

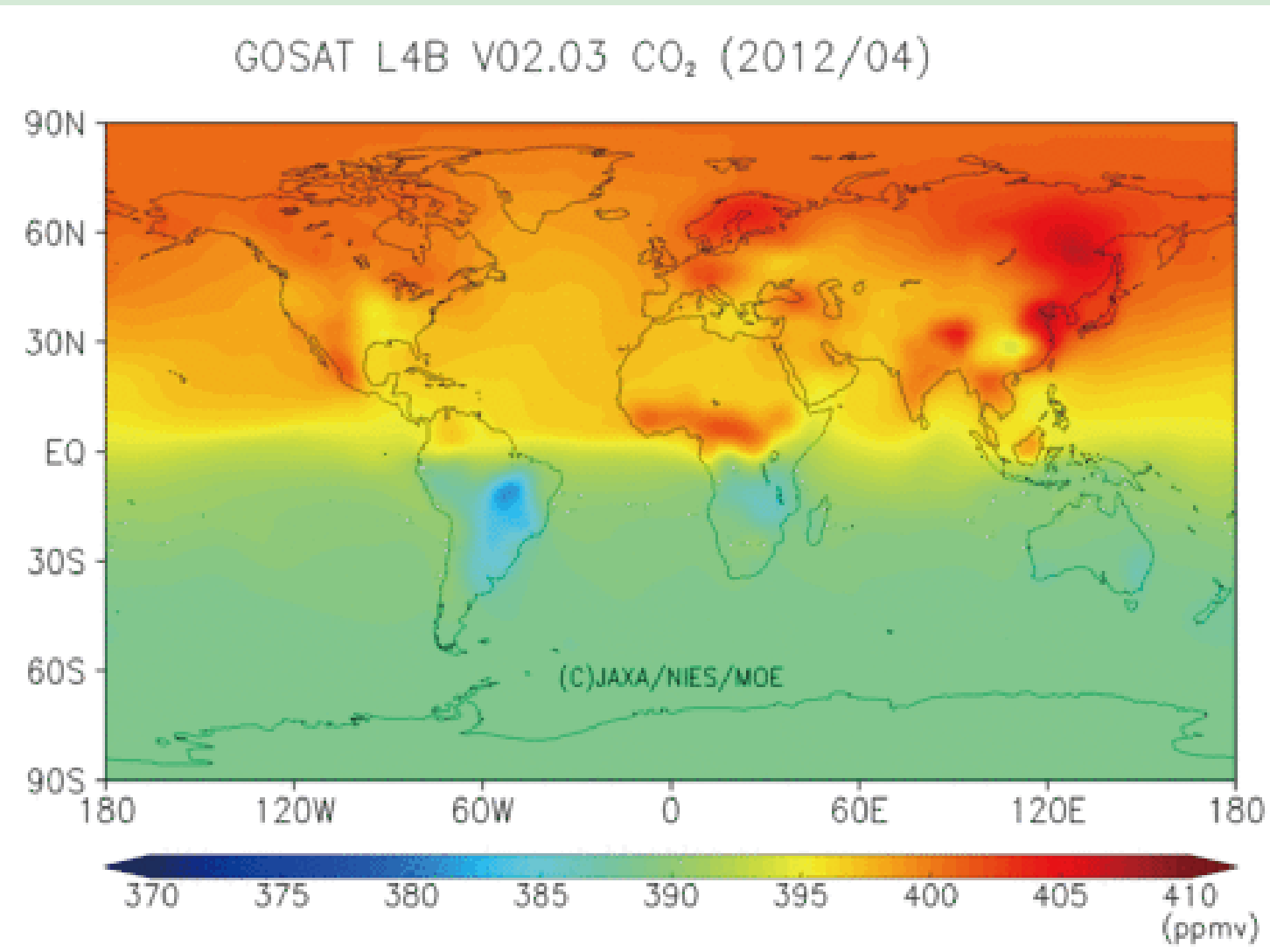
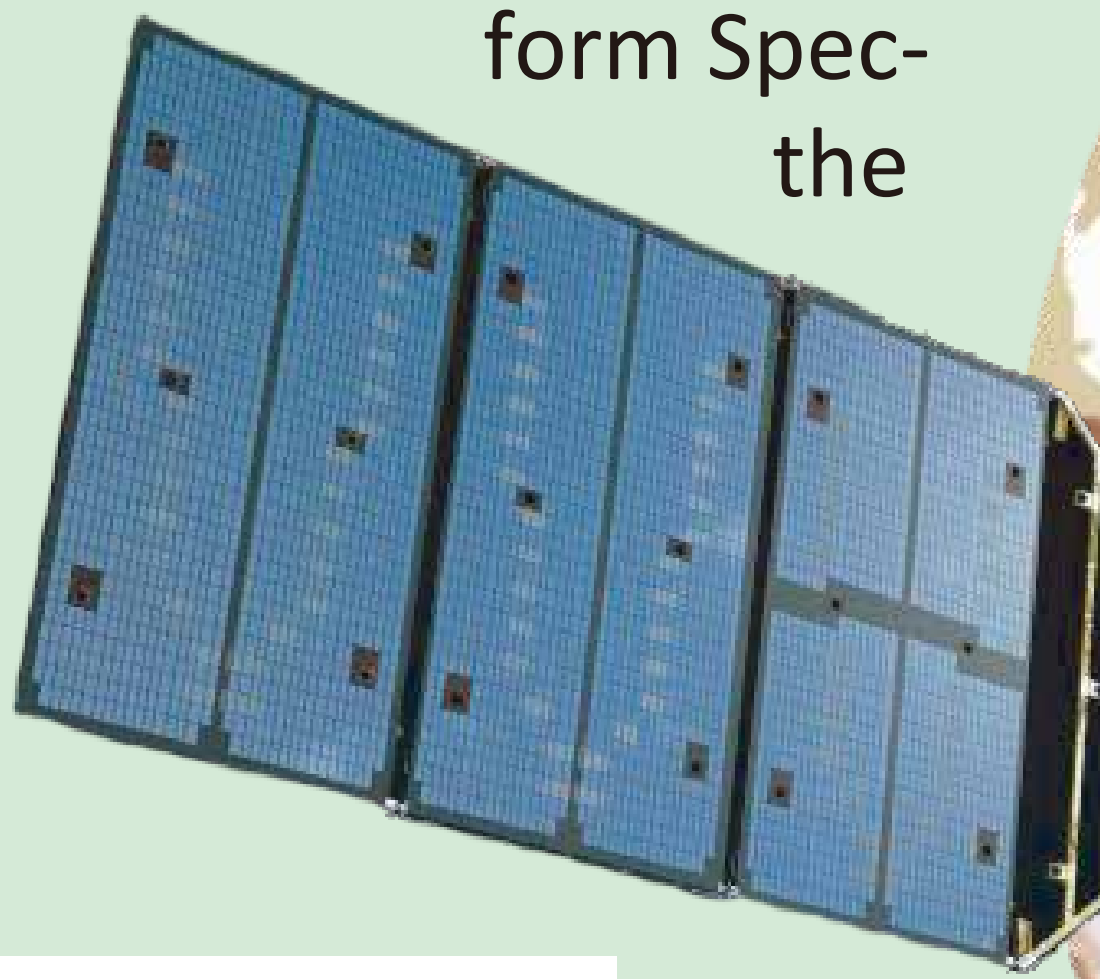
GLOBAL GHG OBSERVATION from SPACE



