

# UNIVERSITY OF SYDNEY

## Statistics Seminar

Friday August 31, 2.00pm., Carslaw Lecture Room 173 (level 1)

### **Modelling and Analysis of Time Series with Long-Range Dependence and Fractality**

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#### **Abstract**

It is known that many time series often display long-range dependence and high-frequency behaviour (fractality). This paper considers ARMA type models to accommodate such properties of a time series. Various statistical properties of these underlying processes are given. We report the corresponding results via both the time and frequency domain approaches. An efficient estimation procedure is described. Some examples are added to illustrate the theory.

#### **REFERENCES**

- Anh, V. and Kavaliers, L. (1994). Long-range dependence in models for air quality, *Statistics in Ecology and Environmental Monitoring*, 100-209.
- Chen, G., Abraham, B. and Peiris, S. (1994). Lag window estimation of the degree of differencing in fractionally integrated time series models, *J. Time Ser. Anal.*, 15, 473-487.
- Anh, V., Lunney, K. and Peiris, S. (1997). Stochastic models for characterisation and prediction of time series with long-range dependence and fractality, *Environmental Modelling and Software*, 12, 1, 67-73.
- Hunt, R., Peiris, S. and Weber, N. (2001). The Bias of Lag Window Estimators of the Fractional Difference Parameter. Presented at the RSS conference, University of Glasgow, Scotland. (Submitted for publication).

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