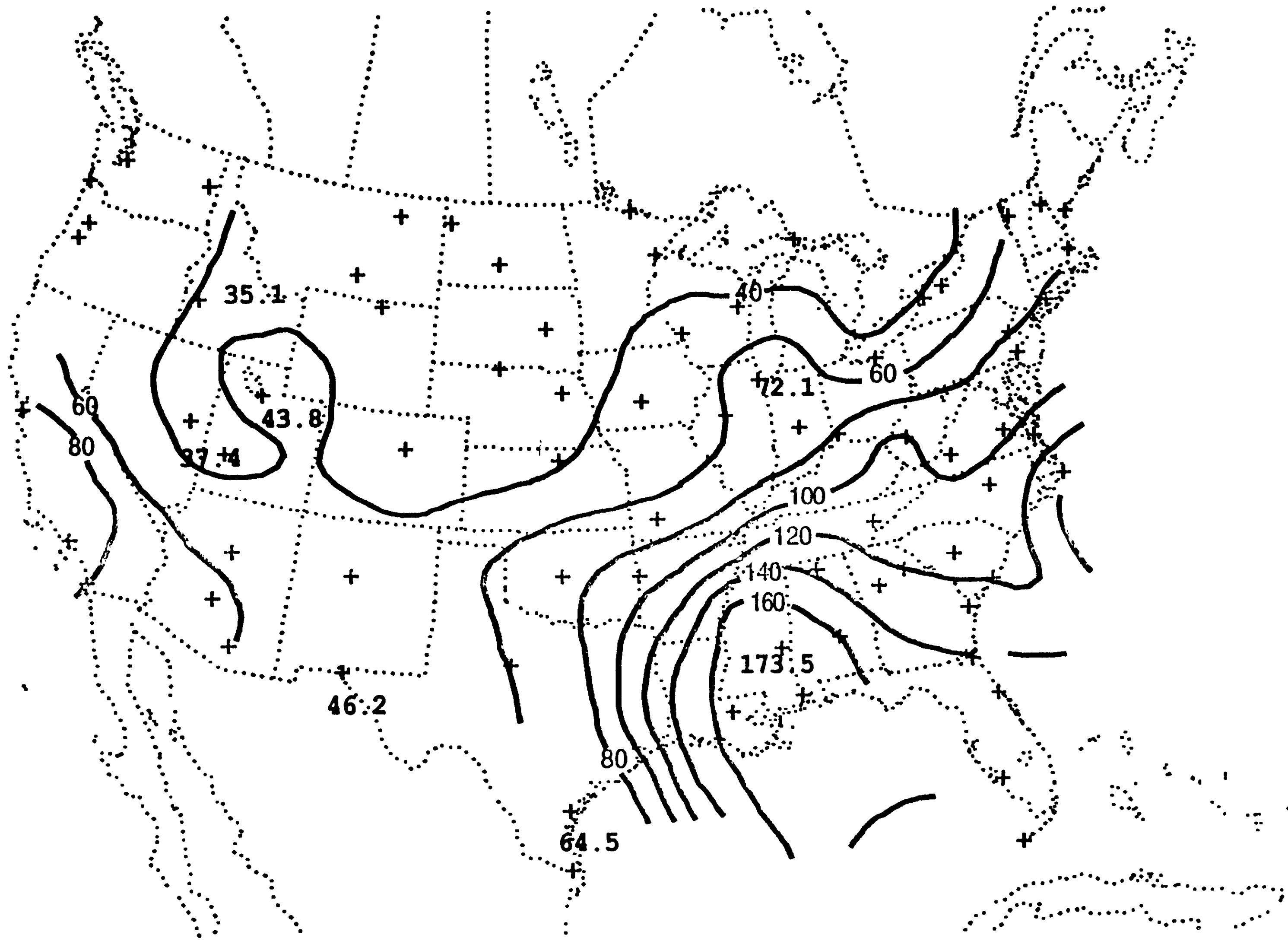


Figure 6–3 - January - m_v'



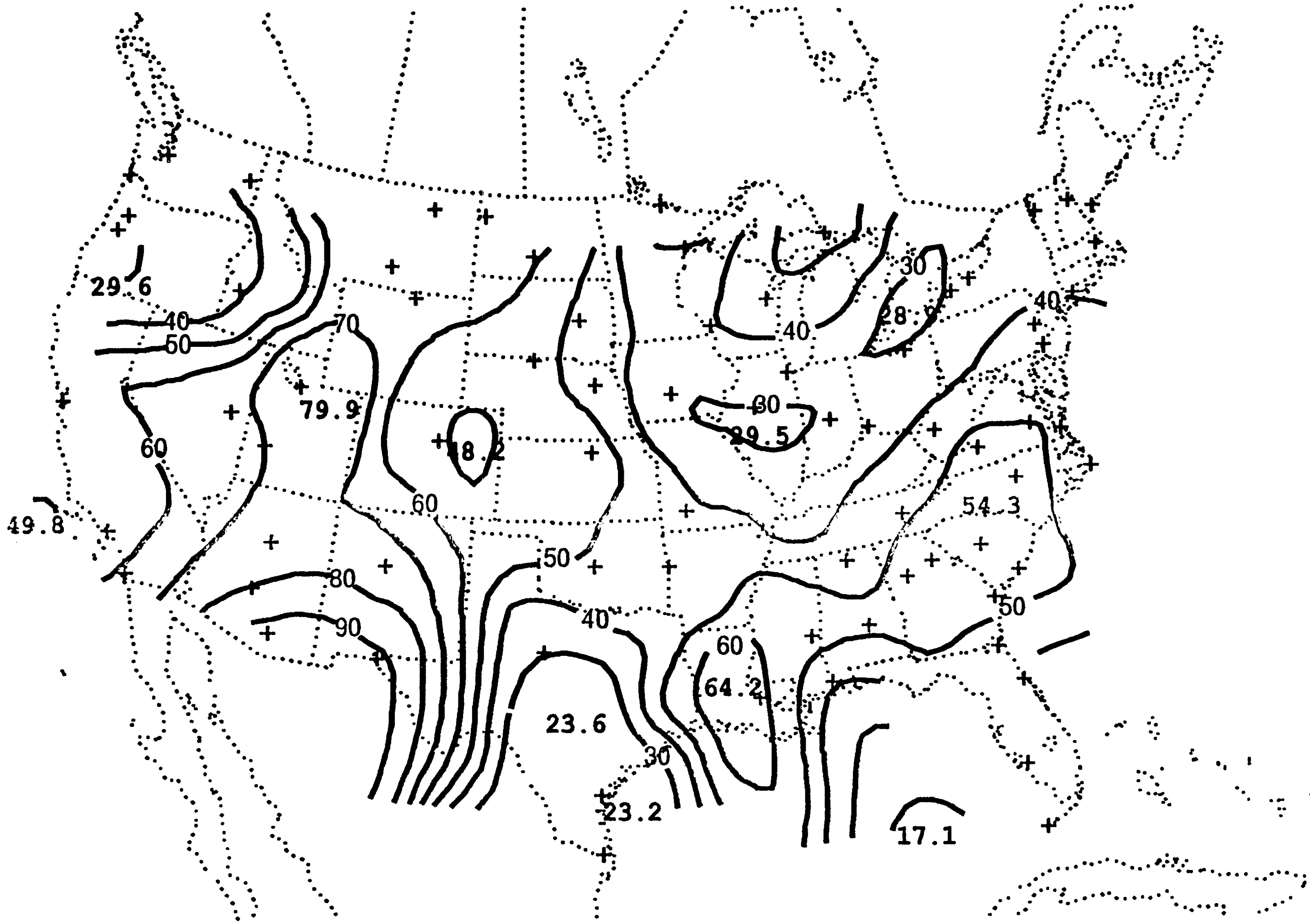
740101/0000 SFC RHOO (*10**2) Max= 43.7 Min= -31.3

Figure 6-4 – January – m_i



740101/0000 SFC STMI (*10**2) Max= 188.0 Min= 27.3

Figure 6–5 – January – cov[i,t_r]



740101/0000 SFC KAPP (*10**2) Max= 96.4 Min= 17.8

Figure 6–6 – January – κ

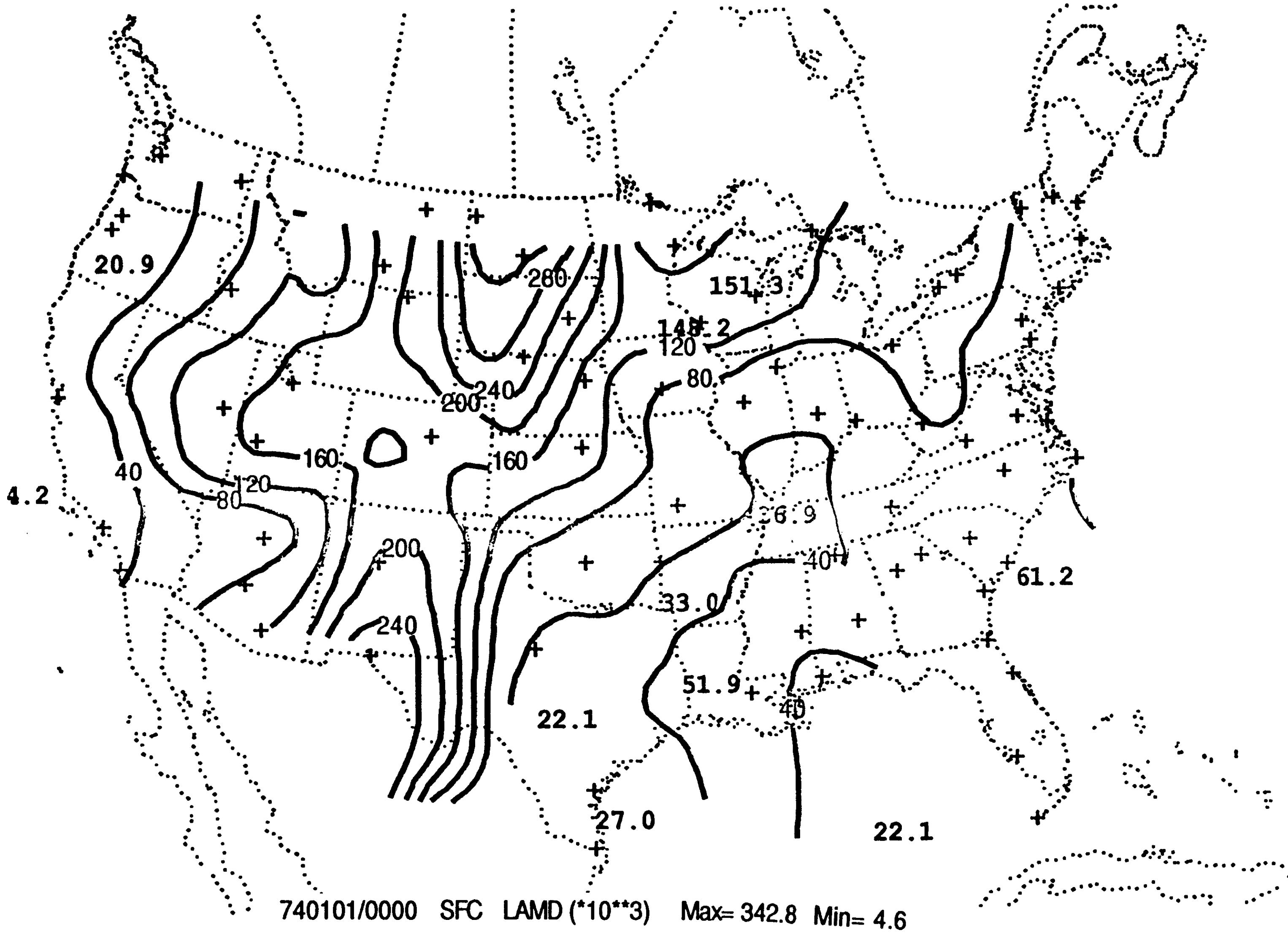


Figure 6–7 – January – λ

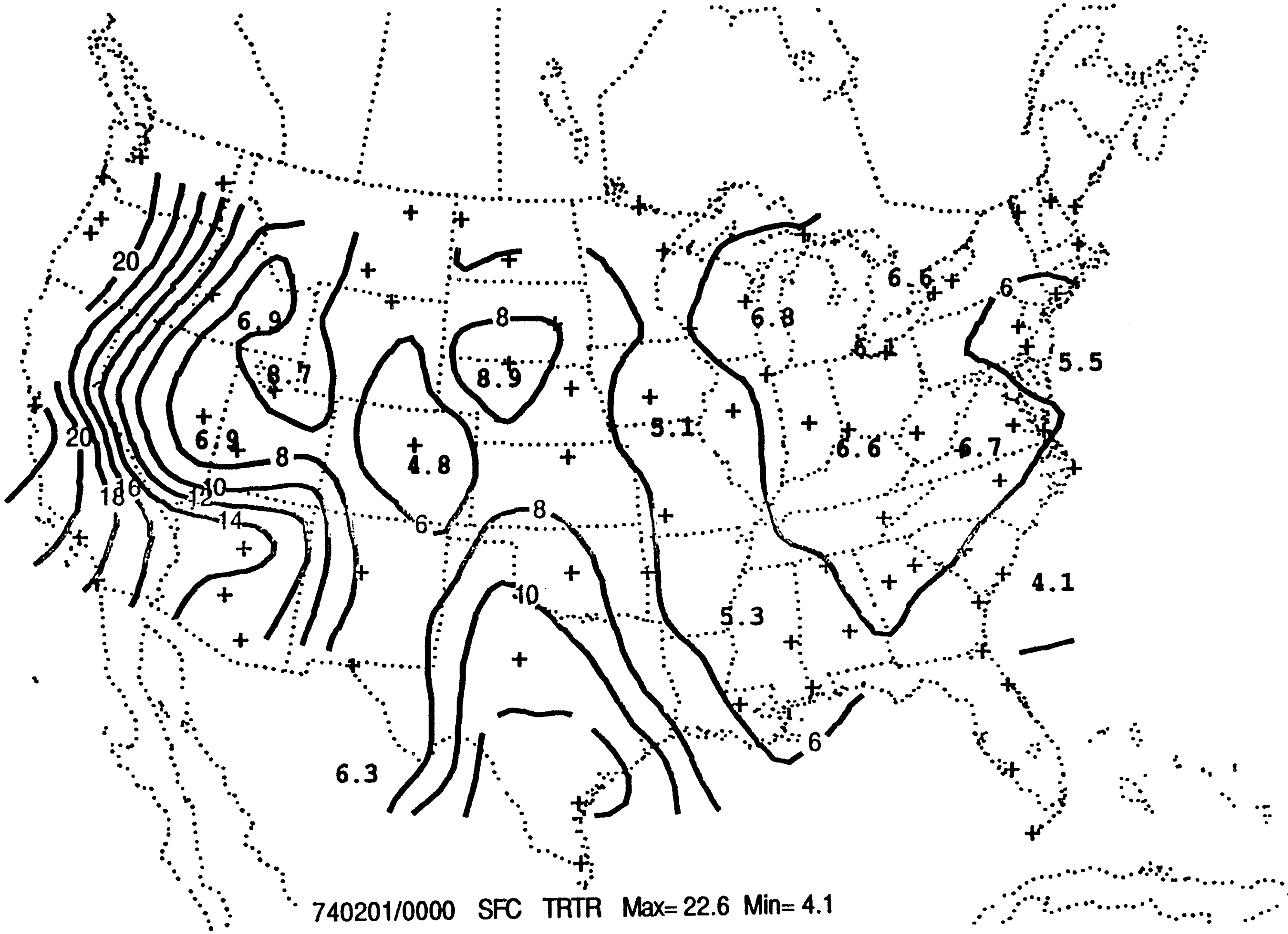


Figure 6–8 – February – m_{tr}

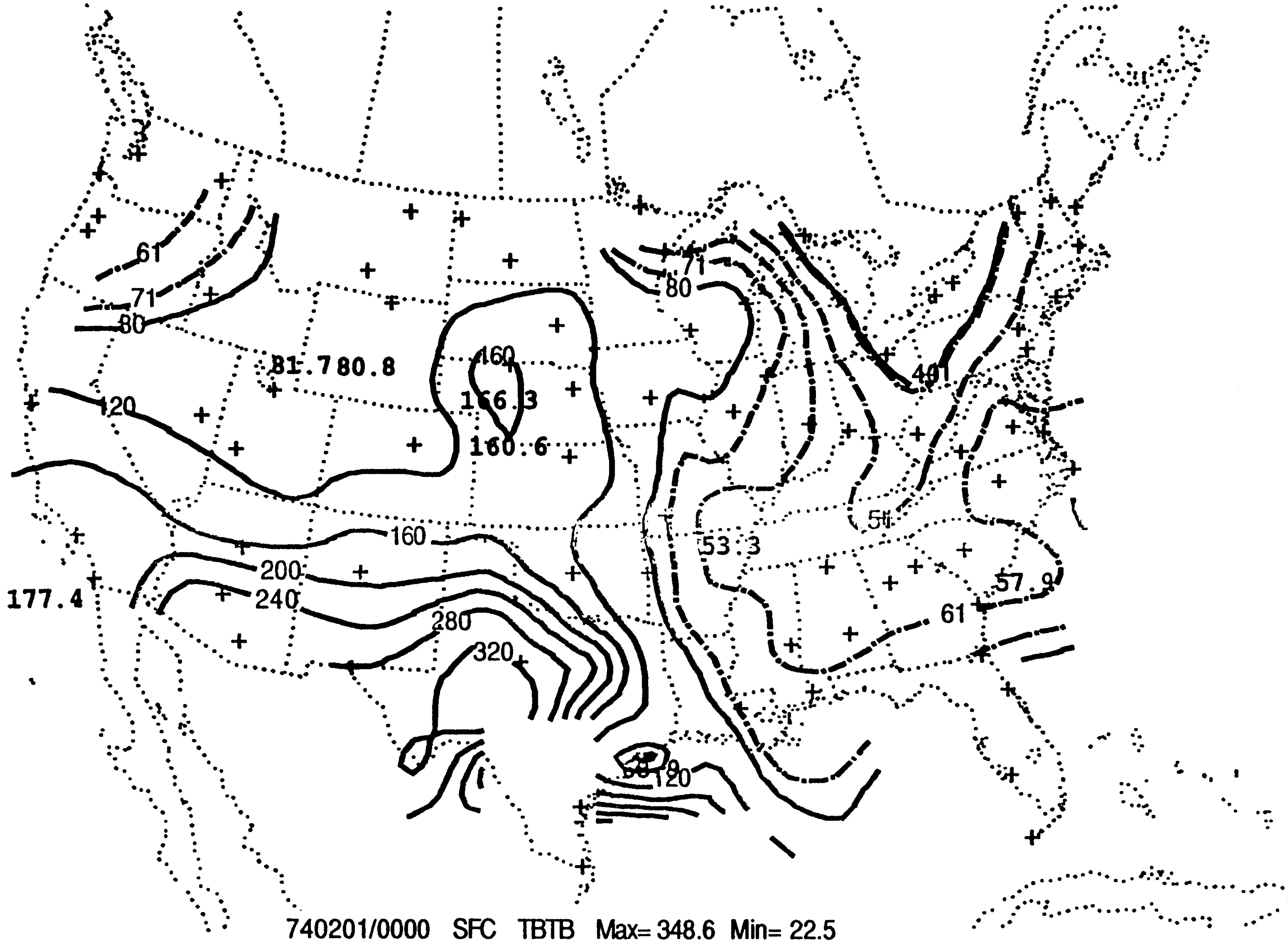


Figure 6-9 - February - m_{t_b}

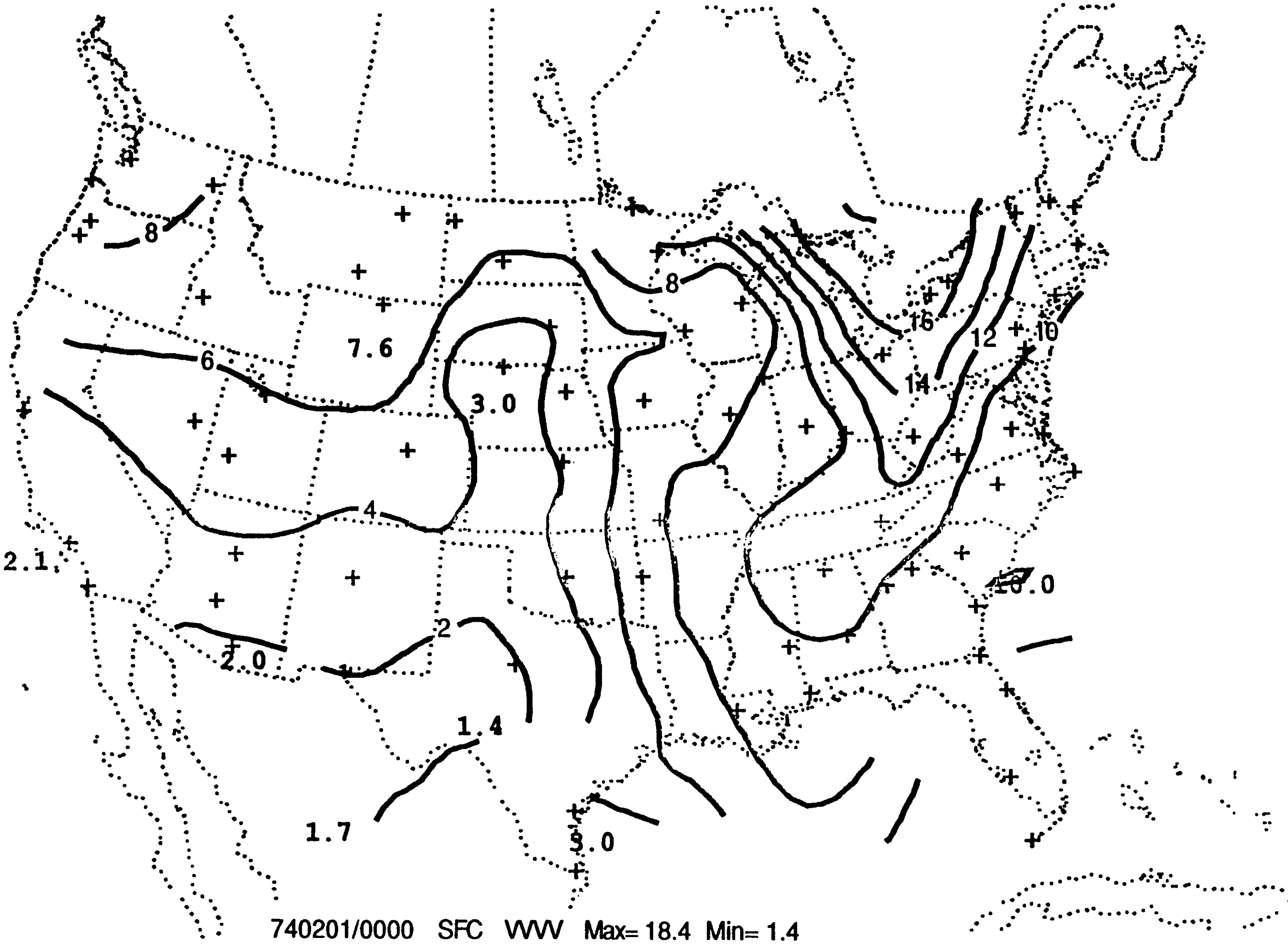


Figure 6–10 – February – m_v

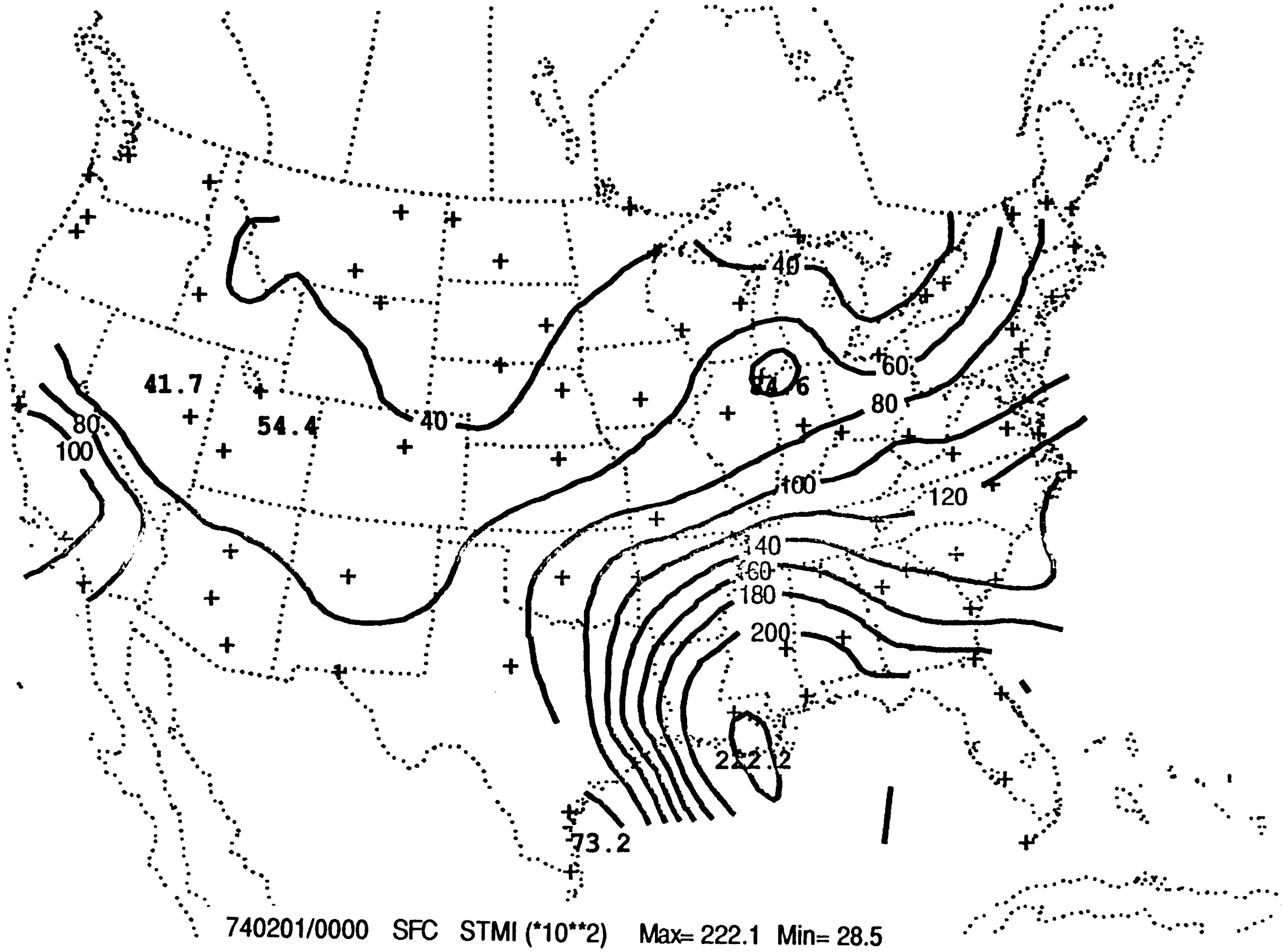
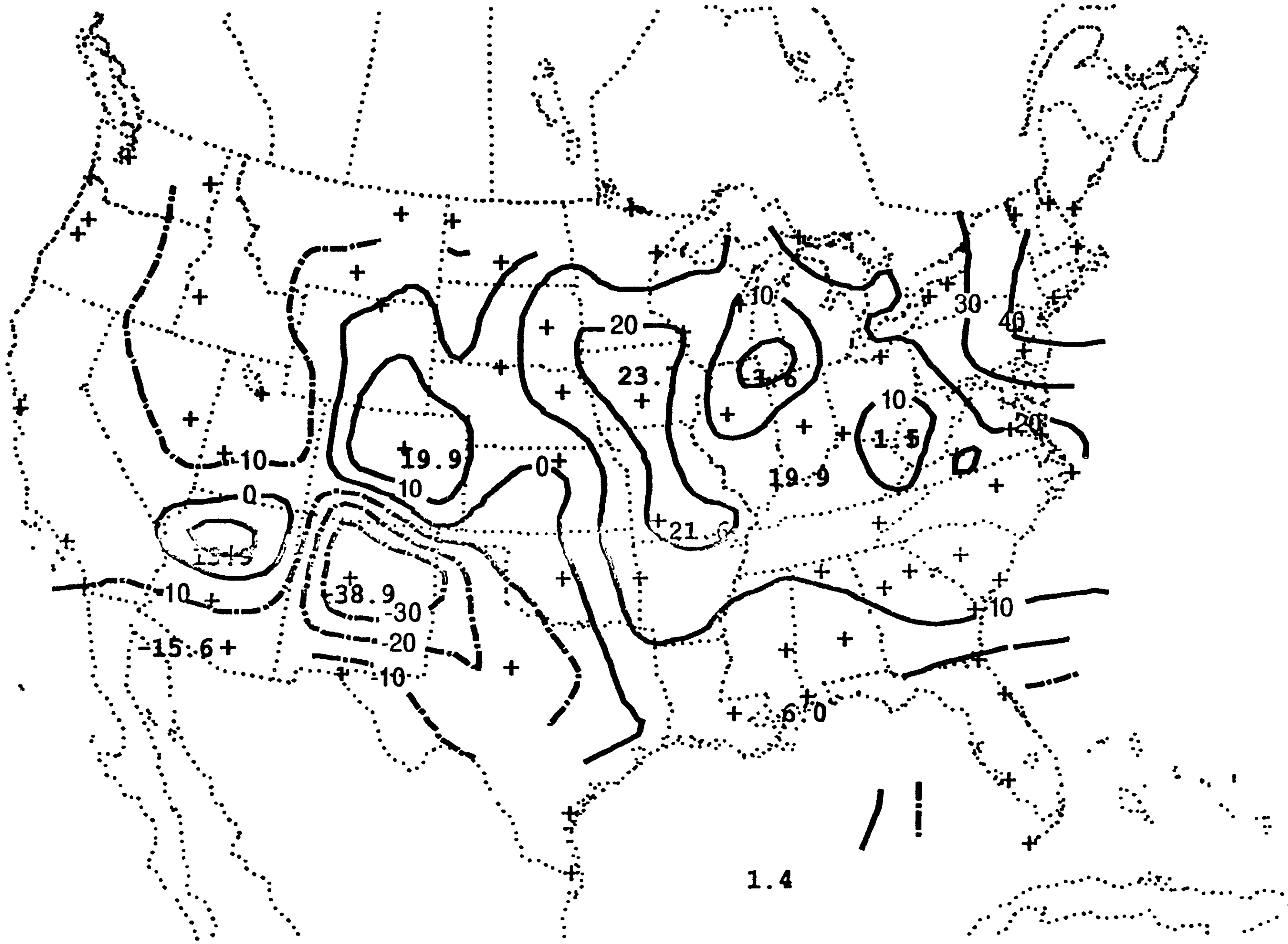


Figure 6–11 – February – m_i



740201/0000 SFC RHOO (*10**2) Max= 42.3 Min= -37.6

Figure 6–12 – February – cov[i,t_r]

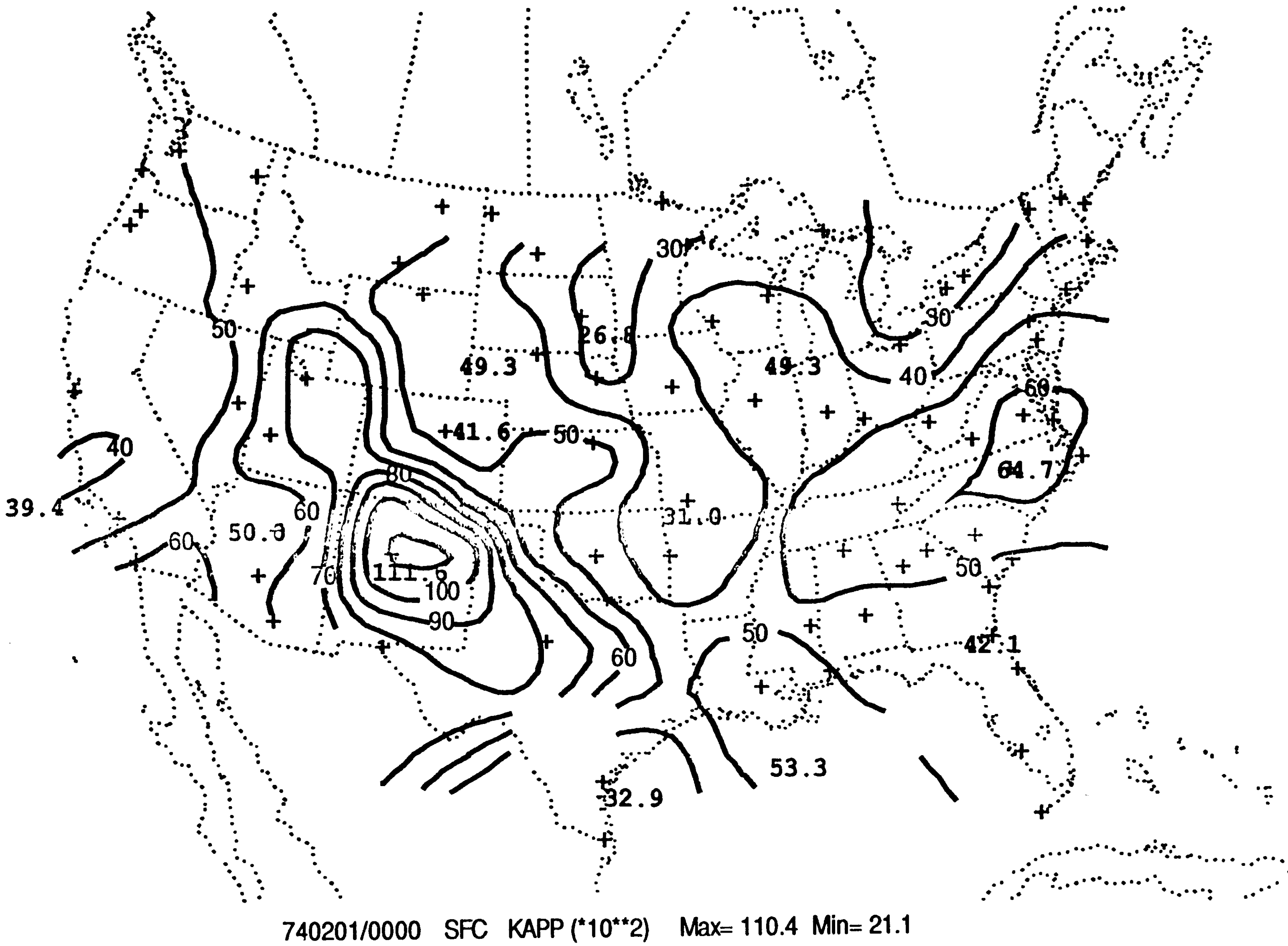


Figure 6-13 - February - κ

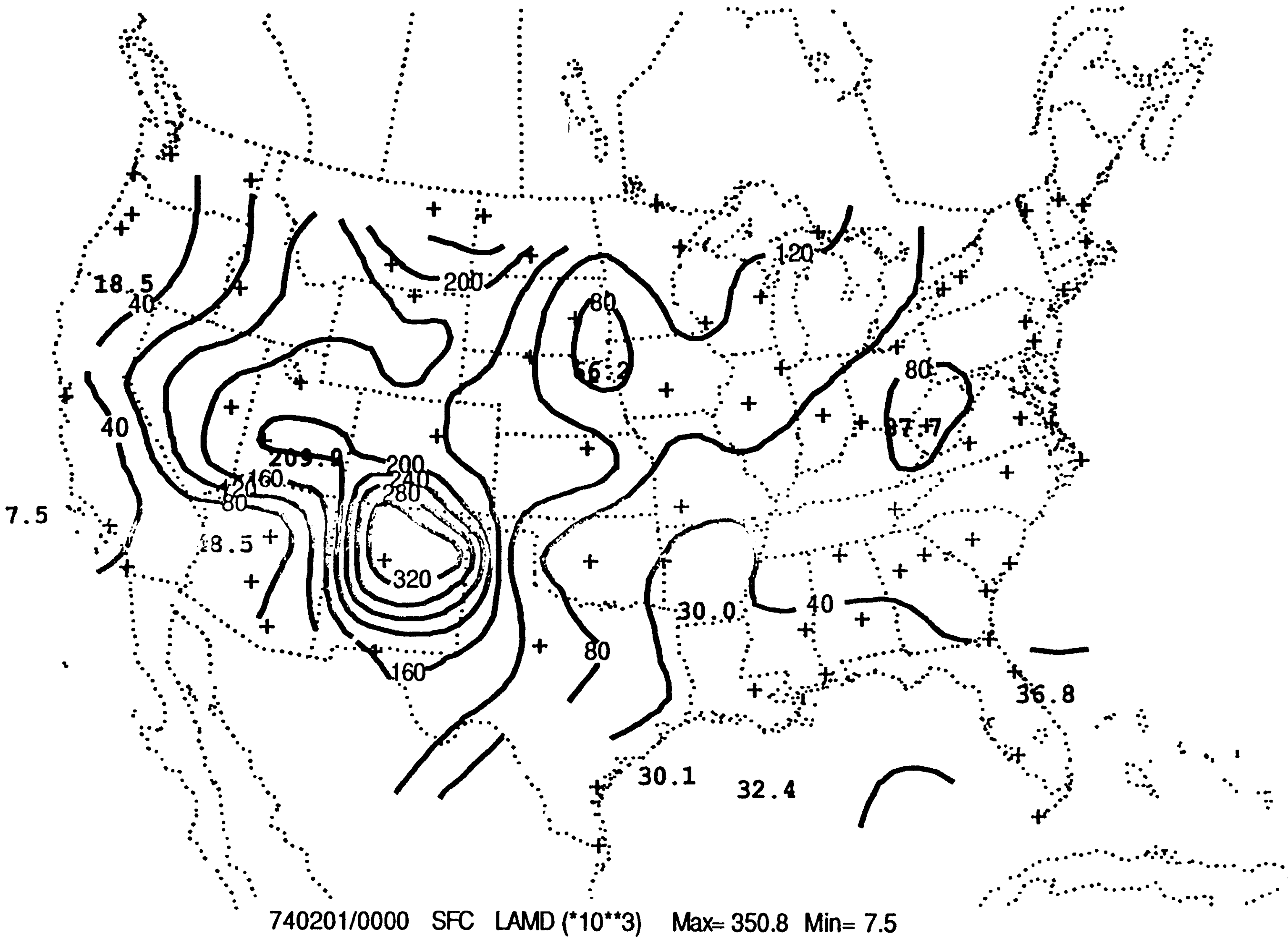


Figure 6–14 - February - λ

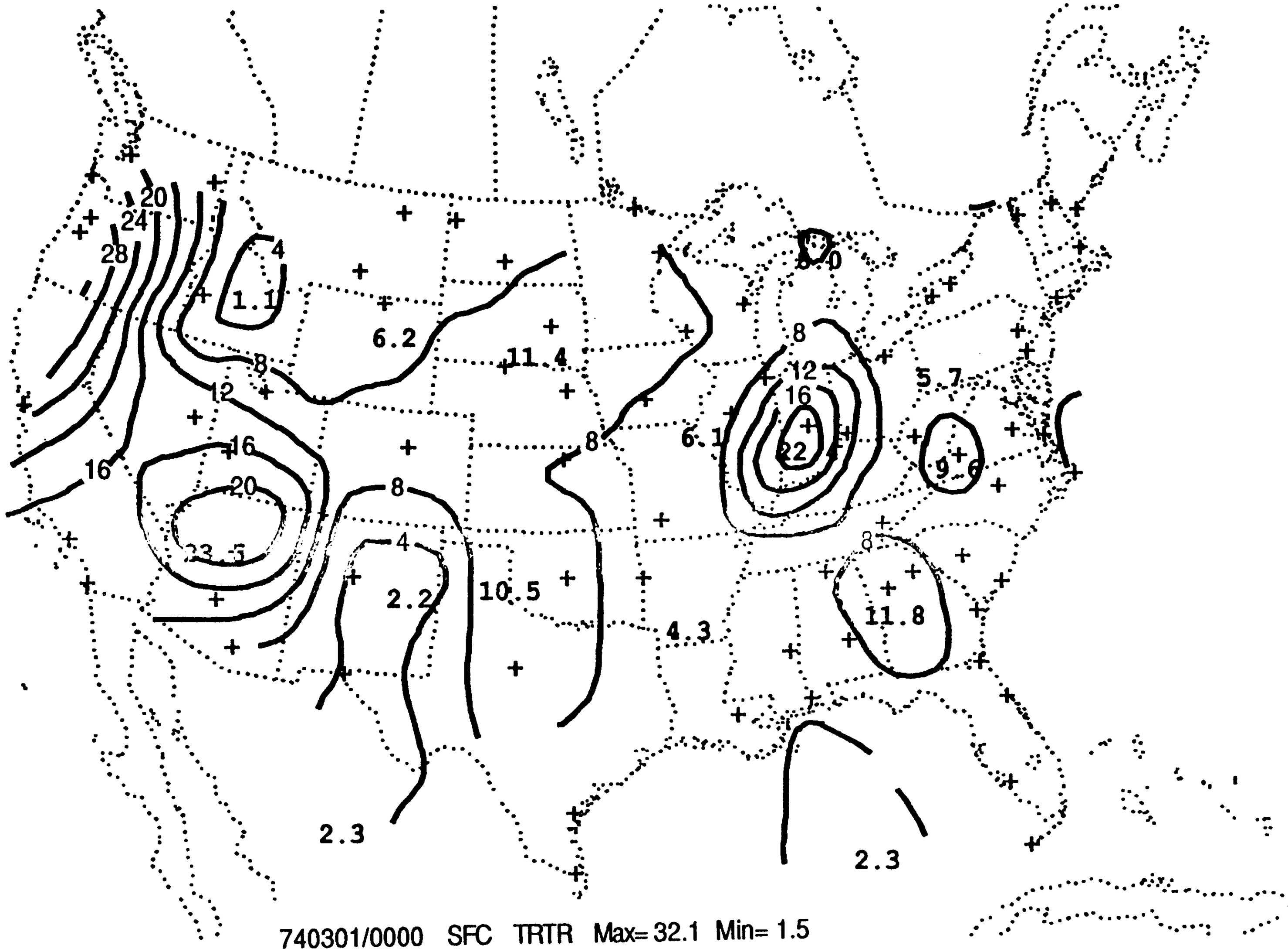
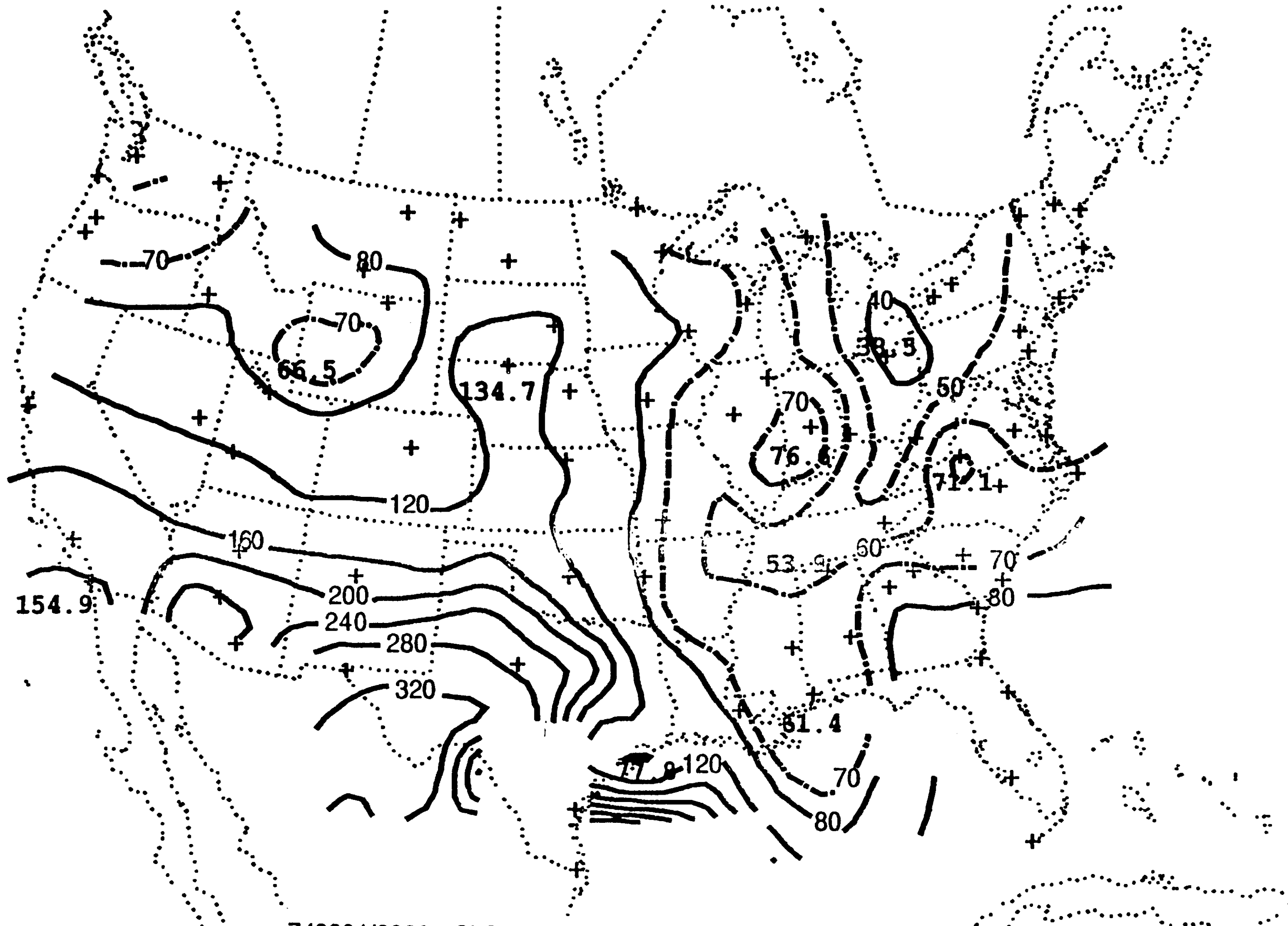


Figure 6–15 – March – m_{tr}



740301/0000 SFC TBTB Max= 367.9 Min= 39.4

Figure 6–16 – March – m_{tb}

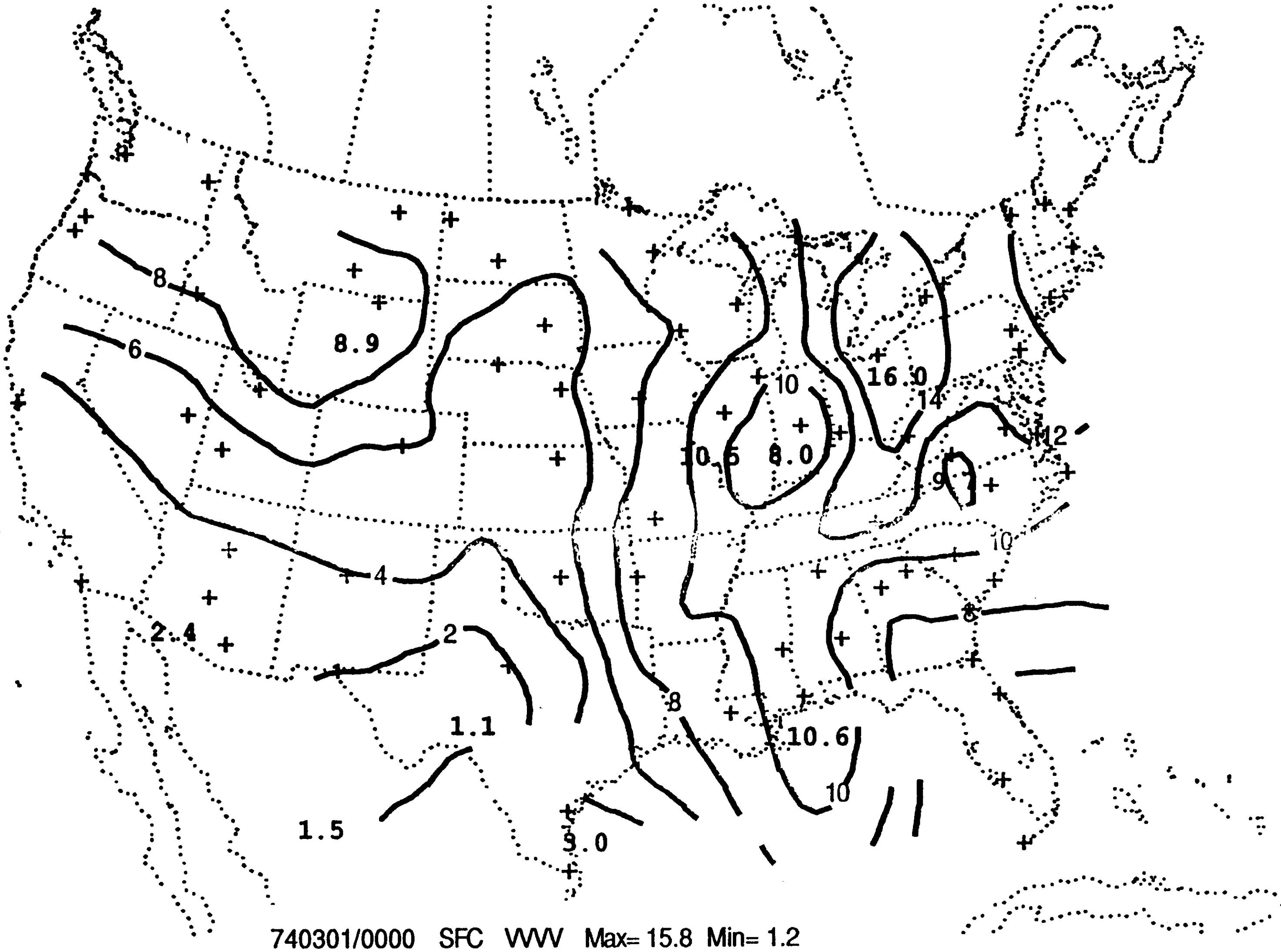


Figure 6–17 – March – m_v

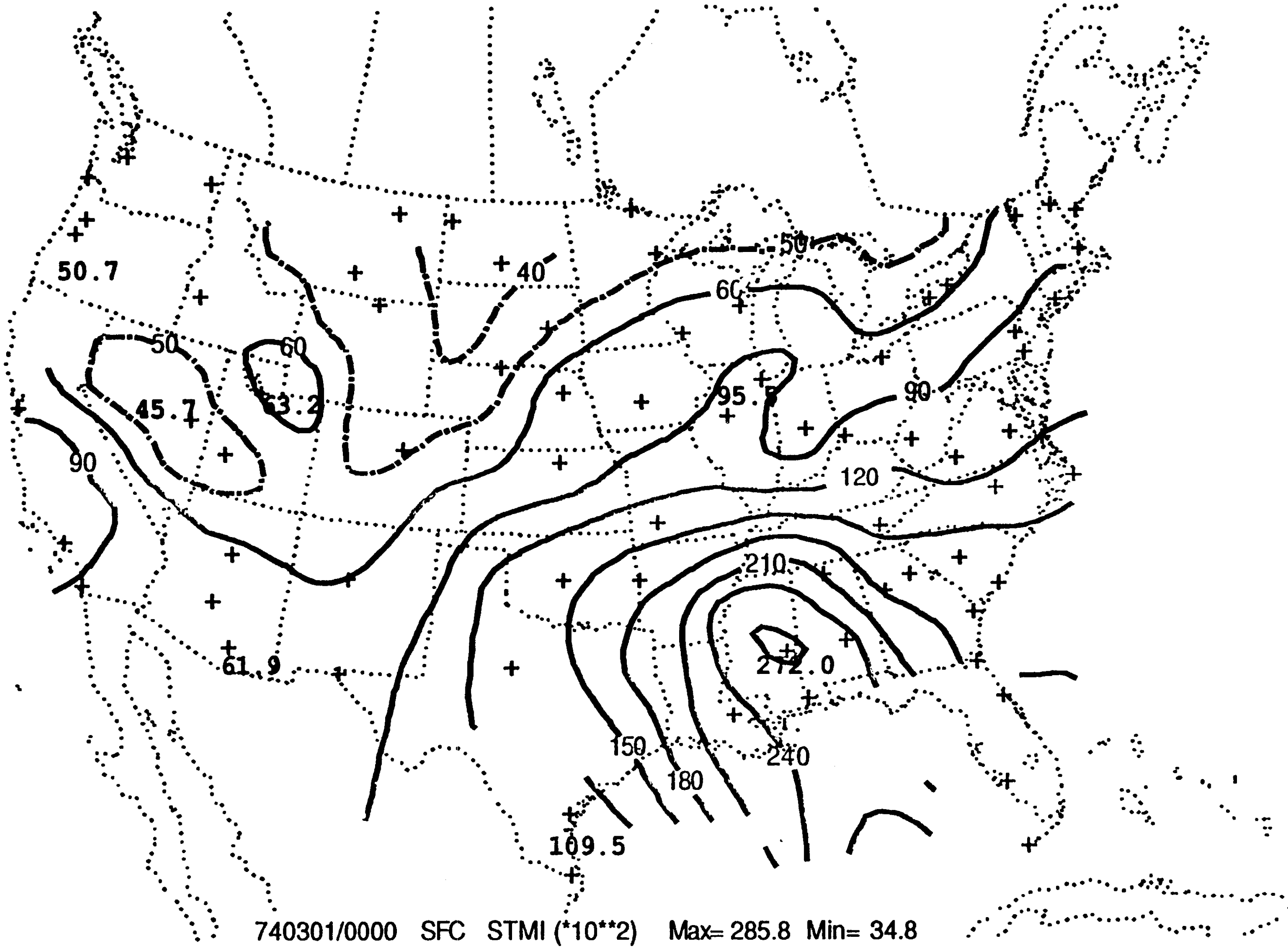


Figure 6–18 – March – m_i

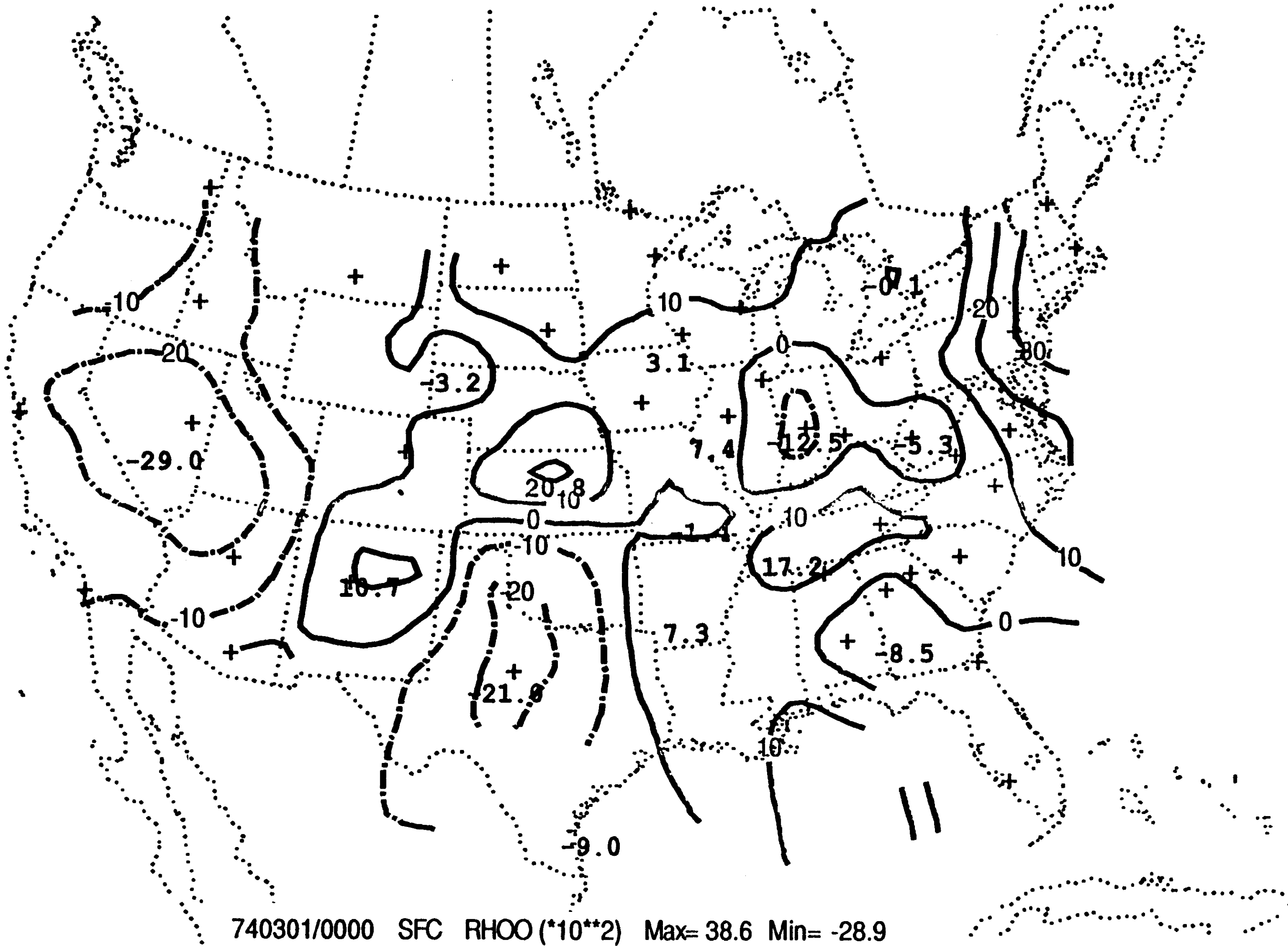


Figure 6–19 – March – $cov[i,t_r]$

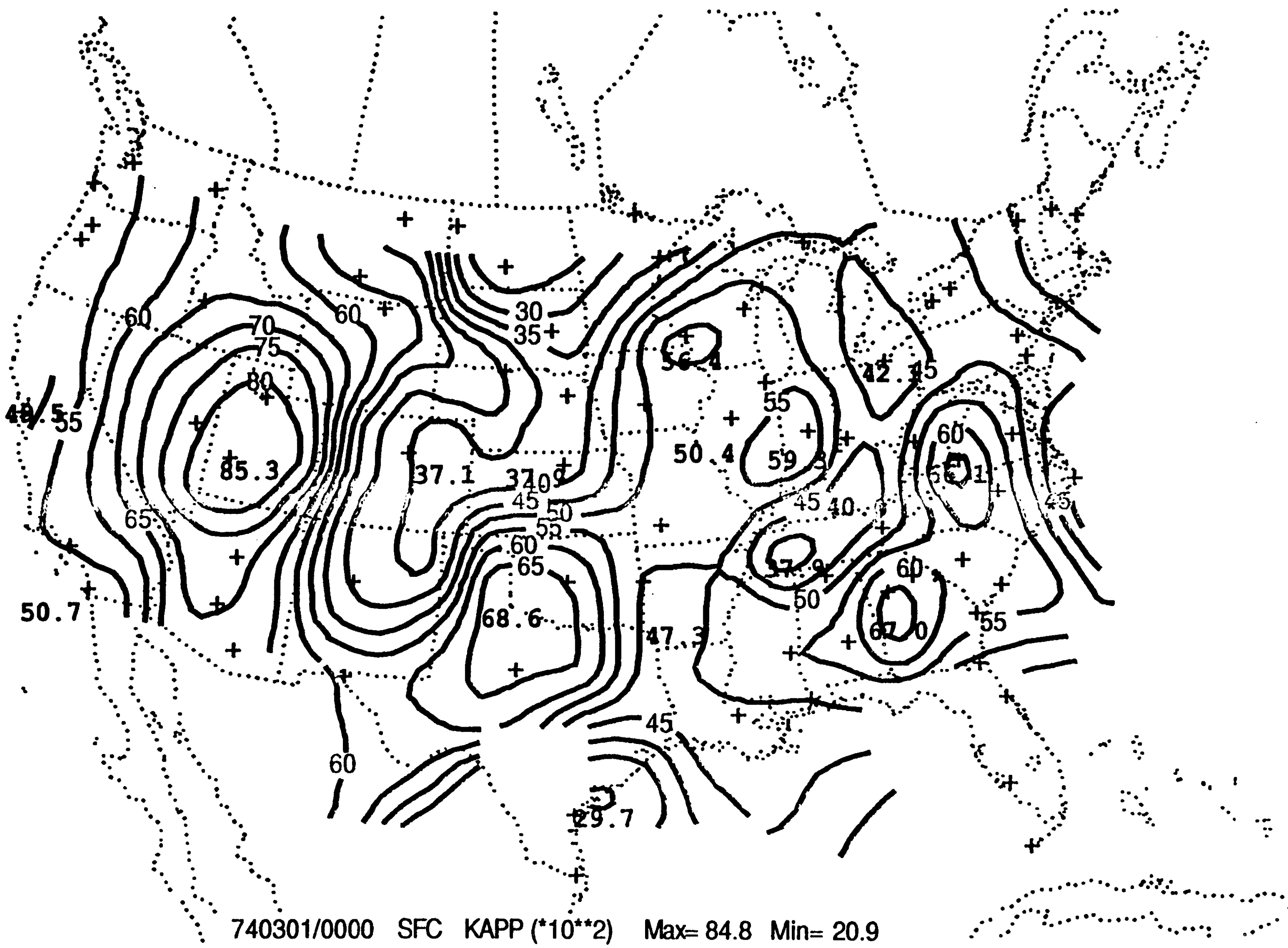


Figure 6–20 – March – κ

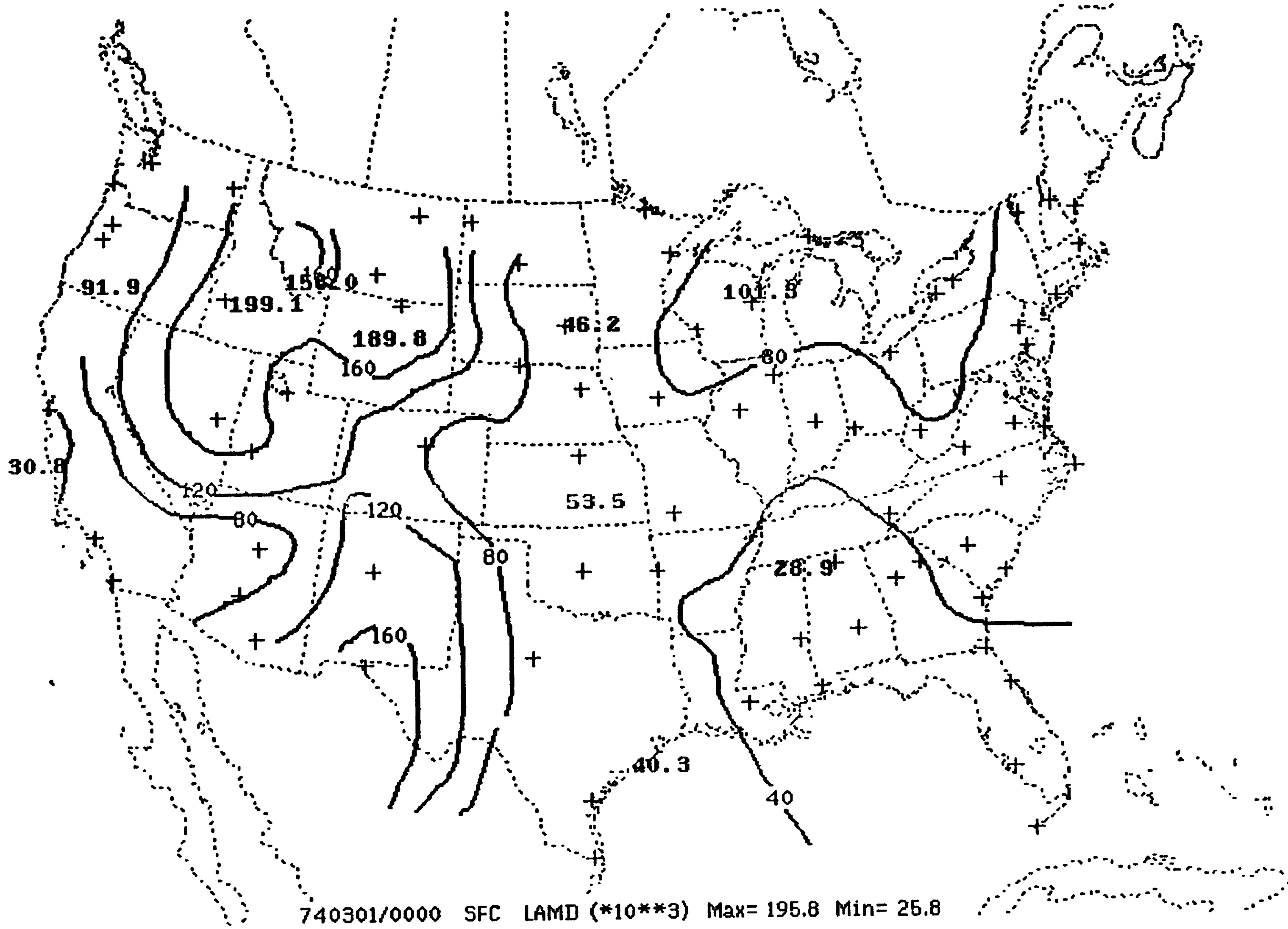


Figure 6–21 – March – λ

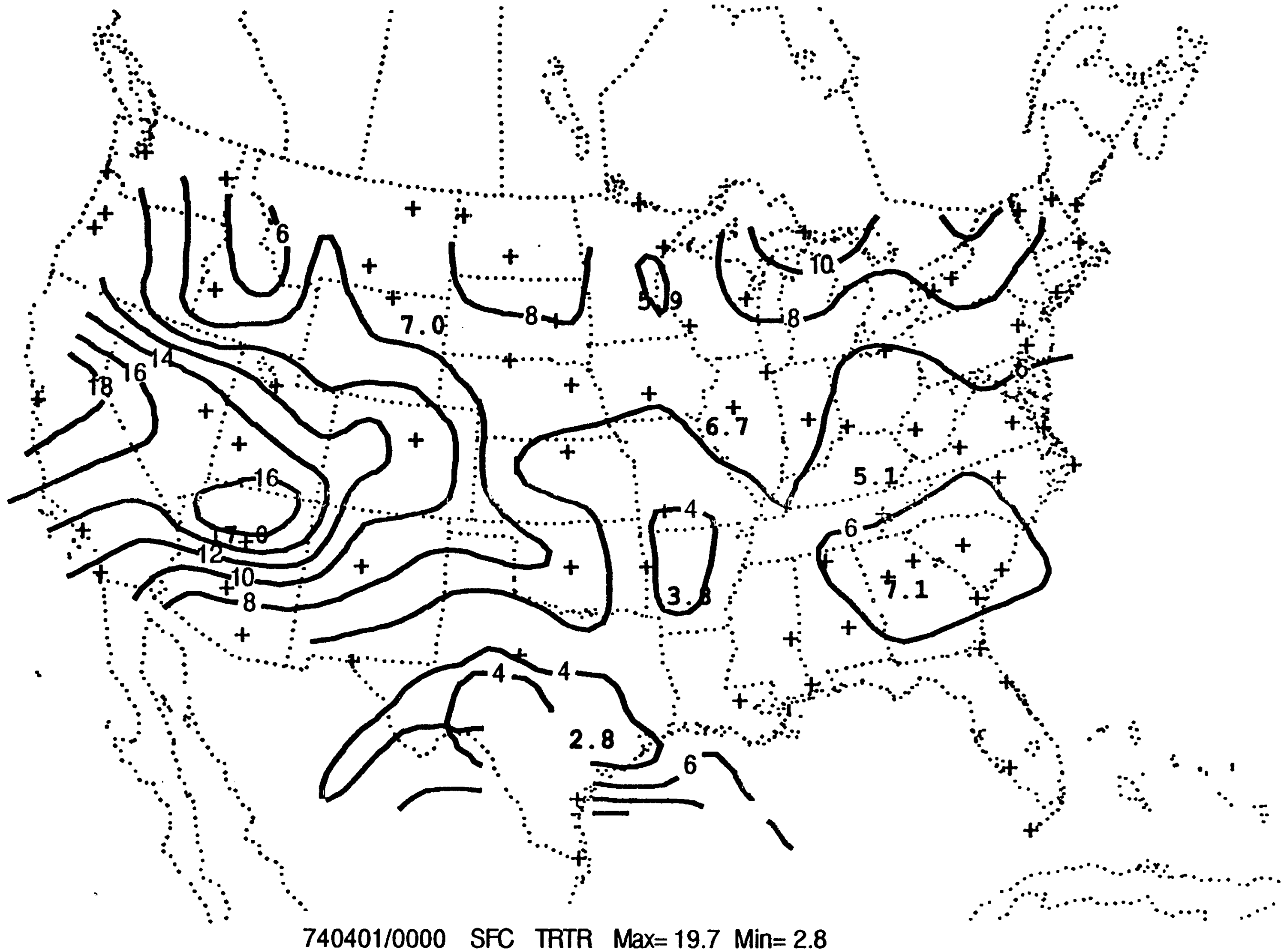


Figure 6–22 - April - m_{t_r}

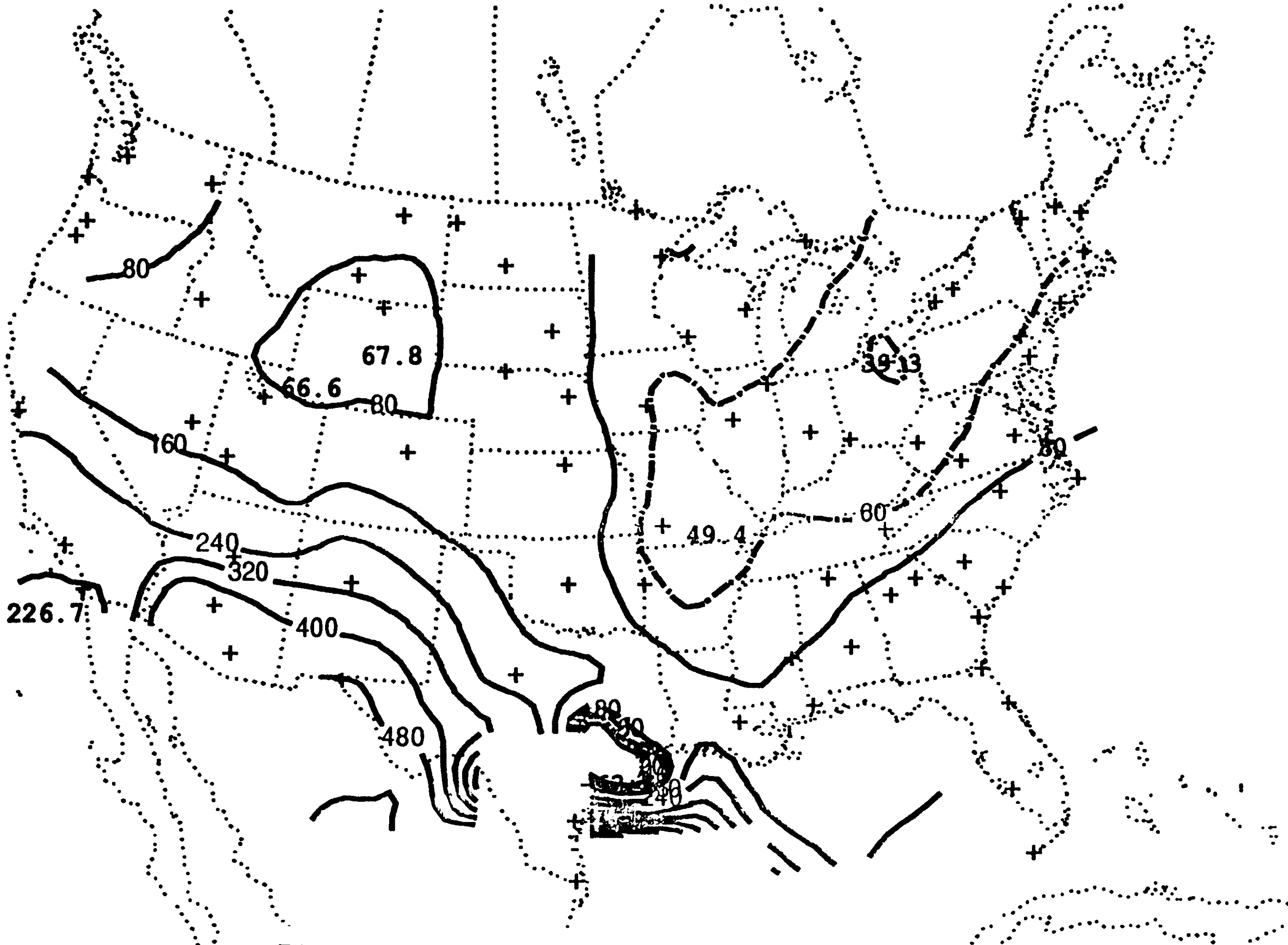


Figure 6–23 - April - m_{t_b}

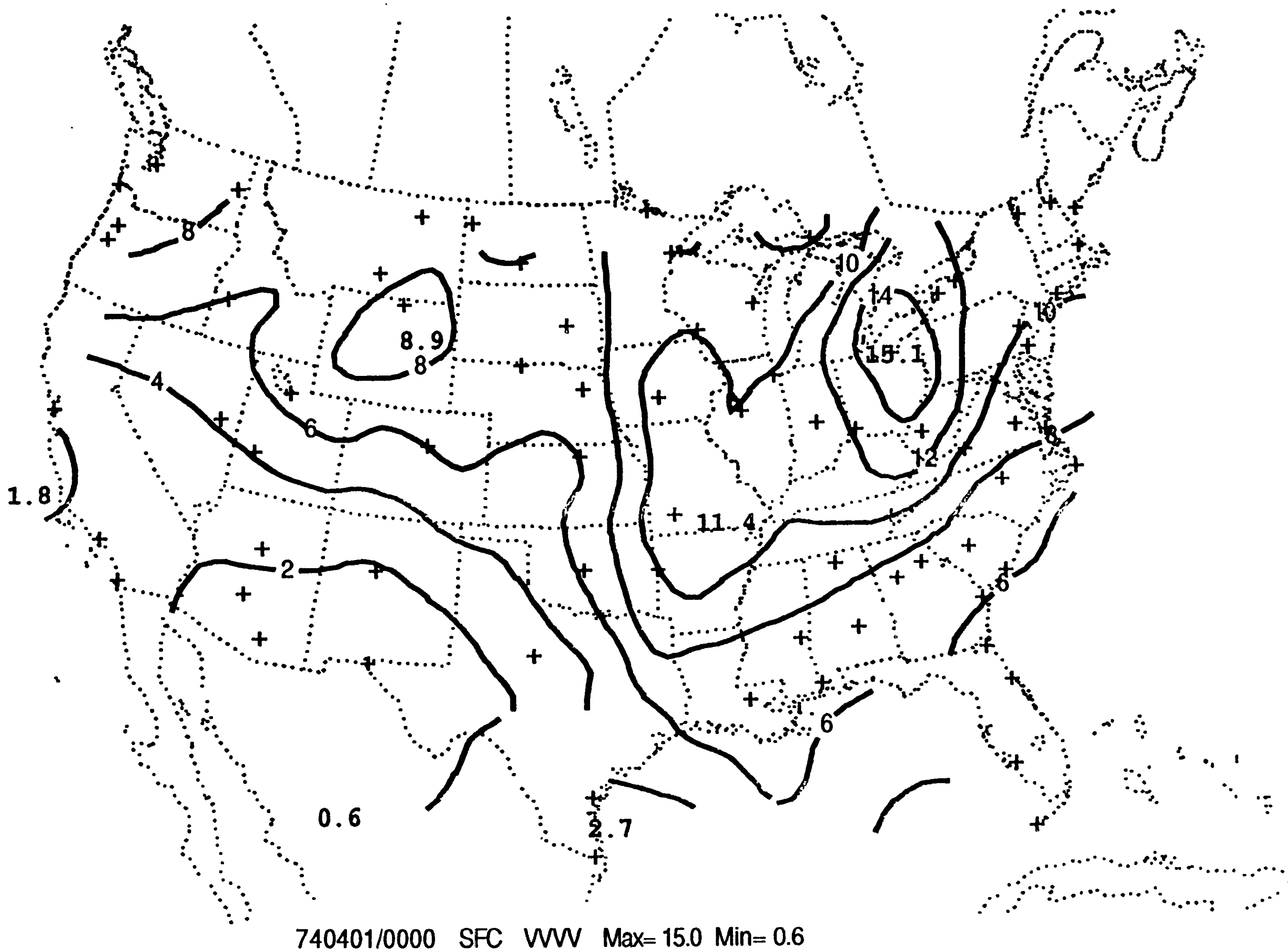


Figure 6–24 - April - m_v

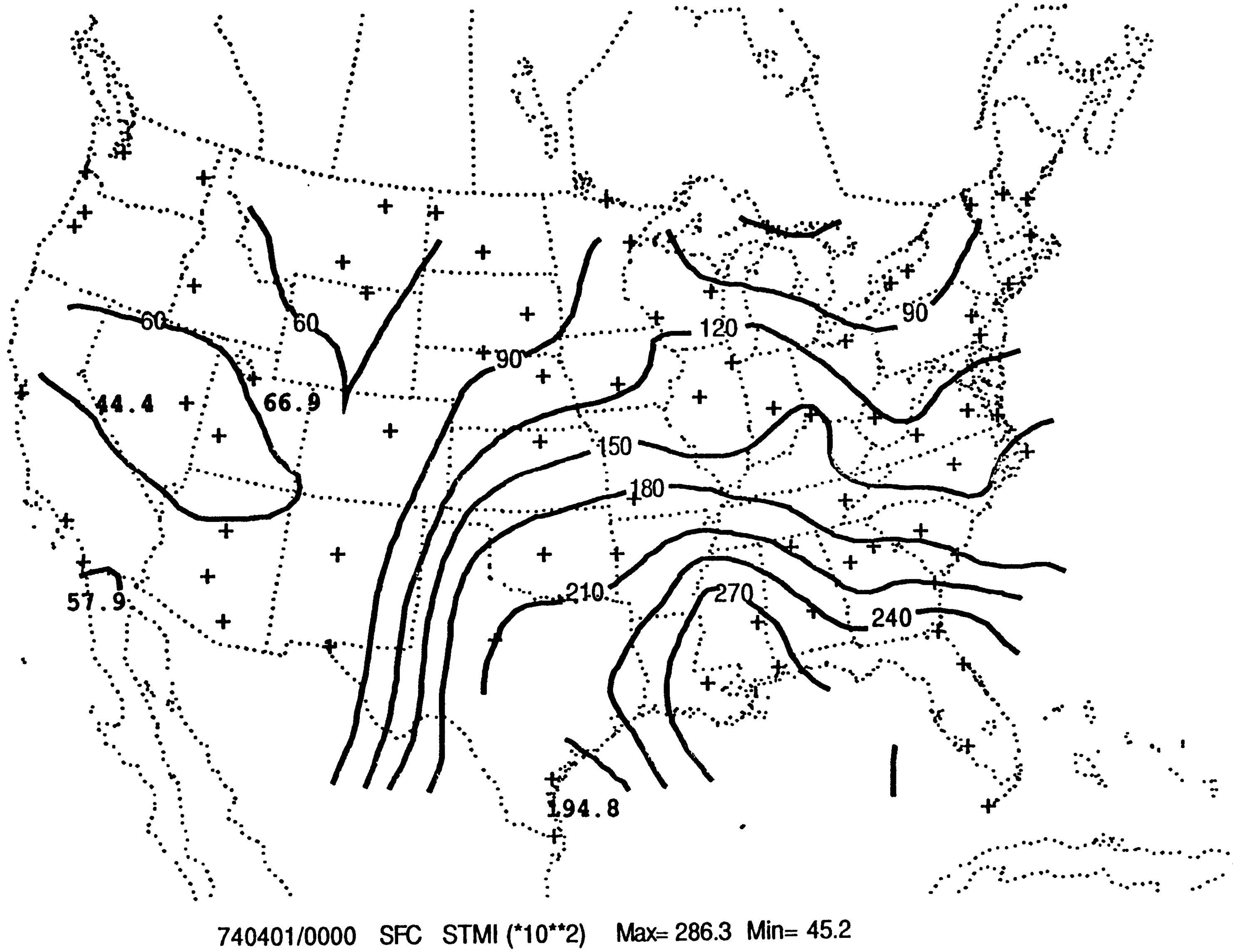


Figure 6–25 – April – m_i

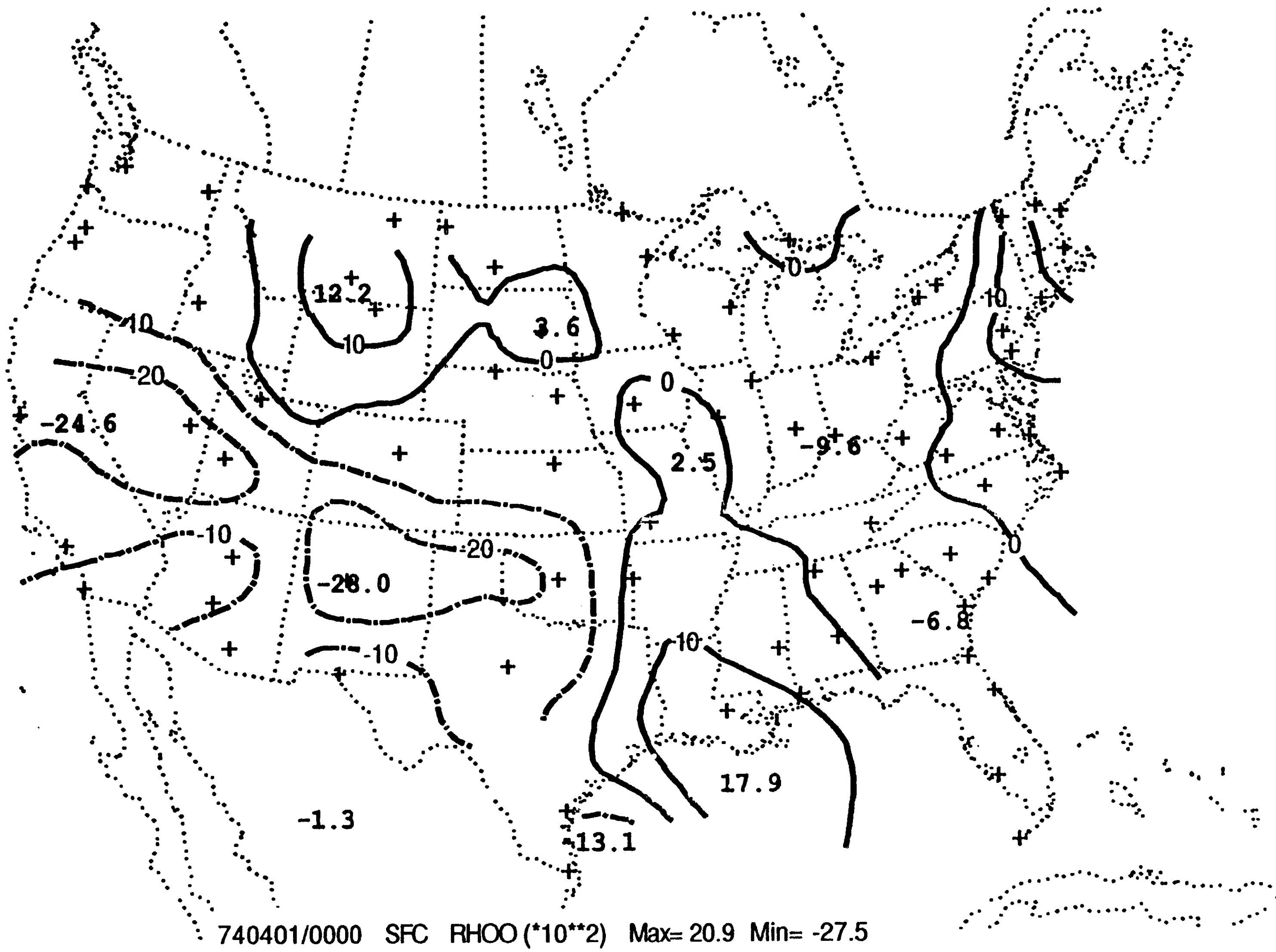
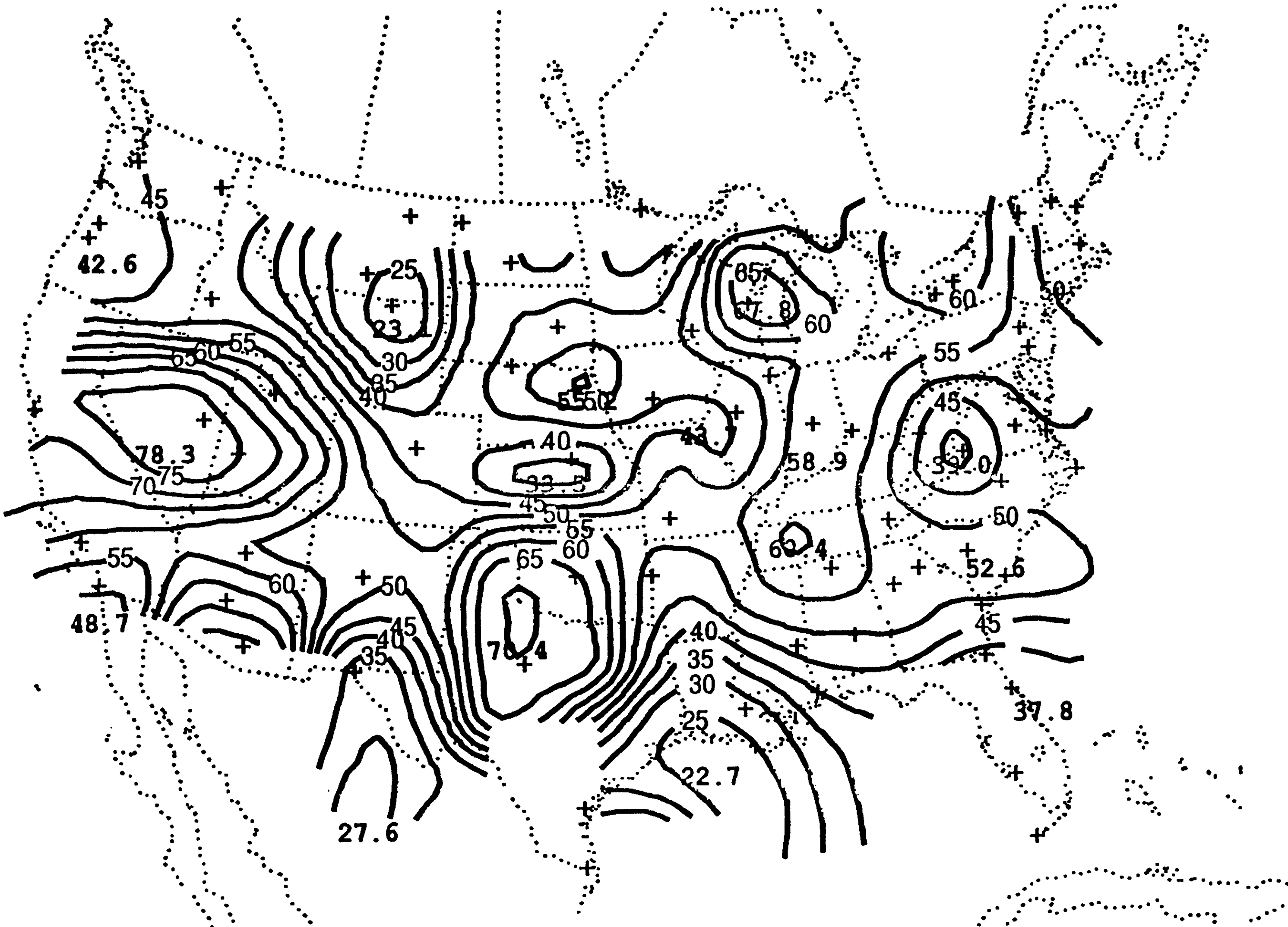
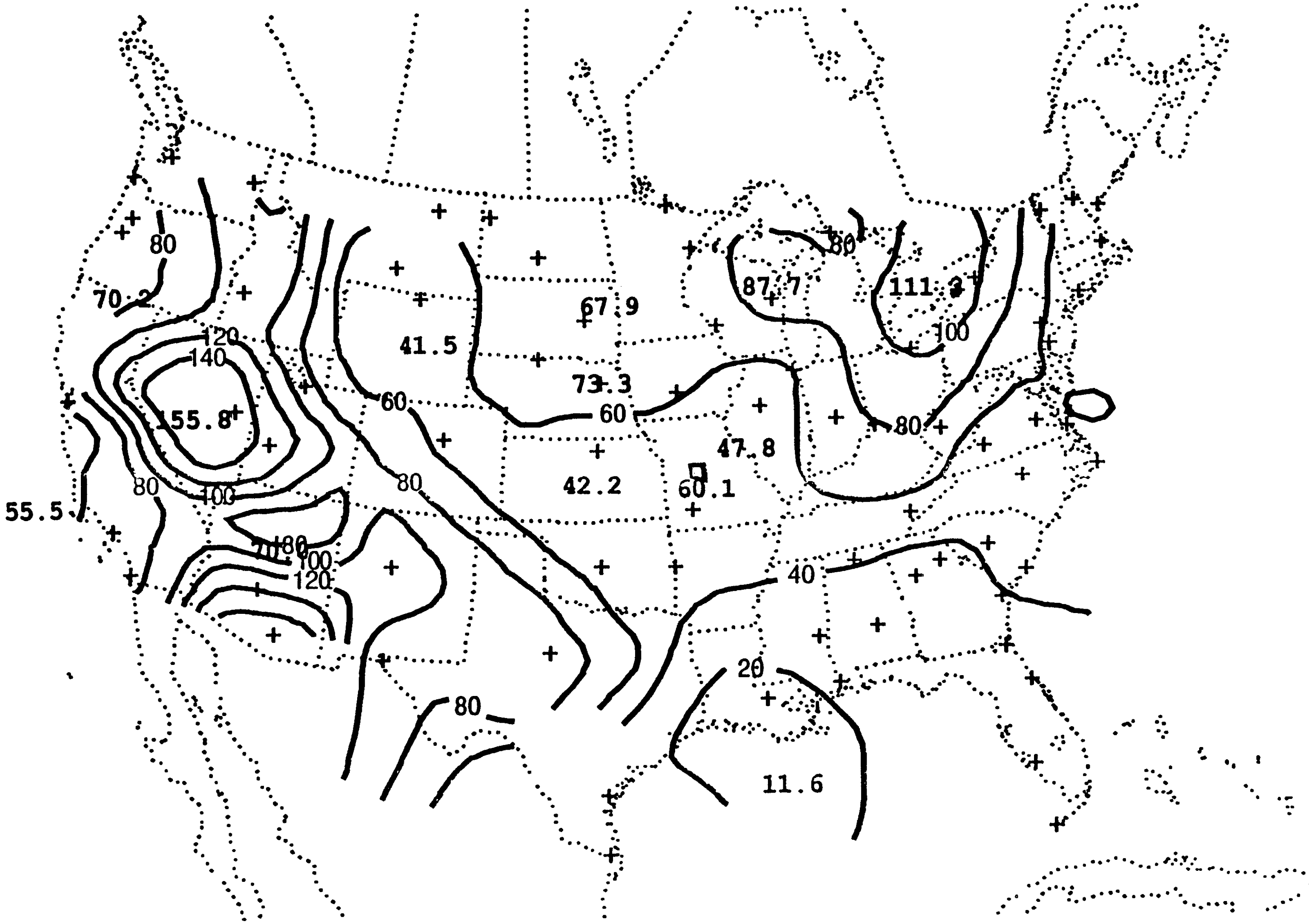


Figure 6–26 – April – cov[i,t_r]



