A DYNAMICAL FRAMEWORK TO UNDERSTAND AND PREDICT THE MAJOR NORTHERN HEMISPHERE CLIMATE MODE

J. Cohen
AER, Inc., Lexington, MA (jcohen@aer.com/FAX: +1-781-761-2299)

The dynamics of the leading mode of boreal winter and its excitation by varying boundary conditions remain mostly unclear. A novel framework is presented to explain the evolution of this dominant winter mode. It is shown that there exists a dichotomy of pathways with the characteristics of the dominant mode dependent upon the pathway taken. All winters examined fall into one of the two different dynamic evolutions presented, the knowledge of which clarifies prior uncertainties associated with the dominant mode, allows for more accurate seasonal predictions and introduces a spatial and temporal resolution in forecasts previously not possible.