



The University of Chicago
Department of Statistics

MASTER'S THESIS PRESENTATION

NOTE: TIME CHANGED TO 3:30 PM

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**Analysis of River Flow Data:
PARMA and Related Models in Time Series**

TUESDAY, November 9, 2010, at 3:30 PM

110 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

There are many methods to describe a time series with normally distributed innovation. However, if the innovation process has heavy tails, the problem would be more difficult. Many river flow data has occasional sharp spikes, which indicate the existence of heavy tails. In order to analyze the river flow data, models capturing this heavy tail characteristic are very important. In this paper, we model the river flows from the Salt River near Roosevelt as an example of time series with heavy tails. Since both the mean and the variance of the river flow rate vary with season, we apply periodic ARMA models with heavy tails to the monthly river flow data under stable asymptotics. The computation of the confidence interval for sample means and sample autocorrelation are also presented. Moreover, we use the wavelet method to describe the daily river flows of the Salt River.

Information about building access for persons with disabilities may be obtained in advance by calling Sandra Romero at 773.702-0541 or by email (sandra@galton.uchicago.edu).