

Statistical description and prediction(?) of decadal variability

Arthur M. Greene
International Research Institute for Climate and Society
The Earth Institute at Columbia University
Palisades, NY 10964
amg@iri.columbia.edu

Climate Prediction to 2030, Aspen Global Change Institute, June 22-28, 2008

Several aspects of decadal climate processes are described, as well as some implications of typical analysis methods. These include lowpass filtering of time series (in order to recover decadal components), dimension reduction of spatiotemporal variability through eigendecomposition, inferred dependence among large-scale modes and the separation of forced and natural variability using both linear detrending and indices based on global-scale temperature signals. The possibility of statistical decadal prediction, via signal decomposition, forward projection of individual components and construction of an error envelope using stochastic residuals is described. Statistical aspects of user needs are discussed.
