



CGMS-39, JAXA-WP-01
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Update on the Status of JAXA's Current Satellite Systems

The current status of JAXA's Daichi(ALOS) and Ibuki(GOSAT) is updated.

Daichi operation was stopped by power generation anomaly in April, 2011, however, Sentinel Asia operation is well continued by the other Asian dedicated satellites.

Ibuki(GOSAT) operation is going on well. The data delivration is continued by JAXA (level 1) and NIES (level 2 and higher).

Daichi (ALOS)

1. Completes regular operation phase

On Jan 23, 2011, The Daichi completed its five-year post operation phase and showed the good condition of all the satellite and instruments for future possible operations. However, it turned out that the Daichi shifted its operation mode to the low load mode at around 7:30 a.m. on April 22, 2011 (JST) due to the power generation anomaly. Although JAXA had been trying to recover it about three weeks, it was impossible to recover communication with the Daichi. Then JAXA announced Daichi operation completion on May 12, 2011 (JST).



Since its launch on January 24, 2006, The Daichi has been utilized on many occasions such as mapping and observation of sea ice and forests in addition to emergency observations during disasters. The Daichi had been operated for over five years, which was its target life and well beyond its design life of three years. It archived many fruitful results related to emergency observations on disaster-stricken areas and earth observation. J

2. Contribution to Sentinel Asia Step 2

In response to the APRSAF-14 recommendation, the new JPT meeting was held in Kobe, Japan in June 2008, and the Sentinel Asia Step 2 project was initiated.

In addition to Step 1's Earth observation satellites, that is, ALOS of JAXA, IRS of the Indian Space Research Organization (ISRO), and MTSAT-1R (JMA), new Earth observation satellites have joined. These include the Korean Multi-purpose Satellite (KOMPSAT) of the Korea Aerospace Research Institute (KARI), Thai Earth Observation System (THEOS) of the Geo-Informatics and Space Technology Development Agency (GISTDA), FORMOSAT-2 of the National Applied Research Laboratories (NARL), and communications satellites such as the wideband Internetworking Engineering Test and Demonstration Satellite (WINDS) of JAXA. These organizations are called the Data Provider Node (DPN) of Sentinel Asia, and these satellites are called 'Sentinel Asia Constellation'. After completion of ALOS operation in May 2011, JAXA is providing ALOS archived data to Sentinel Asia. In addition, cooperation for emergency observation in the Asia-Pacific region between Sentinel Asia and the International Charter for Space and Major Disasters was agreed at the JPT meeting held in Bali, Indonesia in July 2009.

In Step 2, a new framework of satellite data analysis, that is, the Data Analysis Node (DAN) of Sentinel Asia, has been organized to provide analyzed images and easily comprehensible interpretations from images. AIT, ADRC, the Centre for Remote Imaging, Sensing and Processing (CRISP) of National University of Singapore, the Central Asian Institute of Applied Geosciences (CAIAG) of Kyrgyz, Ministry of Natural Resources and Environment (MONRE) of Vietnam, the National Institute of Aeronautics and Space (LAPAN) in Indonesia, International Centre for Integrated Mountain Development (ICIMOD), Ministry of Disaster Management (MoDM) of Sri Lanka, Survey Department (SD) of Sri Lanka, and China Earthquake Administration (CEA) and others have joined the framework. In case of emergency observation, the DAN members analyze the satellite data (raw data in principle) provided by the DPN together with their own data, such as local maps, and make value-added products.

Besides, in order to extend Step 1's focus on wildfires and flood, glacial lake outburst flood (GLOF) working group was initiated at the 2nd JPT meeting of Step 2 held in Bali, Indonesia in July 2009; tsunami working group, at the 4th JPT meeting of Step 2 held in Putrajaya, Malaysia in July 2011

3. Reference



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http://www.jaxa.jp/projects/sat/alos/index_e.html
<http://sentinel.tksc.jaxa.jp/>

Ibuki (GOSAT)

1 Status of Ibuki

Greenhouse gases Observing SATellite (GOSAT) is a Japanese mission to observe greenhouse gases, CO₂ and CH₄, from Space with a Fourier transform spectrometer and a push broom imager. The GOSAT was launched on January 23, 2009. The GOSAT is operated normally and acquired the observation data over 2.5 year.

The GOSAT sensors were characterized in pre-flight test (PFT) [1]. The Level 1 algorithm was developed by using the evaluation of the PFT data [2]. After the launching, the observation data was evaluated by onboard and vicarious calibration methods in the initial calibration and validation phase[3]. The results of evaluation of calibration data are reflected regularly to improvement of the Level 1 algorithm for providing the calibrated Level 1 products. The Level 1 products are released to public from October 2009, and the Level 2 from February 2010.

Global distributions of XCO₂ and XCH₄ - The FTS SWIR Level 3 data products - are available to the general users through the GOSAT User Interface Gateway from November 30, 2010. The FTS SWIR Level 3 data products are derived from the FTS SWIR Level 2 data products. They includes the estimated results of areas where no observational data were available. Global distributions of XCO₂ and XCH₄ are shown in Figures 1 and 2, which are available from <http://www.gosat.nies.go.jp/eng/related/2010/201012.htm>

