University of Colorado at Boulder

AEROSPACE ENGINEERING SCIENCES

Seminar

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.