ABSTRACT

CABANTAC, SHEANNE ERIC P., and **OSBUCAN, MIKHAIL ANTONI A.**, Philippine Science High School - Cordillera Administrative Region Campus, March 2013. **Time Series Analysis of Precipitation in Baguio City between 2001 and 2012 Using Holt-Winters Forecasting**.

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The research was conducted to provide a rainfall amount forecast for Baguio City, using time series data from January 2001 to December 2011 gathered from PAG-ASA. Using Holt Winters simple exponential smoothing technique through the statistical software R-statistics, the data gathered were used to create a model to produce a forecast for the year 2012.

Through the auto-correlation function, it was found out that the model derived through Holt-Winters exponential smoothing might be improved upon. However, the Ljung-Box test showed that there is little evidence of non-zero autocorrelations in the in-sample forecast errors, and the distribution of forecast errors seems to be normally distributed with mean zero. These suggest that the exponential smoothing, Holt-Winters method provides an adequate predictive model for rainfall, which probably cannot be improved upon. Furthermore, the assumptions that the 80% and 95% predictions intervals were based upon (that there are no autocorrelations in the forecast errors, and the forecast errors are normally distributed with mean zero and constant variance) are probably valid.