

Diurnal chemistry of Halogen species (BrOx, ClOx) observed by JEM/SMILES

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Sub-millimeter-wave receivers employing super sensitive SIS (Superconductor-Insulator-Superconductor) detector technology provide new opportunities for precise passive remote sensing observations of minor constituents in the atmosphere. The Superconducting Submillimeter-Wave Limb-Emission Sounder (SMILES) was launched on September 11, 2009 and is installed on board the Japanese Experiment Module (JEM) of the International Space Station (ISS). SMILES is a collaboration project of the National Institute of Information and Communications Technology (NICT) and the Japan Aerospace Exploration Agency (JAXA). JEM/SMILES observed the diurnal variation of minor species in the stratosphere and mesosphere, such as ClO, HO₂, BrO, HOCl, as well as O₃, H³⁵Cl, and H³⁷Cl.