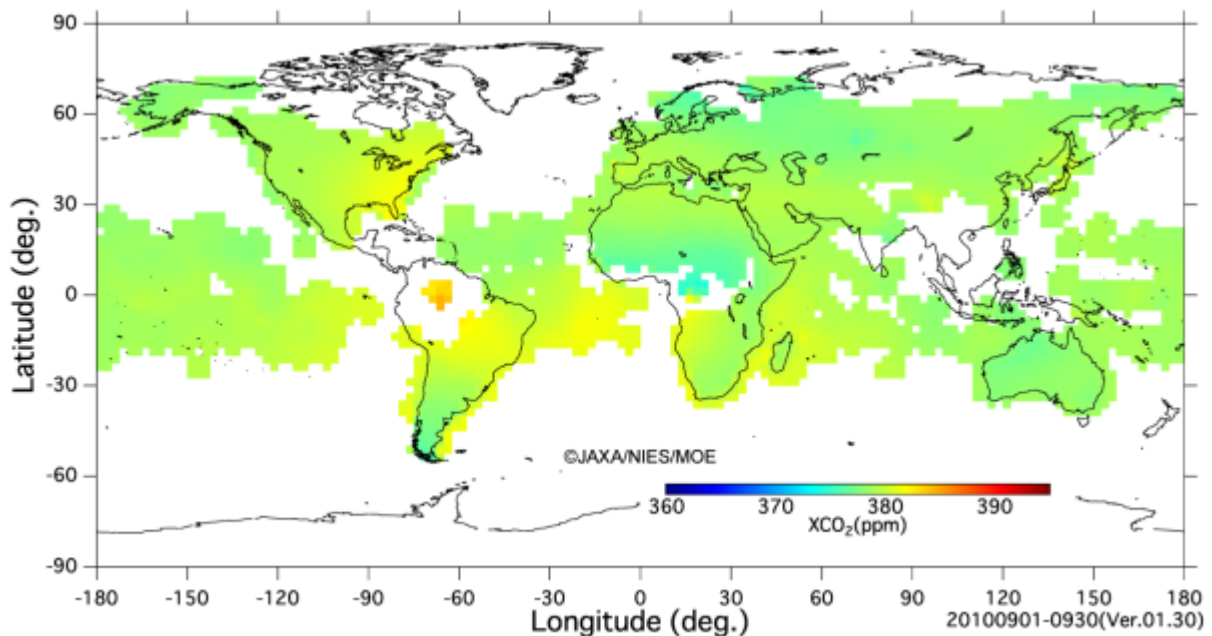


Figure 1. The global distribution of XCO₂ in September, 2010

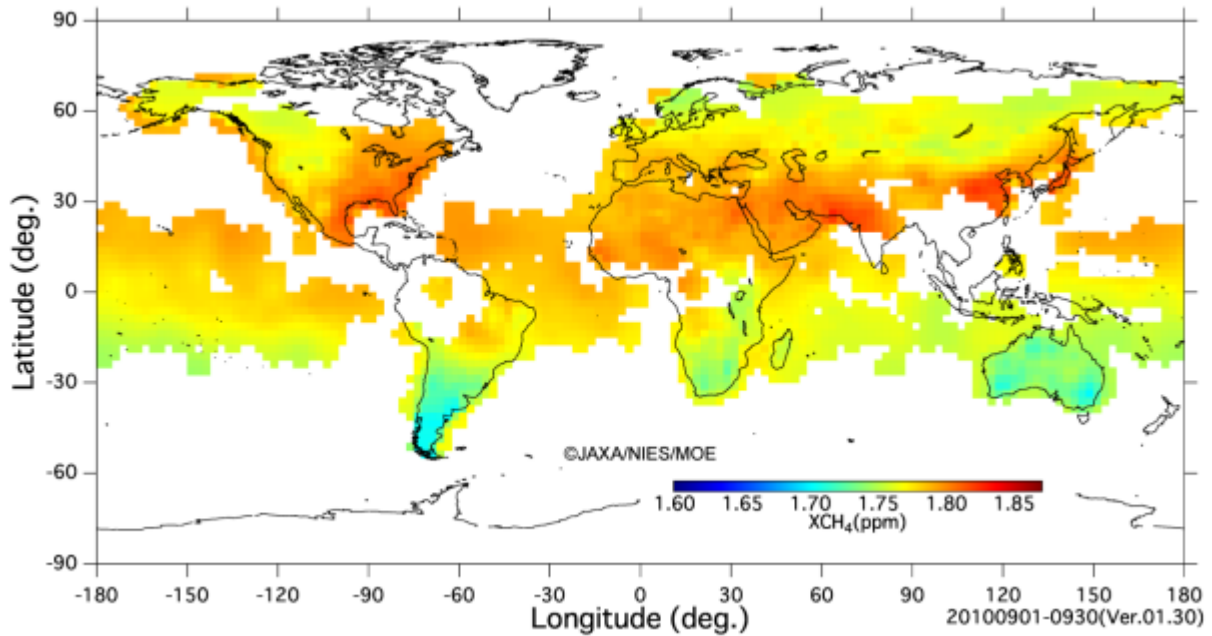


Figure 2. The global distribution of XCH₄ in September, 2010

Further information about the 'Ibuki' GOSAT project can be found on the following WWW addresses:

http://www.gosat.nies.go.jp/index_e.html

http://www.jaxa.jp/projects/sat/gosat/index_e.html

References

1. Kuze, A., H. Suto, M. Nakajima, and T. Hamazaki, "Thermal and near infrared sensor for carbon observation Fourier-transform spectrometer on the Greenhouse Gases Observing Satellite for greenhouse gases monitoring," *Appl. Opt.*, 48, pp. 6716–6733 (2009).
2. Kuze, A., H. Suto, K. Shiomi, M. Nakajima, T. Hamazaki, "On-orbit performance and Level 1 data processing of TANSO-FTS and CAI on GOSAT", *Proc. SPIE*, 7474, 74740I (2009).
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4. Yokota, T., Y. Yoshida, N. Eguchi, Y. Ota, T. Tanaka, H. Watanabe, and S. Maksyutov, "Global Concentrations of CO₂ and CH₄ Retrieved from GOSAT: First Preliminary Results", *SOLA*, 5, pp. 160-163 (2009).