

AAS003-P02

Room: Convention Hall

Time: May 27 17:15-18:45

Presentation of the JEM/SMILES level 2 research products

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The super-conductive Sub-Millimeter Limb Emission Sounder (SMILES) is a high sensitive radiometer to study atmospheric dynamics and chemistry with a strong emphasis on the stratosphere. It is the result of the collaboration between the Japanese Aerospace eXploration Agency (JAXA) and the National Institute of Technology and Communications (NICT, Japan). It has been operating from the Japanese Experiment Module (JEM) onboard the International Space Station since October, 2010. The latitude coverage is typically from -40deg to 60 deg. The main products are stratospheric O₃ and its isotopes, H³⁵Cl, H³⁷Cl, ClO, BrO, HO₂, HOCl, H₂O₂, CH₃CN. Thanks to its very low signal to noise ratio, SMILES is very well suited to observe radicals with very low abundance such as BrO and HO₂. Furthermore due to the ISS orbit precession, it is possible to follow their diurnal variation at given latitudes.

A system for an operational processing of the observations has been developed by JAXA and, a system for research on retrieval algorithms has been developed by NICT. In this presentation, the current NICT research products (version 1.0) will be described as well as the ongoing research including plans for new products.

Keywords: SMILES, remote sensing, ISS, ozone, stratosphere, atmosphere