740401/0000 SFC KAPP (*10**2) Max= 77.9 Min= 22.7

Figure 6-27 - April - κ



740401/0000 SFC LAMD (*10**3) Max= 170.0 Min= 11.9

Figure 6-28 - April - λ

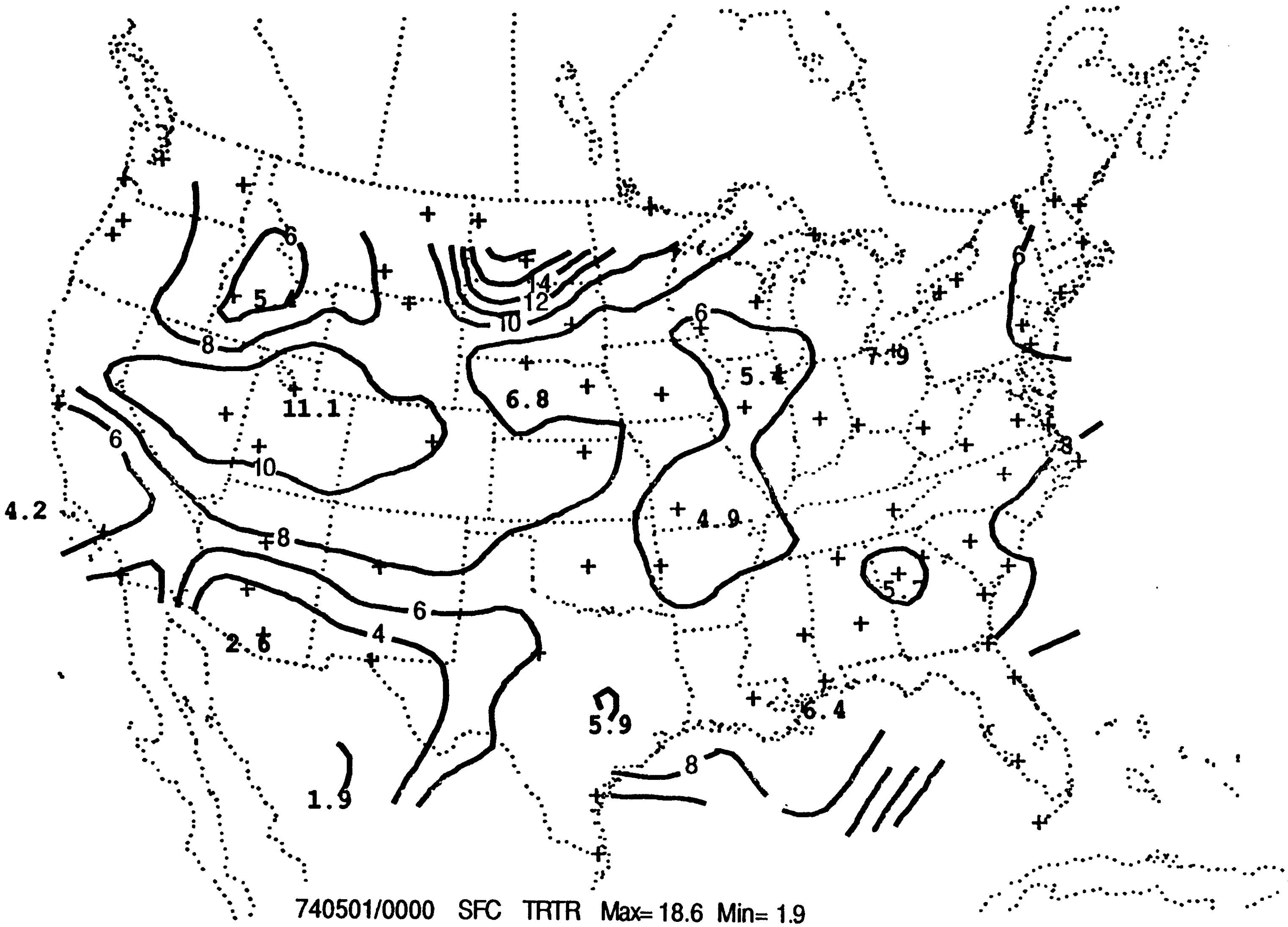


Figure 6–29 – May – m_{t_r}

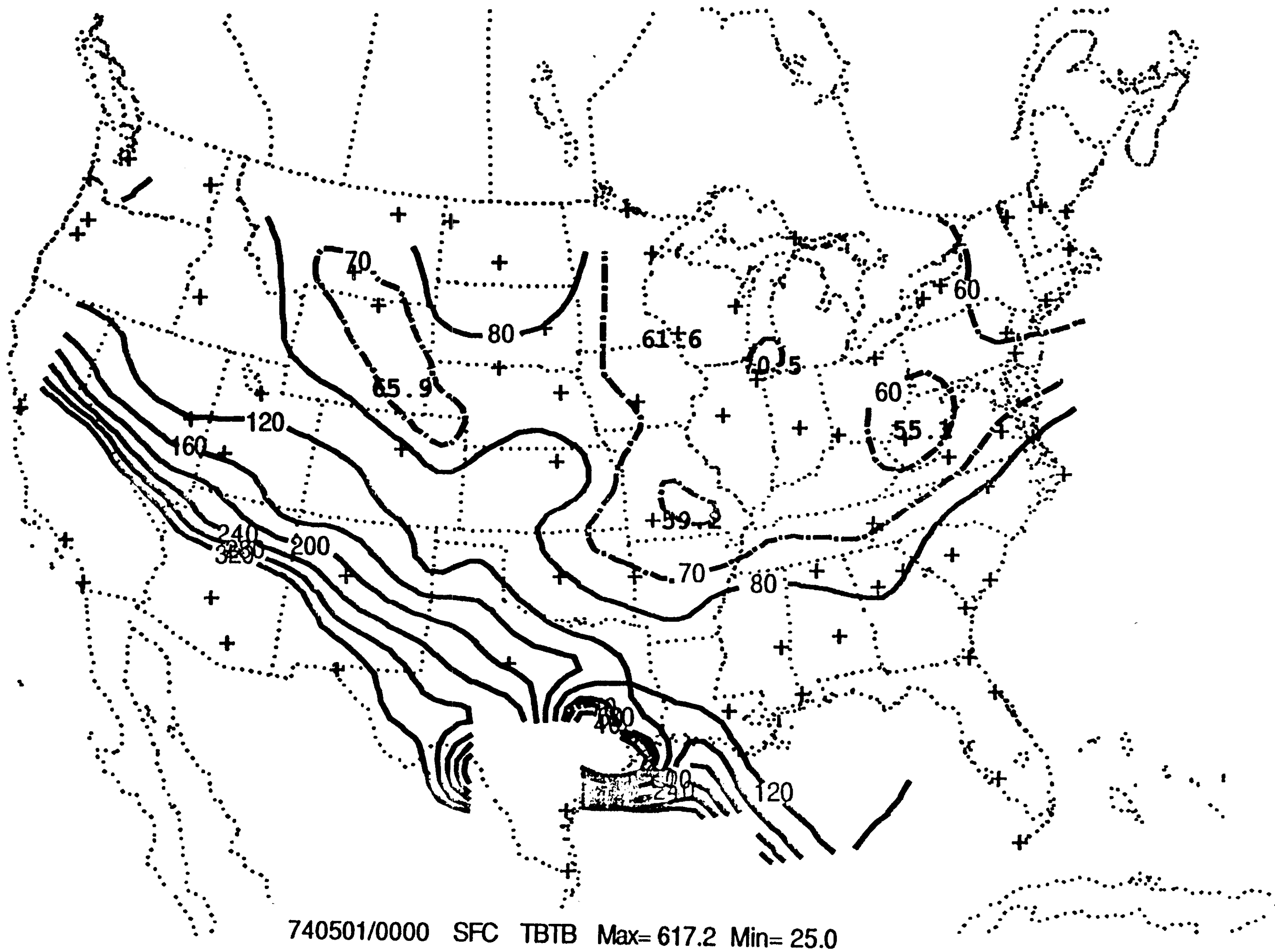


Figure 6–30 – May – m_{t_b}

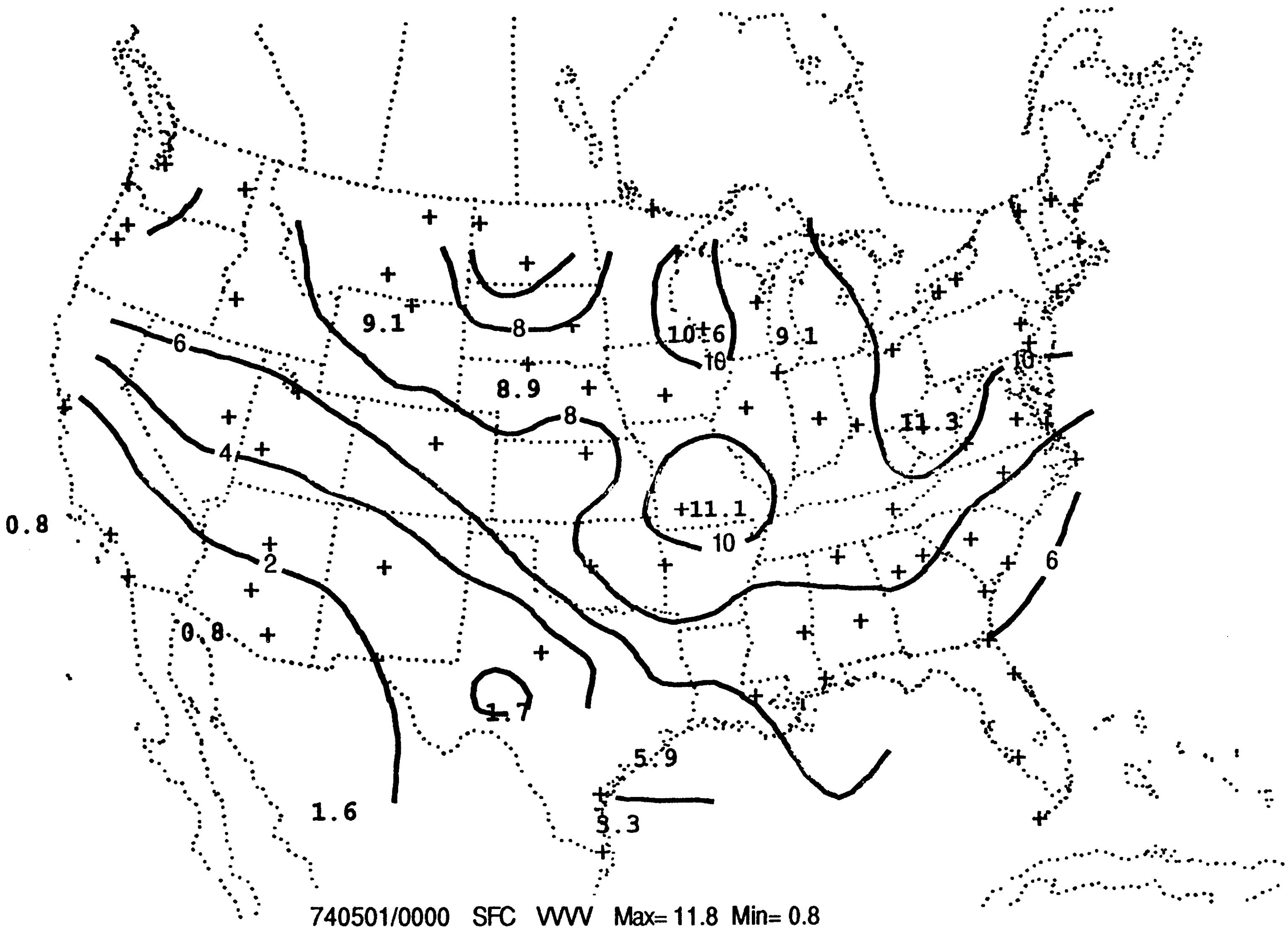


Figure 6–31 – May – m_v

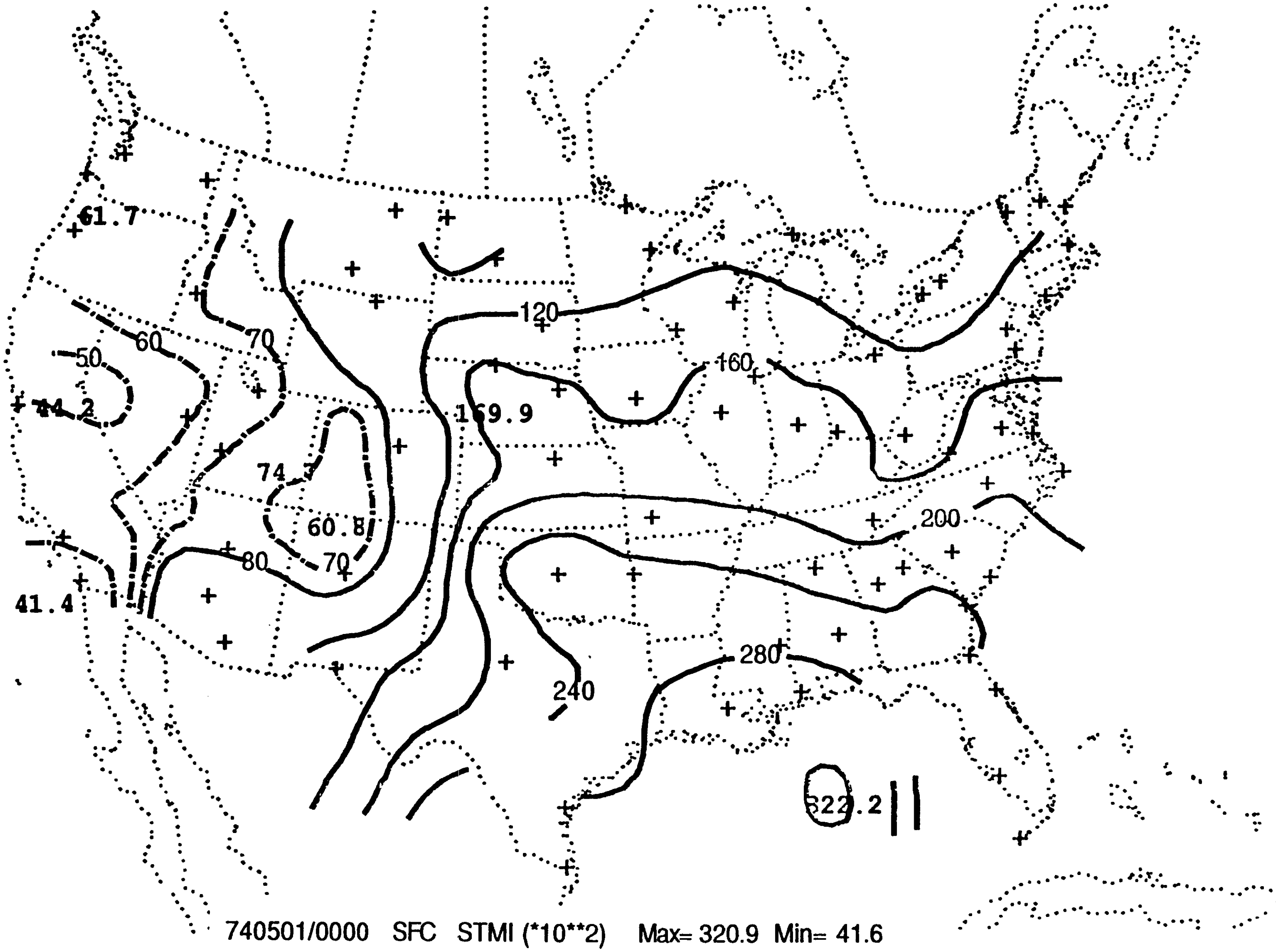


Figure 6–32 – May – m_i

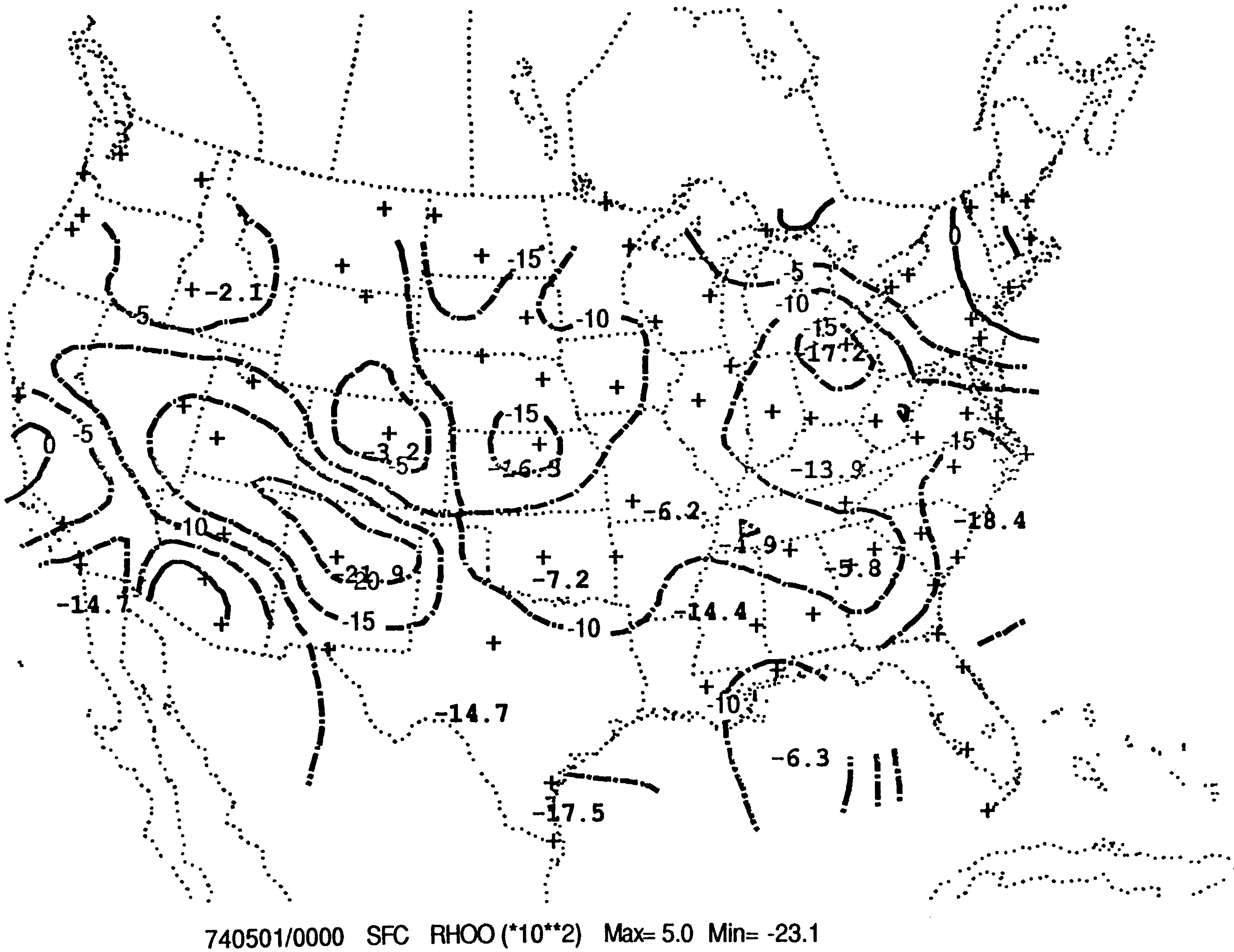
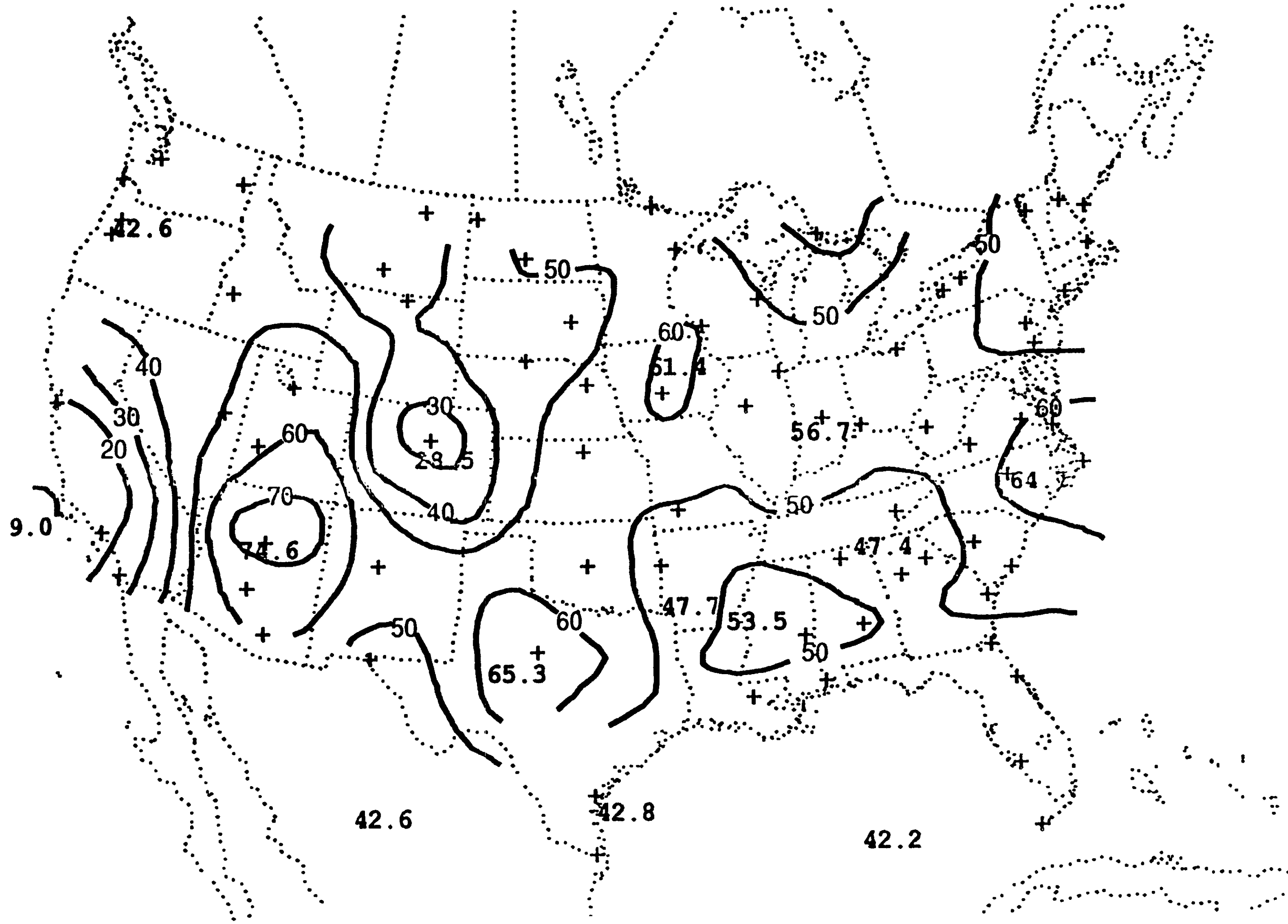


Figure 6-33 - May - $cov[i,t_r]$

Figure 6–34 – May – κ



740501/0000 SFC KAPP (*10**2) Max= 74.6 Min= 9.0

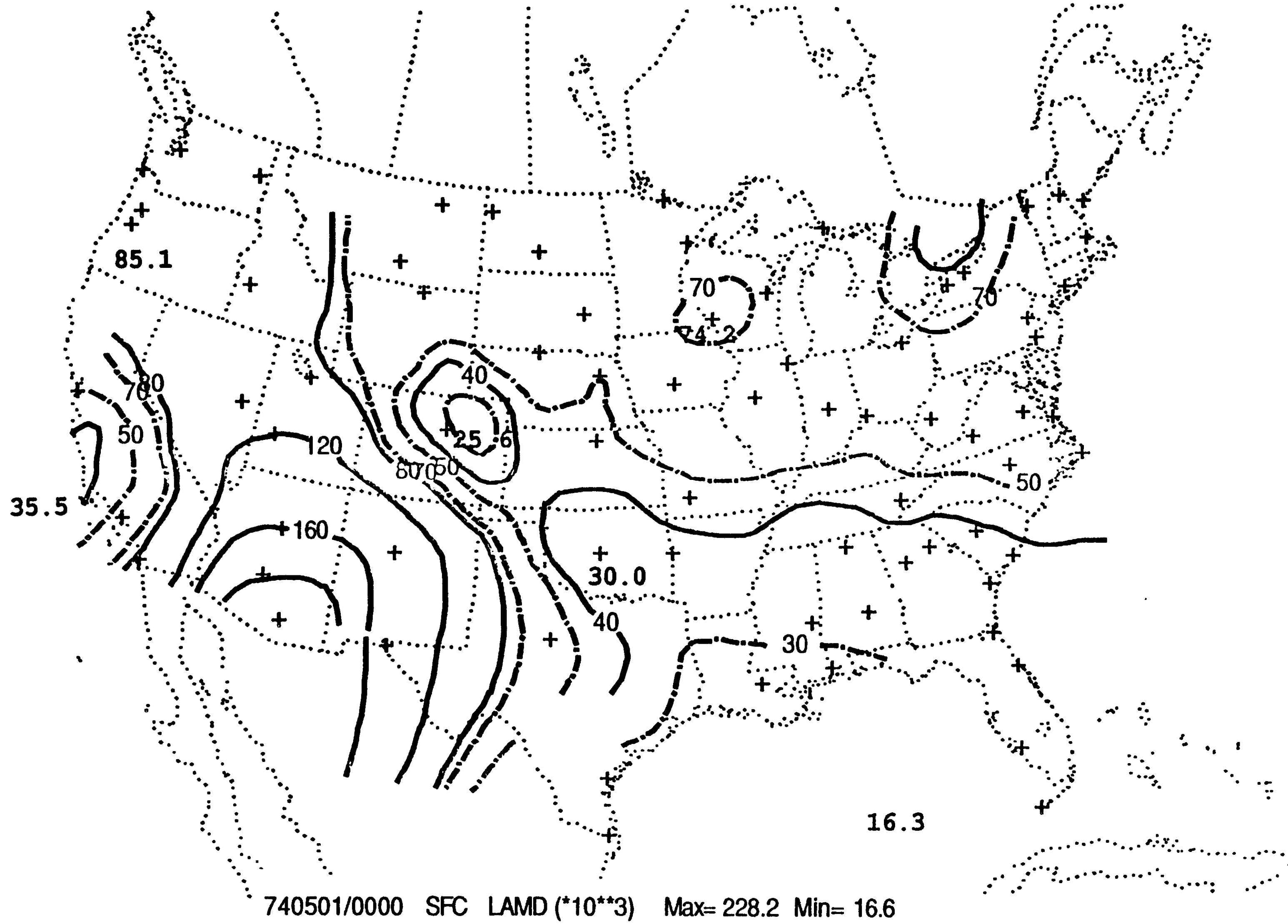


Figure 6–35 – May – λ

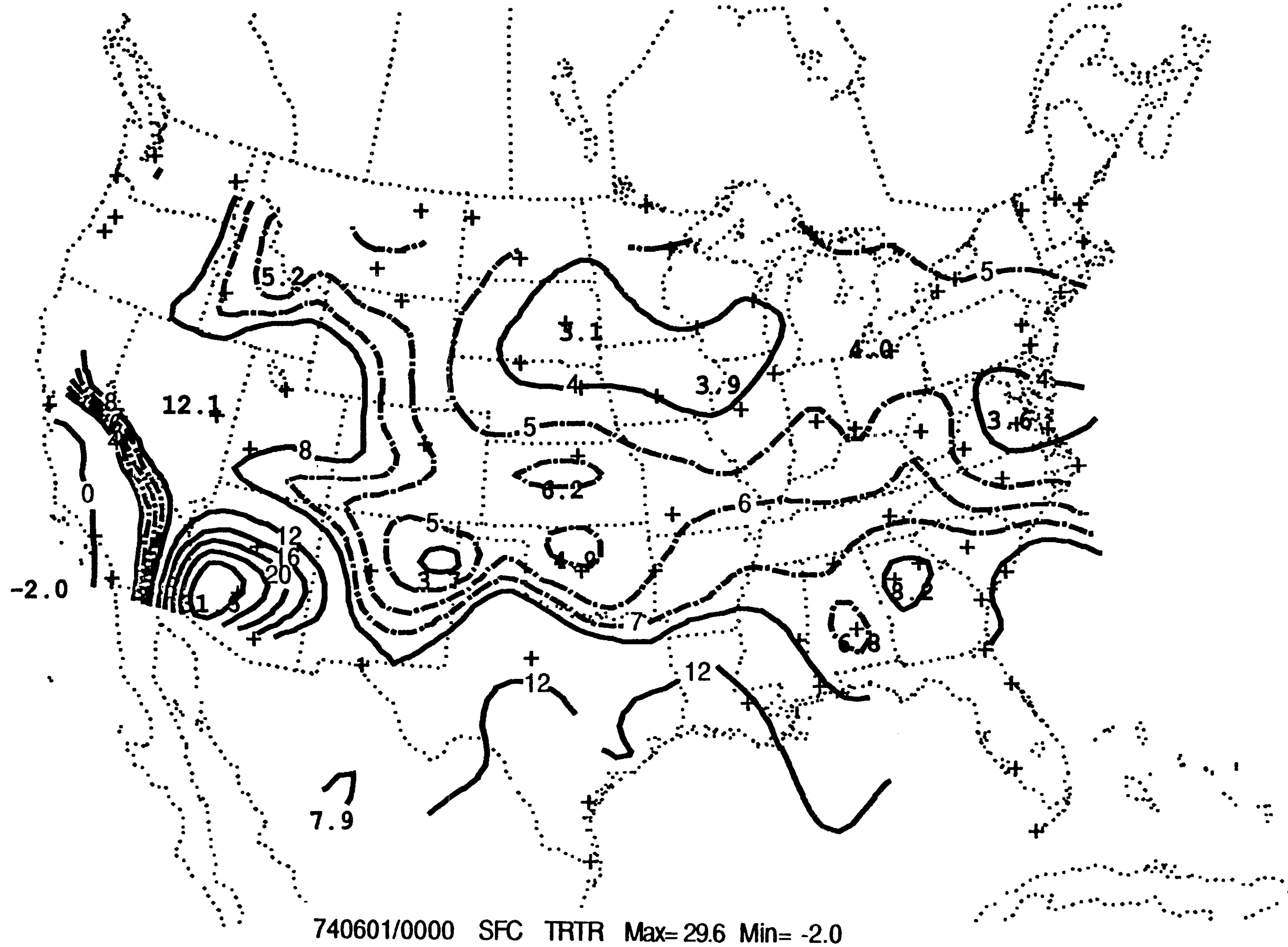


Figure 6-36 - June - m_{t_r}

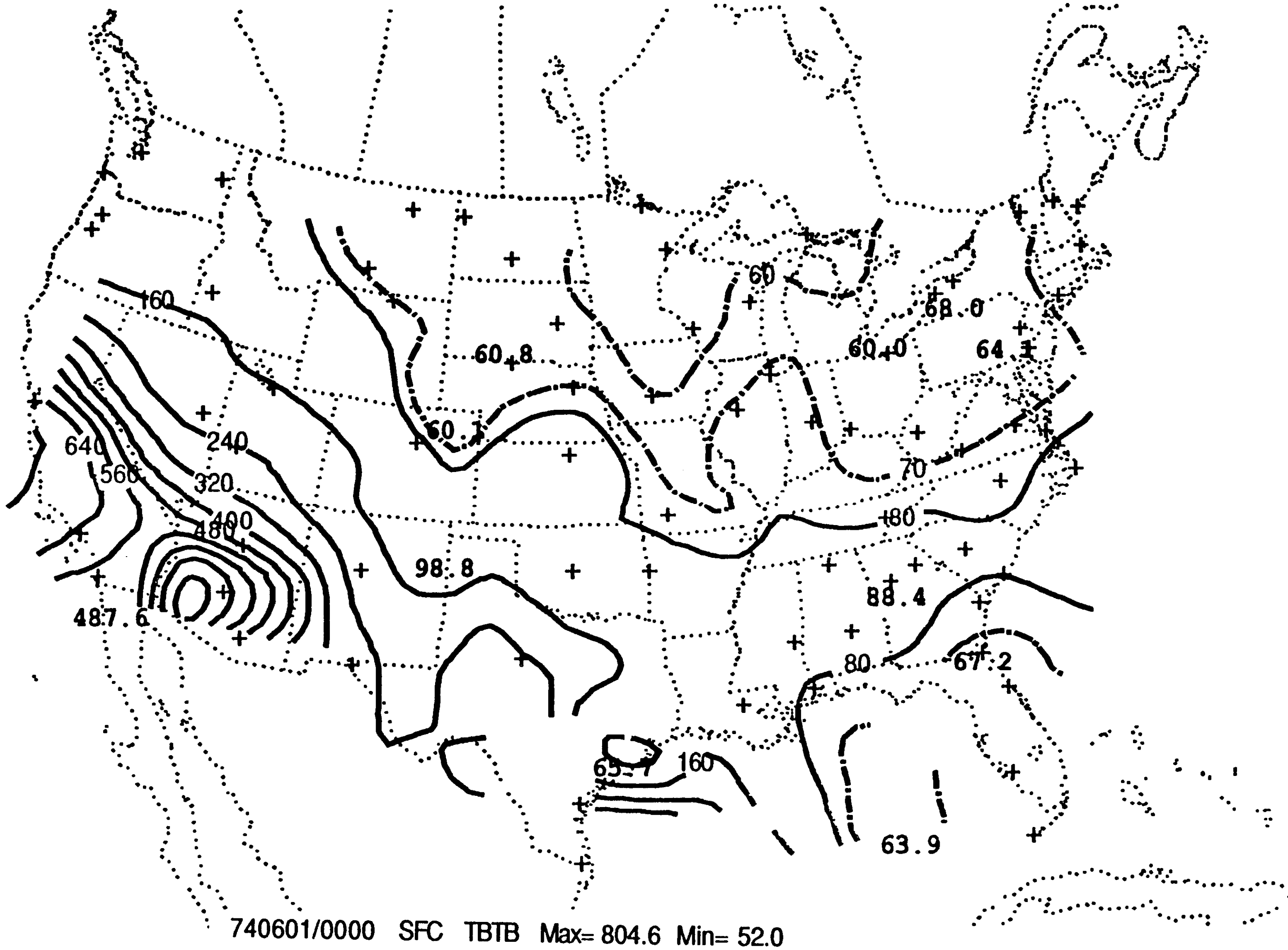


Figure 6-37 - June - m_{t_b}

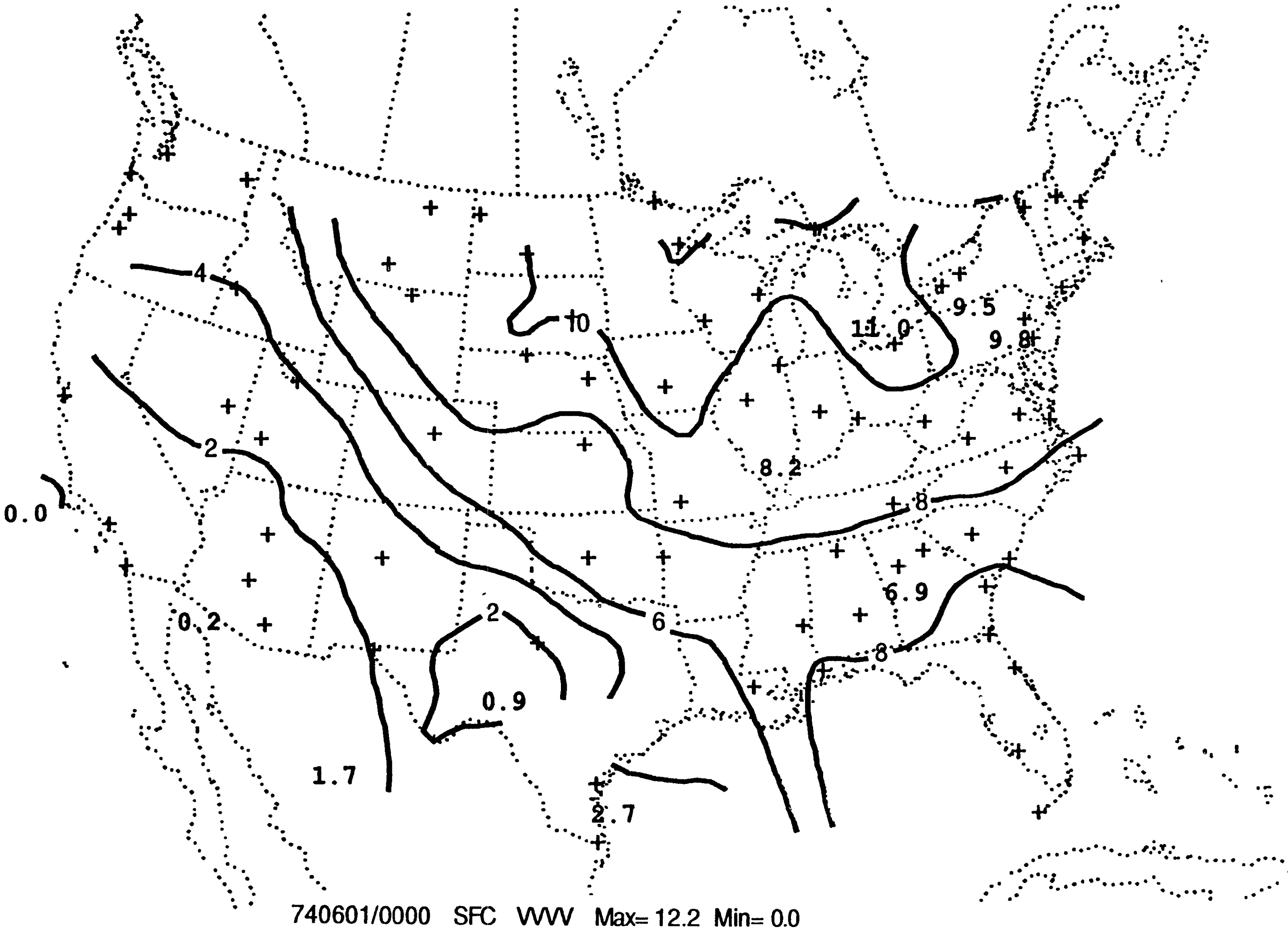
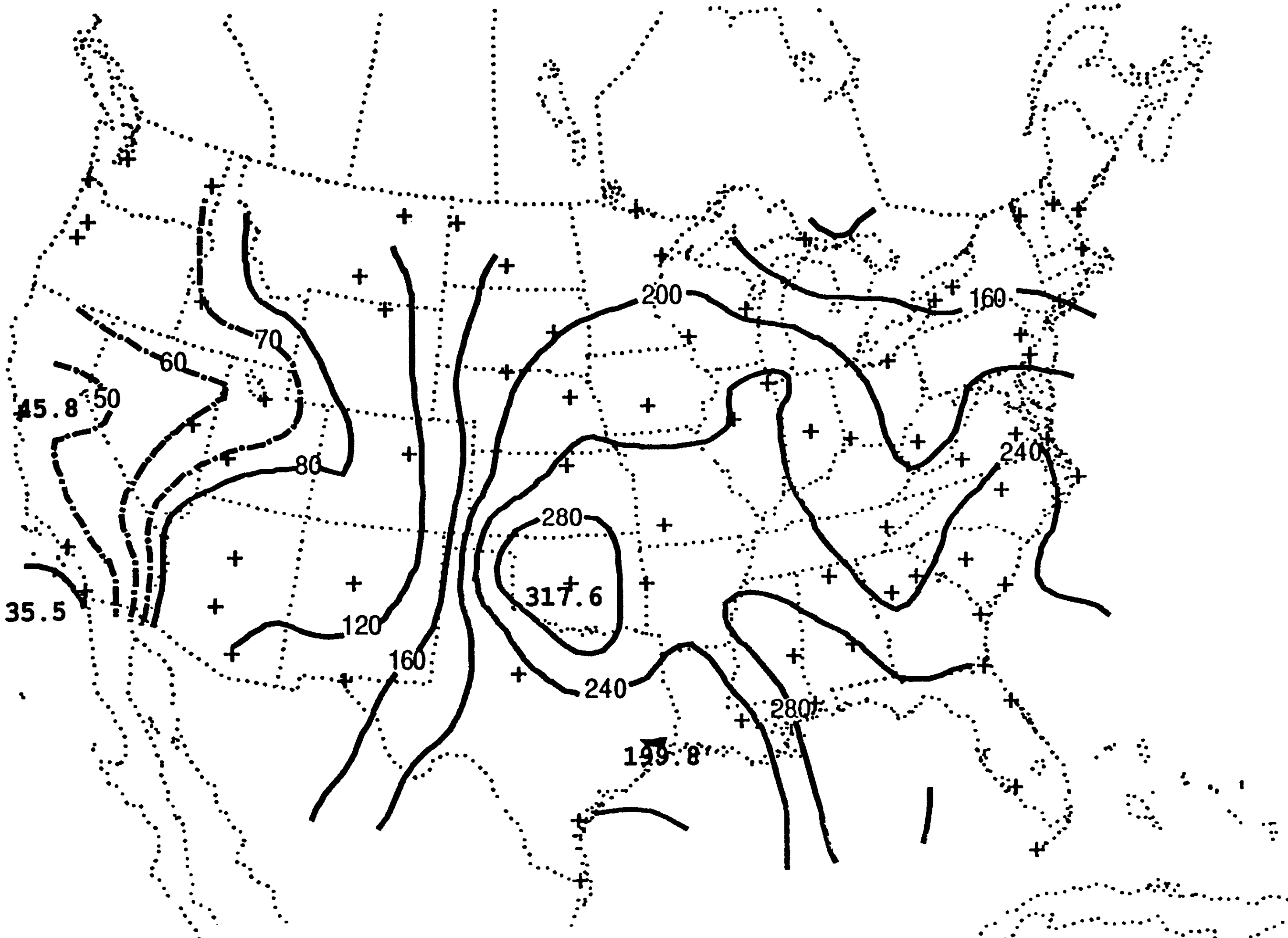


Figure 6–38 – June – m_v



740601/0000 SFC STMI (*10**2) Max= 313.7 Min= 37.0

Figure 6–39 – June – m_i

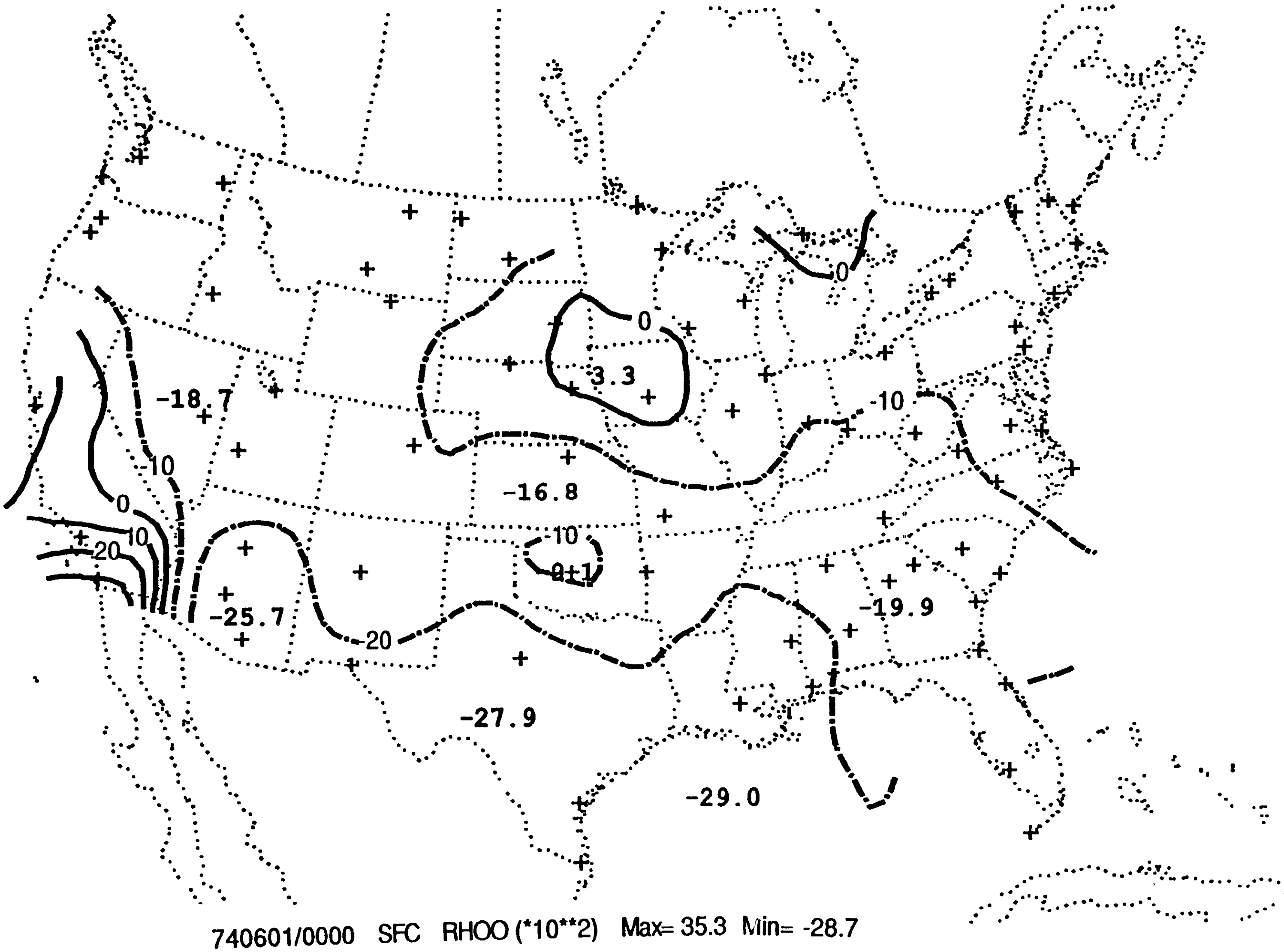


Figure 6-40 - June - $cov[i,t_r]$

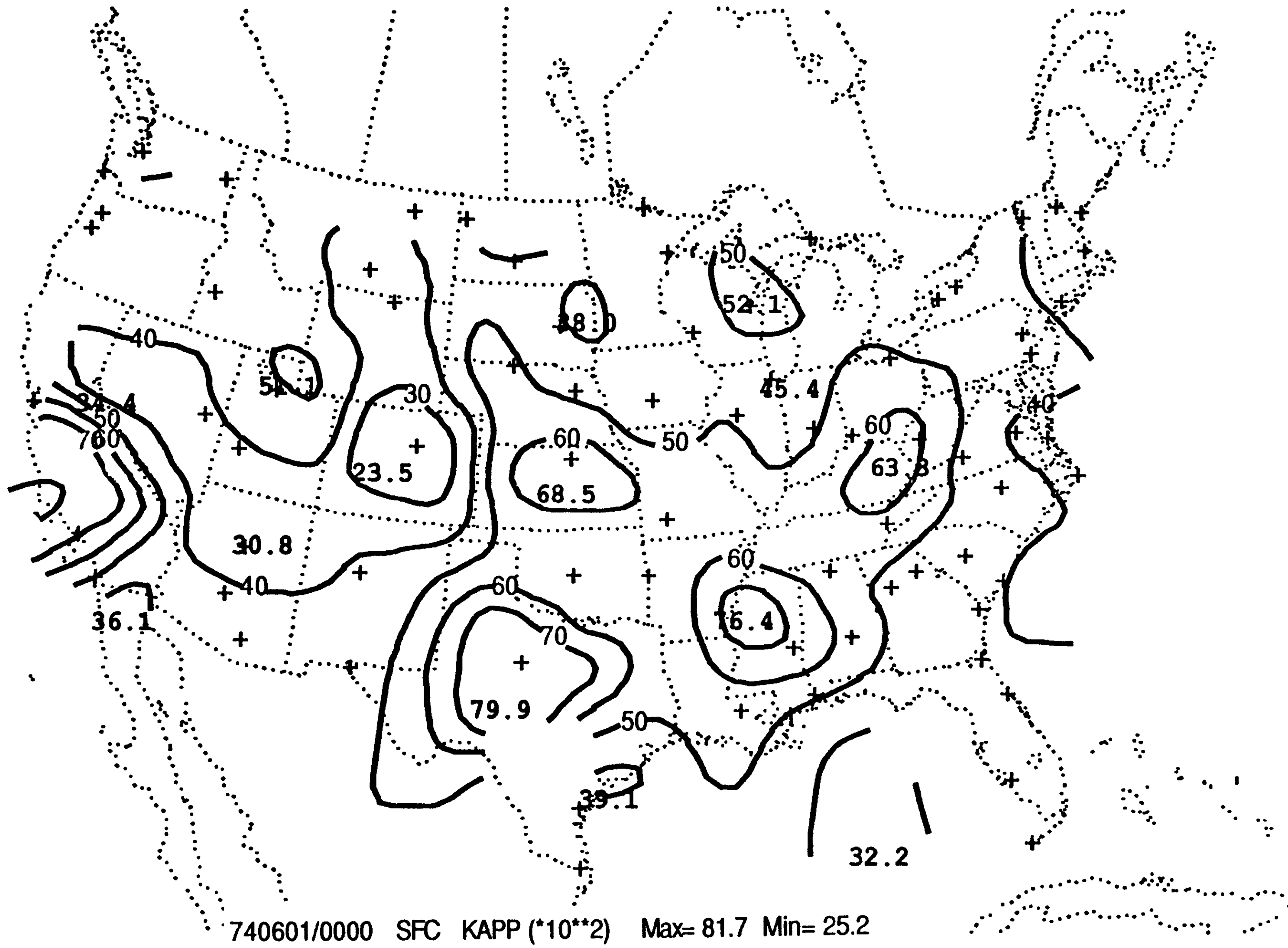


Figure 6-41 - June - κ

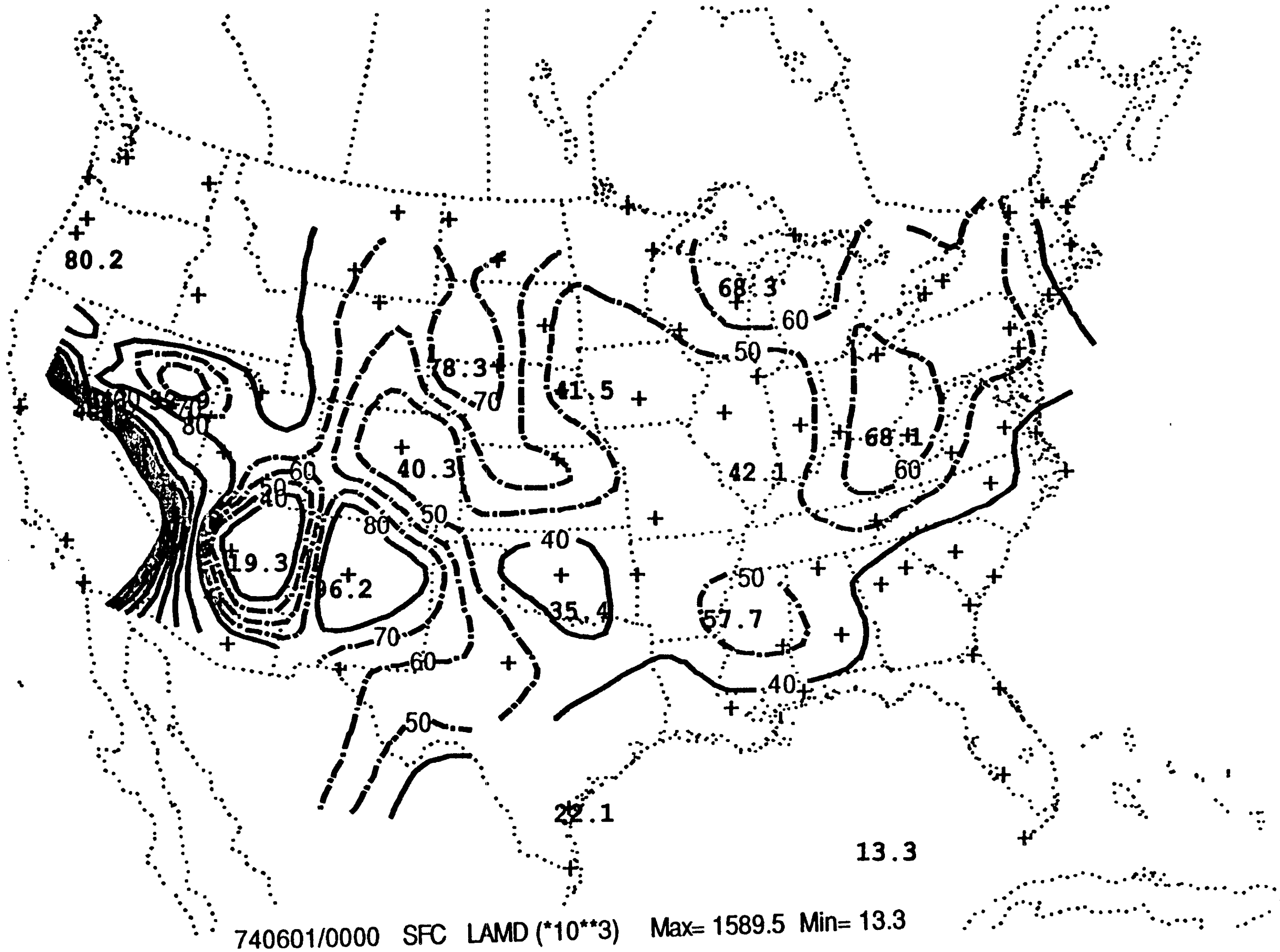


Figure 6–42 - June - λ

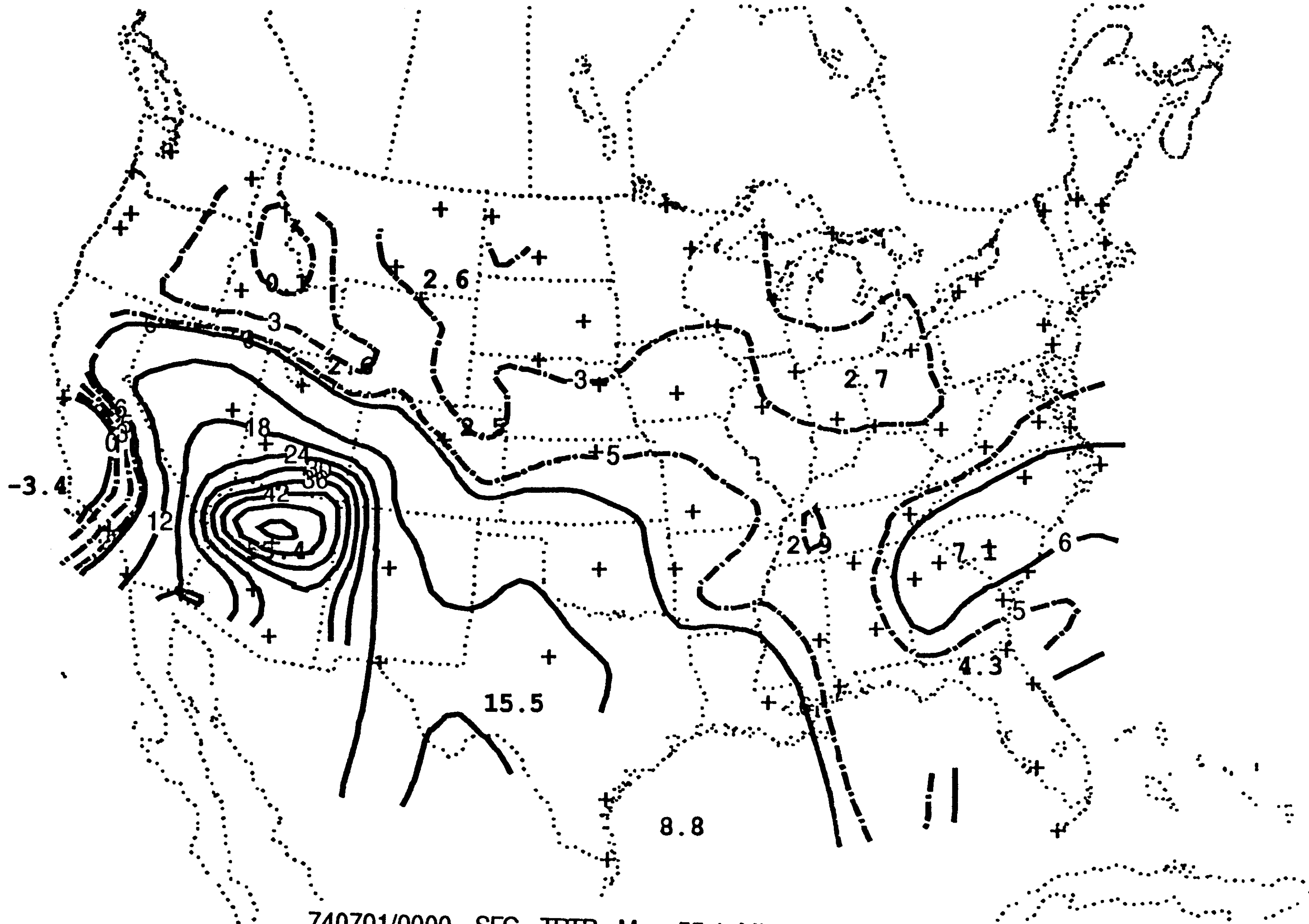


Figure 6-43 – July – m_{tr}

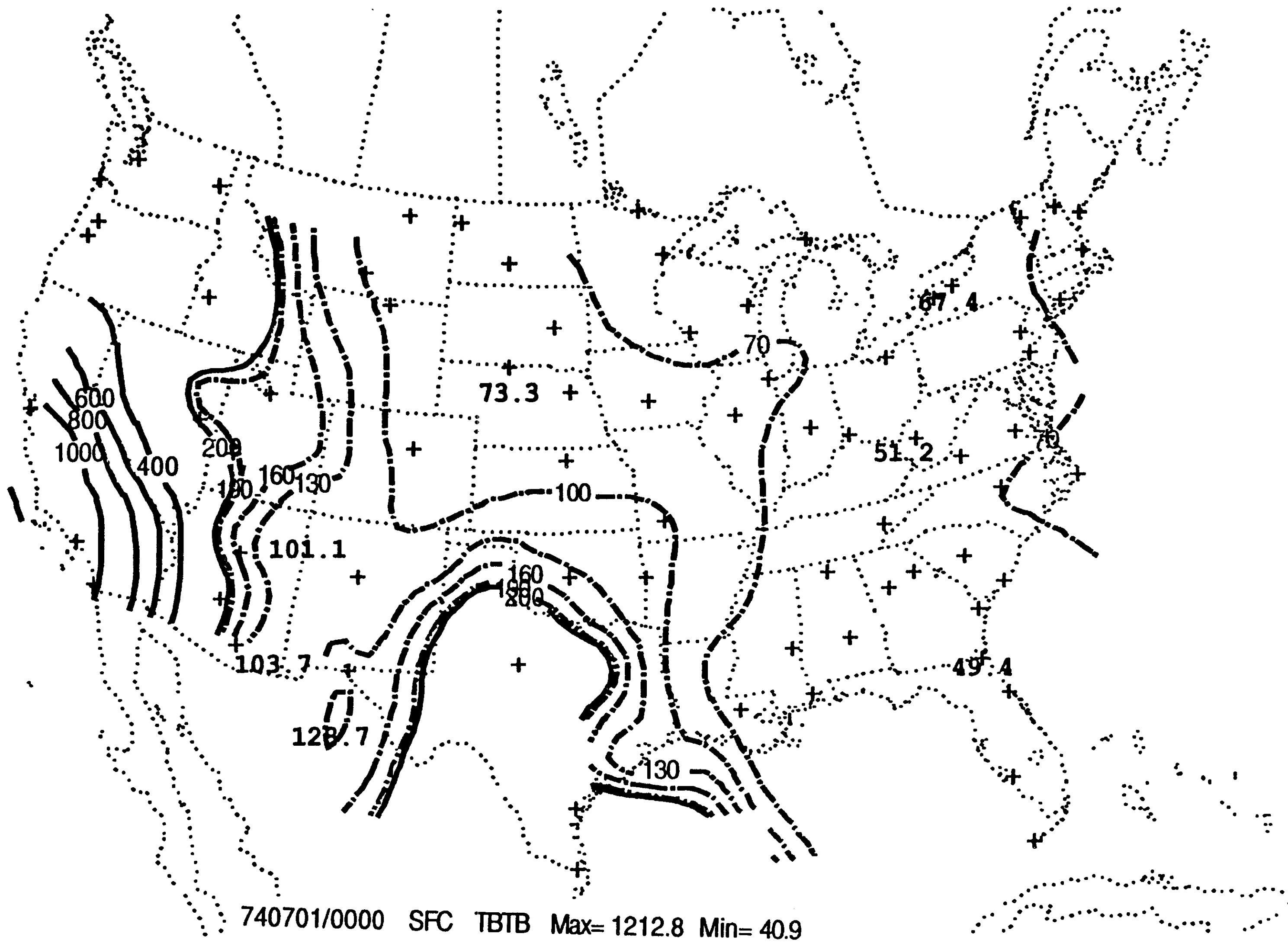
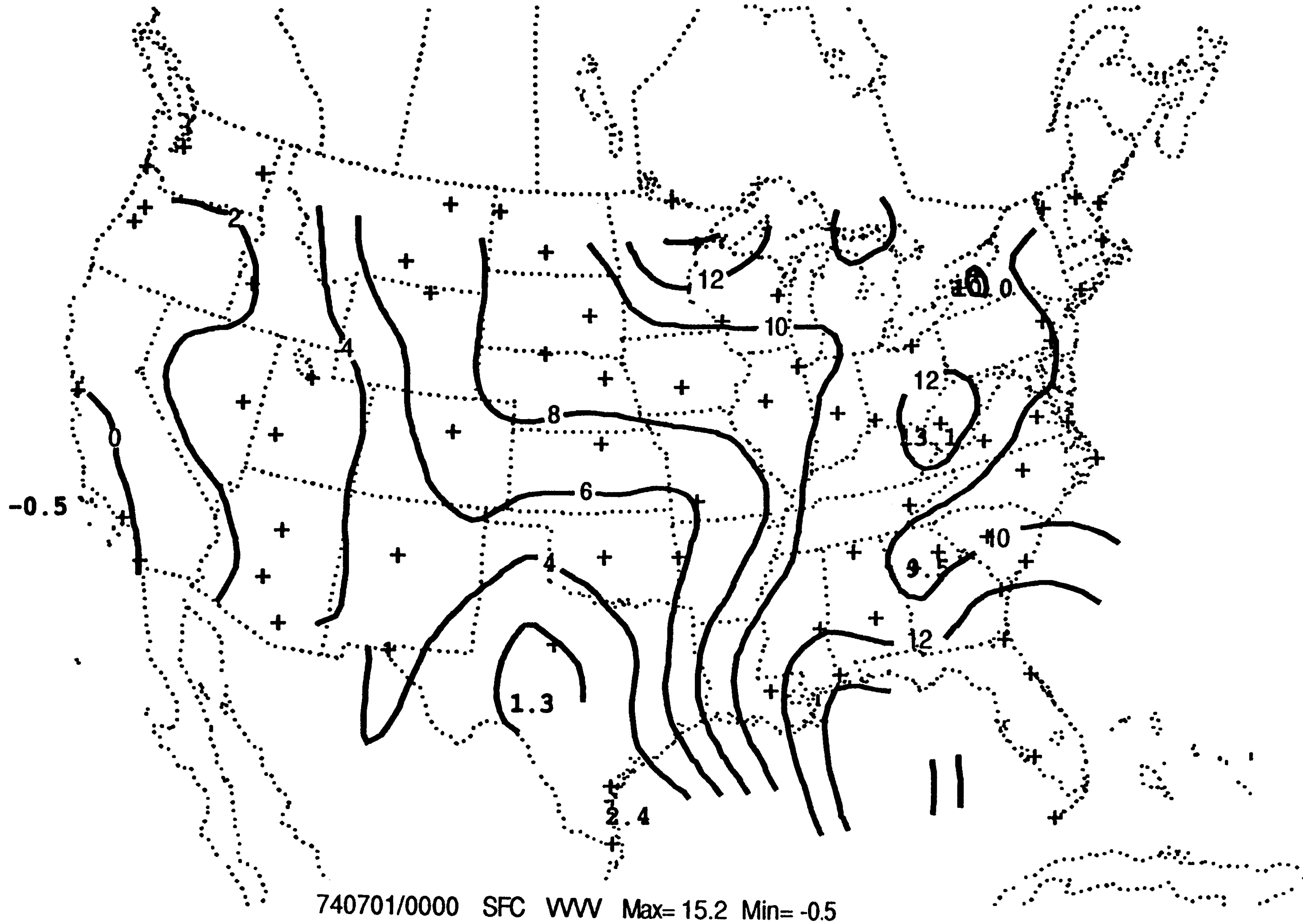
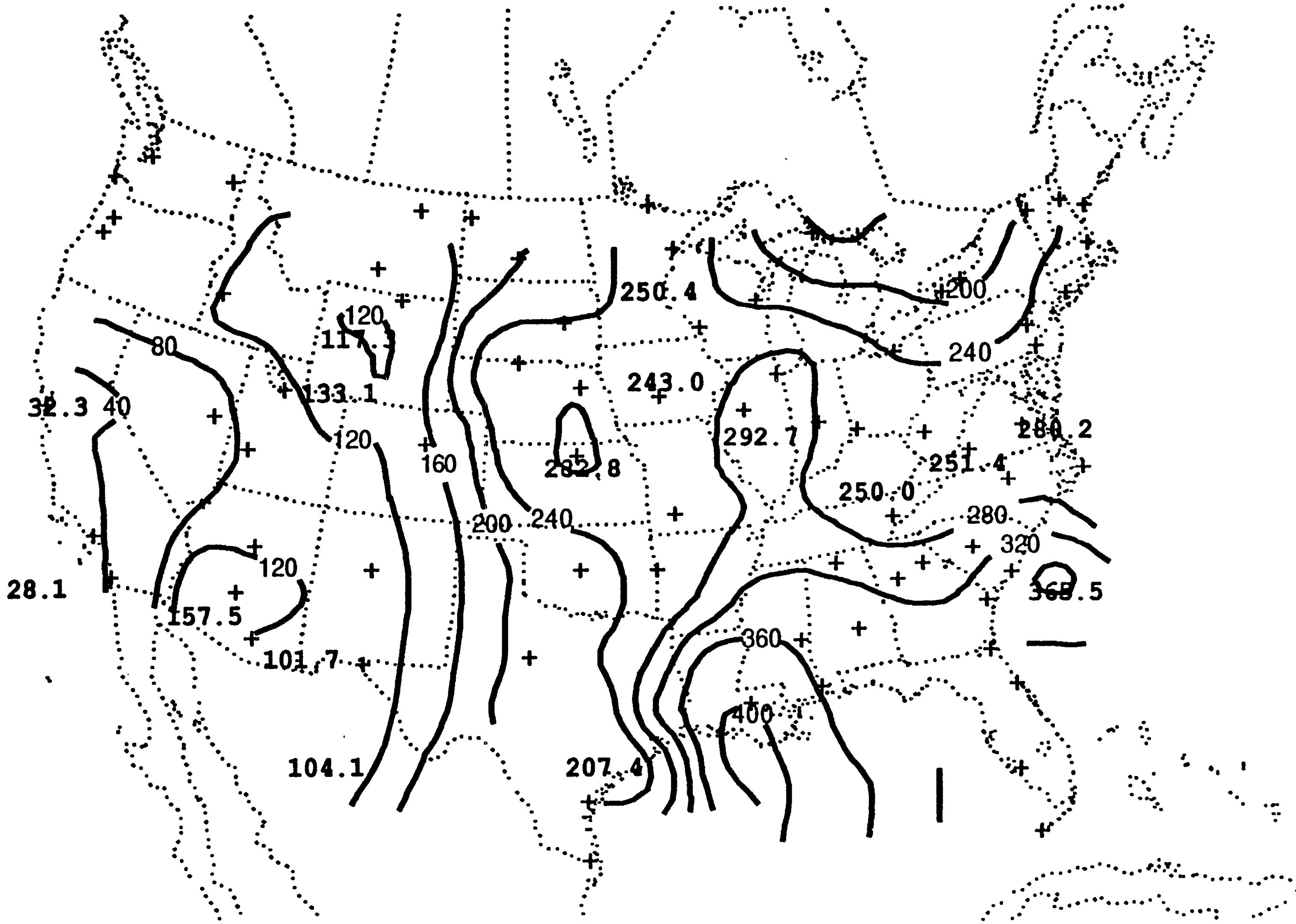


Figure 6-44 - July - m_{tb}

Figure 6–45 – July – m_v

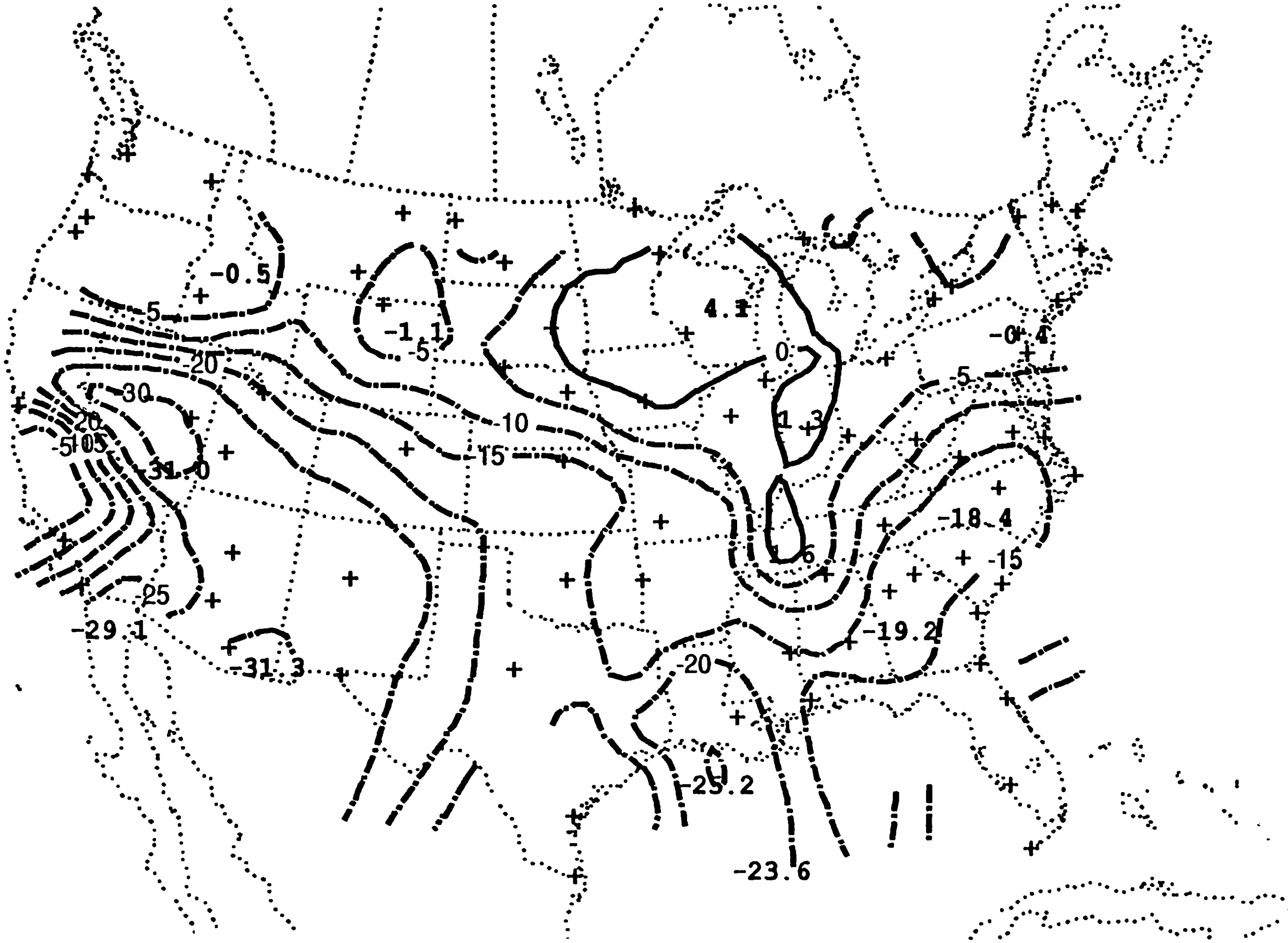




740701/0000 SFC STMI (*10**2) Max= 403.8 Min= 28.1

Figure 6-46 - July - m_i

Figure 6-47 – July – $cov[i,t_r]$



740701/0000 SFC RHOO (*10**2) Max= 3.8 Min= -31.3

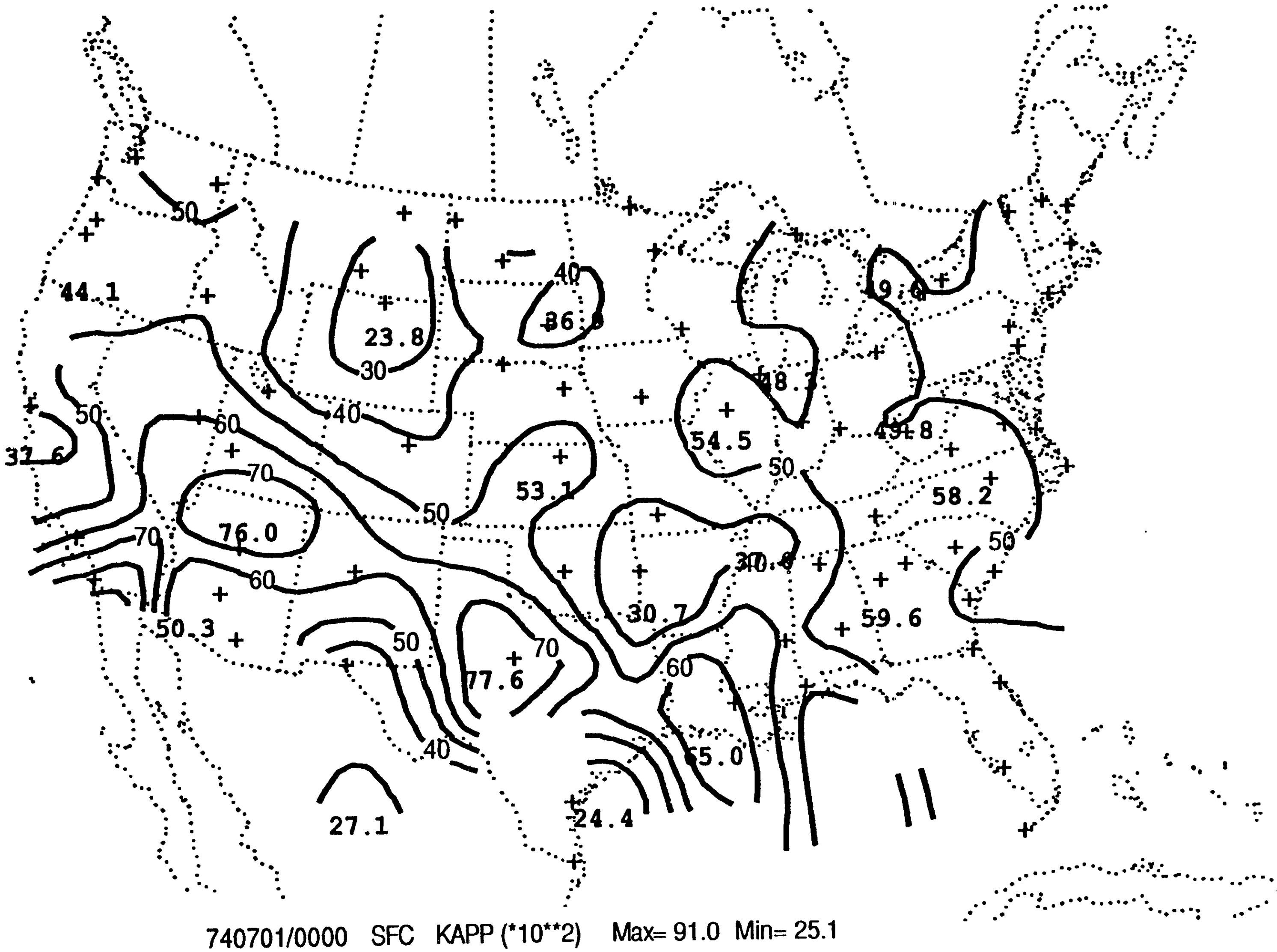


Figure 6-48 – July – κ

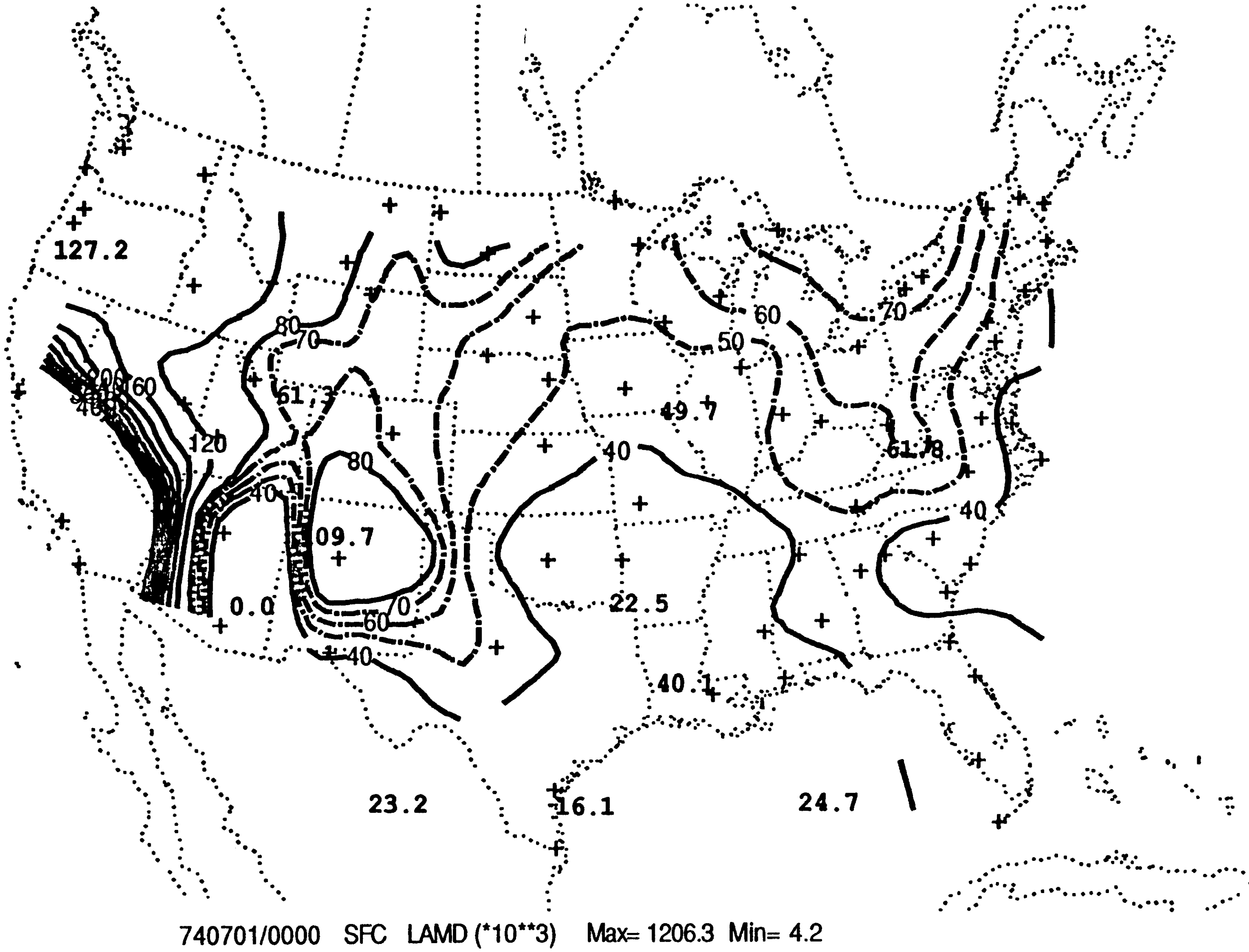


Figure 6-49 - July - λ

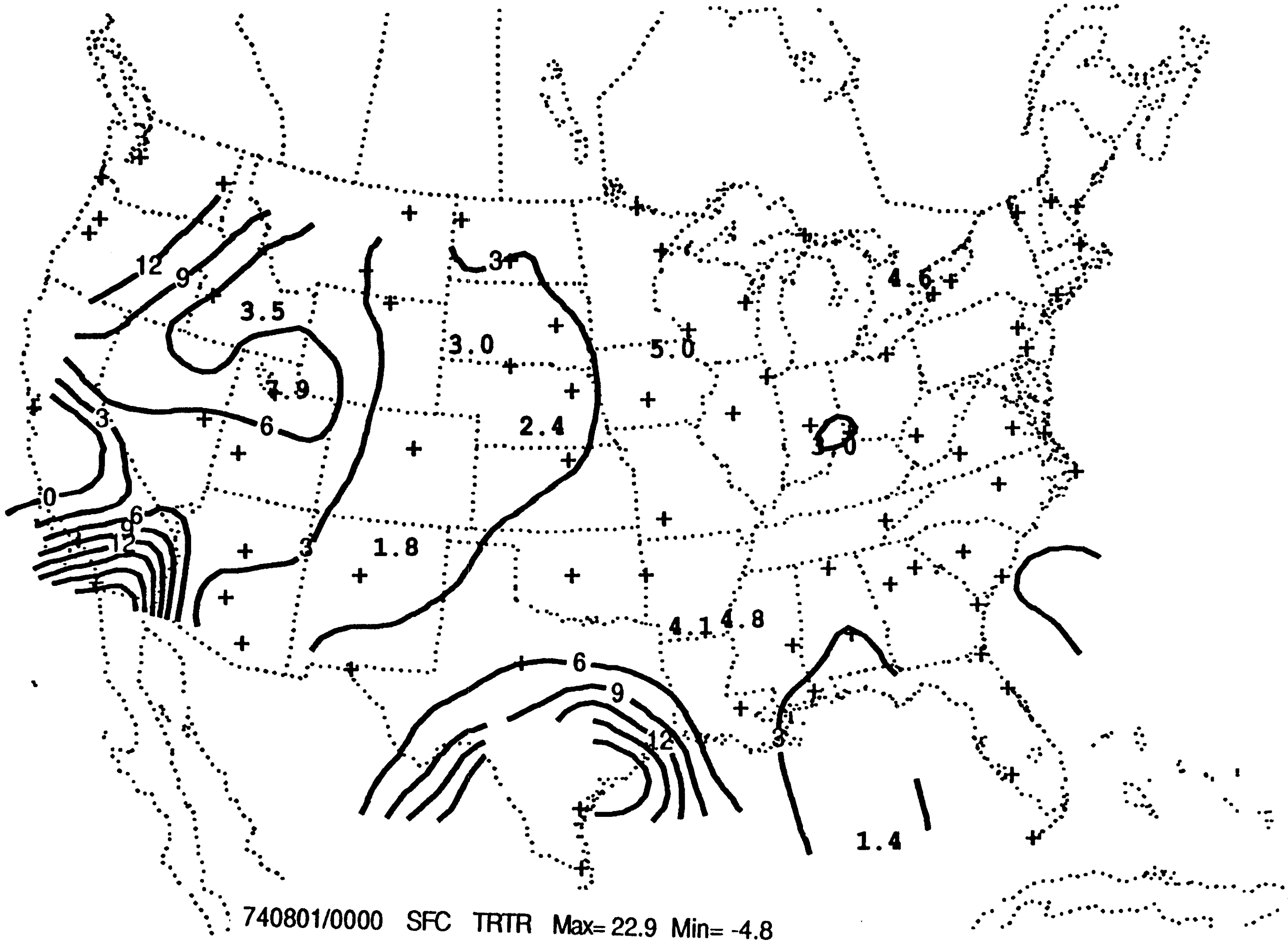
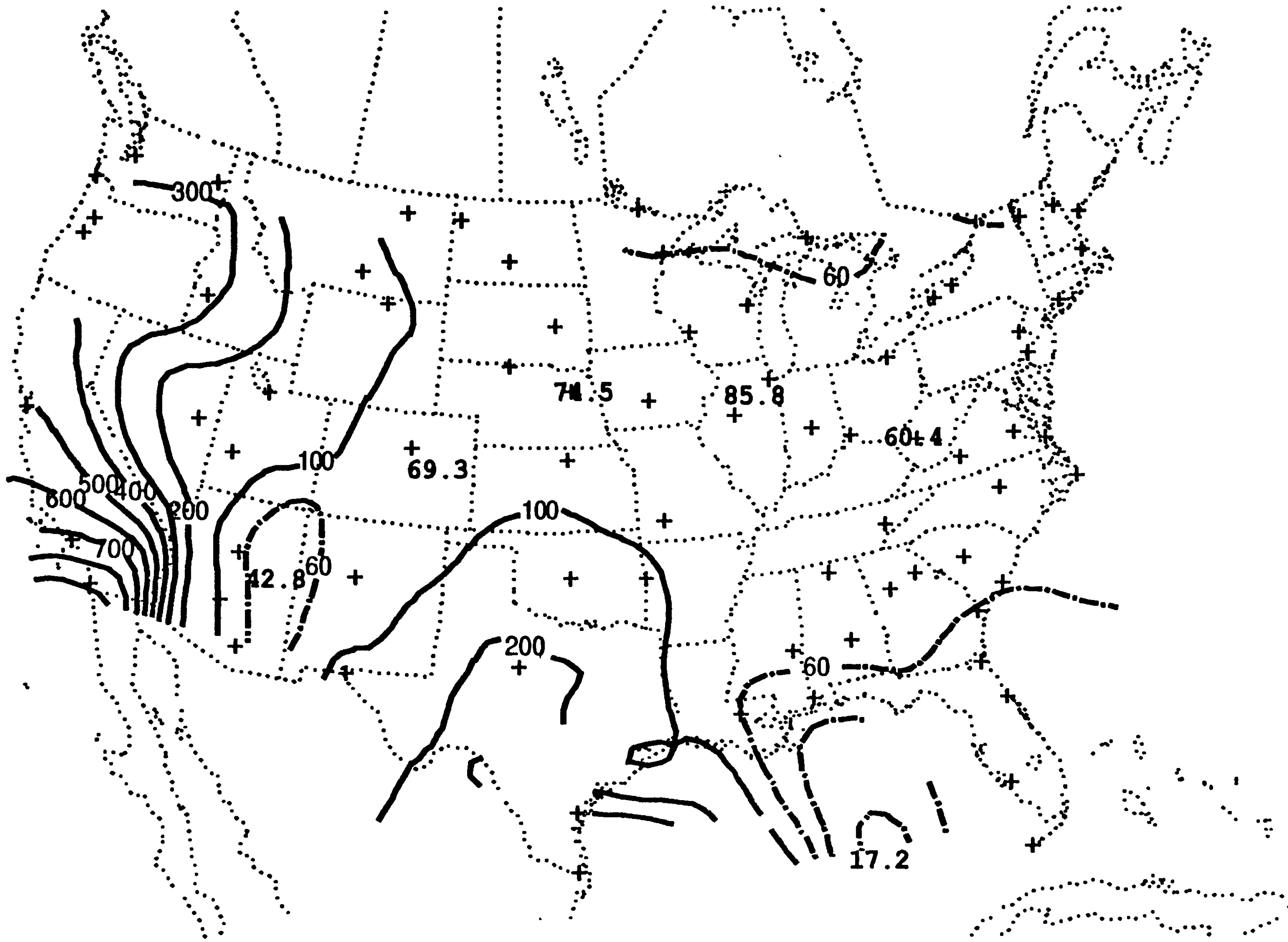
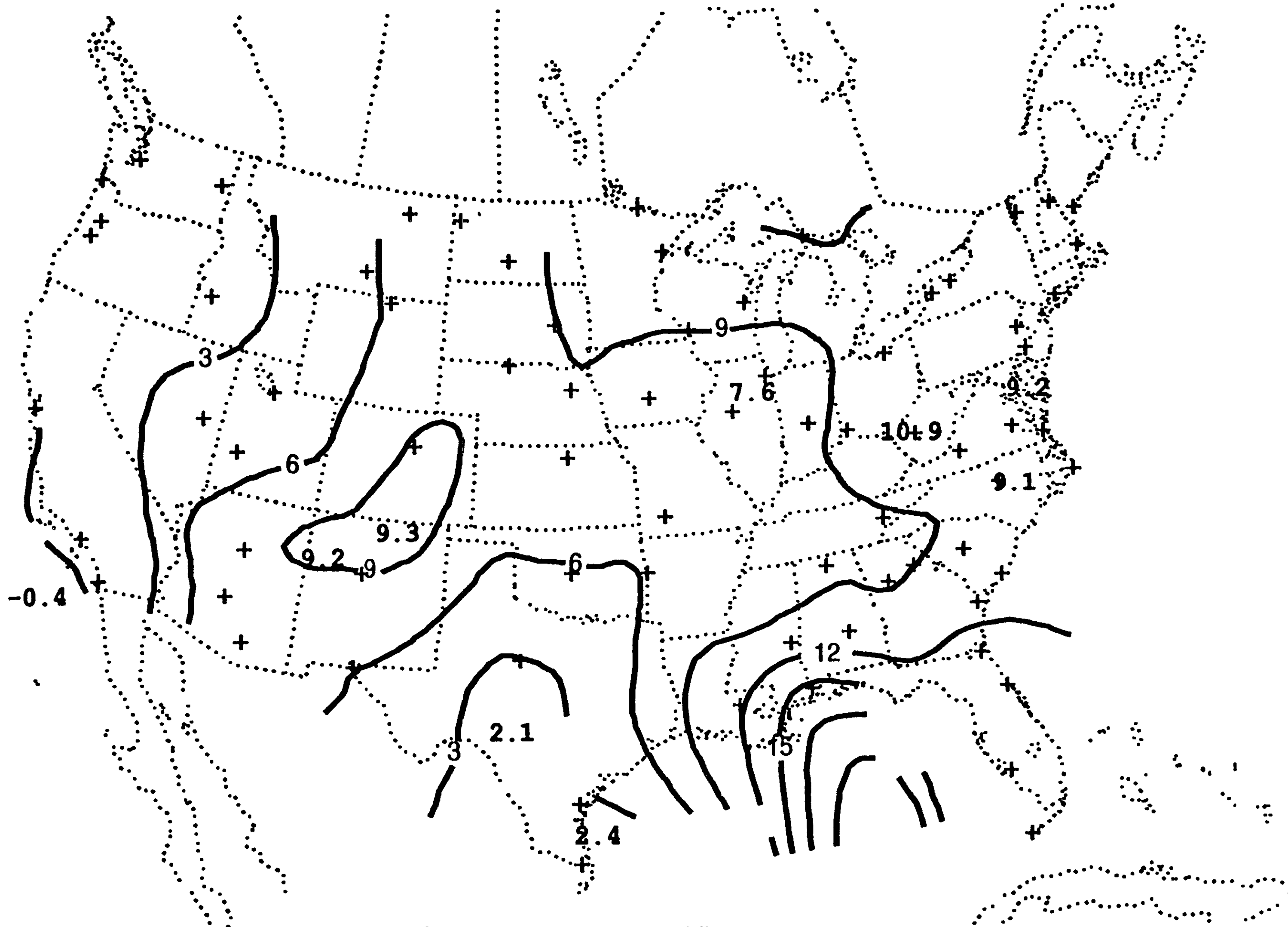


Figure 6–50 – August – m_{tr}



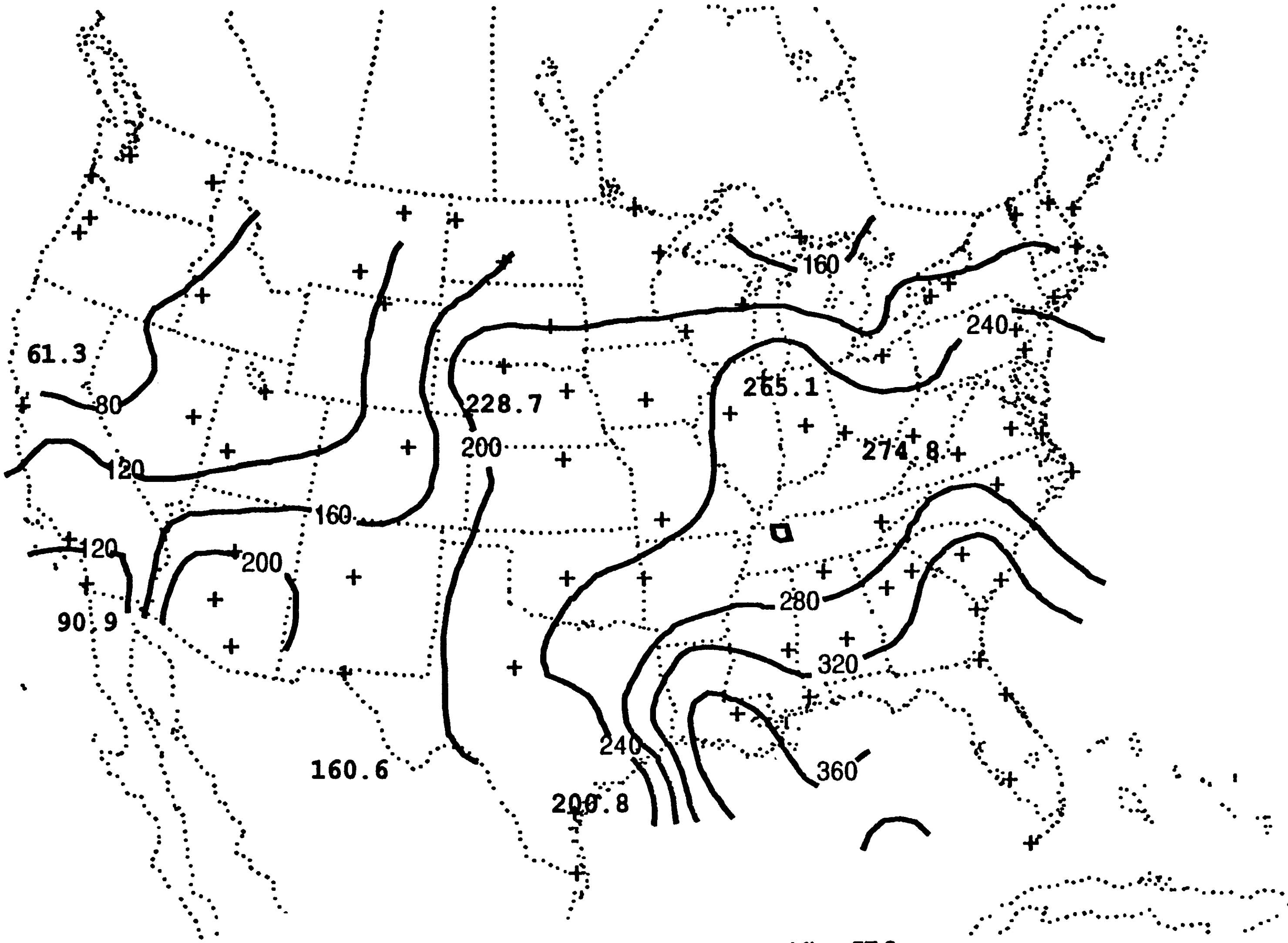
740801/0000 SFC TBTB Max= 940.2 Min= 17.3

Figure 6–51 – August – m_{tb}



740801/0000 SFC VVV Max= 23.9 Min= -0.4

Figure 6–52 - August - m_v



740801/0000 SFC STMI (*10**2) Max= 409.9 Min= 57.3

Figure 6–53 – August – m_i

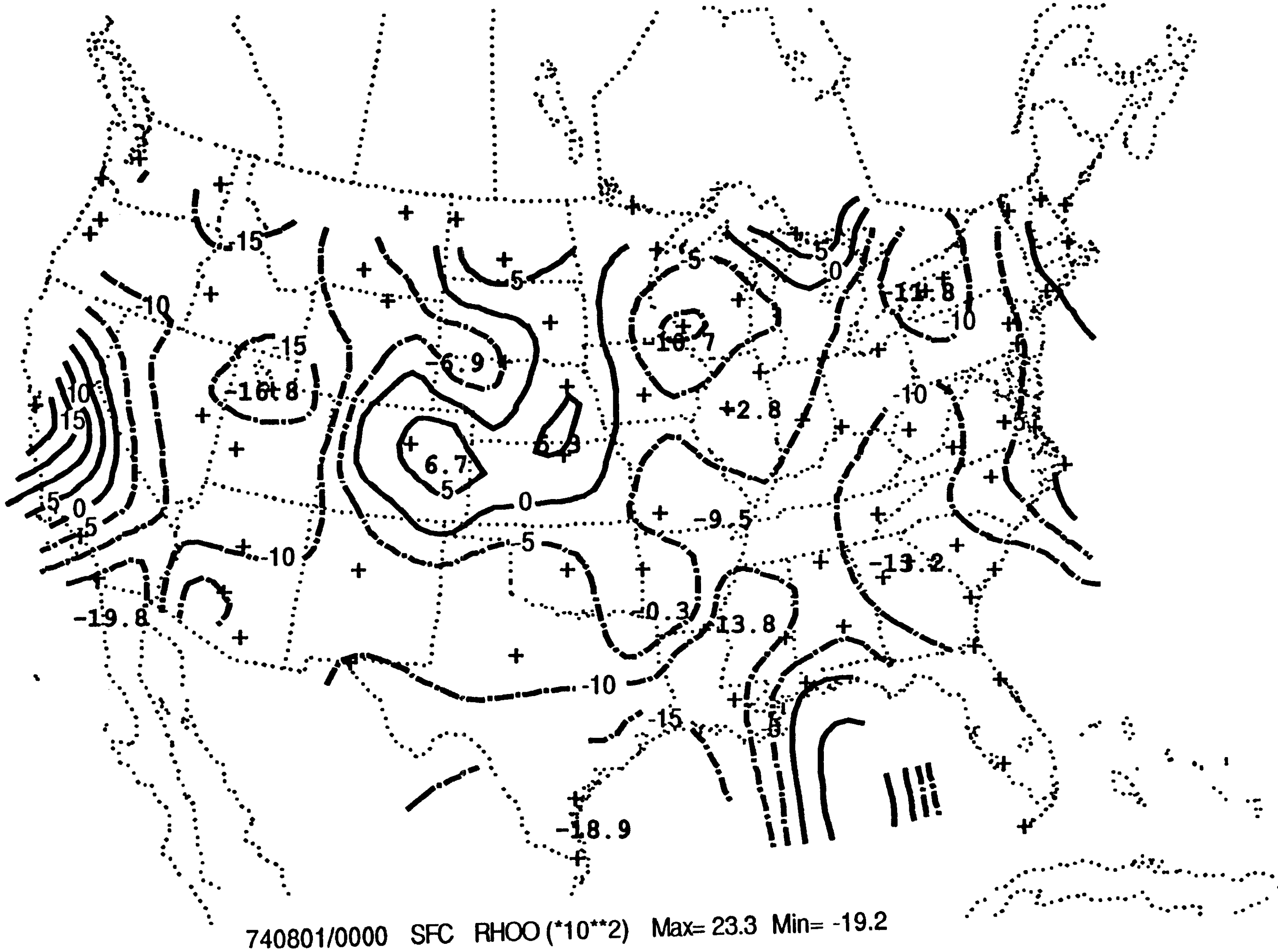


Figure 6–54 – August – $cov[i,t_r]$

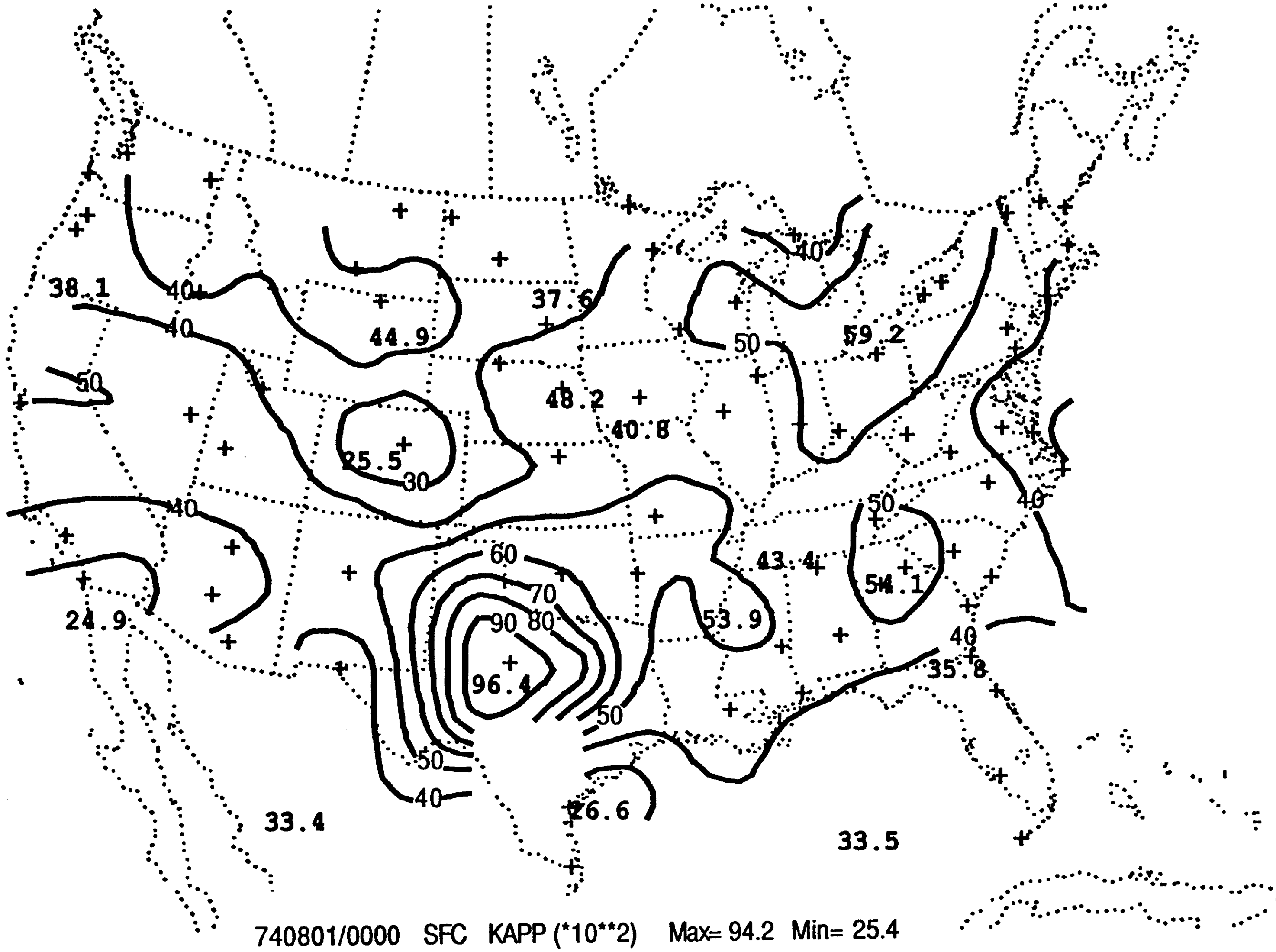
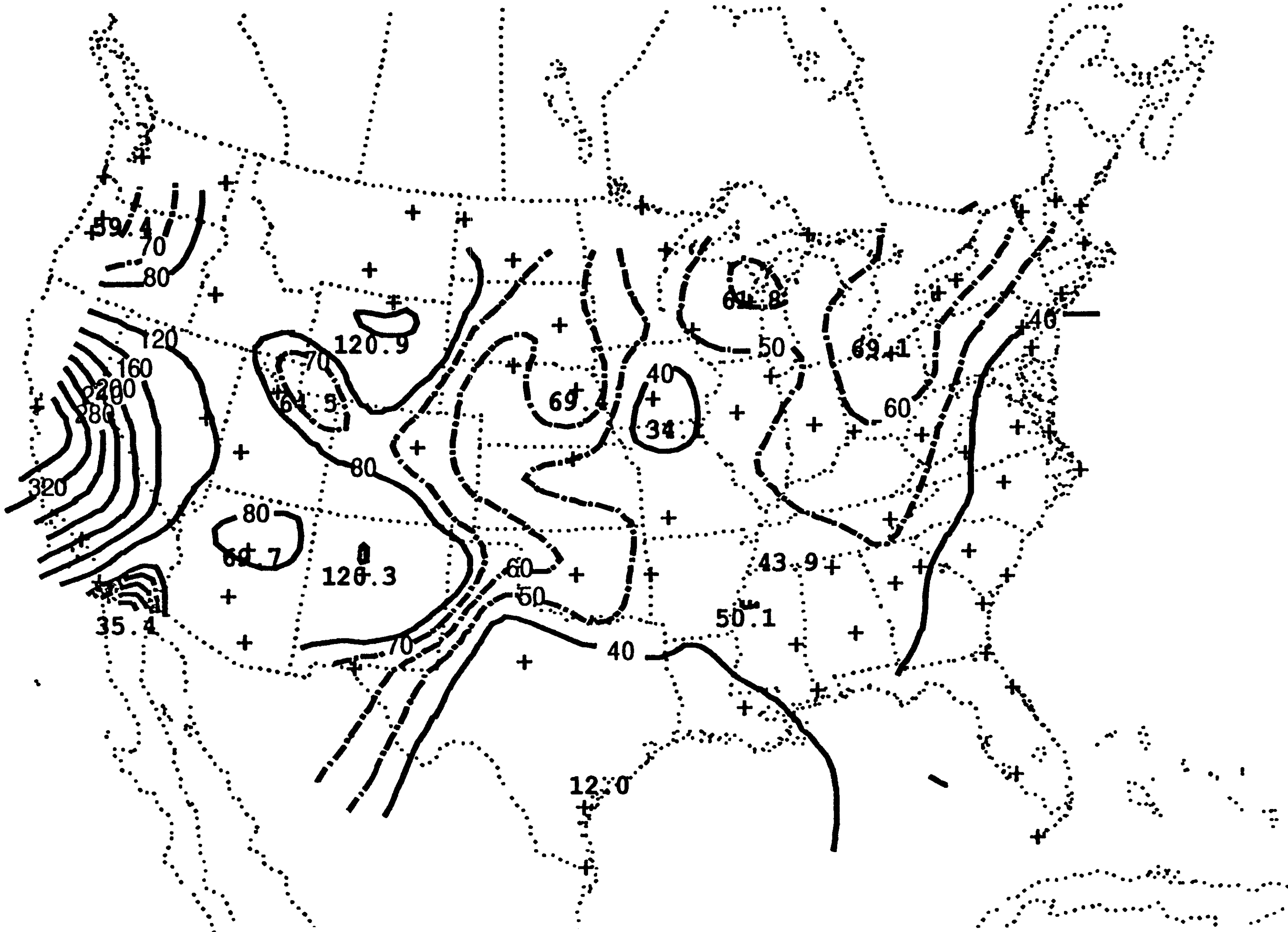


