from the south-west throughout storm periods. DAD relations for the largest typhoon storms observed in non-orographic regions on Hainan Island were established using data from the five largest typhoon storms and deducting orographic effects.

(b) Data from south-eastern coastal regions in China were transposed: a storm that occurred in Chaoqiao, a coastal region in Jiangsu Province, on 4–5 August 1960 had a maximum 24-hour and 3-day rainfall of 822 mm and 934 m, respectively; a second storm occurred in Wuyang, Guangdong Province, on 21–22 September 1976 with maximum 24-hour and 3-day rainfall of 794 mm and 1 092 mm, respectively. The two typhoon storms were transposed to Hainan Island after their DAD relations were moisture adjusted.

(c) Data from the United States were transposed: DAD relations of extreme typhoon storms in the south-eastern coastal plain of the United States were also transposed to Hainan Island after moisture maximization and adjustment, for the following reasons. The latent energy of extreme typhoon storms in the South China Sea is approximate to that of extreme typhoon storms in the Atlantic Ocean (Hydrometeorological Report No. 46, United States Weather Bureau, 1970) and thermal and dynamic force conditions affecting the South China Sea and the Gulf of Mexico as well as typhoon speeds and frequencies in the two regions were similar. The average of maximum 24-hour typhoon storm series on Hainan Island was 27 per cent larger than that of the south-eastern and southern plains of the United States, largely due to topographic effects and the difference in moisture content.

After moisture adjustment and enveloping, data on DAD relations of typhoon storms in the plain regions were converted into enveloping curves of DAD relations of maximized typhoon storms applicable to non-orographic regions on Hainan Island. The set of enveloping curves could be regarded as DAD relations of PMP for non-orographic regions in the Changhuajiang River basin, as is shown in Table 6.11.

6.2.5.4 Estimation of 24-hour PMP for Daguangba watershed

6.2.5.4.1 *DAD curve of 24-hour PMP for designs for non-orographic regions in the Changhuajiang River basin*

The storm DAD curve of 24-hour PMP for non-orographic regions in the Changhuajiang River

Table 6.11 DAD enveloping relations of typhoon storm extremes in non-orographic regions on Hainan Island (Lin, 1988)

Area (km²)	*Precipitation depth of each duration (mm)*			
	6 hour	*12 hour*	*24 hour*	*72 hour*
Point	751	879	1 197	1 389
100	697	836	1 129	1 304
300	646	807	1 081	1 236
700	580	789	1 042	1 188
1 000	548	779	1 023	1 165
2 000	478	728	966	1 107
3 000	434	672	903	1 051
4 000	399	619	837	1 003
5 000	376	565	776	944
7 000	335	493	662	886
1 000	303	430	549	850