

**Table 5.12. Isohyetal label values (mm) for local-storm PMP, White River, Washington (1 041 km<sup>2</sup>)**

Isohyet (area in km <sup>2</sup> is shown in brackets)	Duration (hours)								
	0.25	0.50	0.75	1	2	3	4	5	6
A (2.6)	80.8	119.4	145.3	161.4	177.5	180.6	80.8	119.4	145.3
B (13)	51.6	85.6	108	120.7	134.6	137.9	51.6	85.6	108
C (65)	35.6	60.5	77.5	90.4	101.6	104.9	35.6	60.5	77.5
D (142)	27.4	46	61.2	69.3	77.5	79.8	27.4	46	61.2
E (246)	19.3	33.8	45.2	51.8	59.7	61.2	19.3	33.8	45.2
F (389)	12.2	22.6	30.7	36.1	40.4	41.4	12.2	22.6	30.7
G (570)	8.1	14.6	19.3	22.6	26.2	26.9	8.1	14.6	19.3
H (777)	3.3	5.6	8.1	10.4	13.5	14.2	3.3	5.6	8.1
I (997)	0.8	1	1.5	2	3.6	4.3	0.8	1	1.5
J (1 295)	0.3	0.5	0.8	0.8	1.5	2.5	0.3	0.5	0.8

sub-basins whose areas are 70, 20 and 10 units, respectively. The three sub-basins are located in different DAD regions. As a result, the PMP for the entire watershed,  $R$ , is:

$$R = \frac{70R_1 + 20R_2 + 10R_3}{100} \quad (5.4)$$

where  $R_1$ ,  $R_2$  and  $R_3$  are PMPs for the three sub-basins, respectively.

For moisture maximization under the local storm method, the representative dewpoint is set to be the 3-hour maximum persisting value. A 2.6-km<sup>2</sup> 1-hour PMP isoline map was ultimately drawn on the California map.

#### 5.3.8.2 Procedure and example computation of estimating PMP with the general storm method

Estimating PMP with the general storm method includes six steps that will be introduced below one by one. Meanwhile, a full explanation of the process of computing PMP for a watershed is given, with the Auburn watershed in California as an example. The Auburn watershed is on Folsom Lake and located in the Sierra region (that is, the No. 5 DAD region), with an area of 2 520 km<sup>2</sup>.

##### 5.3.8.2.1 Drawing the boundary

The boundary of the watershed is drawn on the 1 : 1 000 000 California map, a step that can be done with GIS software. Since the studied object is the Auburn watershed, the boundary of that watershed is drawn on the 1:1 000 000 map and superposed with the generalized 24-hour PMP isoline map, as is shown in Figure 5.47.

##### 5.3.8.2.2 Estimating PMP

The networked watershed map is superimposed with the 24-hour PMP isoline map, PMP is calculated for each network in the watershed through the superimposed PMP isoline map for it, and then the area weighting method is employed to find the PMP for the entire watershed. Spatial changes to local estimates of PMP need to be considered in the size of the network on the determination of a reasonable PMP value for the basin. This step can also be performed through GIS software or other commercial software, which can make more accurate analyses on PMP changes with space and therefore obtain more accurate PMP values.

According to the corresponding precipitation depth on the PMP isoline in Figure 5.47, the 24-hour mean PMP for the Auburn watershed is 603 mm.

##### 5.3.8.2.3 Relationship between precipitation depth and duration

Figure 5.48 illustrates the boundary of each DAD region (seven sub-regions) of California. If the studied region is in a particular DAD region, the relationship between precipitation depth and duration for the corresponding region is read from Table 5.13. Note that the values in Table 5.13 refer to the ratios of PMP for that duration to PMP for 24-hour duration, that is, the coefficient of precipitation–depth conversion. Hence, the values in Table 5.13 should be multiplied by the 24-hour PMP obtained in section 5.3.8.2.2 above to obtain the PMP for each standard duration.

Except for a tiny part of its area, which is near the dam site, the Auburn watershed is basically in the