Figure 6–55 – August – κ



740801/0000 SFC LAMD (*10**3) Max= 397.7 Min= 12.0

Figure 6–56 – August – λ

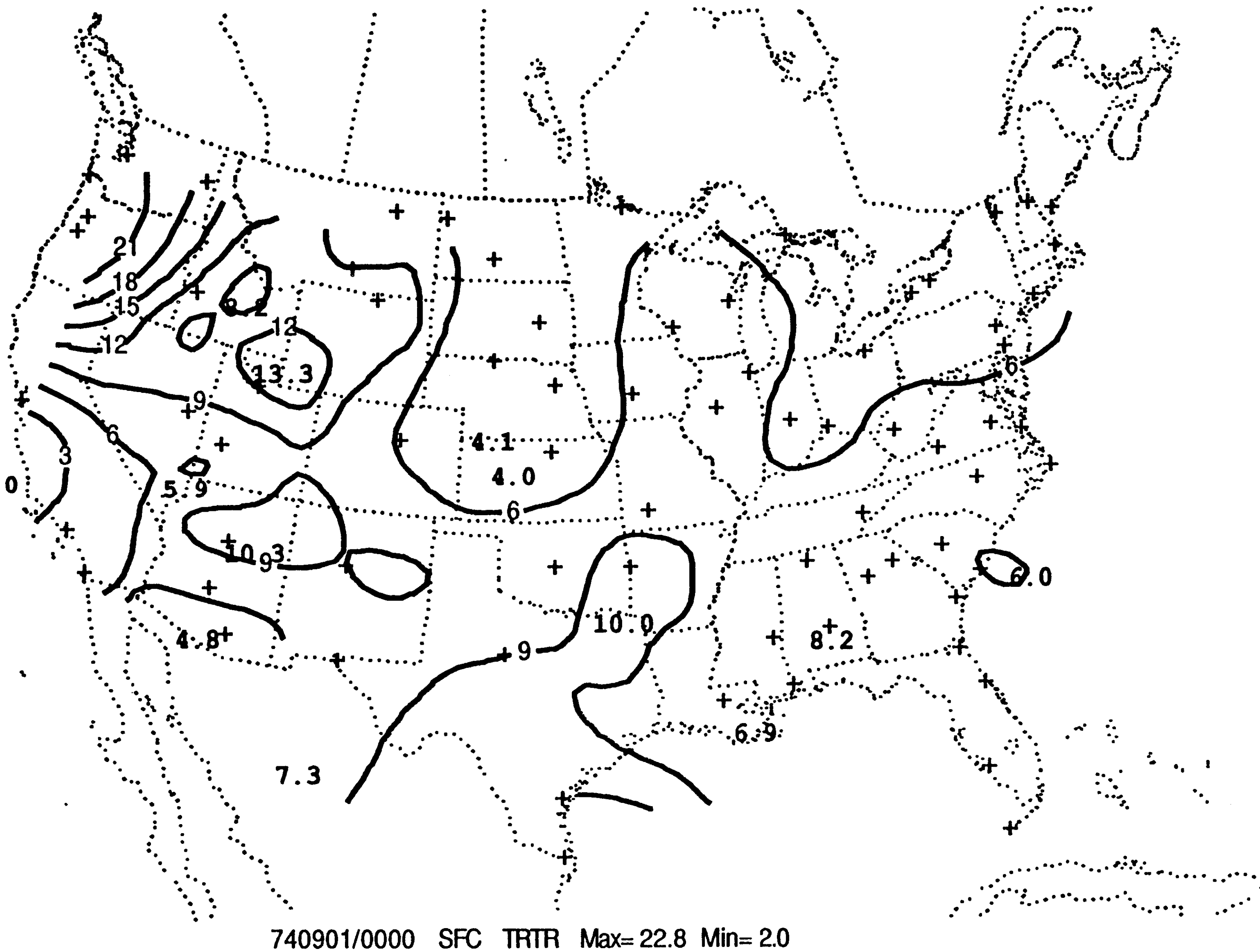


Figure 6–57 – September – m_{tr}

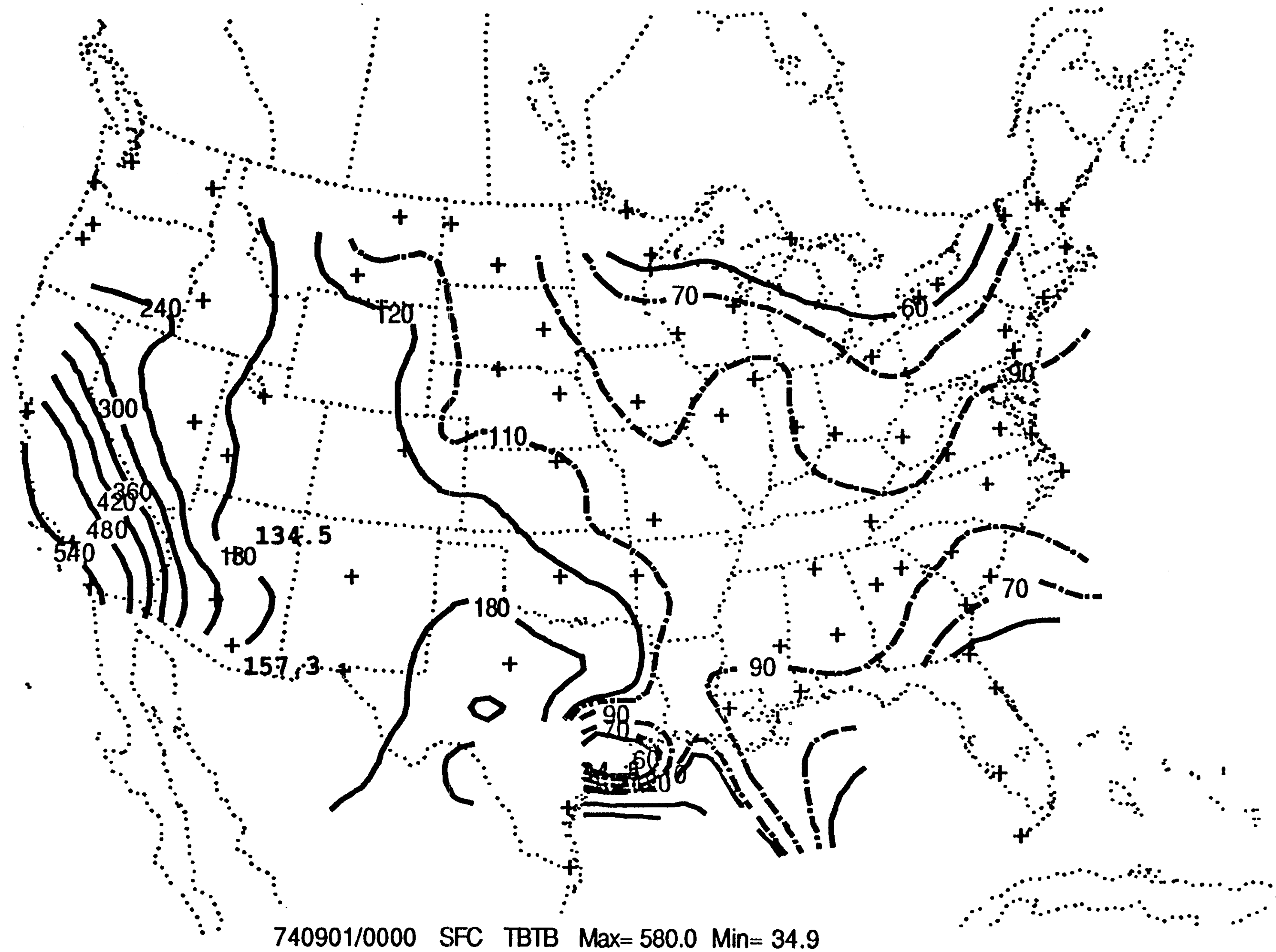


Figure 6–58 – September – m_{tb}

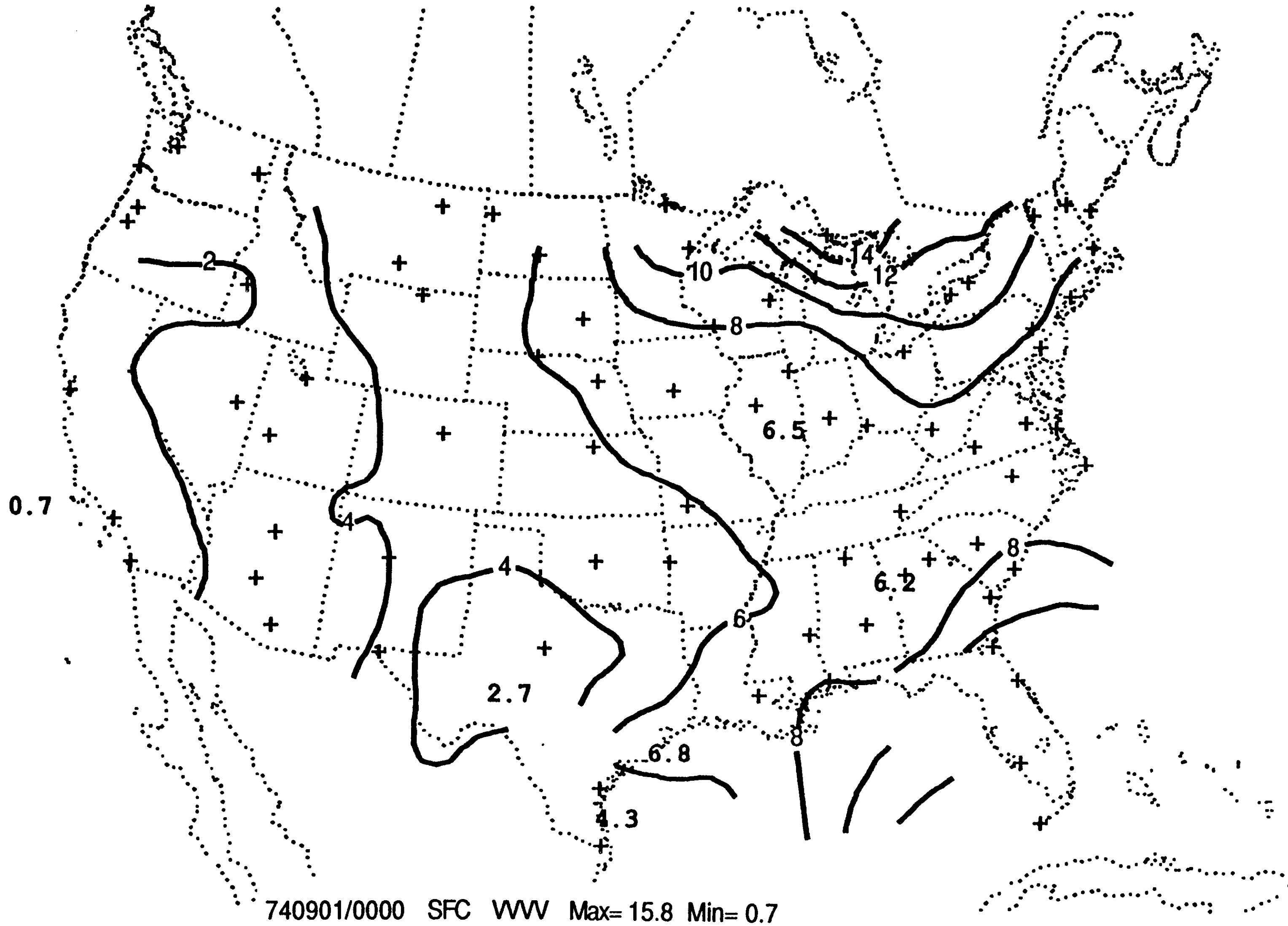


Figure 6–59 – September – m_v

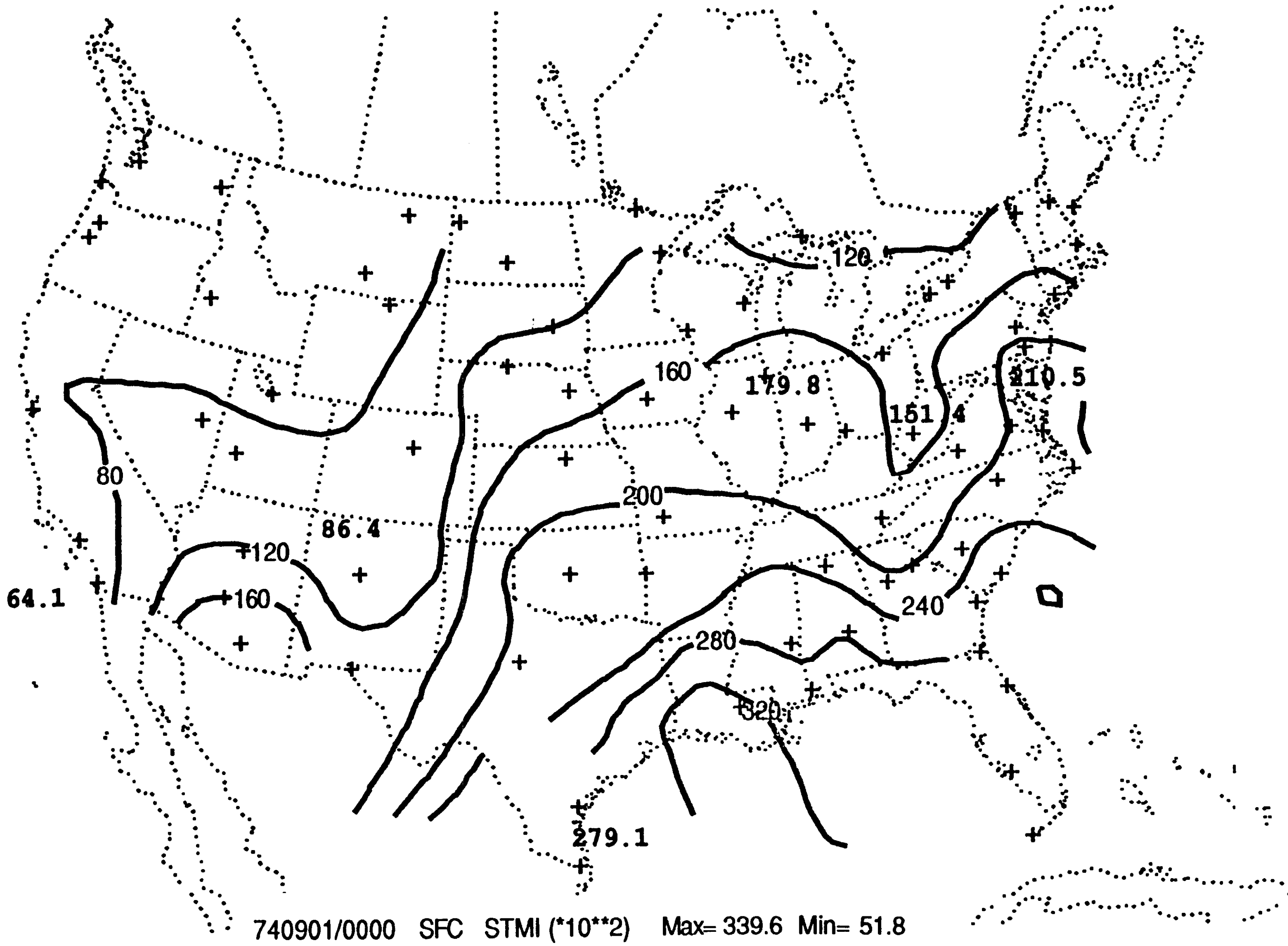


Figure 6–60 – September – m_i

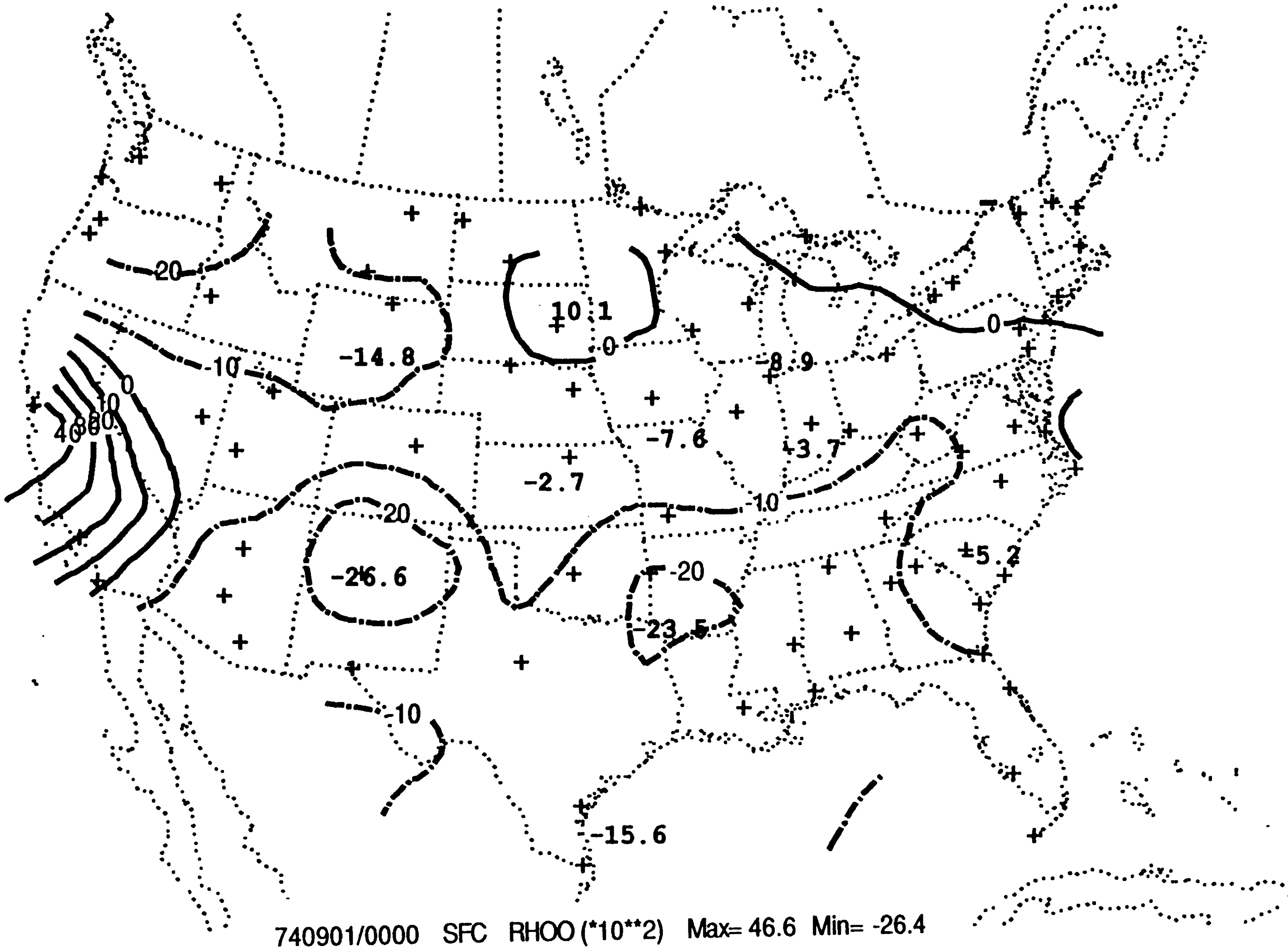
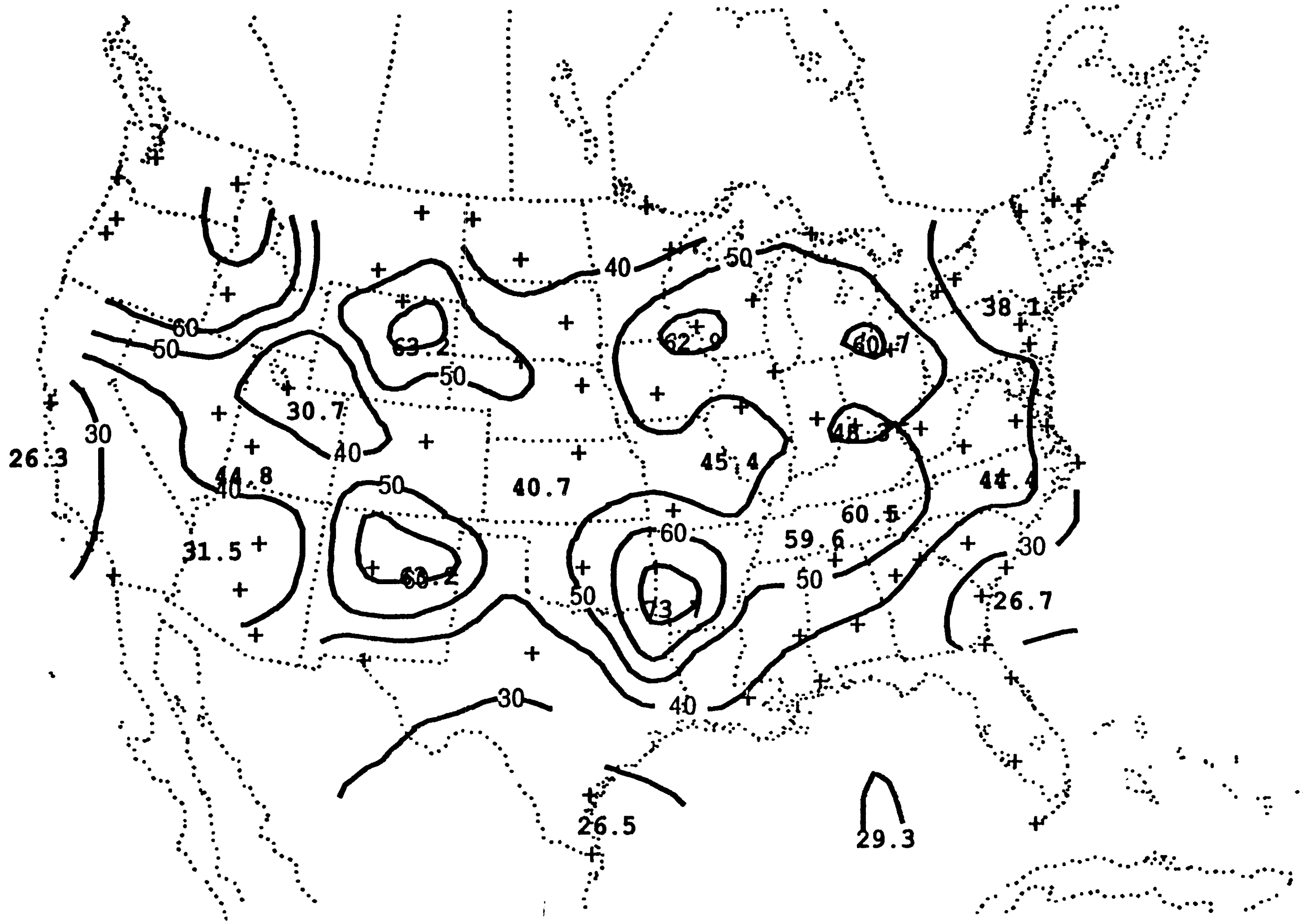


Figure 6-61 – September – cov[i,t_r]



740901/0000 SFC KAPP (*10**2) Max= 72.5 Min= 26.3

Figure 6-62 – September – κ

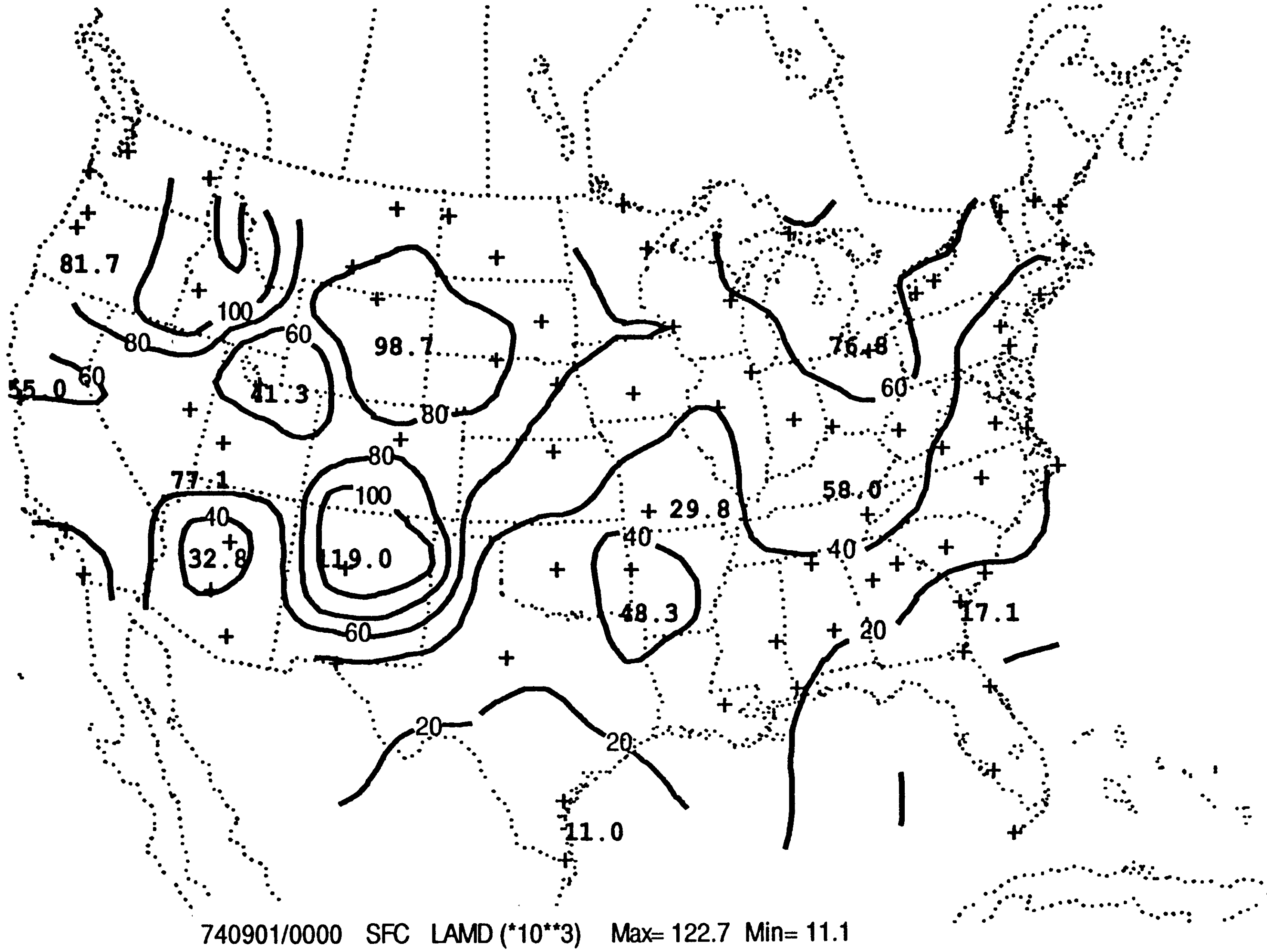


Figure 6–63 – September – λ

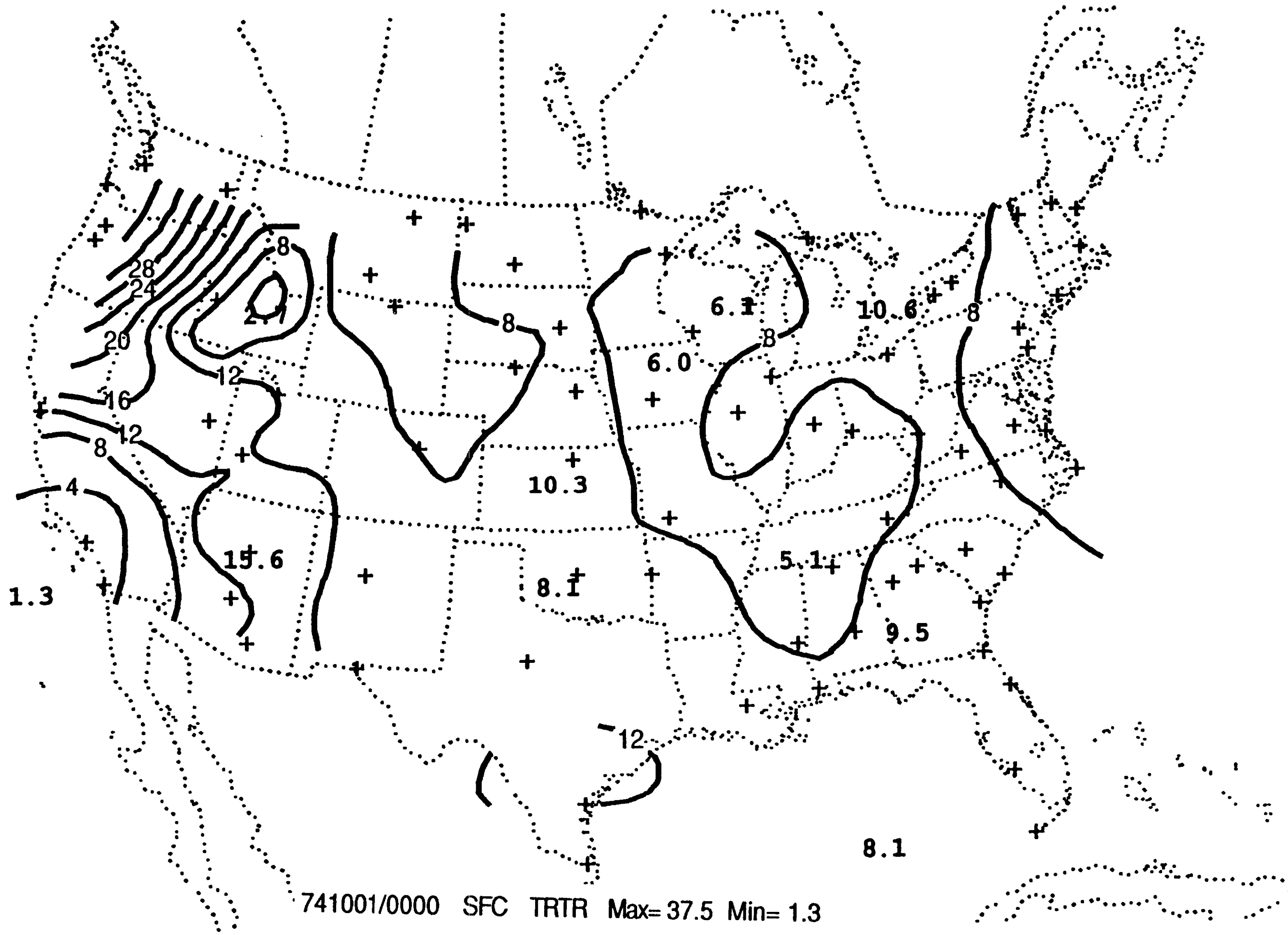


Figure 6-64 – October – m_{tr}

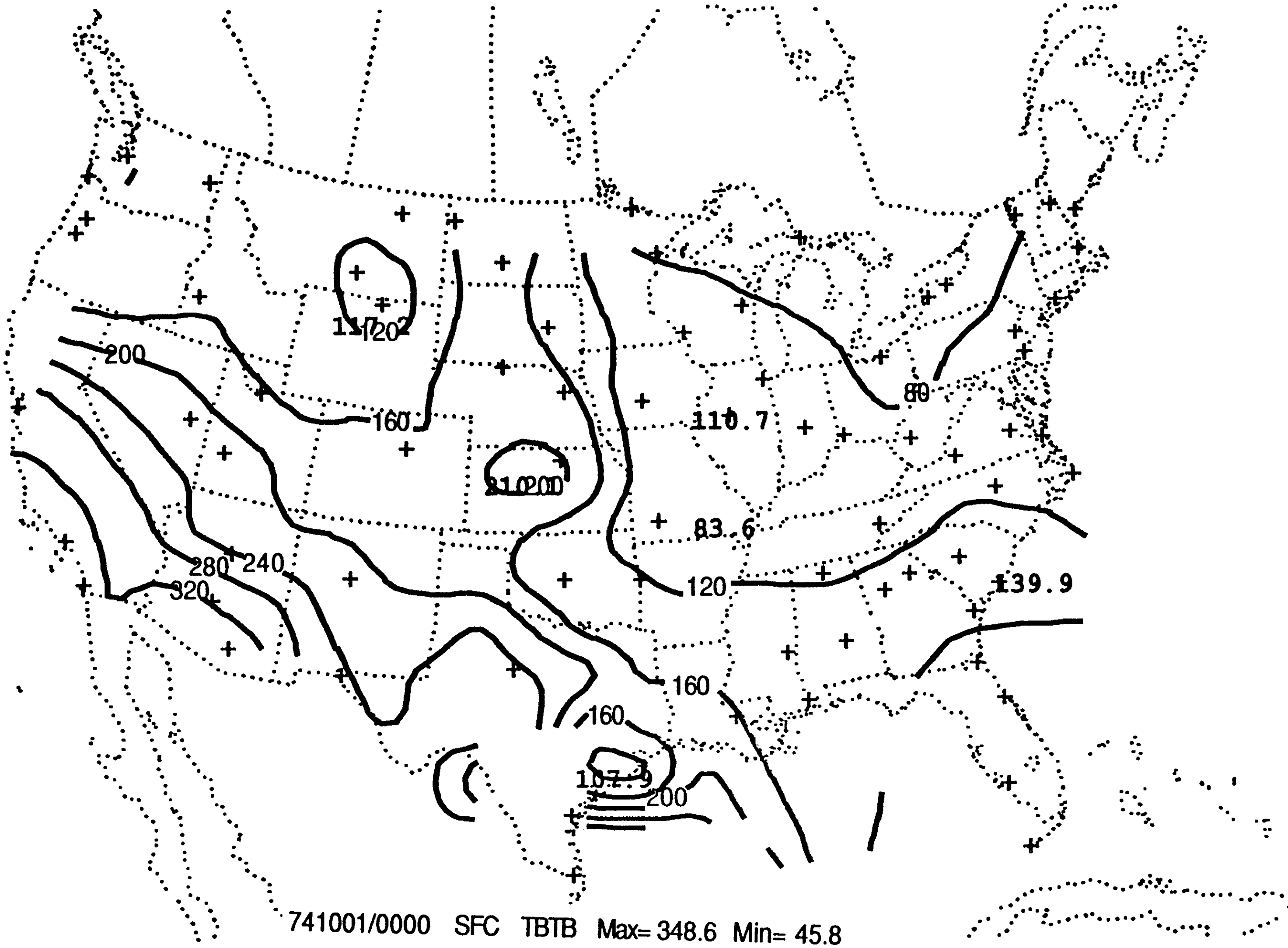


Figure 6–65 – October – m_{tb}

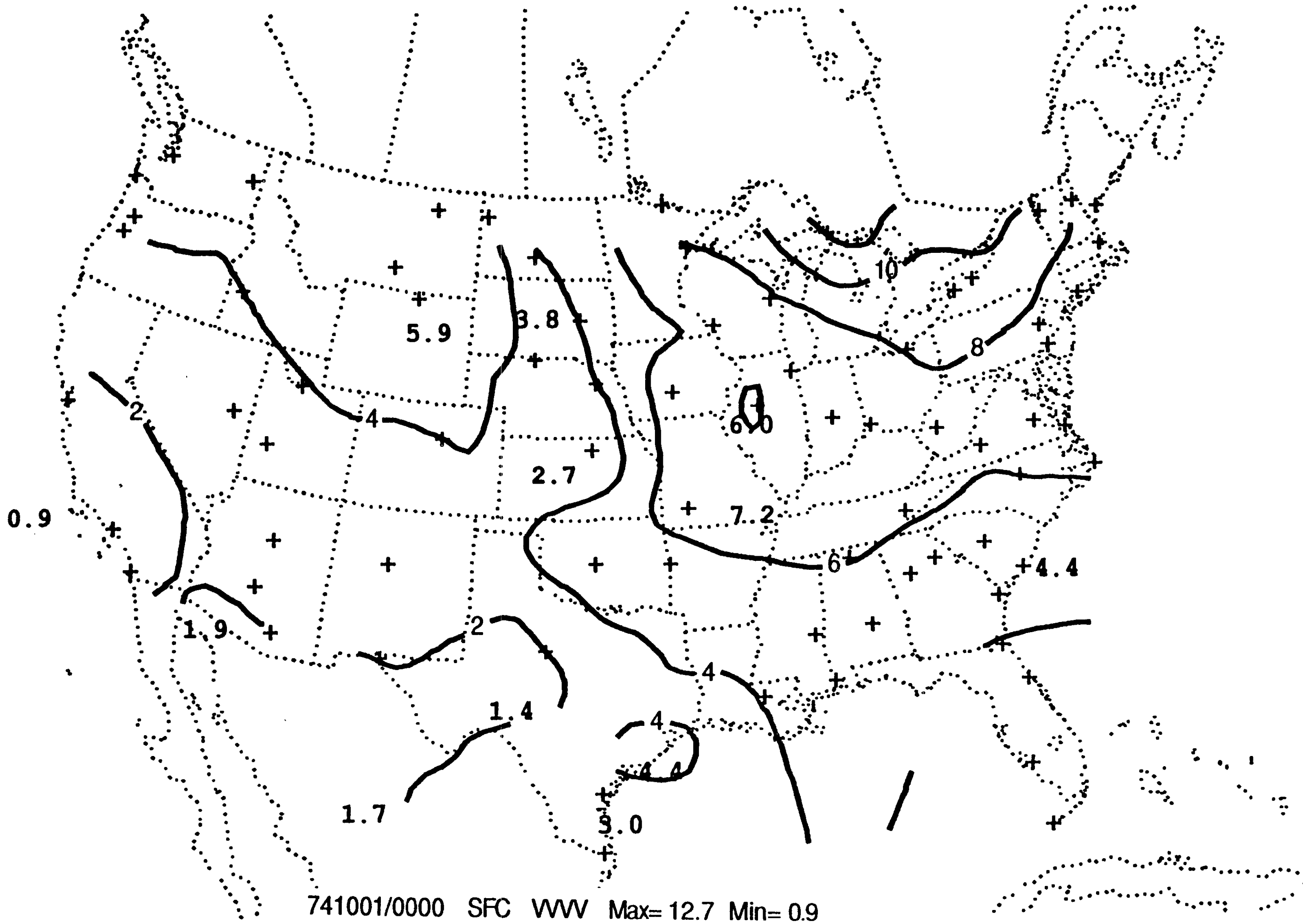
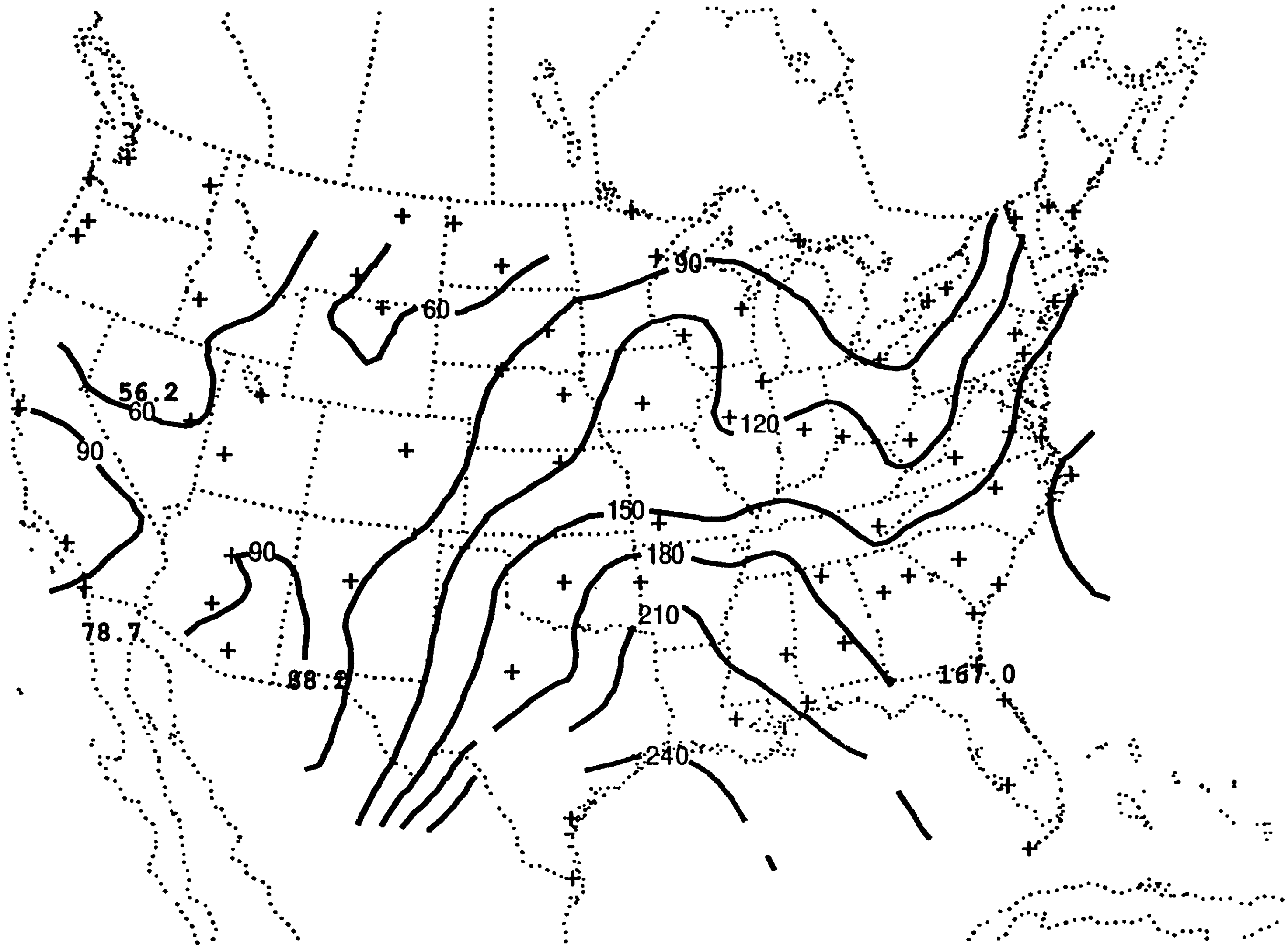


Figure 6–66 – October – m_v



741001/0000 SFC STMI (*10**2) Max= 246.5 Min= 44.6

Figure 6–67 – October – m_i

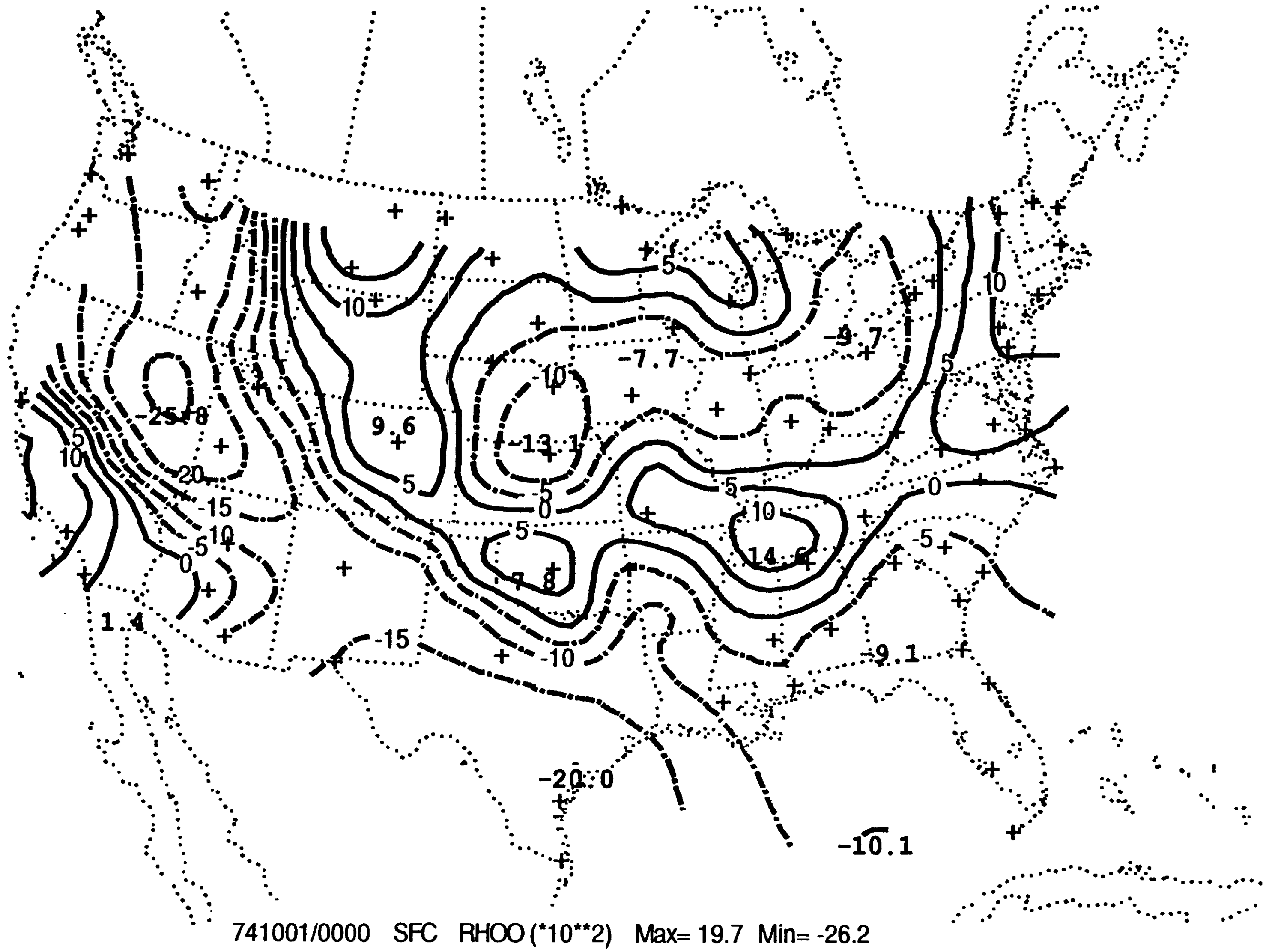


Figure 6–68 – October – cov[l,t_r]

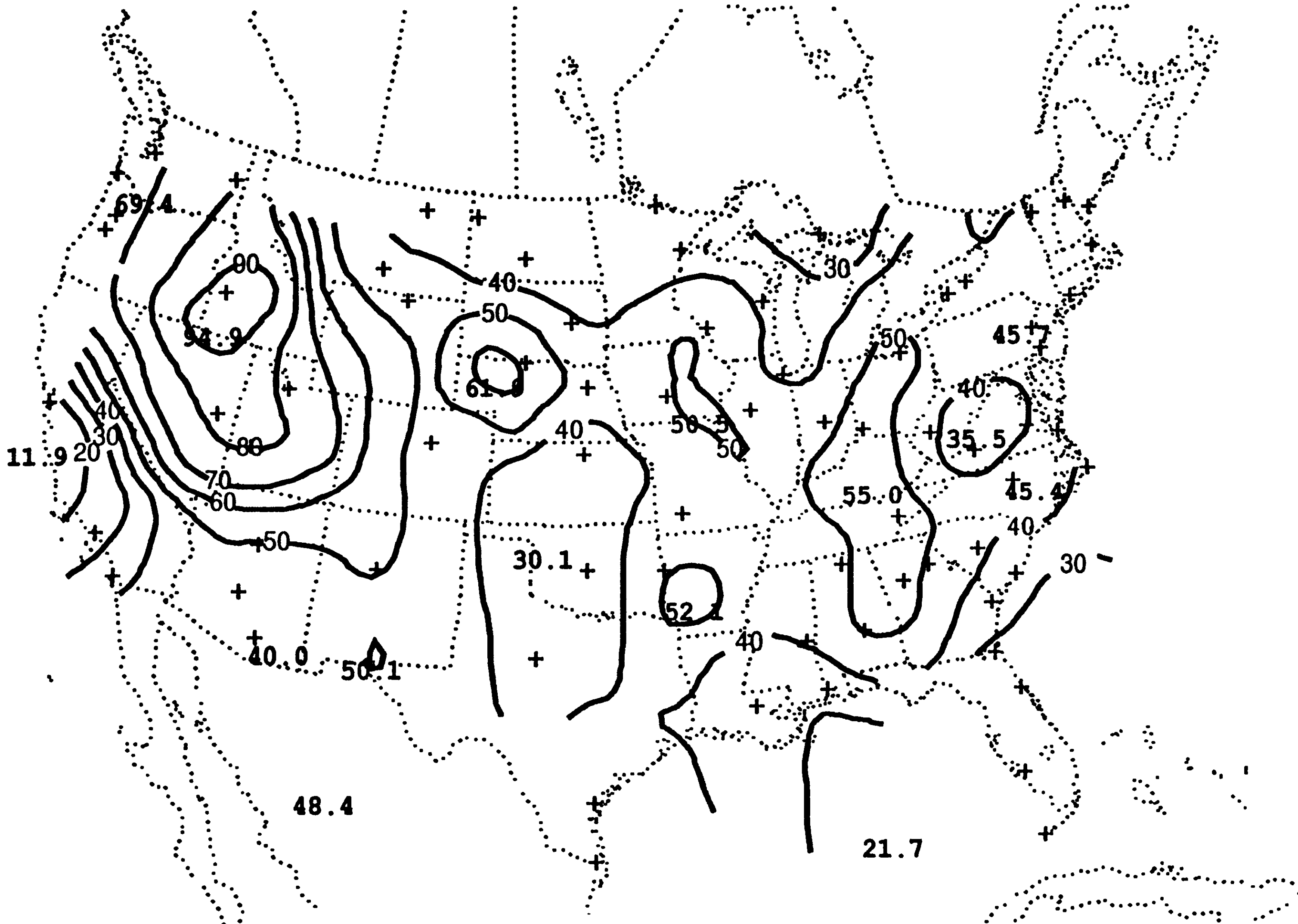


Figure 6–69 – October – κ

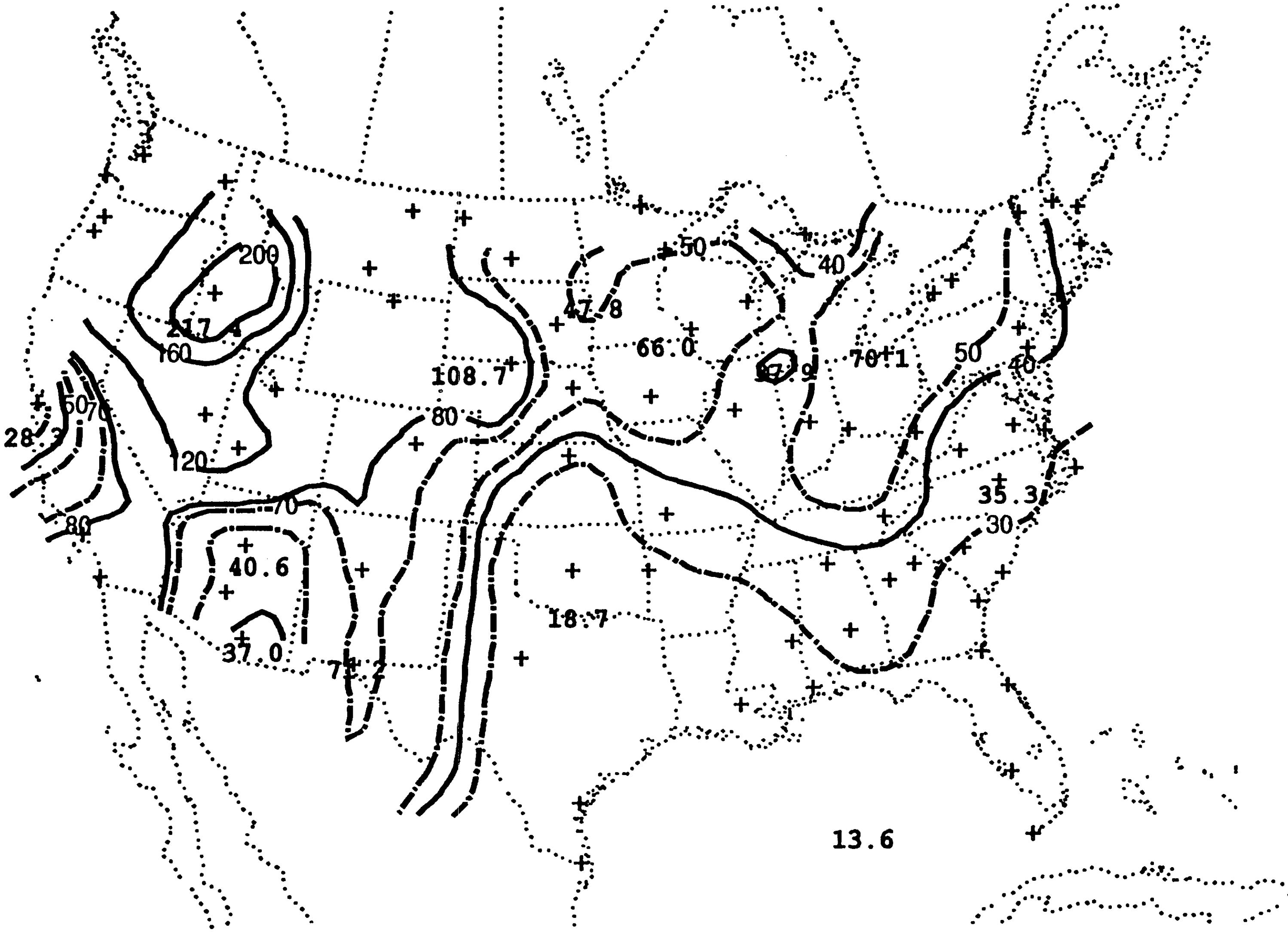


Figure 6-70 - October - λ

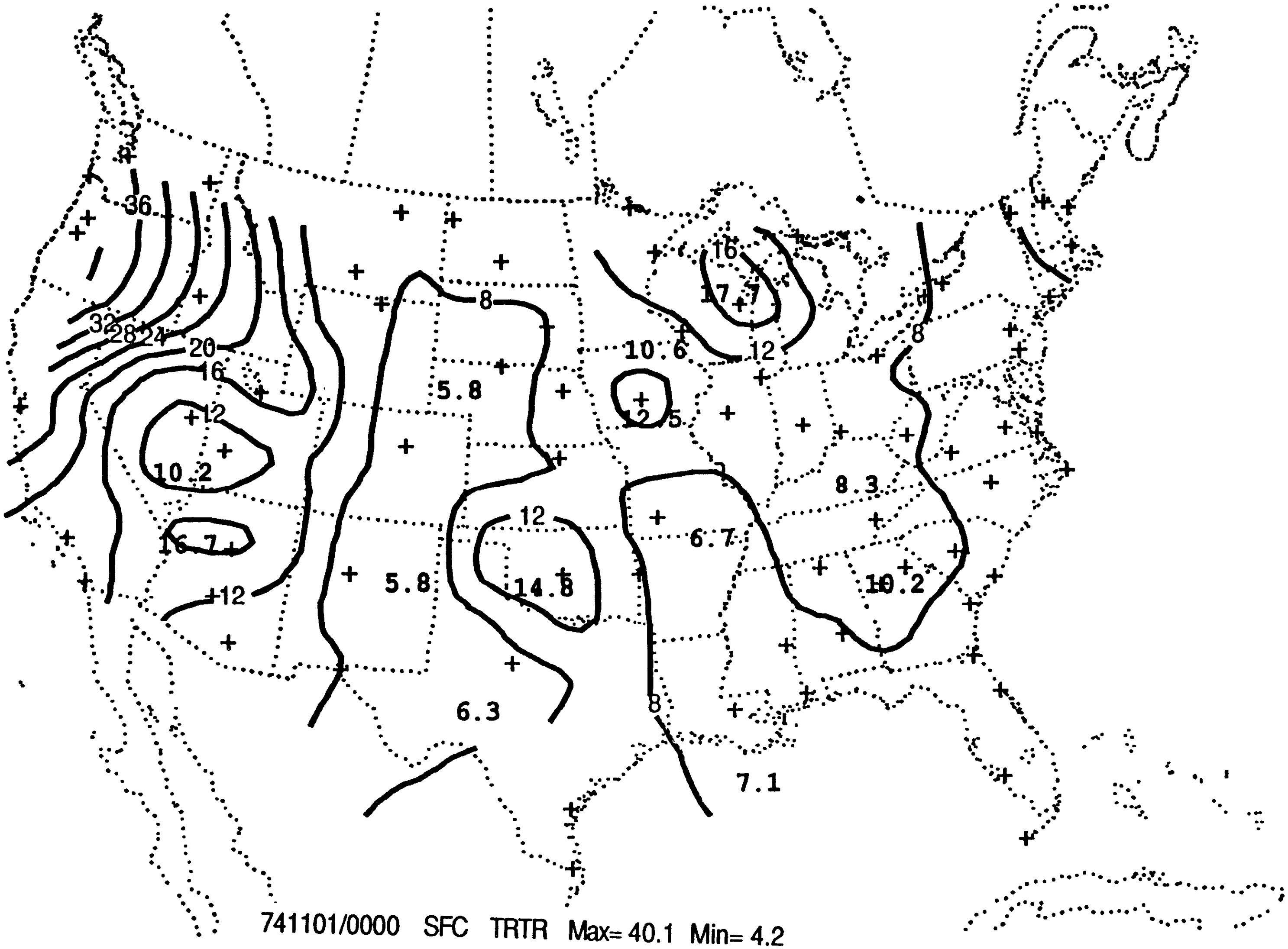


Figure 6–71 – November – m_{tr}

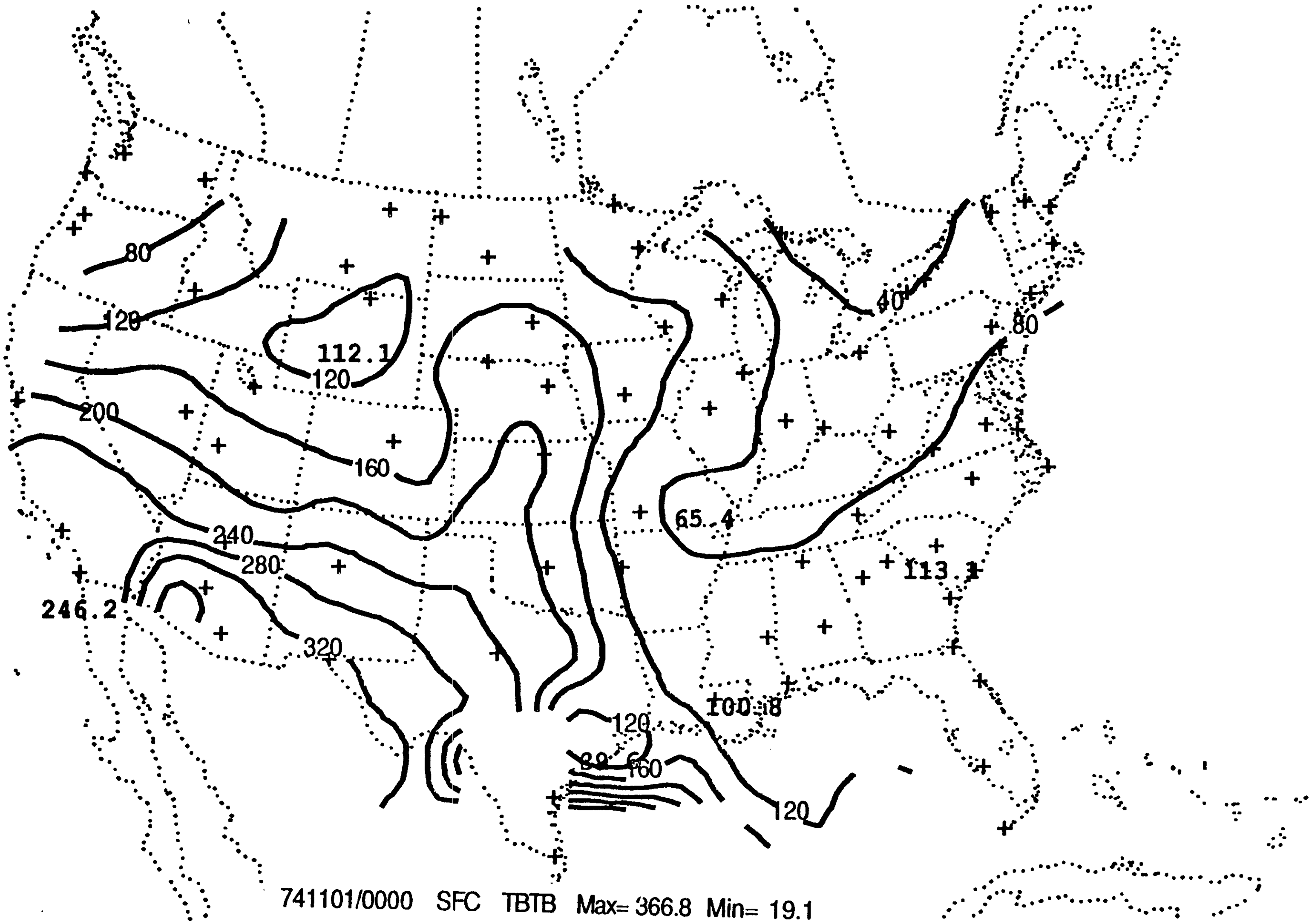


Figure 6–72 – November – m_{tb}

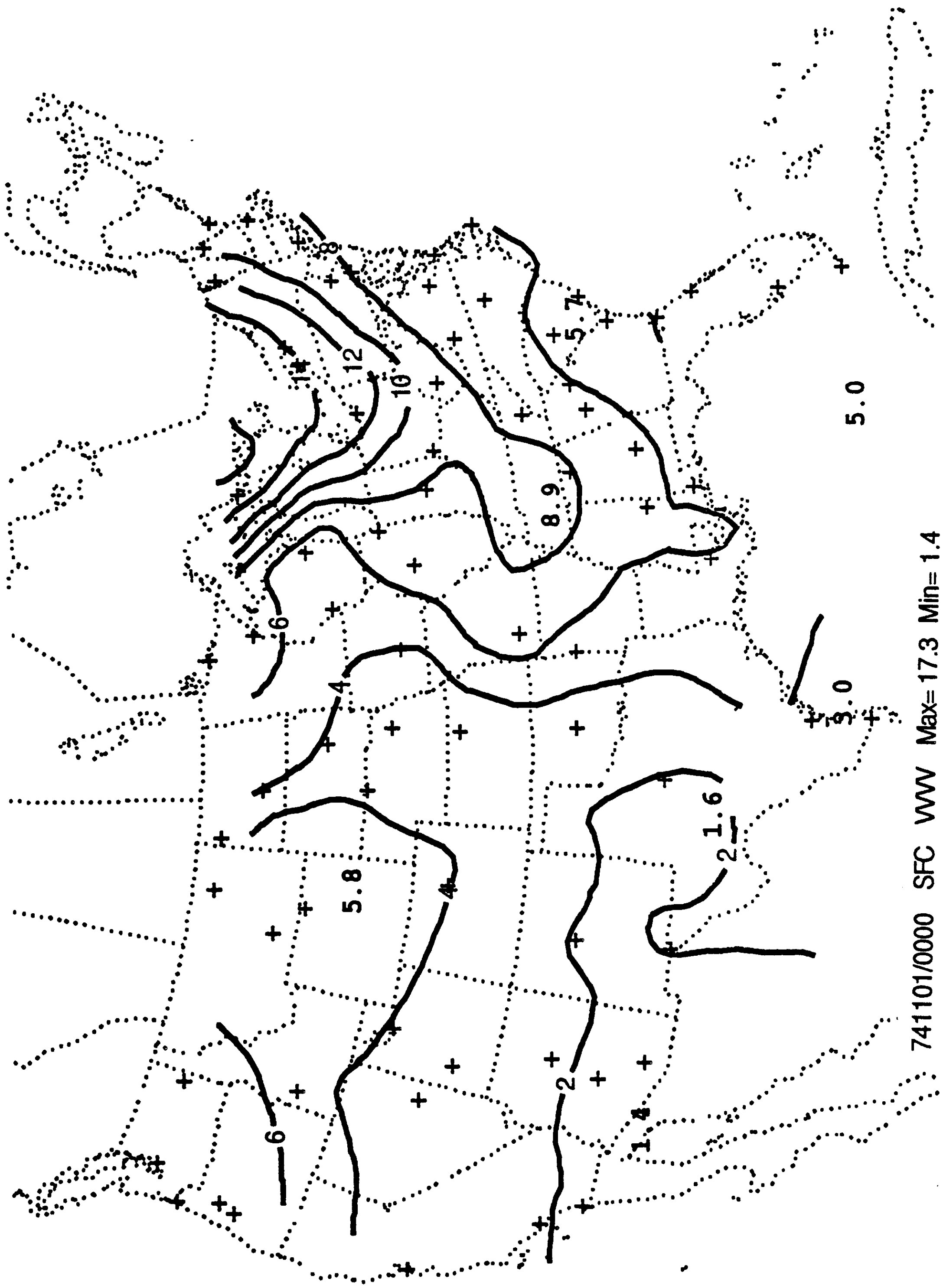


Figure 6–73 - November - m_v

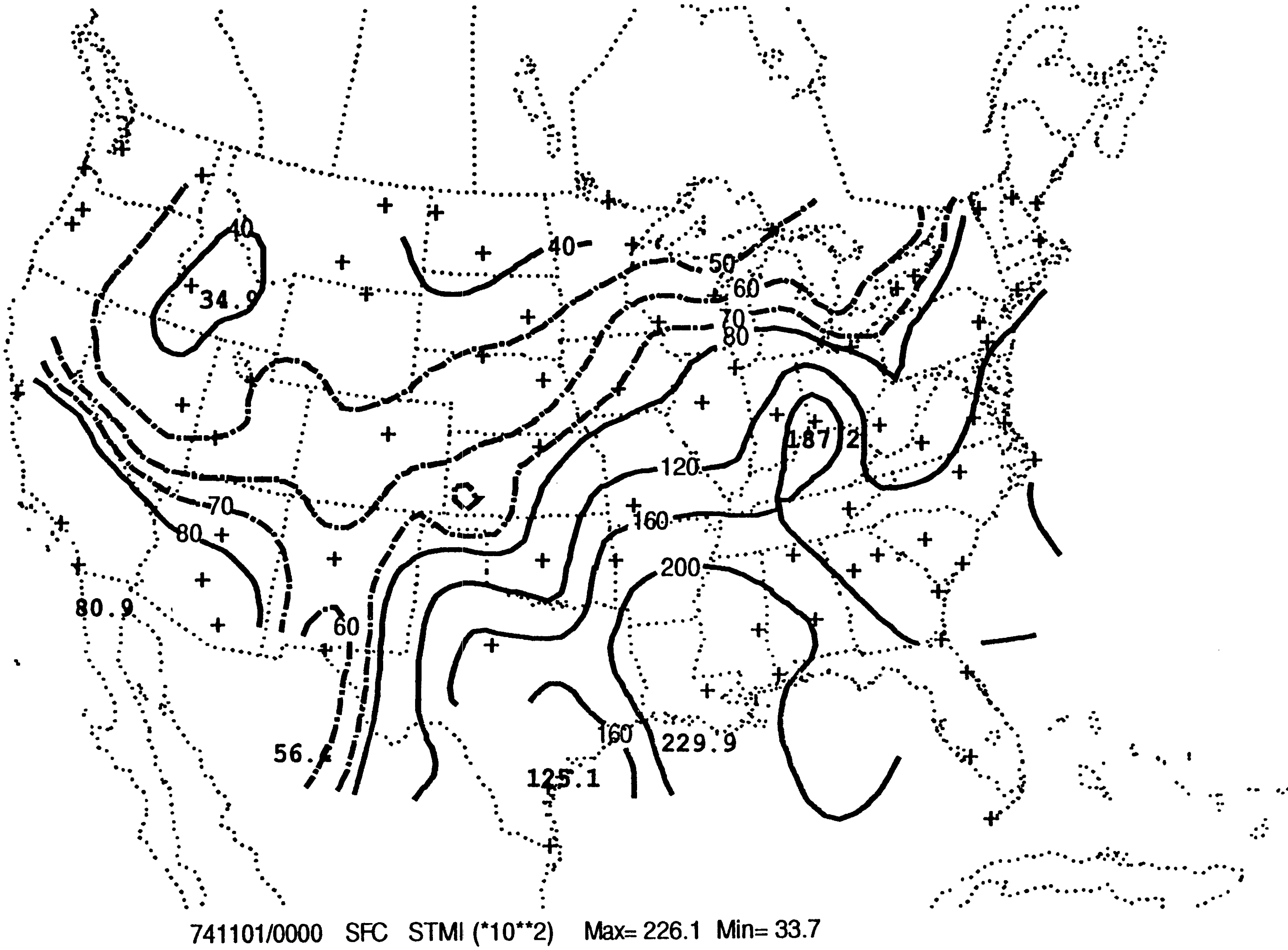


Figure 6–74 – November – m_i

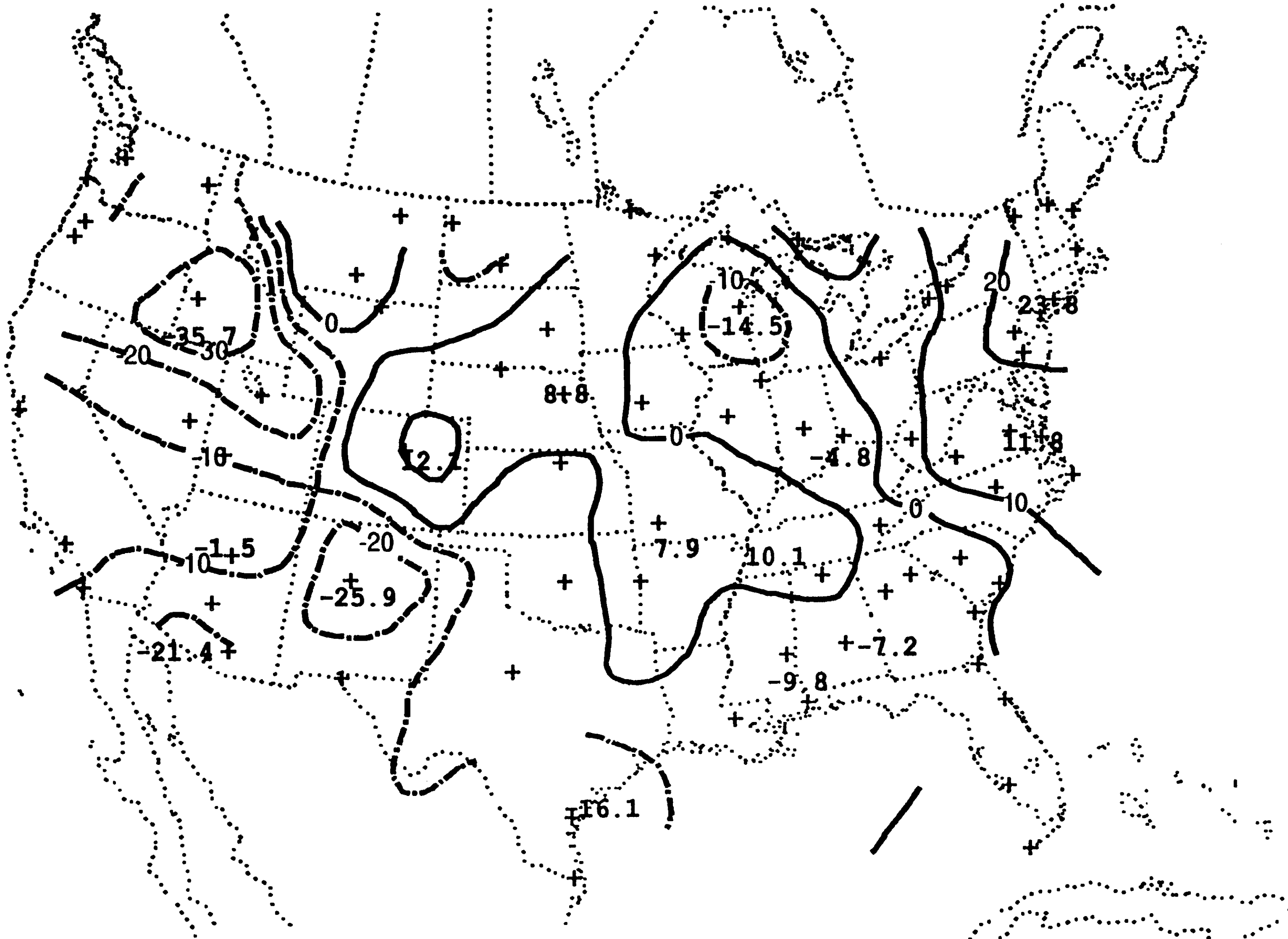


Figure 6–75 – November – $cov[i,t_r]$

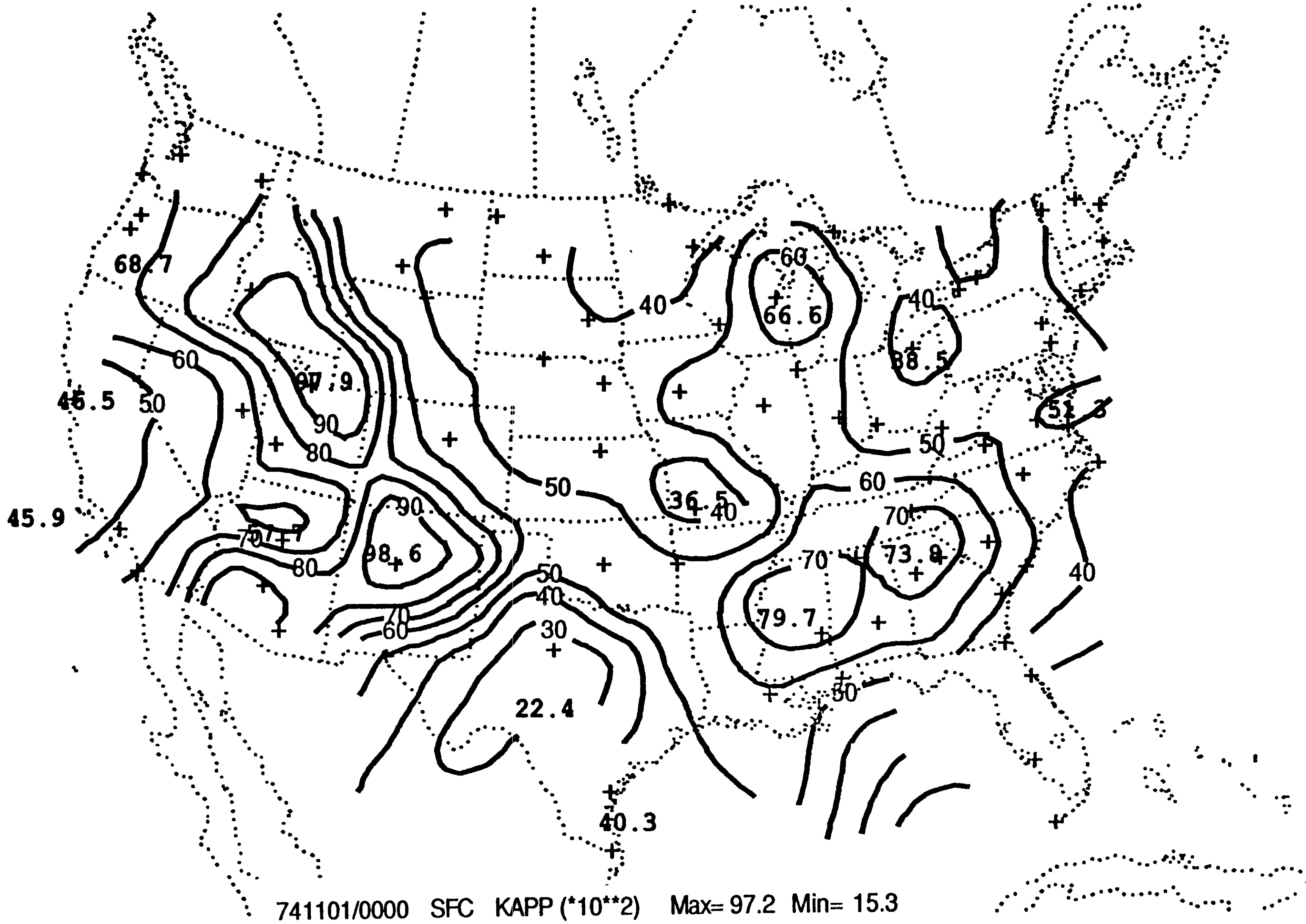


Figure 6–76 – November – κ

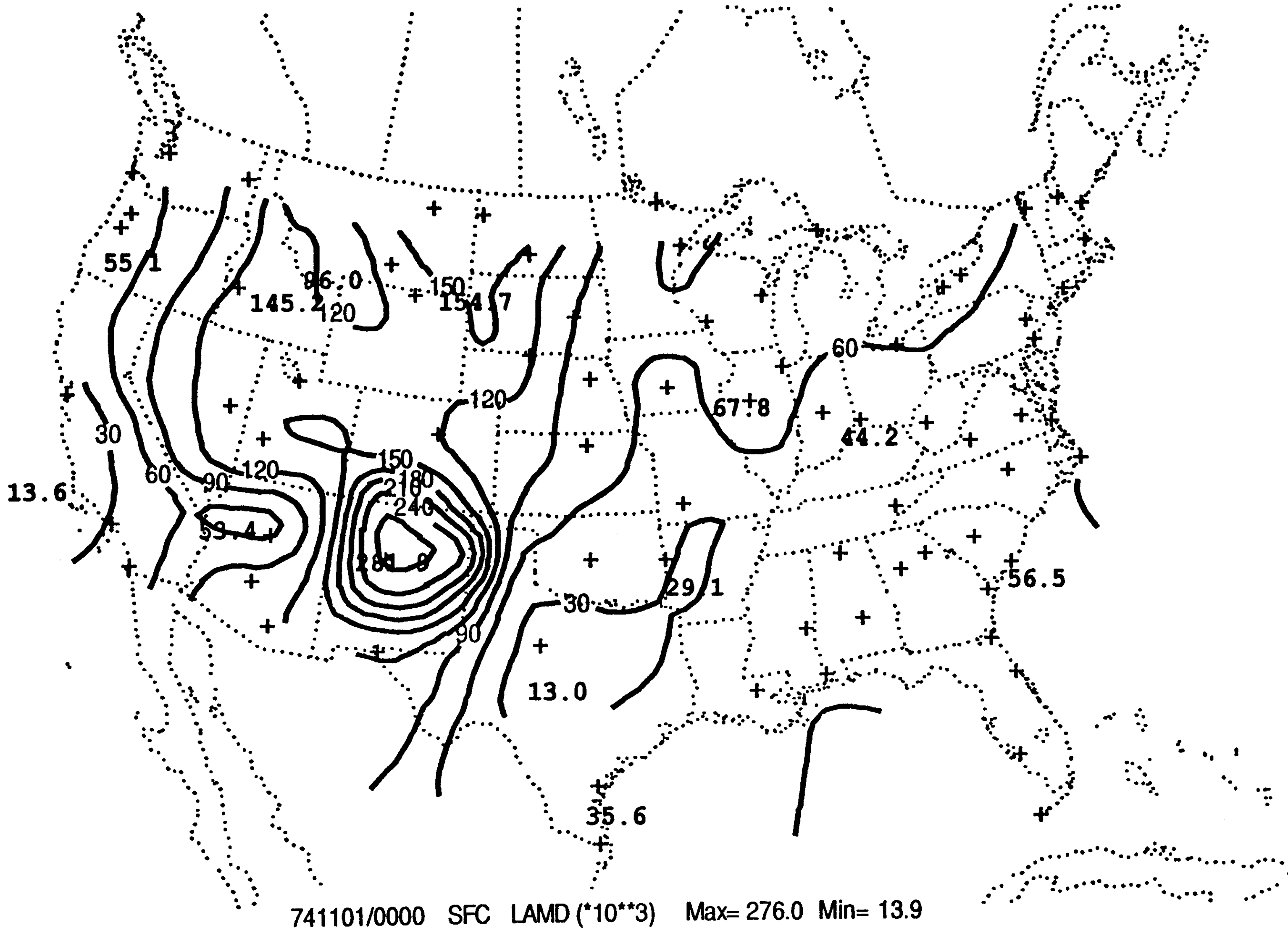
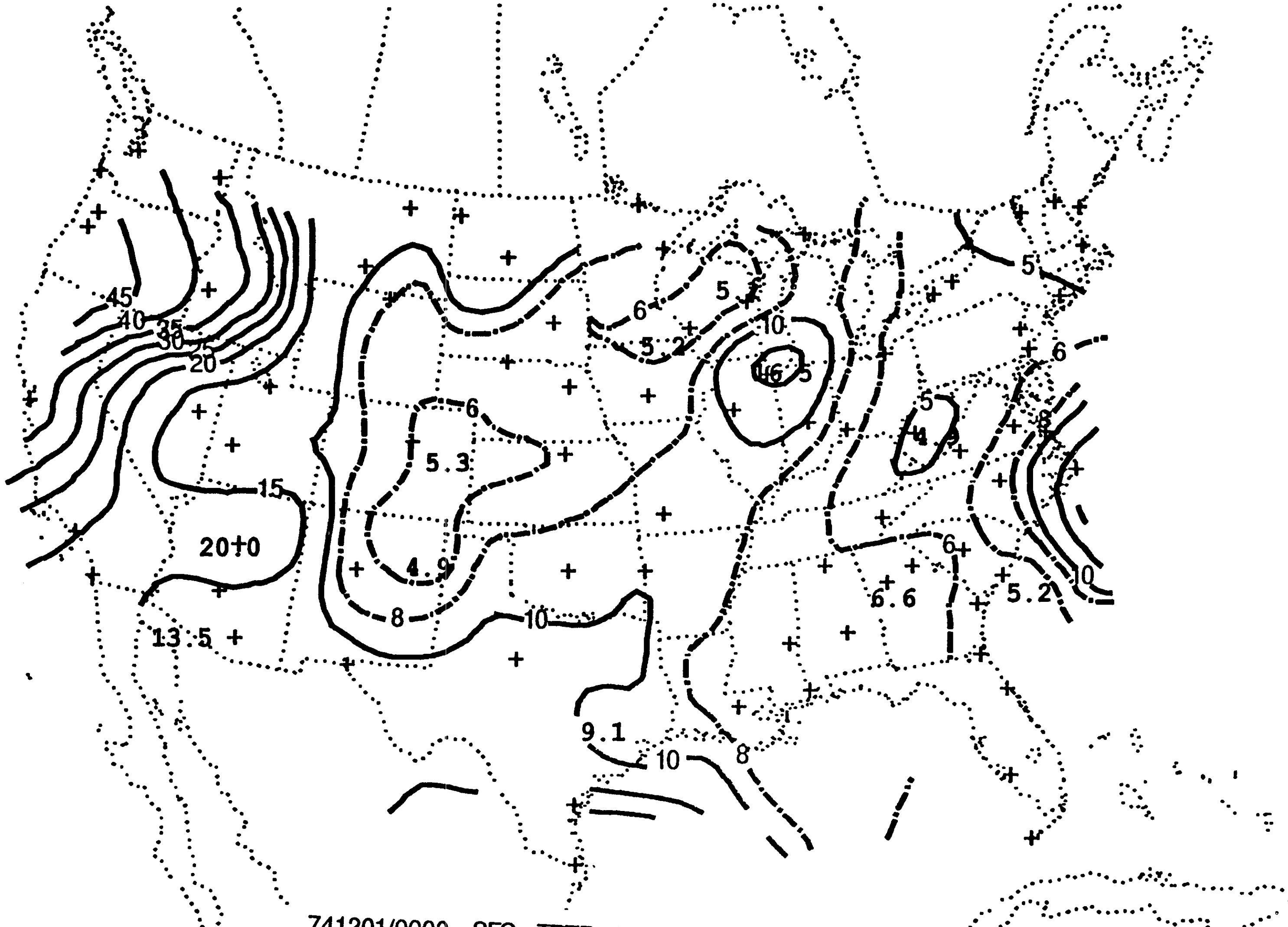


Figure 6–77 – November – λ



741201/0000 SFC TRTR Max= 47.8 Min= 4.7

Figure 6–78 – December – m_{tr}

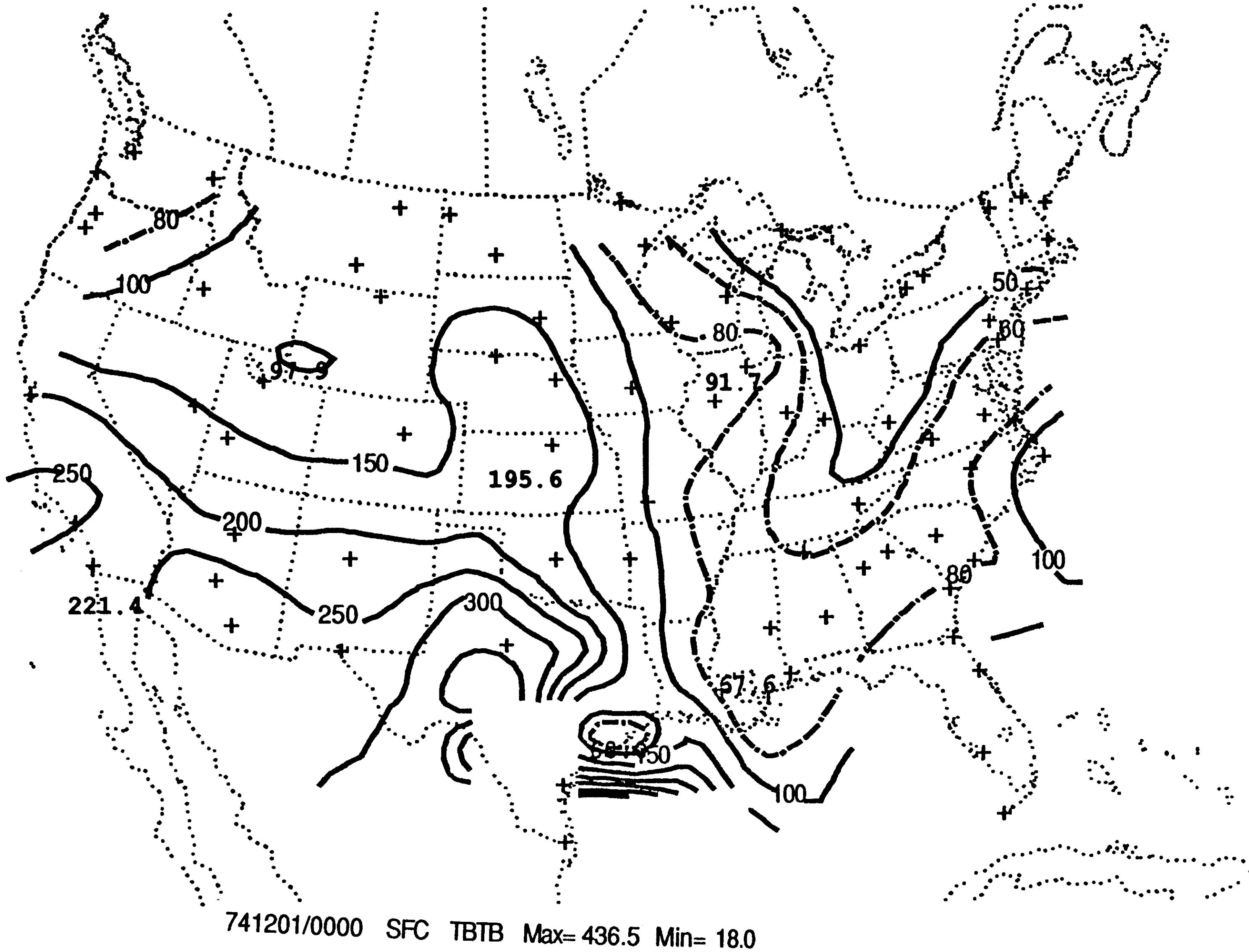


Figure 6–79 – December – m_{tb}

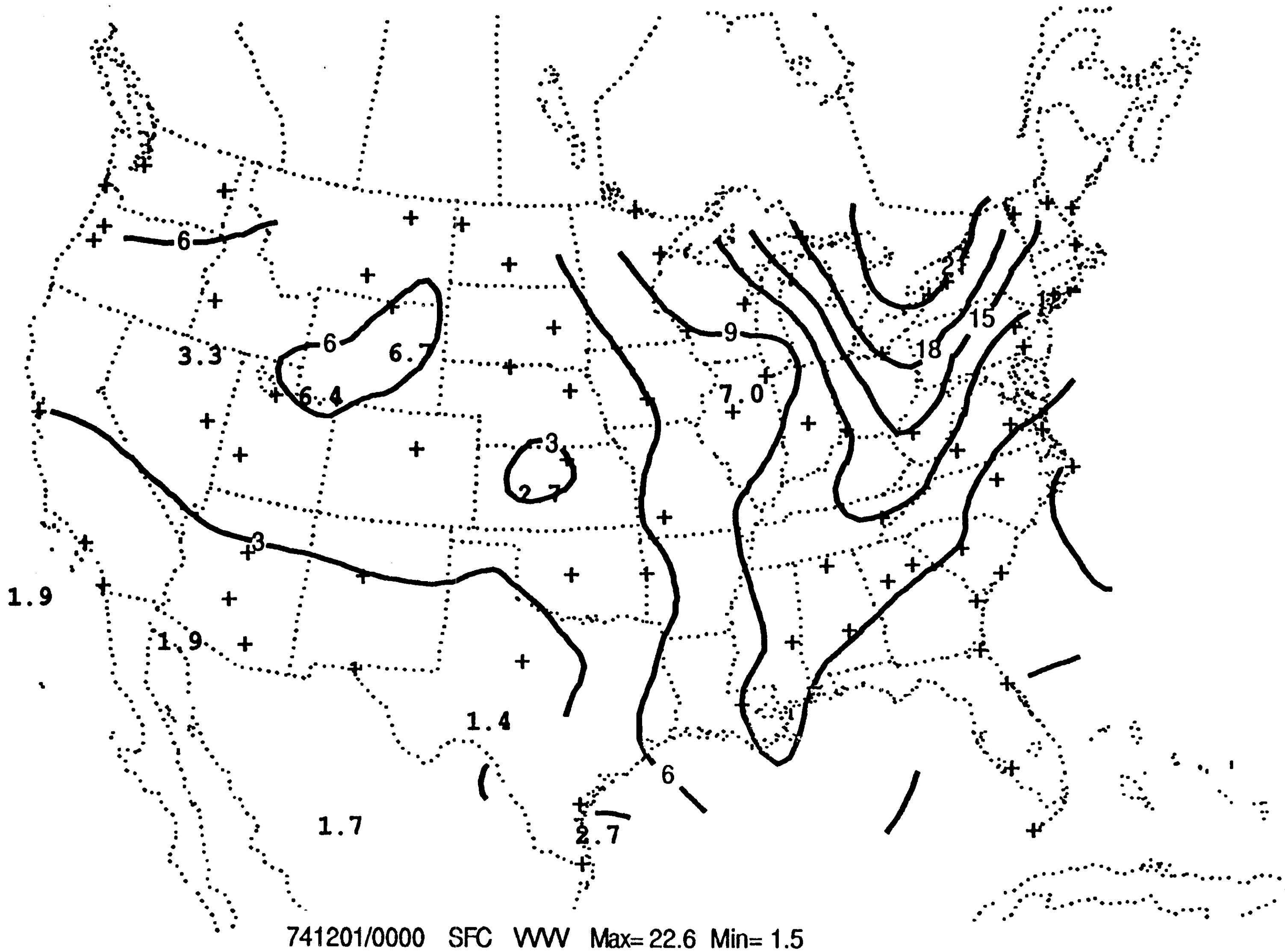
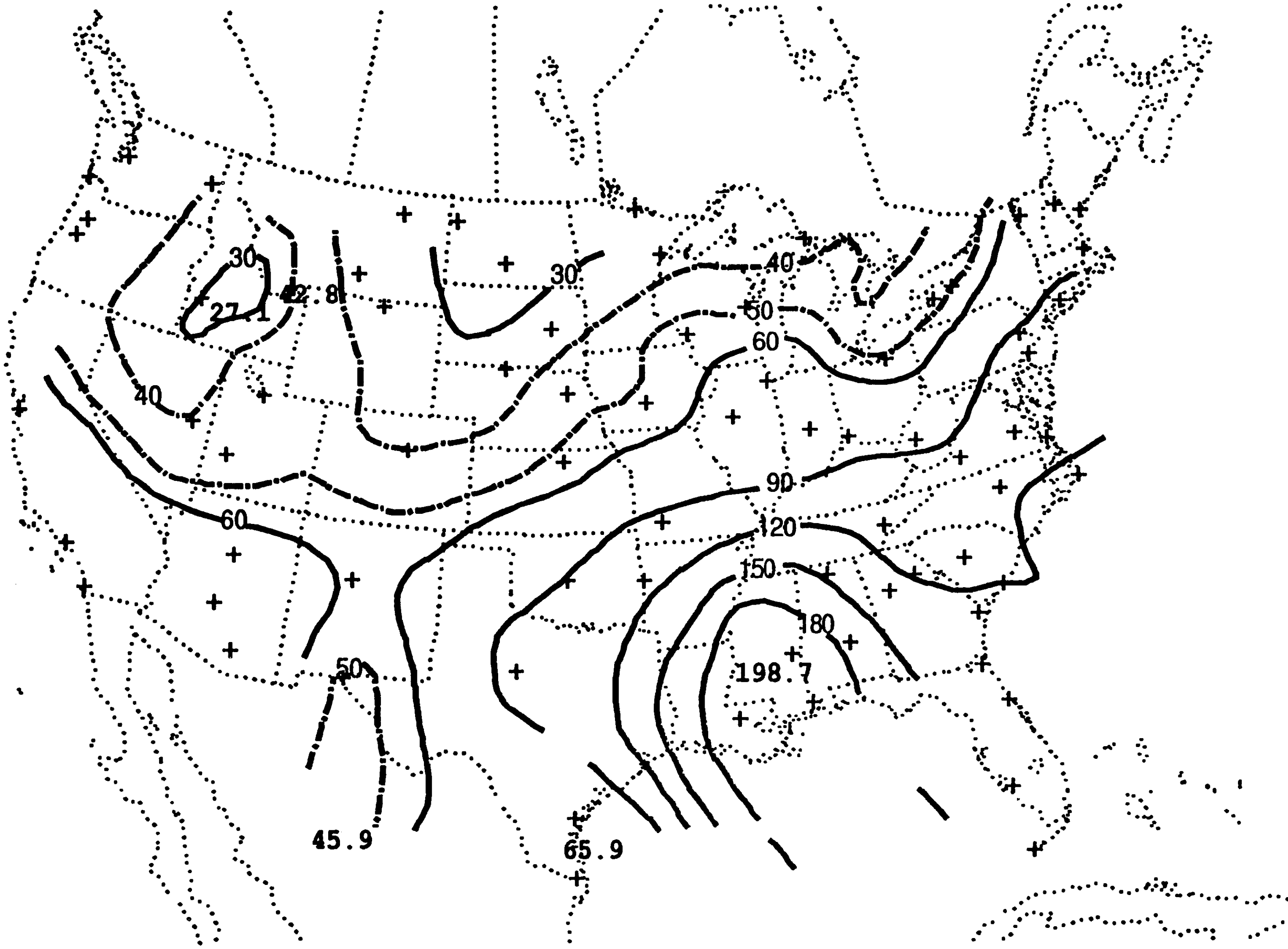


Figure 6–80 – December – m_v

Figure 6–81 – December – m_1



741201/0000 SFC STMI (*10**2) Max= 201.6 Min= 22.5

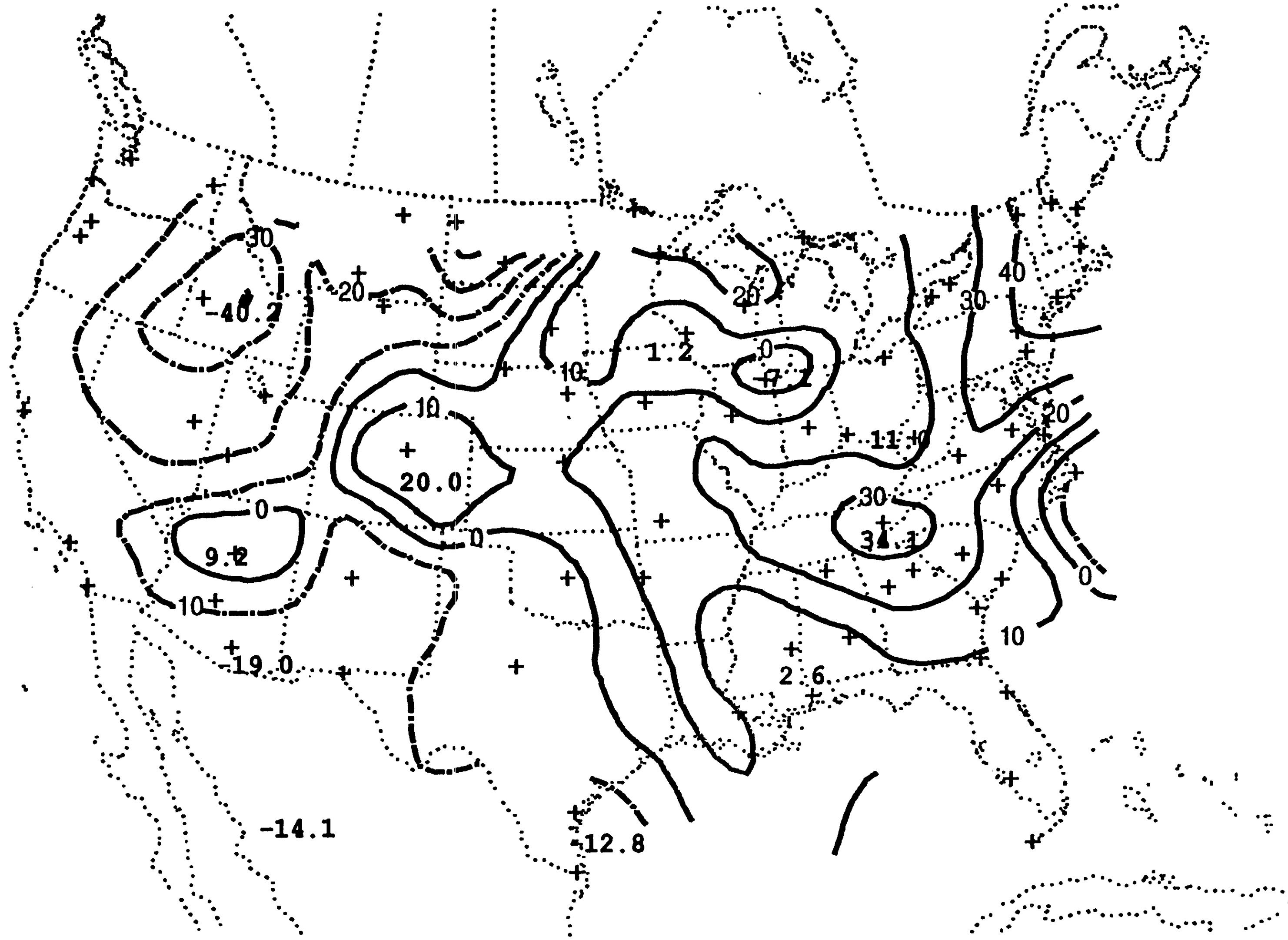


Figure 6–82 – December – cov[i,t_r]

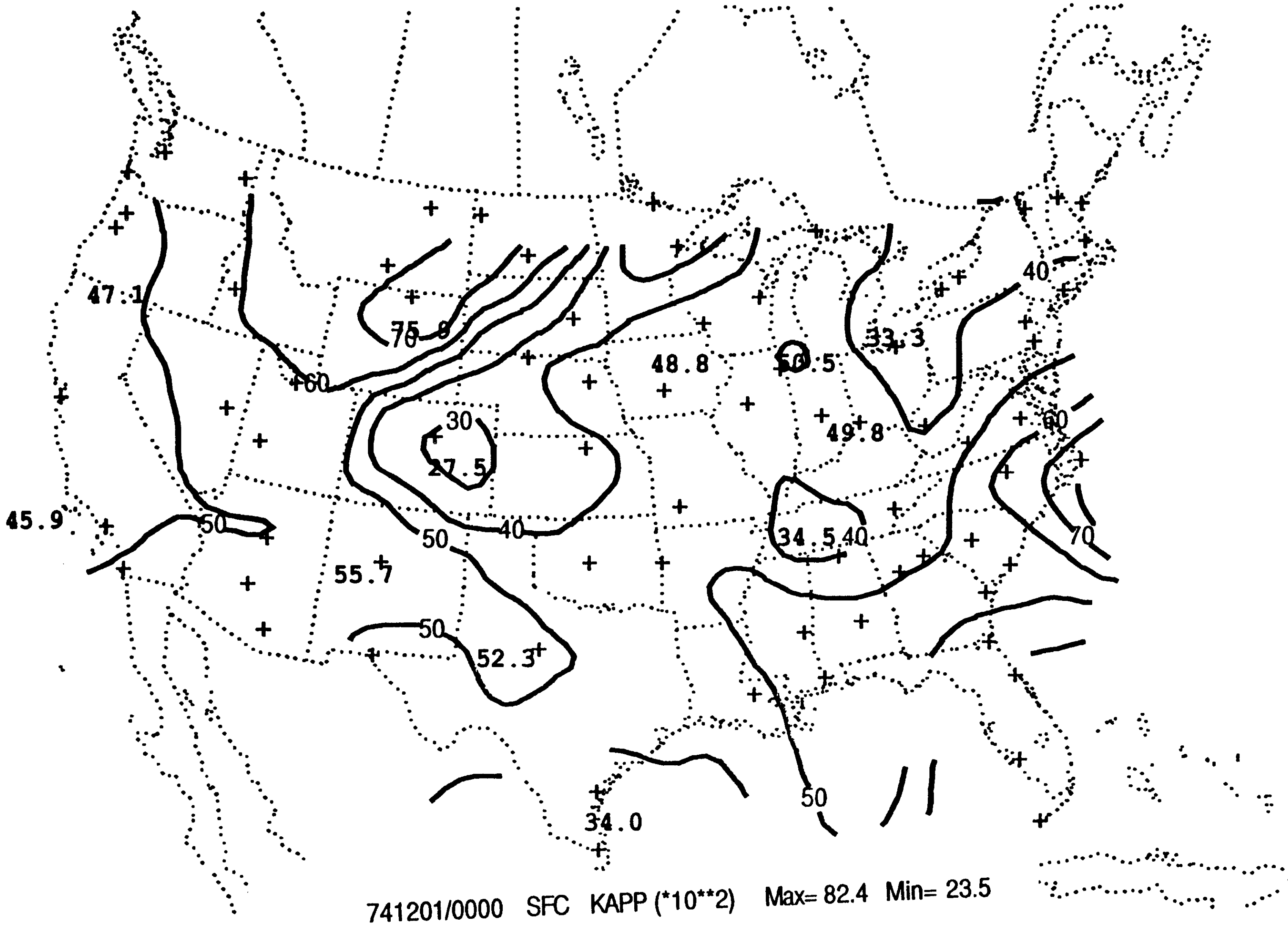


Figure 6–83 – December – κ

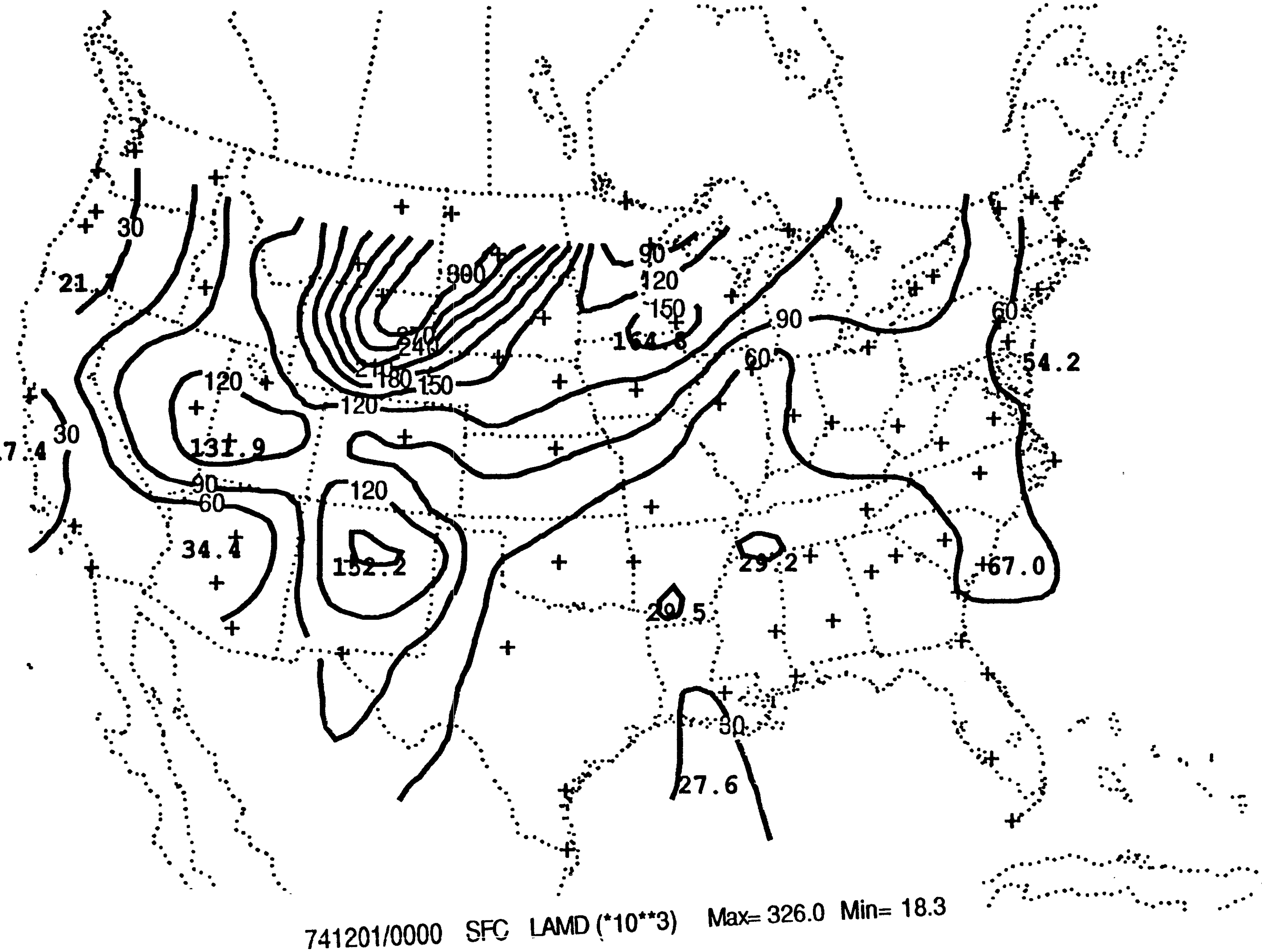


Figure 6–84 - December - λ

CHAPTER 7 Tables of Stations and Parameters

This chapter is dedicated to the seventy–four stations used in producing the maps in Chapter 5 and Chapter 6 and the following tables found in this chapter.

