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Present Status and Plan of the GOSAT Level 2 Data Processing and Validation

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The Greenhouse gases Observing SATellite (GOSAT) is scheduled to be launched during the period between January 21 and February 28, 2009. The main target of the GOSAT observation is obtaining column abundances of global CO_2 and CH_4. For three months after the launch, functional tests and tuning of the satellite and the onboard sensors will be performed by the Japan Aerospace Exploration Agency (JAXA) as the initial check-out (ICO). After the ICO period, the GOSAT mission data (i.e. observational Level 1 data) will be transferred from JAXA to the GOSAT Data Handling Facility (DHF) at the National Institute for Environmental Studies (NIES) for further processing. In the next three months after the ICO period, NIES will conduct testing and tuning of the operational system of the GOSAT DHF and the initial data validation. JAXA will calibrate sensors onboard the satellite during that time. Level 1 data (interferogram and spectra for Thermal And Near infrared Sensor for carbon Observation-Fourier Transform Spectrometer (TANSO-FTS) and uncorrected data for Cloud and Aerosol Imager (TANSO-CAI)) will be generated by JAXA. Then, the data will be transferred to GOSAT DHF at NIES for producing CAI Level 1B data (geometric and radiometric correction), Level 2 data (FTS-generated CO_2 and CH_4 column abundances, CAI-generated cloud flag data, and cloud and aerosol properties), and other higher-level data products. NIES is also responsible for developing the data processing algorithms, validating data quality, and managing generated data products. As for the data validation, the column abundances or column averaged volume mixing ratios of CO_2 and CH_4 (Level 2 data) will be validated by utilizing the ground-based FTS network (Total Carbon Column Network: TCCON) data collected at worldwide observation sites in Tsukuba (Japan), Darwin (Australia), Lauder (New Zealand), Bremen (Germany), Park Falls (USA), and others. We expect that the transfer of several GOSAT mission data (i.e. observational Level 1 data) from JAXA to NIES to be completed before the start of 2009 EGU General Assembly, where we present the current status of data processing at the NIES GOSAT DHF. Also, samples of tentative validation data will be shown there.