



Seminar



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Upper Atmosphere Variability Due to Meteorological Processes

The Earth's upper atmosphere, comprising of altitudes from ~80 to 1000 km, is highly variable, and understanding this variability is important owing to its impact on satellite drag and orbit prediction, radio communications, and space-based navigation. Upper atmosphere variability has historically been considered to be predominantly solar driven. However, in the past decade meteorological processes occurring in the troposphere and stratosphere have become recognized as a significant source of upper atmosphere variability. Meteorological processes can generate variability on time scales from hours to years, and across a wide range of spatial scales, ranging from local to global. This presentation will discuss recent results from both observations and numerical simulations that illustrate the impact of Sudden Stratosphere Warmings (SSWs) and the El-Nino Southern Oscillation (ENSO) on the upper atmosphere. While SSWs introduce variability on time scale of days to weeks, the ENSO generates interannual variability in the upper atmosphere. These two processes thus serve to illustrate vastly different temporal scales of variability. In addition to illustrating the impact of SSWs and the ENSO on the upper atmosphere, current understanding of the fundamental processes by which they generate variability in the upper atmosphere will be summarized.

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2:00 – 3:00 pm
DLC Bechtel Collaboratory

Dr. Pedatella received his BS from Pennsylvania State University, and earned his PhD in Aerospace Engineering from the University of Colorado Boulder in 2011. He is currently a remote sensing/space weather project scientist in the COSMIC Program at UCAR.