Table 7–1 – Index of stations

Table 7–1 presents the stations used in the production of the maps in Chapter 5 and 6 (except for Paducah, Kentucky – see Chapter 5). The states are presented in alphabetical order. The identification number corresponding to each station name is used as an identifier in Table 7–2 through Table 7–5. The time column corresponds to the years used in calculating the historical precipitation statistics in Table 7–2. The percent coverage column represents the percent of hours that was actually recorded in the rainfall record. The latitude, longitude and elevation give the location of the station. Finally, a column for the average annual amount of precipitation the station receives.

Table 7–2 – Historical precipitation statistics

Table 7–2 presents the historical statistics for each station in Table 7–1. Each month for every station the following statistics were found (all are for cumulative depth) : 1 hour mean, 1 hour variance, 1 hour lag–one correlation, 1 hour probability dry, 6 hour variance, 6 hour lag–one correlation, 6 hour probability dry, 24 hour variance, 24 hour lag–one correlation and 24 hour probability dry.

Table 7–3 – The original modified Bartlett–Lewis parameters

Table 7–3 presents the six original modified Bartlett–Lewis parameters.

The parameters are found through the use of a computer model (see Appendix A). The list of parameters are the best runs found by the modeler (see Section 4–3).

Table 7–4 – The derived modified modified Bartlett–Lewis parameters

Table 7–5 – The Poisson rectangular pulses parameters

Table 7–5 represents eight parameters in the Poisson rectangular pulses model. Only seven are presented in the maps in Chapter 6. The additional parameter shown on the tables is average storm depth. The first five parameters shown on the tables are all averages, rho is $\mathrm{cov}[i,t_r]/\sigma_i\sigma_{t_r}$ and κ and λ are the gamma parameters for storm depth.

Table 7-1

Index of Stations

Table 7-1. Index of Stations (page 1-2)

State	ID	Station Name	Time Year	%Cov	Lat	Long	Elev ft	P_a in
Alabama								
	33	Huntsville	58-88	96	34:39	86:46	620	55.65
	34	Montgomery	48-88	98	32:18	86:24	220	50.77
	67	Mobile	58-88	94	30:41	88:15	210	65.14
Arizona	1	Flagstaff	50-88	99	35:08	111:40	7010	21.93
	2	Tucson	48-88	98	32:08	110:57	2580	11.61
	55	Phoenix	48-88	95	33:26	112:01	1110	7.43
Arkansas								
	40	Fort Smith	48-88	98	35:20	94:22	450	40.59
California								
	3	San Diego	48-88	98	32:44	117:10	10	9.74
	4	San Francisco	48-88	98	37:37	122:23	10	19.98
	75	L.A.	48-88	98	33:56	118:24	110	12.03
Colorado								
	5	Denver	48-88	98	39:46	104:52	5280	15.43
Connecticut								
	51	Bridgeport	48-88	98	41:10	73:08	10	40.90
Florida								
	6	Fort Myers	60-88	95	26:35	81:52	20	52.82
	7	Jacksonville	48-88	98	30:30	81:42	30	52.16
	68	Key West	57-88	96	24:33	81:45	0	40.13
	69	Daytona Beach	42-88	98	29:44	85:02	20	54.60
Georgia								
	8	Athens	57-88	95	33:57	83:19	800	49.72
	9	Atlanta	48-88	98	33:39	84:26	1010	48.25
	56	Savannah	48-88	98	32:08	81:12	50	49.33
Idaho								
	35	Boise	48-88	98	43:34	116:13	2840	11.97
Illinois								
	10	Chicago	48-88	96	41:44	87:46	620	35.82
	11	Peoria	48-88	98	40:40	89:41	650	35.38
Indiana								
	12	Indianapolis	48-88	98	39:44	86:16	790	39.60
Iowa								
	13	Des Moines	48-88	98	41:32	93:39	960	31.55
Kansas								
	42	Dodge City	48-88	98	37:46	99:58	2580	20.69
Kentucky								
	52	Paducah	48-88	94	37:06	88:36	330	44.41
Louisiana								
	45	Baton Rouge	47-88	97	30:32	91:09	60	56.41
Maine								
	49	Portland	48-88	98	43:39	70:19	10	43.51
Massachusetts								
	14	Boston	48-88	98	42:22	71:02	20	43.10
Michigan								
	66	Sault Ste Marie	48-88	98	46:28	84:22	720	33.93
Minnesota								
	15	Duluth	48-88	98	46:50	92:11	1430	30.26
	16	International Falls	48-88	98	48:34	93:23	1180	24.48
Mississippi								
	48	Meridian	48-88	98	32:20	88:45	290	53.93
Missouri								
	44	Springfield	48-88	98	37:14	93:23	1270	41.38
Montana								
	36	Billings	48-88	98	45:48	108:32	3570	14.74
	64	Glasgow	57-88	97	48:13	106:37	2280	10.82
Nebraska								
	41	Norfolk	48-88	98	41:59	97:26	1550	24.67
	54	Valentine	48-88	98	42.52	100.33	2590	18.13

Table 7-1. Index of Stations (page 2-2)

State	ID	Station Name	Time Year	%Cov	Lat	Long	Elev ft	P_a in
Nevada								
	17	Ely	48-88	98	39:17	114:51	6260	9.46
New Hampshire								
	18	Mount Washington	48-88	98	43:12	71:30	350	36.84
New Mexico								
	19	Albuquerque	47-88	97	35:03	106:37	5310	8.26
New York								
	53	Buffalo	48-88	98	42:56	78:44	710	37.92
	70	Rochester	48-88	98	43:07	77:40	550	31.49
North Carolina								
	20	Raleigh	48-88	98	35:52	78:47	380	41.50
	71	Cape Hatteras	57-88	95	35:16	75:33	10	54.89
North Dakota								
	37	Bismarck	48-88	98	46:46	100:46	1650	15.37
	65	Williston	48-88	98	48:11	103:38	1900	13.64
Ohio								
	31	Cincinnati	48-83	92	39:09	84:31	760	40.73
	32	Cleveland	48-88	98	41:25	81:52	770	36.31
Oklahoma								
	43	Oklahoma City	47-88	97	35:24	97:36	1280	32.44
Oregon								
	46	Salem	48-88	98	44:55	123:01	200	40.45
	61	Eugene	48-88	98	44:07	123:13	360	47.20
	62	Astoria	53-88	99	46:09	123:53	10	67.96
Pennsylvania								
	21	Allentown	48-88	98	40:39	75:26	390	44.24
	22	Philadelphia	48-88	100	39:53	75:14	10	41.60
South Carolina								
	23	Columbia	48-88	95	33:57	81:07	210	48.43
	73	Charleston	48-88	98	32:47	79:56	10	46.20
South Dakota								
	38	Huron	48-88	98	44:23	98:13	1280	19.41
Tennessee								
	24	Knoxville	48-88	98	35:48	84:00	950	46.08
Texas								
	25	Abilene	40-88	95	32:26	99:41		23.38
	59	El Paso	42-88	96	31:48	106:24	3920	8.38
	60	Corpus Christi	47-88	97	27:46	97:30	40	29.68
	74	Brownsville	42-88	96	25:54	97:26	20	26.29
Utah								
	57	Salt Lake City	48-88	98	40:47	111:57	4220	15.65
	58	Milford	48-88	97	38:26	113:01	5030	9.01
Vermont								
	50	Burlington	48-88	98	44:28	73:09	330	33.94
Virginia								
	26	Richmond	48-88	98	37:30	77:20	160	43.34
	27	Roanoke	48-88	97	37:19	79:58	1150	39.90
	72	Norfolk	52-88	96	36:54	76:12	20	44.65
Washington								
	39	Spokane	48-88	98	47:38	117:32	2360	16.81
	63	Seattle	64-88	96	47:27	122:18	450	37.10
West Virginia								
	28	Charleston	48-88	98	38:22	81:36	1020	42.11
Wisconsin								
	29	Greenbay	48-88	98	44:29	88:08	680	28.31
	30	Lacrosse	48-69	95	43:52	91:15	650	29.04
Wyoming								
	47	Sheridan	48-88	98	44:46	106:58	3940	14.63

Table 7-2

Historical Statistics

Table 7-2. Historical Precipitation Statistics (page 1-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
1	35.133	-111.667	1	0.068	0.116	0.703	0.924	2.584	0.590	0.871	22.073	0.301	0.761
1	35.133	-111.667	2	0.072	0.133	0.756	0.927	3.177	0.611	0.868	28.268	0.270	0.759
1	35.133	-111.667	3	0.076	0.134	0.668	0.920	2.788	0.527	0.851	23.801	0.274	0.729
1	35.133	-111.667	4	0.049	0.091	0.661	0.948	1.838	0.494	0.896	13.995	0.298	0.805
1	35.133	-111.667	5	0.023	0.049	0.456	0.978	0.703	0.303	0.941	4.643	0.130	0.863
1	35.133	-111.667	6	0.020	0.111	0.387	0.987	1.352	0.301	0.962	8.732	0.277	0.906
1	35.133	-111.667	7	0.091	0.870	0.229	0.958	7.608	0.064	0.868	32.433	0.134	0.622
1	35.133	-111.667	8	0.097	0.892	0.222	0.956	8.304	0.082	0.866	39.092	0.100	0.635
1	35.133	-111.667	9	0.062	0.313	0.488	0.966	4.909	0.357	0.910	32.807	0.241	0.784
1	35.133	-111.667	10	0.053	0.159	0.620	0.963	2.986	0.494	0.918	23.039	0.242	0.843
1	35.133	-111.667	11	0.066	0.167	0.724	0.948	3.883	0.583	0.903	34.077	0.288	0.819
1	35.133	-111.667	12	0.073	0.144	0.779	0.929	3.622	0.698	0.882	36.757	0.352	0.792
2	32.017	-110.950	1	0.029	0.075	0.547	0.973	1.225	0.289	0.935	6.905	0.105	0.856
2	32.017	-110.950	2	0.023	0.054	0.589	0.977	0.915	0.344	0.948	6.023	0.234	0.880
2	32.017	-110.950	3	0.023	0.055	0.475	0.976	0.837	0.274	0.941	5.088	0.173	0.863
2	32.017	-110.950	4	0.011	0.033	0.284	0.990	0.353	0.189	0.970	2.054	0.158	0.929
2	32.017	-110.950	5	0.004	0.011	0.222	0.995	0.109	0.248	0.984	0.610	0.126	0.957
2	32.017	-110.950	6	0.008	0.062	0.133	0.994	0.498	0.053	0.978	2.145	0.170	0.940
2	32.017	-110.950	7	0.082	0.840	0.248	0.963	7.189	0.130	0.885	34.162	0.058	0.657
2	32.017	-110.950	8	0.071	0.740	0.202	0.970	6.192	0.063	0.899	27.130	0.039	0.714
2	32.017	-110.950	9	0.047	0.434	0.233	0.980	4.219	0.235	0.944	24.213	0.142	0.851
2	32.017	-110.950	10	0.031	0.188	0.379	0.981	2.452	0.349	0.955	17.769	0.274	0.905
2	32.017	-110.950	11	0.022	0.065	0.539	0.981	1.106	0.217	0.959	6.355	0.114	0.902
2	32.017	-110.950	12	0.031	0.085	0.560	0.973	1.361	0.354	0.937	8.452	0.299	0.861
3	32.733	-117.167	1	0.066	0.250	0.575	0.951	4.467	0.367	0.889	28.953	0.191	0.779
3	32.733	-117.167	2	0.053	0.214	0.474	0.959	3.226	0.263	0.903	19.090	0.186	0.812
3	32.733	-117.167	3	0.058	0.262	0.482	0.961	3.843	0.258	0.903	21.738	0.227	0.789
3	32.733	-117.167	4	0.025	0.072	0.492	0.978	1.113	0.240	0.938	6.485	0.199	0.855
3	32.733	-117.167	5	0.006	0.018	0.382	0.992	0.265	0.343	0.974	1.763	0.133	0.930
3	32.733	-117.167	6	0.001	0.001	0.624	0.996	0.021	0.338	0.988	0.124	0.098	0.967
3	32.733	-117.167	7	0.	0.	0.317	0.999	0.005	0.037	0.996	0.022	-0.005	0.987
3	32.733	-117.167	8	0.003	0.011	0.605	0.997	0.260	0.492	0.994	1.586	0.340	0.983
3	32.733	-117.167	9	0.005	0.015	0.450	0.994	0.214	0.283	0.983	1.386	0.178	0.959
3	32.733	-117.167	10	0.009	0.028	0.345	0.991	0.389	0.253	0.974	2.254	0.249	0.933
3	32.733	-117.167	11	0.042	0.185	0.421	0.971	2.384	0.339	0.930	15.860	0.283	0.850
3	32.733	-117.167	12	0.044	0.193	0.463	0.967	2.808	0.263	0.923	17.121	0.252	0.838
4	37.617	-122.383	1	0.148	0.587	0.647	0.905	11.453	0.432	0.815	88.479	0.305	0.672
4	37.617	-122.383	2	0.111	0.348	0.576	0.921	5.751	0.438	0.834	40.403	0.316	0.690
4	37.617	-122.383	3	0.093	0.284	0.589	0.928	4.960	0.381	0.847	32.436	0.218	0.695
4	37.617	-122.383	4	0.048	0.132	0.570	0.958	2.204	0.394	0.907	15.695	0.340	0.812
4	37.617	-122.383	5	0.009	0.016	0.700	0.988	0.346	0.389	0.969	2.468	0.119	0.924
4	37.617	-122.383	6	0.003	0.006	0.492	0.995	0.099	0.306	0.989	0.749	0.037	0.971
4	37.617	-122.383	7	0.001	0.002	0.411	0.998	0.025	0.040	0.995	0.108	0.	0.989
4	37.617	-122.383	8	0.001	0.002	0.410	0.997	0.027	0.231	0.993	0.155	0.099	0.981
4	37.617	-122.383	9	0.007	0.025	0.623	0.994	0.473	0.458	0.985	3.814	0.027	0.965
4	37.617	-122.383	10	0.033	0.161	0.612	0.979	3.129	0.336	0.953	19.692	0.399	0.888
4	37.617	-122.383	11	0.082	0.286	0.632	0.941	5.203	0.387	0.876	35.543	0.239	0.770
4	37.617	-122.383	12	0.115	0.404	0.659	0.921	7.798	0.389	0.843	53.956	0.326	0.713
5	39.767	-104.867	1	0.017	0.015	0.716	0.966	0.330	0.442	0.921	2.454	0.125	0.812
5	39.767	-104.867	2	0.023	0.024	0.697	0.959	0.528	0.408	0.909	3.670	0.076	0.794
5	39.767	-104.867	3	0.043	0.058	0.758	0.935	1.354	0.509	0.867	10.913	0.148	0.719
5	39.767	-104.867	4	0.063	0.153	0.670	0.936	3.225	0.508	0.865	26.790	0.062	0.712
5	39.767	-104.867	5	0.088	0.343	0.468	0.930	5.467	0.443	0.849	42.556	0.215	0.663
5	39.767	-104.867	6	0.061	0.349	0.369	0.960	4.418	0.294	0.890	26.830	0.170	0.703
5	39.767	-104.867	7	0.063	0.558	0.215	0.968	4.862	0.108	0.899	21.842	0.110	0.702
5	39.767	-104.867	8	0.050	0.410	0.239	0.971	3.821	0.127	0.904	17.009	0.209	0.715
5	39.767	-104.867	9	0.040	0.173	0.300	0.966	2.163	0.246	0.915	11.829	0.193	0.787
5	39.767	-104.867	10	0.034	0.071	0.620	0.962	1.416	0.400	0.927	9.580	0.241	0.838
5	39.767	-104.867	11	0.029	0.036	0.735	0.958	0.829	0.428	0.917	5.502	0.174	0.815
5	39.767	-104.867	12	0.020	0.022	0.762	0.964	0.553	0.559	0.921	4.863	0.112	0.822
6	26.583	-81.867	1	0.059	0.503	0.443	0.979	6.614	0.184	0.941	35.012	0.051	0.852
6	26.583	-81.867	2	0.069	0.733	0.321	0.975	7.763	0.146	0.930	38.947	0.023	0.821
6	26.583	-81.867	3	0.099	1.875	0.395	0.982	23.082	0.192	0.950	116.533	0.127	0.863
6	26.583	-81.867	4	0.037	0.338	0.261	0.989	3.589	0.083	0.965	15.982	0.132	0.902
6	26.583	-81.867	5	0.119	2.752	0.269	0.979	29.362	0.058	0.932	127.365	0.007	0.805
6	26.583	-81.867	6	0.310	6.181	0.236	0.943	58.555	0.114	0.833	273.357	0.215	0.548

Table 7-2. Historical Precipitation Statistics (page 2-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
6	26.583	-81.867	7	0.271	4.859	0.178	0.950	38.992	0.023	0.834	150.876	0.189	0.519
6	26.583	-81.867	8	0.290	5.672	0.181	0.949	44.350	0.014	0.825	170.497	0.178	0.492
6	26.583	-81.867	9	0.274	6.686	0.255	0.946	71.001	0.118	0.842	332.581	0.109	0.581
6	26.583	-81.867	10	0.095	1.272	0.280	0.945	13.616	0.088	0.925	59.719	0.261	0.795
6	26.583	-81.867	11	0.055	0.831	0.257	0.985	8.998	0.142	0.956	43.216	0.183	0.882
6	26.583	-81.867	12	0.045	0.611	0.220	0.985	6.122	0.116	0.956	29.108	0.158	0.883
7	30.500	-81.700	1	0.101	0.641	0.405	0.946	8.524	0.308	0.885	52.043	0.116	0.741
7	30.500	-81.700	2	0.141	1.080	0.497	0.936	16.931	0.284	0.864	98.252	0.125	0.715
7	30.500	-81.700	3	0.125	0.911	0.537	0.948	14.162	0.366	0.888	104.711	0.089	0.747
7	30.500	-81.700	4	0.107	1.328	0.335	0.965	16.302	0.289	0.914	92.603	0.116	0.787
7	30.500	-81.700	5	0.128	2.288	0.188	0.963	20.934	0.124	0.894	99.209	0.127	0.733
7	30.500	-81.700	6	0.192	3.017	0.209	0.944	27.671	0.166	0.840	141.929	0.080	0.598
7	30.500	-81.700	7	0.210	3.546	0.239	0.943	33.992	0.032	0.828	135.143	0.063	0.544
7	30.500	-81.700	8	0.254	4.056	0.240	0.936	39.950	0.134	0.816	199.573	0.155	0.544
7	30.500	-81.700	9	0.271	4.474	0.283	0.926	49.071	0.260	0.802	299.083	0.176	0.569
7	30.500	-81.700	10	0.127	1.191	0.418	0.948	16.147	0.338	0.869	109.823	0.260	0.719
7	30.500	-81.700	11	0.072	0.540	0.360	0.963	6.547	0.261	0.909	41.209	0.047	0.790
7	30.500	-81.700	12	0.087	0.535	0.503	0.953	8.163	0.262	0.892	46.635	0.129	0.752
8	33.950	-83.317	1	0.163	0.650	0.620	0.901	12.678	0.408	0.821	87.967	0.140	0.643
8	33.950	-83.317	2	0.166	0.661	0.635	0.906	13.091	0.367	0.826	83.666	0.128	0.661
8	33.950	-83.317	3	0.184	1.027	0.549	0.918	16.771	0.419	0.839	117.984	0.104	0.655
8	33.950	-83.317	4	0.140	0.610	0.480	0.942	14.238	0.307	0.868	91.469	0.180	0.722
8	33.950	-83.317	5	0.157	1.676	0.403	0.947	23.839	0.200	0.875	132.820	0.104	0.716
8	33.950	-83.317	6	0.133	1.534	0.384	0.955	21.439	0.220	0.880	139.537	0.067	0.704
8	33.950	-83.317	7	0.171	2.665	0.262	0.951	25.423	0.081	0.862	118.124	0.077	0.650
8	33.950	-83.317	8	0.124	1.556	0.236	0.959	14.579	0.107	0.881	68.784	0.038	0.701
8	33.950	-83.317	9	0.116	1.047	0.388	0.950	13.252	0.310	0.884	89.896	0.117	0.747
8	33.950	-83.317	10	0.108	0.830	0.463	0.949	12.485	0.320	0.894	76.122	0.167	0.790
8	33.950	-83.317	11	0.127	0.684	0.513	0.934	10.845	0.303	0.869	68.012	0.071	0.722
8	33.950	-83.317	12	0.140	0.601	0.612	0.916	11.465	0.400	0.839	78.128	0.095	0.680
9	33.650	-84.433	1	0.152	0.753	0.575	0.911	12.901	0.341	0.829	81.398	0.104	0.641
9	33.650	-84.433	2	0.165	0.879	0.548	0.912	14.851	0.369	0.829	93.296	0.162	0.657
9	33.650	-84.433	3	0.186	1.204	0.508	0.917	18.114	0.343	0.832	118.549	0.075	0.646
9	33.650	-84.433	4	0.151	1.112	0.487	0.940	16.949	0.300	0.867	99.389	0.123	0.712
9	33.650	-84.433	5	0.130	1.251	0.269	0.948	13.067	0.226	0.873	74.581	0.129	0.705
9	33.650	-84.433	6	0.116	1.155	0.188	0.956	10.279	0.116	0.873	49.363	0.161	0.683
9	33.650	-84.433	7	0.170	2.266	0.200	0.948	19.614	0.078	0.848	84.773	0.015	0.612
9	33.650	-84.433	8	0.122	1.433	0.245	0.962	13.562	0.100	0.888	63.843	0.089	0.708
9	33.650	-84.433	9	0.117	1.077	0.280	0.949	12.609	0.261	0.882	82.813	0.143	0.740
9	33.650	-84.433	10	0.093	0.690	0.499	0.955	10.290	0.294	0.899	64.218	0.108	0.792
9	33.650	-84.433	11	0.119	0.730	0.518	0.939	11.201	0.260	0.874	63.847	0.121	0.727
9	33.650	-84.433	12	0.142	0.629	0.582	0.916	11.191	0.379	0.838	75.001	0.120	0.680
10	41.733	-87.767	1	0.062	0.142	0.582	0.933	2.717	0.450	0.855	21.561	0.088	0.671
10	41.733	-87.767	2	0.059	0.158	0.414	0.936	2.277	0.314	0.860	13.381	0.184	0.695
10	41.733	-87.767	3	0.095	0.319	0.519	0.924	5.056	0.309	0.828	30.493	0.119	0.633
10	41.733	-87.767	4	0.131	0.765	0.411	0.926	10.591	0.212	0.825	59.401	0.106	0.625
10	41.733	-87.767	5	0.103	0.653	0.366	0.948	8.284	0.206	0.867	45.605	0.093	0.687
10	41.733	-87.767	6	0.134	1.680	0.342	0.956	18.136	0.142	0.877	89.102	0.020	0.690
10	41.733	-87.767	7	0.130	1.739	0.305	0.962	20.340	0.141	0.894	98.110	0.023	0.720
10	41.733	-87.767	8	0.113	1.339	0.310	0.966	15.163	0.108	0.904	72.460	0.067	0.752
10	41.733	-87.767	9	0.104	0.937	0.398	0.957	11.266	0.176	0.890	55.610	0.112	0.732
10	41.733	-87.767	10	0.083	0.527	0.522	0.952	7.926	0.330	0.885	50.741	0.185	0.746
10	41.733	-87.767	11	0.088	0.324	0.517	0.936	5.182	0.367	0.858	36.919	0.069	0.686
10	41.733	-87.767	12	0.089	0.316	0.574	0.923	5.615	0.420	0.838	38.535	0.135	0.659
11	40.667	-89.683	1	0.056	0.130	0.688	0.935	2.686	0.484	0.863	24.635	0.086	0.691
11	40.667	-89.683	2	0.055	0.147	0.607	0.932	2.704	0.272	0.862	15.373	0.146	0.702
11	40.667	-89.683	3	0.097	0.320	0.562	0.919	5.494	0.302	0.832	32.472	0.098	0.647
11	40.667	-89.683	4	0.136	0.726	0.479	0.920	10.608	0.309	0.820	75.633	0.081	0.614
11	40.667	-89.683	5	0.126	1.083	0.324	0.939	12.065	0.169	0.849	62.701	0.139	0.654
11	40.667	-89.683	6	0.138	1.381	0.382	0.952	16.414	0.173	0.875	89.892	0.149	0.689
11	40.667	-89.683	7	0.140	1.848	0.288	0.959	18.145	0.113	0.885	91.102	0.054	0.712
11	40.667	-89.683	8	0.108	1.147	0.374	0.961	13.009	0.158	0.893	64.803	0.074	0.729
11	40.667	-89.683	9	0.122	1.053	0.381	0.949	12.754	0.213	0.875	70.001	0.223	0.712
11	40.667	-89.683	10	0.085	0.405	0.465	0.945	6.444	0.352	0.882	39.883	0.127	0.745
11	40.667	-89.683	11	0.082	0.349	0.519	0.934	5.677	0.241	0.860	32.299	0.092	0.692
11	40.667	-89.683	12	0.078	0.224	0.592	0.923	4.151	0.448	0.845	31.301	0.152	0.674
12	39.733	-86.267	1	0.090	0.272	0.570	0.912	4.796	0.445	0.814	34.306	0.227	0.624

Table 7-2. Historical Precipitation Statistics (page 3-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
12	39.733	-86.267	2	0.092	0.260	0.600	0.916	4.911	0.421	0.828	35.515	0.100	0.646
12	39.733	-86.267	3	0.118	0.438	0.575	0.908	7.455	0.318	0.804	46.164	0.146	0.580
12	39.733	-86.267	4	0.128	0.639	0.354	0.918	7.728	0.279	0.805	48.450	0.081	0.585
12	39.733	-86.267	5	0.131	0.831	0.346	0.931	9.752	0.209	0.832	50.564	0.168	0.624
12	39.733	-86.267	6	0.136	1.543	0.347	0.952	17.448	0.142	0.869	83.591	0.093	0.680
12	39.733	-86.267	7	0.147	1.545	0.323	0.955	17.391	0.238	0.877	99.944	0.068	0.692
12	39.733	-86.267	8	0.112	1.302	0.268	0.960	12.575	0.164	0.888	64.656	0.046	0.718
12	39.733	-86.267	9	0.096	0.811	0.282	0.955	8.775	0.217	0.889	46.819	0.119	0.740
12	39.733	-86.267	10	0.089	0.498	0.521	0.944	7.384	0.288	0.875	43.208	0.139	0.734
12	39.733	-86.267	11	0.115	0.467	0.554	0.916	8.012	0.322	0.831	49.113	0.108	0.662
12	39.733	-86.267	12	0.108	0.313	0.608	0.900	5.819	0.371	0.793	37.773	0.206	0.593
13	41.533	-93.650	1	0.035	0.061	0.748	0.950	1.355	0.376	0.893	9.660	0.163	0.751
13	41.533	-93.650	2	0.044	0.081	0.714	0.941	1.702	0.431	0.882	11.791	0.166	0.746
13	41.533	-93.650	3	0.075	0.219	0.556	0.926	3.673	0.379	0.844	23.405	0.109	0.674
13	41.533	-93.650	4	0.111	0.556	0.407	0.923	7.728	0.330	0.831	53.603	0.075	0.644
13	41.533	-93.650	5	0.131	0.873	0.365	0.934	10.668	0.199	0.837	60.205	0.086	0.638
13	41.533	-93.650	6	0.149	1.621	0.293	0.947	17.315	0.171	0.859	86.766	0.068	0.652
13	41.533	-93.650	7	0.119	1.305	0.326	0.958	14.808	0.199	0.890	71.201	0.055	0.706
13	41.533	-93.650	8	0.138	1.673	0.395	0.952	21.645	0.187	0.880	109.971	0.109	0.703
13	41.533	-93.650	9	0.108	0.780	0.435	0.946	10.921	0.193	0.877	56.896	0.109	0.711
13	41.533	-93.650	10	0.080	0.378	0.429	0.948	5.445	0.304	0.884	32.782	0.146	0.747
13	41.533	-93.650	11	0.060	0.218	0.572	0.946	3.854	0.419	0.889	24.939	0.136	0.763
13	41.533	-93.650	12	0.040	0.064	0.703	0.945	1.341	0.422	0.883	8.886	0.125	0.741
14	42.367	-71.033	1	0.131	0.340	0.794	0.891	7.980	0.466	0.813	52.942	0.065	0.629
14	42.367	-71.033	2	0.139	0.402	0.815	0.893	9.778	0.429	0.809	71.960	0.026	0.627
14	42.367	-71.033	3	0.137	0.389	0.782	0.893	9.308	0.483	0.808	65.899	0.106	0.621
14	42.367	-71.033	4	0.131	0.392	0.705	0.902	8.322	0.437	0.813	58.202	0.124	0.615
14	42.367	-71.033	5	0.114	0.429	0.676	0.916	9.007	0.431	0.823	58.831	0.170	0.626
14	42.367	-71.033	6	0.109	0.661	0.358	0.935	8.028	0.301	0.849	49.676	0.228	0.653
14	42.367	-71.033	7	0.095	0.662	0.366	0.951	8.323	0.162	0.877	42.888	0.014	0.701
14	42.367	-71.033	8	0.117	1.091	0.423	0.945	15.835	0.224	0.868	88.590	0.260	0.683
14	42.367	-71.033	9	0.113	0.689	0.555	0.937	11.721	0.384	0.869	80.314	0.082	0.714
14	42.367	-71.033	10	0.110	0.478	1.597	0.932	9.001	0.389	0.865	59.801	0.185	0.718
14	42.367	-71.033	11	0.156	0.612	0.694	0.903	13.184	0.386	0.819	84.604	0.075	0.633
14	42.367	-71.033	12	0.144	0.420	0.777	0.892	9.788	0.458	0.811	69.716	0.070	0.625
15	46.833	-92.183	1	0.041	0.051	0.538	0.928	0.916	0.553	0.822	7.397	0.185	0.608
15	46.833	-92.183	2	0.031	0.032	0.623	0.938	0.658	0.453	0.845	4.040	0.250	0.651
15	46.833	-92.183	3	0.060	0.134	0.454	0.920	2.224	0.477	0.831	17.351	0.151	0.658
15	46.833	-92.183	4	0.078	0.192	0.495	0.920	3.072	0.434	0.828	23.560	0.164	0.652
15	46.833	-92.183	5	0.110	0.513	0.405	0.920	6.891	0.278	0.810	41.493	0.155	0.605
15	46.833	-92.183	6	0.141	1.255	0.264	0.935	12.839	0.152	0.830	64.767	0.051	0.596
15	46.833	-92.183	7	0.137	1.404	0.288	0.948	14.956	0.146	0.855	74.093	0.107	0.631
15	46.833	-92.183	8	0.133	1.086	0.377	0.938	13.694	0.258	0.843	70.584	0.125	0.621
15	46.833	-92.183	9	0.123	0.694	0.471	0.923	10.354	0.293	0.821	61.064	0.113	0.600
15	46.833	-92.183	10	0.084	0.407	0.388	0.931	5.577	0.375	0.847	37.933	0.176	0.680
15	46.833	-92.183	11	0.064	0.128	0.715	0.921	2.734	0.525	0.831	22.439	0.157	0.643
15	46.833	-92.183	12	0.045	0.068	0.577	0.921	1.374	0.451	0.827	10.516	0.230	0.628
16	48.567	-93.383	1	0.045	0.047	0.690	0.920	1.005	0.486	0.822	7.876	0.191	0.633
16	48.567	-93.383	2	0.025	0.022	0.673	0.946	0.442	0.352	0.867	2.792	0.131	0.685
16	48.567	-93.383	3	0.037	0.041	0.714	0.935	0.928	0.485	0.856	6.465	0.254	0.680
16	48.567	-93.383	4	0.054	0.104	0.616	0.934	1.936	0.362	0.856	13.568	0.220	0.697
16	48.567	-93.383	5	0.087	0.322	0.415	0.928	4.344	0.246	0.836	24.701	0.150	0.637
16	48.567	-93.383	6	0.136	0.912	0.363	0.930	11.097	0.196	0.819	63.924	0.054	0.573
16	48.567	-93.383	7	0.128	1.355	0.251	0.945	14.350	0.138	0.851	66.072	0.033	0.621
16	48.567	-93.383	8	0.102	0.663	0.342	0.945	8.199	0.155	0.855	39.277	-0.011	0.634
16	48.567	-93.383	9	0.110	0.785	0.402	0.929	9.404	0.207	0.833	52.487	0.045	0.615
16	48.567	-93.383	10	0.066	0.164	0.618	0.933	3.237	0.432	0.849	22.531	0.194	0.669
16	48.567	-93.383	11	0.045	0.047	0.690	0.920	1.005	0.486	0.822	7.876	0.191	0.633
16	48.567	-93.383	12	0.029	0.023	0.708	0.933	0.520	0.398	0.833	3.741	0.126	0.619
17	39.283	-114.850	1	0.025	0.033	0.640	0.959	0.642	0.282	0.902	3.881	0.155	0.767
17	39.283	-114.850	2	0.023	0.030	0.554	0.962	0.478	0.402	0.900	3.458	0.187	0.763
17	39.283	-114.850	3	0.032	0.045	0.557	0.952	0.727	0.310	0.881	4.004	0.170	0.726
17	39.283	-114.850	4	0.032	0.044	0.573	0.955	0.759	0.360	0.890	4.537	0.223	0.761
17	39.283	-114.850	5	0.037	0.074	0.499	0.958	1.144	0.347	0.888	7.138	0.249	0.756
17	39.283	-114.850	6	0.025	0.075	0.495	0.977	1.146	0.297	0.935	6.719	0.246	0.847
17	39.283	-114.850	7	0.023	0.081	0.282	0.980	0.779	0.193	0.930	4.078	0.195	0.803
17	39.283	-114.850	8	0.024	0.089	0.257	0.979	0.892	0.117	0.933	4.270	0.230	0.819

Table 7-2. Historical Precipitation Statistics (page 4-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
17	39.283	-114.850	9	0.031	0.165	0.365	0.978	1.993	0.275	0.937	11.611	0.277	0.848
17	39.283	-114.850	10	0.025	0.045	0.616	0.970	0.819	0.370	0.932	5.367	0.170	0.848
17	39.283	-114.850	11	0.023	0.040	0.652	0.968	0.754	0.249	0.921	4.428	0.134	0.823
17	39.283	-114.850	12	0.024	0.030	0.609	0.962	0.551	0.386	0.910	3.442	0.291	0.787
18	44.267	-71.300	1	0.247	0.501	0.922	0.755	14.114	0.574	0.622	111.779	0.202	0.358
18	44.267	-71.300	2	0.299	1.366	0.752	0.758	33.730	0.571	0.623	255.958	0.252	0.344
18	44.267	-71.300	3	0.276	0.585	0.902	0.746	16.800	0.552	0.618	140.069	0.223	0.371
18	44.267	-71.300	4	0.261	0.641	0.886	0.775	17.988	0.510	0.656	148.003	0.115	0.394
18	44.267	-71.300	5	0.232	0.703	0.694	0.826	14.935	0.407	0.711	109.102	0.204	0.462
18	44.267	-71.300	6	0.255	1.067	0.591	0.844	18.659	0.344	0.726	121.448	0.165	0.470
18	44.267	-71.300	7	0.240	1.234	0.491	0.867	18.937	0.310	0.746	124.104	0.090	0.469
18	44.267	-71.300	8	0.264	1.211	0.603	0.857	21.356	0.329	0.737	139.100	0.137	0.481
18	44.267	-71.300	9	0.253	0.974	0.701	0.842	20.956	0.365	0.735	142.554	0.079	0.484
18	44.267	-71.300	10	0.228	0.642	0.834	0.830	16.733	0.480	0.730	133.718	0.164	0.500
18	44.267	-71.300	11	0.319	0.857	0.900	0.748	24.003	0.515	0.619	178.233	0.219	0.348
18	44.267	-71.300	12	0.302	0.925	0.750	0.736	22.154	0.582	0.599	187.395	0.099	0.316
19	35.050	-106.617	1	0.013	0.019	0.554	0.980	0.320	0.284	0.948	2.006	0.091	0.874
19	35.050	-106.617	2	0.016	0.019	0.498	0.976	0.298	0.261	0.937	1.648	0.249	0.850
19	35.050	-106.617	3	0.017	0.031	0.544	0.979	0.513	0.356	0.943	3.182	0.081	0.852
19	35.050	-106.617	4	0.016	0.045	0.502	0.986	0.645	0.361	0.959	4.580	0.027	0.897
19	35.050	-106.617	5	0.017	0.055	0.379	0.984	0.627	0.169	0.948	2.935	0.206	0.854
19	35.050	-106.617	6	0.020	0.125	0.211	0.987	1.191	0.073	0.955	6.076	0.048	0.869
19	35.050	-106.617	7	0.045	0.273	0.196	0.973	2.409	0.043	0.908	9.821	0.083	0.713
19	35.050	-106.617	8	0.051	0.351	0.231	0.972	3.047	0.069	0.903	13.204	0.036	0.705
19	35.050	-106.617	9	0.031	0.150	0.235	0.976	1.493	0.171	0.929	7.619	0.130	0.816
19	35.050	-106.617	10	0.030	0.109	0.421	0.976	1.577	0.228	0.938	9.313	0.179	0.855
19	35.050	-106.617	11	0.013	0.021	0.444	0.983	0.308	0.207	0.954	1.739	0.124	0.882
19	35.050	-106.617	12	0.017	0.027	0.635	0.980	0.533	0.297	0.947	2.831	0.201	0.871
20	35.867	-78.783	1	0.118	0.429	0.603	0.918	8.111	0.378	0.848	57.261	0.077	0.688
20	35.867	-78.783	2	0.132	0.468	0.640	0.915	8.938	0.326	0.834	53.445	0.024	0.662
20	35.867	-78.783	3	0.121	0.481	0.498	0.921	7.540	0.338	0.843	47.894	0.083	0.675
20	35.867	-78.783	4	0.097	0.487	0.470	0.945	7.113	0.367	0.878	44.711	0.145	0.725
20	35.867	-78.783	5	0.129	0.994	0.331	0.944	12.387	0.148	0.864	62.708	0.064	0.676
20	35.867	-78.783	6	0.126	1.425	0.305	0.954	14.570	0.177	0.880	70.558	0.073	0.694
20	35.867	-78.783	7	0.150	1.648	0.268	0.950	16.475	0.111	0.858	74.820	0.108	0.646
20	35.867	-78.783	8	0.152	1.866	0.307	0.951	20.977	0.152	0.874	103.589	0.096	0.691
20	35.867	-78.783	9	0.113	0.990	0.384	0.951	13.061	0.225	0.890	73.304	0.098	0.765
20	35.867	-78.783	10	0.094	0.543	0.479	0.948	8.137	0.315	0.895	53.580	0.126	0.782
20	35.867	-78.783	11	0.100	0.472	0.585	0.942	8.836	0.358	0.881	57.329	0.099	0.735
20	35.867	-78.783	12	0.107	0.379	0.597	0.927	6.826	0.344	0.861	43.093	0.108	0.713
21	40.650	-75.433	1	0.110	0.256	0.930	0.902	5.747	0.490	0.823	43.267	0.090	0.643
21	40.650	-75.433	2	0.114	0.277	0.727	0.904	6.029	0.395	0.827	40.604	0.016	0.650
21	40.650	-75.433	3	0.121	0.354	0.697	0.904	7.366	0.401	0.824	50.978	0.039	0.641
21	40.650	-75.433	4	0.137	0.448	0.594	0.904	8.175	0.392	0.815	55.603	0.132	0.620
21	40.650	-75.433	5	0.133	0.748	0.438	0.919	10.199	0.316	0.822	61.629	0.143	0.615
21	40.650	-75.433	6	0.124	0.990	0.391	0.942	11.948	0.271	0.857	65.575	0.042	0.662
21	40.650	-75.433	7	0.147	1.639	0.313	0.949	18.259	0.122	0.866	89.373	0.085	0.675
21	40.650	-75.433	8	0.148	1.578	0.319	0.946	18.170	0.204	0.867	94.461	0.200	0.679
21	40.650	-75.433	9	0.141	1.272	0.482	0.938	19.408	0.344	0.867	120.685	0.107	0.700
21	40.650	-75.433	10	0.100	0.493	0.477	0.938	7.715	0.337	0.872	50.277	0.104	0.735
21	40.650	-75.433	11	0.135	0.497	0.656	0.913	10.244	0.394	0.843	71.132	0.078	0.668
21	40.650	-75.433	12	0.124	0.350	0.741	0.903	8.117	0.421	0.824	53.412	0.057	0.639
22	39.883	-75.233	1	0.110	0.291	0.776	0.906	6.098	0.425	0.831	41.273	0.077	0.643
22	39.883	-75.233	2	0.110	0.303	0.688	0.909	6.331	0.409	0.834	43.608	0.039	0.657
22	39.883	-75.233	3	0.121	0.380	0.679	0.907	7.281	0.369	0.824	48.323	0.030	0.643
22	39.883	-75.233	4	0.124	0.510	0.601	0.918	9.155	0.334	0.832	56.629	0.102	0.642
22	39.883	-75.233	5	0.118	0.700	0.435	0.934	9.339	0.226	0.848	51.707	0.077	0.648
22	39.883	-75.233	6	0.133	1.312	0.336	0.946	14.701	0.190	0.860	77.909	0.059	0.656
22	39.883	-75.233	7	0.140	1.620	0.307	0.952	17.314	0.149	0.869	87.279	0.065	0.678
22	39.883	-75.233	8	0.151	1.545	0.381	0.946	19.025	0.229	0.866	103.030	0.112	0.679
22	39.883	-75.233	9	0.118	0.979	0.449	0.948	13.506	0.287	0.882	82.208	0.216	0.731
22	39.883	-75.233	10	0.094	0.473	0.567	0.946	7.914	0.344	0.889	50.268	0.128	0.752
22	39.883	-75.233	11	0.110	0.437	0.676	0.929	8.625	0.375	0.861	55.684	0.093	0.698
22	39.883	-75.233	12	0.113	0.357	0.751	0.914	7.484	0.403	0.844	50.316	0.043	0.672
23	33.950	-81.117	1	0.149	0.582	0.637	0.908	10.917	0.432	0.832	80.016	0.116	0.667
23	33.950	-81.117	2	0.153	0.749	0.585	0.912	12.754	0.379	0.837	85.455	0.095	0.671
23	33.950	-81.117	3	0.163	0.922	0.545	0.923	15.360	0.341	0.849	98.509	0.046	0.667

Table 7-2. Historical Precipitation Statistics (page 5-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
23	33.950	-81.117	4	0.120	0.864	0.455	0.948	13.122	0.277	0.881	72.350	0.114	0.737
23	33.950	-81.117	5	0.123	1.142	0.286	0.952	11.966	0.228	0.880	68.690	0.149	0.713
23	33.950	-81.117	6	0.152	2.110	0.262	0.953	19.982	0.167	0.874	103.117	0.114	0.686
23	33.950	-81.117	7	0.183	2.523	0.270	0.949	25.253	0.107	0.859	120.752	0.122	0.632
23	33.950	-81.117	8	0.196	3.696	0.309	0.953	36.959	0.098	0.874	165.150	0.176	0.671
23	33.950	-81.117	9	0.132	1.528	0.427	0.951	20.400	0.267	0.892	126.200	0.106	0.760
23	33.950	-81.117	10	0.098	0.932	0.427	0.956	12.833	0.334	0.905	76.504	0.180	0.794
23	33.950	-81.117	11	0.097	0.604	0.513	0.951	9.419	0.255	0.895	53.858	0.032	0.769
23	33.950	-81.117	12	0.116	0.461	0.625	0.926	9.205	0.348	0.857	63.289	0.057	0.716
24	35.800	-84.000	1	0.154	0.488	0.654	0.891	9.416	0.425	0.799	69.103	0.179	0.604
24	35.800	-84.000	2	0.155	0.495	0.631	0.895	9.128	0.319	0.797	61.070	0.104	0.603
24	35.800	-84.000	3	0.169	0.789	0.584	0.906	13.814	0.353	0.806	88.279	0.189	0.595
24	35.800	-84.000	4	0.130	0.746	0.409	0.930	10.261	0.232	0.837	59.908	0.103	0.635
24	35.800	-84.000	5	0.131	0.906	0.332	0.938	10.303	0.244	0.841	59.281	0.157	0.648
24	35.800	-84.000	6	0.132	1.334	0.218	0.952	12.922	0.124	0.861	62.487	0.044	0.667
24	35.800	-84.000	7	0.149	1.376	0.227	0.948	12.928	0.160	0.849	65.539	0.195	0.631
24	35.800	-84.000	8	0.105	1.188	0.228	0.961	10.455	0.142	0.884	51.149	0.025	0.688
24	35.800	-84.000	9	0.099	0.589	0.374	0.951	7.670	0.228	0.879	43.637	0.127	0.724
24	35.800	-84.000	10	0.096	0.471	0.479	0.946	7.049	0.349	0.884	46.476	0.100	0.741
24	35.800	-84.000	11	0.130	0.529	0.617	0.923	9.570	0.303	0.842	57.976	0.089	0.660
24	35.800	-84.000	12	0.149	0.567	0.659	0.906	11.866	0.386	0.824	81.143	0.151	0.649
25	32.433	-99.683	1	0.018	0.045	0.598	0.981	0.888	0.376	0.960	6.051	0.281	0.910
25	32.433	-99.683	2	0.022	0.069	0.465	0.979	0.991	0.219	0.953	5.611	0.139	0.893
25	32.433	-99.683	3	0.028	0.206	0.372	0.984	2.423	0.209	0.962	12.700	0.075	0.903
25	32.433	-99.683	4	0.036	0.384	0.225	0.985	3.311	0.150	0.958	16.520	0.125	0.888
25	32.433	-99.683	5	0.061	0.689	0.279	0.980	7.119	0.132	0.946	33.092	0.110	0.847
25	32.433	-99.683	6	0.050	0.701	0.202	0.985	6.726	0.114	0.958	29.702	0.099	0.881
25	32.433	-99.683	7	0.040	0.526	0.293	0.986	4.852	0.124	0.964	22.699	0.152	0.908
25	32.433	-99.683	8	0.056	0.724	0.396	0.984	8.571	0.233	0.955	50.866	0.083	0.887
25	32.433	-99.683	9	0.058	0.516	0.349	0.973	6.343	0.242	0.939	37.172	0.317	0.869
25	32.433	-99.683	10	0.063	0.487	0.482	0.973	7.396	0.379	0.945	50.108	0.309	0.881
25	32.433	-99.683	11	0.026	0.124	0.445	0.982	1.942	0.318	0.962	11.567	0.176	0.913
25	32.433	-99.683	12	0.026	0.104	0.633	0.980	1.929	0.443	0.960	12.059	0.218	0.910
26	37.500	-77.333	1	0.107	0.314	0.643	0.913	6.020	0.451	0.839	44.169	0.083	0.660
26	37.500	-77.333	2	0.116	0.358	0.664	0.911	7.037	0.353	0.837	43.829	0.057	0.672
26	37.500	-77.333	3	0.118	0.418	0.570	0.915	7.323	0.331	0.832	46.797	0.055	0.666
26	37.500	-77.333	4	0.104	0.512	0.431	0.936	7.736	0.220	0.854	44.986	0.162	0.691
26	37.500	-77.333	5	0.124	0.881	0.311	0.937	9.603	0.223	0.846	52.581	0.095	0.650
26	37.500	-77.333	6	0.124	1.315	0.317	0.956	14.681	0.216	0.881	76.243	0.110	0.692
26	37.500	-77.333	7	0.175	2.674	0.300	0.949	28.148	0.135	0.863	128.135	0.115	0.662
26	37.500	-77.333	8	0.167	2.338	0.323	0.951	26.207	0.233	0.871	154.375	0.069	0.684
26	37.500	-77.333	9	0.118	1.026	0.397	0.949	14.046	0.256	0.888	77.895	0.104	0.744
26	37.500	-77.333	10	0.120	0.865	0.540	0.940	13.914	0.419	0.882	97.691	0.116	0.767
26	37.500	-77.333	11	0.116	0.598	0.544	0.931	10.300	0.339	0.865	65.457	0.122	0.725
26	37.500	-77.333	12	0.113	0.388	0.620	0.920	7.511	0.412	0.859	49.797	0.101	0.720
27	37.317	-79.967	1	0.089	0.202	0.727	0.920	4.684	0.421	0.853	34.589	0.051	0.692
27	37.317	-79.967	2	0.115	0.320	0.751	0.913	7.517	0.386	0.841	46.229	0.107	0.683
27	37.317	-79.967	3	0.114	0.346	0.652	0.916	6.888	0.373	0.834	43.103	0.102	0.668
27	37.317	-79.967	4	0.116	0.445	0.604	0.927	8.364	0.460	0.850	65.404	0.206	0.673
27	37.317	-79.967	5	0.121	0.741	0.336	0.931	8.922	0.301	0.837	56.210	0.172	0.634
27	37.317	-79.967	6	0.111	0.989	0.252	0.949	9.554	0.207	0.871	51.952	0.142	0.683
27	37.317	-79.967	7	0.117	1.072	0.243	0.952	10.633	0.090	0.862	44.775	0.141	0.636
27	37.317	-79.967	8	0.139	1.460	0.286	0.950	15.787	0.175	0.864	79.084	0.228	0.663
27	37.317	-79.967	9	0.110	0.720	0.525	0.943	11.660	0.332	0.877	78.710	0.149	0.736
27	37.317	-79.967	10	0.114	0.539	0.681	0.935	11.416	0.476	0.880	84.933	0.237	0.757
27	37.317	-79.967	11	0.100	0.468	0.676	0.929	8.648	0.394	0.859	61.458	0.098	0.710
27	37.317	-79.967	12	0.098	0.263	0.714	0.923	5.800	0.426	0.863	39.694	0.102	0.717
28	38.367	-81.600	1	0.114	0.295	0.406	0.882	4.155	0.371	0.738	29.451	0.206	0.504
28	38.367	-81.600	2	0.117	0.313	0.429	0.881	4.680	0.358	0.747	31.049	0.116	0.522
28	38.367	-81.600	3	0.127	0.430	0.435	0.896	6.208	0.307	0.759	39.412	0.059	0.520
28	38.367	-81.600	4	0.117	0.398	0.440	0.908	5.551	0.294	0.779	33.258	0.106	0.544
28	38.367	-81.600	5	0.130	0.653	0.296	0.921	7.505	0.258	0.802	40.918	0.198	0.575
28	38.367	-81.600	6	0.121	0.950	0.212	0.946	8.742	0.158	0.845	43.732	0.042	0.627
28	38.367	-81.600	7	0.175	1.998	0.266	0.944	21.019	0.120	0.830	102.623	0.071	0.589
28	38.367	-81.600	8	0.135	1.568	0.207	0.953	14.414	0.122	0.860	69.301	0.065	0.652
28	38.367	-81.600	9	0.106	0.637	0.304	0.939	7.381	0.256	0.856	44.453	0.150	0.685
28	38.367	-81.600	10	0.091	0.307	0.480	0.933	4.869	0.383	0.851	32.798	0.181	0.691

Table 7-2. Historical Precipitation Statistics (page 6-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
28	38.367	-81.600	11	0.116	0.342	0.534	0.604	5.893	0.380	0.798	41.722	0.163	0.602
28	38.367	-81.600	12	0.110	0.268	0.501	0.890	4.487	0.429	0.766	32.608	0.171	0.549
29	44.483	-88.133	1	0.039	0.047	0.698	0.931	1.004	0.365	0.849	6.518	0.084	0.667
29	44.483	-88.133	2	0.041	0.073	0.716	0.938	1.593	0.328	0.866	10.178	0.090	0.702
29	44.483	-88.133	3	0.065	0.130	0.635	0.923	2.487	0.356	0.842	14.726	0.165	0.651
29	44.483	-88.133	4	0.095	0.276	0.551	0.917	4.659	0.292	0.830	26.992	0.093	0.641
29	44.483	-88.133	5	0.095	0.501	0.404	0.941	6.588	0.241	0.855	35.780	0.102	0.650
29	44.483	-88.133	6	0.108	0.804	0.318	0.949	8.793	0.146	0.862	44.017	0.081	0.656
29	44.483	-88.133	7	0.115	1.070	0.290	0.956	11.327	0.145	0.879	57.980	0.006	0.688
29	44.483	-88.133	8	0.114	0.869	0.319	0.950	9.494	0.193	0.865	49.543	0.040	0.665
29	44.483	-88.133	9	0.114	0.820	0.302	0.935	9.238	0.188	0.845	47.725	0.099	0.655
29	44.483	-88.133	10	0.072	0.272	0.566	0.944	5.033	0.236	0.874	27.863	0.144	0.712
29	44.483	-88.133	11	0.070	0.161	0.659	0.927	3.239	0.380	0.846	21.985	0.116	0.683
29	44.483	-88.133	12	0.049	0.064	0.670	0.922	1.379	0.396	0.841	9.416	0.153	0.656
30	43.867	-91.250	1	0.030	0.048	0.554	0.952	0.909	0.340	0.896	5.601	-0.008	0.750
30	43.867	-91.250	2	0.033	0.053	0.741	0.954	1.110	0.366	0.899	6.807	0.141	0.765
30	43.867	-91.250	3	0.070	0.146	0.621	0.923	2.635	0.473	0.846	17.821	0.163	0.667
30	43.867	-91.250	4	0.100	0.389	0.554	0.927	6.439	0.327	0.847	42.542	0.034	0.671
30	43.867	-91.250	5	0.115	0.684	0.417	0.935	8.276	0.188	0.837	43.459	0.066	0.633
30	43.867	-91.250	6	0.154	1.484	0.382	0.943	18.609	0.149	0.852	88.405	0.139	0.646
30	43.867	-91.250	7	0.131	1.263	0.365	0.955	15.740	0.124	0.881	73.080	0.005	0.691
30	43.867	-91.250	8	0.113	0.952	0.312	0.953	10.791	0.163	0.876	51.443	0.104	0.701
30	43.867	-91.250	9	0.114	0.696	0.408	0.942	9.044	0.300	0.868	55.113	0.098	0.705
30	43.867	-91.250	10	0.064	0.312	0.350	0.956	3.878	0.285	0.901	24.045	0.136	0.772
30	43.867	-91.250	11	0.047	0.142	0.583	0.953	2.527	0.363	0.900	18.165	0.090	0.773
30	43.867	-91.250	12	0.030	0.036	0.601	0.948	0.675	0.397	0.882	4.812	0.218	0.725
31	39.150	-84.517	1	0.113	0.407	0.559	0.906	7.309	0.424	0.817	52.661	0.177	0.622
31	39.150	-84.517	2	0.926	0.257	0.663	0.918	4.932	0.360	0.837	32.312	0.154	0.652
31	39.150	-84.517	3	0.120	0.439	0.533	0.912	7.275	0.382	0.818	57.006	0.079	0.616
31	39.150	-84.517	4	0.121	0.678	0.307	0.925	7.789	0.204	0.825	41.116	0.124	0.603
31	39.150	-84.517	5	0.131	0.951	0.275	0.934	10.688	0.201	0.840	60.895	0.211	0.654
31	39.150	-84.517	6	0.128	1.295	0.270	0.950	12.684	0.137	0.869	63.506	0.070	0.677
31	39.150	-84.517	7	0.126	1.318	0.256	0.955	12.890	0.141	0.878	62.309	0.101	0.699
31	39.150	-84.517	8	0.108	1.060	0.268	0.961	10.880	0.136	0.888	55.802	0.130	0.718
31	39.150	-84.517	9	0.099	0.799	0.408	0.955	10.756	0.244	0.892	51.710	0.257	0.740
31	39.150	-84.517	10	0.078	0.337	0.453	0.949	5.191	0.263	0.893	30.375	0.186	0.758
31	39.150	-84.517	11	0.111	2.271	0.072	0.926	16.880	0.096	0.849	76.950	0.075	0.680
31	39.150	-84.517	12	0.096	0.238	0.652	0.914	4.760	0.338	0.831	30.993	0.095	0.651
32	41.417	-81.867	1	0.084	0.136	0.657	0.883	2.637	0.394	0.728	19.576	0.096	0.454
32	41.417	-81.867	2	0.084	0.159	0.647	0.890	3.047	0.400	0.748	20.134	0.120	0.482
32	41.417	-81.867	3	0.103	0.243	0.576	0.888	4.280	0.329	0.750	27.439	0.060	0.504
32	41.417	-81.867	4	0.117	0.370	0.448	0.900	5.282	0.266	0.765	31.275	0.136	0.515
32	41.417	-81.867	5	0.113	0.628	0.386	0.927	7.145	0.241	0.823	39.959	0.162	0.599
32	41.417	-81.867	6	0.124	0.948	0.314	0.946	10.342	0.214	0.856	54.557	0.064	0.644
32	41.417	-81.867	7	0.117	1.133	0.270	0.856	11.757	0.135	0.874	55.477	0.	0.672
32	41.417	-81.867	8	0.117	1.045	0.250	0.952	10.171	0.145	0.864	52.347	0.045	0.679
32	41.417	-81.867	9	0.108	0.623	0.336	0.941	7.757	0.196	0.857	41.016	0.082	0.676
32	41.417	-81.867	10	0.083	0.283	0.512	0.930	4.457	0.249	0.837	26.773	0.109	0.637
32	41.417	-81.867	11	0.111	0.261	0.610	0.890	4.698	0.390	0.764	33.213	0.157	0.518
32	41.417	-81.867	12	0.096	0.161	0.647	0.875	3.142	0.416	0.718	22.508	0.148	0.459
33	34.650	-86.767	1	0.171	0.885	0.575	0.905	16.205	0.337	0.821	107.757	0.060	0.651
33	34.650	-86.767	2	0.170	0.879	0.540	0.911	14.950	0.295	0.830	95.696	0.100	0.658
33	34.650	-86.767	3	0.223	1.713	0.530	0.919	28.128	0.410	0.835	190.978	0.109	0.646
33	34.650	-86.767	4	0.172	1.256	0.485	0.934	18.613	0.272	0.858	108.271	0.176	0.674
33	34.650	-86.767	5	0.173	1.865	0.333	0.941	22.456	0.280	0.855	127.732	0.134	0.682
33	34.650	-86.767	6	0.133	1.619	0.275	0.957	16.548	0.105	0.877	82.084	0.094	0.690
33	34.650	-86.767	7	0.162	2.409	0.275	0.955	24.831	0.134	0.871	111.013	0.193	0.658
33	34.650	-86.767	8	0.118	1.622	0.286	0.964	15.807	0.165	0.887	78.491	0.149	0.706
33	34.650	-86.767	9	0.144	1.377	0.351	0.946	16.706	0.234	0.878	95.151	0.142	0.725
33	34.650	-86.767	10	0.114	0.775	0.573	0.951	13.074	0.285	0.901	82.263	0.131	0.782
33	34.650	-86.767	11	0.165	1.112	0.527	0.928	17.501	0.263	0.851	107.713	0.018	0.675
33	34.650	-86.767	12	0.186	1.057	0.597	0.910	19.627	0.422	0.826	127.012	0.209	0.655
34	32.300	-86.400	1	0.142	0.860	0.457	0.926	12.279	0.320	0.842	72.454	0.117	0.666
34	32.300	-86.400	2	0.189	1.302	0.514	0.919	20.744	0.379	0.843	150.658	0.060	0.672
34	32.300	-86.400	3	0.197	1.679	0.450	0.929	24.018	0.277	0.847	141.822	0.114	0.673
34	32.300	-86.400	4	0.157	1.607	0.427	0.951	22.314	0.257	0.883	132.404	0.115	0.735
34	32.300	-86.400	5	0.134	1.628	0.299	0.959	17.888	0.176	0.891	95.777	0.101	0.730

Table 7-2. Historical Precipitation Statistics (page 7-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
34	32.300	-86.400	6	0.126	1.648	0.186	0.963	14.620	0.099	0.887	73.693	0.086	0.703
34	32.300	-86.400	7	0.171	2.507	0.217	0.957	22.610	0.057	0.865	97.347	0.079	0.623
34	32.300	-86.400	8	0.115	1.826	0.222	0.967	16.763	0.129	0.895	78.683	0.073	0.703
34	32.300	-86.400	9	0.163	2.030	0.470	0.952	30.145	0.315	0.888	195.860	0.119	0.736
34	32.300	-86.400	10	0.081	0.834	0.362	0.968	10.651	0.193	0.920	53.922	0.082	0.817
34	32.300	-86.400	11	0.121	1.040	0.426	0.951	13.479	0.272	0.894	40.310	0.111	0.751
34	32.300	-86.400	12	0.168	1.088	0.517	0.923	18.122	0.278	0.846	101.148	0.159	0.673
35	43.567	-116.217	1	0.051	0.052	0.688	0.919	1.018	0.447	0.815	7.433	0.295	0.600
35	43.567	-116.217	2	0.043	0.054	0.523	0.936	0.858	0.344	0.839	5.535	0.220	0.636
35	43.567	-116.217	3	0.041	0.057	0.537	0.944	0.936	0.326	0.859	6.198	0.086	0.681
35	43.567	-116.217	4	0.042	0.090	0.493	0.954	1.342	0.357	0.886	8.731	0.082	0.734
35	43.567	-116.217	5	0.040	0.090	0.498	0.960	1.386	0.319	0.894	8.643	0.203	0.750
35	43.567	-116.217	6	0.030	0.084	0.477	0.970	1.314	0.300	0.921	7.018	0.219	0.802
35	43.567	-116.217	7	0.010	0.048	0.295	0.992	0.499	0.093	0.972	2.318	0.071	0.917
35	43.567	-116.217	8	0.012	0.055	0.273	0.989	0.558	0.288	0.969	3.432	0.081	0.908
35	43.567	-116.217	9	0.023	0.081	0.307	0.979	0.928	0.250	0.943	5.571	0.145	0.870
35	43.567	-116.217	10	0.025	0.039	0.512	0.969	0.263	0.280	0.924	3.468	0.168	0.818
35	43.567	-116.217	11	0.046	0.055	0.593	0.933	0.934	0.364	0.849	6.294	0.155	0.680
35	43.567	-116.217	12	0.048	0.056	0.638	0.927	1.013	0.319	0.830	6.538	0.158	0.627
36	45.800	-108.533	1	0.029	0.026	0.733	0.943	0.576	0.459	0.874	4.074	0.178	0.727
36	45.800	-108.533	2	0.025	0.018	0.678	0.946	0.378	0.394	0.878	2.565	0.206	0.730
36	45.800	-108.533	3	0.037	0.041	0.666	0.935	0.835	0.379	0.866	6.121	0.125	0.702
36	45.800	-108.533	4	0.061	0.109	0.689	0.928	2.388	0.572	0.852	19.529	0.302	0.686
36	45.800	-108.533	5	0.083	0.235	0.495	0.926	3.793	0.417	0.833	28.008	0.203	0.631
36	45.800	-108.533	6	0.070	0.256	0.362	0.945	3.163	0.326	0.856	19.199	0.193	0.641
36	45.800	-108.533	7	0.033	0.277	0.153	0.977	2.268	0.062	0.922	10.006	0.036	0.767
36	45.800	-108.533	8	0.033	0.119	0.360	0.974	1.487	0.234	0.923	7.833	0.153	0.783
36	45.800	-108.533	9	0.046	0.115	0.538	0.954	2.108	0.391	0.893	14.634	0.101	0.754
36	45.800	-108.533	10	0.038	0.062	0.752	0.956	1.399	0.417	0.910	10.188	0.202	0.795
36	45.800	-108.533	11	0.028	0.031	0.723	0.953	0.717	0.474	0.902	5.752	0.166	0.793
36	45.800	-108.533	12	0.025	0.024	0.729	0.953	0.552	0.391	0.900	3.798	0.150	0.776
37	46.767	-100.767	1	0.017	0.010	0.616	0.956	0.202	0.327	0.889	1.317	0.093	0.739
37	46.767	-100.767	2	0.017	0.011	0.667	0.959	0.235	0.434	0.899	1.671	0.240	0.759
37	46.767	-100.767	3	0.027	0.029	0.735	0.950	0.685	0.526	0.890	6.039	0.282	0.739
37	46.767	-100.767	4	0.052	0.122	0.590	0.941	2.236	0.358	0.878	14.647	0.215	0.739
37	46.767	-100.767	5	0.077	0.333	0.409	0.939	4.619	0.278	0.862	27.986	0.124	0.679
37	46.767	-100.767	6	0.099	0.716	0.280	0.946	7.479	0.173	0.852	37.259	0.076	0.622
37	46.767	-100.767	7	0.072	0.640	0.257	0.967	6.031	0.097	0.898	27.109	0.046	0.706
37	46.767	-100.767	8	0.062	0.440	0.308	0.968	4.800	0.145	0.904	24.971	0.024	0.722
37	46.767	-100.767	9	0.048	0.211	0.457	0.941	2.985	0.274	0.903	17.827	0.078	0.766
37	46.767	-100.767	10	0.030	0.070	0.657	0.965	1.314	0.424	0.921	8.401	0.267	0.818
37	46.767	-100.767	11	0.019	0.017	0.660	0.963	0.368	0.426	0.916	2.588	0.231	0.799
37	46.767	-100.767	12	0.016	0.010	0.605	0.956	0.193	0.357	0.889	1.355	0.084	0.739
38	44.383	-98.217	1	0.013	0.012	0.664	0.970	0.265	0.305	0.922	1.594	0.111	0.806
38	44.383	-98.217	2	0.025	0.030	0.795	0.958	0.766	0.551	0.908	6.562	0.206	0.784
38	44.383	-98.217	3	0.048	0.090	0.742	0.940	2.112	0.560	0.881	19.376	0.230	0.746
38	44.383	-98.217	4	0.067	0.172	0.619	0.936	3.200	0.328	0.866	20.956	0.116	0.705
38	44.383	-98.217	5	0.093	0.534	0.397	0.940	6.745	0.182	0.858	37.024	0.161	0.659
38	44.383	-98.217	6	0.113	1.247	0.308	0.952	12.820	0.134	0.868	60.170	0.074	0.656
38	44.383	-98.217	7	0.083	1.024	0.215	0.968	10.826	0.071	0.904	42.221	0.059	0.713
38	44.383	-98.217	8	0.073	0.814	0.245	0.968	8.052	0.070	0.903	37.398	0.060	0.727
38	44.383	-98.217	9	0.058	0.295	0.453	0.963	3.967	0.198	0.908	21.737	0.063	0.771
38	44.383	-98.217	10	0.047	0.240	0.441	0.960	3.306	0.384	0.917	19.707	0.199	0.820
38	44.383	-98.217	11	0.026	0.049	0.740	0.964	1.066	0.457	0.923	6.952	0.144	0.811
38	44.383	-98.217	12	0.018	0.021	0.737	0.966	0.496	0.471	0.921	3.247	0.195	0.812
39	47.633	-117.533	1	0.077	0.085	0.715	0.888	1.874	0.416	0.771	12.226	0.230	0.542
39	47.633	-117.533	2	0.060	0.065	0.636	0.909	1.227	0.370	0.807	70.485	0.253	0.594
39	47.633	-117.533	3	0.051	0.063	0.588	0.926	1.069	0.335	0.830	7.037	0.188	0.630
39	47.633	-117.533	4	0.038	0.057	0.594	0.951	0.993	0.317	0.881	5.952	0.105	0.721
39	47.633	-117.533	5	0.045	0.091	0.433	0.949	1.286	0.282	0.873	8.024	0.118	0.709
39	47.633	-117.533	6	0.044	0.151	0.392	0.959	1.878	0.247	0.894	11.104	0.083	0.745
39	47.633	-117.533	7	0.019	0.059	0.372	0.981	0.692	0.194	0.948	3.652	0.126	0.862
39	47.633	-117.533	8	0.022	0.054	0.495	0.978	0.797	0.217	0.940	4.463	0.145	0.839
39	47.633	-117.533	9	0.027	0.055	0.508	0.969	0.822	0.234	0.919	4.793	0.115	0.804
39	47.633	-117.533	10	0.038	0.054	0.595	0.952	0.948	0.351	0.890	6.406	0.246	0.754
39	47.633	-117.533	11	0.077	0.102	0.667	0.900	2.005	0.382	0.795	13.942	0.134	0.583
39	47.633	-117.533	12	0.083	0.094	0.701	0.881	1.992	0.415	0.754	13.987	0.174	0.510

Table 7-2. Historical Precipitation Statistics (page 8-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
40	35.333	-94.367	1	0.074	0.306	0.548	0.945	5.122	0.414	0.890	36.851	0.248	0.758
40	35.333	-94.367	2	0.101	0.478	0.567	0.939	8.476	0.431	0.880	58.065	0.180	0.728
40	35.333	-94.367	3	0.129	0.804	0.480	0.941	12.132	0.326	0.874	75.808	0.098	0.702
40	35.333	-94.367	4	0.141	1.315	0.442	0.944	17.343	0.167	0.863	85.201	0.037	0.668
40	35.333	-94.367	5	0.169	1.847	0.380	0.945	22.639	0.183	0.864	123.076	0.130	0.674
40	35.333	-94.367	6	0.124	1.502	0.276	0.961	15.036	0.140	0.897	75.308	0.117	0.727
40	35.333	-94.367	7	0.111	1.269	0.382	0.966	16.042	0.222	0.909	95.652	0.204	0.758
40	35.333	-94.367	8	0.099	1.147	0.315	0.969	12.716	0.176	0.917	64.289	0.073	0.777
40	35.333	-94.367	9	0.112	0.936	0.333	0.954	10.544	0.246	0.893	60.559	0.082	0.746
40	35.333	-94.367	10	0.122	1.155	0.480	0.954	17.150	0.253	0.901	90.045	0.167	0.777
40	35.333	-94.367	11	0.133	1.038	0.489	0.946	15.818	0.399	0.895	108.737	0.217	0.774
40	35.333	-94.367	12	0.099	0.488	0.551	0.941	8.448	0.425	0.886	56.034	0.281	0.765
41	41.980	-97.433	1	0.019	0.023	0.747	0.965	0.558	0.416	0.920	4.062	0.040	0.812
41	41.980	-97.433	2	0.029	0.050	0.765	0.957	1.044	0.569	0.913	9.122	0.177	0.798
41	41.980	-97.433	3	0.061	0.142	0.695	0.937	2.895	0.486	0.879	21.292	0.241	0.750
41	41.980	-97.433	4	0.082	0.260	0.564	0.936	4.274	0.314	0.863	26.466	0.138	0.700
41	41.980	-97.433	5	0.132	0.884	0.344	0.936	11.084	0.243	0.847	65.920	0.158	0.644
41	41.980	-97.433	6	0.150	1.832	0.388	0.950	21.873	0.176	0.875	109.614	0.055	0.669
41	41.980	-97.433	7	0.114	1.393	0.278	0.963	14.058	0.130	0.895	64.934	0.036	0.715
41	41.980	-97.433	8	0.087	0.713	0.327	0.965	7.990	0.153	0.906	37.519	0.058	0.731
41	41.980	-97.433	9	0.078	0.476	0.493	0.957	6.521	0.207	0.896	33.786	0.095	0.743
41	41.980	-97.433	10	0.050	0.242	0.388	0.964	3.174	0.289	0.921	18.700	0.221	0.823
41	41.980	-97.433	11	0.031	0.077	0.652	0.965	1.485	0.432	0.928	11.682	0.103	0.846
41	41.980	-97.433	12	0.023	0.029	0.678	0.964	0.571	0.494	0.925	4.100	0.156	0.824
42	39.567	-97.667	1	0.017	0.020	0.595	0.970	0.371	0.404	0.934	2.499	0.206	0.845
42	39.567	-97.667	2	0.023	0.033	0.639	0.968	0.667	0.346	0.929	4.416	0.077	0.831
42	39.567	-97.667	3	0.052	0.135	0.596	0.950	2.398	0.476	0.899	19.506	0.148	0.778
42	39.567	-97.667	4	0.066	0.537	0.430	0.961	5.919	0.304	0.906	34.001	0.065	0.773
42	39.567	-97.667	5	0.108	0.867	0.305	0.948	9.455	0.162	0.870	46.161	0.155	0.676
42	39.567	-97.667	6	0.104	1.009	0.316	0.965	10.112	0.137	0.898	44.246	0.129	0.723
42	39.567	-97.667	7	0.105	1.485	0.244	0.968	14.755	0.071	0.911	57.702	0.102	0.727
42	39.567	-97.667	8	0.087	1.047	0.308	0.970	10.730	0.159	0.912	51.498	0.079	0.736
42	39.567	-97.667	9	0.065	0.605	0.324	0.971	6.689	0.178	0.920	30.679	0.147	0.788
42	39.567	-97.667	10	0.047	0.322	0.479	0.973	5.201	0.318	0.936	30.073	0.217	0.843
42	39.567	-97.667	11	0.026	0.089	0.412	0.972	1.298	0.331	0.936	7.900	0.214	0.865
42	39.567	-97.667	12	0.020	0.035	0.574	0.974	0.608	0.475	0.944	4.492	0.232	0.859
43	35.400	-97.600	1	0.040	0.147	0.496	0.965	2.477	0.373	0.926	14.693	0.173	0.827
43	35.400	-97.600	2	0.052	0.170	0.544	0.953	2.636	0.366	0.900	17.928	0.140	0.777
43	35.400	-97.600	3	0.084	0.570	0.418	0.952	7.170	0.290	0.895	40.634	0.071	0.766
43	35.400	-97.600	4	0.100	0.911	0.319	0.960	11.303	0.151	0.897	56.463	0.058	0.754
43	35.400	-97.600	5	0.192	2.242	0.384	0.944	30.478	0.192	0.869	165.060	0.104	0.684
43	35.400	-97.600	6	0.148	2.209	0.310	0.961	22.887	0.124	0.898	107.147	0.145	0.721
43	35.400	-97.600	7	0.097	1.348	0.401	0.971	15.822	0.130	0.922	69.867	0.121	0.784
43	35.400	-97.600	8	0.083	0.868	0.315	0.971	9.791	0.100	0.922	42.916	0.042	0.789
43	35.400	-97.600	9	0.118	1.345	0.356	0.961	15.502	0.261	0.903	100.808	0.078	0.771
43	35.400	-97.600	10	0.109	1.018	0.464	0.958	15.841	0.345	0.910	105.011	0.280	0.800
43	35.400	-97.600	11	0.060	0.314	0.477	0.963	4.886	0.294	0.922	30.488	0.123	0.828
43	35.400	-97.600	12	0.046	0.195	0.530	0.963	3.115	0.389	0.921	20.720	0.113	0.832
44	37.233	-93.383	1	0.061	0.219	0.591	0.943	3.918	0.351	0.879	28.752	0.092	0.734
44	37.233	-93.383	2	0.082	0.252	0.667	0.932	5.027	0.447	0.859	37.869	0.187	0.700
44	37.233	-93.383	3	0.118	0.534	0.532	0.926	8.431	0.351	0.845	56.152	0.155	0.665
44	37.233	-93.383	4	0.142	0.899	0.436	0.933	12.125	0.255	0.848	72.626	0.133	0.647
44	37.233	-93.383	5	0.150	1.331	0.335	0.940	14.363	0.219	0.852	78.304	0.135	0.656
44	37.233	-93.383	6	0.170	2.336	0.272	0.949	23.615	0.103	0.865	108.961	0.087	0.674
44	37.233	-93.383	7	0.116	1.544	0.295	0.965	17.032	0.172	0.898	85.813	0.097	0.755
44	37.233	-93.383	8	0.111	1.212	0.326	0.962	14.244	0.109	0.897	66.023	0.092	0.725
44	37.233	-93.383	9	0.148	1.538	0.375	0.949	18.470	0.197	0.880	98.203	0.222	0.722
44	37.233	-93.383	10	0.123	0.838	0.495	0.940	13.619	0.288	0.877	79.650	0.142	0.738
44	37.233	-93.383	11	0.119	0.725	0.564	0.938	12.504	0.398	0.873	98.459	0.080	0.719
44	37.233	-93.383	12	0.099	0.423	0.561	0.931	7.338	0.417	0.865	52.006	0.152	0.719
45	30.533	-91.150	1	0.153	0.931	0.501	0.926	14.871	0.289	0.850	84.623	0.023	0.681
45	30.533	-91.150	2	0.192	1.597	0.511	0.928	24.343	0.312	0.851	151.900	0.090	0.685
45	30.533	-91.150	3	0.161	1.592	0.444	0.943	22.210	0.190	0.873	121.573	0.052	0.708
45	30.533	-91.150	4	0.186	2.740	0.497	0.953	45.884	0.324	0.898	283.223	0.185	0.761
45	30.533	-91.150	5	0.158	2.502	0.375	0.961	29.433	0.163	0.899	154.823	0.065	0.751
45	30.533	-91.150	6	0.127	1.561	0.210	0.963	13.866	0.115	0.887	65.153	0.201	0.691
45	30.533	-91.150	7	0.229	4.041	0.202	0.948	35.527	0.025	0.842	140.920	0.049	0.563

Table 7-2. Historical Precipitation Statistics (page 9-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
45	30.533	-91.150	8	0.183	3.053	0.230	0.955	28.498	0.142	0.870	136.872	0.135	0.625
45	30.533	-91.150	9	0.149	2.283	0.266	0.955	24.107	0.112	0.886	123.858	0.107	0.705
45	30.533	-91.150	10	0.105	1.310	0.479	0.967	19.132	0.290	0.924	102.733	0.228	0.825
45	30.533	-91.150	11	0.138	1.457	0.463	0.954	20.184	0.194	0.896	102.706	0.038	0.756
45	30.533	-91.150	12	0.182	1.751	0.490	0.927	26.520	0.267	0.852	146.859	0.105	0.689
46	44.750	-123.017	1	0.223	0.436	0.728	0.793	9.409	0.522	0.625	76.749	0.368	0.406
46	44.750	-123.017	3	0.146	0.235	0.603	0.835	4.332	0.440	0.651	31.972	0.425	0.448
46	44.750	-123.017	4	0.085	0.132	0.534	0.897	2.269	0.437	0.765	16.685	0.330	0.551
46	44.750	-123.017	5	0.066	0.112	0.491	0.924	1.784	0.399	0.821	13.899	0.326	0.651
46	44.750	-123.017	6	0.051	0.143	0.425	0.950	1.968	0.329	0.880	13.803	0.203	0.748
46	44.750	-123.017	7	0.015	0.051	0.444	0.985	0.707	0.374	0.958	4.544	0.133	0.906
46	44.750	-123.017	8	0.023	0.042	0.524	0.976	0.724	0.413	0.939	4.953	0.452	0.869
46	44.750	-123.017	9	0.054	0.151	0.510	0.952	2.372	0.324	0.882	16.245	0.229	0.762
46	44.750	-123.017	10	0.113	0.250	0.602	0.898	4.384	0.452	0.781	32.445	0.392	0.619
46	44.750	-123.017	11	0.218	0.477	0.636	0.810	9.269	0.477	0.633	69.120	0.334	0.402
46	44.750	-123.017	12	0.238	0.488	0.675	0.786	9.864	0.497	0.601	77.680	0.398	0.375
47	44.767	-106.967	1	0.024	0.018	0.696	0.947	0.372	0.382	0.876	2.488	0.178	0.708
47	44.767	-106.967	2	0.027	0.021	0.682	0.944	0.452	0.424	0.871	3.182	0.107	0.687
47	44.767	-106.967	3	0.037	0.036	0.648	0.932	0.670	0.374	0.848	4.174	0.145	0.658
47	44.767	-106.967	4	0.064	0.108	0.713	0.919	2.429	0.580	0.833	20.892	0.328	0.642
47	44.767	-106.967	5	0.082	0.246	0.453	0.924	3.587	0.365	0.824	23.082	0.254	0.631
47	44.767	-106.967	6	0.077	0.312	0.412	0.946	4.387	0.297	0.856	23.583	0.202	0.643
47	44.767	-106.967	7	0.034	0.146	0.230	0.976	1.521	0.246	0.921	8.984	0.284	0.768
47	44.767	-106.967	8	0.031	0.158	0.212	0.976	1.494	0.146	0.927	7.162	0.109	0.790
47	44.767	-106.967	9	0.046	0.092	0.561	0.952	1.598	0.427	0.895	11.247	0.117	0.755
47	44.767	-106.967	10	0.038	0.058	0.732	0.952	1.230	0.394	0.901	7.781	0.212	0.765
47	44.767	-106.967	11	0.029	0.027	0.708	0.948	0.587	0.433	0.889	4.164	0.162	0.748
47	44.767	-106.967	12	0.022	0.015	0.658	0.951	0.294	0.332	0.881	1.705	0.111	0.715
48	32.333	-88.750	1	0.166	0.973	0.573	0.922	16.308	0.327	0.843	100.174	0.075	0.669
48	32.333	-88.750	2	0.190	1.199	0.534	0.921	20.273	0.286	0.842	128.411	0.114	0.680
48	32.333	-88.750	3	0.224	2.261	0.477	0.932	32.187	0.247	0.859	185.329	0.088	0.681
48	32.333	-88.750	4	0.187	1.874	0.428	0.947	25.311	0.312	0.877	148.432	0.174	0.718
48	32.333	-88.750	5	0.150	1.736	0.363	0.956	19.770	0.203	0.883	102.917	0.187	0.735
48	32.333	-88.750	6	0.130	1.403	0.231	0.963	13.316	0.076	0.892	62.182	0.095	0.730
48	32.333	-88.750	7	0.187	2.991	0.301	0.953	29.479	0.084	0.860	129.835	0.033	0.644
48	32.333	-88.750	8	0.125	1.674	0.247	0.964	15.416	0.080	0.886	68.601	0.018	0.698
48	32.333	-88.750	9	0.129	1.363	0.434	0.960	19.872	0.187	0.897	105.589	0.082	0.745
48	32.333	-88.750	10	0.097	0.930	0.420	0.965	13.303	0.301	0.920	88.023	0.120	0.821
48	32.333	-88.750	11	0.139	1.206	0.472	0.950	16.951	0.202	0.894	85.393	0.027	0.751
48	32.333	-88.750	12	0.197	1.433	0.517	0.920	23.791	0.319	0.846	153.813	0.085	0.683
49	43.650	-70.317	1	0.129	0.338	0.774	0.887	8.080	0.402	0.810	51.489	0.052	0.638
49	43.650	-70.317	2	0.130	0.364	0.829	0.895	8.965	0.445	0.822	64.085	0.030	0.645
49	43.650	-70.317	3	0.135	0.417	0.785	0.893	10.049	0.407	0.808	67.903	0.027	0.630
49	43.650	-70.317	4	0.139	0.441	0.766	0.893	10.130	0.486	0.799	78.919	0.077	0.598
49	43.650	-70.317	5	0.116	0.370	0.594	0.909	6.584	0.380	0.815	45.607	0.128	0.614
49	43.650	-70.317	6	0.111	0.617	0.402	0.932	8.503	0.307	0.840	49.825	0.085	0.631
49	43.650	-70.317	7	0.101	0.722	0.343	0.948	8.665	0.166	0.870	43.756	0.015	0.686
49	43.650	-70.317	8	0.097	0.603	0.402	0.945	8.129	0.179	0.868	41.421	0.064	0.692
49	43.650	-70.317	9	0.113	0.743	0.651	0.937	14.506	0.254	0.867	88.304	0.046	0.703
49	43.650	-70.317	10	0.123	0.573	0.666	0.926	11.919	0.416	0.858	88.086	0.137	0.696
49	43.650	-70.317	11	0.175	0.689	0.745	0.890	15.497	0.428	0.799	103.625	0.104	0.613
49	43.650	-70.317	12	0.148	0.465	0.799	0.887	11.134	0.458	0.806	78.529	0.052	0.616
50	44.467	-73.150	1	0.064	0.077	0.714	0.894	1.687	0.473	0.784	12.847	0.157	0.544
50	44.467	-73.150	2	0.067	0.090	0.798	0.902	2.237	0.487	0.802	17.219	0.096	0.599
50	44.467	-73.150	3	0.074	0.112	0.692	0.901	2.406	0.384	0.798	16.294	0.150	0.577
50	44.467	-73.150	4	0.097	0.212	0.584	0.900	3.779	0.353	0.796	22.939	0.132	0.588
50	44.467	-73.150	5	0.104	0.430	0.335	0.912	5.517	0.214	0.798	29.695	0.068	0.571
50	44.467	-73.150	6	0.123	0.810	0.291	0.925	8.299	0.178	0.810	43.872	0.	0.580
50	44.467	-73.150	7	0.119	0.916	0.309	0.943	9.522	0.156	0.844	47.951	0.001	0.617
50	44.467	-73.150	8	0.133	0.876	0.361	0.930	10.374	0.223	0.822	54.581	0.047	0.581
50	44.467	-73.150	9	0.114	0.584	0.468	0.927	8.021	0.290	0.826	47.526	0.057	0.606
50	44.467	-73.150	10	0.096	0.262	0.545	0.915	4.389	0.344	0.820	27.664	0.171	0.619
50	44.467	-73.150	11	0.107	0.231	0.578	0.885	4.090	0.386	0.767	26.586	0.112	0.524
50	44.467	-73.150	12	0.083	0.127	0.732	0.889	2.858	0.514	0.769	23.044	0.099	0.513
51	41.167	-73.133	1	0.110	0.319	0.769	0.908	7.488	0.423	0.837	48.452	0.047	0.658
51	41.167	-73.133	2	0.112	0.323	0.760	0.910	7.254	0.375	0.837	48.572	-0.004	0.662
51	41.167	-73.133	3	0.128	0.449	0.754	0.908	9.829	0.421	0.828	65.564	0.071	0.639

