

## Modeling Weekly Rainfall: Problems Encountered

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### Abstract

*Rainfall is the main source of the hydrological cycle and able to get more practical benefits by forecasting. However, modeling rainfall is a challenging task due to increase in the degree of uncertainty of atmospheric behavior from time to time. Relatively, few efforts have been done in modeling weekly rainfall in hydrologic time series. This study mainly focuses on the difficulties that arise in modeling weekly rainfall. The rainfall data of the commercial capital of Sri Lanka during the time span from 1990 to 2015 were employed for this analysis. By studying the various properties of weekly rainfall three types of models: (1) Seasonal autoregressive integrated moving average (SARIMA) (2) Generalized autoregressive conditional heteroscedasticity (GARCH) for deseasonalized data (3) Hybrid SARIMA-GARCH were identified as the most suitable models to forecast weekly rainfall. However, each model has statistical drawbacks which needs to pay attention of the applied statistician.*

**Keywords:** GARCH, Heteroscedasticity, SARIMA, Weekly Rainfall