

A final database for the GSAM contained 110 significant rainfall events, while that for GTSMR contained 122 events.

#### 5.5.2.2 Data quality control

The quality control of the storm data was a time-consuming, but essential, component of the construction of the database. It included temporal and spatial consistency checks of the rainfall data. Instances were found of faults such as rainfall totals being recorded on the wrong date, unmarked accumulated totals and the location of a station being changed over the period of the station's record. The original rainfall observation booklets were retrieved from the Commonwealth Archives for stations at the centre of the largest storms. Comments by observers concerning rain gauge overflow were noted particularly. All relevant data about the investigation of high rainfall occurrences, flood damage, dam break reports and so forth were collected and added to the database. The spatial consistency was checked by eye from geographically grouped lists for the GSAM and from geographic plots for the GTSMR.

#### 5.5.2.3 Storm analysis and gridding

The rainfall totals for the total storm duration were then plotted at a scale suitable for overlay on a topographic map and analysed. The isohyets of the analysed storm were then digitized. The strings of latitude and longitude values representing the isohyets were interpolated to a regular grid using a spline function, in the manner of Canterford and others (1985). The gridded data were contoured

and replotted at the scale of the original analysis and overlaid on top of it for direct comparison. The parameters of the spline function were adjusted and extra shaping isohyets were digitized, in a recursive procedure, until a satisfactory reproduction of the original analysis was achieved. For storms with isohyets extending across the coastline and over the sea, where no data existed, a land-sea mask was applied to the gridded data, which set the values over the sea equal to zero.

#### 5.5.2.4 Storm temporal distributions

In order to find the maximum percentages of the total storm rainfall that fell within the standard durations and standard areas, it was necessary to eliminate the restriction imposed by the 24-hour (9 a.m. to 9 a.m.) rainfall observing period of the vast majority of stations. Where possible, this was achieved by imposing a 3-hourly distribution on the 24-hour distribution for a storm and extracting the maximum percentages for a duration and area from this unrestricted pattern.

To construct the 3-hourly distributions, daily rainfall records, 3-hourly rainfall observations from the synoptic station network, individual storm studies and, principally, the pluviograph archive were used. As with the storm analyses, the data used to construct the temporal distributions were checked for temporal and spatial consistency. In this procedure, however, stations recording anomalous rainfall depths were deleted from the list.

Temporal distributions were determined for a set of polygons approximating the standard areas

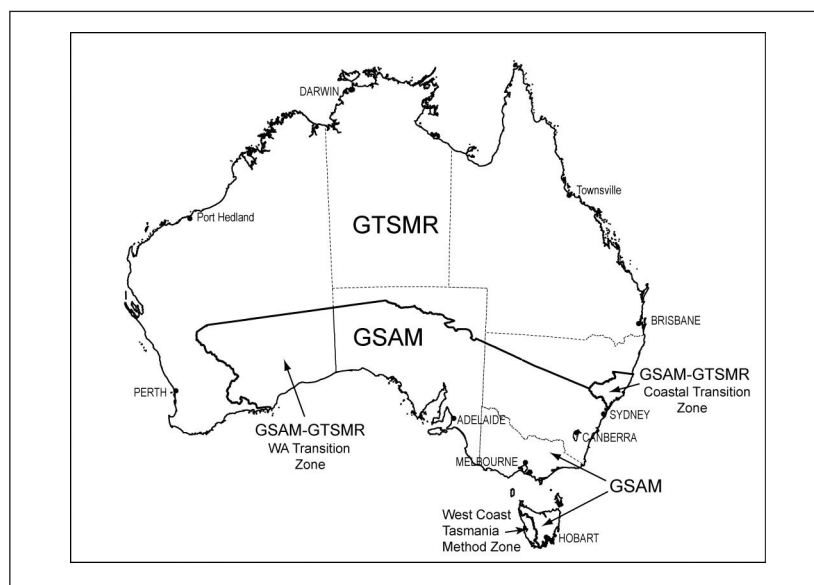


Figure 5.69. Boundaries between PMP methods