Table 7-2. Historical Precipitation Statistics (page 10-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
51	41.167	-73.133	4	0.131	0.513	0.665	0.915	10.846	0.339	0.830	70.555	0.017	0.653
51	41.167	-73.133	5	0.120	0.546	0.552	0.927	8.844	0.309	0.841	53.201	0.053	0.647
51	41.167	-73.133	6	0.104	0.675	0.460	0.948	10.017	0.353	0.875	64.098	0.181	0.697
51	41.167	-73.133	7	0.128	1.521	0.408	0.957	19.196	0.179	0.891	96.378	0.050	0.726
51	41.167	-73.133	8	0.120	1.070	0.392	0.951	13.154	0.204	0.879	79.512	0.050	0.702
51	41.167	-73.133	9	0.107	0.707	0.489	0.947	11.281	0.287	0.882	68.545	0.119	0.726
51	41.167	-73.133	10	0.108	0.688	0.561	0.947	10.924	0.342	0.895	71.488	0.108	0.771
51	41.167	-73.133	11	0.133	0.502	0.694	0.919	10.537	0.409	0.848	70.792	0.039	0.666
51	41.167	-73.133	12	0.121	0.372	0.709	0.907	7.916	0.396	0.829	52.324	0.011	0.635
52	37.100	-88.600	1	0.113	0.817	0.338	0.948	10.543	0.362	0.888	71.195	0.245	0.760
52	37.100	-88.600	2	0.114	0.624	0.482	0.947	10.179	0.374	0.888	65.303	0.210	0.751
52	37.100	-88.600	3	0.143	0.929	0.477	0.947	14.364	0.413	0.868	111.049	0.091	0.690
52	37.100	-88.600	4	0.151	1.289	0.343	0.952	15.082	0.237	0.873	86.036	0.126	0.697
52	37.100	-88.600	5	0.149	2.909	0.128	0.959	23.308	0.093	0.886	111.706	0.060	0.723
52	37.100	-88.600	6	0.128	1.586	0.315	0.971	16.726	0.165	0.915	81.585	0.101	0.773
52	37.100	-88.600	7	0.119	1.671	0.245	0.973	14.721	0.169	0.919	66.583	0.165	0.774
52	37.100	-88.600	8	0.110	1.528	0.192	0.976	13.173	0.125	0.922	62.260	0.128	0.780
52	37.100	-88.600	9	0.110	2.140	0.274	0.973	20.142	0.197	0.930	106.389	0.068	0.815
52	37.100	-88.600	10	0.095	0.970	0.224	0.969	9.884	0.195	0.922	54.788	0.077	0.807
52	37.100	-88.600	11	0.133	0.790	0.491	0.954	12.525	0.372	0.892	86.465	0.137	0.762
52	37.100	-88.600	12	0.136	0.835	0.380	0.946	11.632	0.346	0.883	82.640	0.115	0.747
53	42.933	-78.733	1	0.103	0.149	0.690	0.842	3.027	0.432	0.655	20.460	0.138	0.34
53	42.933	-78.733	2	0.093	0.132	0.695	0.858	2.704	0.457	0.693	20.269	0.156	0.397
53	42.933	-78.733	3	0.100	0.192	0.615	0.878	3.572	0.322	0.735	22.363	0.120	0.479
53	42.933	-78.733	4	0.104	0.245	0.513	0.894	3.658	0.307	0.764	23.325	0.101	0.520
53	42.933	-78.733	5	0.100	0.394	0.446	0.922	5.631	0.254	0.823	34.925	0.079	0.619
53	42.933	-78.733	6	0.105	0.800	0.341	0.944	8.991	0.256	0.858	50.010	0.074	0.658
53	42.933	-78.733	7	0.099	0.823	0.303	0.958	8.797	0.179	0.880	45.194	0.084	0.686
53	42.933	-78.733	8	0.139	1.313	0.351	0.944	15.018	0.172	0.857	72.367	0.042	0.645
53	42.933	-78.733	9	0.116	0.661	0.452	0.934	9.505	0.304	0.842	61.128	0.056	0.637
53	42.933	-78.733	10	0.102	0.329	0.524	0.920	5.156	0.375	0.819	34.643	0.203	0.615
53	42.933	-78.733	11	0.139	0.303	0.629	0.861	5.540	0.398	0.718	39.427	0.178	0.468
53	42.933	-78.733	12	0.120	0.207	0.660	0.846	3.950	0.380	0.667	26.631	0.073	0.356
54	42.867	-100.550	1	0.010	0.007	0.638	0.977	0.134	0.364	0.942	0.845	0.168	0.846
54	42.867	-100.550	2	0.018	0.014	0.733	0.965	0.329	0.524	0.925	2.552	0.243	0.827
54	42.867	-100.550	3	0.033	0.054	0.579	0.952	1.029	0.412	0.901	7.703	0.117	0.783
54	42.867	-100.550	4	0.063	0.165	0.559	0.941	2.751	0.359	0.873	18.924	0.116	0.726
54	42.867	-100.550	5	0.105	0.664	0.438	0.939	9.197	0.162	0.854	47.200	0.128	0.658
54	42.867	-100.550	6	0.103	0.772	0.264	0.950	7.577	0.162	0.864	37.522	0.075	0.636
54	42.867	-100.550	7	0.096	1.174	0.248	0.966	11.733	0.051	0.893	52.919	0.011	0.697
54	42.867	-100.550	8	0.083	0.945	0.359	0.970	10.320	0.074	0.907	45.003	0.070	0.729
54	42.867	-100.550	9	0.052	0.230	0.384	0.967	3.190	0.221	0.915	18.291	0.058	0.785
54	42.867	-100.550	10	0.032	0.093	0.521	0.970	1.468	0.295	0.934	8.439	0.146	0.855
54	42.867	-100.550	11	0.019	0.034	0.655	0.973	0.633	0.356	0.940	4.054	0.067	0.862
54	42.867	-100.550	12	0.011	0.008	0.670	0.976	0.172	0.366	0.939	1.184	0.130	0.846
55	33.433	-112.017	1	0.022	0.045	0.564	0.976	0.735	0.345	0.944	4.756	0.175	0.877
55	33.433	-112.017	2	0.022	0.058	0.405	0.979	0.803	0.341	0.948	5.023	0.220	0.871
55	33.433	-112.017	3	0.027	0.081	0.479	0.978	1.109	0.324	0.949	7.979	0.207	0.885
55	33.433	-112.017	4	0.007	0.021	0.387	0.993	0.270	0.195	0.981	1.405	0.116	0.952
55	33.433	-112.017	5	0.004	0.020	0.152	0.997	0.161	0.290	0.990	1.012	0.072	0.974
55	33.433	-112.017	6	0.005	0.042	0.368	0.997	0.559	0.010	0.993	2.203	0.118	0.977
55	33.433	-112.017	7	0.022	0.173	0.187	0.989	1.549	0.070	0.967	6.369	0.157	0.889
55	33.433	-112.017	8	0.028	0.257	0.177	0.987	2.054	0.059	0.959	8.393	0.117	0.856
55	33.433	-112.017	9	0.021	0.190	0.263	0.990	2.044	0.257	0.969	11.979	0.101	0.914
55	33.433	-112.017	10	0.020	0.086	0.405	0.985	1.176	0.377	0.966	7.256	0.212	0.917
55	33.433	-112.017	11	0.019	0.067	0.384	0.985	0.898	0.195	0.966	4.731	0.185	0.921
55	33.433	-112.017	12	0.019	0.067	0.384	0.985	0.898	0.195	0.966	4.731	0.185	0.921
56	32.133	-81.200	1	0.108	0.571	0.492	0.933	8.636	0.307	0.861	51.328	0.079	0.705
56	32.133	-81.200	2	0.120	0.566	0.556	0.930	9.395	0.318	0.856	57.320	0.082	0.684
56	32.133	-81.200	3	0.130	0.820	0.472	0.938	12.172	0.284	0.867	69.559	0.143	0.697
56	32.133	-81.200	4	0.110	1.085	0.399	0.959	14.351	0.210	0.901	86.660	-0.018	0.773
56	32.133	-81.200	5	0.145	1.952	0.316	0.956	20.329	0.179	0.883	108.747	0.071	0.719
56	32.133	-81.200	6	0.194	2.799	0.284	0.947	28.961	0.134	0.855	138.531	0.125	0.634
56	32.133	-81.200	7	0.231	3.623	0.238	0.939	34.907	0.058	0.829	143.846	0.211	0.553
56	32.133	-81.200	8	0.243	4.460	0.305	0.940	45.751	0.103	0.830	207.250	0.086	0.586
56	32.133	-81.200	9	0.189	2.338	0.425	0.942	31.314	0.332	0.850	197.988	0.193	0.662
56	32.133	-81.200	10	0.075	0.723	0.278	0.962	7.938	0.237	0.908	49.037	0.102	0.804

Table 7-2. Historical Precipitation Statistics (page 11-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
56	32.133	-81.200	11	0.070	0.361	0.552	0.962	6.191	0.318	0.909	37.071	0.127	0.787
56	32.133	-81.200	12	0.094	0.433	0.513	0.941	6.868	0.287	0.877	42.641	0.012	0.736
57	40.783	-111.570	1	0.045	0.063	0.660	0.935	1.157	0.326	0.849	7.359	0.093	0.673
57	40.783	-111.570	2	0.046	0.075	0.590	0.942	1.358	0.277	0.864	7.656	0.083	0.694
57	40.783	-111.570	3	0.062	0.106	0.603	0.932	1.829	0.306	0.843	10.669	0.160	0.665
57	40.783	-111.570	4	0.075	0.160	0.646	0.929	3.117	0.415	0.842	21.396	0.167	0.678
57	40.783	-111.570	5	0.059	0.133	0.537	0.947	2.160	0.336	0.871	14.237	0.216	0.719
57	40.783	-111.570	6	0.031	0.082	0.441	0.973	1.141	0.252	0.921	7.186	0.268	0.812
57	40.783	-111.570	7	0.026	0.216	0.203	0.986	1.790	0.082	0.951	8.597	0.089	0.854
57	40.783	-111.570	8	0.030	0.167	0.308	0.981	1.702	0.112	0.939	8.866	0.157	0.825
57	40.783	-111.570	9	0.039	0.121	0.560	0.970	2.126	0.363	0.923	15.080	0.199	0.814
57	40.783	-111.570	10	0.044	0.095	0.623	0.960	1.686	0.372	0.907	10.597	0.208	0.802
57	40.783	-111.570	11	0.044	0.074	0.656	0.948	1.486	0.308	0.883	9.001	0.087	0.747
57	40.783	-111.570	12	0.048	0.072	0.647	0.936	1.391	0.332	0.859	8.254	0.212	0.687
58	38.433	-113.017	1	0.023	0.023	0.584	0.959	0.432	0.352	0.904	2.872	0.148	0.776
58	38.433	-113.017	2	0.026	0.032	0.559	0.960	0.512	0.346	0.902	3.129	0.101	0.765
58	38.433	-113.017	3	0.037	0.056	0.520	0.948	0.890	0.293	0.874	5.407	0.161	0.726
58	38.433	-113.017	4	0.033	0.057	0.481	0.961	0.909	0.319	0.905	5.702	0.194	0.788
58	38.433	-113.017	5	0.026	0.057	0.464	0.973	0.809	0.329	0.922	5.110	0.158	0.823
58	38.433	-113.017	6	0.015	0.058	0.311	0.987	0.607	0.234	0.958	3.261	0.248	0.891
58	38.433	-113.017	7	0.024	0.127	0.200	0.983	1.124	0.068	0.944	4.825	0.146	0.828
58	38.433	-113.017	8	0.029	0.137	0.343	0.980	1.435	0.109	0.932	6.733	0.221	0.804
58	38.433	-113.017	9	0.028	0.101	0.463	0.979	1.393	0.305	0.948	9.135	0.130	0.869
58	38.433	-113.017	10	0.026	0.052	0.563	0.973	0.879	0.332	0.938	5.564	0.132	0.857
58	38.433	-113.017	11	0.025	0.045	0.569	0.969	0.725	0.373	0.927	4.699	0.104	0.838
58	38.433	-113.017	12	0.023	0.031	0.588	0.964	0.536	0.384	0.914	3.651	0.192	0.810
59	31.800	-106.400	1	0.013	0.015	0.514	0.979	0.220	0.379	0.948	1.517	0.198	0.876
59	31.800	-106.400	2	0.016	0.028	0.596	0.983	0.502	0.285	0.959	2.838	0.187	0.899
59	31.800	-106.400	3	0.011	0.023	0.441	0.989	0.310	0.301	0.970	1.813	0.160	0.920
59	31.800	-106.400	4	0.008	0.013	0.587	0.992	0.244	0.449	0.979	1.636	0.273	0.943
59	31.800	-106.400	5	0.009	0.061	0.082	0.995	0.442	0.057	0.979	1.909	0.127	0.932
59	31.800	-106.400	6	0.024	0.151	0.289	0.988	1.530	0.104	0.964	6.796	0.287	0.889
59	31.800	-106.400	7	0.056	0.472	0.250	0.974	4.603	0.080	0.920	20.428	0.180	0.747
59	31.800	-106.400	8	0.050	0.376	0.284	0.975	3.765	0.116	0.919	16.928	0.135	0.744
59	31.800	-106.400	9	0.051	0.423	0.372	0.975	5.147	0.182	0.933	26.242	0.190	0.821
59	31.800	-106.400	10	0.027	0.085	0.406	0.979	1.182	0.244	0.944	6.571	0.256	0.863
59	31.800	-106.400	11	0.012	0.023	0.452	0.985	0.339	0.312	0.963	2.003	0.338	0.907
59	31.800	-106.400	12	0.018	0.029	0.591	0.977	0.557	0.397	0.948	3.893	0.285	0.881
60	27.767	-97.500	1	0.057	0.256	0.591	0.951	4.927	0.425	0.886	35.898	0.262	0.742
60	27.767	-97.500	2	0.071	0.450	0.454	0.953	7.461	0.345	0.894	49.768	0.095	0.763
60	27.767	-97.500	3	0.033	0.306	0.214	0.979	2.781	0.189	0.940	14.492	0.172	0.832
60	27.767	-97.500	4	0.066	0.949	0.405	0.978	11.485	0.267	0.938	71.157	0.011	0.837
60	27.767	-97.500	5	0.105	1.614	0.306	0.971	16.082	0.102	0.921	74.060	0.191	0.793
60	27.767	-97.500	6	0.107	2.047	0.354	0.972	22.903	0.095	0.916	100.274	0.183	0.799
60	27.767	-97.500	7	0.072	0.959	0.344	0.981	11.420	0.186	0.939	64.441	0.279	0.849
60	27.767	-97.500	8	0.112	2.205	0.275	0.973	23.602	0.205	0.921	140.171	0.322	0.809
60	27.767	-97.500	9	0.197	2.933	0.392	0.950	37.355	0.280	0.870	228.309	0.250	0.699
60	27.767	-97.500	10	0.116	1.697	0.377	0.963	20.584	0.145	0.909	104.946	0.144	0.790
60	27.767	-97.500	11	0.054	0.346	0.459	0.967	5.014	0.216	0.919	26.633	0.202	0.811
60	27.767	-97.500	12	0.046	0.265	0.511	0.965	4.199	0.262	0.916	24.202	0.110	0.800
61	44.117	-123.217	1	0.267	0.709	0.737	0.803	15.898	0.545	0.643	142.247	0.346	0.431
61	44.117	-123.217	2	0.209	0.522	0.689	0.832	11.147	0.513	0.675	88.128	0.378	0.473
61	44.117	-123.217	3	0.171	0.369	0.608	0.843	6.913	0.446	0.689	50.136	0.419	0.485
61	44.117	-123.217	4	0.100	0.217	0.538	0.905	3.596	0.364	0.786	24.559	0.275	0.596
61	44.117	-123.217	5	0.070	0.145	0.525	0.932	2.500	0.376	0.840	17.965	0.340	0.678
61	44.117	-123.217	6	0.049	0.145	0.461	0.957	2.081	0.324	0.899	13.040	0.303	0.786
61	44.117	-123.217	7	0.013	0.034	0.531	0.988	0.559	0.490	0.968	5.160	0.111	0.923
61	44.117	-123.217	8	0.028	0.147	0.388	0.979	1.786	0.268	0.948	9.626	0.306	0.881
61	44.117	-123.217	9	0.048	0.147	0.449	0.963	2.075	0.316	0.911	14.214	0.236	0.814
61	44.117	-123.217	10	0.115	0.304	0.648	0.915	5.728	0.494	0.824	45.355	0.347	0.676
61	44.117	-123.217	11	0.239	0.721	0.652	0.837	13.929	0.499	0.698	112.583	0.371	0.499
61	44.117	-123.217	12	0.284	0.832	0.735	0.803	18.445	0.557	0.634	157.837	0.441	0.414
62	46.150	-123.883	1	0.347	0.804	0.722	0.727	17.752	0.497	0.504	136.088	0.420	0.299
62	46.150	-123.883	2	0.288	0.609	0.672	0.754	12.226	0.479	0.535	88.653	0.351	0.313
62	46.150	-123.883	3	0.247	0.489	0.607	0.774	9.135	0.457	0.550	67.415	0.363	0.336
62	46.150	-123.883	4	0.168	0.298	0.614	0.829	5.676	0.440	0.635	40.456	0.287	0.393
62	46.150	-123.883	5	0.100	0.178	0.548	0.889	3.165	0.448	0.738	22.800	0.306	0.512

Table 7-2. Historical Precipitation Statistics (page 12-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
62	46.150	-123.883	6	0.091	0.201	0.570	0.907	3.709	0.413	0.781	26.309	0.265	0.573
62	46.150	-123.883	7	0.039	0.084	0.625	0.959	1.582	0.423	0.892	10.644	0.303	0.760
62	46.150	-123.883	8	0.044	0.100	0.601	0.954	1.796	0.386	0.884	12.448	0.253	0.749
62	46.150	-123.883	9	0.103	0.304	0.487	0.918	4.598	0.382	0.818	33.554	0.301	0.655
62	46.150	-123.883	10	0.200	0.602	0.593	0.856	10.838	0.417	0.708	79.215	0.295	0.516
62	46.150	-123.883	11	0.361	1.008	0.627	0.754	19.775	0.471	0.539	150.966	0.209	0.321
62	46.150	-123.883	12	0.373	0.961	0.660	0.718	19.260	0.439	0.493	144.014	0.230	0.274
63	47.450	-122.300	1	0.181	0.314	0.715	0.817	6.882	0.496	0.649	57.609	0.286	0.414
63	47.450	-122.300	2	0.148	0.234	0.673	0.842	4.573	0.478	0.688	36.589	0.354	0.463
63	47.450	-122.300	3	0.124	0.181	0.614	0.857	3.430	0.495	0.702	29.271	0.252	0.474
63	47.450	-122.300	4	0.080	0.120	0.579	0.904	2.103	0.347	0.775	14.431	0.166	0.551
63	47.450	-122.300	5	0.056	0.089	0.592	0.933	1.613	0.394	0.840	12.072	0.092	0.654
63	47.450	-122.300	6	0.052	0.109	0.603	0.949	2.164	0.366	0.878	14.223	0.213	0.728
63	47.450	-122.300	7	0.026	0.048	0.544	0.972	0.834	0.309	0.934	4.950	0.172	0.846
63	47.450	-122.300	8	0.038	0.096	0.545	0.965	1.770	0.411	0.915	12.490	0.247	0.813
63	47.450	-122.300	9	0.076	0.183	0.475	0.930	2.832	0.388	0.843	19.340	0.297	0.674
63	47.450	-122.300	10	0.106	0.256	0.621	0.905	4.844	0.389	0.802	35.409	0.256	0.640
63	47.450	-122.300	11	0.184	0.362	0.629	0.834	6.986	0.443	0.684	51.696	0.207	0.433
63	47.450	-122.300	12	0.212	0.385	0.712	0.807	8.364	0.511	0.634	65.567	0.289	0.389
64	48.217	-106.617	1	0.012	0.007	0.544	0.965	0.104	0.292	0.896	0.598	0.194	0.727
64	48.217	-106.617	2	0.010	0.006	0.461	0.971	0.075	0.278	0.906	0.406	0.140	0.759
64	48.217	-106.617	3	0.014	0.010	0.536	0.968	0.167	0.389	0.906	1.088	0.196	0.751
64	48.217	-106.617	4	0.023	0.027	0.579	0.963	0.482	0.419	0.907	3.606	0.183	0.768
64	48.217	-106.617	5	0.058	0.144	0.537	0.944	2.357	0.437	0.866	18.831	0.178	0.681
64	48.217	-106.617	6	0.077	0.465	0.318	0.952	5.509	0.172	0.870	27.493	0.068	0.671
64	48.217	-106.617	7	0.058	0.534	0.285	0.974	5.579	0.137	0.915	25.194	0.190	0.748
64	48.217	-106.617	8	0.044	0.398	0.316	0.974	4.590	0.127	0.921	21.363	0.344	0.773
64	48.217	-106.617	9	0.036	0.083	0.571	0.964	1.442	0.360	0.912	9.453	0.199	0.782
64	48.217	-106.617	10	0.021	0.033	0.702	0.974	0.659	0.482	0.937	4.714	0.125	0.845
64	48.217	-106.617	11	0.011	0.007	0.571	0.973	0.118	0.294	0.922	0.670	0.148	0.800
64	48.217	-106.617	12	0.012	0.005	0.513	0.965	0.097	0.395	0.892	0.663	0.153	0.729
64	48.217	-106.617	1	0.012	0.007	0.544	0.965	0.104	0.292	0.896	0.598	0.194	0.727
65	48.183	-103.633	1	0.019	0.015	0.676	0.958	0.283	0.310	0.890	1.711	0.091	0.729
65	48.183	-103.633	2	0.017	0.013	0.634	0.962	0.240	0.397	0.903	1.550	0.171	0.769
65	48.183	-103.633	3	0.023	0.021	0.608	0.956	0.395	0.452	0.890	2.724	0.252	0.750
65	48.183	-103.633	4	0.042	0.088	0.640	0.951	1.709	0.380	0.893	12.207	0.150	0.757
65	48.183	-103.633	5	0.061	0.195	0.433	0.947	2.804	0.379	0.871	18.824	0.238	0.710
65	48.183	-103.633	6	0.091	0.650	0.294	0.949	6.948	0.159	0.863	34.047	0.076	0.647
65	48.183	-103.633	7	0.068	0.733	0.281	0.970	7.003	0.166	0.906	40.178	0.048	0.721
65	48.183	-103.633	8	0.045	0.280	0.327	0.972	3.235	0.130	0.917	16.410	0.037	0.771
65	48.183	-103.633	9	0.049	0.157	0.558	0.959	2.656	0.386	0.900	16.609	0.202	0.760
65	48.183	-103.633	10	0.026	0.050	0.715	0.971	1.062	0.442	0.935	8.249	0.177	0.839
65	48.183	-103.633	11	0.017	0.013	0.671	0.966	0.256	0.423	0.918	1.572	0.230	0.797
65	48.183	-103.633	12	0.019	0.016	0.642	0.959	0.295	0.337	0.894	1.889	0.152	0.744
66	46.467	-84.367	1	0.078	0.071	0.681	0.846	1.430	0.422	0.668	10.034	0.166	0.383
66	46.467	-84.367	2	0.062	0.057	0.722	0.882	1.201	0.466	0.738	9.013	0.144	0.481
66	46.467	-84.367	3	0.072	0.115	0.646	0.900	2.264	0.398	0.789	15.234	0.175	0.576
66	46.467	-84.367	4	0.084	0.191	0.615	0.910	3.394	0.386	0.809	24.415	0.116	0.623
66	46.467	-84.367	5	0.094	0.415	0.502	0.927	6.038	0.292	0.834	42.473	0.095	0.645
66	46.467	-84.367	6	0.116	0.607	0.419	0.932	8.290	0.262	0.830	47.002	0.117	0.620
66	46.467	-84.367	7	0.099	0.618	0.373	0.949	7.753	0.192	0.867	38.972	0.030	0.674
66	46.467	-84.367	8	0.118	0.933	0.458	0.935	12.976	0.131	0.840	61.242	0.003	0.635
66	46.467	-84.367	9	0.134	0.552	0.502	0.908	8.301	0.228	0.784	43.601	0.073	0.553
66	46.467	-84.367	10	0.112	2.465	0.060	0.897	17.445	0.088	0.775	79.604	0.044	0.552
66	46.467	-84.367	11	0.116	0.203	0.635	0.852	3.954	0.413	0.693	27.068	0.138	0.428
66	46.467	-84.367	12	0.092	0.100	0.683	0.841	2.012	0.410	0.656	13.514	0.125	0.363
67	30.683	-88.250	1	0.166	1.342	0.483	0.921	20.798	0.341	0.838	122.141	0.164	0.651
67	30.683	-88.250	2	0.208	1.748	0.523	0.918	27.270	0.289	0.839	170.115	-0.003	0.667
67	30.683	-88.250	3	0.210	2.389	0.440	0.933	31.540	0.235	0.852	181.577	0.104	0.665
67	30.683	-88.250	4	0.165	2.887	0.442	0.958	36.842	0.208	0.901	188.274	0.222	0.770
67	30.683	-88.250	5	0.196	3.645	0.357	0.954	45.256	0.147	0.883	224.050	0.072	0.728
67	30.683	-88.250	6	0.176	2.482	0.297	0.954	24.213	0.169	0.860	120.872	0.140	0.634
67	30.683	-88.250	7	0.243	3.651	0.242	0.935	34.391	0.042	0.808	140.096	0.128	0.498
67	30.683	-88.250	8	0.245	3.729	0.254	0.937	37.346	0.118	0.814	174.805	0.168	0.520
67	30.683	-88.250	9	0.215	4.348	0.203	0.943	42.458	0.259	0.851	253.661	0.104	0.657
67	30.683	-88.250	10	0.110	1.220	0.411	0.962	17.722	0.209	0.913	102.715	0.206	0.812
67	30.683	-88.250	11	0.130	1.577	0.427	0.949	19.958	0.256	0.880	108.880	0.097	0.739

Table 7-2. Historical Precipitation Statistics (page 13-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
67	30.683	-88.250	12	0.179	1.559	0.485	0.926	22.267	0.278	0.848	123.117	0.081	0.670
68	24.550	-81.750	1	0.069	0.924	0.338	0.973	13.400	0.366	0.924	79.793	0.439	0.801
68	24.550	-81.750	2	0.068	0.574	0.300	0.968	5.815	0.229	0.917	31.540	0.061	0.788
68	24.550	-81.750	3	0.060	0.676	0.382	0.980	7.265	0.269	0.940	41.628	0.121	0.832
68	24.550	-81.750	4	0.060	1.222	0.258	0.985	11.471	0.180	0.952	66.833	0.073	0.859
68	24.550	-81.750	5	0.126	2.239	0.327	0.967	23.298	0.268	0.903	132.423	0.223	0.740
68	24.550	-81.750	6	0.185	2.553	0.293	0.948	26.439	0.151	0.839	131.088	0.304	0.603
68	24.550	-81.750	7	0.121	1.739	0.193	0.963	14.991	0.043	0.864	62.383	0.103	0.624
68	24.550	-81.750	8	0.173	2.466	0.178	0.949	20.205	0.059	0.819	88.151	0.141	0.533
68	24.550	-81.750	9	0.217	2.811	0.318	0.937	28.582	0.142	0.794	148.896	0.130	0.486
68	24.550	-81.750	10	0.149	2.070	0.326	0.952	21.480	0.286	0.860	124.987	0.280	0.657
68	24.550	-81.750	11	0.100	2.537	0.673	0.972	51.908	0.504	0.914	438.058	0.061	0.774
68	24.550	-81.750	12	0.074	0.968	0.527	0.973	13.530	0.316	0.919	83.238	0.054	0.786
69	29.183	-81.050	1	0.081	0.493	0.508	0.959	7.868	0.322	0.907	50.360	0.124	0.769
69	29.183	-81.050	2	0.113	0.861	0.442	0.945	11.903	0.269	0.877	66.016	0.207	0.714
69	29.183	-81.050	3	0.112	0.958	0.453	0.953	13.289	0.188	0.896	69.688	0.213	0.746
69	29.183	-81.050	4	0.089	1.147	0.309	0.972	13.695	0.215	0.931	74.980	0.092	0.820
69	29.183	-81.050	5	0.109	1.376	0.220	0.966	12.418	0.132	0.897	60.611	0.182	0.732
69	29.183	-81.050	6	0.207	2.921	0.269	0.943	29.928	0.118	0.839	146.626	0.193	0.602
69	29.183	-81.050	7	0.190	2.647	0.238	0.949	24.336	0.024	0.845	95.922	0.193	0.580
69	29.183	-81.050	8	0.214	3.371	0.230	0.944	31.504	0.085	0.837	137.548	0.113	0.571
69	29.183	-81.050	9	0.242	3.401	0.317	0.931	37.766	0.170	0.811	195.925	0.160	0.567
69	29.183	-81.050	10	0.159	1.869	0.380	0.946	23.462	0.297	0.854	152.525	0.212	0.671
69	29.183	-81.050	11	0.094	0.869	0.457	0.961	11.775	0.350	0.902	71.566	0.264	0.767
70	43.117	-77.667	1	0.078	0.106	0.586	0.873	1.973	0.412	0.715	13.802	0.083	0.446
70	43.117	-77.667	2	0.084	0.116	0.752	0.876	2.652	0.469	0.732	20.344	0.175	0.469
70	43.117	-77.667	3	0.082	0.148	0.632	0.898	2.902	0.312	0.777	17.927	0.091	0.548
70	43.117	-77.667	4	0.092	0.188	0.551	0.905	3.047	0.344	0.790	20.449	0.091	0.555
70	43.117	-77.667	5	0.087	0.362	0.467	0.930	4.886	0.231	0.837	25.831	0.088	0.641
70	43.117	-77.667	6	0.098	0.739	0.322	0.948	7.925	0.175	0.865	37.989	0.158	0.664
70	43.117	-77.667	7	0.088	0.706	0.320	0.959	7.010	0.155	0.882	36.058	0.027	0.696
70	43.117	-77.667	8	0.113	0.868	0.286	0.951	9.113	0.175	0.866	46.953	0.029	0.670
70	43.117	-77.667	9	0.099	0.425	0.418	0.938	6.048	0.290	0.846	38.298	0.046	0.646
70	43.117	-77.667	10	0.085	0.257	0.574	0.925	4.685	0.364	0.830	30.789	0.181	0.623
70	43.117	-77.667	11	0.101	0.194	0.622	0.888	3.639	0.401	0.758	26.520	0.134	0.493
70	43.117	-77.667	12	0.089	0.117	0.678	0.869	2.414	0.399	0.711	16.443	0.089	0.423
71	35.267	-75.550	1	0.149	0.950	0.592	0.923	16.649	0.352	0.854	100.617	0.114	0.707
71	35.267	-75.550	2	0.127	0.732	0.524	0.935	12.175	0.277	0.869	67.622	0.046	0.708
71	35.267	-75.550	3	0.110	0.655	0.494	0.943	9.870	0.317	0.883	55.659	0.222	0.742
71	35.267	-75.550	4	0.080	0.508	0.481	0.962	7.489	0.204	0.911	41.683	0.074	0.785
71	35.267	-75.550	5	0.109	0.814	0.450	0.954	10.239	0.241	0.890	56.758	0.124	0.739
71	35.267	-75.550	6	0.108	0.979	0.343	0.959	12.616	0.312	0.899	81.715	0.098	0.757
71	35.267	-75.550	7	0.145	1.676	0.352	0.953	19.786	0.191	0.871	107.885	0.085	0.686
71	35.267	-75.550	8	0.157	1.983	0.348	0.951	25.016	0.232	0.874	144.349	0.161	0.718
71	35.267	-75.550	9	0.137	1.838	0.378	0.954	22.217	0.232	0.891	126.642	0.164	0.758
71	35.267	-75.550	10	0.138	1.522	0.459	0.952	22.703	0.338	0.892	147.899	0.127	0.768
71	35.267	-75.550	11	0.136	1.386	0.605	0.947	24.288	0.341	0.889	143.625	0.109	0.756
71	35.267	-75.550	12	0.125	0.900	0.462	0.941	13.121	0.307	0.879	76.781	0.059	0.744
72	36.900	-76.200	1	0.129	0.436	0.656	0.907	9.175	0.377	0.832	61.339	0.078	0.665
72	36.900	-76.200	2	0.128	0.447	0.590	0.909	7.780	0.352	0.826	51.502	0.025	0.638
72	36.900	-76.200	3	0.124	0.468	0.572	0.917	8.079	0.367	0.833	57.904	0.022	0.656
72	36.900	-76.200	4	0.105	0.592	0.449	0.942	7.925	0.269	0.862	47.370	0.122	0.676
72	36.900	-76.200	5	0.129	0.900	0.357	0.939	11.424	0.216	0.857	62.361	0.122	0.688
72	36.900	-76.200	6	0.126	1.236	0.331	0.956	13.779	0.286	0.883	84.187	0.126	0.699
72	36.900	-76.200	7	0.173	2.487	0.308	0.948	25.838	0.110	0.853	121.955	0.071	0.635
72	36.900	-76.200	8	0.167	2.294	0.353	0.948	29.668	0.183	0.867	159.830	0.094	0.672
72	36.900	-76.200	9	0.152	1.689	0.528	0.945	27.912	0.271	0.883	170.519	0.084	0.746
72	36.900	-76.200	10	0.116	0.773	0.559	0.942	13.103	0.287	0.880	80.772	0.089	0.753
72	36.900	-76.200	11	0.097	0.444	0.540	0.940	7.524	0.246	0.877	42.330	0.076	0.732
72	36.900	-76.200	12	0.112	0.404	0.594	0.920	7.246	0.345	0.848	46.674	0.067	0.700
73	32.783	-79.933	1	0.103	0.431	0.524	0.932	6.695	0.349	0.855	44.113	0.047	0.697
73	32.783	-79.933	2	0.114	0.528	0.532	0.933	8.419	0.285	0.858	48.948	0.107	0.696
73	32.783	-79.933	3	0.142	0.964	0.483	0.933	14.025	0.280	0.864	76.603	0.095	0.702
73	32.783	-79.933	4	0.085	0.697	0.313	0.962	8.547	0.196	0.907	45.417	0.010	0.772
73	32.783	-79.933	5	0.119	1.357	0.342	0.958	15.371	0.185	0.892	84.802	0.063	0.736
73	32.783	-79.933	6	0.176	2.922	0.324	0.951	32.193	0.210	0.862	174.853	0.202	0.662
73	32.783	-79.933	7	0.204	3.565	0.199	0.947	31.822	0.115	0.849	140.926	0.180	0.611

Table 7-2. Historical Precipitation Statistics (page 14-14)

ID	LAT	LONG	MONTH	MEAN 1 HR	VARI 1 HR	CORR 1 HR	PROB DRY 1 HR	VARI 6 HR	CORR 6 HR	PROB DRY 6 HR	VARI 24 HR	CORR 24 HR	PROB DRY 24 HR
73	32.783	-79.933	8	0.212	3.039	0.312	0.940	32.048	0.184	0.837	165.349	0.181	0.625
73	32.783	-79.933	9	0.192	2.945	0.270	0.943	34.657	0.232	0.856	215.724	0.197	0.688
73	32.783	-79.933	10	0.089	0.727	0.482	0.962	11.923	0.419	0.914	81.822	0.220	0.810
73	32.783	-79.933	11	0.073	0.465	0.592	0.959	8.636	0.253	0.902	51.463	0.014	0.773
73	32.783	-79.933	12	0.097	0.511	0.471	0.941	7.611	0.271	0.873	45.836	0.040	0.729
74	25.900	-97.433	1	0.019	0.097	0.584	0.985	1.851	0.369	0.968	11.296	0.263	0.935
74	25.900	-97.433	2	0.008	0.035	0.334	0.992	0.381	0.283	0.978	2.223	0.054	0.952
74	25.900	-97.433	3	0.004	0.027	0.098	0.997	0.195	0.102	0.992	0.801	0.119	0.973
74	25.900	-97.433	4	0.010	0.161	0.309	0.997	1.726	0.060	0.993	7.325	0.172	0.981
74	25.900	-97.433	5	0.022	0.592	0.244	0.996	5.639	0.050	0.986	24.784	0.091	0.965
74	25.900	-97.433	6	0.022	0.438	0.202	0.995	3.673	0.040	0.986	15.875	0.219	0.957
74	25.900	-97.433	7	0.014	0.252	0.422	0.996	2.834	0.154	0.987	12.081	0.313	0.969
74	25.900	-97.433	8	0.020	0.171	0.418	0.994	2.506	0.235	0.983	14.209	0.243	0.955
74	25.900	-97.433	9	0.057	0.732	0.474	0.986	11.105	0.290	0.967	78.515	0.385	0.923
74	25.900	-97.433	10	0.024	0.293	0.289	0.993	3.115	0.306	0.979	20.396	0.265	0.953
74	25.900	-97.433	11	0.016	0.214	0.458	0.994	2.812	0.192	0.982	13.870	0.222	0.954
74	25.900	-97.433	12	0.010	0.076	0.534	0.992	0.766	0.384	0.980	5.460	0.083	0.951
75	33.933	-118.400	1	0.091	0.431	0.628	0.953	8.365	0.418	0.905	55.602	0.364	0.817
75	33.933	-118.400	2	0.081	0.449	0.600	0.957	8.207	0.431	0.912	56.348	0.239	0.831
75	33.933	-118.400	3	0.058	0.281	0.529	0.967	4.810	0.318	0.923	29.108	0.196	0.832
75	33.933	-118.400	4	0.030	0.110	0.463	0.979	1.506	0.334	0.952	9.277	0.291	0.894
75	33.933	-118.400	5	0.004	0.013	0.471	0.996	0.199	0.494	0.986	1.641	0.360	0.959
75	33.933	-118.400	6	0.001	0.001	0.507	0.998	0.020	0.217	0.994	0.104	0.058	0.983
75	33.933	-118.400	7	0.000	0.000	0.115	0.999	0.003	0.073	0.997	0.013	0.004	0.990
75	33.933	-118.400	8	0.004	0.019	0.650	0.998	0.325	0.571	0.994	2.804	0.142	0.984
75	33.933	-118.400	9	0.006	0.025	0.513	0.995	0.354	0.239	0.985	3.001	0.069	0.963
75	33.933	-118.400	10	0.008	0.084	0.185	0.994	0.841	0.039	0.983	3.447	0.009	0.954
75	33.933	-118.400	11	0.050	0.284	0.464	0.974	4.707	0.360	0.943	39.138	0.181	0.886
75	33.933	-118.400	12	0.048	0.194	0.673	0.969	3.979	0.374	0.934	27.176	0.152	0.864

Table 7-3

Bartlett–Lewis Parameters

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 1-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	ϕ	κ
1	35.133	-111.667	1	0.0085	2.2181	4.6795	0.6724	0.0743	1.4132
1	35.133	-111.667	2	0.0069	6.6179	20.4884	0.5705	0.0449	2.4067
1	35.133	-111.667	3	0.0091	3.8882	6.7527	0.7932	0.0680	0.9835
1	35.133	-111.667	4	0.0058	3.7708	5.8043	0.9057	0.0650	0.7058
1	35.133	-111.667	5	0.0050	1.8654	8.8503	1.7103	0.0495	0.5116
1	35.133	-111.667	6	0.0023	8.6789	28.9960	4.6501	0.0644	0.3282
1	35.133	-111.667	7	0.0190	8.3562	35.9590	10.8917	0.2302	0.1992
1	35.133	-111.667	8	0.0166	6.9661	32.0670	11.5171	0.0766	0.0983
1	35.133	-111.667	9	0.0057	8.0823	19.8175	3.2311	0.0696	0.4952
1	35.133	-111.667	10	0.0045	8.3095	18.3056	1.5590	0.0498	0.7554
1	35.133	-111.667	11	0.0044	10.6959	15.3323	0.9555	0.0669	1.3512
1	35.133	-111.667	12	0.0137	1.9576	1.9638	0.8909	0.9908	1.6595
2	32.017	-110.950	1	0.0059	4.7098	25.5816	1.4900	0.0769	1.2595
2	32.017	-110.950	2	0.0065	3.3745	5.9296	1.3079	0.0665	0.4287
2	32.017	-110.950	3	0.0046	2.6958	7.6009	1.6521	0.0057	0.3797
2	32.017	-110.950	4	0.0022	1.1869	8.0636	4.0532	0.0246	0.1493
2	32.017	-110.950	5	0.0017	4.2351	37.6836	4.7142	0.0304	0.1118
2	32.017	-110.950	6	0.0025	4.5093	21.9932	7.1981	0.5914	0.7089
2	32.017	-110.950	7	0.0123	5.8859	21.7910	10.7467	0.0498	0.0640
2	32.017	-110.950	8	0.0134	4.9548	30.1115	14.4480	0.1645	0.1916
2	32.017	-110.950	9	0.0052	2.8146	17.4830	13.0621	0.0375	0.1154
2	32.017	-110.950	10	0.0025	3.0771	16.9200	6.2097	0.0342	0.3244
2	32.017	-110.950	11	0.0037	4.4126	16.2610	1.6385	0.0938	1.0723
2	32.017	-110.950	12	0.0055	5.1638	35.3991	1.7640	0.0549	1.1400
3	32.733	-117.167	1	0.0070	8.3913	11.8608	2.2189	0.0752	0.3392
3	32.733	-117.167	2	0.0070	0.8794	3.9866	3.0744	0.0527	0.3934
3	32.733	-117.167	3	0.0069	0.9582	3.4352	3.3904	0.0432	0.2304
3	32.733	-117.167	4	0.0049	0.9814	3.5387	2.1322	0.0577	0.2880
3	32.733	-117.167	5	0.0024	0.6240	3.4490	2.7131	0.0526	0.1551
3	32.733	-117.167	6	0.0019	0.8589	2.7810	0.1744	0.7587	6.9182
3	32.733	-117.167	7	0.0005	0.1490	3.5000	0.9719	0.0710	0.8810
3	32.733	-117.167	8	0.0005	0.9737	3.3569	1.7928	0.1367	1.0351
3	32.733	-117.167	9	0.0012	1.2332	4.7088	2.0878	0.0595	0.3203
3	32.733	-117.167	10	0.0021	1.0599	6.3190	3.2657	0.0389	0.2292
3	32.733	-117.167	11	0.0055	10.4496	30.1687	3.3380	0.0668	0.3722
3	32.733	-117.167	12	0.0061	2.4712	7.4359	3.1254	0.0795	0.4017
4	37.617	-122.383	1	0.0110	1.3197	3.3832	2.2823	0.0500	0.4864
4	37.617	-122.383	2	0.0089	5.8048	16.5283	2.3605	0.0254	0.3334
4	37.617	-122.383	3	0.0100	10.1660	14.1075	1.7349	0.0703	0.4151
4	37.617	-122.383	4	0.0047	2.2846	6.5372	2.0253	0.0241	0.2734
4	37.617	-122.383	5	0.0029	0.4446	2.3462	0.4700	0.1763	3.4301
4	37.617	-122.383	6	0.0011	7.9488	33.1716	1.1071	0.1362	1.2325
4	37.617	-122.383	7	0.0005	0.6771	5.4620	1.1016	0.2207	2.2574
4	37.617	-122.383	8	0.0008	0.6120	4.5973	1.4501	0.1061	0.5928
4	37.617	-122.383	9	0.0008	0.5403	2.5834	1.8655	0.0679	0.8854
4	37.617	-122.383	10	0.0040	0.7456	3.0025	2.2692	0.1382	1.2202
4	37.617	-122.383	11	0.0069	10.5296	12.4275	1.8632	0.0738	0.4385
4	37.617	-122.383	12	0.0166	9.7785	11.7613	1.7166	0.1152	0.6832
5	39.767	-104.867	1	0.0082	2.2205	3.0266	0.3439	0.3447	1.5328
5	39.767	-104.867	2	0.0070	2.9657	13.0544	0.3427	0.0609	2.4399
5	39.767	-104.867	3	0.0106	14.6790	10.4230	0.5936	0.2298	0.7842
5	39.767	-104.867	4	0.0087	1.9037	2.9966	1.1694	0.1151	0.6478
5	39.767	-104.867	5	0.0106	4.2010	8.9102	2.7590	0.0434	0.2047
5	39.767	-104.867	6	0.0125	0.3788	3.0006	6.2080	0.0537	0.1694
5	39.767	-104.867	7	0.0140	1.1724	8.5251	12.8380	0.1281	0.1585
5	39.767	-104.867	8	0.0130	0.9801	5.9934	10.4390	0.1159	0.1018
5	39.767	-104.867	9	0.0088	0.2911	4.2012	7.5340	0.0294	0.1663
5	39.767	-104.867	10	0.0058	2.5278	5.0417	1.0762	0.0887	0.6916
5	39.767	-104.867	11	0.0071	2.6745	5.1001	0.3870	0.1389	2.1679
5	39.767	-104.867	12	0.0081	7.9686	5.7884	0.4697	0.4768	1.0477
6	26.583	-81.867	1	0.0060	5.2957	13.8991	5.9631	0.1503	0.4564
6	26.583	-81.867	2	0.0074	3.6046	14.7453	10.3847	0.1048	0.2526
6	26.583	-81.867	3	0.0053	3.4777	10.8937	15.0029	0.1313	0.3392
6	26.583	-81.867	4	0.0043	1.5905	17.1505	17.4552	0.0418	0.1665
6	26.583	-81.867	5	0.0066	2.5138	11.9659	27.7896	0.0934	0.1623

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 2-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
6	26.583	-81.867	6	0.0235	3.5392	22.8603	27.7575	0.1012	0.1960
6	26.583	-81.867	7	0.0270	3.5635	26.2453	13.3750	0.5328	2.2971
6	26.583	-81.867	8	0.0285	5.4303	26.4593	12.2836	1.2743	3.6904
6	26.583	-81.867	9	0.0196	7.5510	26.1885	26.5461	0.1163	0.0929
6	26.583	-81.867	10	0.0082	6.1410	30.9820	15.5730	0.0843	0.2227
6	26.583	-81.867	11	0.0045	4.4271	20.9496	18.0214	0.0718	0.1446
6	26.583	-81.867	12	0.0047	2.4553	17.5933	21.1162	0.0659	0.1355
7	30.500	-81.700	1	0.0105	3.9772	13.4743	5.1391	0.0721	0.3525
7	30.500	-81.700	2	0.0116	1.7964	5.0216	5.2341	0.0875	0.3680
7	30.500	-81.700	3	0.0101	3.7849	7.7668	4.3942	0.1208	0.4887
7	30.500	-81.700	4	0.0082	0.1416	2.6198	19.8934	0.0198	0.1273
7	30.500	-81.700	5	0.0113	2.6889	19.9332	30.5325	0.0590	0.0949
7	30.500	-81.700	6	0.0196	5.4176	31.3479	22.4420	0.0824	0.1197
7	30.500	-81.700	7	0.0239	8.9407	23.0410	13.4925	1.6726	1.7370
7	30.500	-81.700	8	0.0232	2.4882	14.8818	21.3668	0.0846	0.1592
7	30.500	-81.700	9	0.0206	7.6686	30.0920	17.4780	0.0937	0.1834
7	30.500	-81.700	10	0.0114	8.8627	24.0259	6.9163	0.1313	0.4250
7	30.500	-81.700	11	0.0085	7.1051	25.6916	6.6378	0.0947	0.3256
7	30.500	-81.700	12	0.0101	1.8177	4.9291	4.1238	0.1099	0.3881
8	33.950	-83.317	1	0.0135	4.8071	7.8140	2.0214	0.0923	0.6951
8	33.950	-83.317	2	0.0148	4.4105	8.3356	1.8620	0.1164	1.0305
8	33.950	-83.317	3	0.0135	4.3323	9.3512	3.2193	0.0815	0.5917
8	33.950	-83.317	4	0.0105	3.8374	10.0021	4.5672	0.0731	0.4307
8	33.950	-83.317	5	0.0119	0.7387	4.0883	9.7954	0.0609	0.2811
8	33.950	-83.317	6	0.0089	0.4626	3.0196	11.5743	0.0350	0.1655
8	33.950	-83.317	7	0.0165	0.2212	3.5626	28.9330	0.0407	0.1282
8	33.950	-83.317	8	0.0140	1.3292	14.3516	23.6870	0.0680	0.1864
8	33.950	-83.317	9	0.0091	0.4977	3.3062	9.0263	0.0336	0.1873
8	33.950	-83.317	10	0.0071	7.5197	16.4420	5.3713	0.0639	0.3105
8	33.950	-83.317	11	0.0111	7.4616	16.8540	3.3254	0.0894	0.5595
8	33.950	-83.317	12	0.0110	12.5236	17.1740	2.1951	0.0946	0.6226
9	33.650	-84.433	1	0.0146	3.8286	6.8224	2.8673	0.1039	0.4708
9	33.650	-84.433	2	0.0142	3.6036	7.6386	3.1813	0.0907	0.5184
9	33.650	-84.433	3	0.0147	4.2951	9.6732	4.1552	0.0860	0.4418
9	33.650	-84.433	4	0.0120	3.7401	9.8579	4.8710	0.0978	0.5003
9	33.650	-84.433	5	0.0128	1.3195	11.0378	14.9740	0.0407	0.1689
9	33.650	-84.433	6	0.0158	4.5945	25.9218	5.0997	0.3679	2.4896
9	33.650	-84.433	7	0.0206	3.0332	37.6835	29.9814	0.0911	0.2063
9	33.650	-84.433	8	0.0136	1.3010	24.7270	35.2400	0.0411	0.1494
9	33.650	-84.433	9	0.0080	3.1666	18.6005	11.8128	0.0267	0.1608
9	33.650	-84.433	10	0.0062	9.7363	16.0893	4.9136	0.0658	0.2445
9	33.650	-84.433	11	0.0083	8.9056	30.5774	3.8109	0.0584	0.7019
9	33.650	-84.433	12	0.0131	9.0891	16.6724	2.3136	0.1097	0.7740
10	41.733	-87.767	1	0.0140	12.3324	19.4089	1.2169	0.1534	0.6852
10	41.733	-87.767	2	0.0128	0.7929	5.2787	2.5928	0.0434	0.3778
10	41.733	-87.767	3	0.0161	0.8916	3.6884	2.2613	0.0775	0.5310
10	41.733	-87.767	4	0.0171	1.1515	6.2407	5.1019	0.0766	0.4504
10	41.733	-87.767	5	0.0139	1.0593	6.8716	6.5940	0.0675	0.3539
10	41.733	-87.767	6	0.0141	10.6940	29.6570	10.8270	0.1501	0.2046
10	41.733	-87.767	7	0.0119	0.2020	3.0248	21.1804	0.0321	0.1348
10	41.733	-87.767	8	0.0102	6.8832	30.7128	12.3630	0.0940	0.2727
10	41.733	-87.767	9	0.0123	2.1876	8.5657	6.8980	0.1680	0.6405
10	41.733	-87.767	10	0.0110	1.2700	3.9850	3.9711	0.1615	0.5626
10	41.733	-87.767	11	0.0128	0.6625	3.1559	2.5878	0.0608	0.4681
10	41.733	-87.767	12	0.0131	8.6287	11.8820	2.0989	0.1045	0.3275
11	40.667	-89.683	1	0.0132	10.4132	10.3575	10.6300	0.2847	0.7887
11	40.667	-89.683	2	0.0113	6.4629	8.2197	1.5181	0.1317	0.3464
11	40.667	-89.683	3	0.0146	7.4590	12.4500	1.8939	0.1155	0.5080
11	40.667	-89.683	4	0.0174	2.1878	6.3574	3.6650	0.1029	0.4390
11	40.667	-89.683	5	0.0156	9.0028	30.6430	8.0810	0.0959	0.2204
11	40.667	-89.683	6	0.0144	8.2345	30.8900	7.7941	0.1695	0.5926
11	40.667	-89.683	7	0.0137	2.5231	33.9340	22.0108	0.0873	0.4398
11	40.667	-89.683	8	0.0113	5.3824	14.4616	8.7500	0.1113	0.1946
11	40.667	-89.683	9	0.0118	4.9760	14.6298	7.1712	0.0823	0.2432
11	40.667	-89.683	10	0.0091	9.1534	18.2640	3.8240	0.0746	0.2720
11	40.667	-89.683	11	0.0121	11.7566	17.6200	3.1278	0.1167	0.2430
11	40.667	-89.683	12	0.0120	13.3430	16.9100	1.6391	0.1002	0.3756

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 3-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
12	39.733	-86.267	1	0.0147	1.1397	3.1151	1.9512	0.0669	0.3226
12	39.733	-86.267	2	0.0151	12.3540	18.9850	1.4448	0.1440	0.7438
12	39.733	-86.267	3	0.0189	1.7358	4.0163	2.1840	0.1225	0.4878
12	39.733	-86.267	4	0.0199	0.7229	6.5842	6.4520	0.0439	0.2953
12	39.733	-86.267	5	0.0184	1.6886	16.6709	9.2056	0.0542	0.3362
12	39.733	-86.267	6	0.0145	0.4258	3.5569	12.9500	0.0652	0.2188
12	39.733	-86.267	7	0.0139	0.2008	3.7467	19.4009	0.0301	0.1951
12	39.733	-86.267	8	0.0114	3.4797	15.1626	12.9680	0.0598	0.1261
12	39.733	-86.267	9	0.0103	3.0957	15.3066	9.7807	0.0471	0.1624
12	39.733	-86.267	10	0.0117	0.6146	3.3113	3.6378	0.1079	0.7397
12	39.733	-86.267	11	0.0136	3.0002	6.1973	2.4477	0.0919	0.4577
12	39.733	-86.267	12	0.0192	0.9442	3.4960	1.4440	0.1192	1.0664
13	41.533	-93.650	1	0.0080	1.2278	3.0242	0.6522	0.1394	1.4523
13	41.533	-93.650	2	0.0109	7.3378	30.6151	0.3069	0.0544	2.7984
13	41.533	-93.650	3	0.0138	2.2004	5.4127	1.6849	0.1172	0.6446
13	41.533	-93.650	4	0.0148	0.3732	3.1807	5.1199	0.0339	0.2600
13	41.533	-93.650	5	0.0168	3.4140	14.8460	6.1324	0.0859	0.3591
13	41.533	-93.650	6	0.0160	7.1846	30.1363	11.5132	0.0952	0.2178
13	41.533	-93.650	7	0.0126	7.3480	25.1875	10.1950	0.1167	0.2432
13	41.533	-93.650	8	0.0130	0.3269	2.8181	12.6380	0.0589	0.2164
13	41.533	-93.650	9	0.0121	0.9142	4.1762	5.8670	0.0805	0.3480
13	41.533	-93.650	10	0.0104	0.7840	5.0345	4.2990	0.0525	0.4305
13	41.533	-93.650	11	0.0090	3.5008	6.1681	2.1346	0.1142	0.4147
13	41.533	-93.650	12	0.0109	2.3887	4.4999	0.5673	0.2225	1.8739
14	42.367	-71.033	1	0.0149	0.9064	1.9422	1.0862	0.1321	0.9748
14	42.367	-71.033	2	0.0155	1.6686	2.9813	0.9734	0.1733	1.7364
14	42.367	-71.033	3	0.0163	1.4468	2.9725	0.9619	0.1519	1.6840
14	42.367	-71.033	4	0.0174	1.4728	3.4183	1.1411	0.1543	1.5308
14	42.367	-71.033	5	0.0164	1.4901	2.8827	1.8811	0.1801	0.6684
14	42.367	-71.033	6	0.0155	4.3108	16.3903	5.4946	0.0828	0.2976
14	42.367	-71.033	7	0.0133	0.2896	3.3061	8.6238	0.0446	0.2503
14	42.367	-71.033	8	0.0129	0.5581	2.9894	8.2897	0.0595	0.1755
14	42.367	-71.033	9	0.0111	1.0088	3.0327	3.8777	0.0866	0.3780
14	42.367	-71.033	10	0.0109	1.5439	3.8042	2.4490	0.0900	0.5804
14	42.367	-71.033	11	0.0148	4.8539	5.6650	1.8683	0.1560	0.6885
14	42.367	-71.033	12	0.0154	2.9800	3.2235	1.2460	0.1988	0.9048
15	46.833	-92.183	1	0.0144	0.6316	2.5646	0.8488	0.0502	0.3753
15	46.833	-92.183	2	0.0155	0.1977	2.0190	0.5831	0.0566	0.9648
15	46.833	-92.183	3	0.0125	0.3397	3.0064	2.0707	0.0277	0.3627
15	46.833	-92.183	4	0.0141	0.4449	3.0988	1.9748	0.0369	0.4541
15	46.833	-92.183	5	0.0157	8.9031	23.0840	3.5640	0.0676	0.2717
15	46.833	-92.183	6	0.0188	5.4909	25.2128	10.3499	0.0704	0.1553
15	46.833	-92.183	7	0.0162	9.5717	32.0652	10.2920	0.0782	0.1317
15	46.833	-92.183	8	0.0155	13.3427	31.5907	6.5607	0.0844	0.1751
15	46.833	-92.183	9	0.0154	10.8035	18.8715	3.6749	0.0994	0.2761
15	46.833	-92.183	10	0.0134	0.3877	3.1942	5.1956	0.0373	0.2180
15	46.833	-92.183	11	0.0149	4.0261	4.2196	0.9910	0.2241	0.5534
15	46.833	-92.183	12	0.0146	0.8870	3.0056	0.9357	0.0707	0.4619
16	48.567	-93.383	1	0.0167	0.5701	2.9029	0.3599	0.0909	2.2049
16	48.567	-93.383	2	0.0136	2.1274	4.0474	0.3759	0.1977	1.2120
16	48.567	-93.383	3	0.0102	15.6855	11.6295	0.5286	0.1487	0.5596
16	48.567	-93.383	4	0.0099	8.5706	17.6111	0.9037	0.0826	0.9253
16	48.567	-93.383	5	0.0159	9.0221	25.2840	2.8312	0.0847	0.3579
16	48.567	-93.383	6	0.0209	0.9470	5.2905	6.5637	0.0835	0.2922
16	48.567	-93.383	7	0.0182	0.6274	5.4388	15.5315	0.0631	0.1394
16	48.567	-93.383	8	0.0170	4.2126	15.4142	5.9228	0.1098	0.2715
16	48.567	-93.383	9	0.0177	0.7742	3.6469	6.3734	0.0830	0.1942
16	48.567	-93.383	10	0.0140	6.9371	9.7610	1.1884	0.2409	0.9859
16	48.567	-93.383	11	0.0127	6.2447	20.4852	0.3411	0.0642	2.1733
16	48.567	-93.383	12	0.0135	7.0641	20.6104	0.3441	0.0730	1.2667
17	39.283	-114.850	1	0.0098	1.7257	4.3101	0.5656	0.1929	1.4631
17	39.283	-114.850	2	0.0096	0.6432	3.1872	0.7981	0.0754	0.7078
17	39.283	-114.850	3	0.0111	1.0644	3.9149	0.8419	0.0824	0.6971
17	39.283	-114.850	4	0.0090	0.9145	3.5680	0.8166	0.0623	0.6952
17	39.283	-114.850	5	0.0087	0.5156	2.9950	1.5633	0.0396	0.3832
17	39.283	-114.850	6	0.0063	0.6722	4.0263	2.0443	0.0992	0.7808
17	39.283	-114.850	7	0.0085	1.2756	9.8246	4.6853	0.0868	0.2641

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 4-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
17	39.283	-114.850	8	0.0081	2.7717	28.3605	6.7374	0.0583	0.1991
17	39.283	-114.850	9	0.0046	4.4950	13.3230	4.5080	0.0571	0.1827
17	39.283	-114.850	10	0.0058	5.6898	13.1040	0.7766	0.1174	1.3037
17	39.283	-114.850	11	0.0069	8.1706	10.0970	0.8337	0.2312	0.8101
17	39.283	-114.850	12	0.0082	6.7030	12.1634	0.6047	0.1356	0.9555
18	44.267	-71.300	1	0.0328	4.4901	8.1982	0.4801	0.0989	2.6327
18	44.267	-71.300	2	0.0293	3.4983	3.0044	2.2042	0.1459	0.2621
18	44.267	-71.300	3	0.0208	6.3924	7.4676	0.6575	0.0559	1.2830
18	44.267	-71.300	4	0.0219	4.4001	6.7519	0.7101	0.0611	1.5327
18	44.267	-71.300	5	0.0229	4.9306	5.5445	1.4317	0.1177	0.6549
18	44.267	-71.300	6	0.0252	4.0084	7.3022	2.3217	0.1006	0.5834
18	44.267	-71.300	7	0.0262	1.0723	4.2188	3.6703	0.0688	0.4461
18	44.267	-71.300	8	0.0246	4.0490	7.0529	2.4668	0.1152	0.6278
18	44.267	-71.300	9	0.0222	5.1660	5.4480	1.8678	0.1378	0.5873
18	44.267	-71.300	10	0.0152	4.1436	6.1116	0.9695	0.0582	1.1842
18	44.267	-71.300	11	0.0267	5.0253	3.2023	1.1554	0.1519	0.5503
18	44.267	-71.300	12	0.0350	21.8779	4.9661	1.2367	0.5465	0.1507
19	35.050	-106.617	1	0.0044	6.3036	12.6376	0.7967	0.1085	0.6473
19	35.050	-106.617	2	0.0049	0.9145	4.0333	0.8925	0.0386	0.4359
19	35.050	-106.617	3	0.0056	1.9972	5.5225	1.0373	0.1128	0.6708
19	35.050	-106.617	4	0.0042	0.4064	3.0008	2.0787	0.0835	0.6710
19	35.050	-106.617	5	0.0062	2.0290	11.2710	2.4313	0.1809	0.8728
19	35.050	-106.617	6	0.0038	6.7061	31.3302	8.1511	0.0369	0.0688
19	35.050	-106.617	7	0.0136	3.5708	32.1730	10.2700	0.1438	0.2600
19	35.050	-106.617	8	0.0140	6.3967	31.2660	7.9600	0.2359	0.2743
19	35.050	-106.617	9	0.0075	4.0991	32.4000	8.0146	0.0490	0.1469
19	35.050	-106.617	10	0.0057	0.8990	5.4880	3.2500	0.0593	0.4294
19	35.050	-106.617	11	0.0051	8.5486	30.7950	1.1849	0.0869	0.5823
19	35.050	-106.617	12	0.0046	14224	3.3479	0.8307	0.1115	0.7106
20	35.867	-78.783	1	0.0122	2.6293	5.4512	1.9548	0.0900	0.6467
20	35.867	-78.783	2	0.0148	4.8151	14.1686	1.3323	0.1108	1.9273
20	35.867	-78.783	3	0.0133	5.0991	14.0631	2.5760	0.0708	0.5708
20	35.867	-78.783	4	0.0113	5.0269	13.8740	3.4083	0.0924	0.5050
20	35.867	-78.783	5	0.0144	6.9630	31.0127	7.8591	0.0719	0.2828
20	35.867	-78.783	6	0.0141	7.3976	28.9300	11.2224	0.1283	0.2567
20	35.867	-78.783	7	0.0173	2.6910	34.1088	22.1266	0.0635	0.2428
20	35.867	-78.783	8	0.0140	0.3447	3.9862	18.0140	0.0447	0.1872
20	35.867	-78.783	9	0.0096	1.8450	9.6513	8.2530	0.0677	0.3885
20	35.867	-78.783	10	0.0082	1.9732	6.3007	4.0624	0.0648	0.4265
20	35.867	-78.783	11	0.0109	0.9999	3.3236	2.6750	0.1010	0.7014
20	35.867	-78.783	12	0.0110	1.4195	3.9366	1.9474	0.0718	0.6747
21	40.650	-75.433	1	0.0147	1.6289	3.0011	0.9195	0.1440	1.2877
21	40.650	-75.433	2	0.0156	2.2715	5.8574	0.6884	0.1279	2.7741
21	40.650	-75.433	3	0.0140	3.7721	4.7583	1.3783	0.1341	0.7066
21	40.650	-75.433	4	0.0154	2.5070	5.7836	1.7367	0.0832	0.7328
21	40.650	-75.433	5	0.0164	0.4827	3.0680	4.9887	0.0454	0.2721
21	40.650	-75.433	6	0.0151	0.9336	4.5669	7.1758	0.0816	0.2754
21	40.650	-75.433	7	0.0155	1.4001	10.9580	13.7880	0.0922	0.3612
21	40.650	-75.433	8	0.0130	4.4055	16.0420	10.2953	0.0611	0.1721
21	40.650	-75.433	9	0.0125	0.2666	2.3068	8.0101	0.0452	0.2683
21	40.650	-75.433	10	0.0103	1.3571	5.0487	3.5795	0.0588	0.4178
21	40.650	-75.433	11	0.0141	1.7787	3.9435	1.7045	0.1226	1.0130
21	40.650	-75.433	12	0.0155	2.6247	3.5647	1.1730	0.1979	1.1136
22	39.883	-75.433	1	0.0151	3.6938	12.1769	0.2569	0.1319	11.1602
22	39.883	-75.433	2	0.0151	1.3077	3.6128	1.0473	0.1266	1.6380
22	39.883	-75.433	3	0.0141	5.3222	6.3471	1.5312	0.1405	0.6493
22	39.883	-75.433	4	0.0151	2.0792	4.2820	2.2943	0.1191	0.5535
22	39.883	-75.433	5	0.0156	2.8901	8.4767	4.4430	0.1025	0.3487
22	39.883	-75.433	6	0.0158	0.6497	4.3947	10.8524	0.0708	0.2171
22	39.883	-75.433	7	0.0146	1.9690	9.4648	12.2450	0.0919	0.2173
22	39.883	-75.433	8	0.0144	0.5788	3.9165	10.2659	0.0683	0.2825
22	39.883	-75.433	9	0.0107	0.6767	3.2982	6.8646	0.0590	0.2624
22	39.883	-75.433	10	0.0097	1.0257	3.3031	3.0647	0.0833	0.5093
22	39.883	-75.433	11	0.0118	2.5134	3.6918	2.0117	0.1468	0.5826
22	39.883	-75.433	12	0.0140	1.8537	3.1136	1.2185	0.2026	1.3283
23	33.950	-81.117	1	0.0130	2.6013	4.8553	1.9692	0.0943	0.7179
23	33.950	-81.117	2	0.0129	5.5607	9.3240	2.7150	0.0982	0.5455

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 5-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
23	33.950	-81.117	3	0.0142	1.9647	5.4886	3.3746	0.0944	0.6352
23	33.950	-81.117	4	0.0110	1.5181	5.7076	5.4072	0.0806	0.4256
23	33.950	-81.117	5	0.0123	2.6775	16.3398	11.8615	0.0520	0.2001
23	33.950	-81.117	6	0.0126	7.1608	28.6213	15.2624	0.0560	0.1166
23	33.950	-81.117	7	0.0178	4.0896	21.5920	16.3250	0.1055	0.2282
23	33.950	-81.117	8	0.0157	8.7270	30.7820	17.1590	0.2025	0.2925
23	33.950	-81.117	9	0.0097	11.2181	28.9700	8.2556	0.1412	0.4473
23	33.950	-81.117	10	0.0079	0.5164	3.1123	8.6220	0.0469	0.2306
23	33.950	-81.117	11	0.0100	1.3418	6.1689	3.7914	0.1053	0.9377
23	33.950	-81.117	12	0.0101	2.3420	4.4070	2.1087	0.0854	0.5908
24	35.800	-84.000	1	0.0162	2.7307	4.7850	1.5417	0.1052	0.7812
24	35.800	-84.000	2	0.0164	2.5780	5.1850	1.6005	0.0917	0.7832
24	35.800	-84.000	3	0.0200	1.9173	4.2713	2.6336	0.1334	0.6026
24	35.800	-84.000	4	0.0166	2.0289	9.8050	4.9041	0.0791	0.4766
24	35.800	-84.000	5	0.0161	1.9574	11.7706	7.8397	0.0601	0.2841
24	35.800	-84.000	6	0.0167	6.1337	26.5470	5.5998	0.3601	1.7586
24	35.800	-84.000	7	0.0173	2.0041	33.2467	28.5581	0.0246	0.0950
24	35.800	-84.000	8	0.0144	0.2397	4.5040	23.6070	0.0385	0.1155
24	35.800	-84.000	9	0.0121	2.1263	15.0137	6.7660	0.0540	0.3798
24	35.800	-84.000	10	0.0105	0.6256	3.6906	3.9060	0.0513	0.4648
24	35.800	-84.000	11	0.0146	13.7200	21.4610	1.9170	0.1629	0.9677
24	35.800	-84.000	12	0.0143	2.8726	4.7065	1.8648	0.1206	0.7459
25	32.433	-99.683	1	0.0030	1.9206	4.4215	1.3450	0.0894	0.6300
25	32.433	-99.683	2	0.0037	4.0578	10.5535	2.1929	0.0676	0.3723
25	32.433	-99.683	3	0.0038	4.3311	14.0536	6.1665	0.1106	0.2927
25	32.433	-99.683	4	0.0049	3.5474	32.9890	19.5155	0.0721	0.1760
25	32.433	-99.683	5	0.0049	8.8867	30.2607	11.6330	0.0383	0.0967
25	32.433	-99.683	6	0.0052	3.4181	14.2012	7.6672	0.5536	2.1149
25	32.433	-99.683	7	0.0041	4.4401	32.7869	14.4240	0.1590	0.6109
25	32.433	-99.683	8	0.0045	0.6776	3.9867	11.8882	0.0905	0.3239
25	32.433	-99.683	9	0.0047	7.3135	32.8120	8.8208	0.0578	0.3008
25	32.433	-99.683	10	0.0037	5.0311	20.8660	5.5599	0.0583	0.6561
25	32.433	-99.683	11	0.0028	5.9436	15.8803	3.4251	0.0597	0.3591
25	32.433	-99.683	12	0.0028	8.2990	14.7127	1.7090	0.1521	1.2332
26	37.500	-77.333	1	0.0136	1.2065	3.1252	1.5059	0.0895	0.7348
26	37.500	-77.333	2	0.0138	0.8820	3.1047	1.3632	0.0879	1.2141
26	37.500	-77.333	3	0.0134	1.0424	3.5728	2.1275	0.0660	0.6084
26	37.500	-77.333	4	0.0142	1.9594	15.4764	5.0394	0.0571	0.5599
26	37.500	-77.333	5	0.0150	3.3057	14.9716	7.5210	0.0550	0.2028
26	37.500	-77.333	6	0.0135	6.8380	25.5880	10.2500	0.1094	0.2464
26	37.500	-77.333	7	0.0153	7.1021	24.2830	14.9930	0.1149	0.1730
26	37.500	-77.333	8	0.0139	6.8440	23.5470	13.1075	0.1106	0.2275
26	37.500	-77.333	9	0.0091	9.3120	23.9490	6.8539	0.0634	0.2350
26	37.500	-77.333	10	0.0091	11.6850	22.8411	4.0466	0.1369	0.7033
26	37.500	-77.333	11	0.0113	0.6155	3.3235	3.2910	0.0676	0.7170
26	37.500	-77.333	12	0.0105	2.0072	4.3282	1.8342	0.0770	0.6625
27	37.317	-79.967	1	0.0121	1.2419	2.4861	0.9244	0.1381	1.1742
27	37.317	-79.967	2	0.0146	8.3572	9.1036	1.0857	0.3167	1.8838
27	37.317	-79.967	3	0.0131	7.2438	9.8836	1.4540	0.1246	0.7882
27	37.317	-79.967	4	0.0136	0.9973	3.1078	2.0992	0.0951	0.7260
27	37.317	-79.967	5	0.0166	5.7059	26.0824	6.2285	0.0714	0.2966
27	37.317	-79.967	6	0.0138	6.5727	34.1028	11.3434	0.0587	0.1514
27	37.317	-79.967	7	0.0181	2.8263	35.6300	17.7681	0.0804	0.2793
27	37.317	-79.967	8	0.0150	6.1639	24.6471	11.5236	0.0833	0.1730
27	37.317	-79.967	9	0.0105	0.7141	2.9250	4.6678	0.0722	0.3655
27	37.317	-79.967	10	0.0081	2.7534	3.7122	2.6380	0.1100	0.4680
27	37.317	-79.967	11	0.0112	10.3852	9.2869	2.5159	0.1830	0.3377
27	37.317	-79.967	12	0.0123	1.5681	3.0241	1.0160	0.1661	1.5053
28	38.367	-81.600	1	0.0240	1.0712	6.6980	2.5528	0.0413	0.3685
28	38.367	-81.600	2	0.0229	1.1441	7.0377	2.4770	0.0439	0.4402
28	38.367	-81.600	3	0.0236	1.0480	5.6665	2.8650	0.0628	0.4630
28	38.367	-81.600	4	0.0219	1.8795	7.3345	2.6430	0.0761	0.4413
28	38.367	-81.600	5	0.0192	3.3233	21.3978	6.6168	0.0375	0.2010
28	38.367	-81.600	6	0.0193	5.7365	31.0197	4.3049	0.3078	2.0087
28	38.367	-81.600	7	0.0196	8.3610	26.8090	10.6700	0.1146	0.1821
28	38.367	-81.600	8	0.0168	1.2489	21.1020	34.7600	0.0419	0.1122
28	38.367	-81.600	9	0.0126	5.6790	25.6370	6.5800	0.0430	0.1964

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 6-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
28	38.367	-81.600	10	0.0124	1.5840	6.5602	2.4428	0.0557	0.5344
28	38.367	-81.600	11	0.0174	0.7357	3.6320	1.9680	0.0551	0.6164
28	38.367	-81.600	12	0.0208	0.3693	3.0435	2.0260	0.0373	0.4984
29	44.483	-88.133	1	0.0135	4.5738	5.2975	0.5596	0.1921	0.7574
29	44.483	-88.133	2	0.0126	1.8935	3.0843	0.7741	0.2720	1.0082
29	44.483	-88.133	3	0.0156	3.6477	6.8223	0.9074	0.1767	1.1214
29	44.483	-88.133	4	0.0157	7.6876	16.7976	1.5949	0.1158	0.7874
29	44.483	-88.133	5	0.0138	7.1398	16.9298	4.1066	0.0702	0.1935
29	44.483	-88.133	6	0.0140	5.1088	16.9026	7.0761	0.0596	0.1437
29	44.483	-88.133	7	0.0142	4.4812	21.5435	10.3882	0.0877	0.2255
29	44.483	-88.133	8	0.0162	1.8902	20.7260	11.8920	0.0678	0.3498
29	44.483	-88.133	9	0.0151	6.8749	28.0800	7.5490	0.0677	0.1978
29	44.483	-88.133	10	0.0122	16.7200	24.0340	2.1243	0.1812	0.5196
29	44.483	-88.133	11	0.0128	17.1348	18.6927	1.1100	0.1698	0.7016
29	44.483	-88.133	12	0.0133	2.8767	4.4240	0.6254	0.1238	0.7556
30	43.867	-91.250	1	0.0102	1.0525	3.8112	0.9520	0.0918	0.6776
30	43.867	-91.250	2	0.0103	0.2083	1.7747	0.6224	0.0925	1.6706
30	43.867	-91.250	3	0.0137	4.4239	7.7176	1.0293	0.1236	0.8154
30	43.867	-91.250	4	0.0137	1.4396	4.0230	2.3841	0.0933	0.5083
30	43.867	-91.250	5	0.0177	2.1876	10.6173	4.5351	0.1325	0.7042
30	43.867	-91.250	6	0.0162	9.9019	26.5407	7.7333	0.1325	0.2859
30	43.867	-91.250	7	0.0146	0.3876	6.2493	14.1012	0.0606	0.4624
30	43.867	-91.250	8	0.0138	3.8079	30.0748	11.5370	0.0714	0.3161
30	43.867	-91.250	9	0.0118	9.5675	27.2135	4.7786	0.0728	0.3314
30	43.867	-91.250	10	0.0081	8.2103	27.6272	4.4239	0.0464	0.2244
30	43.867	-91.250	11	0.0067	1.3418	3.2053	1.8423	0.0646	0.3414
30	43.867	-91.250	12	0.0115	0.9119	3.7615	0.6054	0.0896	1.1100
31	39.150	-84.517	1	0.0160	0.4784	2.4760	2.4340	0.0580	0.4590
31	39.150	-84.517	2	0.0148	1.3710	3.0735	1.3621	0.1344	0.7958
31	39.150	-84.517	3	0.0167	0.9322	3.6996	2.3659	0.0728	0.5700
31	39.150	-84.517	4	0.0184	6.2165	30.9390	6.3476	0.0588	0.2347
31	39.150	-84.517	5	0.0158	2.8798	33.7490	15.4010	0.0306	0.1563
31	39.150	-84.517	6	0.0145	2.3643	27.8537	18.8600	0.0397	0.1723
31	39.150	-84.517	7	0.0137	2.4336	23.3200	18.7570	0.0505	0.1781
31	39.150	-84.517	8	0.0127	2.8932	21.5030	14.3360	0.0666	0.2145
31	39.150	-84.517	9	0.0113	4.3882	13.4150	6.1740	0.1330	0.3995
31	39.150	-84.517	10	0.0097	4.2984	14.0299	3.1574	0.0738	0.4916
31	39.150	-84.517	11	0.0138	0.2966	3.8991	11.4290	1.5060	8.8466
31	39.150	-84.517	12	0.0141	6.3682	8.9830	1.1682	0.1307	0.8275
32	41.417	-81.867	1	0.0278	9.0258	9.2115	0.8250	0.2627	0.6156
32	41.417	-81.867	2	0.0255	8.8790	9.0368	1.0008	0.2500	0.5042
32	41.417	-81.867	3	0.0241	1.4416	3.8990	1.3515	0.1142	0.6165
32	41.417	-81.867	4	0.0240	2.1608	8.0980	2.3590	0.0848	0.4912
32	41.417	-81.867	5	0.0188	0.6055	3.8920	5.4590	0.0639	0.2724
32	41.417	-81.867	6	0.0166	0.3393	4.4927	12.1217	0.0403	0.2131
32	41.417	-81.867	7	0.0154	0.9408	8.3558	14.4700	0.0683	0.2124
32	41.417	-81.867	8	0.0149	3.2210	31.4236	16.7680	0.0494	0.1689
32	41.417	-81.867	9	0.0144	4.1396	32.8870	8.0200	0.0457	0.2850
32	41.417	-81.867	10	0.0162	1.3281	4.3363	2.2410	0.1032	0.4933
32	41.417	-81.867	11	0.0231	1.0061	3.1503	1.2700	0.1046	0.7439
32	41.417	-81.867	12	0.0244	8.2591	30.3500	0.6657	0.0631	1.4151
33	34.650	-86.767	1	0.0137	5.2306	8.8840	2.9719	0.0917	0.4861
33	34.650	-86.767	2	0.0141	6.0838	14.4480	2.9446	0.0910	0.7390
33	34.650	-86.767	3	0.0150	0.7226	3.2316	5.2080	0.0656	0.5097
33	34.650	-86.767	4	0.0139	2.5288	7.5387	4.9080	0.0919	0.5060
33	34.650	-86.767	5	0.0139	1.4268	8.4394	11.9222	0.0591	0.2632
33	34.650	-86.767	6	0.0150	7.5595	20.2315	7.6831	0.4736	0.9183
33	34.650	-86.767	7	0.0155	6.5206	25.4340	15.7820	0.1109	0.1670
33	34.650	-86.767	8	0.0137	8.1326	30.2760	13.5570	0.1898	0.2450
33	34.650	-86.767	9	0.0126	3.5116	30.8017	12.9540	0.0563	0.3634
33	34.650	-86.767	10	0.0087	7.1773	14.4080	3.4840	0.1532	0.9269
33	34.650	-86.767	11	0.0138	6.7984	14.2710	3.8536	0.1271	0.6264
33	34.650	-86.767	12	0.0138	1.8710	4.0687	3.1850	0.0971	0.5796
34	32.300	-86.400	1	0.0141	0.7947	3.9210	4.8700	0.0557	0.3694
34	32.300	-86.400	2	0.0131	0.6055	3.0372	5.0300	0.0480	0.4186
34	32.300	-86.400	3	0.0138	5.5280	15.0600	6.0940	0.0829	0.4134

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 7-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
34	32.300	-86.400	4	0.0103	5.2991	14.0577	7.6628	0.0785	0.3102
34	32.300	-86.400	5	0.0112	7.8660	30.5760	12.5180	0.0730	0.1882
34	32.300	-86.400	6	0.0144	6.9710	26.3500	8.0320	0.5001	1.4380
34	32.300	-86.400	7	0.0190	3.1479	32.1308	27.0963	0.0998	0.2292
34	32.300	-86.400	8	0.0145	8.0381	31.7913	14.5773	0.7988	0.8787
34	32.300	-86.400	9	0.0110	0.3365	2.5377	10.8350	0.0576	0.3015
34	32.300	-86.400	10	0.0072	5.1149	16.1548	8.9150	0.0879	0.2396
34	32.300	-86.400	11	0.0100	1.1124	4.7990	7.1261	0.0666	0.3173
34	32.300	-86.400	12	0.0136	9.9130	19.0390	4.0030	0.1031	0.4753
35	43.567	-116.217	1	0.0172	8.1318	11.5514	0.3837	0.1675	1.5443
35	43.567	-116.217	2	0.0157	0.3833	3.0734	0.9690	0.0417	0.5955
35	43.567	-116.217	3	0.0139	4.1343	14.3480	0.7979	0.0879	0.9672
35	43.567	-116.217	4	0.0111	5.2558	14.4854	1.3665	0.1034	0.6316
35	43.567	-116.217	5	0.0103	1.3252	5.0700	1.5303	0.0833	0.5686
35	43.567	-116.217	6	0.0074	0.5858	3.4811	2.1631	0.0730	0.5130
35	43.567	-116.217	7	0.0035	4.0822	13.6595	3.4930	0.3081	0.5309
35	43.567	-116.217	8	0.0037	5.8397	33.0623	5.3387	0.1059	0.2620
35	43.567	-116.217	9	0.0059	2.3988	17.3630	4.7480	0.0532	0.2466
35	43.567	-116.217	10	0.0070	0.7089	4.4570	1.1661	0.0466	0.6504
35	43.567	-116.217	11	0.0127	6.1050	13.9766	0.5922	0.0782	0.9566
35	43.567	-116.217	12	0.0168	1.0500	4.0136	0.5056	0.0977	1.4824
36	45.800	-108.533	1	0.0114	2.3148	3.9394	0.3198	0.1894	1.7218
36	45.800	-108.533	2	0.0112	0.3568	3.5245	0.3248	0.0359	1.7540
36	45.800	-108.533	3	0.0114	13.9370	16.8909	0.5045	0.1370	0.8744
36	45.800	-108.533	4	0.0087	3.1788	3.9924	0.9359	0.0656	0.4012
36	45.800	-108.533	5	0.0161	0.4569	3.0929	2.2273	0.0492	0.4737
36	45.800	-108.533	6	0.0167	1.8790	10.6963	3.6680	0.0761	0.3759
36	45.800	-108.533	7	0.0107	9.3440	30.4500	8.9580	0.5925	0.0549
36	45.800	-108.533	8	0.0086	1.7506	9.7990	3.5470	0.0861	0.3884
36	45.800	-108.533	9	0.0097	6.9035	13.3680	1.4710	0.1166	0.5577
36	45.800	-108.533	10	0.0073	2.9075	6.0693	0.8242	0.0831	0.8350
36	45.800	-108.533	11	0.0068	4.1314	15.0930	0.5207	0.0490	1.3005
36	45.800	-108.533	12	0.0083	12.1260	12.0364	0.4005	0.1752	1.0450
37	46.767	-100.767	1	0.0111	0.7908	12.8060	0.5633	0.0223	0.8771
37	46.767	-100.767	2	0.0097	0.6059	3.0326	0.3747	0.0555	0.8157
37	46.767	-100.767	3	0.0101	14.2805	9.0930	0.5020	0.3485	0.7199
37	46.767	-100.767	4	0.0101	1.0852	3.2954	1.3420	0.0829	0.5953
37	46.767	-100.767	5	0.0139	0.7169	4.1297	3.9324	0.0611	0.3145
37	46.767	-100.767	6	0.0181	0.9691	6.7360	9.1780	0.0767	0.1937
37	46.767	-100.767	7	0.0138	2.4386	13.3538	10.2840	0.1628	0.2585
37	46.767	-100.767	8	0.0127	0.4315	4.1849	9.1167	0.0828	0.2469
37	46.767	-100.767	9	0.0095	0.6943	3.2963	3.5152	0.0808	0.3043
37	46.767	-100.767	10	0.0058	9.0268	9.1918	1.2337	0.1535	0.4295
37	46.767	-100.767	11	0.0075	0.7934	3.1201	0.4059	0.0813	1.2803
37	46.767	-100.767	12	0.0104	1.2180	4.2940	0.3088	0.0797	1.0350
38	44.383	-98.217	1	0.0081	0.8283	2.9768	0.3994	0.1437	1.3094
38	44.383	-98.217	2	0.0031	9.1149	19.2189	0.4081	0.0470	1.9027
38	44.383	-98.217	3	0.0093	1.5927	3.1598	0.7416	0.1444	1.2610
38	44.383	-98.217	4	0.0121	2.1467	4.5060	1.3128	0.1284	0.7609
38	44.383	-98.217	5	0.0147	0.3933	2.9951	5.8668	0.0464	0.2066
38	44.383	-98.217	6	0.0160	5.9710	18.6310	10.4103	0.1560	0.1565
38	44.383	-98.217	7	0.0138	14.4046	32.0592	10.2735	0.7171	0.1976
38	44.383	-98.217	8	0.0112	4.3621	16.1074	13.3950	0.0806	0.0552
38	44.383	-98.217	9	0.0092	6.0529	13.4560	3.6201	0.1214	0.3161
38	44.383	-98.217	10	0.0059	6.4965	13.5361	3.9626	0.0659	0.1925
38	44.383	-98.217	11	0.0076	3.8770	3.7657	0.9120	0.3442	0.5934
38	44.383	-98.217	12	0.0054	3.5494	4.9371	0.3796	0.2180	1.9999
39	47.633	-117.533	1	0.0219	7.3711	19.6654	0.3028	0.1020	2.9508
39	47.633	-117.533	2	0.0183	0.2979	2.9150	0.6041	0.0356	1.2068
39	47.633	-117.533	3	0.0165	0.4112	3.6294	0.7802	0.0408	1.0037
39	47.633	-117.533	4	0.0119	1.5650	5.9280	0.7097	0.1021	1.3460
39	47.633	-117.533	5	0.0124	2.7753	15.1220	1.7940	0.0555	0.5187
39	47.633	-117.533	6	0.0109	1.0062	5.5200	3.1460	0.0747	0.3590
39	47.633	-117.533	7	0.0057	1.3532	12.1226	3.2880	0.0832	0.4831
39	47.633	-117.533	8	0.0066	1.3296	6.3286	1.5163	0.1158	0.9265
39	47.633	-117.533	9	0.0077	1.9194	6.0105	1.3069	0.0942	0.5753

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 8-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[X] (MM/HR)	φ	κ
39	47.633	-117.533	10	0.0104	3.4011	14.2820	0.7040	0.0727	1.3996
39	47.633	-117.533	11	0.0178	9.3872	20.3922	0.5069	0.0926	1.5837
39	47.633	-117.533	12	0.0243	1.3912	5.4700	0.3507	0.0842	2.5670
40	35.333	-94.367	1	0.0092	0.6284	3.0077	2.7431	0.0674	0.5601
40	35.333	-94.367	2	0.0116	0.5297	2.9980	2.7717	0.0831	0.9005
40	35.333	-94.367	3	0.0128	4.2200	14.3214	4.0816	0.1063	0.7286
40	35.333	-94.367	4	0.0146	4.8153	10.6957	6.8358	0.1438	0.2655
40	35.333	-94.367	5	0.0145	3.1797	10.8821	9.2529	0.1055	0.3069
40	35.333	-94.367	6	0.0129	4.0505	21.9218	14.4856	0.0969	0.2331
40	35.333	-94.367	7	0.0106	0.3054	3.1974	12.8872	0.0602	0.2947
40	35.333	-94.367	8	0.0094	4.0298	17.5587	11.8305	0.0986	0.2621
40	35.333	-94.367	9	0.0111	2.1780	16.2800	10.8320	0.0533	0.2948
40	35.333	-94.367	10	0.0087	0.8261	3.4504	7.1787	0.0685	0.3267
40	35.333	-94.367	11	0.0069	6.7835	12.9849	5.3188	0.0482	0.2604
40	35.333	-94.367	12	0.0078	0.7667	2.9712	3.2394	0.0467	0.4240
41	41.980	-97.433	1	0.0106	0.6626	1.8884	0.3821	0.5259	2.7595
41	41.980	-97.433	2	0.0083	0.1705	1.6237	0.5833	0.1034	2.1533
41	41.980	-97.433	3	0.0087	2.7197	3.7580	1.1417	0.1125	0.5919
41	41.980	-97.433	4	0.0124	2.1789	5.5739	1.8035	0.1027	0.6841
41	41.980	-97.433	5	0.0163	3.1707	24.6443	8.7312	0.0549	0.3290
41	41.980	-97.433	6	0.0151	1.0186	4.4463	10.7838	0.1115	0.2361
41	41.980	-97.433	7	0.0129	3.4130	15.6441	13.5257	0.1115	0.1994
41	41.980	-97.433	8	0.0118	3.6674	15.6722	8.0249	0.1097	0.2928
41	41.980	-97.433	9	0.0109	7.1761	13.2989	4.0023	0.1636	0.3399
41	41.980	-97.433	10	0.0060	0.5880	3.6292	4.8286	0.0287	0.1925
41	41.980	-97.433	11	0.0041	2.3170	4.8168	1.0918	0.0971	1.0437
41	41.980	-97.433	12	0.0066	2.6085	4.4940	0.5647	0.1398	1.0087
42	39.567	-97.667	1	0.0058	1.0149	3.4976	0.6647	0.0805	0.7786
42	39.567	-97.667	2	0.0069	0.6025	3.5408	0.6195	0.0812	1.7465
42	39.567	-97.667	3	0.0092	0.9335	4.0443	1.3229	0.0904	1.1651
42	39.567	-97.667	4	0.0099	1.9134	5.7677	6.0924	0.1886	0.3313
42	39.567	-97.667	5	0.0149	7.4069	31.4072	8.3327	0.0968	0.2481
42	39.567	-97.667	6	0.0124	1.8116	11.1743	10.8775	0.0964	0.3248
42	39.567	-97.667	7	0.0114	8.3563	34.7492	16.5080	0.0970	0.1243
42	39.567	-97.667	8	0.0114	12.0522	34.2423	11.2127	0.1499	0.1329
42	39.567	-97.667	9	0.0086	3.9561	14.0540	8.8465	0.1146	0.2097
42	39.567	-97.667	10	0.0035	2.9517	6.0591	4.9953	0.0329	0.1191
42	39.567	-97.667	11	0.0044	0.7220	3.6325	3.1325	0.0340	0.1955
42	39.567	-97.667	12	0.0048	0.6023	2.9919	1.0881	0.0606	0.6904
43	35.400	-97.600	1	0.0066	0.8892	3.5769	2.6646	0.0686	0.3849
43	35.400	-97.600	2	0.0087	2.2811	5.3805	1.9981	0.1009	0.4826
43	35.400	-97.600	3	0.0097	5.2510	14.4018	5.1885	0.1005	0.3289
43	35.400	-97.600	4	0.0103	6.6069	25.7184	9.0878	0.0739	0.2228
43	35.400	-97.600	5	0.0125	5.3257	14.4731	9.6506	0.0646	0.1969
43	35.400	-97.600	6	0.0127	2.3483	10.9148	15.3707	0.1191	0.2619
43	35.400	-97.600	7	0.0088	0.5279	3.0155	13.1953	0.0669	0.1457
43	35.400	-97.600	8	0.0085	3.6742	17.0440	10.9104	0.0936	0.2716
43	35.400	-97.600	9	0.0091	4.6622	14.7053	10.0736	0.0730	0.2048
43	35.400	-97.600	10	0.0043	7.0432	13.0754	6.6913	0.0273	0.1535
43	35.400	-97.600	11	0.0065	1.1295	4.2882	3.9102	0.0634	0.3718
43	35.400	-97.600	12	0.0054	1.4365	3.8263	2.8718	0.0614	0.2942
44	37.233	-93.383	1	0.0106	9.0243	11.4938	2.0938	0.1612	0.3515
44	37.233	-93.383	2	0.0123	0.6277	2.2281	1.5639	0.1026	0.7557
44	37.233	-93.383	3	0.0141	0.7976	3.2783	3.0571	0.0687	0.4653
44	37.233	-93.383	4	0.0157	3.6045	10.7113	4.7298	0.0934	0.3877
44	37.233	-93.383	5	0.0144	4.0703	15.0438	8.4304	0.0629	0.2061
44	37.233	-93.383	6	0.0162	8.2698	28.0993	7.7501	0.4550	1.5694
44	37.233	-93.383	7	0.0102	2.2862	12.1676	15.1228	0.0838	0.2289
44	37.233	-93.383	8	0.0122	0.2301	3.2164	16.1196	0.0430	0.1908
44	37.233	-93.383	9	0.0124	4.8848	19.3049	9.0679	0.1013	0.3983
44	37.233	-93.383	10	0.0091	9.8219	18.5754	4.4523	0.0754	0.3409
44	37.233	-93.383	11	0.0111	0.3024	2.1031	4.4563	0.0474	0.3674
44	37.233	-93.383	12	0.0104	8.2254	12.6774	2.5543	0.0911	0.3902
45	30.533	-91.150	1	0.0136	10.1552	29.5984	3.7444	0.1001	0.7530
45	30.533	-91.150	2	0.0134	9.5927	20.8190	5.0299	0.1233	0.6054
45	30.533	-91.150	3	0.0124	2.3751	7.5248	7.2896	0.1075	0.4209

