

JEM/SMILES 観測性能

JEM/SMILES Observation Capability

笠井 康子 [1]; バロン フィリップ [1]; Mendrok Jana[1]; 落合 啓 [2]; 佐野 琢己 [3]; 西堀 俊幸 [4]; 菊池 健一 [4]; JEM/SMILES ミッションチーム [5]

YASUKO KASAI[1]; Philippe Baron[1]; Jana Mendrok[1]; Satoshi Ochiai[2]; Takuki Sano[3]; Toshiyuki Nishibori[4]; Kenichi Kikuchi[4]; Mission Team JEM/SMILES[5]

[1] NICT; [2] 情通機構; [3] JAXA; [4] 宇宙機構; [5] -

[1] NICT; [2] NICT; [3] JAXA; [4] JAXA; [5] -

<http://www2.nict.go.jp/y/y222/THz/>

A new generation of sub-millimeter-wave receivers employing sensitive SIS (Superconductor-Insulator- Superconductor) detector technology will provide new opportunities for precise remote sensing measurements of minor constituents in atmosphere.

Superconductive Submillimeter-Wave Limb-Emission Sounder (SMILES) was designed to be onboard the Japanese Experiment Module (JEM) on the International Space Station (ISS) as a collaboration project of Japan Aerospace Exploration Agency (JAXA) and National Institute of Information and Communications Technology (NICT). SMILES scheduled to launch in September 2009 by the H-II Transfer Vehicle (HTV). Mission Objectives are: i) Space demonstration of superconductive mixer and 4-K mechanical cooler for the submillimeter limbemission sounding, and ii) global observations of atmospheric minor constituents. JEM/SMILES will allow to observe the atmospheric species such as O₃, H³⁵Cl, H³⁷Cl, ClO, CH₃CN, HNO₃, HOCl, HO₂, BrO, H₂O₂, ¹⁷O₂, ¹⁸O₂, and Ozone isotope species with the precisions in a few to several tens percents from upper troposphere to the mesosphere. We have estimated the observation capabilities of JEM/SMILES. This new technology may allow us to shade new light the open issue in atmospheric science.

