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超伝導サブミリ波リム放射サウンダ（SMILES）によるClO観測：初期観測と比較・検証

JEM/SMILES ClO observation: Early result and Comparison/Validation

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A new super sensitive technology of sub-millimeter-wave receivers employing sensitive SIS (Superconductor-Insulator-Superconductor) detector will provide new opportunities for ClO observation in the Earth's atmosphere. Superconducting Sub-millimeter-Wave Limb-Emission Sounder (SMILES) was launch to the Japanese Experiment Module (JEM) on the International Space Station (ISS) on September 2009. SMILES project has been implemented by a collaboration of National Institute of Information and Communications Technology (NICT) and Japan Aerospace Exploration Agency (JAXA).

Objectives of SMILES project are:

i) Space demonstration of superconductive mixer and 4K mechanical cooler for the submillimeter limb emission sounding.

ii) Global observations of atmospheric minor constituents.

JEM/SMILES observes the atmospheric species such as O_3, $H^{35}Cl$, $H^{37}Cl$, ClO, Upper tropospheric humidity, BrO, HOBr, HOCl, HO_2, H_2O_2, HNO_3, CH_3CN, SO_2, Ozone isotope species, with the precisions in a few to several tens percents from upper troposphere to the mesosphere.

We have been analyzing the ClO atmospheric profiles from SMILES observation in NICT research products. We will introduce the recent status of the analysis from October 2009 to May 2010 and results of comparison/validation.

キーワード:サブミリ波,リム放射観測, ClO,成層圏,気候変動,大気組成

Keywords: Sub-millimeter-wave, Limb emission observation, ClO, Stratosphere, Climate change, Atmospheric composition