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 9-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
45	30.533	-91.150	4	0.0096	0.4545	2.6059	11.5796	0.0639	0.3127
45	30.533	-91.150	5	0.0096	12.3137	29.5264	12.9989	0.0886	0.1719
45	30.533	-91.150	6	0.0153	4.7537	20.8246	6.7872	0.5349	2.1867
45	30.533	-91.150	7	0.0227	3.6605	26.4195	28.0181	0.1052	0.1577
45	30.533	-91.150	8	0.0184	1.2411	9.1200	24.2629	0.0945	0.1592
45	30.533	-91.150	9	0.0125	6.4383	28.9490	17.6544	0.0887	0.1742
45	30.533	-91.150	10	0.0038	8.1713	13.6261	8.8497	0.0332	0.1266
45	30.533	-91.150	11	0.0107	5.2904	13.9851	6.9846	0.1636	0.5770
45	30.533	-91.150	12	0.0126	3.7831	7.9563	6.6059	0.0937	0.2819
46	44.750	-123.017	1	0.0272	0.8559	2.4215	0.9569	0.0625	0.7973
46	44.750	-123.017	2	0.0263	2.7590	4.5144	0.8075	0.1056	1.0665
46	44.750	-123.017	3	0.0275	6.6274	20.7652	0.7877	0.0638	1.2176
46	44.750	-123.017	4	0.0192	6.6110	20.7652	0.9234	0.0589	0.8004
46	44.750	-123.017	5	0.0097	6.9851	14.6509	1.1357	0.0306	0.3280
46	44.750	-123.017	6	0.0093	1.4186	6.5228	2.3874	0.0467	0.3728
46	44.750	-123.017	7	0.0025	9.2842	30.0303	2.4305	0.0714	0.4962
46	44.750	-123.017	8	0.0044	8.8215	30.1950	1.1734	0.0596	0.7992
46	44.750	-123.017	9	0.0081	8.7548	19.0699	1.7309	0.0718	0.5060
46	44.750	-123.017	10	0.0168	6.6358	20.2476	1.0642	0.0722	1.2533
46	44.750	-123.017	11	0.0309	8.4951	30.8016	0.9555	0.0577	1.4938
46	44.750	-123.017	12	0.0320	1.4225	3.6849	0.9301	0.0777	1.0770
47	44.767	-106.967	1	0.0128	1.1533	4.6381	0.2138	0.1048	2.8534
47	44.767	-106.967	2	0.0110	5.4170	30.5312	0.3344	0.0441	1.7873
47	44.767	-106.967	3	0.0156	0.5666	3.7310	0.4263	0.0660	1.6775
47	44.767	-106.967	4	0.0098	2.7612	3.2982	0.7400	0.0878	0.5883
47	44.767	-106.967	5	0.0164	0.8978	4.6331	2.4359	0.0603	0.4411
47	44.767	-106.967	6	0.0167	0.6358	4.3113	3.7257	0.0782	0.4260
47	44.767	-106.967	7	0.0091	3.0277	32.7419	9.2402	0.0411	0.1330
47	44.767	-106.967	8	0.0087	3.0173	21.2059	8.1895	0.0674	0.1267
47	44.767	-106.967	9	0.0090	1.9387	5.3808	1.1644	0.0749	0.6647
47	44.767	-106.967	10	0.0086	3.2314	3.7475	0.7036	0.1743	0.7450
47	44.767	-106.967	11	0.0077	4.3152	14.7407	0.3209	0.0559	2.0801
47	44.767	-106.967	12	0.0125	0.3622	5.4029	0.3898	0.0294	1.5809
48	32.333	-88.750	1	0.0136	9.5882	30.5443	2.8109	0.1033	1.3084
48	32.333	-88.750	2	0.0134	1.2791	5.1390	3.9628	0.0689	0.7287
48	32.333	-88.750	3	0.0133	6.6551	14.9871	6.8070	0.0961	0.4026
48	32.333	-88.750	4	0.0131	1.9094	17.3058	11.1317	0.0560	0.5522
48	32.333	-88.750	5	0.0105	0.3114	3.0374	13.8023	0.0296	0.1707
48	32.333	-88.750	6	0.0103	5.4102	31.4627	15.4449	0.0310	0.1107
48	32.333	-88.750	7	0.0178	2.7706	13.8989	15.0975	0.2304	0.5187
48	32.333	-88.750	8	0.0145	1.3011	14.5672	21.4909	0.1179	0.3739
48	32.333	-88.750	9	0.0087	7.1919	15.5643	7.8081	0.0763	0.2222
48	32.333	-88.750	10	0.0064	5.8168	14.4202	7.4025	0.0661	0.2444
48	32.333	-88.750	11	0.0114	1.4915	15.2389	7.9057	0.0637	0.8658
48	32.333	-88.750	12	0.0142	0.5377	4.1981	5.4816	0.0530	0.7421
49	43.650	-70.317	1	0.0163	2.3127	5.0815	0.7063	0.1507	2.8505
49	43.650	-70.317	2	0.0160	1.4400	2.7224	1.0688	0.1965	1.5715
49	43.650	-70.317	3	0.0157	3.4097	3.0039	1.2626	0.3370	1.0326
49	43.650	-70.317	4	0.0171	2.1128	2.5670	1.4757	0.2111	0.6486
49	43.650	-70.317	5	0.0170	0.8743	3.1067	1.8109	0.0866	0.6988
49	43.650	-70.317	6	0.0167	0.2588	2.8586	6.2828	0.0390	0.2582
49	43.650	-70.317	7	0.0140	8.9159	30.1690	6.4952	0.1012	0.2656
49	43.650	-70.317	8	0.0138	10.8178	29.5199	4.8089	0.1257	0.3588
49	43.650	-70.317	9	0.0132	0.5161	2.0211	3.5268	0.1834	0.6990
49	43.650	-70.317	10	0.0120	1.2704	2.6943	2.3901	0.1242	0.5932
49	43.650	-70.317	11	0.0166	2.6847	3.5309	1.7714	0.1740	0.7966
49	43.650	-70.317	12	0.0148	1.5804	2.0673	1.4245	0.1673	0.6248
50	44.467	-73.150	1	0.0229	0.0660	2.2025	0.5158	0.0217	2.1312
50	44.467	-73.150	2	0.0167	4.1006	3.2437	0.6413	0.2704	0.6564
50	44.467	-73.150	3	0.0176	10.9088	10.9681	0.7127	0.1599	0.7042
50	44.467	-73.150	4	0.0179	6.9337	12.7341	1.1625	0.1052	0.7240
50	44.467	-73.150	5	0.0204	3.2850	15.2423	4.2688	0.0642	0.2663
50	44.467	-73.150	6	0.0197	3.3674	15.1933	7.2183	0.0660	0.1755
50	44.467	-73.150	7	0.0178	3.7783	14.8848	7.7199	0.0880	0.1934
50	44.467	-73.150	8	0.0203	0.5242	4.0437	7.2014	0.0625	0.2677
50	44.467	-73.150	9	0.0180	0.5695	3.0309	4.1229	0.0722	0.3236

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 10-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[X] (MM/HR)	ϕ	κ
50	44.467	-73.150	10	0.0167	1.1169	4.1220	1.6877	0.0761	0.6492
50	44.467	-73.150	11	0.0222	7.6745	13.7300	1.1595	0.1210	0.7082
50	44.467	-73.150	12	0.0246	0.1563	1.9975	0.5442	0.0552	2.1771
51	41.167	-73.133	1	0.0163	4.2300	4.1808	1.2954	0.4520	1.2936
51	41.167	-73.133	2	0.0143	2.9913	5.4076	0.8215	0.2045	2.7557
51	41.167	-73.133	3	0.0158	3.2512	3.2062	1.5665	0.3323	0.8270
51	41.167	-73.133	4	0.0140	6.1517	7.2279	1.9760	0.1520	0.5785
51	41.167	-73.133	5	0.0153	1.6046	4.2409	2.7825	0.1096	0.5122
51	41.167	-73.133	6	0.0133	0.4225	3.0534	5.3967	0.0729	0.4462
51	41.167	-73.133	7	0.0119	0.9149	4.0667	10.2357	0.1003	0.2521
51	41.167	-73.133	8	0.0131	1.8444	6.7252	7.5094	0.0990	0.2778
51	41.167	-73.133	9	0.0114	1.0215	3.8213	4.7460	0.0852	0.3826
51	41.167	-73.133	10	0.0077	2.3650	5.0910	3.8309	0.0801	0.4287
51	41.167	-73.133	11	0.0077	2.3499	5.0574	3.8367	0.0796	0.4245
51	41.167	-73.133	12	0.0160	1.0241	3.2446	0.9960	0.1394	2.2279
52	37.100	-88.600	1	0.0075	2.8404	11.4981	7.1633	0.0279	0.1921
52	37.100	-88.600	2	0.0098	0.5448	3.5405	4.4829	0.0405	0.4514
52	37.100	-88.600	3	0.0137	1.4318	6.4240	4.6127	0.0852	0.6459
52	37.100	-88.600	4	0.0129	9.1737	30.6175	7.9582	0.0613	0.2274
52	37.100	-88.600	5	0.0134	7.4023	31.0571	13.2931	0.7324	1.7462
52	37.100	-88.600	6	0.0098	4.9853	32.3009	15.4281	0.0681	0.2962
52	37.100	-88.600	7	0.0069	1.8761	9.4967	17.3955	0.0216	0.0760
52	37.100	-88.600	8	0.0059	3.7614	17.4071	29.2009	0.0158	0.0283
52	37.100	-88.600	9	0.0072	8.7293	30.9901	20.5082	0.0738	0.1150
52	37.100	-88.600	10	0.0116	2.1540	22.1705	3.4068	0.3183	6.9436
52	37.100	-88.600	11	0.0091	4.7318	14.7483	4.0084	0.0609	0.5847
52	37.100	-88.600	12	0.0102	1.3106	16.8426	11.5220	0.0176	0.2288
53	42.933	-78.733	1	0.0375	1.3983	2.6270	0.7181	0.1983	0.6823
53	42.933	-78.733	2	0.0323	2.8429	3.8224	0.6782	0.2234	0.7193
53	42.933	-78.733	3	0.0256	4.0997	6.7381	1.0000	0.1527	0.6812
53	42.933	-78.733	4	0.0225	6.0054	14.0709	1.4463	0.0954	0.5725
53	42.933	-78.733	5	0.0172	5.3156	14.2757	2.8347	0.0994	0.4088
53	42.933	-78.733	6	0.0156	0.1508	2.7282	11.9710	0.0308	0.1668
53	42.933	-78.733	7	0.0143	7.6438	30.6331	8.4406	0.1118	0.2446
53	42.933	-78.733	8	0.0163	10.6583	31.2307	8.1424	0.1254	0.2490
53	42.933	-78.733	9	0.0165	0.4556	3.0497	4.9012	0.0654	0.3573
53	42.933	-78.733	10	0.0169	0.6419	3.1215	2.2520	0.0632	0.4946
53	42.933	-78.733	11	0.0257	2.1293	4.4622	1.0992	0.1136	0.7914
53	42.933	-78.733	12	0.0353	1.7802	3.0976	0.8871	0.1647	0.5792
54	42.867	-100.550	1	0.0056	2.8621	5.2363	0.3411	0.1213	0.8080
54	42.867	-100.550	2	0.0097	0.1660	1.9993	0.2194	0.0674	3.2699
54	42.867	-100.550	3	0.0083	9.7760	17.9747	0.8686	0.1105	0.7628
54	42.867	-100.550	4	0.0111	5.2167	10.9125	1.4629	0.1079	0.6891
54	42.867	-100.550	5	0.0153	0.6374	3.3410	5.3670	0.0791	0.2920
54	42.867	-100.550	6	0.0181	2.6768	33.1481	14.6303	0.0702	0.2583
54	42.867	-100.550	7	0.0130	5.0764	20.5379	13.9887	0.1062	0.1127
54	42.867	-100.550	8	0.0118	12.5055	27.7783	9.5297	0.1858	0.1118
54	42.867	-100.550	9	0.0089	5.3371	21.3605	3.8446	0.0821	0.3964
54	42.867	-100.550	10	0.0057	0.6983	4.0547	2.0091	0.0652	0.7263
54	42.867	-100.550	11	0.0049	2.5493	4.0074	0.9303	0.1430	0.5599
54	42.867	-100.550	12	0.0062	0.5034	4.2982	0.2696	0.0558	2.4022
55	33.433	-112.017	1	0.0047	0.5842	3.8845	1.2874	0.0513	0.8995
55	33.433	-112.017	2	0.0044	0.5776	3.7998	2.5853	0.0298	0.2555
55	33.433	-112.017	3	0.0038	1.7435	5.8427	2.1332	0.0471	0.4008
55	33.433	-112.017	4	0.0012	4.3265	29.9458	3.4072	0.0294	0.3269
55	33.433	-112.017	5	0.0003	4.4533	29.3493	8.6770	0.0034	0.0273
55	33.433	-112.017	6	0.0009	4.3052	11.3079	7.1674	0.1800	0.1668
55	33.433	-112.017	7	0.0048	6.8369	31.3378	6.2198	0.5117	1.1682
55	33.433	-112.017	8	0.0064	5.9344	31.6942	9.1670	0.7057	1.0342
55	33.433	-112.017	9	0.0025	5.4684	31.9611	11.6526	0.0536	0.1742
55	33.433	-112.017	10	0.0027	10.3734	30.2450	3.3711	0.0588	0.3192
55	33.433	-112.017	11	0.0024	9.3587	27.7666	3.0104	0.0378	0.2497
55	33.433	-112.017	12	0.0036	6.2227	20.9824	1.5567	0.0636	0.9745
56	32.133	-81.200	1	0.0130	1.6401	6.0142	3.5130	0.0983	0.6184
56	32.133	-81.200	2	0.0132	2.1360	5.2666	2.7555	0.1054	0.5965
56	32.133	-81.200	3	0.0131	0.6662	3.8261	4.9563	0.0653	0.4901

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 11-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
56	32.133	-81.200	4	0.0090	6.2121	23.3182	7.9619	0.1057	0.4840
56	32.133	-81.200	5	0.0118	7.7163	25.5991	12.8347	0.0847	0.1754
56	32.133	-81.200	6	0.0169	7.8602	30.2961	15.0836	0.0923	0.1706
56	32.133	-81.200	7	0.0227	4.9285	25.1590	19.6925	0.1005	0.1566
56	32.133	-81.200	8	0.0206	2.9345	8.2146	8.8016	1.4246	3.2829
56	32.133	-81.200	9	0.0151	0.6443	3.4083	10.7157	0.0800	0.2717
56	32.133	-81.200	10	0.0074	1.2642	7.2071	11.7387	0.0393	0.1268
56	32.133	-81.200	11	0.0086	1.0076	3.3862	3.1897	0.1077	0.5489
56	32.133	-81.200	12	0.0111	7.2001	25.0348	2.7359	0.1000	0.9426
57	40.783	-111.950	1	0.0148	1.8363	5.7090	0.4655	0.1507	2.3652
57	40.783	-111.950	2	0.0140	0.8511	8.0923	0.9535	0.0517	1.4377
57	40.783	-111.950	3	0.0137	2.5059	5.5494	0.9124	0.0897	0.7111
57	40.783	-111.950	4	0.0132	2.7070	5.2662	0.9944	0.1205	0.9678
57	40.783	-111.950	5	0.0115	0.4740	3.2384	1.6046	0.0460	0.6504
57	40.783	-111.950	6	0.0067	7.4630	20.3691	1.9165	0.0741	0.3986
57	40.783	-111.950	7	0.0065	6.1459	31.4946	9.7791	0.3701	0.3773
57	40.783	-111.950	8	0.0076	8.2003	30.9737	5.2543	0.1879	0.3271
57	40.783	-111.950	9	0.0067	0.5396	2.9878	1.9666	0.0716	0.7115
57	40.783	-111.950	10	0.0089	4.5805	14.7545	0.8596	0.1117	1.8203
57	40.783	-111.950	11	0.0109	1.8349	7.0589	0.5799	0.1042	2.3100
57	40.783	-111.950	12	0.0141	2.1254	7.3371	0.5256	0.1229	2.2405
58	38.433	-113.017	1	0.0084	5.4918	13.7680	0.5099	0.0861	1.0029
58	38.433	-113.017	2	0.0104	6.7130	20.2773	0.6301	0.1148	1.1682
58	38.433	-113.017	3	0.0115	4.7375	14.7290	0.9073	0.0826	0.7725
58	38.433	-113.017	4	0.0085	2.9557	15.9703	1.3917	0.0494	0.6446
58	38.433	-113.017	5	0.0071	1.4332	6.4893	1.6652	0.0775	0.5708
58	38.433	-113.017	6	0.0047	1.9555	22.7962	5.6699	0.0903	0.4797
58	38.433	-113.017	7	0.0076	2.5248	32.5642	12.3620	0.0787	0.1739
58	38.433	-113.017	8	0.0087	10.0052	30.3394	3.8952	0.2810	0.4188
58	38.433	-113.017	9	0.0056	8.6702	30.7739	2.3653	0.1356	0.8452
58	38.433	-113.017	10	0.0054	8.6064	30.7934	1.0730	0.0822	1.1816
58	38.433	-113.017	11	0.0061	8.6045	30.7941	0.9116	0.0871	1.2675
58	38.433	-113.017	12	0.0066	8.4533	30.8267	0.6721	0.0759	1.3239
59	31.800	-106.400	1	0.0045	0.7119	4.4997	0.8496	0.0382	0.6195
59	31.800	-106.400	2	0.0037	6.6503	20.2599	0.8048	0.0934	1.3720
59	31.800	-106.400	3	0.0029	0.7688	4.3098	1.8465	0.0495	0.3828
59	31.800	-106.400	4	0.0018	0.7058	4.5972	0.9850	0.0541	1.1331
59	31.800	-106.400	5	0.0035	2.3244	28.4985	19.4438	0.2323	0.1144
59	31.800	-106.400	6	0.0047	7.2126	25.5654	6.4124	0.0840	0.1416
59	31.800	-106.400	7	0.0114	1.6763	9.2509	10.3430	0.1188	0.1588
59	31.800	-106.400	8	0.0111	3.2250	12.0293	7.7954	0.1353	0.1321
59	31.800	-106.400	9	0.0055	0.4761	3.0073	8.5642	0.0255	0.0909
59	31.800	-106.400	10	0.0036	1.8925	6.2336	2.6418	0.0279	0.1890
59	31.800	-106.400	11	0.0019	2.0401	5.7497	1.4199	0.0217	0.2074
59	31.800	-106.400	12	0.0037	3.3656	14.8478	0.8845	0.0551	1.2036
60	27.767	-97.500	1	0.0042	11.3165	17.9300	2.2735	0.0822	0.6897
60	27.767	-97.500	2	0.0089	6.7083	13.0975	4.5715	0.0878	0.1894
60	27.767	-97.500	4	0.0111	0.1221	1.9783	10.3717	0.5695	1.8988
60	27.767	-97.500	4	0.0067	1.1397	4.1226	12.2959	0.1331	0.1584
60	27.767	-97.500	5	0.0093	2.6503	15.1431	15.6533	0.1696	0.4820
60	27.767	-97.500	6	0.0085	13.1005	30.3460	16.2080	0.1658	0.1231
60	27.767	-97.500	7	0.0027	0.9491	4.3007	13.2867	0.0125	0.0766
60	27.767	-97.500	8	0.0045	10.7764	27.9734	17.4621	0.0357	0.0946
60	27.767	-97.500	9	0.0084	0.5303	3.0327	14.1264	0.0197	0.1068
60	27.767	-97.500	10	0.0084	0.4129	3.0562	15.4646	0.0480	0.1660
60	27.767	-97.500	11	0.0082	0.4966	3.5263	4.8491	0.1236	0.7216
60	27.767	-97.500	12	0.0084	0.8148	2.9280	3.8679	0.1502	0.3609
61	44.117	-123.217	1	0.0249	0.5861	2.0170	1.3313	0.0577	0.7373
61	44.117	-123.217	2	0.0236	2.3256	3.5653	1.0353	0.1155	0.9869
61	44.117	-123.217	3	0.0240	6.3840	14.3289	1.0472	0.0789	1.0359
61	44.117	-123.217	4	0.0179	3.8015	14.6861	1.4538	0.0562	0.7186
61	44.117	-123.217	5	0.0137	0.5696	4.6240	1.6794	0.0359	0.6639
61	44.117	-123.217	6	0.0088	4.8767	14.3131	2.1134	0.0782	0.4799
61	44.117	-123.217	7	0.0030	0.5527	4.2537	1.7359	0.0670	0.9435
61	44.117	-123.217	8	0.0047	10.5953	29.8638	4.1859	0.1039	0.3073
61	44.117	-123.217	9	0.0068	0.4274	3.4821	2.9778	0.0280	0.3574

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 12-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
61	44.117	-123.217	10	0.0129	2.5579	5.6435	1.2051	0.0868	1.0792
61	44.117	-123.217	11	0.0213	2.8248	5.2967	1.4235	0.0785	0.8706
61	44.117	-123.217	12	0.0272	0.9311	2.3083	1.3556	0.0853	0.8364
62	46.150	-123.883	1	0.0349	13.2831	10.1309	1.0018	0.1392	0.8075
62	46.150	-123.883	2	0.0381	7.1924	13.2416	0.9195	0.0923	1.1976
62	46.150	-123.883	3	0.0365	3.7197	14.4198	1.1574	0.0477	0.9538
62	46.150	-123.883	4	0.0324	2.0349	6.4134	0.8345	0.0791	1.2282
62	46.150	-123.883	5	0.0238	0.6055	3.6485	1.1048	0.0559	0.8706
62	46.150	-123.883	6	0.0193	1.2882	3.2921	1.1512	0.1167	0.7378
62	46.150	-123.883	7	0.0092	0.5504	2.1664	1.2809	0.0820	0.4907
62	46.150	-123.883	8	0.0089	1.7117	3.6263	1.3148	0.0872	0.4256
62	46.150	-123.883	9	0.0144	1.9665	7.8280	2.1161	0.0530	0.5664
62	46.150	-123.883	10	0.0225	1.7543	5.1909	1.6291	0.0711	0.8426
62	46.150	-123.883	11	0.0360	2.2214	5.3224	1.3823	0.0688	0.8991
62	46.150	-123.883	12	0.0397	2.7405	4.8902	1.2546	0.0825	0.7849
63	47.450	-122.300	1	0.0287	0.8960	2.6231	0.7304	0.0820	1.1986
63	47.450	-122.300	2	0.0191	2.3198	3.9535	0.7911	0.0531	0.6136
63	47.450	-122.300	3	0.0244	0.8872	3.7765	0.7740	0.0505	0.9836
63	47.450	-122.300	4	0.0215	1.2775	6.4927	0.8335	0.0638	1.1520
63	47.450	-122.300	5	0.0150	13.8067	28.2416	0.7582	0.1225	1.0780
63	47.450	-122.300	6	0.0110	0.9373	3.1382	1.1677	0.0898	0.7332
63	47.450	-122.300	7	0.0056	1.9059	6.0695	1.0966	0.0663	0.6868
63	47.450	-122.300	8	0.0057	1.9092	4.4635	1.6451	0.0507	0.3195
63	47.450	-122.300	9	0.0135	3.8735	14.6880	1.7474	0.0560	0.5839
63	47.450	-122.300	10	0.0137	7.6306	12.4729	1.1714	0.0898	0.8172
63	47.450	-122.300	11	0.0288	3.5211	14.7842	0.9148	0.0540	1.4466
63	47.450	-122.300	12	0.0300	2.9378	4.7453	0.7315	0.1079	1.2231
64	48.217	-106.617	1	0.0117	0.2258	3.0602	0.4388	0.0336	0.7149
64	48.217	-106.617	2	0.0101	3.2811	17.4386	0.4469	0.0622	0.6410
64	48.217	-106.617	3	0.0092	0.5551	2.8403	0.5135	0.0562	0.4889
64	48.217	-106.617	4	0.0094	1.2789	6.1303	0.5941	0.0883	1.3697
64	48.217	-106.617	5	0.0138	0.6404	3.1088	1.6440	0.0812	0.5992
64	48.217	-106.617	6	0.0152	0.7880	5.3359	6.9619	0.0755	0.2272
64	48.217	-106.617	7	0.0114	0.3019	3.4795	13.2585	0.0826	0.1759
64	48.217	-106.617	8	0.0106	0.3384	3.0409	9.0728	0.5605	0.9740
64	48.217	-106.617	9	0.0089	0.8175	3.1782	1.3580	0.1075	0.7302
64	48.217	-106.617	10	0.0059	3.4574	4.4874	0.7092	0.2343	0.9349
64	48.217	-106.617	11	0.0083	0.3227	3.6963	0.4489	0.0418	0.9905
64	48.217	-106.617	12	0.0124	0.2218	2.8044	0.4345	0.0315	0.5405
65	48.183	-103.633	1	0.0111	12.7650	13.8312	0.3588	0.2376	0.8960
65	48.183	-103.633	2	0.0087	2.1568	30.6402	0.6316	0.0227	0.9728
65	48.183	-103.633	3	0.0088	1.2203	3.3724	0.4896	0.0744	0.7036
65	48.183	-103.633	4	0.0088	1.6441	3.1055	1.1279	0.1096	0.4874
65	48.183	-103.633	5	0.0109	0.4640	2.9415	3.0323	0.0306	0.2027
65	48.183	-103.633	6	0.0180	4.2062	21.7144	9.1587	0.7695	1.3160
65	48.183	-103.633	7	0.0135	0.4241	3.7586	8.4709	0.5736	1.6256
65	48.183	-103.633	8	0.0100	0.2230	3.0819	8.8793	0.0532	0.1980
65	48.183	-103.633	9	0.0103	0.6720	3.0826	1.8633	0.1241	0.8571
65	48.183	-103.633	10	0.0048	2.0562	2.9516	0.9248	0.1294	0.5835
65	48.183	-103.633	11	0.0076	0.3172	3.0214	0.3517	0.0408	1.6189
65	48.183	-103.633	12	0.0124	0.7872	3.0421	0.3550	0.1729	1.6798
66	46.467	-84.367	1	0.0304	8.3693	9.3202	0.4224	0.1416	0.7229
66	46.467	-84.367	2	0.0256	0.9785	2.5337	0.3743	0.1430	1.2976
66	46.467	-84.367	3	0.0188	2.2911	4.3431	0.7824	0.1295	0.8015
66	46.467	-84.367	4	0.0160	15.1970	20.4194	1.1679	0.1381	0.6598
66	46.467	-84.367	5	0.0154	3.2879	7.0763	2.9344	0.1192	0.3379
66	46.467	-84.367	6	0.0176	0.6621	4.0405	4.7213	0.0666	0.3610
66	46.467	-84.367	7	0.0149	1.4436	7.3033	5.8218	0.0917	0.3646
66	46.467	-84.367	8	0.0175	7.0171	13.4063	5.5425	0.2397	0.2753
66	46.467	-84.367	9	0.0219	5.9511	13.7978	2.5407	0.1480	0.6148
66	46.467	-84.367	10	0.0099	5.0899	33.1978	5.8085	1.2702	15.1793
66	46.467	-84.367	11	0.0289	4.1422	6.4640	0.8820	0.1448	0.7220
66	46.467	-84.367	12	0.0341	10.1959	11.0849	0.4966	0.1845	0.8142
67	30.683	-88.250	1	0.0165	0.1040	2.3898	9.2340	0.0338	0.4568
67	30.683	-88.250	2	0.0134	4.2275	8.3143	5.3609	0.0919	0.3672
67	30.683	-88.250	3	0.0145	2.1186	6.4036	8.6316	0.0925	0.3027

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 13-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
67	30.683	-88.250	4	0.0098	11.2094	24.4502	11.9547	0.2380	0.4615
67	30.683	-88.250	5	0.0118	7.3275	20.6186	15.9334	0.1193	0.2125
67	30.683	-88.250	6	0.0172	4.9163	18.1303	14.1390	0.1201	0.1820
67	30.683	-88.250	7	0.0274	1.5383	9.6429	19.6475	0.1128	0.1740
67	30.683	-88.250	8	0.0255	0.3779	4.5929	25.5614	0.0636	0.1633
67	30.683	-88.250	9	0.0112	6.2580	20.5401	19.8233	0.0380	0.0810
67	30.683	-88.250	10	0.0054	2.4151	6.7797	9.0647	0.0351	0.1520
67	30.683	-88.250	11	0.0107	1.4508	4.6954	9.7674	0.0878	0.1911
67	30.683	-88.250	12	0.0143	6.2331	12.9931	5.7897	0.1200	0.3798
68	24.550	-81.750	1	0.0024	5.9904	26.9107	13.5370	0.0278	0.2300
68	24.550	-81.750	2	0.0088	0.2633	3.6020	13.5490	0.0333	0.1550
68	24.550	-81.750	3	0.0075	7.1994	20.2899	6.8015	0.5575	1.2215
68	24.550	-81.750	4	0.0041	6.8776	30.3075	4.8245	0.8951	10.6708
68	24.550	-81.750	5	0.0078	5.0069	14.1418	16.1820	0.0532	0.0893
68	24.550	-81.750	6	0.0196	0.7779	5.3811	16.6270	0.0929	0.2043
68	24.550	-81.750	7	0.0194	7.4930	25.0773	13.6885	0.9611	0.4471
68	24.550	-81.750	8	0.0253	2.9241	21.9106	23.4662	0.1436	0.1554
68	24.550	-81.750	9	0.0285	3.1971	10.9071	11.9797	0.2178	0.2120
68	24.550	-81.750	10	0.0161	7.1449	20.4381	12.5332	0.1553	0.1574
68	24.550	-81.750	11	0.0048	0.2886	1.6578	4.4548	1.2399	12.0696
68	24.550	-81.750	12	0.0097	2.7834	4.6694	9.0951	0.8538	0.0951
69	29.183	-81.050	1	0.0094	0.3027	2.4360	4.8612	0.0555	0.4118
69	29.183	-81.050	2	0.0104	0.6084	3.0269	6.5374	0.0394	0.1799
69	29.183	-81.050	3	0.0103	9.0860	18.5930	6.0850	0.1137	0.2805
69	29.183	-81.050	4	0.0060	4.1038	15.1429	12.9366	0.0492	0.1454
69	29.183	-81.050	5	0.0126	4.0840	22.8994	17.1252	0.0777	0.1305
69	29.183	-81.050	6	0.0194	1.2916	8.5839	18.3482	0.0770	0.1862
69	29.183	-81.050	7	0.0225	6.0335	30.9668	9.2193	0.5696	2.0150
69	29.183	-81.050	8	0.0216	5.9800	30.6693	20.2140	0.1040	0.1492
69	29.183	-81.050	9	0.0215	0.7344	4.8516	16.0422	0.0747	0.2002
69	29.183	-81.050	10	0.0149	10.8408	29.4632	9.2279	0.1910	0.3912
69	29.183	-81.050	11	0.0099	0.0946	2.0581	11.5488	0.0282	0.2286
69	29.183	-81.050	12	0.0099	0.1349	2.6315	6.4844	0.0404	0.6032
70	43.117	-77.667	1	0.0293	0.2969	2.4600	0.8580	0.0574	0.8195
70	43.117	-77.667	2	0.0256	1.1731	2.2473	0.6449	0.1684	0.7429
70	43.117	-77.667	3	0.0222	2.4480	5.7210	0.7776	0.1670	1.3623
70	43.117	-77.667	4	0.0211	5.2192	14.0705	1.1079	0.1050	0.9296
70	43.117	-77.667	5	0.0159	2.8203	7.2377	2.9450	0.1105	0.3431
70	43.117	-77.667	6	0.0154	0.9041	5.4343	8.2783	0.0763	0.2119
70	43.117	-77.667	7	0.0139	0.9609	5.7607	8.7253	0.0916	0.2390
70	43.117	-77.667	8	0.0154	0.4114	7.1319	17.7160	0.0331	0.1707
70	43.117	-77.667	9	0.0162	0.4625	4.0844	4.4359	0.0482	0.3954
70	43.117	-77.667	10	0.0168	0.6344	2.6710	1.8785	0.0915	0.5579
70	43.117	-77.667	11	0.0250	2.4773	5.0123	0.9554	0.1473	0.8589
70	43.117	-77.667	12	0.0293	1.5991	3.1149	0.6402	0.1462	0.7690
71	35.267	-75.550	1	0.0079	8.5734	25.8048	0.6122	0.0160	1.2480
71	35.267	-75.550	2	0.0121	0.5980	3.1087	4.0093	0.0653	0.5414
71	35.267	-75.550	3	0.0105	5.4737	13.2747	3.8333	0.1027	0.5304
71	35.267	-75.550	4	0.0085	4.6233	13.4663	4.0481	0.1304	0.6876
71	35.267	-75.550	5	0.0116	6.5027	19.9825	5.0175	0.1466	0.6586
71	35.267	-75.550	6	0.0089	0.2328	3.1058	12.8913	0.0220	0.1664
71	35.267	-75.550	7	0.0138	4.9270	16.1700	10.1891	0.1213	0.2680
71	35.267	-75.550	8	0.0121	0.1497	2.7443	19.9226	0.0257	0.1686
71	35.267	-75.550	9	0.0099	7.2510	19.9724	11.0086	0.1093	0.2526
71	35.267	-75.550	10	0.0082	6.7384	13.2483	7.9322	0.0702	0.2017
71	35.267	-75.550	11	0.0086	9.6108	10.5806	6.1394	0.1238	0.1936
71	35.267	-75.550	12	0.0112	3.5053	14.7068	5.1491	0.0964	0.7167
72	36.900	-76.200	1	0.0127	9.1526	11.0974	1.6607	0.1133	0.6566
72	36.900	-76.200	2	0.0144	7.8486	12.8020	1.8776	0.1005	0.6147
72	36.900	-76.200	3	0.0151	1.0183	3.8854	2.1618	0.0830	0.8098
72	36.900	-76.200	4	0.0142	0.8387	4.0019	4.5154	0.0788	0.3815
72	36.900	-76.200	5	0.0134	0.6239	4.9137	8.1672	0.0404	0.2570
72	36.900	-76.200	6	0.0136	8.2560	30.9610	9.2556	0.1092	0.2860
72	36.900	-76.200	7	0.0172	6.8699	22.0414	13.6954	0.1319	0.1662
72	36.900	-76.200	8	0.0149	0.7775	4.2986	13.8176	0.0820	0.2009
72	36.900	-76.200	9	0.0100	1.5171	3.8290	7.5108	0.0988	0.2729

Table 7-3. The Original Modified Bartlett-Lewis Parameters (page 14-14)

ID	LAT	LONG	MONTH	λ (1/HR)	ν	α	E[x] (MM/HR)	φ	κ
72	36.900	-76.200	10	0.0094	4.4801	7.6061	4.0378	0.1072	0.3754
72	36.900	-76.200	11	0.0118	3.9404	14.6782	2.4370	0.1137	1.2150
72	36.900	-76.200	12	0.0124	7.5244	13.1839	1.8747	0.1131	0.7660
73	32.783	-79.933	1	0.0124	1.0411	3.8927	2.7879	0.0696	0.5062
73	32.783	-79.933	2	0.0131	5.6146	13.4593	2.6604	0.1179	0.7385
73	32.783	-79.933	3	0.0120	5.9924	13.1712	4.5419	0.0886	0.3831
73	32.783	-79.933	4	0.0096	2.8613	14.5963	9.0826	0.0654	0.2384
73	32.783	-79.933	5	0.0104	4.3976	13.8053	10.3048	0.0746	0.1670
73	32.783	-79.933	6	0.0150	10.7339	29.3577	15.0943	0.1333	0.1438
73	32.783	-79.933	7	0.0191	4.7440	31.3807	27.4486	0.0792	0.1181
73	32.783	-79.933	8	0.0177	9.1495	30.9940	13.7671	0.1062	0.1958
73	32.783	-79.933	9	0.0110	4.9042	21.6027	17.0746	0.0369	0.1262
73	32.783	-79.933	10	0.0077	0.2170	2.4660	7.6494	0.0433	0.3954
73	32.783	-79.933	11	0.0092	2.6295	4.3480	3.8563	0.1846	0.2998
73	32.783	-79.933	12	0.0109	7.2336	16.4028	3.5963	0.0918	0.3909
74	25.900	-97.433	1	0.0012	2.8546	4.5517	3.3268	0.0363	0.1697
74	25.900	-97.433	2	0.0019	0.8507	6.7958	5.2346	0.0663	0.3064
74	25.900	-97.433	3	0.0010	0.6739	8.9717	7.5627	0.4903	2.1610
74	25.900	-97.433	4	0.0008	4.9068	12.9512	5.3583	1.2779	5.9478
74	25.900	-97.433	5	0.0017	0.6388	4.0100	13.2948	1.3115	4.8186
74	25.900	-97.433	6	0.0021	0.8612	5.7177	11.4122	1.0853	4.1573
74	25.900	-97.433	7	0.0011	8.9462	18.2184	7.3035	1.6011	4.0756
74	25.900	-97.433	8	0.0026	0.7511	3.0614	4.7574	0.3097	1.0651
74	25.900	-97.433	9	0.0017	1.9672	26.8430	25.6912	0.0138	0.2179
74	25.900	-97.433	10	0.0015	1.3041	11.9319	19.6626	0.0295	0.1756
74	25.900	-97.433	11	0.0012	6.3397	10.9556	10.1385	0.0702	0.0737
74	25.900	-97.433	12	0.0011	1.7293	6.3301	3.0032	0.2796	2.2883
75	33.933	-118.400	1	0.0074	1.8809	5.9792	2.0747	0.0962	1.4174
75	33.933	-118.400	2	0.0069	1.0863	3.5306	2.9325	0.1017	0.8526
75	33.933	-118.400	3	0.0064	1.6326	4.8956	3.0453	0.0900	0.5485
75	33.933	-118.400	4	0.0035	0.2907	2.7069	3.5536	0.0231	0.3003
75	33.933	-118.400	5	0.0003	0.5965	3.7614	2.5865	0.0163	0.3653
75	33.933	-118.400	6	0.0013	0.1330	2.0002	0.7082	0.2625	1.8015
75	33.933	-118.400	7	0.0005	0.2108	4.7793	1.2006	0.1118	0.9629
75	33.933	-118.400	8	0.0006	2.3070	4.0883	1.8788	0.5909	2.0798
75	33.933	-118.400	9	0.0010	4.5507	14.5748	2.2248	0.1246	0.9306
75	33.933	-118.400	10	0.0010	7.6764	31.8283	1.5780	0.6543	13.5376
75	33.933	-118.400	11	0.0043	0.4733	3.9877	5.2760	0.0351	0.4580
75	33.933	-118.400	12	0.0054	0.6863	3.4274	1.3119	0.1095	2.5141

Table 7-4

Derived Parameters for the Modified Bartlett–Lewis Model

Table 7-4. Derived Bartlett-Lewis Parameters (page 1-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
1	35.133	-111.667	1	20.0202	2.9814	0.1567	2.1097	6.8931
1	35.133	-111.667	2	54.6013	7.4509	0.1390	3.0959	7.7623
1	35.133	-111.667	3	15.4632	1.7081	0.1181	1.7367	8.9336
1	35.133	-111.667	4	11.8585	1.0864	0.1001	1.5393	10.3991
1	35.133	-111.667	5	11.3354	2.4273	0.2349	4.7445	4.3584
1	35.133	-111.667	6	6.0963	1.0965	0.2152	3.3410	4.7502
1	35.133	-111.667	7	1.8653	0.8572	0.9906	4.3033	1.0885
1	35.133	-111.667	8	2.2833	0.4525	0.3526	4.6033	2.8705
1	35.133	-111.667	9	8.1149	1.2142	0.1707	2.4520	6.0527
1	35.133	-111.667	10	16.1687	1.6641	0.1097	2.2030	9.4110
1	35.133	-111.667	11	21.1973	1.9369	0.0959	1.4335	11.1548
1	35.133	-111.667	12	2.6749	1.6648	0.9939	1.0032	4.5611
2	32.017	-110.950	1	17.3784	6.8411	0.4177	5.4316	2.5759
2	32.017	-110.950	2	7.4466	0.7533	0.1169	1.7572	8.7978
2	32.017	-110.950	3	67.6140	1.0706	0.0161	2.8195	62.3467
2	32.017	-110.950	4	7.0691	1.0143	0.1671	6.7938	6.0075
2	32.017	-110.950	5	4.6776	0.9948	0.2705	8.8979	3.7120
2	32.017	-110.950	6	2.1987	3.4575	2.8844	4.8773	0.5510
2	32.017	-110.950	7	2.2851	0.2369	0.1844	3.7022	5.4527
2	32.017	-110.950	8	2.1647	1.1644	0.9997	6.0772	1.0488
2	32.017	-110.950	9	4.0773	0.7168	0.2329	6.2115	4.3162
2	32.017	-110.950	10	10.4854	1.7838	0.1881	5.4987	5.3760
2	32.017	-110.950	11	12.4318	3.9516	0.3457	3.6851	3.1298
2	32.017	-110.950	12	21.7650	7.8150	0.3764	6.8552	2.7893
3	32.733	-117.167	1	5.5106	0.4794	0.1063	1.4135	9.6606
3	32.733	-117.167	2	8.4649	1.7834	0.2389	4.5333	4.2712
3	32.733	-117.167	3	6.3333	0.8260	0.1549	3.5851	6.5261
3	32.733	-117.167	4	5.9913	1.0385	0.2081	3.6058	4.8913
3	32.733	-117.167	5	3.9487	0.8573	0.2907	5.5272	3.4740
3	32.733	-117.167	6	10.1185	22.4002	2.4566	3.2379	9.2145
3	32.733	-117.167	7	13.4085	20.6946	1.6678	23.4899	0.6312
3	32.733	-117.167	8	8.5721	3.5686	0.4713	3.4476	2.3720
3	32.733	-117.167	9	6.3832	1.2230	0.2272	3.8184	4.4888
3	32.733	-117.167	10	6.8920	1.3665	0.2319	5.9619	4.3529
3	32.733	-117.167	11	6.5719	1.0746	0.1929	2.8871	5.3162
3	32.733	-117.167	12	6.0528	1.2087	0.2392	3.0090	4.3158
4	37.617	-122.383	1	10.7280	1.2469	0.1282	2.5636	7.9800
4	37.617	-122.383	2	14.1260	0.9493	0.0723	2.8474	13.9405
4	37.617	-122.383	3	6.9047	0.5760	0.0976	1.3877	10.5483
4	37.617	-122.383	4	12.3444	0.7823	0.0690	2.8614	14.5962
4	37.617	-122.383	5	20.4560	18.1010	0.9304	5.2771	1.6747
4	37.617	-122.383	6	10.0492	5.1434	0.5684	4.1732	1.9960
4	37.617	-122.383	7	11.2284	18.2099	1.7803	8.0668	0.7871
4	37.617	-122.383	8	6.5872	4.4531	0.7970	7.5119	1.3291
4	37.617	-122.383	9	14.0398	4.2335	0.3247	4.7814	3.2360
4	37.617	-122.383	10	9.8292	4.9137	0.5565	4.0270	2.0403
4	37.617	-122.383	11	6.9417	0.5175	0.0871	1.1802	11.8475
4	37.617	-122.383	12	6.9306	0.8217	0.1386	1.2028	7.7367
5	39.767	-104.867	1	5.4468	2.0892	0.4698	1.3630	3.1196
5	39.767	-104.867	2	41.0640	10.7399	0.2681	4.4018	4.1390
5	39.767	-104.867	3	4.4125	0.5568	0.1632	0.7101	7.1691
5	39.767	-104.867	4	6.6281	1.0197	0.1812	1.5741	5.9011
5	39.767	-104.867	5	5.7166	0.4342	0.0921	2.1210	10.9704
5	39.767	-104.867	6	4.1546	1.3419	0.4254	7.9213	2.3765
5	39.767	-104.867	7	2.2373	1.1525	0.9315	7.2715	1.1074
5	39.767	-104.867	8	1.8783	0.6225	0.7087	6.1151	1.4422
5	39.767	-104.867	9	6.6565	2.4001	0.4243	14.4322	2.3694
5	39.767	-104.867	10	8.7971	1.3794	0.1769	1.9945	5.9639
5	39.767	-104.867	11	16.6076	4.1340	0.2649	1.9069	4.6372
5	39.767	-104.867	12	3.1974	0.7611	0.3463	0.7264	4.4339
6	26.583	-81.867	1	4.0366	1.1979	0.3945	2.6246	2.7189
6	26.583	-81.867	2	3.4103	1.0333	0.4287	4.0907	2.4074
6	26.583	-81.867	3	3.5834	1.0625	0.4113	3.1324	2.5552
6	26.583	-81.867	4	4.9833	1.7954	0.4507	10.7831	2.2364
6	26.583	-81.867	5	2.7377	0.7726	0.4446	4.7601	2.2966
6	26.583	-81.867	6	2.9368	1.2660	0.6537	6.4592	1.5698

Table 7-4. Derived Bartlett-Lewis Parameters (page 2-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
6	26.583	-81.867	7	5.3114	16.9182	3.9241	7.3650	0.6118
6	26.583	-81.867	8	3.8960	17.9816	6.2091	4.8725	3.1639
6	26.583	-81.867	9	1.7988	0.3222	0.4034	3.4682	2.5322
6	26.583	-81.867	10	3.6418	1.1235	0.4253	5.0451	2.4046
6	26.583	-81.867	11	3.0139	0.6843	0.3398	4.7321	2.9845
6	26.583	-81.867	12	3.0561	0.9709	0.4722	7.1654	2.1433
7	30.500	-81.700	1	5.8890	1.1942	0.2443	3.3879	4.2018
7	30.500	-81.700	2	5.2057	1.0287	0.2446	2.7954	4.2265
7	30.500	-81.700	3	5.0455	1.0028	0.2479	2.0520	4.2738
7	30.500	-81.700	4	7.4293	2.3552	0.3663	18.5014	2.7374
7	30.500	-81.700	5	2.6085	0.7035	0.4374	7.4131	2.3055
7	30.500	-81.700	6	2.4527	0.6926	0.4768	5.7863	2.1288
7	30.500	-81.700	7	2.0385	4.4764	4.3104	2.5771	4.1321
7	30.500	-81.700	8	2.8818	0.9522	0.5060	5.9809	2.0126
7	30.500	-81.700	9	2.9573	0.7197	0.3677	3.9241	2.7817
7	30.500	-81.700	10	4.2369	1.1521	0.3559	2.7109	2.9758
7	30.500	-81.700	11	4.4382	1.1773	0.3424	3.6159	3.0191
7	30.500	-81.700	12	4.5314	1.0524	0.2980	2.7117	3.5078
8	33.950	-83.317	1	8.5309	1.1299	0.1500	1.6255	7.0494
8	33.950	-83.317	2	9.8531	1.9476	0.2200	1.8899	4.9969
8	33.950	-83.317	3	8.2601	1.2772	0.1759	2.1585	5.9386
8	33.950	-83.317	4	6.8919	1.1226	0.1905	2.6065	5.4121
8	33.950	-83.317	5	5.6158	1.5557	0.3370	5.5345	3.0215
8	33.950	-83.317	6	5.7286	1.0803	0.2285	6.5275	4.4056
8	33.950	-83.317	7	4.1499	2.0648	0.6555	16.1058	1.5353
8	33.950	-83.317	8	3.7412	2.0126	0.7342	10.7972	1.3831
8	33.950	-83.317	9	6.5744	1.2442	0.2232	6.6430	4.5110
8	33.950	-83.317	10	5.8592	0.6789	0.1397	2.1865	7.3071
8	33.950	-83.317	11	7.2584	1.2638	0.2019	2.2588	5.1862
8	33.950	-83.317	12	7.5814	0.8538	0.1297	1.3713	8.1281
9	33.650	-84.433	1	5.5313	0.8389	0.1851	1.7820	5.6656
9	33.650	-84.433	2	6.7155	1.0989	0.1923	2.1197	5.4371
9	33.650	-84.433	3	6.1372	0.9950	0.1937	2.2521	5.3590
9	33.650	-84.433	4	6.1155	1.3187	0.2578	2.6357	4.0652
9	33.650	-84.433	5	5.1499	1.4129	0.3405	8.3651	2.9603
9	33.650	-84.433	6	7.7671	14.0461	2.0757	5.6419	0.9036
9	33.650	-84.433	7	3.2645	2.5630	1.1318	12.4237	0.9045
9	33.650	-84.433	8	4.6350	2.8395	0.7812	19.0061	1.2894
9	33.650	-84.433	9	7.0225	0.9445	0.1568	5.8740	6.4060
9	33.650	-84.433	10	4.7158	0.4040	0.1087	1.6525	9.3632
9	33.650	-84.433	11	13.0188	2.4100	0.2005	3.4335	5.1670
9	33.650	-84.433	12	8.0556	1.4198	0.2012	1.8343	5.3424
10	41.733	-87.767	1	5.4668	1.0784	0.2414	1.5738	4.5494
10	41.733	-87.767	2	9.7051	2.5152	0.2889	6.6575	3.5166
10	41.733	-87.767	3	7.8516	2.1967	0.3206	4.1368	3.2407
10	41.733	-87.767	4	6.8799	2.4410	0.4151	5.4196	2.4906
10	41.733	-87.767	5	6.2430	2.2957	0.4379	6.4869	2.3400
10	41.733	-87.767	6	2.3631	0.5674	0.4163	2.7732	2.5091
10	41.733	-87.767	7	5.1994	2.0185	0.4807	14.9743	2.0909
10	41.733	-87.767	8	3.9011	1.2168	0.4194	4.4620	2.4549
10	41.733	-87.767	9	4.8125	2.5079	0.6578	3.9156	1.6778
10	41.733	-87.767	10	4.4836	1.7653	0.5068	3.1378	2.1523
10	41.733	-87.767	11	8.6990	2.2299	0.2896	4.7636	3.5469
10	41.733	-87.767	12	4.1340	0.4510	0.1439	1.3770	7.2138
11	40.667	-89.683	1	3.7703	0.7845	0.2832	0.9947	4.3061
11	40.667	-89.683	2	3.6302	0.4406	0.1675	1.2718	6.2795
11	40.667	-89.683	3	5.3983	0.8479	0.1928	1.6691	5.4887
11	40.667	-89.683	4	5.2663	1.2757	0.2990	2.9058	3.4983
11	40.667	-89.683	5	3.2982	0.7502	0.3264	3.4037	3.1443
11	40.667	-89.683	6	4.4962	2.2230	0.6358	3.7513	1.7288
11	40.667	-89.683	7	6.0378	5.9150	1.1741	13.4493	0.8844
11	40.667	-89.683	8	2.7484	0.5229	0.2990	2.6868	3.4422
11	40.667	-89.683	9	3.9550	0.7150	0.2420	2.9401	4.2296
11	40.667	-89.683	10	4.6461	0.5427	0.1489	1.9953	6.8701
11	40.667	-89.683	11	3.0823	0.3642	0.1749	1.4987	5.9215
11	40.667	-89.683	12	4.7485	0.4760	0.1270	1.2673	8.1894

Table 7-4. Derived Bartlett-Lewis Parameters (page 3-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
12	39.733	-86.267	1	5.8221	0.8818	0.1829	2.7333	5.5929
12	39.733	-86.267	2	6.1653	1.1430	0.2213	1.5367	4.9590
12	39.733	-86.267	3	4.9820	1.1287	0.2834	2.3138	3.7407
12	39.733	-86.267	4	7.7267	2.6896	0.3998	9.1080	2.5343
12	39.733	-86.267	5	7.2030	3.3192	0.5351	9.8726	1.9035
12	39.733	-86.267	6	4.3558	1.8277	0.5446	8.3535	1.8664
12	39.733	-86.267	7	7.4817	3.6403	0.5616	18.6589	1.7917
12	39.733	-86.267	8	3.1087	0.5495	0.2606	4.3574	3.8767
12	39.733	-86.267	9	4.4480	0.8030	0.2329	4.9445	4.3329
12	39.733	-86.267	10	7.8554	3.9853	0.5813	5.3877	1.8428
12	39.733	-86.267	11	5.9804	0.9454	0.1898	2.0656	5.4885
12	39.733	-86.267	12	9.9463	3.9485	0.4414	3.7026	2.5025
13	41.533	-93.650	1	11.4182	3.5772	0.3434	2.4631	3.3713
13	41.533	-93.650	2	52.4412	11.6756	0.2270	4.1722	4.9126
13	41.533	-93.650	3	6.5000	1.5856	0.2883	2.4599	3.7123
13	41.533	-93.650	4	8.6696	2.2159	0.2889	8.5228	3.4925
13	41.533	-93.650	5	5.1804	1.5616	0.3735	4.3486	2.7641
13	41.533	-93.650	6	3.2878	0.9136	0.3993	4.1946	2.5691
13	41.533	-93.650	7	3.0840	0.8336	0.4000	3.4278	2.5891
13	41.533	-93.650	8	4.6740	1.8655	0.5078	8.6207	1.9981
13	41.533	-93.650	9	5.3230	1.5897	0.3677	4.5681	2.7997
13	41.533	-93.650	10	9.2000	2.7645	0.3371	6.4216	3.0310
13	41.533	-93.650	11	4.6313	0.7307	0.2012	1.7619	5.2168
13	41.533	-93.650	12	9.4220	3.5301	0.4192	1.8838	3.1759
14	42.367	-71.033	1	8.3793	2.0888	0.2831	2.1428	3.9165
14	42.367	-71.033	2	11.0196	3.1024	0.3096	1.7867	3.9810
14	42.367	-71.033	3	12.0862	3.4598	0.3121	2.0545	3.8330
14	42.367	-71.033	4	10.9209	3.5529	0.3581	2.3210	3.3046
14	42.367	-71.033	5	4.7113	1.2931	0.3484	1.9346	3.2014
14	42.367	-71.033	6	4.5942	1.1315	0.3148	3.8021	3.2629
14	42.367	-71.033	7	6.6121	2.8574	0.5092	11.4161	1.9873
14	42.367	-71.033	8	3.9496	0.9400	0.3187	5.3564	3.1774
14	42.367	-71.033	9	5.3649	1.1364	0.2603	3.0062	3.9720
14	42.367	-71.033	10	7.4489	1.4301	0.2218	2.4640	4.7301
14	42.367	-71.033	11	5.4135	0.8036	0.1821	1.1671	6.0444
14	42.367	-71.033	12	5.5513	0.9787	0.2150	1.0817	5.3924
15	46.833	-92.183	1	8.4761	1.5239	0.2038	4.0605	4.9974
15	46.833	-92.183	2	18.0459	9.8530	0.5780	10.2124	1.8078
15	46.833	-92.183	3	14.0939	3.2100	0.2451	8.8502	4.1186
15	46.833	-92.183	4	13.3062	3.1629	0.2570	6.9652	3.9521
15	46.833	-92.183	5	5.0192	0.7045	0.1753	2.5928	5.8205
15	46.833	-92.183	6	3.2060	0.7131	0.3233	4.5917	3.1378
15	46.833	-92.183	7	2.6841	0.4412	0.2620	3.3500	3.8736
15	46.833	-92.183	8	3.0746	0.4146	0.1998	2.3676	5.1014
15	46.833	-92.183	9	3.7777	0.4823	0.1736	1.7468	5.9433
15	46.833	-92.183	10	6.8445	1.7961	0.3073	8.2388	3.2824
15	46.833	-92.183	11	3.4694	0.5800	0.2349	1.0481	4.8150
15	46.833	-92.183	12	7.5332	1.5651	0.2396	3.3885	4.3067
16	48.567	-93.383	1	25.2563	11.2272	0.4629	5.0919	2.4812
16	48.567	-93.383	2	7.1305	2.3058	0.3761	1.9025	3.1847
16	48.567	-93.383	3	4.7633	0.4149	0.1102	0.7414	9.8176
16	48.567	-93.383	4	12.2022	1.9013	0.1697	2.0548	6.2690
16	48.567	-93.383	5	5.2255	1.0030	0.2374	2.8025	4.3474
16	48.567	-93.383	6	4.4994	1.6324	0.4665	5.5866	2.2018
16	48.567	-93.383	7	3.2092	1.2084	0.5470	8.6688	1.8494
16	48.567	-93.383	8	3.4727	0.9934	0.4018	3.6591	2.5776
16	48.567	-93.383	9	3.3398	0.9148	0.3910	4.7105	2.6097
16	48.567	-93.383	10	5.0926	1.3872	0.3390	1.4071	3.5724
16	48.567	-93.383	11	34.8520	7.1293	0.2106	3.2804	5.2335
16	48.567	-93.383	12	18.3521	3.6958	0.2130	2.9176	5.0347
17	39.283	-114.850	1	8.5848	3.6542	0.4818	2.4976	2.5419
17	39.283	-114.850	2	10.3873	3.5073	0.3736	4.9552	2.8031
17	39.283	-114.850	3	9.4600	2.5640	0.3031	3.6780	3.4688
17	39.283	-114.850	4	12.1589	2.7124	0.2431	3.9016	4.2715
17	39.283	-114.850	5	10.6768	2.2259	0.2300	5.8088	4.4114
17	39.283	-114.850	6	8.8710	4.6768	0.5942	5.9897	1.7973

Table 7-4. Derived Bartlett-Lewis Parameters (page 4-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
17	39.283	-114.850	7	4.0426	2.0341	0.6685	7.7019	1.5353
17	39.283	-114.850	8	4.4151	2.0372	0.5965	10.2322	1.6990
17	39.283	-114.850	9	4.1996	0.5415	0.1692	2.9640	5.9820
17	39.283	-114.850	10	12.1048	3.0025	0.2704	2.3031	4.1442
17	39.283	-114.850	11	4.5039	1.0011	0.2857	1.2358	4.1122
17	39.283	-114.850	12	8.0465	1.7339	0.2461	1.8146	4.5109
18	44.267	-71.300	1	27.6198	4.8069	0.1806	1.8258	6.6381
18	44.267	-71.300	2	2.7964	0.2251	0.1253	0.8588	8.3741
18	44.267	-71.300	3	23.9517	1.4988	0.0653	1.1682	16.1670
18	44.267	-71.300	4	26.0851	2.3519	0.0938	1.5345	11.4190
18	44.267	-71.300	5	6.5641	0.7364	0.1324	1.1245	8.0949
18	44.267	-71.300	6	6.7992	1.0628	0.1833	1.8217	5.7587
18	44.267	-71.300	7	7.4840	1.7551	0.2707	3.9343	3.8052
18	44.267	-71.300	8	6.4497	1.0936	0.2007	1.7419	5.3205
18	44.267	-71.300	9	5.2620	0.6194	0.1453	1.0546	7.4202
18	44.267	-71.300	10	21.3471	1.7466	0.0858	1.4749	12.2835
18	44.267	-71.300	11	4.6228	0.3507	0.0968	0.6372	11.1925
18	44.267	-71.300	12	1.2758	0.0342	0.1241	0.2270	10.3545
19	35.050	-106.617	1	6.9659	1.2977	0.2175	2.0048	4.8954
19	35.050	-106.617	2	12.2927	1.9225	0.1702	4.4104	5.9677
19	35.050	-106.617	3	6.9468	1.8548	0.3119	2.7651	3.4287
19	35.050	-106.617	4	9.0359	4.9546	0.6166	7.3839	1.7038
19	35.050	-106.617	5	5.8248	4.8484	1.0049	5.5550	1.1346
19	35.050	-106.617	6	2.8645	0.3214	0.1724	4.6719	5.8222
19	35.050	-106.617	7	2.8081	2.3426	1.2956	9.0100	0.8090
19	35.050	-106.617	8	2.1628	1.3407	1.1530	4.8878	0.9487
19	35.050	-106.617	9	3.9980	1.1611	0.3873	7.9042	2.6048
19	35.050	-106.617	10	8.2411	2.6213	0.3620	6.1046	2.8310
19	35.050	-106.617	11	7.7008	2.0976	0.3130	3.6023	3.3455
19	35.050	-106.617	12	7.3731	1.6725	0.2624	2.3537	4.0832
20	35.867	-78.783	1	8.1856	1.3408	0.1866	2.0733	5.6441
20	35.867	-78.783	2	18.3944	5.6711	0.3260	2.9425	3.5562
20	35.867	-78.783	3	9.0621	1.5742	0.1953	2.7580	5.3132
20	35.867	-78.783	4	6.4654	1.3938	0.2550	2.7600	4.0991
20	35.867	-78.783	5	4.9332	1.2596	0.3202	4.4539	3.1923
20	35.867	-78.783	6	3.0008	1.0039	0.5017	3.9107	2.0757
20	35.867	-78.783	7	4.8236	3.0775	0.8049	12.6751	1.2639
20	35.867	-78.783	8	5.1879	2.1648	0.5169	11.5643	1.9529
20	35.867	-78.783	9	6.7386	2.0323	0.3541	5.2311	2.8985
20	35.867	-78.783	10	7.5818	1.3619	0.2069	3.1931	4.9642
20	35.867	-78.783	11	7.9446	2.3314	0.3357	3.3239	3.1689
20	35.867	-78.783	12	10.3969	1.8711	0.1991	2.7732	5.2397
21	40.650	-75.433	1	9.9424	2.3725	0.2653	1.8424	4.3260
21	40.650	-75.433	2	22.6896	7.1534	0.3298	2.5786	3.8823
21	40.650	-75.433	3	6.2692	0.8913	0.1692	1.2614	6.4251
21	40.650	-75.433	4	9.8077	1.6906	0.1919	2.3070	5.4905
21	40.650	-75.433	5	6.9934	1.7294	0.2886	6.3559	3.5103
21	40.650	-75.433	6	4.3750	1.3472	0.3992	4.8917	2.5686
21	40.650	-75.433	7	4.9176	2.8270	0.7216	7.8266	1.4348
21	40.650	-75.433	8	3.8167	0.6267	0.2225	3.6414	4.5526
21	40.650	-75.433	9	6.9358	2.3215	0.3911	8.6527	2.5894
21	40.650	-75.433	10	8.1054	1.5543	0.2187	3.7202	4.6815
21	40.650	-75.433	11	9.2626	2.2459	0.2718	2.2171	4.0595
21	40.650	-75.433	12	6.6271	1.5124	0.2688	1.3581	4.4105
22	39.883	-75.433	1	85.6111	36.7905	0.4348	3.2966	21.3687
22	39.883	-75.433	2	13.9384	4.5253	0.3498	2.7627	3.3105
22	39.883	-75.433	3	5.6214	0.7743	0.1676	1.1926	6.4811
22	39.883	-75.433	4	5.6474	1.1399	0.2453	2.0594	4.3377
22	39.883	-75.433	5	4.4020	1.0227	0.3006	2.9330	3.4557
22	39.883	-75.433	6	4.0664	1.4685	0.4789	6.7642	2.1259
22	39.883	-75.433	7	3.3645	1.0445	0.4418	4.8069	2.3198
22	39.883	-75.433	8	5.1362	1.9116	0.4622	6.7666	2.2093
22	39.883	-75.433	9	5.4475	1.2789	0.2876	4.8739	3.5361
22	39.883	-75.433	10	7.1140	1.6401	0.2683	3.2203	3.8799
22	39.883	-75.433	11	4.9687	0.8558	0.2156	1.4688	5.0250
22	39.883	-75.433	12	7.5563	2.2311	0.3403	1.6797	3.5814

Table 7-4. Derived Bartlett-Lewis Parameters (page 5-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
23	33.950	-81.117	1	8.6129	1.3400	0.1760	1.8665	6.0249
23	33.950	-81.117	2	6.5550	0.9147	0.1647	1.6768	6.3848
23	33.950	-81.117	3	7.7288	1.7745	0.2637	2.7936	4.0010
23	33.950	-81.117	4	6.2804	1.6001	0.3030	3.7597	3.4134
23	33.950	-81.117	5	4.8481	1.2211	0.3173	6.1026	3.1887
23	33.950	-81.117	6	3.0821	0.4660	0.2238	3.9969	4.5075
23	33.950	-81.117	7	3.1630	1.2048	0.5570	5.2797	1.8497
23	33.950	-81.117	8	2.4444	1.0317	0.7143	3.5272	1.5112
23	33.950	-81.117	9	4.1678	1.1551	0.3646	2.5824	2.9251
23	33.950	-81.117	10	5.9168	1.3898	0.2827	6.0269	3.5794
23	33.950	-81.117	11	9.9050	4.3111	0.4841	4.5975	2.2374
23	33.950	-81.117	12	7.9180	1.1117	0.1607	1.8817	6.5148
24	35.800	-84.000	1	8.4259	1.3689	0.1843	1.7523	5.8169
24	35.800	-84.000	2	9.5409	1.5752	0.1844	2.0112	5.7622
24	35.800	-84.000	3	5.5172	1.3425	0.2972	2.2278	3.6240
24	35.800	-84.000	4	7.0253	2.3032	0.3823	4.8327	2.7120
24	35.800	-84.000	5	5.7271	1.7084	0.3614	6.0134	2.8175
24	35.800	-84.000	6	5.8836	7.6113	1.5585	4.3281	1.0035
24	35.800	-84.000	7	4.8618	1.5760	0.4081	16.5893	2.4573
24	35.800	-84.000	8	4.0000	2.1703	0.7234	18.7902	1.3900
24	35.800	-84.000	9	8.0333	2.6817	0.3813	7.0610	2.6761
24	35.800	-84.000	10	10.0604	2.7420	0.3026	5.8993	3.3792
24	35.800	-84.000	11	6.9405	1.5137	0.2548	1.5642	4.4542
24	35.800	-84.000	12	7.1849	1.2221	0.1976	1.6384	5.4693
25	32.433	-99.683	1	8.0470	1.4504	0.2058	2.3021	5.1101
25	32.433	-99.683	2	6.5074	0.9683	0.1758	2.6008	5.8335
25	32.433	-99.683	3	3.6465	0.9498	0.3589	3.2448	2.8915
25	32.433	-99.683	4	3.4411	1.6367	0.6705	9.2995	1.5153
25	32.433	-99.683	5	3.5248	0.3293	0.1304	3.4052	7.7050
25	32.433	-99.683	6	4.8203	8.7868	2.3000	4.1547	1.0203
25	32.433	-99.683	7	4.8421	4.5111	1.1741	7.3843	0.9321
25	32.433	-99.683	8	4.5790	1.9057	0.5325	5.8836	1.9382
25	32.433	-99.683	9	6.2042	1.3495	0.2593	4.4865	3.9267
25	32.433	-99.683	10	12.2539	2.7211	0.2418	4.1474	4.2769
25	32.433	-99.683	11	7.0151	0.9595	0.1595	2.6718	6.4055
25	32.433	-99.683	12	9.1078	2.1863	0.2696	1.7728	4.2693
26	37.500	-77.333	1	9.2101	1.9034	0.2318	2.5903	4.5647
26	37.500	-77.333	2	14.8123	4.2737	0.3094	3.5201	3.5050
26	37.500	-77.333	3	10.2182	2.0853	0.2262	3.4275	4.5823
26	37.500	-77.333	4	10.8056	4.4224	0.4510	7.8985	2.2825
26	37.500	-77.333	5	4.6873	0.9185	0.2491	4.5290	4.0660
26	37.500	-77.333	6	3.2523	0.9220	0.4094	3.7420	2.5240
26	37.500	-77.333	7	2.5057	0.5915	0.3929	3.4191	2.6182
26	37.500	-77.333	8	3.0570	0.7827	0.3805	3.4405	2.7122
26	37.500	-77.333	9	4.7066	0.6044	0.1631	2.5718	6.2362
26	37.500	-77.333	10	6.1373	1.3748	0.2676	1.9547	4.0677
26	37.500	-77.333	11	11.6065	3.8716	0.3650	5.3997	2.8565
26	37.500	-77.333	12	9.6039	1.4286	0.1660	2.1563	6.2994
27	37.317	-79.967	1	9.5025	2.3506	0.2765	2.0019	4.0924
27	37.317	-79.967	2	6.9482	2.0520	0.3450	1.0893	4.3805
27	37.317	-79.967	3	7.3258	1.0754	0.1700	1.3644	6.3940
27	37.317	-79.967	4	8.6341	2.2624	0.2964	3.1162	3.5819
27	37.317	-79.967	5	5.1541	1.3558	0.3264	4.5711	3.1342
27	37.317	-79.967	6	3.5792	0.7855	0.3046	5.1886	3.3202
27	37.317	-79.967	7	4.4739	3.5210	1.0136	12.6066	1.0114
27	37.317	-79.967	8	3.0768	0.6918	0.3331	3.9986	3.0591
27	37.317	-79.967	9	6.0623	1.4971	0.2957	4.0961	3.4732
27	37.317	-79.967	10	5.2545	0.6310	0.1483	1.3482	7.0930
27	37.317	-79.967	11	2.8454	0.3020	0.1636	0.8942	6.5740
27	37.317	-79.967	12	10.0626	2.9030	0.3203	1.9285	3.7327
28	38.367	-81.600	1	9.9225	2.3042	0.2582	6.2528	3.9301
28	38.367	-81.600	2	11.0273	2.7078	0.2700	6.1513	3.7713
28	38.367	-81.600	3	8.3726	2.5034	0.3396	5.4070	3.0275
28	38.367	-81.600	4	6.7989	1.7221	0.2970	3.9024	3.4791
28	38.367	-81.600	5	6.3600	1.2942	0.2415	6.4387	4.1756
28	38.367	-81.600	6	7.5260	10.8619	1.6644	5.4074	0.9182

Table 7-4. Derived Bartlett-Lewis Parameters (page 6-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
28	38.367	-81.600	7	2.5890	0.5839	0.3675	3.2064	2.8012
28	38.367	-81.600	8	3.6778	1.8958	0.7080	16.8965	1.4210
28	38.367	-81.600	9	5.5674	0.8866	0.1941	4.5144	5.2001
28	38.367	-81.600	10	10.5943	2.2132	0.2307	4.1415	4.4547
28	38.367	-81.600	11	12.1869	3.0430	0.2720	4.9368	3.7888
28	38.367	-81.600	12	14.3619	4.1074	0.3074	8.2413	3.3090
29	44.483	-88.133	1	4.9427	0.8772	0.2225	1.1582	5.1027
29	44.483	-88.133	2	4.7066	1.6422	0.4431	1.6289	2.8145
29	44.483	-88.133	3	7.3463	2.0974	0.3305	1.8703	3.5245
29	44.483	-88.133	4	7.7997	1.7205	0.2530	2.1850	4.2702
29	44.483	-88.133	5	3.7564	0.4588	0.1665	2.3712	6.1069
29	44.483	-88.133	6	3.4111	0.4754	0.1972	3.3085	5.1274
29	44.483	-88.133	7	3.5713	1.0841	0.4216	4.8075	2.4287
29	44.483	-88.133	8	6.1593	3.8355	0.7434	10.9650	1.3781
29	44.483	-88.133	9	3.9217	0.8079	0.2765	4.0844	3.6746
29	44.483	-88.133	10	3.8675	0.7469	0.2605	1.4374	4.2157
29	44.483	-88.133	11	5.1319	0.7654	0.1852	1.0909	6.0020
29	44.483	-88.133	12	7.1034	1.1620	0.1904	1.5379	5.6924
30	43.867	-91.250	1	8.3813	2.4537	0.3324	3.6211	3.1774
30	43.867	-91.250	2	19.0605	14.2334	0.7881	8.5199	1.4161
30	43.867	-91.250	3	7.5971	1.4225	0.2156	1.7445	5.0482
30	43.867	-91.250	4	6.4480	1.4205	0.2607	2.7945	4.0120
30	43.867	-91.250	5	6.3147	3.4178	0.6431	4.8534	1.6880
30	43.867	-91.250	6	3.1577	0.7663	0.3551	2.6804	2.9457
30	43.867	-91.250	7	8.6304	7.4553	0.9771	16.1231	1.0510
30	43.867	-91.250	8	5.4272	2.4966	0.5639	7.8980	1.8159
30	43.867	-91.250	9	5.5522	0.9426	0.2071	2.8444	4.9522
30	43.867	-91.250	10	5.8362	0.7551	0.1561	3.3649	6.4777
30	43.867	-91.250	11	6.2848	0.8155	0.1543	2.3888	6.6279
30	43.867	-91.250	12	13.3884	4.5786	0.3696	4.1249	2.9228
31	39.150	-84.517	1	8.9138	2.3756	0.3002	5.1756	3.4164
31	39.150	-84.517	2	6.9211	1.7840	0.3013	2.2418	3.6343
31	39.150	-84.517	3	8.8297	2.2621	0.2889	3.9687	3.5946
31	39.150	-84.517	4	4.9915	1.1681	0.2926	4.9769	3.4699
31	39.150	-84.517	5	6.1078	1.8317	0.3586	11.7192	2.8035
31	39.150	-84.517	6	5.3401	2.0299	0.4677	11.7810	2.1547
31	39.150	-84.517	7	4.5267	1.7066	0.4839	9.5825	2.0882
31	39.150	-84.517	8	4.2207	1.5942	0.4950	7.4323	2.0540
31	39.150	-84.517	9	4.0038	1.2213	0.4066	3.0571	2.6012
31	39.150	-84.517	10	7.6612	1.6046	0.2409	3.2640	4.2962
31	39.150	-84.517	11	1.0985	0.4909	4.9857	4.0080	0.6543
31	39.150	-84.517	12	7.3313	1.1673	0.1844	1.4106	5.9390
32	41.417	-81.867	1	3.3434	0.6283	0.2681	1.0206	4.3617
32	41.417	-81.867	2	3.0168	0.5132	0.2544	1.0178	4.4843
32	41.417	-81.867	3	6.3984	1.6674	0.3089	2.7046	3.4517
32	41.417	-81.867	4	6.7925	1.8409	0.3178	3.7477	3.2739
32	41.417	-81.867	5	5.2629	1.7509	0.4107	6.4277	2.4809
32	41.417	-81.867	6	6.2878	2.8217	0.5336	13.2411	1.8915
32	41.417	-81.867	7	4.1098	1.8864	0.6066	8.8816	1.6767
32	41.417	-81.867	8	4.4190	1.6478	0.4819	9.7559	2.0954
32	41.417	-81.867	9	7.2363	2.2642	0.3631	7.9445	2.7916
32	41.417	-81.867	10	5.7800	1.6106	0.3370	3.2650	3.1170
32	41.417	-81.867	11	8.1119	2.3293	0.3275	3.1312	3.2647
32	41.417	-81.867	12	23.4263	5.2001	0.2319	3.6747	4.6070
33	34.650	-86.767	1	6.3010	0.8256	0.1557	1.6985	6.7012
33	34.650	-86.767	2	9.1209	1.7550	0.2161	2.3748	4.9027
33	34.650	-86.767	3	8.7698	2.2795	0.2934	4.4722	3.5164
33	34.650	-86.767	4	6.5060	1.5085	0.2740	2.9811	3.8149
33	34.650	-86.767	5	5.4535	1.5568	0.3496	5.9149	2.9090
33	34.650	-86.767	6	2.9390	2.4576	1.2675	2.6763	1.1692
33	34.650	-86.767	7	2.5059	0.6514	0.4326	3.9006	2.3736
33	34.650	-86.767	8	2.2908	0.9121	0.7066	3.7228	1.5094
33	34.650	-86.767	9	7.4547	3.1875	0.4938	8.7714	2.0667
33	34.650	-86.767	10	7.0503	1.8607	0.3075	2.0074	3.6495
33	34.650	-86.767	11	5.9284	1.3149	0.2668	2.0992	4.0295
33	34.650	-86.767	12	6.9691	1.2604	0.2112	2.1746	4.9870

Table 7-4. Derived Bartlett-Lewis Parameters (page 7-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
34	32.300	-86.400	1	7.6320	1.8226	0.2748	4.9339	3.7137
34	32.300	-86.400	2	9.7208	2.0997	0.2408	5.0160	4.2340
34	32.300	-86.400	3	5.9867	1.1262	0.2258	2.7243	4.5814
34	32.300	-86.400	4	4.9516	0.8229	0.2082	2.6528	4.9286
34	32.300	-86.400	5	3.5781	0.7316	0.2838	3.8871	3.5841
34	32.300	-86.400	6	3.8754	5.4356	1.8904	3.7799	0.9264
34	32.300	-86.400	7	3.2966	2.3395	1.0187	10.2071	1.0095
34	32.300	-86.400	8	2.1000	3.4753	3.1593	3.9551	0.7092
34	32.300	-86.400	9	6.2344	2.2737	0.4344	7.5415	2.3441
34	32.300	-86.400	10	3.7258	0.7567	0.2776	3.1584	3.6923
34	32.300	-86.400	11	5.7643	1.3689	0.2873	4.3141	3.5581
34	32.300	-86.400	12	5.6101	0.9129	0.1980	1.9206	5.2970
35	43.567	-116.217	1	10.2197	2.1937	0.2379	1.4205	5.0511
35	43.567	-116.217	2	15.2806	4.7749	0.3344	8.0183	3.0575
35	43.567	-116.217	3	12.0034	3.3566	0.3051	3.4705	3.5097
35	43.567	-116.217	4	7.1083	1.7407	0.2850	2.7561	3.7213
35	43.567	-116.217	5	7.8259	2.1754	0.3187	3.8258	3.2771
35	43.567	-116.217	6	8.0274	3.0485	0.4338	5.9425	2.3873
35	43.567	-116.217	7	2.7231	1.7765	1.0309	3.3461	1.1533
35	43.567	-116.217	8	3.4740	1.4834	0.5996	5.6616	1.7234
35	43.567	-116.217	9	5.6353	1.7849	0.3851	7.2382	2.6340
35	43.567	-116.217	10	14.9571	4.0892	0.2930	6.2872	3.5049
35	43.567	-116.217	11	13.2327	2.1900	0.1790	2.2894	5.9327
35	43.567	-116.217	12	16.1730	5.6664	0.3735	3.8225	2.9743
36	45.800	-108.533	1	10.0908	2.9302	0.3223	1.7018	3.8919
36	45.800	-108.533	2	49.8579	17.3262	0.3546	9.8781	2.9506
36	45.800	-108.533	3	7.3825	1.0597	0.1660	1.2119	6.6491
36	45.800	-108.533	4	7.1159	0.5039	0.0824	1.2559	12.4560
36	45.800	-108.533	5	10.6280	3.2066	0.3331	6.7693	3.0687
36	45.800	-108.533	6	5.9396	2.1398	0.4332	5.6925	2.3762
36	45.800	-108.533	7	1.0927	0.1789	1.9308	3.2588	0.6683
36	45.800	-108.533	8	5.5110	2.1741	0.4819	5.5975	2.1466
36	45.800	-108.533	9	5.7830	1.0799	0.2258	1.9364	4.7073
36	45.800	-108.533	10	11.0481	1.7430	0.1735	2.0875	6.1077
36	45.800	-108.533	11	27.5408	4.7510	0.1790	3.6532	5.8619
36	45.800	-108.533	12	6.9646	1.0373	0.1739	0.9926	6.6397
37	46.767	-100.767	1	40.3318	14.2035	0.3611	16.1937	2.8141
37	46.767	-100.767	2	15.6973	4.0827	0.2778	5.0051	3.7388
37	46.767	-100.767	3	3.0657	0.4584	0.2219	0.6367	5.7076
37	46.767	-100.767	4	8.1809	1.8077	0.2517	3.0367	4.1540
37	46.767	-100.767	5	6.1473	1.8117	0.3520	5.7605	2.8983
37	46.767	-100.767	6	3.5254	1.3464	0.5331	6.9508	1.9103
37	46.767	-100.767	7	2.5878	1.4155	0.8915	5.4760	1.1847
37	46.767	-100.767	8	3.9819	2.3946	0.8030	9.6985	1.2750
37	46.767	-100.767	9	4.7661	1.4447	0.3836	4.7477	2.6769
37	46.767	-100.767	10	3.7980	0.4374	0.1563	1.0183	6.8544
37	46.767	-100.767	11	16.7478	5.0349	0.3197	3.9326	3.3824
37	46.767	-100.767	12	13.9862	3.6488	0.2810	3.5255	3.7988
38	44.383	-98.217	1	10.1120	4.7058	0.5164	3.5939	2.2256
38	44.383	-98.217	2	41.4830	4.0119	0.0991	2.1085	10.7512
38	44.383	-98.217	3	9.7327	2.5017	0.2865	1.9839	3.9992
38	44.383	-98.217	4	6.9260	1.5972	0.2695	2.0990	4.0352
38	44.383	-98.217	5	5.4526	1.5733	0.3534	7.6153	2.8603
38	44.383	-98.217	6	2.0032	0.4883	0.4868	3.1202	2.1385
38	44.383	-98.217	7	1.2756	0.4398	1.5960	2.2256	0.9566
38	44.383	-98.217	8	1.6849	0.2038	0.2976	3.6926	3.3936
38	44.383	-98.217	9	3.6038	0.7027	0.2699	2.2231	3.8695
38	44.383	-98.217	10	3.9211	0.4011	0.1373	2.0836	7.3941
38	44.383	-98.217	11	2.7240	0.5764	0.3343	0.9713	3.6882
38	44.383	-98.217	12	10.1739	2.7818	0.3032	1.3910	4.4383
39	47.633	-117.533	1	29.9294	7.8725	0.2721	2.6679	4.5528
39	47.633	-117.533	2	34.8989	11.8087	0.3484	9.7852	2.9673
39	47.633	-117.533	3	25.6005	8.8590	0.3601	8.8264	2.8693
39	47.633	-117.533	4	14.1832	5.0985	0.3867	3.7879	2.8625
39	47.633	-117.533	5	10.3459	2.8263	0.3024	5.4488	3.3957
39	47.633	-117.533	6	5.8059	1.9695	0.4098	5.4860	2.5081

Table 7-4. Derived Bartlett-Lewis Parameters (page 8-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
39	47.633	-117.533	7	6.8065	4.3278	0.7453	8.9585	1.3942
39	47.633	-117.533	8	9.0009	4.4099	0.5512	4.7598	1.9794
39	47.633	-117.533	9	7.1072	1.8015	0.2950	3.1314	3.5631
39	47.633	-117.533	10	20.2517	5.8772	0.3053	4.1992	3.5315
39	47.633	-117.533	11	18.1026	3.4403	0.2012	2.1723	5.5225
39	47.633	-117.533	12	31.4869	10.0931	0.3311	3.9319	3.5116
40	35.333	-94.367	1	9.3101	2.6808	0.3226	4.7863	3.2085
40	35.333	-94.367	2	11.8363	5.0967	0.4703	5.6598	2.2603
40	35.333	-94.367	3	7.8542	2.4726	0.3607	3.3937	2.9642
40	35.333	-94.367	4	2.8463	0.5897	0.3194	2.2212	3.2835
40	35.333	-94.367	5	3.9090	1.0503	0.3611	3.4224	2.8716
40	35.333	-94.367	6	3.4056	1.2616	0.5244	5.4121	1.9596
40	35.333	-94.367	7	5.8953	3.0854	0.6303	10.4695	1.6165
40	35.333	-94.367	8	3.6582	1.1420	0.4296	4.3572	2.3987
40	35.333	-94.367	9	6.5310	2.2036	0.3984	7.4747	2.5513
40	35.333	-94.367	10	5.7693	1.3645	0.2861	4.1767	3.5774
40	35.333	-94.367	11	6.4025	0.4985	0.0923	1.9142	10.9832
40	35.333	-94.367	12	10.0792	1.6431	0.1810	3.8753	5.6309
41	41.980	-97.433	1	6.2472	7.8645	1.4988	2.8500	1.8523
41	41.980	-97.433	2	21.8250	20.5062	0.9847	9.5232	1.1838
41	41.980	-97.433	3	6.2613	0.8179	0.1554	1.3818	6.8391
41	41.980	-97.433	4	7.6611	1.7500	0.2627	2.5581	4.0491
41	41.980	-97.433	5	6.9927	2.5572	0.4267	7.7725	2.3869
41	41.980	-97.433	6	3.1175	1.0306	0.4867	4.3651	2.1227
41	41.980	-97.433	7	2.7883	0.9140	0.5111	4.5837	2.0151
41	41.980	-97.433	8	3.6691	1.2512	0.4688	4.2734	2.2128
41	41.980	-97.433	9	3.0776	0.6299	0.3032	1.8532	3.5171
41	41.980	-97.433	10	7.7073	1.1881	0.1771	6.1721	5.6785
41	41.980	-97.433	11	11.7487	2.1697	0.2019	2.0789	5.3654
41	41.980	-97.433	12	8.2153	1.7378	0.2409	1.7228	4.6432
42	39.567	-97.667	1	10.6720	2.6833	0.2774	3.4463	3.8012
42	39.567	-97.667	2	22.5086	10.2639	0.4772	5.8768	2.3168
42	39.567	-97.667	3	13.8883	5.0477	0.3916	4.3324	2.7682
42	39.567	-97.667	4	2.7566	0.9987	0.5685	3.0144	1.8959
42	39.567	-97.667	5	3.5630	1.0520	0.4105	4.2403	2.5065
42	39.567	-97.667	6	4.3693	2.0034	0.5946	6.1682	1.7398
42	39.567	-97.667	7	2.2814	0.5169	0.4034	4.1584	2.5263
42	39.567	-97.667	8	1.8866	0.3776	0.4259	2.8412	2.4324
42	39.567	-97.667	9	2.8298	0.7450	0.4071	3.5525	2.5346
42	39.567	-97.667	10	4.6201	0.2445	0.0675	2.0527	14.8767
42	39.567	-97.667	11	6.7500	0.9836	0.1711	5.0312	5.8880
42	39.567	-97.667	12	12.3927	3.4295	0.3010	4.9675	3.4448
43	35.400	-97.600	1	6.6108	1.5483	0.2760	4.0226	3.7206
43	35.400	-97.600	2	5.7830	1.1383	0.2380	2.3587	4.4046
43	35.400	-97.600	3	4.2726	0.9021	0.2756	2.7427	3.7603
43	35.400	-97.600	4	4.0149	0.8673	0.2877	3.8927	3.5437
43	35.400	-97.600	5	4.0480	0.5351	0.1756	2.7176	5.7825
43	35.400	-97.600	6	3.1990	1.2173	0.5536	4.6480	1.8757
43	35.400	-97.600	7	3.1779	0.8323	0.3821	5.7123	2.6505
43	35.400	-97.600	8	3.9017	1.2599	0.4342	4.6388	2.3709
43	35.400	-97.600	9	3.8055	0.6460	0.2303	3.1542	4.4213
43	35.400	-97.600	10	6.6227	0.2850	0.0507	1.8565	19.8225
43	35.400	-97.600	11	6.8644	1.4116	0.2407	3.7965	4.2536
43	35.400	-97.600	12	5.7915	0.7836	0.1635	2.6636	6.2320
44	37.233	-93.383	1	3.1805	0.4477	0.2053	1.2737	5.1947
44	37.233	-93.383	2	8.3655	2.6825	0.3642	3.5496	2.9344
44	37.233	-93.383	3	7.7729	1.9125	0.2824	4.1102	3.6511
44	37.233	-93.383	4	5.1510	1.1521	0.2776	2.9716	3.7390
44	37.233	-93.383	5	4.2766	0.7617	0.2325	3.6960	4.3668
44	37.233	-93.383	6	4.4492	5.3325	1.5460	3.3978	1.1022
44	37.233	-93.383	7	3.7315	1.2183	0.4460	5.3222	2.2936
44	37.233	-93.383	8	5.4372	2.6671	0.6011	13.9783	1.6790
44	37.233	-93.383	9	4.9319	1.5741	0.4003	3.9520	2.6032
44	37.233	-93.383	10	5.5212	0.6447	0.1426	1.8912	7.2023
44	37.233	-93.383	11	8.7511	2.5552	0.3297	6.9547	3.0858
44	37.233	-93.383	12	5.2832	0.6014	0.1404	1.5413	7.3849

Table 7-4. Derived Bartlett-Lewis Parameters (page 9-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
45	30.533	-91.150	1	8.5225	2.1947	0.2918	2.9146	3.6563
45	30.533	-91.150	2	5.9100	1.3139	0.2676	2.1703	4.0018
45	30.533	-91.150	3	4.9153	1.3335	0.3406	3.1682	3.0739
45	30.533	-91.150	4	5.8936	1.7929	0.3664	5.7336	2.7869
45	30.533	-91.150	5	2.9402	0.4122	0.2124	2.3978	4.8030
45	30.533	-91.150	6	5.0881	9.5793	2.3432	4.3807	0.9914
45	30.533	-91.150	7	2.4990	1.1382	0.7593	7.2175	1.3489
45	30.533	-91.150	8	2.6847	1.1699	0.6944	7.3483	1.4705
45	30.533	-91.150	9	2.9639	0.7833	0.3988	4.4964	2.5590
45	30.533	-91.150	10	4.8133	0.2111	0.0554	1.6676	18.1526
45	30.533	-91.150	11	4.5269	1.5253	0.4325	2.6435	2.5288
45	30.533	-91.150	12	4.0085	0.5929	0.1971	2.1031	5.2279
46	44.750	-123.017	1	13.7568	2.2557	0.1768	2.8292	5.8973
46	44.750	-123.017	2	11.0994	1.7451	0.1728	1.6362	6.3207
46	44.750	-123.017	3	20.0846	3.8150	0.1999	3.1332	5.3081
46	44.750	-123.017	4	14.5891	2.5141	0.1850	3.1410	5.6235
46	44.750	-123.017	5	11.7190	0.6880	0.0642	2.0975	15.7342
46	44.750	-123.017	6	8.9829	1.7142	0.2147	4.5981	4.7370
46	44.750	-123.017	7	7.9496	1.6050	0.2309	3.2346	4.4768
46	44.750	-123.017	8	14.4094	2.7356	0.2040	3.4229	5.1020
46	44.750	-123.017	9	8.0474	1.1022	0.1564	2.1782	6.6154
46	44.750	-123.017	10	18.3587	3.8242	0.2203	3.0513	4.8611
46	44.750	-123.017	11	26.8891	5.4162	0.2092	3.6258	5.0916
46	44.750	-123.017	12	14.8610	2.7899	0.2013	2.5904	5.3048
47	44.767	-106.967	1	28.2271	11.4752	0.4215	4.0216	2.9297
47	44.767	-106.967	2	41.5283	10.0735	0.2486	5.6362	4.2566
47	44.767	-106.967	3	26.4167	11.0462	0.4346	6.5849	2.4907
47	44.767	-106.967	4	7.7005	0.7027	0.1049	1.1945	9.9944
47	44.767	-106.967	5	8.3151	2.2763	0.3112	5.1605	3.2966
47	44.767	-106.967	6	6.4476	2.8887	0.5303	6.7809	1.9486
47	44.767	-106.967	7	4.2360	1.4383	0.4445	10.8141	2.2649
47	44.767	-106.967	8	2.8798	0.8905	0.4737	7.0281	2.1362
47	44.767	-106.967	9	9.8745	1.8449	0.2079	2.7755	5.0257
47	44.767	-106.967	10	5.2742	0.8640	0.2021	1.1597	5.5411
47	44.767	-106.967	11	38.2111	7.1056	0.1910	3.4160	5.6816
47	44.767	-106.967	12	54.7721	23.5821	0.4386	14.9169	2.3593
48	32.333	-88.750	1	13.6660	4.1681	0.3291	3.1856	3.3606
48	32.333	-88.750	2	11.5762	2.9277	0.2768	4.0177	3.7717
48	32.333	-88.750	3	5.1894	0.9066	0.2164	2.2520	4.8059
48	32.333	-88.750	4	10.8607	5.0049	0.5076	9.0635	2.0264
48	32.333	-88.750	5	6.7669	1.6650	0.2887	9.7540	3.4827
48	32.333	-88.750	6	4.5710	0.6438	0.1803	5.8154	5.5700
48	32.333	-88.750	7	3.2513	2.6021	1.1558	5.0166	0.9776
48	32.333	-88.750	8	4.1713	4.1862	1.3200	11.1961	0.7939
48	32.333	-88.750	9	3.9122	0.4809	0.1651	2.1641	6.1779
48	32.333	-88.750	10	4.6974	0.6059	0.1639	2.4791	6.2136
48	32.333	-88.750	11	14.5918	8.8460	0.6508	10.2172	1.6080
48	32.333	-88.750	12	15.0019	5.7940	0.4138	7.8075	2.4991
49	43.650	-70.317	1	19.9151	6.2632	0.3311	2.1972	4.0744
49	43.650	-70.317	2	8.9975	2.9710	0.3715	1.8906	3.3485
49	43.650	-70.317	3	4.0641	0.9097	0.2969	0.8810	4.4691
49	43.650	-70.317	4	4.0725	0.7880	0.2565	1.2150	4.4268
49	43.650	-70.317	5	9.0693	2.4831	0.3077	3.5534	3.4256
49	43.650	-70.317	6	7.6205	2.8520	0.4308	11.0456	2.3457
49	43.650	-70.317	7	3.6245	0.8987	0.3424	3.3837	3.0131
49	43.650	-70.317	8	3.8544	0.9791	0.3430	2.7288	3.0617
49	43.650	-70.317	9	4.8113	2.7374	0.7182	3.9161	1.5615
49	43.650	-70.317	10	5.7762	1.2581	0.2634	2.1208	4.0637
49	43.650	-70.317	11	5.5782	1.0477	0.2288	1.3152	4.9191
49	43.650	-70.317	12	4.7346	0.8173	0.2188	1.3081	5.0330
50	44.467	-73.150	1	99.2120	71.1207	0.7242	33.3712	1.4271
50	44.467	-73.150	2	3.4275	0.5192	0.2139	0.7910	5.5295
50	44.467	-73.150	3	5.4040	0.7080	0.1608	1.0054	6.8727
50	44.467	-73.150	4	7.8821	1.3297	0.1932	1.8366	5.5292
50	44.467	-73.150	5	5.1480	1.2356	0.2979	4.6400	3.4199
50	44.467	-73.150	6	3.6591	0.7918	0.2978	4.5119	3.4063

Table 7-4. Derived Bartlett-Lewis Parameters (page 10-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
50	44.467	-73.150	7	3.1977	0.7619	0.3467	3.9395	2.9473
50	44.467	-73.150	8	5.2832	2.0650	0.4821	7.7140	2.1120
50	44.467	-73.150	9	5.4820	1.7222	0.3843	5.3220	2.6669
50	44.467	-73.150	10	9.5309	2.3959	0.2809	3.6906	3.7196
50	44.467	-73.150	11	6.8529	1.2670	0.2165	1.7890	4.9794
50	44.467	-73.150	12	40.4402	27.8231	0.7055	12.7799	1.5419
51	41.167	-73.133	1	3.8619	1.2786	0.4467	0.9884	3.5474
51	41.167	-73.133	2	14.4753	4.9817	0.3697	1.8078	3.9848
51	41.167	-73.133	3	3.4887	0.8156	0.3277	0.9862	3.8891
51	41.167	-73.133	4	4.8059	0.6797	0.1786	1.1749	6.0831
51	41.167	-73.133	5	5.6734	1.3537	0.2897	2.6430	3.6428
51	41.167	-73.133	6	7.1207	3.2247	0.5268	7.2270	1.9587
51	41.167	-73.133	7	3.5135	1.1206	0.4458	4.4450	2.3112
51	41.167	-73.133	8	3.8061	1.0129	0.3610	3.6463	2.8587
51	41.167	-73.133	9	5.4906	1.4313	0.3187	3.7409	3.2434
51	41.167	-73.133	10	6.3521	0.9228	0.1724	2.1526	5.9986
51	41.167	-73.133	11	6.3329	0.9136	0.1713	2.1522	6.0348
51	41.167	-73.133	12	16.9821	7.0585	0.4417	3.1682	2.7987
52	37.100	-88.600	1	7.8853	0.7776	0.1129	4.0481	8.9047
52	37.100	-88.600	2	12.1457	2.9335	0.2632	6.4987	3.8650
52	37.100	-88.600	3	8.5810	2.8979	0.3823	4.4867	2.7471
52	37.100	-88.600	4	4.7096	0.7590	0.2046	3.3375	4.9651
52	37.100	-88.600	5	3.3842	7.3264	3.0729	4.1956	0.9259
52	37.100	-88.600	6	5.3495	1.9191	0.4412	6.4792	2.3156
52	37.100	-88.600	7	4.5185	0.3847	0.1093	5.0619	9.1645
52	37.100	-88.600	8	2.7911	0.1310	0.0731	4.6278	13.6855
52	37.100	-88.600	9	2.5583	0.4083	0.2620	3.5501	3.8650
52	37.100	-88.600	10	22.8146	71.4685	3.2762	10.2927	2.1075
52	37.100	-88.600	11	10.6010	1.8224	0.1898	3.1168	5.4400
52	37.100	-88.600	12	14.0000	2.9403	0.2262	12.8511	4.4391
53	42.933	-78.733	1	4.4407	1.2818	0.3725	1.8787	3.0344
53	42.933	-78.733	2	4.2198	0.9671	0.3004	1.3445	3.8450
53	42.933	-78.733	3	5.4610	1.1196	0.2510	1.6436	4.3727
53	42.933	-78.733	4	7.0010	1.3414	0.2235	2.3430	4.7044
53	42.933	-78.733	5	5.1127	1.0979	0.2670	2.6856	3.9036
53	42.933	-78.733	6	6.4156	3.0177	0.5572	18.0915	1.8048
53	42.933	-78.733	7	3.1878	0.9803	0.4480	4.0076	2.3078
53	42.933	-78.733	8	2.9856	0.7296	0.3674	2.9302	2.8292
53	42.933	-78.733	9	6.4633	2.3917	0.4378	6.6938	2.3389
53	42.933	-78.733	10	8.8259	2.4052	0.3073	4.8629	3.3504
53	42.933	-78.733	11	7.9665	1.6585	0.2381	2.0956	4.5331
53	42.933	-78.733	12	4.5167	1.0078	0.2866	1.7400	3.8195
54	42.867	-100.550	1	7.6612	1.4783	0.2219	1.8295	4.8944
54	42.867	-100.550	2	49.5148	39.3826	0.8118	12.0440	1.4525
54	42.867	-100.550	3	7.9032	1.4025	0.2032	1.8387	5.2900
54	42.867	-100.550	4	7.3865	1.4415	0.2257	2.0918	4.7298
54	42.867	-100.550	5	4.6915	1.5305	0.4146	5.2416	2.4733
54	42.867	-100.550	6	4.6795	3.1987	0.8693	12.3835	1.1737
54	42.867	-100.550	7	2.0612	0.4560	0.4297	4.0458	2.3751
54	42.867	-100.550	8	1.6017	0.2483	0.4127	2.2213	2.5341
54	42.867	-100.550	9	5.8283	1.5865	0.3286	4.0023	3.1445
54	42.867	-100.550	10	12.1396	4.2173	0.3786	5.8065	2.7511
54	42.867	-100.550	11	4.9154	0.8801	0.2248	1.5720	4.7996
54	42.867	-100.550	12	44.0502	20.5108	0.4764	8.5383	2.3055
55	33.433	-112.017	1	18.5341	5.9810	0.3411	6.6493	3.0444
55	33.433	-112.017	2	9.5738	1.6808	0.1960	6.5786	5.1406
55	33.433	-112.017	3	9.5096	1.3431	0.1578	3.3511	6.4520
55	33.433	-112.017	4	12.1190	2.2626	0.2035	6.9215	4.9605
55	33.433	-112.017	5	9.0294	0.1799	0.0224	6.5905	44.6324
55	33.433	-112.017	6	1.9267	0.4381	0.4728	2.6266	2.2239
55	33.433	-112.017	7	3.2830	5.3546	2.3454	4.5836	0.7042
55	33.433	-112.017	8	2.4655	5.5234	3.7690	5.3408	0.5477
55	33.433	-112.017	9	4.2500	1.0181	0.3133	5.8447	3.2276
55	33.433	-112.017	10	6.4286	0.9307	0.1714	2.9156	5.9467
55	33.433	-112.017	11	7.6058	0.7408	0.1121	2.9669	9.0046
55	33.433	-112.017	12	16.3223	3.2859	0.2145	3.3719	4.9009

