

6.2.5.5 **Analysis of the rationality of PMP estimates**

6.2.5.5.1 ***Comparison with observed storm records in the watershed***

The storm that occurred on 7–9 September 1963 was the largest actual storm in the watershed with the maximum 24-hour watershed areal mean precipitation depth up to 308 mm. The ratio between it and the 24-hour PMP areal mean precipitation depth, 880 mm, was 0.35. The maximum 24-hour precipitation depth in Qilinchang, one of the storm centres in the watershed, occurred on 13 June 1974 with a value of 783 mm. The maximum 24-hour precipitation depth in Baoguo occurred on 8 September 1963 with a value of 688 mm. The maximum 24-hour precipitation depth in Sanpai occurred on 2 July 1964 with a value of 593 mm. The 24-hour PMP values of the three centres were 1 100, 1 066 and 1 150 mm, respectively. Their ratios were 0.712, 0.645 and 0.516, respectively. It can be seen that the ratios of the two areal mean precipitation depths and the storm centres were acceptable.

6.2.5.5.2 ***Comparison with 24-hour PMP for mid- to large-scale water projects in China***

According to the enveloping curve of the relationship between 24-hour PMP and area sizes for 44 mid- to large-scale water projects in China, the PMP value for area sizes equal to that of the Daguangba watershed is 720 mm. The ratio between the 24-hour PMP value for Daguangba and the corresponding enveloping value is 1.22. Given 24-hour storm records in the Changhuajiang River basin, such a case is likely to occur.

6.2.5.5.3 ***Comparison with generalized PMP for the Gulf of Mexico coast in the south-eastern United States***

The depth–area relationship of generalized PMP for the Gulf of Mexico coast in the south-eastern United States (Schreiner and Riedel, 1978) reflects PMP for non-orographic regions in the area. This relationship and the 24-hour PMP for the same area in the Daguangba watershed are slightly larger than the 24-hour convergence-component PMP in the Daguangba watershed, with a ratio of about 1.09 between the two. The former is a value on storm areas, while the latter is a value on watershed areas, which gets smaller due to the effects of residual rains. Therefore, it may be believed that 24-hour PMPs for the two regions are equivalent.

6.3

CAUTIONARY REMARKS

The procedures for estimating PMP were developed originally for temperate latitudes. Most studies have been completed for basins in these latitudes. The procedures have recently been applied to tropical regions. The procedures have not been as thoroughly tested for these regions. The user, therefore, should exercise care in applying these procedures directly. Much is still to be learned about developing PMP estimates in tropical regions. The user should also review the cautionary remarks and notes in Chapters 2 to 5. The comments on adequacy of storm sample, length of record, comparison with record rainfalls, consistency of estimates and other factors apply equally in tropical regions.