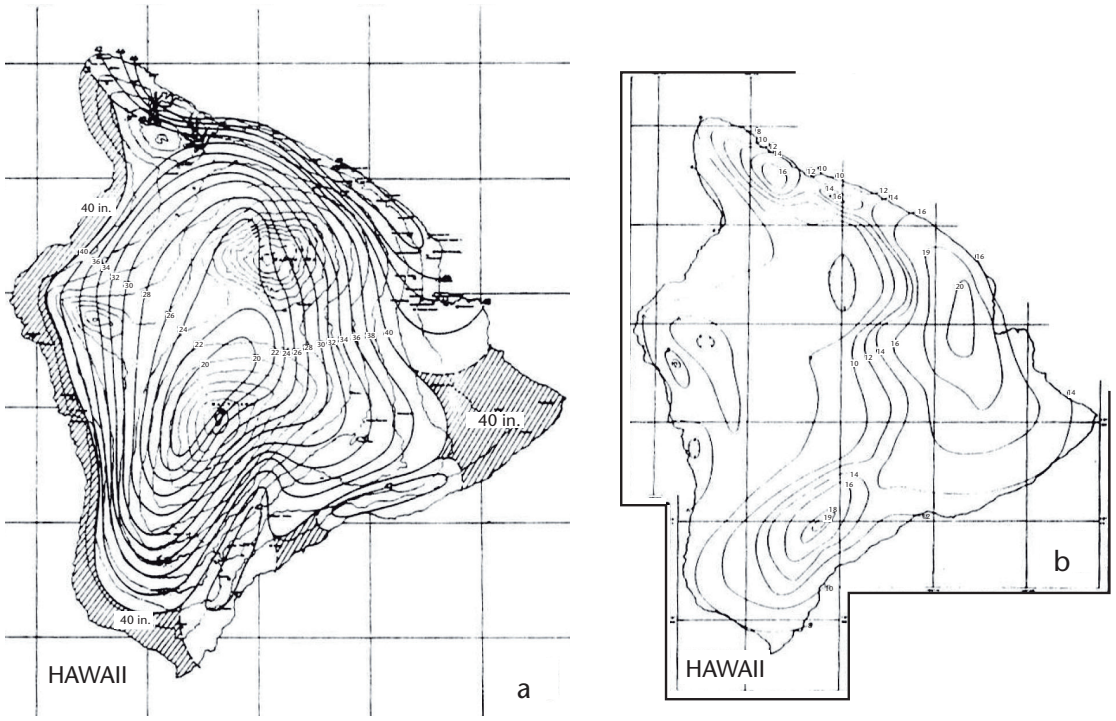

Figure 5.1. Contrast in (a) PMP (Schwarz, 1963) and (b) 25-year rainfall patterns (United States Weather Bureau, 1962), both for 24-hour at a point, Island of Hawaii; particularly note differences on north-western coast

were provided for making adjustments for other durations and basin sizes. The depth–duration diagrams (Figure 5.2) were based on maximized rainfall values from major storms over the western United States of America. A straight edge placed on either diagram so that it intersects the first and last verticals at the PMP values indicated on the maps for the corresponding durations will yield the PMP value for any intermediate duration by its intersection with the vertical for that duration. Thus, for example, if the 1- and 6-hour PMP values were 250 and 400 mm, respectively, a straight edge set at those values on the corresponding verticals of the diagram on the left side of Figure 5.2 would show a 2-hour PMP value of 300 mm. The depth–duration diagram of Figure 5.2 is based solely on storms from the western United States. In any other study, such diagrams should be based on the storms that have occurred over the study region. The area-reduction curves (such as Figure 4.7) could then be used to reduce the point values to average depths over the basin.

The second procedure is to develop charts for a range of area sizes and durations. Figure 5.3 shows the 25.9-km^2 24-hour PMP map from a study for the eastern United States (Schreiner and Riedel, 1978). In this procedure, the user may need to construct sets of depth–area–duration diagrams centred at the location of the basin. The PMP values plotted are selected from charts for various durations and representing standard storm area sizes both larger and smaller than the size of the basin. The storm-derived estimate of PMP is then adjusted to specific drainage characteristics. Isohyetal patterns and labels and appropriate temporal distributions are determined by use of an applications manual (Hansen and others, 1982; section 5.2.7).

5.2.6 Summary of procedural steps

The preparation of generalized or regionalized PMP estimates for non-orographic regions is summarized in the following steps:

(a) Areas of transposability of major observed storms in the region of interest and surrounding areas are determined (section 5.2.2).
(b) An adequate grid system is constructed transposition limits are outlined for all storms on a suitable base map or maps (section 5.2.2).