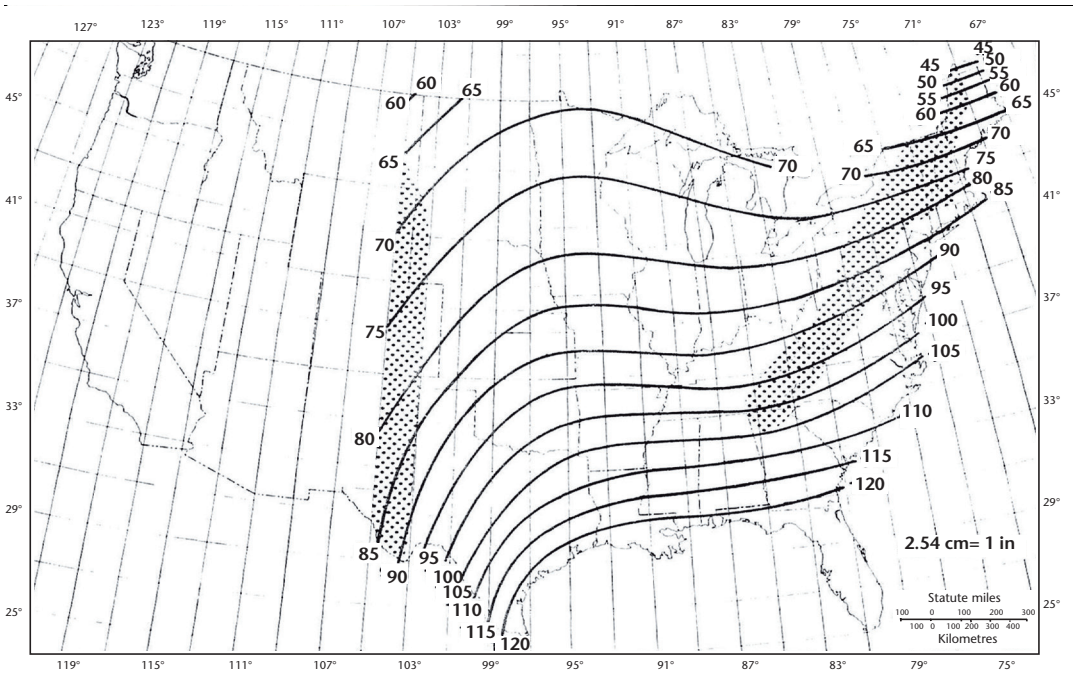

Figure 5.3. All-season envelope of 24-hour 25.9 km^2 PMP (cm; Schreiner and Riedel, 1978); stippled areas are regions where orographic effects have not been considered

sequences result in more critical flow (higher peak) than others. The normal practice is to consider the sequences of 6-hour rain increments in the most important storms in the region. For the eastern United States, guidance for recommending sequences for PMP was developed from 53 of the most important storms in the region. In this study, three criteria were used to select storms for consideration. First, the moisture-maximized storm rainfall had to be within 10 per cent of the PMP for the storm location. Second, the storm had to last for the entire 72-hour period of interest. Finally, the storm had to cover the full range of area sizes considered in the study (259 km^2 to 51 800 km^2).

In these storms, the observed rainfall sequences were examined. A first step was to define the number of rain bursts within each storm. A rain burst was defined as one or more consecutive 6-hour rain increments for which each individual increment had 10 per cent or more of the 72-hour rainfall. Different results were obtained by redefining a rain burst as containing 20 per cent of the 72-hour rainfall. Still other results would be obtained if 5, 15, 25 per cent or some other value were used. Examination of the incremental rainfall sequences for each of the storms allowed compilation of some constructive information. There were three temporal characteristics of importance: (a) the number of bursts in each sequence; (b) the duration of each burst; and (c) the time interval between bursts. Figure 5.4 shows examples of temporal sequences of 6-hour precipitation in five major storms. The first example of Figure 5.4, the storm of 6–8 June 1906, illustrates three temporal characteristics of interest in these storms using the definition of a burst as 10 per cent of the total storm rainfall. There are two bursts observed for the 259-km^2 area and three bursts for the 25–900-km^2 area. For the 259-km^2 area, the first rain burst is 12 hours long and the second is 6 hours long. These are separated by 6 hours. The first burst for the 25 900 km^2 area is 6 hours long, separated by 12 hours from the second burst of 12 hours, which in turn is separated by 6 hours from the last burst of 6 hours. The limited example of storms examined showed almost any arrangement could be found in the data. The storm centred at Council Grove, Kansas, showed daily bursts of 12 hours with lesser rains between. Another storm, not shown in Figure 5.4, at Warner, Oklahoma, showed the greatest 6-hour increments to be consecutive in the middle of the 72-hour rain sequence. To get PMP for all durations within a 72-hour storm requires that the 6-hour increments be arranged with a single peak. This seemed consistent with the observed rainfall sequences in the majority of these major storms. A 24-hour rain period was selected as being representative of the rain bursts in major storms. The rainfall was then divided into three 24-hour periods in the 72-hour storm. The following guidance was then given for