

**Page 0 Metadata for:**

**GSAM Temporal Distributions**

**Compiled using the Australian and New Zealand Land Information Council (ANZLIC)  
Guidelines on "Core Metadata Elements" , version 1, July 1996.**

**Dataset TITLE**

*Temporal distributions of large and extreme design rainfall bursts over southeast Australia (GSAM Temporal Distributions)*

**Dataset CUSTODIAN**

Bureau of Meteorology

**Dataset JURISDICTION**

Australia

**Description ABSTRACT**

The Hydrometeorology Section of the Bureau of Meteorology has developed design temporal distributions for use with large and extreme design rainfall bursts over southeast Australia. They were developed as part of the Generalised Southeast Australia Method (GSAM) of estimating Probable Maximum Precipitation (PMP), and have been provided, in part, with PMP estimates since 1991. Access to the full set has been at the request of the Institution of Engineers, Australia and of other representatives of the Australian water industry.

*Australian Rainfall and Runoff, Book VI - Estimation of Large to Extreme Floods* (Institution of Engineers, Australia, 1999), recommends the use of these design temporal distributions in the estimation of large to extreme floods on catchments in the southeast of Australia.

**Description SEARCH WORD(S)**

WATER  
WATER Hydrology  
CLIMATE AND WEATHER  
CLIMATE AND WEATHER Extreme weather events  
CLIMATE AND WEATHER Rainfall  
HAZARDS  
HAZARDS Flood

**Description GEOGRAPHIC EXTENT NAME(S)**

Not applicable

**Description GEOGRAPHIC EXTENT POLYGON(S)**

-30.93 153.08, -42.00 152.00, -43.68 146.88, -43.01 146.25, -41.66 145.83, -41.03 144.72,  
-33.90 123.42, -32.73 119.77, -31.54 120.97, -28.78 118.08, -28.15 118.21, -27.79 118.81,  
-26.92 133.00, -27.77 137.19, -28.27 138.40, -29.43 140.04, -32.21 149.74, -31.75 150.12,  
-31.52 151.10, -30.93 151.46, -30.93 153.08

**Data Currency BEGINNING DATE**

01JUL1991

**Data Currency ENDING DATE**

Current

**Dataset Status PROGRESS**

Complete

## **Dataset Status MAINTENANCE AND UPDATE FREQUENCY**

Not Planned

### **Access STORED DATA FORMAT(S)**

DIGITAL - Oracle database of 5724 records, ASCII Text 216 files of up to 40 records  
NONDIGITAL - Paper report of 120 pages

### **Access AVAILABLE FORMAT TYPE(S)**

DIGITAL - CD-ROM of comma and " delimited ASCII Text files, and HTML files  
NONDIGITAL - Paper report

### **Access CONSTRAINT**

Charge \$50 for CD.

### **Data Quality LINEAGE**

The Generalised Southeast Australia Method (GSAM) of estimating Probable Maximum Precipitation (PMP) provided a database of the largest rainstorms on record (1889-1990) in southeast Australia, with rainfall records deriving from the Bureau of Meteorology National Rainfall Archive. These rainstorms varied in duration from 1 to 7 days. As part of the analysis of each storm the variation in the rainfall depth with time as a proportion of the total storm depth was determined. Temporal distributions of areal-bursts within each storm were determined for standard-sized areas and standard burst durations. The chosen standard areas and burst durations were:

Standard Areas (km<sup>2</sup>): 100; 500; 1,000; 2,500; 5,000; 10,000; 20,000; 40,000 and 60,000  
Standard Burst Durations (hrs): 6; 12; 24; 36; 48; 72; 96; 120 and 144

The areal-burst temporal distributions of 64 storms were subsequently used in the development of design temporal distributions, that could be used in conjunction with design rainfall depths. For each standard area and duration the Average Variability Method (AVM) was applied to the areal-burst temporal distributions to derive base design temporal distributions. Because the temporal distribution of rainfall in a PMP storm is considered to be smoother than that in an average storm in the GSAM database, the base design temporal distributions were smoothed. Accordingly the average temporal distributions became known as the 'unsmoothed' GSAM temporal distributions and the GSAM PMP design temporal distributions were known as the 'smoothed' GSAM temporal distributions. Because of the paucity of sample at the long and short durations these design temporal distributions were confined to durations of 24 to 120 hours.

### **Data Quality POSITIONAL ACCURACY**

Not relevant

### **Data Quality ATTRIBUTE ACCURACY**

All rainfall data were quality-controlled to eliminate spurious values and distribute rainfall totals that were accumulated over a number of days. The accuracy of individual areal-burst temporal distributions is thus largely dependent on the spatial density of continuously-recording pluviometer sites. Within each storm the number of pluviometers providing sub-daily rainfall data typically varied from 0-5.

The accuracy of the derived design temporal distributions is more dependent on the validity of application of the methods used to process the rainfall data than on the accuracy of the data itself. The combination of individual areal-burst temporal distributions into single design scenarios, whether by the AVM or some other method, is fraught with misgiving, since the individual areal-burst temporal distributions exhibit great variability.

**Data Quality LOGICAL CONSISTENCY**

The procedures used in processing the rainfall data and calculating areal-burst temporal distributions ensure that the derived design temporal distributions are internally consistent. They may however exhibit some small inconsistency with the design rainfall bursts to which they are applied. To date, no such inconsistency has been reported.

**Data Quality COMPLETENESS**

Complete for the given standard area-sizes and burst durations.

**Contact Information CONTACT ORGANISATION**

Hydrometeorological Advisory Service, Bureau of Meteorology

**Contact Information CONTACT POSITION**

Supervising Meteorologist, Hydrometeorology (SRHM)

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**Metadata Date METADATA DATE**

16APR1999

**Additional Metadata ADDITIONAL METADATA**

See the Hydrometeorology web pages at <http://www.bom.gov.au/hydro/has>