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SMILES L2　　　　　　　v2.X
SMILES L2 Product improvements in v2.X updates

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In this presentation, we will introduce about processing status of level 2 products of JEM/SMILES. Latest product v2.1 was already released for RA researchers), and it will be released to the general users in spring, 2012.

The SMILES (Superconducting Submillimeter-Wave Limb-Emission Sounder) has 4K-cooled superconducting mixers and had observed atmospheric spectra with high sensitivity for about half a year from Oct. 12, 2009. SMILES observes three submillimeter bands defined as band A, B, and C. Frequency coverages are 624.32-625.52 GHz, 625.12-626.32 GHz and 649.12-650.32 GHz, respectively. Standard L2 products are O_3, HCl, ClO, HNO_3, CH_3CN, HOCl, HO_2, BrO and O_3-isotioes (^{17}OOO, $O^{17}OO$, ^{18}OOO) in the stratosphere.

In Sep., 2010, version 2.0 products were released for RA researchers. Objective of v2.0 product is to reduce temperature bias. In the stratosphere, temperature of SMILES v1.3 is 2% higher than other satellite observation like as TIMED/SABER, AURA/MLS, and assimilated data like as GEOS-5. This is the largest issue in v1.X series since temperature is a basic parameter which characterizes the atmospheric structure. Temperature bias may suggest biases of other products.

The new products used latest L1B 007 which includes gain nonlinearity effect of receivers. The bias of temperature in upper stratosphere is successfully suppressed. In addition, we stopped temperature retrieval above 40km and refer MLS temperature product (v2.2) with applying migrating tidal model. HCl profiles in mesosphere became constant. This feature is suggested by Cl chemistry. V2.1 which was released in Jan. 2012 is miner update version for HOCl. HOCl lines are located near O_3 $_{(v1,3)}$ and ^{18}OOO. In this version, some parameters of these lines were changed and residual spectra were compressed. HOCl difference between SMILES and WACCM around 30km was suppressed.

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