

Behavior of the Global Tropopause Revealed by Observations of UTLS Composition

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Abstract:

Although the tropopause was discovered and defined by meteorological observations, this physical boundary serves an important role in coupling the dynamical and chemical structure of the upper troposphere and lower stratosphere (UTLS). Consequently, chemical composition observations in the UTLS provide unique ways to characterize the behavior of this physical boundary. Substantial progress over the last decade has been made in understanding the behavior of the tropopause based on novel measurements of UTLS compositions (including those from the NSF/NCAR GV research aircraft). In this seminar, I will discuss how the chemical composition observations are used to reveal the physical structure of the tropopause, to reconcile various tropopause definitions, to identify the tropopause transitional layers both in the tropics and the extratropics (TTL and ExTL), and to help improve the representation of UTLS chemical structure in chemistry-climate models. These observational studies highlight the complementary nature of dynamical meteorology and atmospheric composition studies, and the interaction of the two within the climate system.

Monday, March 17

3:15 p.m. Refreshments

3:30 p.m. – Seminar

FL2- 1022, Large Auditorium