Table 7-4. Derived Bartlett-Lewis Parameters (page 11-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
56	32.133	-81.200	1	7.2909	2.2677	0.3605	3.6670	2.9307
56	32.133	-81.200	2	6.6594	1.4708	0.2599	2.4656	4.0757
56	32.133	-81.200	3	8.5054	2.8147	0.3750	5.7432	2.7479
56	32.133	-81.200	4	5.5790	1.8168	0.3968	3.7537	2.6487
56	32.133	-81.200	5	3.0708	0.5819	0.2810	3.3175	3.6282
56	32.133	-81.200	6	2.8483	0.6576	0.3558	3.8544	2.8710
56	32.133	-81.200	7	2.5582	0.7994	0.5130	5.1048	1.9934
56	32.133	-81.200	8	3.3044	9.1899	3.9879	2.7993	5.5256
56	32.133	-81.200	9	4.3963	1.4373	0.4232	5.2899	2.4209
56	32.133	-81.200	10	4.2265	0.7229	0.2240	5.7009	4.4906
56	32.133	-81.200	11	6.0966	1.8447	0.3619	3.3607	2.9203
56	32.133	-81.200	12	10.4260	3.2774	0.3477	3.4770	3.1036
57	40.783	-111.950	1	16.6948	7.3533	0.4685	3.1090	2.7212
57	40.783	-111.950	2	28.8085	13.6697	0.4916	9.5080	2.1493
57	40.783	-111.950	3	8.9275	1.5748	0.1986	2.2145	5.3207
57	40.783	-111.950	4	9.0315	1.8828	0.2344	1.9454	4.6842
57	40.783	-111.950	5	15.1391	4.4436	0.3143	6.8321	3.2663
57	40.783	-111.950	6	6.3792	1.0879	0.2022	2.7293	5.0920
57	40.783	-111.950	7	2.0195	1.9335	1.8966	5.1245	0.6341
57	40.783	-111.950	8	2.7408	1.2355	0.7097	3.7771	1.5173
57	40.783	-111.950	9	10.9372	3.9396	0.3965	5.5371	2.6359
57	40.783	-111.950	10	17.2963	5.8635	0.3598	3.2212	3.2028
57	40.783	-111.950	11	23.1689	8.8866	0.4009	3.8470	2.9439
57	40.783	-111.950	12	19.2303	7.7344	0.4243	3.4521	2.8460
58	38.433	-113.017	1	12.6481	2.5143	0.2159	2.5070	4.9624
58	38.433	-113.017	2	11.1760	3.5287	0.3468	3.0206	3.1949
58	38.433	-113.017	3	10.3523	2.4017	0.2568	3.1090	4.1108
58	38.433	-113.017	4	14.0486	3.4829	0.2669	5.4032	3.8527
58	38.433	-113.017	5	8.3652	2.5845	0.3509	4.5278	2.9672
58	38.433	-113.017	6	6.3123	5.5921	1.0527	11.6575	0.9904
58	38.433	-113.017	7	3.2097	2.2429	1.0151	12.8977	1.0026
58	38.433	-113.017	8	2.4904	1.2700	0.8521	3.0324	1.3460
58	38.433	-113.017	9	7.2330	2.9999	0.4813	3.5494	2.2861
58	38.433	-113.017	10	15.3747	4.2277	0.2941	3.5780	3.6626
58	38.433	-113.017	11	15.5522	4.5362	0.3117	3.5788	3.4860
58	38.433	-113.017	12	18.4427	4.8279	0.2768	3.6467	3.8946
59	31.800	-106.400	1	17.2173	3.9157	0.2415	6.3207	4.2289
59	31.800	-106.400	2	15.6895	4.1797	0.2845	3.0465	3.8632
59	31.800	-106.400	3	8.7333	2.1459	0.2775	5.6059	3.6710
59	31.800	-106.400	4	21.9445	7.3804	0.3524	6.5135	2.9764
59	31.800	-106.400	5	1.4925	1.4026	2.8481	12.2606	0.3738
59	31.800	-106.400	6	2.6857	0.5019	0.2977	3.5445	3.4155
59	31.800	-106.400	7	2.3367	0.8764	0.6556	5.5186	1.5688
59	31.800	-106.400	8	1.9763	0.4927	0.5047	3.7300	2.0430
59	31.800	-106.400	9	4.5647	0.5742	0.1611	6.3165	6.2260
59	31.800	-106.400	10	7.7742	0.6225	0.0919	3.2938	10.9428
59	31.800	-106.400	11	10.5576	0.5845	0.0612	2.8183	16.4268
59	31.800	-106.400	12	22.8439	5.3098	0.2431	4.4116	4.3285
60	27.767	-97.500	1	9.3905	1.0928	0.1302	1.5844	8.0679
60	27.767	-97.500	2	3.1572	0.3698	0.1714	1.9524	5.9586
60	27.767	-97.500	4	4.3342	30.7649	9.2272	16.2023	0.2433
60	27.767	-97.500	4	2.1901	0.5730	0.4815	3.6173	2.1459
60	27.767	-97.500	5	3.8420	2.7540	0.9690	5.7137	1.1211
60	27.767	-97.500	6	1.7425	0.2851	0.3841	2.3164	2.7085
60	27.767	-97.500	7	7.1280	0.3471	0.0566	4.5313	17.6739
60	27.767	-97.500	8	3.6499	0.2456	0.0927	2.5958	10.8383
60	27.767	-97.500	9	6.4213	0.6108	0.1127	5.7188	8.8973
60	27.767	-97.500	10	4.4583	1.2287	0.3553	7.4018	2.8412
60	27.767	-97.500	11	6.8382	5.1240	0.8777	7.1009	1.2315
60	27.767	-97.500	12	3.4028	1.2969	0.5397	3.5935	1.9679
61	44.117	-123.217	1	13.7782	2.5373	0.1986	3.4414	5.2226
61	44.117	-123.217	2	9.5446	1.5130	0.1771	1.5331	6.1854
61	44.117	-123.217	3	14.1293	2.3251	0.1771	2.2445	6.0236
61	44.117	-123.217	4	13.7865	2.7761	0.2171	3.8632	4.7686
61	44.117	-123.217	5	19.4930	5.3895	0.2914	8.1180	3.5031
61	44.117	-123.217	6	7.1368	1.4085	0.2295	2.9350	4.5157

Table 7-4. Derived Bartlett-Lewis Parameters (page 12-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
61	44.117	-123.217	7	15.0821	7.2614	0.5156	7.6962	2.0410
61	44.117	-123.217	8	3.9577	0.8662	0.2929	2.8186	3.5383
61	44.117	-123.217	9	13.7643	2.9118	0.2281	8.1472	4.4259
61	44.117	-123.217	10	13.4332	2.3810	0.1915	2.2063	5.6185
61	44.117	-123.217	11	12.0904	1.6324	0.1472	1.8751	7.1875
61	44.117	-123.217	12	10.8054	2.0735	0.2115	2.4791	5.0183
62	46.150	-123.883	1	6.8010	0.6159	0.1062	0.7627	10.3584
62	46.150	-123.883	2	13.9751	2.2048	0.1699	1.8411	6.4018
62	46.150	-123.883	3	20.9958	3.6975	0.1849	3.8766	5.6104
62	46.150	-123.883	4	16.5272	3.8709	0.2493	3.1517	4.3183
62	46.150	-123.883	5	16.5742	5.2459	0.3368	6.0256	3.0903
62	46.150	-123.883	6	7.3222	1.8855	0.2982	2.5556	3.6122
62	46.150	-123.883	7	6.9841	1.9314	0.3228	3.9360	3.2192
62	46.150	-123.883	8	5.8807	0.9016	0.1847	2.1185	5.6160
62	46.150	-123.883	9	11.6868	2.2547	0.2110	3.9807	4.8702
62	46.150	-123.883	10	12.8509	2.4932	0.2104	2.9590	4.9957
62	46.150	-123.883	11	14.0683	2.1542	0.1648	2.3960	6.3812
62	46.150	-123.883	12	10.5139	1.4006	0.1472	1.7844	7.1752
63	47.450	-122.300	1	15.6171	3.5090	0.2401	2.9276	4.4901
63	47.450	-122.300	2	12.5556	1.0457	0.0905	1.7042	11.3748
63	47.450	-122.300	3	20.4772	4.1868	0.2150	4.2566	4.8411
63	47.450	-122.300	4	19.0564	5.8549	0.3243	5.0823	3.2643
63	47.450	-122.300	5	9.8000	2.2050	0.2506	2.0455	4.4234
63	47.450	-122.300	6	9.1648	2.4548	0.3007	3.3481	3.5201
63	47.450	-122.300	7	11.3590	2.1872	0.2111	3.1846	4.9277
63	47.450	-122.300	8	7.3018	0.7470	0.1185	2.3379	8.5765
63	47.450	-122.300	9	11.4268	2.2141	0.2123	3.7919	4.8497
63	47.450	-122.300	10	10.1002	1.3358	0.1468	1.6346	7.2447
63	47.450	-122.300	11	27.7889	6.0739	0.2267	4.1987	4.6724
63	47.450	-122.300	12	12.3355	1.9756	0.1743	1.6153	6.3397
64	48.217	-106.617	1	22.2768	9.6888	0.4554	13.5527	2.2416
64	48.217	-106.617	2	11.3055	3.4068	0.3306	5.3149	3.1333
64	48.217	-106.617	3	9.6993	2.5016	0.2876	5.1167	3.5679
64	48.217	-106.617	4	16.5119	6.5655	0.4233	4.7934	2.5836
64	48.217	-106.617	5	8.3793	2.9088	0.3942	4.8545	2.6510
64	48.217	-106.617	6	4.0093	1.5385	0.5112	6.7714	1.9955
64	48.217	-106.617	7	3.1295	2.0273	0.9520	11.5253	1.0703
64	48.217	-106.617	8	2.7377	8.7525	5.0367	8.9861	0.3296
64	48.217	-106.617	9	7.7926	2.8388	0.4179	3.8877	2.5609
64	48.217	-106.617	10	4.9902	1.2134	0.3041	1.2979	3.9348
64	48.217	-106.617	11	24.6962	11.3455	0.4788	11.4543	2.1591
64	48.217	-106.617	12	18.1587	6.8340	0.3983	12.6438	2.5496
65	48.183	-103.633	1	4.7710	0.9708	0.2574	1.0835	4.6368
65	48.183	-103.633	2	43.8546	13.8199	0.3225	14.2063	3.1567
65	48.183	-103.633	3	10.4570	1.9445	0.2056	2.7636	5.0894
65	48.183	-103.633	4	5.4471	0.9206	0.2070	1.8889	5.0876
65	48.183	-103.633	5	7.6242	1.2850	0.1940	6.3394	5.1890
65	48.183	-103.633	6	2.7102	6.7938	3.9725	5.1625	0.6434
65	48.183	-103.633	7	3.8340	14.4069	5.0835	8.8625	0.4065
65	48.183	-103.633	8	4.7218	2.7364	0.7352	13.8202	1.3766
65	48.183	-103.633	9	7.9065	3.9317	0.5693	4.5872	1.9187
65	48.183	-103.633	10	5.5093	0.8376	0.1857	1.4355	5.7753
65	48.183	-103.633	11	40.6789	15.4204	0.3886	9.5252	2.6997
65	48.183	-103.633	12	10.7154	6.4915	0.6682	3.8645	1.8335
66	46.467	-84.367	1	6.1052	0.8050	0.1577	1.1136	6.9356
66	46.467	-84.367	2	10.0741	3.3600	0.3703	2.5894	3.0991
66	46.467	-84.367	3	7.1892	1.5194	0.2455	1.8956	4.4476
66	46.467	-84.367	4	5.7777	0.8865	0.1856	1.3436	5.8490
66	46.467	-84.367	5	3.8347	0.7272	0.2565	2.1522	4.0746
66	46.467	-84.367	6	6.4204	2.2030	0.4064	6.1026	2.5210
66	46.467	-84.367	7	4.9760	1.8445	0.4639	5.0591	2.2318
66	46.467	-84.367	8	2.1485	0.5260	0.4580	1.9105	2.3933
66	46.467	-84.367	9	5.1541	1.4254	0.3431	2.3185	3.1693
66	46.467	-84.367	10	12.9503	99.0038	8.2846	6.5223	44.4564
66	46.467	-84.367	11	5.9862	1.1267	0.2260	1.5605	4.8498
66	46.467	-84.367	12	5.4130	0.8852	0.2006	1.0872	5.6644

Table 7-4. Derived Bartlett-Lewis Parameters (page 13-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
67	30.683	-88.250	1	14.5148	10.4967	0.7767	22.9788	1.3061
67	30.683	-88.250	2	4.9956	0.7222	0.1807	1.9667	5.7300
67	30.683	-88.250	3	4.2724	0.9149	0.2796	3.0226	3.6886
67	30.683	-88.250	4	2.9391	1.0066	0.5191	2.1812	2.1688
67	30.683	-88.250	4	2.7812	0.5979	0.3357	2.8139	3.0796
67	30.683	-88.250	6	2.5154	0.6712	0.4429	3.6878	2.3282
67	30.683	-88.250	7	2.5426	1.0907	0.7071	6.2685	1.4538
67	30.683	-88.250	8	3.5676	1.9847	0.7730	12.1537	1.3106
67	30.683	-88.250	9	3.1316	0.2659	0.1247	3.2822	8.0519
67	30.683	-88.250	10	5.3305	0.4267	0.0985	2.8072	10.2109
67	30.683	-88.250	11	3.1765	0.6185	0.2842	3.2364	3.5950
67	30.683	-88.250	12	4.1650	0.7917	0.2501	2.0845	4.1954
68	24.550	-81.750	1	9.2734	1.0332	0.1249	4.4923	8.0601
68	24.550	-81.750	2	5.6547	2.1204	0.4556	13.6802	2.2080
68	24.550	-81.750	3	3.1910	3.4425	1.5712	2.8183	1.1327
68	24.550	-81.750	4	12.9213	47.0230	3.9444	4.4067	21.6339
68	24.550	-81.750	5	2.6786	0.2522	0.1503	2.8245	6.7020
68	24.550	-81.750	6	3.1991	1.4132	0.6426	6.9175	1.5937
68	24.550	-81.750	7	1.4652	1.4963	3.2166	3.3468	0.7414
68	24.550	-81.750	8	2.0822	1.1644	1.0760	7.4931	0.9632
68	24.550	-81.750	9	1.9734	0.7233	0.7430	3.4116	1.4462
68	24.550	-81.750	10	2.0135	0.4502	0.4442	2.8605	2.3429
68	24.550	-81.750	11	10.7343	69.3312	7.1223	5.7443	27.9097
68	24.550	-81.750	12	1.1114	0.1595	1.4323	1.6776	1.1973
69	29.183	-81.050	1	8.4198	3.3140	0.4466	8.0476	2.2890
69	29.183	-81.050	2	5.5660	0.8950	0.1960	4.9752	5.1421
69	29.183	-81.050	3	3.4670	0.5740	0.2327	2.0463	4.4608
69	29.183	-81.050	4	3.9553	0.5365	0.1815	3.6900	5.5568
69	29.183	-81.050	5	2.6795	0.7317	0.4357	5.6071	2.3287
69	29.183	-81.050	6	3.4182	1.2375	0.5117	6.6459	1.9894
69	29.183	-81.050	7	4.5376	10.3419	2.9235	5.1325	0.7988
69	29.183	-81.050	8	2.4346	0.7652	0.5334	5.1286	1.9181
69	29.183	-81.050	9	3.6801	1.3226	0.4935	6.6062	2.0634
69	29.183	-81.050	10	3.0482	1.0632	0.5191	2.7178	2.0944
69	29.183	-81.050	11	9.1064	4.9734	0.6135	21.7558	1.6408
69	29.183	-81.050	12	15.9307	11.7666	0.7881	19.5070	1.2966
70	43.117	-77.667	1	15.2770	6.7901	0.4756	8.2856	2.1869
70	43.117	-77.667	2	5.4115	1.4232	0.3226	1.9157	3.4574
70	43.117	-77.667	3	9.1575	3.1837	0.3903	2.3370	3.0260
70	43.117	-77.667	4	9.8533	2.5061	0.2831	2.6959	3.8237
70	43.117	-77.667	5	4.1050	0.8805	0.2836	2.5663	3.6743
70	43.117	-77.667	6	3.7772	1.2737	0.4586	6.0107	2.2229
70	43.117	-77.667	7	3.6092	1.4328	0.5492	5.9951	1.8689
70	43.117	-77.667	8	6.1571	2.9592	0.5738	17.3357	1.7537
70	43.117	-77.667	9	9.2033	3.4918	0.4257	8.8311	2.3930
70	43.117	-77.667	10	7.0973	2.3489	0.3852	4.2103	2.7213
70	43.117	-77.667	11	6.8310	1.7378	0.2980	2.0233	3.7274
70	43.117	-77.667	12	6.2599	1.4979	0.2848	1.9479	3.8675
71	35.267	-75.550	1	79.0000	3.7563	0.0482	3.0099	21.0868
71	35.267	-75.550	2	9.2910	2.8145	0.3395	5.1985	3.0431
71	35.267	-75.550	3	6.1646	1.2863	0.2491	2.4252	4.2268
71	35.267	-75.550	4	6.2730	2.0028	0.3798	2.9127	2.8504
71	35.267	-75.550	5	5.4925	2.0238	0.4505	3.0730	2.4217
71	35.267	-75.550	6	8.5636	2.2200	0.2935	13.3411	3.4204
71	35.267	-75.550	7	3.2094	0.8796	0.3981	3.2819	2.6119
71	35.267	-75.550	8	7.5603	3.0908	0.4711	18.3320	2.1325
71	35.267	-75.550	9	3.3111	0.6958	0.3011	2.7544	3.4337
71	35.267	-75.550	10	3.8732	0.3966	0.1380	1.9661	7.3687
71	35.267	-75.550	11	2.5638	0.2131	0.1363	1.1009	7.5834
71	35.267	-75.550	12	8.4346	3.0070	0.4045	4.1956	2.6252
72	36.900	-76.200	1	6.7952	0.7961	0.1374	1.2125	7.7792
72	36.900	-76.200	2	7.1164	1.0026	0.1639	1.6311	6.4511
72	36.900	-76.200	3	10.7566	3.0899	0.3167	3.8156	3.3409
72	36.900	-76.200	4	5.8414	1.8203	0.3760	4.7716	2.7417
72	36.900	-76.200	5	7.3614	2.0241	0.3182	7.8758	3.1770
72	36.900	-76.200	6	3.6190	1.0725	0.4095	3.7501	2.5312

Table 7-4. Derived Bartlett-Lewis Parameters (page 14-14)

ID	LAT	LONG	MONTH	E[c]	β 1/hr	γ 1/hr	E[η] 1/hr	u_t hr
72	36.900	-76.200	7	2.2600	0.5332	0.4232	3.2084	2.4423
72	36.900	-76.200	8	3.4500	1.1107	0.4534	5.5287	2.2509
72	36.900	-76.200	9	3.7621	0.6888	0.2494	2.5239	4.1365
72	36.900	-76.200	10	4.5019	0.6373	0.1820	1.6978	5.7314
72	36.900	-76.200	11	11.6860	4.5259	0.4235	3.7251	2.6212
72	36.900	-76.200	12	7.7728	1.3421	0.1982	1.7522	5.4342
73	32.783	-79.933	1	8.2730	1.8927	0.2602	3.7390	3.9714
73	32.783	-79.933	2	7.2638	1.7703	0.2826	2.3972	3.8148
73	32.783	-79.933	3	5.3239	0.8420	0.1947	2.1980	5.3162
73	32.783	-79.933	4	4.6453	1.2161	0.3336	5.1013	3.0503
73	32.783	-79.933	5	3.2386	0.5243	0.2342	3.1393	4.3389
73	32.783	-79.933	6	2.0788	0.3933	0.3646	2.7350	2.8297
73	32.783	-79.933	7	2.4912	0.7812	0.5239	6.6148	1.9357
73	32.783	-79.933	8	2.8437	0.6633	0.3598	3.3875	2.8569
73	32.783	-79.933	9	4.4201	0.5559	0.1625	4.4049	6.1869
73	32.783	-79.933	10	10.1316	4.4933	0.4921	11.3641	2.0660
73	32.783	-79.933	11	2.6241	0.4957	0.3052	1.6535	3.5105
73	32.783	-79.933	12	5.2582	0.8864	0.2082	2.2676	4.9829
74	25.900	-97.433	1	5.6749	0.2706	0.0579	1.5945	17.3966
74	25.900	-97.433	2	5.6214	2.4477	0.5296	7.9885	1.9289
74	25.900	-97.433	3	5.4075	28.7696	6.5274	13.3131	0.3258
74	25.900	-97.433	4	5.6544	15.6989	3.3729	2.6394	13.1188
74	25.900	-97.433	5	4.6741	30.2483	8.2328	6.2774	3.8945
74	25.900	-97.433	6	4.8306	27.6012	7.2056	6.6392	2.2751
74	25.900	-97.433	7	3.5455	8.2997	3.2605	2.0364	12.3305
74	25.900	-97.433	8	4.4391	4.3412	1.2623	4.0759	1.0306
74	25.900	-97.433	9	16.7899	2.9733	0.1883	13.6453	5.3264
74	25.900	-97.433	10	6.9525	1.6067	0.2699	9.1495	3.7258
74	25.900	-97.433	11	2.0499	0.1274	0.1213	1.7281	8.3197
74	25.900	-97.433	12	9.1842	8.3763	1.0235	3.6605	1.5083
75	33.933	-118.400	1	15.7339	4.5058	0.3058	3.1789	3.6135
75	33.933	-118.400	2	9.3835	2.7710	0.3305	3.2501	3.2510
75	33.933	-118.400	3	7.0944	1.6448	0.2699	2.9987	3.8792
75	33.933	-118.400	4	14.0000	2.7963	0.2151	9.3117	4.6806
75	33.933	-118.400	5	23.4110	2.3035	0.1028	6.3058	9.7837
75	33.933	-118.400	6	7.8629	27.0929	3.9478	15.0391	0.3513
75	33.933	-118.400	7	9.6127	21.8311	2.5348	22.6722	0.4302
75	33.933	-118.400	8	4.5197	3.6857	1.0472	1.7721	2.3708
75	33.933	-118.400	9	8.4687	2.9805	0.3991	3.2028	2.7529
75	33.933	-118.400	10	21.6902	56.1303	2.7129	4.1463	37.6517
75	33.933	-118.400	11	14.0484	3.8588	0.2957	8.4253	3.4324
75	33.933	-118.400	12	23.9598	12.5555	0.5468	4.9940	2.2113

Table 7-5

Poisson Rectangular Pulses Model Parameters

Table 7-5. Poisson Rectangular Pulse Parameters (page 1-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
1	35.133	-111.667	1	3	34	16.21	0.547	198	-0.19	0.7289	0.0450
1	35.133	-111.667	2	4	16	12.12	0.628	134	0.20	0.4764	0.0393
1	35.133	-111.667	3	4	25	12.19	0.590	141	-0.19	0.7108	0.0583
1	35.133	-111.667	4	3	18	9.98	0.584	182	-0.08	0.5148	0.0516
1	35.133	-111.667	5	3	9	5.11	0.673	207	-0.18	0.7717	0.1511
1	35.133	-111.667	6	2	9	6.78	1.170	323	-0.21	0.2876	0.0424
1	35.133	-111.667	7	3	66	19.29	0.779	135	-0.28	0.8170	0.0423
1	35.133	-111.667	8	9	5	7.09	1.848	68	-0.15	0.4081	0.0576
1	35.133	-111.667	9	4	11	9.85	1.124	141	-0.13	0.3145	0.0319
1	35.133	-111.667	10	3	17	13.73	0.931	215	-0.14	0.4829	0.0352
1	35.133	-111.667	11	3	18	14.06	0.751	206	0.02	0.4758	0.0338
1	35.133	-111.667	12	3	22	15.88	0.642	190	0.14	0.4954	0.0312
2	32.017	-110.950	1	2	19	8.41	0.594	257	-0.31	0.9850	0.1172
2	32.017	-110.950	2	2	13	6.92	0.858	274	-0.15	0.5744	0.0830
2	32.017	-110.950	3	3	8	5.36	0.578	213	0.05	0.6567	0.1225
2	32.017	-110.950	4	1	7	4.50	0.810	388	-0.20	0.7963	0.1769
2	32.017	-110.950	5	1	3	2.44	0.763	540	-0.03	0.6044	0.2474
2	32.017	-110.950	6	1	3	3.53	1.271	405	-0.21	0.4745	0.1344
2	32.017	-110.950	7	4	44	14.65	0.814	129	-0.33	0.6688	0.0456
2	32.017	-110.950	8	8	3	5.94	2.102	80	-0.09	0.4825	0.0812
2	32.017	-110.950	9	4	4	8.10	1.994	159	-0.11	0.4443	0.0549
2	32.017	-110.950	10	2	14	11.32	0.999	336	-0.16	0.3647	0.0322
2	32.017	-110.950	11	2	9	7.18	0.876	311	-0.18	0.7892	0.1098
2	32.017	-110.950	12	2	15	8.76	0.775	258	-0.22	0.6217	0.0709
3	32.733	-117.167	1	3	26	15.04	0.737	185	-0.19	0.6544	0.0435
3	32.733	-117.167	2	3	17	11.58	0.746	173	-0.11	0.6813	0.0588
3	32.733	-117.167	3	4	13	9.81	0.772	147	-0.09	0.4953	0.0505
3	32.733	-117.167	4	3	11	5.89	0.547	208	-0.06	0.4669	0.0793
3	32.733	-117.167	5	1	10	3.15	0.381	415	-0.17	0.2980	0.0948
3	32.733	-117.167	6	1	1	0.85	0.363	458	0.44	0.3505	0.4148
3	32.733	-117.167	7	0	15	1.02	0.400	999	-0.29	0.9880	0.9698
3	32.733	-117.167	8	0	27	6.91	0.746	999	-0.21	0.2345	0.0340
3	32.733	-117.167	9	1	6	3.62	0.710	570	-0.06	0.3151	0.0869
3	32.733	-117.167	10	2	4	3.46	0.762	319	0.03	0.4202	0.1216
3	32.733	-117.167	11	2	17	11.78	0.797	232	-0.13	0.6428	0.0545
3	32.733	-117.167	12	2	17	11.30	0.769	212	-0.13	0.5337	0.0472
4	37.617	-122.383	1	3	48	31.04	0.718	140	-0.10	0.6753	0.0218
4	37.617	-122.383	2	4	22	16.30	0.757	109	-0.04	0.6197	0.0380
4	37.617	-122.383	3	4	28	15.98	0.631	122	-0.10	0.4102	0.0257
4	37.617	-122.383	4	2	21	10.13	0.590	199	-0.22	0.6987	0.0690
4	37.617	-122.383	5	1	8	3.68	0.472	333	-0.11	0.3346	0.0909
4	37.617	-122.383	6	1	3	2.33	0.479	622	0.39	0.2797	0.1202
4	37.617	-122.383	7	0	7	2.08	0.477	999	-0.30	0.6131	0.2946
4	37.617	-122.383	8	0	2	1.24	0.508	603	0.32	0.4738	0.3817
4	37.617	-122.383	9	1	3	4.50	0.887	555	0.41	0.2422	0.0538
4	37.617	-122.383	10	2	15	11.60	0.705	290	0.06	0.1979	0.0171
4	37.617	-122.383	11	3	32	19.59	0.728	162	-0.15	0.6435	0.0328
4	37.617	-122.383	12	3	46	25.43	0.674	162	-0.18	0.5554	0.0218
5	39.767	-104.867	1	4	9	3.03	0.331	164	-0.10	0.5199	0.1717
5	39.767	-104.867	2	5	5	2.88	0.427	112	0.16	0.4830	0.1679
5	39.767	-104.867	3	6	9	4.79	0.495	98	0.	0.4082	0.0851
5	39.767	-104.867	4	6	11	7.46	0.711	102	-0.06	0.4295	0.0576
5	39.767	-104.867	5	7	10	8.55	0.865	85	-0.04	0.2998	0.0351
5	39.767	-104.867	6	7	6	5.90	1.126	88	-0.11	0.2658	0.0451
5	39.767	-104.867	7	7	5	6.05	1.551	88	-0.17	0.4132	0.0683
5	39.767	-104.867	8	9	2	3.97	1.466	74	0.05	0.2707	0.0682
5	39.767	-104.867	9	5	6	5.35	0.995	122	-0.08	0.4275	0.0799
5	39.767	-104.867	10	4	8	6.27	0.704	166	0.08	0.4752	0.0757
5	39.767	-104.867	11	4	7	4.49	0.535	145	0.09	0.5632	0.1253
5	39.767	-104.867	12	5	6	3.08	0.406	136	0.16	0.3102	0.1008
6	26.583	-81.867	1	4	4	9.49	2.558	156	-0.06	0.5166	0.0545
6	26.583	-81.867	2	4	9	11.12	2.177	149	-0.16	0.6078	0.0546
6	26.583	-81.867	3	4	3	16.10	4.276	154	0.12	0.3924	0.0244
6	26.583	-81.867	4	3	3	9.40	3.171	235	-0.14	0.7349	0.0782
6	26.583	-81.867	5	3	22	25.06	3.204	179	-0.26	0.6648	0.0265
6	26.583	-81.867	6	6	31	37.74	2.553	86	-0.31	0.6346	0.0168

Table 7-5. Poisson Rectangular Pulse Parameters (page 2-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
6	26.583	-81.867	7	11	9	17.87	4.675	56	-0.26	0.6526	0.0365
6	26.583	-81.867	8	25	1	6.37	6.371	27	0.	0.4422	0.0694
6	26.583	-81.867	9	7	18	26.36	4.020	75	-0.12	0.4134	0.0157
6	26.583	-81.867	10	5	9	14.88	2.608	137	-0.22	0.4836	0.0325
6	26.583	-81.867	11	3	4	11.78	2.741	220	-0.03	0.4428	0.0376
6	26.583	-81.867	12	3	4	10.31	2.778	221	-0.17	0.5393	0.0523
7	30.500	-81.700	1	8	6	9.70	1.491	87	0.05	0.4942	0.0509
7	30.500	-81.700	2	8	5	11.31	2.161	72	-0.06	0.4087	0.0361
7	30.500	-81.700	3	6	7	13.94	1.832	100	0.01	0.4730	0.0339
7	30.500	-81.700	4	6	4	11.87	2.953	104	-0.06	0.3205	0.0270
7	30.500	-81.700	5	6	7	14.11	2.677	100	-0.18	0.4392	0.0311
7	30.500	-81.700	6	10	7	14.41	2.832	63	-0.16	0.3533	0.0245
7	30.500	-81.700	7	15	3	10.19	3.269	45	-0.09	0.5521	0.0542
7	30.500	-81.700	8	14	4	13.27	3.451	45	-0.07	0.2751	0.0207
7	30.500	-81.700	9	11	8	17.39	2.995	55	-0.12	0.2904	0.0167
7	30.500	-81.700	10	6	10	14.47	1.602	98	-0.06	0.2674	0.0185
7	30.500	-81.700	11	6	5	7.82	1.618	108	-0.04	0.4577	0.0586
7	30.500	-81.700	12	7	6	9.36	1.339	99	0.08	0.4600	0.0491
8	33.950	-83.317	1	10	8	12.39	1.205	65	0.19	0.5345	0.0400
8	33.950	-83.317	2	9	7	11.68	1.405	61	0.14	0.6079	0.0500
8	33.950	-83.317	3	10	6	13.57	1.783	64	0.12	0.5750	0.0400
8	33.950	-83.317	4	7	7	13.74	1.803	87	-0.03	0.4787	0.0300
8	33.950	-83.317	5	9	4	12.36	2.510	71	0.04	0.4082	0.0300
8	33.950	-83.317	6	6	10	15.06	2.184	100	-0.22	0.3328	0.0200
8	33.950	-83.317	7	9	6	13.81	3.072	72	-0.18	0.5065	0.0300
8	33.950	-83.317	8	8	7	11.89	2.984	87	-0.17	0.5861	0.0400
8	33.950	-83.317	9	6	8	13.38	1.715	102	-0.05	0.3850	0.0200
8	33.950	-83.317	10	5	9	14.55	1.856	122	-0.12	0.5041	0.0300
8	33.950	-83.317	11	6	11	15.07	1.478	108	-0.10	0.7950	0.0500
8	33.950	-83.317	12	9	7	10.77	1.190	71	0.28	0.5057	0.0400
9	33.650	-84.433	1	9	8	11.96	1.214	68	0.18	0.5354	0.0400
9	33.650	-84.433	2	10	6	10.85	1.472	57	0.13	0.4587	0.0400
9	33.650	-84.433	3	6	20	22.34	1.516	97	-0.22	0.8372	0.0300
9	33.650	-84.433	4	7	8	15.31	1.907	90	-0.08	0.5643	0.0300
9	33.650	-84.433	5	8	6	11.35	2.148	78	-0.09	0.5297	0.0400
9	33.650	-84.433	6	7	8	10.98	2.210	84	-0.20	0.5265	0.0400
9	33.650	-84.433	7	9	9	13.87	3.031	71	-0.24	0.7102	0.0500
9	33.650	-84.433	8	9	4	9.82	2.950	74	-0.12	0.5631	0.0500
9	33.650	-84.433	9	6	7	12.76	2.097	97	-0.13	0.4113	0.0300
9	33.650	-84.433	10	4	11	14.96	1.363	144	-0.04	0.5238	0.0300
9	33.650	-84.433	11	6	11	14.26	1.370	109	-0.07	0.7063	0.0400
9	33.650	-84.433	12	9	7	10.94	1.188	69	0.22	0.5126	0.0400
10	41.733	-87.767	1	9	6	4.89	0.806	70	-0.04	0.3346	0.0683
10	41.733	-87.767	2	8	6	4.82	0.956	72	-0.11	0.5264	0.1092
10	41.733	-87.767	3	11	6	6.50	1.080	60	-0.06	0.4965	0.0764
10	41.733	-87.767	4	10	6	8.97	1.478	60	-0.09	0.5164	0.0575
10	41.733	-87.767	5	9	5	8.43	1.659	73	-0.09	0.5218	0.0619
10	41.733	-87.767	6	9	4	10.35	2.518	71	-0.08	0.4397	0.0425
10	41.733	-87.767	7	9	3	10.80	2.949	77	-0.02	0.4677	0.0420
10	41.733	-87.767	8	7	4	11.14	2.771	90	-0.02	0.4677	0.0420
10	41.733	-87.767	9	6	7	10.93	1.886	97	-0.11	0.5837	0.0534
10	41.733	-87.767	10	6	10	10.60	1.131	114	-0.09	0.3364	0.0317
10	41.733	-87.767	11	7	10	9.06	0.970	89	-0.10	0.5487	0.0606
10	41.733	-87.767	12	6	20	11.32	0.749	104	-0.19	0.5432	0.0480
11	40.667	-89.683	1	7	9	5.72	0.542	88	0.11	0.2921	0.0511
11	40.667	-89.683	2	8	6	4.54	0.629	74	0.10	0.4362	0.0961
11	40.667	-89.683	3	11	6	6.84	0.928	60	0.10	0.4972	0.0727
11	40.667	-89.683	4	10	7	9.15	1.218	59	0.03	0.4355	0.0476
11	40.667	-89.683	5	10	6	9.33	1.729	65	-0.08	0.5113	0.0548
11	40.667	-89.683	6	9	4	10.76	2.339	71	-0.04	0.5177	0.0481
11	40.667	-89.683	7	9	3	10.85	2.886	71	-0.03	0.5713	0.0527
11	40.667	-89.683	8	8	4	9.55	2.359	82	-0.03	0.4696	0.0492
11	40.667	-89.683	9	7	8	12.50	1.648	91	-0.06	0.4441	0.0355
11	40.667	-89.683	10	6	9	10.40	1.168	110	-0.06	0.5162	0.0496
11	40.667	-89.683	11	7	9	8.33	0.868	89	0.	0.5877	0.0706
11	40.667	-89.683	12	8	8	6.99	0.651	79	0.24	0.3822	0.0547

Table 7-5. Poisson Rectangular Pulse Parameters (page 3-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t$_r$] MM	κ	λ 1/MM
12	39.733	-86.267	1	10	7	6.37	0.640	60	0.22	0.2946	0.0462
12	39.733	-86.267	2	10	6	6.06	0.722	58	0.27	0.3877	0.0639
12	39.733	-86.267	3	6	32	15.00	0.629	90	-0.22	0.6949	0.0463
12	39.733	-86.267	4	11	7	7.99	1.317	54	-0.08	0.6044	0.0755
12	39.733	-86.267	5	10	7	9.39	1.591	62	-0.13	0.6097	0.0650
12	39.733	-86.267	6	8	6	11.66	2.284	75	-0.11	0.4491	0.0385
12	39.733	-86.267	7	11	3	9.71	2.812	62	0.04	0.4701	0.0484
12	39.733	-86.267	8	9	3	8.81	2.508	73	-0.04	0.4969	0.0564
12	39.733	-86.267	9	7	5	9.53	1.701	90	-0.01	0.5363	0.0563
12	39.733	-86.267	10	7	7	9.28	1.196	92	-0.01	0.4470	0.0482
12	39.733	-86.267	11	8	10	9.77	0.957	75	0.01	0.5721	0.0586
12	39.733	-86.267	12	11	9	7.42	0.674	58	0.19	0.4317	0.0581
13	41.533	-93.650	1	6	7	4.08	0.458	105	0.22	0.3087	0.0757
13	41.533	-93.650	2	7	5	3.90	0.548	80	0.23	0.3671	0.0940
13	41.533	-93.650	3	8	8	6.44	0.751	75	0.04	0.5002	0.0777
13	41.533	-93.650	4	11	6	7.39	1.172	58	0.01	0.4474	0.0606
13	41.533	-93.650	5	9	8	10.54	1.496	70	-0.11	0.6166	0.0585
13	41.533	-93.650	6	11	4	9.77	2.252	59	0.02	0.4264	0.0436
13	41.533	-93.650	7	9	4	9.81	2.379	76	0.	0.4583	0.0467
13	41.533	-93.650	8	8	5	12.25	2.330	81	-0.04	0.3939	0.0322
13	41.533	-93.650	9	7	6	10.17	1.678	85	-0.07	0.5267	0.0518
13	41.533	-93.650	10	7	6	8.33	1.321	93	-0.04	0.4953	0.0595
13	41.533	-93.650	11	4	13	9.35	0.718	138	-0.02	0.5283	0.0565
13	41.533	-93.650	12	6	7	4.31	0.516	101	0.11	0.4788	0.1111
14	42.367	-71.033	1	10	8	9.32	0.828	60	0.41	0.5194	0.0558
14	42.367	-71.033	2	12	6	8.11	0.855	49	0.44	0.3813	0.0470
14	42.367	-71.033	3	12	7	8.51	0.583	53	0.45	0.3691	0.0434
14	42.367	-71.033	4	12	6	7.73	0.961	51	0.24	0.3476	0.0450
14	42.367	-71.033	5	12	6	7.24	0.983	54	0.15	0.2487	0.0343
14	42.367	-71.033	6	10	5	7.57	1.371	63	0.	0.2864	0.0378
14	42.367	-71.033	7	10	4	7.19	1.691	68	0.03	0.4043	0.0562
14	42.367	-71.033	8	9	5	9.15	1.881	70	-0.04	0.2137	0.0233
14	42.367	-71.033	9	9	5	8.64	1.367	68	0.14	0.2829	0.0328
14	42.367	-71.033	10	8	6	9.68	1.145	78	0.22	0.3668	0.0379
14	42.367	-71.033	11	10	7	11.08	1.095	61	0.34	0.5068	0.0457
14	42.367	-71.033	12	16	4	6.63	0.864	41	0.48	0.3248	0.0490
15	46.833	-92.183	1	10	7	2.98	0.323	63	0.21	0.2924	0.0980
15	46.833	-92.183	2	10	5	2.09	0.404	57	0.02	0.2944	0.1409
15	46.833	-92.183	3	9	8	4.82	0.470	70	0.19	0.3262	0.0677
15	46.833	-92.183	4	10	6	5.40	0.941	60	-0.08	0.3967	0.0735
15	46.833	-92.183	5	10	10	8.44	0.933	64	-0.07	0.5099	0.0604
15	46.833	-92.183	6	12	5	8.61	1.801	53	-0.09	0.4826	0.0560
15	46.833	-92.183	7	14	2	7.41	2.506	50	0.	0.4335	0.0585
15	46.833	-92.183	8	11	5	8.88	1.706	59	-0.01	0.4097	0.0461
15	46.833	-92.183	9	11	6	7.78	1.231	55	-0.01	0.3711	0.0477
15	46.833	-92.183	10	8	8	7.32	0.781	76	0.09	0.3449	0.0471
15	46.833	-92.183	11	7	14	6.64	0.438	88	0.06	0.3698	0.0557
15	46.833	-92.183	12	10	8	3.42	0.342	66	0.22	0.2360	0.0691
16	48.567	-93.383	1	10	6	2.06	0.349	63	-0.05	0.3921	0.1907
16	48.567	-93.383	2	8	5	2.05	0.356	72	0.02	0.4376	0.2133
16	48.567	-93.383	3	8	9	3.56	0.394	84	-0.01	0.3608	0.1013
16	48.567	-93.383	4	6	11	5.82	0.569	93	-0.07	0.4419	0.0759
16	48.567	-93.383	5	8	11	8.08	0.831	78	-0.14	0.5755	0.0713
16	48.567	-93.383	6	11	6	8.56	1.480	54	-0.09	0.4500	0.0526
16	48.567	-93.383	7	14	3	6.84	2.085	49	0.01	0.3581	0.0524
16	48.567	-93.383	8	14	3	5.44	1.647	48	0.07	0.4090	0.0752
16	48.567	-93.383	9	11	5	7.19	1.163	57	0.02	0.3600	0.0500
16	48.567	-93.383	10	9	7	5.48	0.653	74	0.08	0.3187	0.0582
16	48.567	-93.383	11	9	9	3.68	0.359	70	0.06	0.4001	0.1086
16	48.567	-93.383	12	10	7	2.17	0.302	65	-0.04	0.3766	0.1732
17	39.283	-114.850	1	4	20	4.74	0.386	165	-0.32	0.6604	0.1392
17	39.283	-114.850	2	5	7	2.93	0.427	114	-0.10	0.4488	0.1532
17	39.283	-114.850	3	5	13	4.32	0.462	114	-0.29	0.7384	0.1709
17	39.283	-114.850	4	4	15	4.88	0.444	138	-0.22	0.7710	0.1578
17	39.283	-114.850	5	5	11	4.99	0.539	119	-0.14	0.4679	0.0937
17	39.283	-114.850	6	3	13	5.72	0.593	209	-0.20	0.3712	0.0648

Table 7-5. Poisson Rectangular Pulse Parameters (page 4-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO $[i,t_r]$ MM	κ	λ 1/MM
17	39.283	-114.850	7	3	18	4.90	0.634	187	-0.31	0.5802	0.1185
17	39.283	-114.850	8	4	6	3.89	0.947	149	-0.14	0.4918	0.1264
17	39.283	-114.850	9	3	9	6.57	0.862	194	-0.08	0.4002	0.0609
17	39.283	-114.850	10	3	14	6.30	0.593	219	-0.26	0.7992	0.1268
17	39.283	-114.850	11	3	11	4.63	0.443	183	-0.12	0.5858	0.1266
17	39.283	-114.850	12	4	14	4.19	0.398	156	-0.23	0.5080	0.1214
18	44.267	-71.300	1	22	8	8.42	0.711	24	0.39	0.2722	0.0323
18	44.267	-71.300	2	20	8	10.20	0.814	24	0.32	0.1585	0.0155
18	44.267	-71.300	3	15	13	13.37	0.798	33	0.25	0.3592	0.0269
18	44.267	-71.300	4	16	10	11.59	0.892	32	0.22	0.3609	0.0311
18	44.267	-71.300	5	14	10	12.18	1.153	40	0.01	0.4734	0.0389
18	44.267	-71.300	6	14	9	12.90	1.590	40	-0.09	0.5341	0.0414
18	44.267	-71.300	7	17	6	10.26	1.767	35	-0.06	0.5079	0.0495
18	44.267	-71.300	8	15	7	12.78	1.807	39	-0.07	0.4919	0.0385
18	44.267	-71.300	9	16	7	11.49	1.453	36	0.05	0.4741	0.0413
18	44.267	-71.300	10	12	12	14.44	1.063	49	0.07	0.4760	0.0330
18	44.267	-71.300	11	17	11	13.75	0.977	30	0.24	0.3759	0.0273
18	44.267	-71.300	12	23	8	9.69	0.782	23	0.40	0.2590	0.0267
19	35.050	-106.617	1	2	12	3.76	0.471	252	-0.25	0.7335	0.1949
19	35.050	-106.617	2	3	8	3.25	0.525	187	-0.37	1.0852	0.3337
19	35.050	-106.617	3	4	4	3.19	0.605	170	0.09	0.4473	0.1404
19	35.050	-106.617	4	2	9	4.84	0.716	293	-0.27	0.5317	0.1099
19	35.050	-106.617	5	3	8	3.92	0.724	208	-0.21	0.5583	0.1423
19	35.050	-106.617	6	3	6	4.40	0.972	209	-0.13	0.4098	0.0931
19	35.050	-106.617	7	5	16	6.08	1.104	116	-0.29	0.6199	0.1019
19	35.050	-106.617	8	9	2	4.13	1.742	77	-0.07	0.4844	0.1173
19	35.050	-106.617	9	4	9	5.47	1.010	160	-0.26	0.6110	0.1117
19	35.050	-106.617	10	3	10	7.03	0.894	211	-0.13	0.4989	0.0709
19	35.050	-106.617	11	2	7	3.57	0.634	249	-0.25	0.9604	0.2692
19	35.050	-106.617	12	3	7	3.81	0.597	213	-0.16	0.5529	0.1451
20	35.867	-78.783	1	10	6	9.06	1.093	67	0.23	0.5361	0.0592
20	35.867	-78.783	2	10	6	9.20	1.263	60	0.13	0.6871	0.0747
20	35.867	-78.783	3	11	5	8.04	1.293	59	0.08	0.5771	0.0718
20	35.867	-78.783	4	7	6	9.36	1.351	86	0.01	0.5019	0.0537
20	35.867	-78.783	5	8	8	11.98	2.019	83	-0.20	0.6998	0.0584
20	35.867	-78.783	6	8	5	10.44	2.506	76	-0.11	0.4834	0.0463
20	35.867	-78.783	7	9	7	12.15	2.535	72	-0.21	0.6329	0.0521
20	35.867	-78.783	8	9	4	11.80	2.565	71	-0.04	0.5083	0.0431
20	35.867	-78.783	9	6	7	12.79	2.139	100	-0.10	0.5245	0.0410
20	35.867	-78.783	10	6	8	11.94	1.510	116	-0.04	0.5498	0.0460
20	35.867	-78.783	11	7	6	9.17	1.311	84	0.13	0.3849	0.0420
20	35.867	-78.783	12	8	7	9.48	1.232	81	0.04	0.7115	0.0750
21	40.650	-75.433	1	12	6	6.65	0.760	52	0.45	0.4135	0.0622
21	40.650	-75.433	2	11	6	7.01	0.856	53	0.42	0.5571	0.0795
21	40.650	-75.433	3	13	5	7.18	0.958	50	0.28	0.4412	0.0614
21	40.650	-75.433	4	10	7	9.23	1.115	59	0.09	0.5317	0.0576
21	40.650	-75.433	5	11	6	8.59	1.435	56	-0.04	0.4139	0.0482
21	40.650	-75.433	6	10	4	8.68	1.919	63	-0.06	0.4868	0.0561
21	40.650	-75.433	7	11	3	9.48	2.450	59	0.05	0.5047	0.0532
21	40.650	-75.433	8	10	4	11.04	2.641	67	-0.10	0.4065	0.0368
21	40.650	-75.433	9	9	5	11.36	1.865	72	0.04	0.3319	0.0292
21	40.650	-75.433	10	8	6	9.29	1.228	83	0.15	0.5084	0.0547
21	40.650	-75.433	11	10	7	9.88	1.110	65	0.28	0.4171	0.0422
21	40.650	-75.433	12	12	6	7.40	0.872	53	0.46	0.4400	0.0595
22	39.883	-75.433	1	11	6	7.32	0.888	56	0.41	0.4721	0.0645
22	39.883	-75.433	2	10	5	6.94	0.869	55	0.39	0.4842	0.0698
22	39.883	-75.433	3	12	5	7.17	0.978	54	0.32	0.5276	0.0736
22	39.883	-75.433	4	10	6	8.57	1.087	61	0.17	0.5234	0.0611
22	39.883	-75.433	5	10	6	8.93	1.302	64	0.02	0.5153	0.0577
22	39.883	-75.433	6	10	5	8.84	1.824	62	-0.05	0.4839	0.0547
22	39.883	-75.433	7	10	4	9.63	2.358	68	-0.05	0.4441	0.0461
22	39.883	-75.433	8	9	4	10.96	2.568	75	-0.03	0.4310	0.0393
22	39.883	-75.433	9	7	6	12.83	2.179	89	-0.08	0.4287	0.0334
22	39.883	-75.433	10	7	6	10.75	1.589	97	0.06	0.4073	0.0379
22	39.883	-75.433	11	7	7	10.25	1.207	89	0.20	0.4499	0.0439
22	39.883	-75.433	12	10	6	8.79	1.040	66	0.33	0.4676	0.0532

Table 7-5. Poisson Rectangular Pulse Parameters (page 5-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
23	33.950	-81.117	1	9	8	11.74	1.176	68	0.23	0.5325	0.0453
23	33.950	-81.117	2	9	7	11.47	1.411	65	0.14	0.5656	0.0493
23	33.950	-81.117	3	11	5	11.32	1.723	62	0.13	0.5510	0.0487
23	33.950	-81.117	4	7	7	12.56	1.843	91	-0.06	0.5322	0.0424
23	33.950	-81.117	5	7	9	13.65	2.211	97	-0.19	0.5208	0.0381
23	33.950	-81.117	6	8	6	13.59	2.783	81	-0.16	0.4940	0.0363
23	33.950	-81.117	7	9	9	15.57	2.730	74	-0.18	0.5176	0.0332
23	33.950	-81.117	8	10	4	14.58	3.806	68	-0.08	0.4470	0.0306
23	33.950	-81.117	9	7	6	13.77	2.348	95	-0.03	0.3237	0.0235
23	33.950	-81.117	10	5	9	14.95	1.749	139	-0.07	0.4299	0.0288
23	33.950	-81.117	11	5	10	13.57	1.485	125	-0.11	0.7074	0.0521
23	33.950	-81.117	12	9	6	9.02	1.176	72	0.25	0.4808	0.0533
24	35.800	-84.000	1	13	7	9.38	1.111	50	0.20	0.4825	0.0514
24	35.800	-84.000	2	12	6	8.11	1.164	46	0.17	0.6287	0.0776
24	35.800	-84.000	3	14	5	8.95	1.369	46	0.19	0.3732	0.0417
24	35.800	-84.000	4	11	5	8.60	1.524	58	0.	0.5153	0.0599
24	35.800	-84.000	5	9	8	10.40	1.616	69	-0.16	0.4837	0.0465
24	35.800	-84.000	6	9	6	10.77	2.303	73	-0.16	0.6561	0.0609
24	35.800	-84.000	7	11	5	9.83	2.353	59	-0.13	0.5641	0.0574
24	35.800	-84.000	8	9	4	8.50	2.307	73	-0.12	0.4879	0.0574
24	35.800	-84.000	9	7	8	10.25	1.611	93	-0.15	0.6787	0.0662
24	35.800	-84.000	10	7	7	10.41	1.353	94	0.07	0.5567	0.0535
24	35.800	-84.000	11	8	8	11.00	1.255	76	0.	0.7062	0.0642
24	35.800	-84.000	12	13	5	8.26	1.130	49	0.40	0.4121	0.0499
25	32.433	-99.683	1	2	11	7.54	0.608	293	0.12	0.3127	0.0415
25	32.433	-99.683	2	2	11	7.12	0.756	313	-0.17	0.7838	0.1100
25	32.433	-99.683	3	2	9	8.67	1.321	270	-0.20	0.6534	0.0753
25	32.433	-99.683	4	3	4	7.74	2.078	213	-0.14	0.6789	0.0877
25	32.433	-99.683	5	3	6	10.95	2.089	197	-0.13	0.6414	0.0586
25	32.433	-99.683	6	2	11	14.43	2.257	247	-0.25	0.7804	0.0541
25	32.433	-99.683	7	2	14	15.79	2.118	303	-0.18	0.7481	0.0474
25	32.433	-99.683	8	3	6	13.53	2.333	217	-0.08	0.9387	0.0294
25	32.433	-99.683	9	3	9	14.31	2.063	213	-0.11	0.3538	0.0247
25	32.433	-99.683	10	2	10	14.65	1.652	246	-0.13	0.3803	0.0260
25	32.433	-99.683	11	2	7	11.85	1.659	243	-0.02	0.2649	0.0223
25	32.433	-99.683	12	2	11	9.78	0.926	334	-0.04	0.5119	0.0523
26	37.500	-77.333	1	12	5	6.83	0.927	55	0.27	0.4443	0.0651
26	37.500	-77.333	2	9	7	8.79	1.023	67	0.14	0.6709	0.0763
26	37.500	-77.333	3	13	5	6.76	1.133	50	0.15	0.4988	0.0738
26	37.500	-77.333	4	9	6	8.53	1.309	73	-0.03	0.5053	0.0592
26	37.500	-77.333	5	9	7	10.10	1.926	71	-0.17	0.6191	0.0613
26	37.500	-77.333	6	9	3	9.26	2.493	69	-0.02	0.3821	0.0413
26	37.500	-77.333	7	10	5	13.30	3.033	68	-0.11	0.4533	0.0341
26	37.500	-77.333	8	9	4	13.13	3.007	71	-0.07	0.3779	0.0288
26	37.500	-77.333	9	7	6	12.17	2.077	98	-0.07	0.4639	0.0381
26	37.500	-77.333	10	7	7	12.39	1.446	94	0.16	0.3501	0.0283
26	37.500	-77.333	11	7	7	10.76	1.263	85	0.10	0.4706	0.0437
26	37.500	-77.333	12	9	6	8.53	1.053	69	0.31	0.5116	0.0600
27	37.317	-79.967	1	9	7	7.78	0.814	75	0.29	0.5680	0.0730
27	37.317	-79.967	2	9	7	8.76	0.943	67	0.37	0.5071	0.0579
27	37.317	-79.967	3	6	14	12.43	0.893	93	-0.05	0.7957	0.0640
27	37.317	-79.967	4	9	6	8.94	1.233	68	0.07	0.2929	0.0328
27	37.317	-79.967	5	10	6	8.45	1.436	61	-0.06	0.4092	0.0484
27	37.317	-79.967	6	9	4	8.33	2.185	69	-0.10	0.4045	0.0486
27	37.317	-79.967	7	10	4	8.24	2.290	63	-0.15	0.5912	0.0718
27	37.317	-79.967	8	9	5	10.83	2.556	70	-0.14	0.4156	0.0384
27	37.317	-79.967	9	7	7	11.57	1.708	91	-0.10	0.3591	0.0310
27	37.317	-79.967	10	6	9	14.14	1.377	107	0.08	0.2621	0.0185
27	37.317	-79.967	11	7	7	8.72	0.956	85	0.21	0.5589	0.0641
27	37.317	-79.967	12	10	5	7.22	0.870	68	0.50	0.4759	0.0659
28	38.367	-81.600	1	19	5	4.64	1.135	32	-0.13	0.4118	0.0887
28	38.367	-81.600	2	15	6	5.19	1.060	36	-0.11	0.5255	0.1012
28	38.367	-81.600	3	17	5	5.38	1.226	36	-0.09	0.4672	0.0869
28	38.367	-81.600	4	15	5	5.57	1.169	40	-0.09	0.4856	0.0871
28	38.367	-81.600	5	12	7	8.15	1.381	53	-0.12	0.5674	0.0696
28	38.367	-81.600	6	9	7	9.51	1.701	67	-0.18	0.6814	0.0717

Table 7-5. Poisson Rectangular Pulse Parameters (page 6-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
28	38.367	-81.600	7	15	3	8.65	2.807	45	-0.07	0.4503	0.0521
28	38.367	-81.600	8	12	3	8.23	2.863	56	-0.11	0.4648	0.0565
28	38.367	-81.600	9	8	7	9.42	1.433	77	-0.11	0.5137	0.0545
28	38.367	-81.600	10	8	8	8.37	0.992	80	-0.02	0.4342	0.0519
28	38.367	-81.600	11	9	9	8.50	0.826	62	0.04	0.4591	0.0540
28	38.367	-81.600	12	17	5	4.80	0.875	37	0.	0.3370	0.0702
29	44.483	-88.133	1	9	7	3.37	0.398	74	0.11	0.4942	0.1467
29	44.483	-88.133	2	7	7	3.73	0.461	79	0.09	0.3896	0.1043
29	44.483	-88.133	3	9	7	5.09	0.609	69	0.13	0.5150	0.1011
29	44.483	-88.133	4	9	9	7.83	0.891	71	-0.03	0.7077	0.0904
29	44.483	-88.133	5	9	7	7.38	1.320	69	-0.06	0.4934	0.0669
29	44.483	-88.133	6	10	4	7.75	1.863	64	-0.08	0.5393	0.0696
29	44.483	-88.133	7	11	3	7.77	2.327	63	0.04	0.5078	0.0653
29	44.483	-88.133	8	10	4	8.51	1.914	67	-0.07	0.5438	0.0639
29	44.483	-88.133	9	9	7	9.06	1.367	70	-0.07	0.5215	0.0576
29	44.483	-88.133	10	8	6	6.73	0.980	81	0.09	0.3828	0.0569
29	44.483	-88.133	11	5	19	8.88	0.545	107	-0.16	0.7027	0.0792
29	44.483	-88.133	12	11	5	3.22	0.455	60	0.27	0.4206	0.1307
30	43.867	-91.250	1	9	4	2.52	0.477	76	0.28	0.3937	0.1561
30	43.867	-91.250	2	6	6	3.68	0.504	101	0.23	0.4721	0.1284
30	43.867	-91.250	3	8	9	6.54	0.700	81	0.02	0.5797	0.0886
30	43.867	-91.250	4	10	6	7.30	1.214	65	-0.03	0.5039	0.0690
30	43.867	-91.250	5	11	5	7.93	1.512	60	-0.10	0.6106	0.0770
30	43.867	-91.250	6	12	4	9.40	2.289	55	0.	0.4571	0.0486
30	43.867	-91.250	7	10	3	9.45	2.472	66	0.04	0.4638	0.0491
30	43.867	-91.250	8	9	5	9.75	2.094	79	-0.12	0.4993	0.0512
30	43.867	-91.250	9	8	7	10.61	1.457	82	0.	0.6594	0.0622
30	43.867	-91.250	10	6	6	7.48	1.355	106	-0.09	0.5019	0.0671
30	43.867	-91.250	11	5	10	6.91	0.710	132	-0.07	0.4436	0.0642
30	43.867	-91.250	12	9	5	2.82	0.558	78	-0.02	0.4971	0.1764
31	39.150	-84.517	1	9	9	8.79	0.837	62	0.06	0.3591	0.0408
31	39.150	-84.517	2	9	7	7.11	0.859	63	0.11	0.4996	0.0703
31	39.150	-84.517	3	12	6	7.28	1.092	49	0.08	0.3717	0.0511
31	39.150	-84.517	4	12	5	7.36	1.678	50	-0.10	0.5795	0.0787
31	39.150	-84.517	5	9	8	10.73	1.908	67	-0.13	0.4898	0.0456
31	39.150	-84.517	6	10	4	9.29	2.369	62	-0.09	0.5976	0.0643
31	39.150	-84.517	7	10	3	9.02	2.573	62	-0.05	0.5659	0.0628
31	39.150	-84.517	8	9	3	8.47	2.738	68	-0.09	0.5125	0.0605
31	39.150	-84.517	9	7	5	9.53	1.923	84	-0.07	0.4490	0.0471
31	39.150	-84.517	10	7	6	8.38	1.441	90	-0.06	0.5815	0.0694
31	39.150	-84.517	11	8	8	10.08	2.395	76	-0.09	0.3752	0.0372
31	39.150	-84.517	12	11	6	6.46	0.853	56	0.17	0.5538	0.0857
32	41.417	-81.867	1	19	5	3.40	0.459	33	0.22	0.3047	0.0896
32	41.417	-81.867	2	15	6	3.93	0.505	38	0.21	0.3009	0.0766
32	41.417	-81.867	3	16	6	4.88	0.667	39	0.08	0.4213	0.0864
32	41.417	-81.867	4	15	6	5.66	0.970	40	-0.05	0.5677	0.1003
32	41.417	-81.867	5	10	8	8.41	1.294	63	-0.18	0.5440	0.0647
32	41.417	-81.867	6	11	4	8.29	1.817	60	-0.03	0.5054	0.0610
32	41.417	-81.867	7	11	3	7.79	2.387	61	-0.02	0.5187	0.0666
32	41.417	-81.867	8	10	4	8.52	2.055	66	-0.07	0.5859	0.0687
32	41.417	-81.867	9	9	5	8.06	1.552	67	-0.08	0.6200	0.0769
32	41.417	-81.867	10	8	10	7.26	0.870	74	-0.09	0.5088	0.0700
32	41.417	-81.867	11	13	8	6.22	0.682	46	0.08	0.3869	0.0622
32	41.417	-81.867	12	18	6	4.02	0.503	33	0.19	0.3281	0.0816
33	34.650	-86.767	1	12	6	11.12	1.343	55	0.20	0.4046	0.0364
33	34.650	-86.767	2	11	6	10.49	1.563	55	0.12	0.5826	0.0555
33	34.650	-86.767	3	12	5	13.51	2.104	53	0.19	0.3710	0.0275
33	34.650	-86.767	4	9	6	14.00	2.048	73	0.01	0.6004	0.0429
33	34.650	-86.767	5	9	6	14.47	2.278	74	-0.04	0.4668	0.0323
33	34.650	-86.767	6	8	7	12.39	2.500	84	-0.14	0.5023	0.0405
33	34.650	-86.767	7	11	3	10.50	3.087	59	0.01	0.3690	0.0351
33	34.650	-86.767	8	9	4	10.11	2.517	78	-0.07	0.4181	0.0413
33	34.650	-86.767	9	7	8	15.00	2.359	97	-0.16	0.5679	0.0379
33	34.650	-86.767	10	7	5	12.67	1.856	102	0.15	0.4539	0.0358
33	34.650	-86.767	11	9	8	14.24	1.719	77	0.11	0.6612	0.0464
33	34.650	-86.767	12	11	6	12.15	1.455	58	0.25	0.3404	0.0280

Table 7-5. Poisson Rectangular Pulse Parameters (page 7-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
34	32.300	-86.400	1	10	6	10.47	1.657	64	-0.03	0.5326	0.0509
34	32.300	-86.400	2	10	6	12.84	2.079	60	0.01	0.4353	0.0339
34	32.300	-86.400	3	10	6	14.84	2.643	65	-0.09	0.5636	0.0380
34	32.300	-86.400	4	7	5	14.46	2.416	85	0.01	0.4851	0.0336
34	32.300	-86.400	5	7	7	14.15	2.589	97	-0.15	0.5105	0.0361
34	32.300	-86.400	6	7	6	11.90	2.910	86	-0.18	0.5533	0.0465
34	32.300	-86.400	7	11	4	11.98	3.634	62	-0.16	0.5586	0.0466
34	32.300	-86.400	8	10	2	8.42	3.183	70	-0.04	0.4115	0.0489
34	32.300	-86.400	9	6	9	19.61	3.004	108	-0.15	0.3600	0.0184
34	32.300	-86.400	10	4	8	12.85	1.866	148	-0.11	0.5670	0.0441
34	32.300	-86.400	11	6	7	13.64	2.085	104	-0.07	0.6234	0.0457
34	32.300	-86.400	12	9	6	12.97	1.790	69	0.05	0.5692	0.0439
35	43.567	-116.217	1	8	12	4.50	0.396	72	-0.11	0.3937	0.0875
35	43.567	-116.217	2	7	10	3.80	0.423	78	-0.15	0.5273	0.0875
35	43.567	-116.217	3	8	7	3.61	0.524	78	-0.12	0.6460	0.1791
35	43.567	-116.217	4	6	7	4.52	0.644	96	-0.06	0.4739	0.1047
35	43.567	-116.217	5	7	6	4.29	0.694	100	-0.03	0.4536	0.1057
35	43.567	-116.217	6	4	7	4.59	0.697	141	-0.16	0.4374	0.0953
35	43.567	-116.217	7	2	2	3.14	1.204	271	-0.03	0.4883	0.1557
35	43.567	-116.217	8	2	6	4.33	0.849	306	-0.12	0.4018	0.0929
35	43.567	-116.217	9	2	11	5.85	0.597	228	-0.17	0.6624	0.1133
35	43.567	-116.217	10	4	9	4.37	0.566	153	-0.22	0.9206	0.2107
35	43.567	-116.217	11	5	26	7.15	0.385	114	-0.34	0.8887	0.1243
35	43.567	-116.217	12	4	38	7.15	0.302	118	-0.36	0.5910	0.0827
36	45.800	-108.533	1	4	22	4.76	0.336	135	-0.31	0.6674	0.1401
36	45.800	-108.533	2	6	8	3.00	0.361	100	-0.09	0.5207	0.1736
36	45.800	-108.533	3	8	7	3.36	0.466	84	-0.04	0.5164	0.1537
36	45.800	-108.533	4	7	8	5.77	0.574	83	0.12	0.2836	0.0491
36	45.800	-108.533	5	9	8	6.68	0.873	70	-0.07	0.3631	0.0543
36	45.800	-108.533	6	9	5	5.30	1.106	68	-0.12	0.3969	0.0749
36	45.800	-108.533	7	7	3	3.56	1.527	100	-0.09	0.3287	0.0924
36	45.800	-108.533	8	6	3	3.81	1.157	104	-0.06	0.3810	0.1001
36	45.800	-108.533	9	6	8	5.62	0.759	108	-0.07	0.3930	0.0699
36	45.800	-108.533	10	5	6	5.02	0.631	123	0.17	0.4370	0.0871
36	45.800	-108.533	11	4	10	4.28	0.457	140	0.11	0.5000	0.1167
36	45.800	-108.533	12	4	12	3.94	0.402	141	-0.22	0.6144	0.1559
37	46.767	-100.767	1	7	7	1.86	0.279	99	-0.16	0.6162	0.3316
37	46.767	-100.767	2	6	6	1.92	0.299	102	-0.05	0.3733	0.1946
37	46.767	-100.767	3	7	6	2.82	0.371	95	0.17	0.2212	0.0783
37	46.767	-100.767	4	6	9	6.24	0.671	103	-0.02	0.4478	0.0718
37	46.767	-100.767	5	5	18	9.93	0.818	108	-0.20	0.5123	0.0516
37	46.767	-100.767	6	10	5	7.16	1.651	65	-0.13	0.5107	0.0713
37	46.767	-100.767	7	9	3	6.14	1.995	79	-0.10	0.5043	0.0821
37	46.767	-100.767	8	8	3	5.33	1.600	81	0.07	0.3948	0.0741
37	46.767	-100.767	9	6	5	5.16	1.002	100	-0.02	0.3586	0.0695
37	46.767	-100.767	10	4	10	5.58	0.503	169	0.03	0.3696	0.0663
37	46.767	-100.767	11	4	9	2.95	0.357	142	-0.10	0.4243	0.1437
37	46.767	-100.767	12	5	14	2.32	0.233	121	-0.34	0.6865	0.2953
38	44.383	-98.217	1	4	8	3.21	0.306	148	-0.18	0.4705	0.2130
38	44.383	-98.217	2	4	8	3.67	0.392	130	0.19	0.2746	0.0748
38	44.383	-98.217	3	5	12	6.71	0.483	122	0.14	0.3071	0.0458
38	44.383	-98.217	4	7	8	6.70	0.770	88	0.05	0.4394	0.0656
38	44.383	-98.217	5	8	8	8.43	1.170	80	-0.09	0.4657	0.0552
38	44.383	-98.217	6	10	3	7.73	1.953	62	0.01	0.3728	0.0482
38	44.383	-98.217	7	9	2	6.90	2.312	79	0.01	0.3541	0.0513
38	44.383	-98.217	8	9	3	6.15	1.914	78	0.02	0.3684	0.0599
38	44.383	-98.217	9	7	4	5.84	1.158	93	0.11	0.4333	0.0742
38	44.383	-98.217	10	4	8	7.47	0.931	149	-0.02	0.3693	0.0494
38	44.383	-98.217	11	4	8	4.61	0.481	162	0.07	0.3967	0.0860
38	44.383	-98.217	12	5	6	2.78	0.355	140	0.17	0.3504	0.1261
39	47.633	-117.533	1	8	17	6.82	0.420	68	-0.08	0.7167	0.1051
39	47.633	-117.533	2	7	13	5.22	0.447	72	-0.20	0.8084	0.1550
39	47.633	-117.533	3	8	11	4.46	0.476	76	-0.18	0.7597	0.1705
39	47.633	-117.533	4	7	7	3.98	0.537	94	-0.07	0.6801	0.1708
39	47.633	-117.533	5	6	10	4.94	0.642	97	-0.16	0.6374	0.1290
39	47.633	-117.533	6	6	6	4.81	0.848	99	-0.10	0.5016	0.1043

Table 7-5. Poisson Rectangular Pulse Parameters (page 8-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
39	47.633	-117.533	7	3	6	3.89	0.745	193	-0.10	0.5212	0.1339
39	47.633	-117.533	8	2	19	5.88	0.610	226	-0.39	0.7523	0.1280
39	47.633	-117.533	9	3	21	6.14	0.498	191	-0.32	0.7487	0.1219
39	47.633	-117.533	10	3	27	7.27	0.399	162	-0.36	0.6854	0.0943
39	47.633	-117.533	11	9	11	5.90	0.546	62	-0.06	0.6890	0.1167
39	47.633	-117.533	12	12	9	4.84	0.491	47	0.02	0.6380	0.1319
40	35.333	-94.367	1	5	10	10.20	0.956	121	0.02	0.4093	0.0401
40	35.333	-94.367	2	7	6	9.24	1.233	84	0.15	0.3675	0.0398
40	35.333	-94.367	3	9	5	10.68	1.725	75	0.06	0.4741	0.0444
40	35.333	-94.367	4	10	4	10.01	2.001	64	0.04	0.4573	0.0457
40	35.333	-94.367	5	9	6	13.93	2.506	74	-0.09	0.4854	0.0348
40	35.333	-94.367	6	7	6	12.63	2.533	94	-0.13	0.5710	0.0452
40	35.333	-94.367	7	6	5	12.86	2.538	107	-0.09	0.2998	0.0233
40	35.333	-94.367	8	6	4	11.08	2.479	106	0.01	0.5050	0.0456
40	35.333	-94.367	9	5	10	14.46	2.037	116	-0.23	0.7597	0.0525
40	35.333	-94.367	10	5	10	17.78	2.047	129	-0.10	0.5240	0.0295
40	35.333	-94.367	11	5	8	16.77	1.873	117	0.06	0.5430	0.0324
40	35.333	-94.367	12	5	10	12.73	1.147	119	0.11	0.4754	0.0373
41	41.980	-97.433	1	4	11	3.54	0.361	166	-0.17	0.4574	0.1291
41	41.980	-97.433	2	5	7	3.89	0.456	126	0.18	0.2444	0.0628
41	41.980	-97.433	3	6	9	7.23	0.723	104	0.07	0.3771	0.0521
41	41.980	-97.433	4	7	8	7.78	0.999	86	-0.05	0.6016	0.0773
41	41.980	-97.433	5	9	7	10.58	1.660	70	-0.13	0.5080	0.0480
41	41.980	-97.433	6	9	4	11.62	2.338	71	0.03	0.4478	0.0386
41	41.980	-97.433	7	9	3	9.19	2.783	74	-0.01	0.4700	0.0511
41	41.980	-97.433	8	9	2	6.67	2.176	73	0.07	0.5187	0.0778
41	41.980	-97.433	9	6	6	8.46	1.425	99	-0.07	0.4848	0.0573
41	41.980	-97.433	10	4	10	8.78	1.080	164	-0.13	0.4656	0.0530
41	41.980	-97.433	11	3	10	6.48	0.554	192	0.10	0.4211	0.0650
41	41.980	-97.433	12	4	7	3.73	0.495	153	0.07	0.4843	0.1298
42	39.567	-97.667	1	3	11	3.80	0.389	203	-0.13	0.5407	0.1424
42	39.567	-97.667	2	4	7	3.68	0.513	153	0.	0.5373	0.1462
42	39.567	-97.667	3	5	8	6.98	0.696	120	0.21	0.3892	0.0557
42	39.567	-97.667	4	6	5	7.53	1.360	107	-0.03	0.3224	0.0428
42	39.567	-97.667	5	7	9	10.74	1.709	87	-0.16	0.5387	0.0502
42	39.567	-97.667	6	7	6	10.71	2.418	98	-0.16	0.6736	0.0629
42	39.567	-97.667	7	7	5	11.11	2.790	91	-0.17	0.5267	0.0474
42	39.567	-97.667	8	7	3	8.57	2.187	93	0.04	0.3934	0.0459
42	39.567	-97.667	9	6	4	7.78	1.794	112	-0.02	0.4101	0.0527
42	39.567	-97.667	10	3	10	10.05	1.181	203	-0.12	0.3248	0.0323
42	39.567	-97.667	11	3	8	5.38	0.682	198	-0.03	0.4447	0.0827
42	39.567	-97.667	12	3	6	3.83	0.523	188	0.10	0.3632	0.0949
43	35.400	-97.600	1	3	12	8.37	0.729	188	-0.07	0.4959	0.0593
43	35.400	-97.600	2	4	9	7.71	0.847	129	-0.04	0.4536	0.0589
43	35.400	-97.600	3	5	10	11.66	1.415	129	-0.18	0.6606	0.0566
43	35.400	-97.600	4	6	8	12.20	1.960	111	-0.20	0.6693	0.0549
43	35.400	-97.600	5	8	7	17.64	2.616	83	-0.07	0.5244	0.0297
43	35.400	-97.600	6	7	5	14.86	3.220	92	-0.09	0.5062	0.0341
43	35.400	-97.600	7	5	8	14.13	2.264	137	-0.17	0.4835	0.0342
43	35.400	-97.600	8	6	4	10.16	2.374	116	-0.07	0.6066	0.0597
43	35.400	-97.600	9	5	8	15.80	2.172	123	-0.10	0.4965	0.0314
43	35.400	-97.600	10	5	8	16.13	1.668	136	0.09	0.3112	0.0193
43	35.400	-97.600	11	3	15	12.96	0.882	199	-0.06	0.5799	0.0448
43	35.400	-97.600	12	4	9	8.02	0.899	163	-0.03	0.4209	0.0525
44	37.233	-93.383	1	6	10	7.66	0.660	110	0.07	0.4150	0.0542
44	37.233	-93.383	2	8	6	6.59	0.829	72	0.21	0.3064	0.0465
44	37.233	-93.383	3	9	7	9.59	1.330	72	-0.03	0.5404	0.0564
44	37.233	-93.383	4	11	4	8.99	1.857	56	-0.01	0.5405	0.0602
44	37.233	-93.383	5	11	5	10.27	2.085	61	-0.06	0.4968	0.0484
44	37.233	-93.383	6	9	6	13.71	2.700	73	-0.13	0.6009	0.0438
44	37.233	-93.383	7	6	6	12.98	2.624	103	-0.16	0.4049	0.0312
44	37.233	-93.383	8	7	5	10.92	2.332	90	-0.09	0.5337	0.0489
44	37.233	-93.383	9	6	8	16.54	2.105	100	-0.09	0.4748	0.0287
44	37.233	-93.383	10	7	7	12.40	1.485	90	0.10	0.4242	0.0342
44	37.233	-93.383	11	7	7	11.02	1.375	86	0.08	0.3454	0.0313
44	37.233	-93.383	12	7	9	10.71	0.942	97	0.16	0.4768	0.0445

Table 7-5. Poisson Rectangular Pulse Parameters (page 9-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
45	30.533	-91.150	1	9	7	12.77	1.627	74	0.03	0.6483	0.0508
45	30.533	-91.150	2	8	6	15.60	2.194	71	0.02	0.5317	0.0341
45	30.533	-91.150	3	9	5	12.93	2.235	75	0.06	0.4883	0.0378
45	30.533	-91.150	4	7	5	19.10	2.765	95	0.17	0.2593	0.0136
45	30.533	-91.150	5	6	7	18.43	2.885	106	-0.11	0.4914	0.0267
45	30.533	-91.150	6	6	13	14.74	2.134	101	-0.27	0.5310	0.0360
45	30.533	-91.150	7	11	8	16.09	4.023	59	-0.24	0.6517	0.0405
45	30.533	-91.150	8	11	4	12.19	3.733	62	-0.13	0.4305	0.0353
45	30.533	-91.150	9	7	7	14.34	3.314	86	-0.12	0.4006	0.0279
45	30.533	-91.150	10	4	9	18.43	2.276	162	-0.10	0.3770	0.0205
45	30.533	-91.150	11	6	7	15.88	2.287	105	-0.03	0.5861	0.0369
45	30.533	-91.150	12	9	7	15.19	1.885	75	0.12	0.4510	0.0297
46	44.767	-123.017	1	8	33	20.84	0.547	57	0.17	0.4031	0.0193
46	44.767	-123.017	2	8	28	15.53	0.519	56	0.04	0.4042	0.0260
46	44.767	-123.017	3	8	28	12.76	0.493	58	-0.05	0.4491	0.0352
46	44.767	-123.017	4	8	19	7.98	0.478	71	-0.13	0.4218	0.0529
46	44.767	-123.017	5	7	15	6.85	0.549	89	-0.17	0.5080	0.0742
46	44.767	-123.017	6	4	14	7.32	0.565	131	-0.12	0.5000	0.0683
46	44.767	-123.017	7	2	8	4.93	0.605	306	-0.07	0.4259	0.0864
46	44.767	-123.017	8	2	24	8.40	0.489	303	-0.28	0.3643	0.0434
46	44.767	-123.017	9	3	38	13.36	0.513	193	-0.27	0.5487	0.0411
46	44.767	-123.017	10	4	38	17.60	0.513	114	-0.11	0.5252	0.0298
46	44.767	-123.017	11	8	35	21.96	0.614	56	0.01	0.4480	0.0204
46	44.767	-123.017	12	9	26	16.92	0.571	49	0.11	0.3380	0.0200
47	44.767	-106.967	1	7	9	2.64	0.335	96	-0.20	0.6229	0.2362
47	44.767	-106.967	2	8	6	2.30	0.363	77	0.03	0.4478	0.1949
47	44.767	-106.967	3	9	6	2.88	0.424	69	-0.02	0.5918	0.2055
47	44.767	-106.967	4	9	7	4.90	0.553	67	0.11	0.2244	0.0458
47	44.767	-106.967	5	9	9	6.52	0.862	69	-0.07	0.3998	0.0613
47	44.767	-106.967	6	9	6	6.22	1.084	73	-0.11	0.3785	0.0609
47	44.767	-106.967	7	7	3	3.45	1.181	96	-0.01	0.2211	0.0642
47	44.767	-106.967	8	6	3	3.59	1.209	108	-0.07	0.4429	0.1235
47	44.767	-106.967	9	5	11	6.41	0.724	127	-0.15	0.6401	0.0998
47	44.767	-106.967	10	6	7	4.75	0.565	115	0.10	0.4720	0.0994
47	44.767	-106.967	11	6	8	3.36	0.435	106	-0.06	0.5128	0.1527
47	44.767	-106.967	12	7	7	2.25	0.353	94	-0.18	0.7894	0.3512
48	32.333	-88.750	1	9	7	13.13	1.833	69	-0.06	0.6107	0.0465
48	32.333	-88.750	2	10	5	12.69	2.074	60	0.06	0.4906	0.0387
48	32.333	-88.750	3	10	5	16.82	2.904	67	0.	0.5900	0.0351
48	32.333	-88.750	4	8	5	15.43	2.884	76	0.01	0.5109	0.0331
48	32.333	-88.750	5	7	7	15.49	2.646	93	-0.17	0.5519	0.0356
48	32.333	-88.750	6	7	8	13.29	3.061	93	-0.25	0.8273	0.0623
48	32.333	-88.750	7	11	5	12.95	3.516	62	-0.17	0.5409	0.0418
48	32.333	-88.750	8	8	5	10.73	2.980	78	-0.17	0.5593	0.0521
48	32.333	-88.750	9	6	7	14.84	2.589	104	-0.20	0.4282	0.0289
48	32.333	-88.750	10	4	8	15.97	1.891	155	-0.02	0.4141	0.0259
48	32.333	-88.750	11	6	8	17.03	2.245	111	-0.14	0.8753	0.0514
48	32.333	-88.750	12	9	7	15.73	2.072	71	0.	0.5807	0.0369
49	43.650	-70.317	1	12	7	7.76	0.790	51	0.44	0.4537	0.0585
49	43.650	-70.317	2	10	7	8.51	0.836	57	0.41	0.4005	0.0471
49	43.650	-70.317	3	12	7	8.71	0.821	54	0.42	0.4067	0.0467
49	43.650	-70.317	4	10	9	9.84	0.821	61	0.30	0.3737	0.0380
49	43.650	-70.317	5	12	6	7.18	0.974	53	0.09	0.3941	0.0549
49	43.650	-70.317	6	11	4	6.86	1.383	56	0.	0.3436	0.0501
49	43.650	-70.317	7	11	3	6.61	1.744	60	0.01	0.4377	0.0663
49	43.650	-70.317	8	11	4	6.54	1.526	62	0.01	0.4368	0.0668
49	43.650	-70.317	9	9	5	8.80	1.330	70	0.18	0.2891	0.0329
49	43.650	-70.317	10	9	6	9.87	1.127	71	0.29	0.2880	0.0292
49	43.650	-70.317	11	10	8	11.90	1.049	58	0.36	0.4260	0.0358
49	43.650	-70.317	12	15	5	6.89	0.799	41	0.59	0.2822	0.0410
50	44.467	-73.150	1	16	5	3.05	0.416	40	0.32	0.2790	0.0915
50	44.467	-73.150	2	11	6	3.86	0.448	50	0.33	0.3105	0.0804
50	44.467	-73.150	3	11	8	4.85	0.552	55	0.08	0.4956	0.1022
50	44.467	-73.150	4	12	7	5.76	0.753	51	0.02	0.5678	0.0985
50	44.467	-73.150	5	11	8	6.78	0.949	54	-0.09	0.5571	0.0821
50	44.467	-73.150	6	12	6	7.20	1.392	52	-0.13	0.5931	0.0824

Table 7-5. Poisson Rectangular Pulse Parameters (page 10-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
50	44.467	-73.150	7	15	3	6.05	1.774	46	0.04	0.4793	0.0792
50	44.467	-73.150	8	16	3	6.27	1.725	42	-0.02	0.4509	0.0719
50	44.467	-73.150	9	13	4	6.38	1.209	49	0.07	0.3998	0.0627
50	44.467	-73.150	10	10	7	6.65	0.840	60	0.02	0.5855	0.0881
50	44.467	-73.150	11	13	7	5.93	0.663	46	0.16	0.5427	0.0915
50	44.467	-73.150	12	19	4	3.18	0.481	33	0.41	0.2141	0.0672
51	41.167	-73.133	1	11	6	7.18	0.825	57	0.41	0.3740	0.0521
51	41.167	-73.133	2	10	6	7.27	0.884	57	0.40	0.4547	0.0625
51	41.167	-73.133	3	11	6	8.86	0.959	59	0.36	0.3770	0.0425
51	41.167	-73.133	4	10	7	9.43	1.092	64	0.18	0.4922	0.0522
51	41.167	-73.133	5	11	5	8.08	1.343	59	0.03	0.4588	0.0568
51	41.167	-73.133	6	8	5	8.93	1.541	79	-0.01	0.3103	0.0348
51	41.167	-73.133	7	8	4	10.95	2.664	79	-0.05	0.4286	0.0391
51	41.167	-73.133	8	10	3	8.89	2.169	67	0.02	0.4043	0.0455
51	41.167	-73.133	9	7	6	10.21	1.598	87	0.02	0.4095	0.0401
51	41.167	-73.133	10	7	6	11.69	1.537	100	0.12	0.4262	0.0365
51	41.167	-73.133	11	8	8	11.93	1.183	79	0.20	0.5859	0.0491
51	41.167	-73.133	12	12	5	7.26	0.923	53	0.41	0.4404	0.0606
52	37.100	-88.600	1	6	9	30.09	0.	114	-0.16	0.1557	0.0052
52	37.100	-88.600	2	5	9	14.00	2.158	110	-0.18	0.4980	0.0356
52	37.100	-88.600	3	4	32	25.12	1.599	131	-0.30	0.6738	0.0268
52	37.100	-88.600	4	8	5	12.30	3.080	76	-0.16	0.6469	0.0526
52	37.100	-88.600	5	6	10	17.08	3.787	103	-0.13	0.6195	0.0363
52	37.100	-88.600	6	6	5	15.47	3.759	110	-0.19	0.7609	0.0492
52	37.100	-88.600	7	4	17	20.87	3.285	151	-0.27	0.7582	0.0363
52	37.100	-88.600	8	6	4	13.29	4.377	110	-0.18	0.7499	0.0564
52	37.100	-88.600	9	4	7	17.77	4.358	148	-0.16	0.5067	0.0285
52	37.100	-88.600	10	5	6	13.86	3.251	133	-0.11	0.6314	0.0456
52	37.100	-88.600	11	5	8	16.39	2.275	110	-0.19	0.6265	0.0382
52	37.100	-88.600	12	4	15	20.38	2.231	136	-0.13	0.8961	0.0440
53	42.933	-78.733	1	24	6	3.29	0.427	24	0.20	0.2820	0.0857
53	42.933	-78.733	2	17	7	3.68	0.426	31	0.20	0.2868	0.0780
53	42.933	-78.733	3	15	8	4.87	0.593	40	0.02	0.4599	0.0944
53	42.933	-78.733	4	15	6	5.03	0.785	41	0.	0.5441	0.1081
53	42.933	-78.733	5	11	7	6.87	0.949	59	0.	0.5058	0.0736
53	42.933	-78.733	6	10	5	7.65	1.581	66	-0.06	0.3746	0.0490
53	42.933	-78.733	7	11	3	6.87	1.916	64	0.02	0.4652	0.0677
53	42.933	-78.733	8	10	5	10.25	2.131	65	-0.12	0.5440	0.0531
53	42.933	-78.733	9	11	5	7.59	1.392	58	0.02	0.3569	0.0470
53	42.933	-78.733	10	9	11	8.61	0.820	71	-0.05	0.4997	0.0581
53	42.933	-78.733	11	14	9	6.96	0.701	39	0.08	0.4369	0.0628
53	42.933	-78.733	12	22	6	3.99	0.511	26	0.24	0.3857	0.0967
54	42.867	-100.550	1	3	7	1.95	0.312	189	-0.15	0.5401	0.2768
54	42.867	-100.550	2	3	9	3.33	0.350	168	0.01	0.4789	0.1438
54	42.867	-100.550	3	5	11	4.90	0.444	136	-0.01	0.4761	0.0971
54	42.867	-100.550	4	7	7	6.44	0.869	89	-0.03	0.4591	0.0713
54	42.867	-100.550	5	9	7	8.54	1.684	73	-0.15	0.4805	0.0563
54	42.867	-100.550	6	10	4	6.95	1.878	61	-0.07	0.5486	0.0790
54	42.867	-100.550	7	9	3	7.46	2.708	72	-0.06	0.4314	0.0578
54	42.867	-100.550	8	8	3	7.74	2.305	86	-0.07	0.4078	0.0527
54	42.867	-100.550	9	6	4	5.94	1.341	105	-0.07	0.5169	0.0870
54	42.867	-100.550	10	4	7	5.96	0.892	177	-0.04	0.6248	0.1049
54	42.867	-100.550	11	4	6	3.53	0.522	175	0.04	0.4692	0.1330
54	42.867	-100.550	12	4	7	2.41	0.343	181	-0.02	0.3875	0.1610
55	33.433	-112.017	1	2	17	7.22	0.647	297	-0.20	0.7697	0.1000
55	33.433	-112.017	2	2	12	6.88	0.684	279	-0.18	0.6539	0.0900
55	33.433	-112.017	3	2	12	8.37	0.781	288	-0.15	0.7176	0.0800
55	33.433	-112.017	4	1	6	4.28	0.761	548	-0.06	0.6963	0.1600
55	33.433	-112.017	5	1	2	3.07	1.101	643	0.08	0.5876	0.1900
55	33.433	-112.017	6	0	44	7.36	0.957	999	-0.27	0.4544	0.0600
55	33.433	-112.017	7	2	7	6.45	2.014	270	-0.23	0.3641	0.0500
55	33.433	-112.017	8	6	1	2.41	2.408	113	0.	0.2939	0.1200
55	33.433	-112.017	9	2	6	7.22	1.606	308	-0.15	0.3472	0.0400
55	33.433	-112.017	10	2	8	7.83	0.815	341	0.07	0.4971	0.0600
55	33.433	-112.017	11	1	11	8.25	0.865	413	-0.25	1.1306	0.1300
55	33.433	-112.017	12	2	11	8.99	0.892	292	-0.11	0.5196	0.0500

Table 7-5. Poisson Rectangular Pulse Parameters (page 11-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
56	32.133	-81.200	1	8	7	9.84	1.249	81	0.02	0.5346	0.0543
56	32.133	-81.200	2	11	4	7.43	1.341	55	0.19	0.4398	0.0592
56	32.133	-81.200	3	8	7	12.35	1.687	84	-0.02	0.5765	0.0467
56	32.133	-81.200	4	6	7	13.40	2.133	113	-0.11	0.5304	0.0396
56	32.133	-81.200	5	7	7	15.11	2.538	94	-0.14	0.5848	0.0387
56	32.133	-81.200	6	9	6	15.20	2.900	69	-0.14	0.4814	0.0317
56	32.133	-81.200	7	13	5	13.39	3.242	50	-0.11	0.4471	0.0334
56	32.133	-81.200	8	12	5	15.14	3.626	54	-0.13	0.4776	0.0315
56	32.133	-81.200	9	9	6	14.76	2.537	70	-0.07	0.2283	0.0155
56	32.133	-81.200	10	5	7	10.84	1.770	129	-0.10	0.3711	0.0342
56	32.133	-81.200	11	6	5	8.00	1.289	111	0.07	0.4571	0.0571
56	32.133	-81.200	12	8	6	8.38	1.237	82	0.14	0.5812	0.0694
57	40.783	-111.950	1	6	13	4.92	0.450	95	-0.19	0.7976	0.1622
57	40.783	-111.950	2	6	9	4.68	0.553	89	-0.14	0.7698	0.1646
57	40.783	-111.950	3	8	9	5.51	0.638	77	-0.08	0.8065	0.1464
57	40.783	-111.950	4	7	11	7.53	0.649	87	0.	0.5895	0.0783
57	40.783	-111.950	5	6	11	6.96	0.674	104	-0.10	0.5915	0.0850
57	40.783	-111.950	6	4	11	4.65	0.628	166	-0.14	0.5078	0.0898
57	40.783	-111.950	7	3	7	5.48	1.192	193	-0.19	0.4158	0.0759
57	40.783	-111.950	8	4	8	5.60	0.969	165	-0.17	0.3827	0.0683
57	40.783	-111.950	9	3	13	7.55	0.685	173	-0.10	0.3023	0.0400
57	40.783	-111.950	10	4	12	7.90	0.675	160	-0.09	0.7614	0.0964
57	40.783	-111.950	11	4	18	7.17	0.515	133	-0.27	0.9865	0.1376
57	40.783	-111.950	12	6	14	5.56	0.488	108	-0.21	0.5987	0.1077
58	38.433	-113.017	1	4	14	3.88	0.363	151	-0.27	0.6891	0.1775
58	38.433	-113.017	2	5	7	3.19	0.479	113	-0.13	0.7285	0.2283
58	38.433	-113.017	3	5	18	5.49	0.452	124	-0.25	0.8829	0.1610
58	38.433	-113.017	4	4	15	5.77	0.553	161	-0.26	0.7614	0.1320
58	38.433	-113.017	5	4	10	4.67	0.751	169	-0.20	0.6035	0.1293
58	38.433	-113.017	6	2	6	4.06	0.750	253	-0.10	0.3939	0.0970
58	38.433	-113.017	7	3	19	5.77	0.887	214	-0.28	0.6894	0.1194
58	38.433	-113.017	8	5	4	3.87	1.115	129	-0.12	0.4478	0.1156
58	38.433	-113.017	9	3	5	5.53	0.956	189	0.01	0.4902	0.0886
58	38.433	-113.017	10	3	11	6.07	0.634	218	-0.22	0.8226	0.1356
58	38.433	-113.017	11	3	10	5.04	0.507	187	-0.10	0.7783	0.1546
58	38.433	-113.017	12	4	11	3.94	0.444	158	-0.21	0.5560	0.1411
59	31.800	-106.400	1	2	9	3.54	0.471	250	-0.20	0.8987	0.2542
59	31.800	-106.400	2	2	7	4.77	0.704	282	-0.07	0.7656	0.1604
59	31.800	-106.400	3	2	4	3.56	0.761	308	-0.06	0.5962	0.1675
59	31.800	-106.400	4	1	5	3.77	0.751	477	-0.05	0.3506	0.0930
59	31.800	-106.400	5	2	3	3.21	1.402	357	-0.11	0.4731	0.1473
59	31.800	-106.400	6	2	9	7.12	1.475	277	-0.22	0.4654	0.0654
59	31.800	-106.400	7	4	17	8.91	1.111	137	-0.27	0.3669	0.0412
59	31.800	-106.400	8	6	4	5.56	1.649	107	-0.10	0.3646	0.0656
59	31.800	-106.400	9	4	8	9.18	1.398	167	-0.11	0.3473	0.0378
59	31.800	-106.400	10	2	11	7.12	0.911	246	-0.15	0.4950	0.0695
59	31.800	-106.400	11	2	8	4.13	0.596	323	-0.14	0.4946	0.1199
59	31.800	-106.400	12	2	11	5.13	0.507	266	-0.12	0.4782	0.0932
60	27.767	-97.500	1	5	12	8.17	0.617	125	0.01	0.2161	0.0265
60	27.767	-97.500	2	4	13	10.48	0.752	133	0.03	0.3349	0.0320
60	27.767	-97.500	3	4	6	5.65	1.114	163	-0.08	0.2797	0.0495
60	27.767	-97.500	4	4	5	11.21	2.035	162	-0.04	0.2837	0.0253
60	27.767	-97.500	5	5	8	15.57	2.767	136	-0.14	0.4302	0.0276
60	27.767	-97.500	6	4	13	18.36	2.211	158	-0.21	0.3802	0.0207
60	27.767	-97.500	7	3	10	15.05	2.088	196	-0.11	0.2462	0.0164
60	27.767	-97.500	8	3	22	25.40	1.928	198	-0.18	0.2623	0.0103
60	27.767	-97.500	9	6	11	21.89	2.896	97	-0.14	0.2835	0.0129
60	27.767	-97.500	10	4	13	19.34	2.508	155	-0.21	0.4482	0.0232
60	27.767	-97.500	11	4	11	9.83	1.207	166	-0.17	0.4038	0.0411
60	27.767	-97.500	12	4	14	8.63	0.751	171	-0.12	0.3709	0.0430
61	44.117	-123.217	1	8	30	24.17	0.690	59	0.14	0.3578	0.0148
61	44.117	-123.217	2	7	26	18.39	0.674	61	0.02	0.4670	0.0254
61	44.117	-123.217	3	4	85	32.44	0.429	103	-0.15	0.6399	0.0197
61	44.117	-123.217	4	7	17	9.79	0.637	79	-0.16	0.4967	0.0507
61	44.117	-123.217	5	6	16	8.00	0.602	100	-0.18	0.5099	0.0637
61	44.117	-123.217	6	4	13	8.10	0.715	151	-0.12	0.5424	0.0670

