



## **Stratospheric Sudden Warming from a Potential Vorticity Perspective**

Rainer Bleck, Shan Sun, and Stan Benjamin

NOAA, Boulder, CO, United States (rainer.bleck@noaa.gov)

Two- to four-week predictions of stratospheric sudden warming events during the winter seasons of 1999-2014, carried out with a high-resolution icosahedral NWP model using potential temperature as vertical coordinate, are inspected for commonalities in the evolution of both minor and major warmings. Emphasis is on the evolution of the potential vorticity field at different levels in the stratosphere, particularly on signs of vertical propagation of low zonal wave number PV perturbations suggestive of Rossby waves being forced from below. Material is presented shedding light on the skill of the model (FIM, developed at NOAA/ESRL) in predicting stratospheric warmings generally 2 weeks in advance. With an icosahedral grid ideally suited for studying polar processes and a vertical coordinate faithfully reproducing the evolution of the PV field, FIM is found to be a prime tool for investigating the SSW mechanism.