



HAO Colloquium Series

(Refreshments served)

Speaker: Dan Marsh, NCAR, ACD

Time: 1:30–2:30 pm

Date: Wednesday, May 29, 2013

Location: CG1-1210 South Auditorium

Title: Projections of the response of the mesosphere and lower thermosphere to anthropogenic climate change

Abstract:

This talk describes transient simulations from present day to the end of the 21st century using the Community Earth System Model version 1 that includes the Whole Atmosphere Community Climate Model (WACCM). The simulations are conducted as part of phase 5 of the Coupled Model Intercomparison Project (CMIP5) and follow several Representative Concentration Pathway (RCP) scenarios. They are perhaps unique among simulations for CMIP5 in that they include an atmospheric model that extends into the lower thermosphere and incorporate interactive neutral and ion chemistry. The RCP scenarios cover a range of CO₂ concentrations ranging from one that peaks at approximately 490 ppm before 2100 and then declines, to one that reaches over 1370 ppm by 2100. All scenarios also include the eventual recovery of the stratospheric ozone layer. They therefore provide a new opportunity to study the expected response of the composition and dynamics of the upper atmosphere to future anthropogenic climate change.