Table 7-5. Poisson Rectangular Pulse Parameters (page 12-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
61	44.117	-123.217	7	1	9	5.26	0.693	395	-0.20	0.3408	0.0648
61	44.117	-123.217	8	2	22	11.01	0.665	330	-0.17	0.4895	0.0444
61	44.117	-123.217	9	2	27	12.76	0.723	214	-0.25	0.5429	0.0425
61	44.117	-123.217	10	3	45	22.46	0.538	143	-0.09	0.4347	0.0194
61	44.117	-123.217	11	6	41	31.55	0.765	74	-0.01	0.4163	0.0132
61	44.117	-123.217	12	6	47	32.41	0.589	71	0.17	0.3193	0.0099
62	46.150	-123.883	1	7	53	36.47	0.601	51	0.18	0.4755	0.0130
62	46.150	-123.883	2	8	36	23.83	0.627	44	0.05	0.5387	0.0226
62	46.150	-123.883	3	9	34	19.60	0.549	46	0.06	0.5257	0.0268
62	46.150	-123.883	4	12	17	10.23	0.572	42	0.01	0.4893	0.0478
62	46.150	-123.883	5	11	13	6.76	0.515	56	0.01	0.3231	0.0478
62	46.150	-123.883	6	7	18	8.54	0.468	75	-0.01	0.4612	0.0540
62	46.150	-123.883	7	5	13	5.76	0.459	133	-0.03	0.3293	0.0572
62	46.150	-123.883	8	5	15	7.02	0.438	133	0.02	0.3829	0.0545
62	46.150	-123.883	9	4	32	17.20	0.571	122	-0.06	0.4020	0.0234
62	46.150	-123.883	10	4	95	49.37	0.526	114	-0.02	0.3690	0.0075
62	46.150	-123.883	11	5	65	46.39	0.728	62	-0.03	0.5776	0.0125
62	46.150	-123.883	12	8	42	31.46	0.746	45	0.00	0.5662	0.0180
63	47.450	-122.300	1	10	22	13.52	0.579	49	0.04	0.5387	0.0399
63	47.450	-122.300	2	10	18	10.18	0.567	50	-0.02	0.5654	0.0555
63	47.450	-122.300	3	11	15	8.25	0.551	49	-0.07	0.5323	0.0645
63	47.450	-122.300	4	13	7	4.30	0.596	45	-0.01	0.5413	0.1258
63	47.450	-122.300	5	8	9	5.21	0.585	77	-0.10	0.4581	0.0879
63	47.450	-122.300	6	5	18	7.39	0.537	126	-0.24	0.6045	0.0818
63	47.450	-122.300	7	3	11	5.42	0.734	191	-0.27	0.7503	0.1384
63	47.450	-122.300	8	3	17	8.91	0.502	198	-0.01	0.4030	0.0453
63	47.450	-122.300	9	5	18	9.65	0.648	108	-0.20	0.5280	0.0547
63	47.450	-122.300	10	5	35	16.17	0.658	106	-0.25	0.4998	0.0309
63	47.450	-122.300	11	13	12	9.84	0.793	39	-0.02	0.5686	0.0578
63	47.450	-122.300	12	10	24	15.39	0.619	49	0.02	0.5003	0.0325
64	48.217	-106.617	1	5	12	1.68	0.234	120	-0.36	0.6256	0.3733
64	48.217	-106.617	2	6	6	1.19	0.254	106	-0.36	0.8175	0.6891
64	48.217	-106.617	3	6	6	1.65	0.337	111	-0.20	0.4260	0.2574
64	48.217	-106.617	4	6	6	2.74	0.471	110	-0.06	0.3622	0.1322
64	48.217	-106.617	5	7	11	6.30	0.645	95	-0.10	0.3774	0.0599
64	48.217	-106.617	6	10	4	5.64	1.398	65	-0.01	0.3658	0.0649
64	48.217	-106.617	7	7	4	5.81	1.657	97	-0.11	0.2924	0.0504
64	48.217	-106.617	8	5	5	5.73	1.037	119	-0.03	0.1860	0.0324
64	48.217	-106.617	9	5	7	4.79	0.638	127	-0.03	0.3063	0.0639
64	48.217	-106.617	10	5	3	2.84	0.556	130	0.32	0.3024	0.1064
64	48.217	-106.617	11	4	8	1.74	0.301	145	-0.29	0.6673	0.3830
64	48.217	-106.617	12	6	10	1.54	0.231	112	-0.49	0.6286	0.4091
65	48.183	-103.633	1	7	7	2.03	0.312	99	-0.21	0.6018	0.2965
65	48.183	-103.633	2	5	6	2.00	0.332	108	-0.10	0.5176	0.2583
65	48.183	-103.633	3	5	11	3.07	0.358	119	-0.21	0.4889	0.1593
65	48.183	-103.633	4	6	7	4.79	0.633	101	0.05	0.3817	0.0797
65	48.183	-103.633	5	5	15	7.99	0.682	112	-0.15	0.3871	0.0484
65	48.183	-103.633	6	9	6	7.09	1.474	71	-0.14	0.4678	0.0659
65	48.183	-103.633	7	9	2	5.59	1.872	77	0.02	0.3021	0.0540
65	48.183	-103.633	8	7	3	4.33	1.309	90	0.04	0.3681	0.0850
65	48.183	-103.633	9	6	7	5.78	0.721	109	0.10	0.3486	0.0603
65	48.183	-103.633	10	4	5	4.03	0.607	147	0.20	0.2594	0.0643
65	48.183	-103.633	11	4	9	2.82	0.373	150	-0.18	0.6543	0.2319
65	48.183	-103.633	12	5	14	2.77	0.276	130	-0.31	0.5592	0.2019
66	46.467	-84.367	1	14	12	4.09	0.309	38	0.04	0.5077	0.1240
66	46.467	-84.367	2	16	6	2.64	0.349	35	0.22	0.3325	0.1260
66	46.467	-84.367	3	12	8	4.60	0.491	53	0.10	0.4505	0.0980
66	46.467	-84.367	4	8	11	7.03	0.607	69	0.01	0.5449	0.0775
66	46.467	-84.367	5	10	7	6.98	0.963	65	-0.01	0.3898	0.0559
66	46.467	-84.367	6	12	5	6.95	1.278	53	0.03	0.4280	0.0615
66	46.467	-84.367	7	10	4	7.09	1.646	66	-0.04	0.5067	0.0715
66	46.467	-84.367	8	12	4	7.18	1.416	54	0.07	0.3753	0.0523
66	46.467	-84.367	9	15	5	6.28	1.108	40	0.07	0.4929	0.0785
66	46.467	-84.367	10	12	9	7.23	0.798	52	-0.03	0.2350	0.0325
66	46.467	-84.367	11	15	10	5.59	0.499	37	0.12	0.4734	0.0847
66	46.467	-84.367	12	18	9	3.85	0.373	31	0.13	0.4832	0.1256

Table 7-5. Poisson Rectangular Pulse Parameters (page 13-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
67	30.683	-88.250	1	12	5	11.09	1.545	57	0.19	0.2966	0.0267
67	30.683	-88.250	2	9	6	14.33	1.991	63	0.08	0.5146	0.0359
67	30.683	-88.250	3	11	4	13.77	2.370	59	0.16	0.4634	0.0337
67	30.683	-88.250	4	6	5	17.68	2.720	100	0.12	0.3696	0.0209
67	30.683	-88.250	5	7	6	18.99	3.136	88	-0.05	0.4320	0.0227
67	30.683	-88.250	6	9	8	14.38	3.021	71	-0.19	0.3907	0.0272
67	30.683	-88.250	7	15	4	12.60	3.478	43	-0.12	0.3198	0.0254
67	30.683	-88.250	8	19	2	9.12	3.311	35	0.06	0.3710	0.0407
67	30.683	-88.250	9	9	7	17.53	2.848	71	-0.12	0.3323	0.0190
67	30.683	-88.250	10	5	8	15.86	2.096	137	-0.05	0.2703	0.0170
67	30.683	-88.250	11	6	8	14.59	1.860	101	-0.05	0.4078	0.0280
67	30.683	-88.250	12	9	7	14.68	1.794	74	0.05	0.5672	0.0386
68	24.550	-81.750	1	6	4	8.73	1.781	118	0.03	0.1100	0.0126
68	24.550	-81.750	2	5	5	8.48	1.658	115	-0.03	0.5399	0.0637
68	24.550	-81.750	3	5	3	8.70	2.414	135	0.02	0.3411	0.0392
68	24.550	-81.750	4	3	5	12.34	2.297	190	-0.01	0.2564	0.0208
68	24.550	-81.750	5	4	21	21.36	1.752	135	-0.14	0.2997	0.0140
68	24.550	-81.750	6	9	9	13.92	2.408	69	-0.15	0.2888	0.0207
68	24.550	-81.750	7	11	4	8.47	2.358	63	-0.13	0.4212	0.0497
68	24.550	-81.750	8	15	4	8.56	2.615	44	-0.10	0.3902	0.0456
68	24.550	-81.750	9	17	3	9.19	2.629	37	-0.04	0.2882	0.0313
68	24.550	-81.750	10	9	7	12.44	1.819	74	-0.04	0.2302	0.0185
68	24.550	-81.750	11	6	5	12.08	1.744	112	0.12	0.0590	0.0049
68	24.550	-81.750	12	5	6	9.91	1.595	126	-0.02	0.2123	0.0214
69	29.183	-81.050	1	7	4	7.80	1.453	91	0.18	0.2939	0.0377
69	29.183	-81.050	2	6	8	12.04	1.679	93	-0.11	0.4413	0.0366
69	29.183	-81.050	3	6	8	13.53	1.794	109	-0.08	0.4088	0.0302
69	29.183	-81.050	4	5	5	12.98	2.294	136	0.02	0.3937	0.0303
69	29.183	-81.050	5	5	12	14.05	1.807	113	-0.21	0.4715	0.0336
69	29.183	-81.050	6	8	12	18.38	2.669	72	-0.21	0.4715	0.0336
69	29.183	-81.050	7	11	7	13.45	2.884	59	-0.23	0.5419	0.0403
69	29.183	-81.050	8	12	6	13.71	3.380	55	-0.17	0.4347	0.0317
69	29.183	-81.050	9	11	7	14.95	2.475	53	-0.08	0.3721	0.0249
69	29.183	-81.050	10	8	10	15.16	1.785	81	-0.06	0.2587	0.0171
69	29.183	-81.050	11	6	5	9.50	1.740	100	0.02	0.2756	0.0290
69	29.183	-81.050	12	6	6	9.47	1.394	107	0.05	0.3343	0.0353
70	43.117	-77.667	1	19	6	3.02	0.422	31	0.17	0.3433	0.1137
70	43.117	-77.667	2	16	6	3.46	0.441	33	0.28	0.2499	0.0722
70	43.117	-77.667	3	13	7	4.52	0.568	46	0.05	0.4672	0.1034
70	43.117	-77.667	4	10	11	6.84	0.688	61	-0.15	0.6874	0.1004
70	43.117	-77.667	5	10	7	6.38	0.973	65	-0.06	0.5354	0.0839
70	43.117	-77.667	6	9	5	7.60	1.500	70	-0.06	0.4860	0.0640
70	43.117	-77.667	7	9	4	6.80	1.938	71	-0.12	0.5347	0.0786
70	43.117	-77.667	8	10	4	8.30	1.965	66	-0.11	0.6045	0.0728
70	43.117	-77.667	9	11	4	6.40	1.225	58	0.06	0.4379	0.0684
70	43.117	-77.667	10	10	8	6.38	0.770	66	0.00	0.3554	0.0557
70	43.117	-77.667	11	14	7	5.17	0.626	42	0.11	0.3709	0.0718
70	43.117	-77.667	12	20	5	3.27	0.470	30	0.21	0.3522	0.1076
71	35.267	-75.550	1	9	6	11.28	1.472	69	0.24	0.3840	0.0340
71	35.267	-75.550	2	8	5	10.47	1.537	73	0.21	0.5524	0.0528
71	35.267	-75.550	3	10	4	8.01	1.469	68	0.23	0.3608	0.0450
71	35.267	-75.550	4	6	4	8.63	1.611	100	0.07	0.4726	0.0548
71	35.267	-75.550	5	6	9	13.51	1.811	112	-0.14	0.6349	0.0470
71	35.267	-75.550	6	7	5	11.52	2.269	99	-0.05	0.4030	0.0350
71	35.267	-75.550	7	9	6	12.48	2.455	77	-0.09	0.4020	0.0322
71	35.267	-75.550	8	9	5	12.68	2.286	75	0.03	0.3114	0.0246
71	35.267	-75.550	9	6	8	17.03	1.985	110	-0.01	0.2801	0.0164
71	35.267	-75.550	10	6	7	16.49	2.010	108	0.02	0.3508	0.0213
71	35.267	-75.550	11	6	6	14.29	1.683	98	0.21	0.3041	0.0213
71	35.267	-75.550	12	4	23	20.24	1.325	137	-0.23	0.8528	0.0421
72	36.900	-76.200	1	10	7	9.27	1.056	62	0.23	0.5538	0.0597
72	36.900	-76.200	2	10	6	8.37	1.083	56	0.18	0.6039	0.0722
72	36.900	-76.200	3	13	4	6.93	1.205	50	0.15	0.4239	0.0611
72	36.900	-76.200	4	9	5	8.13	1.422	70	-0.01	0.5064	0.0623
72	36.900	-76.200	5	9	7	10.78	1.921	75	-0.12	0.6055	0.0562

Table 7-5. Poisson Rectangular Pulse Parameters (page 14-14)

ID	LAT	LONG	MONTH	V STM /MON	TR HR	STORM DEPTH MM	I MM/HR	TB HR	RHO [i,t_r] MM	κ	λ 1/MM
72	36.900	-76.200	6	9	4	9.86	2.363	72	-0.02	0.3392	0.0344
72	36.900	-76.200	7	10	6	12.90	2.843	67	-0.17	0.5016	0.0389
72	36.900	-76.200	8	10	4	12.53	2.780	67	-0.04	0.2721	0.0217
72	36.900	-76.200	9	7	7	15.88	2.015	95	0.03	0.3305	0.0208
72	36.900	-76.200	10	7	7	12.01	1.588	94	0.00	0.4691	0.0390
72	36.900	-76.200	11	7	7	9.51	1.216	91	0.07	0.6181	0.0650
72	36.900	-76.200	12	10	6	8.40	1.049	68	0.20	0.5402	0.0643
73	32.783	-79.933	1	9	6	8.03	1.175	70	0.10	0.5122	0.0638
73	32.783	-79.933	2	10	4	7.28	1.374	57	0.11	0.4737	0.0651
73	32.783	-79.933	3	9	6	11.88	1.801	74	0.03	0.5921	0.0498
73	32.783	-79.933	4	6	6	10.18	1.589	109	0.02	0.5264	0.0517
73	32.783	-79.933	5	6	8	13.48	2.067	107	-0.17	0.4948	0.0367
73	32.783	-79.933	6	7	11	18.12	2.181	88	-0.15	0.3361	0.0185
73	32.783	-79.933	7	11	5	13.46	3.890	59	-0.13	0.4733	0.0352
73	32.783	-79.933	8	10	7	15.41	2.913	64	-0.14	0.4360	0.0283
73	32.783	-79.933	9	9	6	15.22	2.832	71	-0.07	0.3004	0.0197
73	32.783	-79.933	10	4	9	14.54	1.620	145	-0.02	0.2809	0.0193
73	32.783	-79.933	11	6	5	7.86	1.372	103	-0.01	0.4435	0.0564
73	32.783	-79.933	12	8	5	8.06	1.210	78	0.14	0.5212	0.0647
74	25.900	-97.433	1	1	12	8.95	0.670	631	0.05	0.2856	0.0319
74	25.900	-97.433	2	1	10	7.86	0.663	582	0.07	0.3644	0.0463
74	25.900	-97.433	3	1	5	4.17	1.040	705	-0.12	0.4284	0.1028
74	25.900	-97.433	4	0	20	10.43	1.762	1852	-0.31	0.5932	0.0569
74	25.900	-97.433	5	0	18	20.96	3.014	1278	-0.24	0.4471	0.0213
74	25.900	-97.433	6	0	17	20.69	3.679	828	-0.31	0.6234	0.0301
74	25.900	-97.433	7	1	8	16.35	3.472	644	-0.17	0.3133	0.0191
74	25.900	-97.433	8	1	6	10.63	2.513	736	-0.20	0.3819	0.0359
74	25.900	-97.433	9	1	18	29.15	2.573	643	-0.18	0.2353	0.0081
74	25.900	-97.433	10	1	8	16.76	2.314	570	-0.10	0.4454	0.0266
74	25.900	-97.433	11	1	10	15.41	1.677	705	-0.05	0.3929	0.0255
74	25.900	-97.433	12	0	38	14.96	0.463	953	-0.14	0.2853	0.0191
75	33.933	-118.400	1	2	31	26.32	0.945	219	-0.12	0.5117	0.0194
75	33.933	-118.400	2	2	20	21.00	1.141	189	-0.07	0.3897	0.0186
75	33.933	-118.400	3	3	14	12.16	1.079	179	-0.17	0.5856	0.0482
75	33.933	-118.400	4	2	14	9.61	0.817	287	-0.14	0.6370	0.0663
75	33.933	-118.400	5	1	4	2.82	0.589	568	0.01	0.1347	0.0477
75	33.933	-118.400	6	0	1	0.53	0.525	704	0.00	0.8433	1.6049
75	33.933	-118.400	7	0	1	0.41	0.412	1082	0.00	0.4555	1.1068
75	33.933	-118.400	8	1	1	1.52	1.521	582	0.00	0.3937	0.2588
75	33.933	-118.400	9	1	3	3.91	0.770	499	0.28	0.2991	0.0765
75	33.933	-118.400	10	1	2	3.08	1.115	334	0.14	0.2097	0.0680
75	33.933	-118.400	11	2	17	18.18	1.084	291	-0.05	0.4840	0.0266
75	33.933	-118.400	12	2	21	15.89	0.864	269	-0.10	0.4551	0.0286

References

1. Rodriguez–Iturbe, I, Cox, D.R., and Isham, V., Some models for rainfall based on stochastic point processes, *Proc. R. Soc. Lond.* ***A410***, 269–286, 1987a.

2. Cox, D.R. and Miller, *Theory of Stochastic Processes,* Wiley & Sons, Inc., New York, 398 pp., 1965

3. Cox, D.R. and Isham, V, *Point Processes*, Chapman and Hall, London, 188 pp., 1980.

4. EarthInfo NCDC (National Climate Data Center) hourly precipitation records, 1989: (updated annually), EarthInfo, Boulder, CO.

5. Islam, S., D. Entekhabi, Bras, R. L., Rodriguez–Iturbe, I., Parameter estimation and sensitivity analysis for the modified Bartlett–Lewis rectangular pulses model of rainfall, *Journal of Geophysical Research*, ***95***, 2093–2100, Feb. 28, 1990.

6. Rodriguez–Iturbe, I., Cox, D. R., Isham, V., A point process model for rainfall: further developments, *Proc. R. Soc. Lond.* ***A417***, 283–298, 1988.

7. Eagleson, P. S., Climate, soil and vegetation, Part 7, A derived distribution of annual water yield, *Water Resources Research*, ***14***(5), 765–776, 1978.

8. Restrepo–Posada, P.J., Eagleson, P.S., Identification of independent rainstorms, *Journal of Hydrology* ***55***, 303–319, 1982.

9. *GEMPAK3* Manual, NASA/Goddard Space Flight Center, Laboratory for Atmospheres, licensed by COSMIC, Athens, Georgia, 1989.

10. Koch, S.E., DesJardins, M., Kocin, P.J., An interactive barnes objective qap analysis scheme for use with satellite and conventional data, *Journal of Climate and Applied Meteorology* ***22***(9), 1487, September 1983

11. IMSL Inc.: Subroutines EXMIN and ZXMJN, 1414 South West Free St., Suite 300, Sugarland, TX, May 1976.

Appendix A

List of Programs

ncdc.f	Routine to translate National Climatic Data Center hourly precipitation data from TD–3240 format to time–series format
day_tally.f	Routine to tally daily mean and variance
hour_tally.f	Routine to tally month's hourly statistics
Poisson.f	Routine to evaluate the Poisson Rectangular Pulses Model's parameters
zmin.f	Routine to evaluate the modified Bartlett–Lewis model's parameters (used IMSL library, 1976)
function.f	Routine to determine the precipitation statistics of a station given the parameters taken from the maps in Chapter 5.

```
C     ******************************************************
C     *                PROGRAM - NCDC.F                    *
C     ******************************************************


C     ........................................................
C     .                                                      .
C     .          Routine to Translate National Climatic      .
C     .          Data Center Hourly Precipitation Data       .
C     .          From TD-3240 Format to Time-Series          .
C     .                                                      .
C     ........................................................
C     .                 June 1, 1991                         .
C     ........................................................

      REAL RAIN
      INTEGER KY,KM,KD,KH,JR,JY,JM,JD,JH,LEAP,JN,KN,N,K
      LOGICAL READNEXT
      CHARACTER*1 FLAG
      DIMENSION RAIN(24)

C     ........................................................
C     .                                                      .
C     .       FILE NAME THAT MUST BE CHANGED AND UPDATED     .
C     .         FOR EACH STATION                             .
C     .                                                      .
C     .       1.  "station name".ncd                         .
C     .            -  NCDC format of the hourly data set     .
C     .                                                      .
C     .       FILE THAT IS CREATED                           .
C     .                                                      .
C     .       1.  "station name".dat                         .
C     .            -  time series format of the data set     .
C     ........................................................
      OPEN (UNIT=1,FILE='port.ncd',STATUS='OLD')
      OPEN (UNIT=2,FILE='port.dat',STATUS='NEW',RECL=132)
      DATA RAIN,READNEXT  /24*-1,.TRUE./

      READ(1,100) KY,KM,KD,KN,KH,JR,FLAG
      KH=KH/100
      N=0
      N=N+1
      K=200
      REWIND 1
      GOTO 5
    1 KY=KY+1
      write(*,*)'year',ky
      KM=0
    2 KM=KM+1
      KD=0
    3 KD=KD+1
```

```
      KH=0
      N=0
      N=N+1
      K=200
    4 KH=KH+1
    5 IF (READNEXT) THEN
      READ(1,100,END=7) JY,JM,JD,JN,JH,JR,FLAG
      JH=JH/100
      ENDIF
C     ****************************************
C     *      LOOP TO TAKE CARE OF FLAG        *
C     *      A                                *
C     ****************************************

      IF (((FLAG.EQ.'A') .AND. (KH.EQ.JH)).AND.
     % (KD.EQ.JD)) THEN
      CALL DELTA(KY,KM,KD,KH,JY,JM,JD,JH,DIV)
      RMEAN=FLOAT(JR)/(DIV*100.0)
      RAIN(KH)=RMEAN
      GOTO 6
      ENDIF
      IF   (((KY.EQ.JY).AND.(KM.EQ.JM)).AND.
     $      ((KD.EQ.JD).AND.(KH.EQ.JH))) THEN

C     *****************************************************
C     *   LOOP TO TAKE CARE OF FLAGS                      *
C     *   M and I                                         *
C     *****************************************************

      IF(((JR.EQ.99999) .OR. (FLAG .EQ. 'M')).OR. (FLAG.EQ.'I'))
     $   THEN
      RAIN(KH)=-1.0
      GOTO 6
      ENDIF
      RAIN(KH)=FLOAT(JR)/100.0
      GOTO 6
      ENDIF
      RAIN(KH)=0.0
    6 IF (((KH.EQ.24).AND.(KM.EQ.12)).AND.(KD.EQ.31)) THEN
      WRITE(2,101) KY,KM,KD,(RAIN(LH),LH=1,24)
      IF ((JH.EQ.24).AND.(KD.EQ.JD))THEN
         BACKSPACE 1
         K=K+1
         IF (K.EQ.201) READ(1,201)JH,JR,FLAG
      IF (K.EQ.202) READ(1,202)JH,JR,FLAG
      IF (K.EQ.203) READ(1,203)JH,JR,FLAG
      IF (K.EQ.204) READ(1,204)JH,JR,FLAG
      IF (K.EQ.205) READ(1,205)JH,JR,FLAG
      IF (K.EQ.206) READ(1,206)JH,JR,FLAG
      IF (K.EQ.207) READ(1,207)JH,JR,FLAG
```

```
IF (K.EQ.208) READ(1,208)JH,JR,FLAG
IF (K.EQ.209) READ(1,209)JH,JR,FLAG
IF (K.EQ.210) READ(1,210)JH,JR,FLAG
IF (K.EQ.211) READ(1,211)JH,JR,FLAG
IF (K.EQ.212) READ(1,212)JH,JR,FLAG
IF (K.EQ.213) READ(1,213)JH,JR,FLAG
IF (K.EQ.214) READ(1,214)JH,JR,FLAG
IF (K.EQ.215) READ(1,215)JH,JR,FLAG
IF (K.EQ.216) READ(1,216)JH,JR,FLAG
IF (K.EQ.217) READ(1,217)JH,JR,FLAG
IF (K.EQ.218) READ(1,218)JH,JR,FLAG
IF (K.EQ.219) READ(1,219)JH,JR,FLAG
IF (K.EQ.220) READ(1,220)JH,JR,FLAG
IF (K.EQ.221) READ(1,221)JH,JR,FLAG
IF (K.EQ.222) READ(1,222)JH,JR,FLAG
IF (K.EQ.223) READ(1,223)JH,JR,FLAG
IF (K.EQ.224) READ(1,224)JH,JR,FLAG

   ENDIF
IF (KD.EQ.JD) THEN
   READNEXT=.TRUE.
   GOTO 1
ENDIF
READNEXT=.FALSE.
GOTO 1
ENDIF
IF ((KH.EQ.24).AND.(KD.EQ.LEAP(KY,KM))) THEN
WRITE(2,101) KY,KM,KD,(RAIN(LH),LH=1,24)
IF ((JH .EQ.24).AND. (JD.EQ.KD))THEN
   BACKSPACE 1
   K=K+1
   IF (K.EQ.201) READ(1,201)JH,JR,FLAG
IF (K.EQ.202) READ(1,202)JH,JR,FLAG
IF (K.EQ.203) READ(1,203)JH,JR,FLAG
IF (K.EQ.204) READ(1,204)JH,JR,FLAG
IF (K.EQ.205) READ(1,205)JH,JR,FLAG
IF (K.EQ.206) READ(1,206)JH,JR,FLAG
IF (K.EQ.207) READ(1,207)JH,JR,FLAG
IF (K.EQ.208) READ(1,208)JH,JR,FLAG
IF (K.EQ.209) READ(1,209)JH,JR,FLAG
IF (K.EQ.210) READ(1,210)JH,JR,FLAG
IF (K.EQ.211) READ(1,211)JH,JR,FLAG
IF (K.EQ.212) READ(1,212)JH,JR,FLAG
IF (K.EQ.213) READ(1,213)JH,JR,FLAG
IF (K.EQ.214) READ(1,214)JH,JR,FLAG
IF (K.EQ.215) READ(1,215)JH,JR,FLAG
IF (K.EQ.216) READ(1,216)JH,JR,FLAG
IF (K.EQ.217) READ(1,217)JH,JR,FLAG
IF (K.EQ.218) READ(1,218)JH,JR,FLAG
IF (K.EQ.219) READ(1,219)JH,JR,FLAG
IF (K.EQ.220) READ(1,220)JH,JR,FLAG
```

```
IF (K.EQ.221) READ(1,221)JH,JR,FLAG
IF (K.EQ.222) READ(1,222)JH,JR,FLAG
IF (K.EQ.223) READ(1,223)JH,JR,FLAG
IF (K.EQ.224) READ(1,224)JH,JR,FLAG
   ENDIF
   IF (KD.EQ.JD) THEN
   READNEXT=.TRUE.
   GOTO 2
ENDIF
READNEXT=.FALSE.


GOTO 2
ENDIF
IF (KH.EQ.24) THEN
WRITE(2,101) KY,KM,KD,(RAIN(LH),LH=1,24)
IF ((JH .EQ. 24).and. (JD.EQ.KD)) THEN
   BACKSPACE 1
   K=K+1
   IF (K.EQ.201) READ(1,201)JH,JR,FLAG
IF (K.EQ.202) READ(1,202)JH,JR,FLAG
IF (K.EQ.203) READ(1,203)JH,JR,FLAG
IF (K.EQ.204) READ(1,204)JH,JR,FLAG
IF (K.EQ.205) READ(1,205)JH,JR,FLAG
IF (K.EQ.206) READ(1,206)JH,JR,FLAG
IF (K.EQ.207) READ(1,207)JH,JR,FLAG
IF (K.EQ.208) READ(1,208)JH,JR,FLAG
IF (K.EQ.209) READ(1,209)JH,JR,FLAG
IF (K.EQ.210) READ(1,210)JH,JR,FLAG
IF (K.EQ.211) READ(1,211)JH,JR,FLAG
IF (K.EQ.212) READ(1,212)JH,JR,FLAG
IF (K.EQ.213) READ(1,213)JH,JR,FLAG
IF (K.EQ.214) READ(1,214)JH,JR,FLAG
IF (K.EQ.215) READ(1,215)JH,JR,FLAG
IF (K.EQ.216) READ(1,216)JH,JR,FLAG
IF (K.EQ.217) READ(1,217)JH,JR,FLAG
IF (K.EQ.218) READ(1,218)JH,JR,FLAG
IF (K.EQ.219) READ(1,219)JH,JR,FLAG
IF (K.EQ.220) READ(1,220)JH,JR,FLAG
IF (K.EQ.221) READ(1,221)JH,JR,FLAG
IF (K.EQ.222) READ(1,222)JH,JR,FLAG
IF (K.EQ.223) READ(1,223)JH,JR,FLAG
IF (K.EQ.224) READ(1,224)JH,JR,FLAG

   ENDIF
IF (KD.EQ.JD) THEN
   READNEXT=.TRUE.
   GOTO 3
ENDIF
READNEXT=.FALSE.
```

```
      GOTO 3
      ENDIF
      IF ((JH .EQ. KH) .AND. (JD .EQ. KD))THEN
      BACKSPACE 1
      K=K+1
      IF (K.EQ.201) READ(1,201)JH,JR,FLAG
      IF (K.EQ.202) READ(1,202)JH,JR,FLAG
      IF (K.EQ.203) READ(1,203)JH,JR,FLAG
      IF (K.EQ.204) READ(1,204)JH,JR,FLAG
      IF (K.EQ.205) READ(1,205)JH,JR,FLAG
      IF (K.EQ.206) READ(1,206)JH,JR,FLAG
      IF (K.EQ.207) READ(1,207)JH,JR,FLAG
      IF (K.EQ.208) READ(1,208)JH,JR,FLAG
      IF (K.EQ.209) READ(1,209)JH,JR,FLAG
      IF (K.EQ.210) READ(1,210)JH,JR,FLAG
      IF (K.EQ.211) READ(1,211)JH,JR,FLAG
      IF (K.EQ.212) READ(1,212)JH,JR,FLAG
      IF (K.EQ.213) READ(1,213)JH,JR,FLAG
      IF (K.EQ.214) READ(1,214)JH,JR,FLAG
      IF (K.EQ.215) READ(1,215)JH,JR,FLAG
      IF (K.EQ.216) READ(1,216)JH,JR,FLAG
      IF (K.EQ.217) READ(1,217)JH,JR,FLAG
      IF (K.EQ.218) READ(1,218)JH,JR,FLAG
      IF (K.EQ.219) READ(1,219)JH,JR,FLAG
      IF (K.EQ.220) READ(1,220)JH,JR,FLAG
      IF (K.EQ.221) READ(1,221)JH,JR,FLAG
      IF (K.EQ.222) READ(1,222)JH,JR,FLAG
      IF (K.EQ.223) READ(1,223)JH,JR,FLAG
      IF (K.EQ.224) READ(1,224)JH,JR,FLAG
      JH=JH/100
      READNEXT=.FALSE.
      N=N+1
      ENDIF
      READNEXT=.FALSE.
      GOTO 4
    7 CONTINUE
  100 FORMAT(17X,I4,I2,I4,I3,I4,I6,A1,1X)
  101 FORMAT(1X,I4,2I3,24F5.2)
 201  FORMAT(42X,I4,I6,A1,1X)
 202  FORMAT(54X,I4,I6,A1,1X)
 203  FORMAT(66X,I4,I6,A1,1X)
 204  FORMAT(78X,I4,I6,A1,1X)
 205  FORMAT(90X,I4,I6,A1,1X)
 206  FORMAT(102X,I4,I6,A1,1X)
 207  FORMAT(114X,I4,I6,A1,1X)
 208  FORMAT(126X,I4,I6,A1,1X)
 209  FORMAT(138X,I4,I6,A1,1X)
 210  FORMAT(150X,I4,I6,A1,1X)
 211  FORMAT(162X,I4,I6,A1,1X)
```

```
212  FORMAT(174X,I4,I6,A1,1X)
213  FORMAT(186X,I4,I6,A1,1X)
214  FORMAT(198X,I4,I6,A1,1X)
215  FORMAT(210X,I4,I6,A1,1X)
216  FORMAT(222X,I4,I6,A1,1X)
217  FORMAT(234X,I4,I6,A1,1X)
218  FORMAT(246X,I4,I6,A1,1X)
219  FORMAT(258X,I4,I6,A1,1X)
220  FORMAT(270X,I4,I6,A1,1X)
221  FORMAT(282X,I4,I6,A1,1X)
222  FORMAT(294X,I4,I6,A1,1X)
223  FORMAT(306X,I4,I6,A1,1X)
224  FORMAT(318X,I4,I6,A1,1X)
     END


     SUBROUTINE DELTA(KY,KM,KD,KH,JY,JM,JD,JH,DIV)
     REAL DIV
     INTEGER MY,MM,MD,MH,IY,IM,ID,IH,LEAP,
    $        KY,KM,KD,KH,JY,JM,JD,JH,LH
     MY=KY
     MM=KM
     MD=KD
     MH=KH
     IY=JY
     IM=JM
     ID=JD
     IH=JH
     IDELTA=0
     GOTO 5
   1 MY=MY+1
     MM=0
   2 MM=MM+1
     MD=0
   3 MD=MD+1
     MH=0
   4 MH=MH+1
   5 IDELTA=IDELTA+1
     IF  (((MY.EQ.IY).AND.(MM.EQ.IM)).AND.
    $     ((MD.EQ.ID).AND.(MH.EQ.IH))) GOTO 6
     IF (((MH.EQ.24).AND.(MM.EQ.12)).AND.(KD.EQ.31)) GOTO 1
     IF ((MH.EQ.24).AND.(MD.EQ.LEAP(MY,MM))) GOTO 2
     IF (MH.EQ.24) GOTO 3
     GOTO 4
   6 DIV=FLOAT(IDELTA)
     RETURN
     END

C    ******************************************
```

```
C      *          SUBROUTINE TO DETERMINE           *
C      *                LEAP YEARS                  *
C      ******************************************


       INTEGER FUNCTION LEAP(IY,IM)
       INTEGER IY,IM,NMV
       DIMENSION NMV(12)
       DATA NMV /31,28,31,30,31,30,31,31,30,31,30,31/
       IF (((FLOAT(IY)/4.0).EQ.(FLOAT(IY/4))).AND.(IM.EQ.2)) THEN
       LEAP=NMV(IM)+1
       ELSE
       LEAP=NMV(IM)
       ENDIF
       RETURN
       END
```

```
C     ****************************************************
C     *          PROGRAM - DAY_TALLY.F                   *
C     ****************************************************


C     .....................................................
C     .                                                   .
C     .    Routine to Tally Daily Mean & Variance         .
C     .                                                   .
C     .....................................................
C     .   WRITTEN BY - DR. DARA ENTEKHABI - 1987          .
C     .....................................................


C     .....................................................
C     .                                                   .
C     .       File name that must be changed and updated  .
C     .        time series format from ncdc.f             .
C     .          1.   "station name".dat                  .
C     .....................................................

      REAL X(12,31,50),SV(12,31),SM(12,31),Y(24),DSUM,ST(12)
      INTEGER N(12,31),IM,ID,J,NMV(12)

      OPEN(UNIT=1,
     $     FILE='elkins.dat',STATUS='OLD')
      OPEN(UNIT=2,FILE='TALLY_NUMBER.OUT',STATUS='NEW',RECL=132)
      OPEN(UNIT=3,FILE='TALLY_MEAN.OUT',STATUS='NEW',RECL=132)
      OPEN(UNIT=4,FILE='TALLY_VARIANCE.OUT',STATUS='NEW',RECL=132)

C     ******************************************
C     *     DATA FILE NMV ARE THE NUMBER       *
C     *        OF DAYS IN THE MONTHS           *
C     ******************************************
      DATA NMV /31,28,31,30,31,30,31,31,30,31,30,31/

    1 READ(1,101,END=3) IM,ID,(Y(J),J=1,24)
      DSUM=0.0
      DO 2 J=1,24
      IF (Y(J).LT.0.0) GOTO 1
      DSUM=DSUM+Y(J)
    2 CONTINUE
      N(IM,ID)=N(IM,ID)+1
      X(IM,ID,N(IM,ID))=DSUM*25.4
      GOTO 1
    3 CONTINUE

      WRITE(2,104) (IM,IM=1,12)
      DO 4 ID=1,31
      WRITE(2,102) ID,(N(IM,ID),IM=1,12)
    4 CONTINUE
```

```
      DO 6 IM=1,12
      DO 6 ID=1,NMV(IM)
      DO 5 J=1,N(IM,ID)
      SM(IM,ID)=SM(IM,ID)+X(IM,ID,J)
    5 CONTINUE
      SM(IM,ID)=SM(IM,ID)/FLOAT(N(IM,ID))
    6 CONTINUE

      DO 8 IM=1,12
      ST(IM)=0.0
      DO 7 ID=1,NMV(IM)
      ST(IM)=ST(IM)+SM(IM,ID)
    7 CONTINUE
      ST(IM)=ST(IM)/FLOAT(NMV(IM))
    8 CONTINUE
      WRITE(3,104) (IM,IM=1,12)
      DO 9 ID=1,31
      WRITE(3,103) ID,(SM(IM,ID),IM=1,12)
    9 CONTINUE
      WRITE(3,105) (ST(IM),IM=1,12)

      DO 11 IM=1,12
      DO 11 ID=1,NMV(IM)
      DO 10 J=1,N(IM,ID)
      SV(IM,ID)=SV(IM,ID)+((X(IM,ID,J)-SM(IM,ID))**2)
   10 CONTINUE
      SV(IM,ID)=SV(IM,ID)/FLOAT(N(IM,ID)-1)
   11 CONTINUE

      DO 13 IM=1,12
      ST(IM)=0.0
      DO 12 ID=1,NMV(IM)
      ST(IM)=ST(IM)+SV(IM,ID)
   12 CONTINUE
      ST(IM)=ST(IM)/FLOAT(NMV(IM))
   13 CONTINUE
      WRITE(4,104) (IM,IM=1,12)
      DO 14 ID=1,31
      WRITE(4,106) ID,(SV(IM,ID),IM=1,12)
   14 CONTINUE
      WRITE(4,107) (ST(IM),IM=1,12)

  101 FORMAT(5X,2I3,24F5.2)
  102 FORMAT(1X,I4,3X,12I6)
  103 FORMAT(1X,I4,3X,12F6.2)
  104 FORMAT(9X,12I6)
  105 FORMAT(/1X,'MEAN=',3X,12F6.2)
  106 FORMAT(1X,I4,3X,12F6.1)
  107 FORMAT(/1X,'MEAN=',3X,12F6.1)
      END
```

```
C      ****************************************************
C      *         PROGRAM - HOUR_TALLY.F                   *
C      ****************************************************


C      ....................................................
C      .                                                  .
C      .     Routine to Tally Season's Hourly Statistics  .
C      .                                                  .
C      ....................................................
C      .         Written by Dara Entekhabi - 1987         .
C      .         Updated by Kelly Hawk     - 1991         .
C      ....................................................

       REAL X(24),XM(12),Y(5000),S(10,9),ACOV(10,9),
      $    SUM(30000,10)

       INTEGER JY,JM,JD,IY,IM,ID,IH,IYB,LM,STATION,
      $   IYE,IYS,IMB,IME,IDB,IDE,N,INH,NCOUNT(10)
       CHARACTER*5 MONTH
       COMMON /B/ S
       common /count/ ncount,sum

C      .....................................................
C      .                                                   .
C      .       FILES THAT MUST BE UPDATED FOR EVERY STATION .
C      .                                                   .
C      .    1.  mean.daily                                 .
C      .          -  mean monthly averages for each month  .
C      .    2.  monthly.dat                                .
C      .          -  inputs of the length of the record    .
C      .                                                   .
C      .       FILE WHOSE NAME MUST BE CHANGED AND UPDATED .
C      .         FOR EACH STATION                          .
C      .    1.  "station name".dat                         .
C      .          -  time series data set                  .
C      .                                                   .
C      .       FILES THAT ARE CREATED                      .
C      .                                                   .
C      .    1.  STAT.OUT                                   .
C      .          -  outputs the hourly statistics for a   .
C      .             particular time period of a station   .
C      .....................................................
C      . Written by Dara Entekhabi - 1987                  .
C      . Updated by Kelly Hawk     - 1991                  .
C      .....................................................


       OPEN(UNIT=10,FILE=
      $ 'port.dat',STATUS='OLD')
       OPEN(UNIT=12,FILE='STAT.OUT',STATUS='NEW',RECL=132)
```

```
      OPEN(UNIT=14,FILE='mean.daily',STATUS='OLD')
      OPEN(UNIT=15,FILE='monthly.dat',STATUS='OLD')

C     .............................................................
C     .                                                           .
C     . INPUT:  into file monthly.dat                             .
C     .                                                           .
C     .         XM DAILY MISSING REPLACEMENT IN [MM]              .
C     .         IYB  YEAR BEGINNING                               .
C     .         IMY  MONTH IN WHICH YEAR IS BEGINNING             .
C     .         IYE  YEAR ENDING (INCLUSIVE)                      .
C     .         IYS  YEAR TO SKIP                                 .
C     .         IMB  SEASON'S BEGINNING MONTH                     .
C     .         IME  SEASON'S ENDING MONTH                        .
C     .         IDB  SEASON'S BEGINNING DAY (INCLUSIVE)           .
C     .         IDE  SEASON'S ENDING DAY (EXCLUSIVE)              .
C     .                                                           .
C     . INPUT:  into file mean.daily                              .
C     .                                                           .
C     .         MEAN DAILY AVERAGES FOR EACH MONTH OF THE STATION .
C     .              - GIVEN IN MILLIMETERS                       .
C     .                                                           .
C     .                                                           .
C     .............................................................

      READ(14,*)(XM(I),I=1,12)
C
      READ(15,*)IYB,IMY,IYE,IYS,IMB,IME,IDB,IDE
      DATA STATION, XLAT, XLONG/76,46.383,-117.017/
      mmm=1
      WRITE(12,*)'         GRAND JUNCTION, COLORADO - JUNE'
      WRITE(12,*)

C
C     .                                                           .
C     .............................................................
      DO 152 JJ=1,10
 152     NCOUNT(JJ)=0
      IF (IMY .NE. 1) THEN
         DO 300 I =IMY,12
         DO 300 J =mmm,LEAP(IYB,I)
            READ(10,100)JY,JM,JD,(X(IH),IH=1,24)
            mmm=1
 300        CONTINUE
            IYB=IYB+1
            ENDIF
      N=0
      NN=0
      DO 2 IY=IYB,IYE
      DO 2 IM=1,12
      DO 2 ID=1,LEAP(IY,IM)
```

```
      READ(10,100) JY,JM,JD,(X(IH),IH=1,24)
C      write(*,*)jy,jm,jd,iy,im,id
      IF ((IY.NE.JY).OR.((IM.NE.JM).OR.(ID.NE.JD)))
     $  WRITE(*,*) 'Error In Reading Data In Order'
      IF(((((IM.EQ.IMB).AND.(ID.GE.IDB)).OR.
     $      ((IM.EQ.IME).AND.(ID.LT.IDE))).OR.
     $      ((IM.GT.IMB).AND.(IM.LT.IME))).AND.
     $     (IY.NE.IYS)) THEN
      DO 1 IH=1,24
      IF (X(IH).LT.0.0) X(IH)=XM(IM)/24.0
      N=N+1
    1 Y(N)=X(IH)*25.4
      ENDIF
      IF (IMB .EQ. 12) THEN
         IF (IY .EQ. IYB) GOTO 2
         IF((IM.EQ.IME).AND.(ID.EQ.IDE))  THEN
            I=IY-1
            CALL STATCONTROLLER (I,Y,N,INH)
            NN=NN+1
            N=0
         ENDIF
         GOTO 2
      ENDIF
      IF (((IM.EQ.IME).AND.(ID.EQ.IDE)).AND.(IY.NE.IYS)) THEN
      CALL STATCONTROLLER (IY,Y,N,INH)
      NN=NN+1
      N=0
      ENDIF
    2 CONTINUE
   22 CONTINUE
      WRITE(12,101) NN
       DO 104 I=1,10
         S(I,1)=S(I,1)/FLOAT(NN)
         S(I,2)=S(I,2)/FLOAT(NN)
         DO 105 J=1,3
            ACOV(I,J)=0

         DO 106 II=1,NCOUNT(I)-J
            ACOV(I,J)=ACOV(I,J)+(SUM(II,I)-S(I,1))*(SUM(II+J,I)-S(I,1))
 106        CONTINUE
            ACOV(I,J)=ACOV(I,J)/(NCOUNT(I))
            ACOV(I,J)=ACOV(I,J)/S(I,2)
 105        CONTINUE
 104        CONTINUE
      DO 3 I=1,10
    3 WRITE(12,102) NINT(S(I,9)),(S(I,J),J=1,2),
     $(ACOV(I,J),J=1,3),(S(I,J)/FLOAT(NN),J=6,8)
  100 FORMAT(1X,I4,2I3,24F5.2)
  101 FORMAT (1H1,/////10X,'MEAN STATISTICS FOR ',I3,1X,'YEARS',
     $        ////12X,'HOUR',2X,'MEAN',2X,'VARIANCE',2X,
     $        'CORR(1)',2X,'CORR(2)',2X,'CORR(3)',2X,'(=0.0)',
```

```
     $        1X,'(<0.5)',1X'(<1.0)',
     $        /10X,5('-'),5(1X,7('-'),1X),1X,3(6('-'),1X))
 102 FORMAT(7X,I8,F8.4,F10.4,3(F8.4,1X),2(1X,F6.4),1X,F5.3)
      WRITE(1,170)STATION,XLAT,XLONG,IMB,S(1,1),S(1,2),ACOV(1,1),
     $S(1,6)/FLOAT(NN),
     $S(4,2),ACOV(4,1),S(4,6)/FLOAT(NN),S(7,2),ACOV(7,1),
     $S(7,6)/FLOAT(NN)
170  FORMAT(I4,F8.3,F9.3,I3,7F7.3,F9.3,2F7.3)

      END

      SUBROUTINE STATCONTROLLER(IY,X,N,INH)
      REAL X(N),Y(5000),S(10,9)
      INTEGER IY
      COMMON /B/ S
      WRITE(*,*) 'PROCESSING YEAR --->',IY
      CALL STATCOMPUTE (X,Y,N)
      RETURN
      END

      INTEGER FUNCTION LEAP(IY,IM)
      INTEGER IY,IM,NMV
      DIMENSION NMV(12)
      DATA NMV /31,28,31,30,31,30,31,31,30,31,30,31/
      IF (((FLOAT(IY)/4.0).EQ.(FLOAT(IY/4))).AND.(IM.EQ.2)) THEN
      LEAP=NMV(IM)+1
      ELSE
      LEAP=NMV(IM)
      ENDIF
      RETURN
      END

      SUBROUTINE STATCOMPUTE(X,Y,N)
      REAL X(N),Y(N),S(10,9),AC(3),ZP(3),SUM(30000,10)
      INTEGER NCOUNT(10)

      COMMON /A/ AM,VAR,AC,ZP
      COMMON /B/ S
      common /count/ ncount,sum


      IIH=1
      IH=N/IIH
      CALL ZEROARRAY(Y,N)
      CALL REARRAY(X,Y,N,IIH,IH,K)
      CALL AUTOCOV(Y,K,1,SUM,NCOUNT)
      CALL SUMSTAT (AM,VAR,AC,ZP,S,1)
      S(1,9)=1.0
      IIH=2
      IH=N/IIH
      CALL ZEROARRAY(Y,N)
```

```
CALL REARRAY(X,Y,N,IIH,IH,K)
CALL AUTOCOV(Y,K,2,SUM,NCOUNT)
CALL SUMSTAT (AM,VAR,AC,ZP,S,2)
S(2,9)=2.0
IIH=4
IH=N/IIH
CALL ZEROARRAY(Y,N)
CALL REARRAY(X,Y,N,IIH,IH,K)
CALL AUTOCOV(Y,K,3,SUM,NCOUNT)
CALL SUMSTAT (AM,VAR,AC,ZP,S,3)
S(3,9)=4.0
IIH=6
IH=N/IIH
CALL ZEROARRAY(Y,N)
CALL REARRAY(X,Y,N,IIH,IH,K)
CALL AUTOCOV(Y,K,4,SUM,NCOUNT)
CALL SUMSTAT (AM,VAR,AC,ZP,S,4)
S(4,9)=6.0
IIH=12
IH=N/IIH
CALL ZEROARRAY(Y,N)
CALL REARRAY(X,Y,N,IIH,IH,K)
CALL AUTOCOV(Y,K,5,SUM,NCOUNT)
CALL SUMSTAT (AM,VAR,AC,ZP,S,5)
S(5,9)=12.0
IIH=16
IH=N/IIH
CALL ZEROARRAY(Y,N)
CALL REARRAY(X,Y,N,IIH,IH,K)
CALL AUTOCOV(Y,K,6,SUM,NCOUNT)
CALL SUMSTAT (AM,VAR,AC,ZP,S,6)
S(6,9)=16.0
IIH=24
IH=N/IIH
CALL ZEROARRAY(Y,N)
CALL REARRAY(X,Y,N,IIH,IH,K)
CALL AUTOCOV(Y,K,7,SUM,NCOUNT)
CALL SUMSTAT (AM,VAR,AC,ZP,S,7)
S(7,9)=24.0
IIH=48
IH=N/IIH
CALL ZEROARRAY(Y,N)
CALL REARRAY(X,Y,N,IIH,IH,K)
CALL AUTOCOV(Y,K,8,SUM,NCOUNT)
CALL WEIBULLPLOT (Y,IH)
CALL SUMSTAT (AM,VAR,AC,ZP,S,8)
S(8,9)=48.0
IIH=96
IH=N/IIH
CALL ZEROARRAY(Y,N)
CALL REARRAY(X,Y,N,IIH,IH,K)
```

```
      CALL AUTOCOV(Y,K,9,SUM,NCOUNT)
      CALL SUMSTAT (AM,VAR,AC,ZP,S,9)
      S(9,9)=96.0
      IIH=192
      IH=N/IIH
      CALL ZEROARRAY(Y,N)
      CALL REARRAY(X,Y,N,IIH,IH,K)
      CALL AUTOCOV(Y,K,10,SUM,NCOUNT)
      CALL SUMSTAT (AM,VAR,AC,ZP,S,10)
      S(10,9)=192.0
      END

      SUBROUTINE REARRAY(X,Y,N,IIH,IH,K,MM)
      DIMENSION X(N),Y(IH),ACV(3),AC(3),
     $          ZP(3)
      COMMON /A/ AM,VAR,AC,ZP
      K=0
      CALL ZEROARRAY(Y,IH)
      DO 11 I=0,N-1,IIH
      K=K+1
      DO 10 J=1,IIH
      Y(K)=Y(K)+X(I+J)

   10 CONTINUE
   11 CONTINUE
      J=0
      DO 12 ZDE=0.0,1.0,0.5
      CALL PROB(Y,K,ZDE,PR)
      J=J+1
      ZP(J)=PR
   12 CONTINUE
      CALL STATISTICS(Y,K,AM,VAR,AC,ACV)
      RETURN
      END

      SUBROUTINE STATISTICS(X,N,AM,VAR,AC,ACV)
      REAL X(N),AM,VAR,AC(3),ACV(3)
      AM=0
      VAR=0
      DO 200 I=1,N
         AM=AM+X(I)
200      CONTINUE
         AM=AM/N
      DO 201 I=1,N
         VAR=VAR+(X(I)-AM)**2
201      CONTINUE
         VAR=VAR/N
      DO 203 J=1,3
         ACV(J)=0
      DO 202 I=1,N-J
         ACV(J)=ACV(J)+(X(I)-AM)*(X(I+J)-AM)
```

```
202     CONTINUE
        ACV(J)=ACV(J)/(N)
        IF (VAR .EQ. 0) THEN
           AC(J)=1
           GOTO 203
        ENDIF
        AC(J)=ACV(J)/VAR
203     CONTINUE
        RETURN
        END


      SUBROUTINE ZEROARRAY(X,N)
      DIMENSION X(N)
      DO 14 I=1,N
      X(I)=0.0
   14 CONTINUE
      RETURN
      END

      SUBROUTINE PROB(X,N,ZDE,PR)
      REAL X(N),ZDE,PR
      INTEGER I,C
      C=0
      DO 15 I=1,N
      IF (X(I).LE.ZDE) C=C+1
   15 CONTINUE
      PR=FLOAT(C)/FLOAT(N)
      RETURN
      END

      SUBROUTINE SUMSTAT (AM,VAR,AC,ZP,S,II)
      REAL AM,VAR,AC(3),ZP(3),S(10,9)
      INTEGER II,I
      S(II,1)=S(II,1)+AM
      S(II,2)=S(II,2)+VAR
      DO 1 I=1,3
      S(II,2+I)=S(II,2+I)+AC(I)
    1 S(II,5+I)=S(II,5+I)+ZP(I)

      RETURN
      END

      SUBROUTINE WEIBULLPLOT (X,N)
      REAL X(N),XM,Z
      INTEGER I
      XM=-1.0
      DO 2 I=1,N
      Z=X(I)
      XM=AMAX1(Z,XM)
    2 CONTINUE
```

```
      RETURN
      END

      SUBROUTINE AUTOCOV(Y,K,KK,SUM,NCOUNT)
      REAL Y(K),SUM(30000,10)
      INTEGER NCOUNT(10),KK,k
      DO 220 I=1,K
      NCOUNT(KK)=NCOUNT(KK)+1
      SUM(NCOUNT(KK),KK)=Y(I)
220   CONTINUE
      RETURN
      END
```

```
C     *******************************************************
C     *              PROGRAM - POISSON.F                     *
C     *******************************************************


C     *******************************************************
C     *                                                     *
C     *         PROGRAM TO EVALUATE EAGLESON'S RPM          *
C     *******************************************************
C     *                  JUNE 17, 1991                      *
C     *******************************************************
C
C     .......................................................
C     .       FILE NAME THAT MUST BE CHANGED AND UPDATED    .
C     .          FOR EACH STATION                           .
C     .                                                     .
C     .       1.  "station name".dat                        .
C     .            -  time series format of the data        .
C     .                                                     .
C     .       FILES THAT ARE CREATED                        .
C     .                                                     .
C     .       1.  stat.dat                                  .
C     .           - table of all the parameters in the      .
C     .             rectangular pulse model                 .
C     .       2.  variance.dat                              .
C     .           - table of variances                      .
C     .......................................................
C     .                                                     .
C     .    NEED TO FIND TB MINIMUM FOR EACH MONTH           .
C     .                                                     .
C     .      1.  Initial each hour of rain by year, month   .
C     .          and id number (3-D array)                  .
C     .      2.  Inputs                                     .
C     .          IYB - Year to begin the analysis           .
C     .          IYE - Year to end the analysis             .
C     .          IYM - Year the data starts in              .
C     .          IMY - Month the data starts in             .
C     .......................................................


      REAL XM(12),X(24),Y(1948:1989,12,3000),STOP(12),S(2,12,240),
     $   T(12),STM(3000),YINT(3000),DEPTH,XINT,CV(12,240),
     $   XNDSS,XITB,XISD,XNMM,VNDSS,VDEPTH,VINT,VRHO,VCOV,
     $   VRHOO,KAPPA,LAMDA,VRHOHTR,VRHOOHTR
      INTEGER IYB,IYE,IY,IM,ID,IH,IMY,JY,JM,JD,NN,ME,
     $         IZ(1948:1989,12,2),MB,IB,IN(12,240),IH(12,240),NM,
     $         NDS(3000),ITA(3000),IBT(4000),NMM,NDSS,ISD,ITB
     $        ,IMZ(1948:1989,12,2),LTB,NN,IC,NN1,NN2,ND

      OPEN(UNIT=1,FILE='lewiston.dat',STATUS='OLD')
      OPEN(UNIT=12,FILE='stat.dat',STATUS='NEW')
```

```
      OPEN(UNIT=16,FILE='variance.dat',STATUS='NEW')

C     **********************************************
C     * DATA SET OF MONTHLY MEANS FOR THE STATION *
C     **********************************************
      DATA XM
     %/1.03,0.82,0.87,0.89,1.1,1.1,0.54,0.68,0.7,0.8,0.98,0.98/
C     MMM - THE DAY OF THE MONTH DATA STARTED ON
      DATA IYB,IYE,IMY,IYM,MMM /1954,1988,1,1954,1/
      WRITE(12,*)'      LEWISTON, IDAHO DATA'
      WRITE(16,*)'      LEWISTON, IDAHO DATA'
      WRITE(16,*)
      WRITE(12,*)

      IF (IMY .NE.1) THEN
         DO 300 I=IMY,12
            DO 300 J=MMM,LEAP(IYM,I)
               READ(1,100)JY,JM,JD,(X(IH),IH=1,24)
               MMM=1
 300     CONTINUE
         IYM=IYM+1
      ENDIF

      IYS=IYB-IYM
         DO 400 I=1,IYS
            DO 400 IM=1,12
               DO 400 ID =1,LEAP(IYM+I-1,IM)
                  READ(1,100)JY,JM,JD,(X(IH),IH=1,24)
 400           CONTINUE

 100           FORMAT(1X,I4,2I3,24F5.2)

               DO 2 IY=IYB,IYE
                  DO 2 IM=1,12
                     N=0
                     DO 2 ID=1,LEAP(IY,IM)
                        READ(1,100)JY,JM,JD,(X(IH), IH=1,24)
                        IF ((IY.NE.JY).OR.((IM.NE.JM).OR.(ID.NE.JD)))
     $                     WRITE(*,*)'Error in Reading Data in
     $                     Order',iy,im,idm
                        DO 1 IH=1,24
                           IF(X(IH).LT.0.0)THEN
                              N=N+1
                              Y(IY,IM,N)=(XM(IM)/24.0)*25.4
                              GOTO 1
                           ENDIF
                           IF (X(IH) .GT.0.0)THEN
                              N=N+1
                              Y(IY,IM,N)=X(IH)*25.4
                              GOTO 1
```

```
                      ENDIF
                      N=N+1
                      Y(IY,IM,N)=0.0
 1                  CONTINUE
 2                CONTINUE


C     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
C     %                                                       %
C     %    USE THE LAST STORM IN PREVIOUS MONTH AND           %
C     %    FIRST STORM IN FOLLOWING MONTH TO HELP CALCULATE   %
C     %    TBO MINIMUM FOR MONTH BEING PROCESSED              %
C     %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


      DO 3 IM=1,12
      DO 3 IY=IYB,IYE
         NN=LEAP(IY,IM)*24
         IF((IYB.EQ.IY).AND.(IM.EQ.1))THEN
            DO 4 J=1,NN
               IF(Y(IY,IM+1,J).GT.0.0) GOTO 5

 4          CONTINUE
 5          ME=J
            IZ(IY,IM,2)=ME
            IZ(IY,IM,1)=0
         ENDIF

         IF((IYE.EQ.IY).AND. (IM.EQ.12)) THEN
            DO 6 J=NN,1,-1
               IF(Y(IY,IM-1,J).GT.0.) GOTO 7

 6          CONTINUE
 7          MB=NN-J
            IZ(IY,IM,1)=MB

            IZ(IY,IM,2)=0
         ENDIF

         IF((IM.EQ.1).AND.(IYB.NE.IY)) THEN
            DO 8 J=NN,1,-1
               IF(Y(IY-1,12,J).GT.0.) GOTO 9

 8          CONTINUE
 9          MB=NN-J
            IZ(IY,IM,1)=MB
            DO 10 JJ=1,NN
               IF(Y(IY,IM+1,JJ).GT. 0.0) GOTO 11

 10         CONTINUE
 11         ME=JJ
```

```
               IZ(IY,IM,2)=ME
            ENDIF

            IF((IM.EQ.12).AND.(IY.NE.IYE)) THEN
               DO 12 J=NN,1,-1
                  IF (Y(IY,IM-1,J).GT.0.0) GOTO 13

 12            CONTINUE
 13            MB=NN-J
               IZ(IY,IM,1)=MB
               DO 14 JJ=1,NN
                  IF(Y(IY+1,1,JJ) .GT. 0.0) GOTO 15

 14            CONTINUE
 15            ME=JJ
               IZ(IY,IM,2)=ME
            ENDIF

            IF ((IM.NE.1).AND.(IM.NE.12)) THEN
               DO 16 J=NN,1,-1
                  IF(Y(IY,IM-1,J) .GT. 0.0) GOTO 17

 16            CONTINUE
 17            MB=NN-J
               IZ(IY,IM,1)=MB
               DO 18 JJ=1,NN
                  IF(Y(IY,IM+1,JJ).GT.0.0) GOTO 19

 18            CONTINUE
 19            ME=JJ
               IZ(IY,IM,2)=ME
            ENDIF
 3       CONTINUE

C        ##########################################################
C        #                                                        #
C        #    METHODOLOGY FOR CALCULATING TB MINIMUM              #
C        #    'IDENTIFICATION OF INDEPENDENT RAINSTORMS'          #
C        #     BY RESTREPO-POSADA AND P.S. EAGLESON                #
C        ##########################################################

C        @@@@@@@@@@@@@@@
C        @    CV(0)    @
C        @@@@@@@@@@@@@@@

         DO 20 IM=1,12
            S(1,IM,0)=0.
            S(2,IM,0)=0.
            IB=0
            IN(IM,0)=0
            DO 20 IY=IYB,IYE
```

```
          NN=LEAP(IY,IM)*24
          IB=IZ(IY,IM,1)
          DO 23 J=1,NN
             IF(Y(IY,IM,J) .EQ. 0.) THEN
                IB=IB+1
                GOTO 23
             ENDIF
             IF  ((Y(IY,IM,J).GT.0.0).AND.(Y(IY,IM,J-1).GT.0))
     $             GOTO 23

             IN(IM,0)=IN(IM,0)+1
             S(2,IM,0)=S(2,IM,0)+FLOAT(IB**2)
             S(1,IM,0)=S(1,IM,0)+FLOAT(IB)
             IB=0
 23       CONTINUE
 20    CONTINUE




       DO 25 IM=1,12
          S(2,IM,0)=S(2,IM,0)/FLOAT(IN(IM,0))
          S(1,IM,0)=S(1,IM,0)/FLOAT(IN(IM,0))
          STOP(IM)=0.
          CV(IM,0)=(((S(2,IM,0)-S(1,IM,0)**2)*(FLOAT(IN(IM,0))/
     $           (FLOAT(IN(IM,0)-1))))**.5)/S(1,IM,0)
 25    CONTINUE

C     @@@@@@@@@@@@@@    ******************
C     @   CV(K)    @    * AND IF CV(K)=1  *
C     @@@@@@@@@@@@@@    ******************

       NM=0
       DO 30 K=1,238
          WRITE(*,*)'PROCESSING CV(',K,')'
          DO 29 IM=1,12
             IN(IM,K)=0
             IH(IM,K)=0
             IF (STOP(IM).EQ.5.0) GOTO 29
             IF (K .EQ. 240) THEN
                T(IM)=240.
                STOP(IM)=5.0
             GOTO 29
             ENDIF
             DO 26 IY=IYB,IYE
                N=LEAP(IY,IM)*24
                IB=IZ(IY,IM,1)
                I=1
                IF(IB.EQ.K) THEN
                   IF(Y(IY,IM,1).GT.0.0)THEN
```

```
                  IB=0
                  IH(IM,K)=IH(IM,K)+1
                  J=1
                  GOTO 28
               ENDIF
            ENDIF
            DO 28 J=1,N
               IF(Y(IY,IM,J).EQ.0.0) THEN
                  IB=IB+1
                  GOTO 28
               ENDIF
               IF(IB.EQ.K) THEN
                  IH(IM,K)=IH(IM,K)+1
                  IB=0
                  GOTO 28
               ENDIF
               IF((Y(IY,IM,J).GT.0.0).AND.(Y(IY,IM,J-1).GT.0.))
    $                THEN
                  GOTO 28
               ENDIF
               IB=0
28          CONTINUE
            IB=IB+IZ(IY,IM,2)
            IF (IB.EQ. K) THEN
               IH(IM,K)=IH(IM,K)+1
               GOTO 26
            ENDIF
26       CONTINUE
         IN(IM,K)=IN(IM,K-1)-IH(IM,K)
         S(2,IM,K)=1./FLOAT(IN(IM,K))*(FLOAT(IN(IM,K-1))
    $        *S(2,IM,K-1)-
    $        FLOAT(IH(IM,K))*FLOAT(K**2))
         S(1,IM,K)=1./FLOAT(IN(IM,K))*(FLOAT(IN(IM,K-1))
    $        *S(1,IM,K-1)-
    $        FLOAT(IH(IM,K)*K))
         CV(IM,K)=(((S(2,IM,K)-(S(1,IM,K))**2)*(FLOAT(IN(IM,K))/
    $         (FLOAT(IN(IM,K))-1.0)))**.5)/S(1,IM,K)
         IF(STOP(IM).NE.5.0) THEN

            IF((CV(IM,K-1).GT.1.0).AND.(CV(IM,K).LT.1.)) THEN
               T(IM)=FLOAT((K-1))+((CV(IM,K-1)-1.)/(CV(IM,K-1)
    $               -CV(IM,K)))
               STOP(IM)=5.0
               NM=NM+1
            ENDIF
         ENDIF
         IF(NM .EQ. 12) GOTO 40
29    CONTINUE
30 CONTINUE

40 DO 41 IMM=1,12
```

```
 41      CONTINUE



C     ##########################################################
C     #                                                        #
C     #   GO THROUGH EACH YEAR AND FIND THE PARAMETERS         #
C     #      OF A STORM                                        #
C     #                                                        #
C     #      STM(I)   = DEPTH OF A STORM                       #
C     #      NDS(I)   = DURATION OF A STORM                    #
C     #      YINT(I)  = INTENSITY OF A STORM                   #
C     #      ITA(I)   = INTERSTORM DURATION                    #
C     #      IB(I)    = TIME BETWEEN STORMS                    #
C     #      NMM      = NUMBER OF STORMS                       #
C     #      KAPPA    = GAMMA PARAMETER FOR DEPTH              #
C     #      LAMDA    = GAMMA PARAMETER FOR DEPTH              #
C     #      NDSS     = SUM OF THE DURATION OF STORMS          #
C     #      DEPTH    = SUM OF THE DEPTHS                      #
C     #      XINT     = SUM OF THE INTENSITIES                 #
C     #      ISD      = SUM OF THE INTERSTORM DURATIONS        #
C     #      ITB      = SUM OF THE TIME BETWEEN STORMS         #
C     #                                                        #
C     ##########################################################


C     **********************************************************
C     *   1.  GO THROUGH MONTHS AND FIND THE STORMS            *
C     *       THAT OVERLAP MONTHS                              *
C     *       PUT THESE STORMS IN THE MONTH THAT WAS FIRST     *
C     *       AND DELETE THAT TIME FROM THE FOLLOWING MONTH    *
C     *                                                        *
C     *      EXAMPLE:  STORM THAT STRADDLES FEBRUARY AND       *
C     *                MARCH PUT INTO FEBRUARY'S DATA SET      *
C     *                AND DELETE THAT TIME FROM MARCH'S       *
C     *                DATA SET                                *
C     **********************************************************

      DO 44 IM=1,12
         DO 44 IY=IYB,IYE
            IMZ(IY,IM,1)=0
            IMZ(IY,IM,2)=0
 44   CONTINUE

         DO 45 IM=1,12
         LTB=INT(T(IM))+1
         DO 45 IY=IYB,IYE
            NN=LEAP(IY,IM)*24
            IF (IZ(IY,IM,2).LE.LTB) THEN
               IC=LTB-IZ(IY,IM,2)
```

```
               IC=NN-IC
               ND=0
               DO 46 J=NN,IC,-1
                  IF (Y(IY,IM,J).EQ.0.0) GOTO 46
                  J=IC
                  IF (IM .EQ. 12) THEN
                     IM=0
                     IY=IY+1
                  ENDIF
                  DO 47 KK=1,LTB
                     IF (Y(IY,IM+1,IZ(IY,IM,2)+ND).GT.0.0) THEN
                        KK=1
                     ENDIF
                     ND=ND+1
 47               CONTINUE
                  IF (IM .EQ. 0) THEN
                     IM=12
                     IY=IY-1
                  ENDIF
                  NDSS=ND-LTB
                  DO 48 I=1,NDSS
                     IF (IM.EQ.12) THEN
                        Y(IY,12,NN+I)=Y(IY+1,1,I)
                        IMZ(IY+1,1,1)=NDSS
                        IMZ(IY,12,2)=NDSS
                        GOTO 48
                     ENDIF
                     Y(IY,IM,NN+I)=Y(IY,IM+1,I)
                     IMZ(IY,IM+1,1)=NDSS
                     IMZ(IY,IM,2)=NDSS
 48               CONTINUE
 46            CONTINUE
            ENDIF
 45         CONTINUE
C     ****************************************************
C     *   2.  GO THROUGH DATA AND FIND THE PARAMETERS     *
C     ****************************************************


        SUMNMM=0.
        SUMNDSS=0.
        SUMDEPTH=0.
        SUMDEPTH1=0.
        SUMINT=0.
        SUMITB=0.
        WRITE(12,690)
 690    FORMAT(25X,'MONTHLY',2X,'STORM')
        WRITE(12,700)
 700    FORMAT(9X,'MONTH',3X,'V',4X,'TR',2X,'DEPTH',3X,'DEPTH',4X,
     $  'I',5X,'TB',4X,
```

```
     $     'RHO',3X,'TBO',3X,'KAPPA',2X,'LAMBDA',/14X,'STM/MON',1X,
     $     'HR',4X,'MM',6X,'MM',3X,'MM/HR',3X,'HR',10X,'HR',12X,'1/MM')


702       FORMAT(10X,I2,3X,F4.0,2X,F3.0,2X,F5.1,3X,F5.2,2X,F5.3,1X,F5.0,
     $    2X,F4.2,1X,F5.1,3X,F6.4,2X,F6.4)
703       FORMAT(10X,I2,3X,F4.0,2X,F4.0,1X,F6.1,2X,F5.2,2X,F5.3,1X,F4.0)
          WRITE(16,730)
730       FORMAT('VARIANCES OF INTERSTORM DURATION, STORM DEPTH',
     $    /5x,'STORM INTENSITY AND STORM DURATION',
     $    //////2X,'MONTH',5X,'TB',9X,'DEPTH',10X,'INTENSITY'
     $     ,5X,'DURATION')
731       FORMAT(4X,I2,2X,F11.2,3X,F9.2,5X,F9.2,7X,F9.2)

          DO 49 IM=1,12
          WRITE(*,*)'PROCESSING MONTH', IM
          NM=1
          IBT(NM)=0
          N=0
          NDSS=0
          ISD=0
          ITB=0
          XINT=0.0
          NMM=0
          DEPTH=0.0
          LTB=INT(T(IM))+1
          DO 50 IY=IYB,IYE
             NN2=0
             NN=LEAP(IY,IM)*24
             NN1=IMZ(IY,IM,1)
             IF (NN1.EQ.0)NN1=1
             NN2=NN+IMZ(IY,IM,2)
             DO 50 J=NN1,NN2
                IF (Y(IY,IM,J).EQ.0.0) THEN
                   IBT(NM)=IBT(NM)+1
                   GOTO 50
                ENDIF
                N=N+1
                STM(N)=0.0
                ND=0
                DO 51 KK=1,LTB
                   IF (Y(IY,IM,J+ND).GT.0.) THEN
                      KK=1
                      STM(N)=STM(N)+Y(IY,IM,J+ND)
                   ENDIF
                   ND=ND+1
51              CONTINUE
                NDS(N)=ND-LTB+1
                NMM=NMM+1
                NDSS=NDS(N)+NDSS
                DEPTH=DEPTH+STM(N)
```

```
            YINT(N)=STM(N)/FLOAT(NDS(N))
            XINT=XINT+YINT(N)
            ITA(N)=IBT(NM)+NDS(N)
            ISD=ISD+ITA(N)
            ITB=ITB+IBT(NM)
            NM=NM+1
            IBT(NM)=0
            J=J+NDS(N)


50    CONTINUE
      IF (NMM .NE. 0) THEN
         XNDSS=FLOAT(NDSS/NMM)
         DEPTH1=DEPTH/FLOAT(NMM)
         DEPTH=DEPTH/(FLOAT(IYE-IYB)+1.)
         XINT=XINT/FLOAT(NMM)
      ENDIF
      XITB=FLOAT(ITB/NM)
      XISD=FLOAT(ISD/NM)
      XNMM=FLOAT(NMM/(IYE-IYB))
      VNDSS=0.
      VDEPTH=0.
      VINT=0.
      VCOV=0.
      VRHO=0.
      VITB=0.
      VRHOHTR=0.
      DO 55 I=1,N
         VNDSS=VNDSS+(FLOAT(NDS(I))-XNDSS)**2
         VITB=VITB+(FLOAT(IBT(I))-XITB)**2
         VDEPTH=VDEPTH+(STM(I)-DEPTH1)**2
         VINT=VINT+(YINT(I)-XINT)**2
         VCOV=VCOV+STM(I)-YINT(I)*NDS(I)
         VRHO=VRHO+(YINT(I)-XINT)*(FLOAT(NDS(I))-XNDSS)
         VRHOHTR=VRHOHTR+(STM(I)-DEPTH1)*(FLOAT(NDS(I))-XNDSS)
55    CONTINUE
      VNDSS=VNDSS/FLOAT(N)
      VITB=VITB/FLOAT(N)
      VDEPTH=VDEPTH/FLOAT(N)
      VINT=VINT/FLOAT(N)
      VCOV=VCOV/FLOAT(N)
      VRHO=VRHO/FLOAT(N)
      VRHOHTR=VRHOHTR/FLOAT(N)
      IF ((VNDSS.EQ.0.0).OR.(VINT.EQ. 0.))THEN
         VRHOO=0.0
         GOTO 802
      ENDIF
      IF ((VNDSS.EQ.0.0).OR.(VDEPTH.EQ.0.))THEN
         VRHOOHTR=0.0
      ELSE
```

```
         VRHOOHTR=VRHOHTR/((VNDSS**.5)*(VDEPTH**.5))
      ENDIF

      VRHOO=VRHO/((VNDSS**.5)*(VINT**.5))

802   LAMDA=DEPTH1/VDEPTH
      KAPPA=DEPTH1*LAMDA

      WRITE(16,731)IM,VITB,VDEPTH,VINT,VNDSS

      SUMNMM=SUMNMM+XNMM
      SUMNDSS=SUMNDSS+XNDSS
      SUMDEPTH=SUMDEPTH+DEPTH
      SUMDEPTH1=SUMDEPTH1+DEPTH1
      SUMINT=SUMINT+XINT
      SUMITB=SUMITB+XITB
      WRITE(12,702)IM,XNMM,XNDSS,DEPTH,DEPTH1,XINT,XITB,VRHOO,
     $            T(IM),KAPPA,LAMDA
49   CONTINUE
      SUMNDSS=SUMNDSS/12.
      SUMDEPTH1=SUMDEPTH1/12.
      SUMINT=SUMINT/12.
      SUMITB=SUMITB/12.
      WRITE(12,*)'-------------------------------------------------------
     $-----------------'
     WRITE(12,703)13,SUMNMM,SUMNDSS,SUMDEPTH,SUMDEPTH1,SUMINT,SUMITB

      END



      INTEGER FUNCTION LEAP(IY,IM)
      INTEGER IY,IM,NMV
      DIMENSION NMV(12)
      DATA NMV/31,28,31,30,31,30,31,31,30,31,30,31/
      IF(((FLOAT(IY)/4.0).EQ.(FLOAT(IY/4))).AND.(IM.EQ.2))THEN
      LEAP=NMV(IM)+1
      ELSE
      LEAP=NMV(IM)
      ENDIF
      RETURN
      END
```

```
C      ***************************************************
C      *          PROGRAM - ZMIN.F                        *
C      ***************************************************
C      .  Written by Dara Entekhabi - 1987                .
C      .  Updated by Kelly Hawk     - 1991                .
C      ...................................................


C     DAVIDON-FLETCHER-POWELL UNCONSTRAINED NONLINEAR
C     NONLINEAR MINIMIZATION PROGRAM OF THE SUM (RATIO-1) **2
C     APPEND APPROPRIATE FCN%.FOR SUBROUTINE


C      ......................................................
C      ALPHA VARIABLE : CASE WITH 6 UNKNOWNS
       EXTERNAL FUNCT
       CHARACTER*5 MONTH
       INTEGER N,NSIG,MAXFN,IOPT,STATION
       REAL X(6),HH(21),G(6),W(18),FF(6),
     $       H,S,LAMDA,NU,ALPHA,EX,PHI,KAPPA,GAMMA,
     $       LAMDAO,NUO,ALPHAO,EXO,PHIO,KAPPAO,XLAT,XLONG
C      ...................................................


C      ...............................................
C      .                                             .
C      .   FILES IN THE MINIMIZATION PROGRAM         .
C      .                                             .
C      .       FILES THAT MUST BE UPDATED            .
C      .        FOR EVERY STATION                    .
C      .                                             .
C      .    1.  INITIAL.IN                           .
C      .          - inputs the initial guesses of    .
C      .            the six parameters               .
C      .    2.  CONSTRAINT.IN                        .
C      .          - inputs the 6 statistic used in   .
C      .            the model                        .
C      .                                             .
C      .       FILES THAT WILL BE CREATED            .
C      .        IN THIS PROGRAM                      .
C      .                                             .
C      .    1.  TABLE.OUT                            .
C      .          - outputs the best fit parameters  .
C      ...............................................


       OPEN(UNIT=1,FILE='TABLE.OUT',STATUS='UNKNOWN')
       OPEN(UNIT=3,FILE='INITIAL.IN',STATUS='OLD')
       OPEN(UNIT=4,FILE='CONSTRAINT.IN',STATUS='OLD')

       DATA STATION,XLAT,XLONG,MON/75,33.933,-118.4,12/
```

```
      WRITE(1,*) ' PHOENIX, ARIZONA - JUNE'

      N=6
       NSIG=3
      MAXFN=10000
      IOPT=0
      READ(3,*) (X(I),I=1,6)
      LAMDAO=X(1)
      NUO=X(2)
      ALPHAO=X(3)
      EXO=X(4)
      PHIO=X(5)
      KAPPAO=X(6)
      CALL ZXMIN(FUNCT,N,NSIG,MAXFN,IOPT,X,HH,G,F,W,IER)
      IF (IER.NE.0) WRITE(1,*) 'ERROR=', IER
      LAMDA=X(1)
      NU=X(2)
      ALPHA=X(3)
      EX=X(4)
      PHI=X(5)
      KAPPA=X(6)
      EC=1.0+(KAPPA/PHI)
      ETA=ALPHA/NU
      BETA=ETA*KAPPA
      GAMMA=ETA*PHI
      UT=(1/GAMMA)*(1+PHI*(KAPPA+PHI)-1./4.*PHI*(KAPPA+PHI)*(KAPPA+
     $   4.*PHI)+1./72.*PHI*(KAPPA+PHI)*(4.*KAPPA**2+27.*KAPPA*PHI+
     $   72.*PHI**2))
      WRITE(1,100) F,LAMDA,LAMDAO,NU,NUO,ALPHA,ALPHAO,EX,EXO,PHI,
     $   PHIO,KAPPA,KAPPAO,EC,ETA,BETA,GAMMA,UT
  100 FORMAT(//7X,'PARAMETER ESTIMATION  OF THE',
     $        /7X,'MODIFIED BARTLET-LEWIS MODEL',
     $        /7X,28('-'),////7X,'FUNCTIONS USED ARE :',
     $       /29X,'MEAN AT LEVELS _______ HOURS',
     $       /29X,'VARIANCE AT LEVELS _______ HOURS',
     $       /29X,'LAG-1 COVARICANCE AT LEVELS _______ HOURS',
     $       /29X,'ZERO-DEPTH PROBABILITY ______ HOURS',
     $       //7X,'MINIMIZED FUNCTION VALUED AT ',E14.4,
     $       //////24X,'INITIAL GUESSES',
     $      /7X,' LAMDA=',F7.5,6X,F7.5,2X,'1/HOURS',/7X,
     $          ' NU=',F10.4,3X,F10.4,/7X,' ALPHA=',
     $       F7.4,6X,F7.4,/7X,' E(X)=',F8.4,5X,F8.4,2X,'MM/HOUR',
     $        /7X,' PHI=',F9.4,4X,F9.4,/7X,' KAPPA=',F7.4,6X,F7.4,
     $      ////7X,'DERIVED PARAMETERS:',/9X,'E[C]=',F9.4,
     $      /9X,'E[ETA]=',F9.4,2X,'1/HOUR',/9X,'BETA=',F9.4,
     $       2X,'1/HOUR',/9X,'GAMMA=',F9.4,2X,'1/HOUR',
     $      /9X,'E[UT]=',F9.4,2X,'HOURS',
     $       ////7X,'LEVEL',5X,'MEAN',6X,'VARIANCE',2X,
     $       'CORR(1)',3X,'CORR(2)',3X,'CORR(3)',3X,'PROB(0)',
     $       /7X,7(6('-'),4X))
       H=1.0
```

```
  1 S=1.0
    FF(1)=YMEAN(H,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
    FF(2)=VARIANCE(H,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
    FF(3)=CORRELATION(H,S,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
    S=2.0
    FF(4)=CORRELATION(H,S,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
    S=3.0
    FF(5)=CORRELATION(H,S,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
    FF(6)=PROBABILITY(H,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
    WRITE(1,101) H,(FF(I),I=1,6)
101 FORMAT(6X,F6.0,4X,6(F8.4,2X))
    IF (H.LE.2.0) THEN
    H=6.0
    GOTO 1
    ENDIF
    IF (H.LE.7.0) THEN
    H=12.0
    GOTO 1
    ENDIF
    IF (H.LE.13.0) THEN
    H=24.0
    GOTO 1
    ENDIF
    IF (H.LE.25.0) THEN
    H=48.0
    GOTO 1
    ENDIF
    END

    SUBROUTINE FUNCT (N,X,SSQ)
    REAL XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,SSQ,DAT,H,S,X(N)
    CHARACTER*4 FM
    XLAMDA=ABS(X(1))
    XNU=ABS(X(2))
    XALPHA=ABS(X(3))
    XMUX=ABS(X(4))
    XPHI=ABS(X(5))
    XK=ABS(X(6))
    SSQ=0.0
    REWIND 4
    S=1.0
    DO 1 I=1,6
    READ(4,100) H,FM,DAT
    IF (((FM.NE.'MEAN').AND.(FM.NE.'VARI')).AND.
   $     ((FM.NE.'CORR').AND.(FM.NE.'PROB'))) THEN
    WRITE(*,*) 'ERROR IN CONSTRAINT.IN FILE'
    GOTO 1
    ENDIF
    IF (FM.EQ.'MEAN') THEN
    SSQ=SSQ+((
   $ YMEAN(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/DAT)-1.0)**2
```

```
      GOTO 1
      ENDIF
      IF (FM.EQ.'VARI') THEN
      SSQ=SSQ+((
     $ VARIANCE(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/DAT)-1.0)**2
      GOTO 1
      ENDIF
      IF (FM.EQ.'CORR') THEN
      SSQ=SSQ+((
     $ CORRELATION(H,S,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/DAT)-1.0)**2
      ENDIF
      IF (FM.EQ.'PROB') THEN
      SSQ=SSQ+((
     $ PROBABILITY(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/DAT)-1.0)**2
      ENDIF
    1 CONTINUE
  100 FORMAT(1x,F3.0,1X,A4,1X,F8.4)
      RETURN
      END

      REAL FUNCTION YMEAN (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,XMUC
      XMUC=1.0+(XK/XPHI)
      YMEAN=H*XLAMDA*XMUX*XMUC*XNU/(XALPHA-1.0)
      RETURN
      END

      REAL FUNCTION VARIANCE (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1,A2,A3
      A1=(2.0*(XNU**(2.0-XALPHA))*H)/(XALPHA-2.0)
      A1=A1*(EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)-
     $    (EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/XPHI))
      A2=(2.0*(XNU**(3.0-XALPHA)))/((XALPHA-2.0)*(XALPHA-3.0))
      A2=A2*(EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)-
     $    (EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/(XPHI*XPHI)))
      A3=2.0/((XALPHA-2.0)*(XALPHA-3.0))
      A3=A3*((EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)*
     $    ((H+XNU)**(3.0-XALPHA)))-
     $    (EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)*(((XPHI*H)+XNU)**
     $    (3.0-XALPHA))/(XPHI*XPHI)))
      VARIANCE=A1-A2+A3
      RETURN
      END

      REAL FUNCTION CORRELATION (H,S,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,S,A1,A2,B1,B2,B3,C1,C2,C3
      A1=EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/
     $    ((XALPHA-2.0)*(XALPHA-3.0))
      B1=(H*(S-1.0)+XNU)**(3.0-XALPHA)
      B2=((H*(S+1.0))+XNU)**(3.0-XALPHA)
      B3=2.0*((((H*S)+XNU))**(3.0-XALPHA))
```

```
      A1=A1*(B1+B2-B3)
      A2=EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/(XPHI*XPHI*
     $    (XALPHA-2.0)*(XALPHA-3.0))
      C1=2.0*((((XPHI*H*S)+XNU))**(3.0-XALPHA))
      C2=((XPHI*H*(S-1.0))+XNU)**(3.0-XALPHA)
      C3=((XPHI*H*(S+1.0))+XNU)**(3.0-XALPHA)
      A2=A2*(C1-C2-C3)
      CORRELATION=(A1+A2)/VARIANCE(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      RETURN
      END

      REAL FUNCTION PROBABILITY (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1,A2,A3,B1
      A1=XLAMDA*ENU1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      A2=XLAMDA*ENU2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      A3=XLAMDA*ENU3(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      B1=XLAMDA*H
      PROBABILITY=EXP(-B1-A1+A2+A3)
      RETURN
      END

      REAL FUNCTION EK1 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,XMUC,EX2,A1,A2
      XMUC=1.0+(XK/XPHI)
      EX2=2.0*XMUX*XMUX
      A1=XLAMDA*XMUC*EX2
      A2=(XLAMDA*XMUC*XK*XPHI*XMUX*XMUX)/((XPHI*XPHI)-1.0)
      EK1=(A1+A2)*(XNU**XALPHA)/(XALPHA-1.0)
      RETURN
      END

      REAL FUNCTION EK2 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,XMUC,A1,A2
      XMUC=1.0+(XK/XPHI)
      A1=XLAMDA*XMUC*XK*XMUX*XMUX
      A2=(XPHI*XPHI)-1.0
      EK2=(A1/A2)*(XNU**XALPHA)/(XALPHA-1.0)
      RETURN
      END

      REAL FUNCTION ENU1 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1,A2,A3
      A1=1.0+(XPHI*(XK+XPHI))
      A2=(XPHI*(XK+XPHI)*(XK+(4.0*XPHI)))/4.0
      A3=(XPHI*(XK+XPHI)*
     $    ((4.0*XK*XK)+(27.0*XK*XPHI)+(72.0*XPHI*XPHI)))/72.0
      ENU1=(XNU/(XPHI*(XALPHA-1.0)))*(A1-A2+A3)
      RETURN
      END

      REAL FUNCTION ENU2 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
```

```
REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1
A1=1.0-XK-XPHI+(1.5*XK*XPHI)+(XPHI*XPHI)+(0.5*XK*XK)
ENU2=(XNU*A1)/(XALPHA-1.0)
RETURN
END

REAL FUNCTION ENU3 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI
A1=(XNU/(XNU+((XK+XPHI)*H)))**(XALPHA-1.0)
A2=1.0-XK-XPHI+(1.5*XK*XPHI)+(XPHI*XPHI)+(0.5*XK*XK)
ENU3=(XNU*XK*A1*A2)/(XPHI*(XALPHA-1.0))
RETURN
END

INCLUDE 'imsl.f'
```

```
C     ***********************************************
C     *              PROGRAM - FUNCTION.F            *
C     ***********************************************

C     ...............................................
C     .    PROGRAM TO DETERMINE THE STATISTICS       .
C     .    OF A STATION GIVEN THE PARAMETERS         .
C     .    TAKEN FROM THE MAPS IN CHAPTER 5          .
C     ...............................................
C     .    Written by Dara Entekhabi - 1987          .
C     .    Updated by Kelly Hawk     - 1991          .
C     ...............................................

C     ***********************************************
C     *    FILE CREATED                              *
C     *                                              *
C     *    1.  map.dat                               *
C     *        - outputs the parameter guesses       *
C     *          and calculated statistics from      *
C     *          the modified Bartlett Lewis model   *
C     ***********************************************

      REAL LAMDA,EX,ALPHA,NU,KAPPA,PHI,S,H,EC,BETA,GAMMA,
     $ETA,FF(6)

C     ***********************************************
C    .*    PARAMETERS AND THEIR DEFINITIONS          *
C     *                                              *
C     *    1.  EC    = AVERAGE CELLS/STORM           *
C     *    2.  GAMMA = RATE OF CELL ORIGIN           *
C     *                TERMINATION  (1/HR)           *
C     *    3.  ETA   = MEAN RATE OF CELL DURATION    *
C     *                (1/HR)                        *
C     *    4.  NU    = GAMMA PARAMETER FOR ETA       *
C     *    5.  LAMDA = POISSON ARRIVAL RATE OF       *
C     *                STORMS (1/HR)                 *
C     *    6.  EX    = AVERAGE CELL INTENSITY        *
C     *                (MM/HR)                       *
C     ***********************************************


      OPEN(UNIT=1,FILE='map.dat',STATUS='unknown')

      DATA EC,ex,eta,gamma,nu,lamda
     %/1.3,10.5,8.,1.25,2.0,0.012/

       write(1,*)'  EC    GAMMA     ETA      NU    LAMBDA      EX'
       write(1,50)ec,gamma,eta,nu,lamda,ex
 50    format(f7.1,f7.2,2x,f7.1,2x,f7.1,2x,f7.3,2x,f7.1)
      ALPHA=NU*ETA
      PHI=GAMMA/ETA
```

```
      KAPPA=(EC-1.)*PHI
 100  FORMAT(////7X,'LEVEL',5X,'MEAN',6X,'VARIANCE',2X,
     $ 'CORR(1)',3X,'CORR(2)',3X,'CORR(3)',3X,'PROB(0)',
     $ /7X,7(6('-'),4X))
      WRITE(1,100)
 101  FORMAT(6X,F6.0,4X,6(F8.4,2X))
      H=1.
 1    S=1.
      FF(1)=YMEAN(H,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
C      write(*,*)'hi1'
      FF(2)=VARIANCE(H,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
C      write(*,*)'hi2'
      FF(3)=CORRELATION(H,S,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
      S=2.0
C      write(*,*)'hi3'
      FF(4)=CORRELATION(H,S,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
      S=3.
C      write(*,*)'hi5'
      FF(5)=CORRELATION(H,S,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
C      write(*,*)'hi6'
      FF(6)=PROBABILITY(H,LAMDA,EX,ALPHA,NU,KAPPA,PHI)
C      write(*,*)'hi7'
      WRITE(1,101)H,(FF(I),I=1,6)
      IF(H.LE.2.0) THEN
         H=6.0
         GOTO 1
      ENDIF
      IF (H.LE.7.0) THEN
         H=12.0
         GOTO 1
      ENDIF
      IF (H.LE.13.0) THEN
         H=24.0
         GOTO 1
      ENDIF
      IF (H.LE.25.0) THEN
         H=48.0
         GOTO 1
      ENDIF
      END

      REAL FUNCTION YMEAN (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,XMUC
      XMUC=1.0+(XK/XPHI)
      YMEAN=H*XLAMDA*XMUX*XMUC*XNU/(XALPHA-1.0)
      RETURN
      END

      REAL FUNCTION VARIANCE (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1,A2,A3
      A1=(2.0*(XNU**(2.0-XALPHA))*H)/(XALPHA-2.0)
```

```
      A1=A1*(EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)-
     $    (EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/XPHI))
      A2=(2.0*(XNU**(3.0-XALPHA)))/((XALPHA-2.0)*(XALPHA-3.0))
      A2=A2*(EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)-
     $    (EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/(XPHI*XPHI)))
      A3=2.0/((XALPHA-2.0)*(XALPHA-3.0))
      A3=A3*((EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)*
     $    ((H+XNU)**(3.0-XALPHA)))-
     $    (EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)*(((XPHI*H)+XNU)**
     $    (3.0-XALPHA))/(XPHI*XPHI)))
      VARIANCE=A1-A2+A3
      RETURN
      END

      REAL FUNCTION CORRELATION (H,S,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,S,A1,A2,B1,B2,B3,C1,C2,C3
      A1=EK1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/
     $    ((XALPHA-2.0)*(XALPHA-3.0))
      B1=(H*(S-1.0)+XNU)**(3.0-XALPHA)
      B2=((H*(S+1.0))+XNU)**(3.0-XALPHA)
      B3=2.0*((((H*S)+XNU))**(3.0-XALPHA))
      A1=A1*(B1+B2-B3)
      A2=EK2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)/(XPHI*XPHI*
     $    (XALPHA-2.0)*(XALPHA-3.0))
      C1=2.0*((((XPHI*H*S)+XNU))**(3.0-XALPHA))
      C2=((XPHI*H*(S-1.0))+XNU)**(3.0-XALPHA)
      C3=((XPHI*H*(S+1.0))+XNU)**(3.0-XALPHA)
      A2=A2*(C1-C2-C3)
      CORRELATION=(A1+A2)/VARIANCE(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      RETURN
      END

      REAL FUNCTION PROBABILITY (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1,A2,A3,B1
      A1=XLAMDA*ENU1(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      A2=XLAMDA*ENU2(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      A3=XLAMDA*ENU3(H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      B1=XLAMDA*H
      PROBABILITY=EXP(-B1-A1+A2+A3)
      RETURN
      END

      REAL FUNCTION EK1 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,XMUC,EX2,A1,A2
      XMUC=1.0+(XK/XPHI)
      EX2=2.0*XMUX*XMUX
      A1=XLAMDA*XMUC*EX2
      A2=(XLAMDA*XMUC*XK*XPHI*XMUX*XMUX)/((XPHI*XPHI)-1.0)
      EK1=(A1+A2)*(XNU**XALPHA)/(XALPHA-1.0)
      RETURN
      END
```

```
      REAL FUNCTION EK2 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,XMUC,A1,A2
      XMUC=1.0+(XK/XPHI)
      A1=XLAMDA*XMUC*XK*XMUX*XMUX
      A2=(XPHI*XPHI)-1.0
      EK2=(A1/A2)*(XNU**XALPHA)/(XALPHA-1.0)
      RETURN
      END

      REAL FUNCTION ENU1 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1,A2,A3
      A1=1.0+(XPHI*(XK+XPHI))
      A2=(XPHI*(XK+XPHI)*(XK+(4.0*XPHI)))/4.0
      A3=(XPHI*(XK+XPHI)*
     $    ((4.0*XK*XK)+(27.0*XK*XPHI)+(72.0*XPHI*XPHI)))/72.0
      ENU1=(XNU/(XPHI*(XALPHA-1.0)))*(A1-A2+A3)
      RETURN
      END

      REAL FUNCTION ENU2 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI,A1
      A1=1.0-XK-XPHI+(1.5*XK*XPHI)+(XPHI*XPHI)+(0.5*XK*XK)
      ENU2=(XNU*A1)/(XALPHA-1.0)
      RETURN
      END

      REAL FUNCTION ENU3 (H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI)
      REAL H,XLAMDA,XMUX,XALPHA,XNU,XK,XPHI
      A1=(XNU/(XNU+((XK+XPHI)*H)))**(XALPHA-1.0)
      A2=1.0-XK-XPHI+(1.5*XK*XPHI)+(XPHI*XPHI)+(0.5*XK*XK)
      ENU3=(XNU*XK*A1*A2)/(XPHI*(XALPHA-1.0))
      RETURN
      END
```