to be elliptical. Two characteristic quantities – the form ratio and the orientation of the rain axis – are used to generalize the isohyetal map.

The temporal distribution of 72-hour PMP for the Auburn watershed is obtained from the above-mentioned guidelines for placing the PMP hydrograph and the time-interval rainfall hydrograph in section 5.3.8.2.5 (see Figure 5.50).

As for the areal distribution, the generalized areal distribution map for the region is employed. No detailed introduction is given herein.

5.3.8.3 Procedure and example computation of estimating PMP with the local storm method

There are two parts to the process of estimating PMP with the local storm method:

(a) Calculate the mean PMP for the watershed, excluding its areal distribution;

Table 5.15. Area–duration-reduction coefficients for Sierra Nevada region (percentage)

Area (km²)	*Duration (hours)*					
	1	*6*	*12*	*24*	*48*	*72*
26	100.00	100.00	100.00	100.00	100.00	100.00
130	88.00	89.00	90.00	91.00	92.50	94.00
260	82.50	84.00	85.50	87.00	89.25	91.25
520	76.75	78.75	80.75	82.75	85.50	88.25
1 300	69.25	71.75	74.25	77.00	80.50	83.50
2 600	63.25	66.25	69.25	72.25	76.25	79.75
5 200	57.00	60.00	63.50	67.00	71.25	75.25
13 000	47.50	51.00	55.00	59.00	63.50	68.00
26 000	40.00	44.00	48.00	52.50	57.50	62.00

Table 5.16. Coefficient of area reduction and areal mean PMP for Auburn watershed

	Duration (hours)					
	1	*6*	*12*	*24*	*48*	*72*
Coefficient of area reduction	0.64	0.67	0.70	0.72	0.77	0.80
PMP (mm)	56	175	284	450	752	879

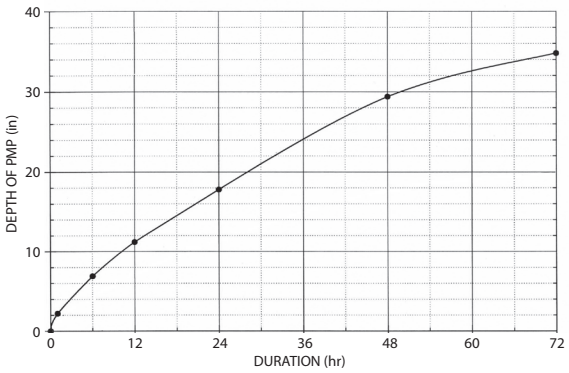

Figure 5.49. Curve of relationship between areal mean PMP and duration for Auburn watershed

(b) Identify the areal distribution of PMP based on the hydrograph of a large storm in the watershed.

Below is an introduction to the procedure of estimating PMP with the local storm method, using the Wash watershed as an example which details the computation process. Located in south-eastern California, the Wash watershed has an area of 434 km^2. In Figure 5.51, the area surrounded by the thick line is the Wash watershed.

(a) The PMP value for the watershed for local storms with 1-hour duration and storm area of 2.6 km^2 is identified by the watershed being positioned on Figure 5.52 and then by means of linear interpolation.
The centre of gravity of the Wash watershed is at 33.75° N 114.75° W. By conducting interpolations in Figure 5.52, PMP for the point representing local storms with 1-hour duration and storm area of 2.6 km^2 is found to be 290 mm. Since PMP for the region does not change much with location, interpolation is feasible; if PMP changes much with location, then the mean PMP value must be obtained by conducting more detailed analyses on data from the NOAA.

(b) The correction to mean watershed elevation is determined by first identifying the mean elevation of the watershed under study. If the mean elevation is equal to or less than 1 830 m, no correction is needed; if it is greater than 1 830 m, 9 per cent is subtracted from the PMP calculated in (a) for every 305 m of the part that is above the 1 830-m mark. Figure 5.53 also presents the corrected percentages of moisture content in air columns for different mean watershed elevations that are greater than 1 830 m, that is, the ratio of the moisture content at the elevation to the moisture content in air columns at the mean watershed elevation (1 830 m).