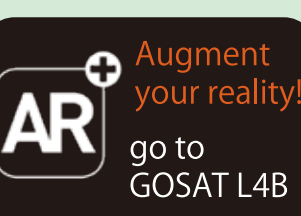
GOSAT

GOSAT, Greenhouse gases Observing SATellite, the world's first spacecraft to measure the concentrations of carbon dioxide and methane, the two major greenhouse gases, from space. It was launched successfully on January 23, 2009, and has been continuing observation after completing its five-year nominal operation.

The GOSAT Project is a joint effort of the Ministry of the Environment (MOE), the National Institute for Environmental Studies (NIES) and the Japan Aerospace Exploration Agency (JAXA). The Fourier Transform Spectrometer (FTS) and Cloud and Aerosol Imager (CAI) are onboard the spacecraft.



GOSAT L4B V02.03 2012/04 Near Ground Surface



Requirements for the spacecrafts

Jan 2009. 5 years	Launch year and lifetime	2018. 5 years
3.7 X 1.8 X 2.0 m, 1,750 kg, 3.8 KW	Satellite	5.3 X 2.0 X 2.8 m, <2,000 kg, 5.0 KW
Sun Synchronous, 666 km, 3 days, 13:00	Orbit	Sun Synchronous, 613 km, 6 days, 13:00
CO ₂ , CH ₄ , O ₂ , O ₃ , H ₂ O	Targets	CO ₂ , CH ₄ , O ₂ , O ₃ , H ₂ O, CO, Black carbon, PM2.5
Band 1: 0.76-0.78 μm Band 2: 1.56-1.72 μm Band 3: 1.92-2.08 μm Band 4: 5.6-14.3 μm IFOV = 10.5 km Pointing = ±20° (AT) ±35° (CT) Exposure = 4.0, 2.0, 1.1 seconds (upon mode)	Fourier Transform Spectrometer (FTS)	Band 1: 0.75-0.77 μm Band 2: 1.56-1.69 μm Band 3: 1.92-2.33 μm Band 4: 5.5-8.4 μm Band 5: 8.4-14.3 μm IFOV = 9.7 km Exposure = 4 seconds Pointing = ±40° (AT) ±35° (CT)
Nadir Band 1 = 380 nm Band 3 = 870 nm Band 2 = 674 nm Band 4 = 1600 nm	Cloud and Aerosol Imager (CAI)	Band 1-5: Forward (+20°) Band 6-10: Backward (-20°) Band 1 = 343 nm Band 6 = 380 nm Band 2 = 443 nm Band 7 = 550 nm Band 3 = Band 8 = 674 nm Band 4 = Band 9 = 869 nm Band 5 = Band 10 = 1630 nm
B1-B3 = 500 m/1000 km B4 = 1.5 km/750 km	Resolution and swath(km) (CAI)	B1-B4, B6-B9 = 460 m/920 km B5, B10 = 920 m/920 km

GOSAT-2

GOSAT-2, the successor of Greenhouse gases Observing SATellite (GOSAT), is under the joint development of the Ministry of the Environment (MOE), the National Institute for Environmental Studies (NIES) and the Japan Aerospace Exploration Agency (JAXA).

The spacecraft will carry two sophisticated instruments - the FTS-2 (Fourier Transform Spectrometer 2) and the CAI-2 (Cloud and Aerosol Imager 2), for performing high-resolution observations of carbon dioxide (CO₂), methane (CH₄), carbon monoxide (CO), as well as aerosols including PM 2.5. It is scheduled for launch in 2018.

New Features of FTS-2

- Automatic search function for cloud-free areas (intelligent pointing) using a FTS-2 FOV camera.
- Fully programmable (target mode) observation.
- Extended range of AT pointing angle, improved Signal-to-Noise Ratio for high latitude and dark target observations