(viii) Column VI gives the incremental volume obtained by multiplying the values in column IV by those in column V. The incremental values are summed to obtain the total volume of precipitation in a drainage for the specified pattern area size in the first 6-hour period.

(ix) Steps (c)(ii) to (c)(viii) are repeated for all the other pattern area sizes selected in (a)(iii).

(x) The largest of the volumes obtained in (c)(viii) and (c)(ix) represent the preliminary maximum volume for the first 6-hour incremental period. The pattern area to which this volume relates can then be found. The area of the maximum volume can be used as guidance in choosing pattern areas to compute volumes for the second and third 6-hour incremental periods. Note: the second and third 6-hour incremental volumes can be computed by repeating steps (c)(i) to (c)(ix) using appropriate nomograms (not shown).

(xi) The sum of values from the largest three 6-hour increments for corresponding area sizes are plotted in terms of volume versus area size (semi-logarithmic plot). The points are connected to determine the area size of the precipitation pattern that gives the maximum 18-hour volume for the drainage. This is the PMP storm area size.

(d) Distribution of storm-area average PMP over the drainage:

(i) For the pattern area size for PMP determined in (c)(xi), the data from (a)(iii) is used to extend the appropriate depth–duration curve in (a)(iv) to 72 hours and values are read off the smooth curve for each 6-hour interval (6 hours to 72 hours).

(ii) Six-hour incremental amounts for data in (d)(i) are obtained for the fourth through to the twelfth 6-hour periods in accordance with (a)(v), and procedural steps (b)(i) to (b)(v) are followed to adjust these incremental values for isohyetal orientation if needed.

(iii) Incremental average depths for each of the twelve 6-hour periods in the 72-hour storm are given by (d)(i) and (d)(ii). To obtain the values for the isohyets that cover the drainage, the first 6-hour incremental depth is multiplied by the first 6-hour percentages obtained from Figure 5.11 for the area sizes determined in (c)(xi). Then the second 6-hour incremental depth is multiplied by the second 6-hour percentages from a nomogram similar to Figure 5.12, and so forth. As a result of this step, isohyet label values can be placed in a table similar to the template below (to the extent of whichever isohyets cover the drainage):

	6-hour period											
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
A	-	-	-	-	-	-	-	-	-	-	-	-
B	-	-	-	-	-	-	-	-	-	-	-	-
C	-	-	-	-	-	-	-	-	-	-	-	-

(iv) To obtain incremental average depth over the drainage, the incremental volumes for the area size of the PMP pattern determined in (c)(xi) is computed. Divide each incremental volume by the drainage area (that portion covered by precipitation).

(e) Temporal distribution:
In the table in (d)(iv), (storm-area averaged) PMP has been spatially distributed according to increasing 6-hour periods. (Drainage-averaged PMP will be obtained by completing (d)(iv).) The increments in (d)(iii) are arranged according to a PMP depth–duration curve. The incremental values should be arranged according to the criteria of section 5.2.7.1.

5.3 ESTIMATES FOR OROGRAPHIC REGIONS

5.3.1 Introduction

In orographic regions the problems in deriving regionalized or generalized PMP charts are much more complex than for non-orographic areas. Differences in topography and its effects, storm types, amount of data available and so forth preclude the development of a standard basic procedure adaptable to the wide variety of situations encountered in making regionalized PMP estimates. One approach to such estimates is based on non-orographic PMP values modified for orography. The modification procedures differ for different situations. Since there is no standard procedure for modification, summarized examples from actual studies may provide some guidance on how this procedure is used to develop regionalized PMP