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**Steven E Gaurin\*** (sgaurin@geo.umass.edu). *North Atlantic Climate Variability: Preliminary Analysis of Historical Weather Data and Stable Isotope Time Series from Cave Dripwater and a Holocene-Age Stalagmite from Bermuda.*

Bermuda, located in the subtropical North Atlantic, is a unique laboratory for analyzing Holocene climate change. This area lacks a strong seasonal cycle, making it an ideal place to look for low-frequency cycles identified in observational records of climate parameters. A preliminary statistical analysis of historical climate data, spanning a period from 1852 to 2006, is presented. Emphasis is placed on the identification of cycles in the data which might correspond to such climate modes as the North Atlantic Oscillation (NAO) and the Atlantic Multidecadal Oscillation (AMO).

Carbonate caves abound on the island of Bermuda and contain numerous speleothems with the potential to serve as extremely high-resolution (sub-decadal) recorders of climate change. Time series of stable isotope data from a Bermuda stalagmite covering 4700-2700 years ago are presented and briefly analyzed. Stalagmite stable isotope data are reflective of changes in stable isotopes of the cave dripwater feeding the stalagmite. Approximately bi-weekly to monthly samples of dripwater from three sites in each of two Bermuda caves have been collected from April 2006 to present; time series of stable oxygen isotope data are presented, including a signal from the passage of Hurricane Florence in September 2006. (Received March 03, 2009)