

RESEARCH DIRECTIONS

Estimating rainfall

Dr Ataur Rahman and Khaled Haddad from the School of Engineering are undertaking a project funded by the Australian Bureau of Meteorology to conduct a study on GLS regression approach for design rainfall estimation in Australia.

'The Bureau of Meteorology is the main provider of weather forecasts, warnings and observations to the Australian public', explains Dr Rahman. 'Weather can affect us in numerous ways and the critical impact of weather on human lives has led to weather forecasting. The need for more accurate forecasts is essential as this information is applied in water resources management, agriculture, air-pollution, air and sea transportation, and in the study of trends in the earth's climate such as global warming. Information on atmospheric conditions and trends is used by the Bureau to make predictions. The development of accurate instruments for measuring and observing weather conditions, as well as high-speed computers to process and analyse weather data has revolutionised weather forecasting.'

The aim of this pilot study is to test the applicability of a particular statistical method - the Generalised Least Squares (GLS) regression - to derive rainfall estimates for Australia. This method will be applied to a small data set provided by the Australian Bureau of Meteorology and then its applicability will be assessed for wider application. The GLS procedure will identify differences in rainfall record lengths over various sites in the region and provide cross correlation among concurrent rainfall data. This pilot study is part of a larger project to revise the rainfall intensity-frequency-duration estimates in Australian Rainfall and Runoff (Engineers Australia, 1987).



This research will be able to make a recommendation on the applicability of the GLS regression to design rainfall estimates for Australia. If appropriate, it will also provide a more accurate estimate of prediction error.

Project Title: Pilot Study on GLS Regression for Design Rainfall Estimation

Funding has been set at: \$13,340

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