



High-resolution Antarctic observations of the stratospheric influence on the troposphere

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The upper troposphere and lower stratosphere (UTLS) is a highly coupled region of the atmosphere where radiation, dynamics, clouds and chemical processes interact on a wide variety of spatial and temporal scales. We use a suite of instruments at Davis, Antarctica (69S, 78E) to investigate Stratosphere-Troposphere Exchange (STE) in the high southern latitudes and its effect on the troposphere under a variety of meteorological conditions. A Rayleigh lidar provides observations of tropospheric cirrus clouds and (wintertime) polar stratospheric clouds near the tropopause; a Very High Frequency (VHF) radar resolves the year-round radar tropopause; and co-located vertically-resolved ozone profiles are available from ozonesondes. Using these data, we will present case studies of STE events and their effects on clouds and tropospheric ozone. The high-resolution structure and seasonal variability of the radar tropopause will also be presented, along with its relation to meteorological events.