



## **A study of stratospheric chlorine partitioning in the winter polar vortices based on new satellite measurements and modeling**

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Two recent satellite instruments provide an unparalleled opportunity to revisit the issue of chlorine partitioning in the winter polar vortices. The Microwave Limb Sounder (MLS) on Aura (launched in July 2004) measures several key species involved in stratospheric ozone chemistry, including the first simultaneous daily global profiles of HCl and ClO. The Atmospheric Chemistry Experiment Fourier Transform Spectrometer (ACE-FTS) on SCISAT-1 (launched in August 2003) provides solar occultation profiles of a large number of species, including HCl and ClONO<sub>2</sub>. Here we use MLS and ACE measurements to examine chlorine partitioning throughout the 2004-2005 Arctic and 2005 Antarctic winter seasons. Interhemispheric differences in the evolution of reactive and reservoir chlorine species in the polar vortices are explored throughout the lower stratosphere (400-750 K). In addition, theoretical understanding is tested by comparing the satellite measurements to results from near real time runs of the recently-updated version of the SLIMCAT 3D chemical transport model, sampled at the same location and local time as the MLS measurements.