

## Monitoring Global GHGs Trends by GOSAT Series

Greenhouse gases Observing SATellite (GOSAT), the world's first spacecraft specifically designed to measure concentrations of carbon dioxide ( $\text{CO}_2$ ) and methane ( $\text{CH}_4$ ) from space. GOSAT has been continuing observation more than ten years since its launch in January 2009.



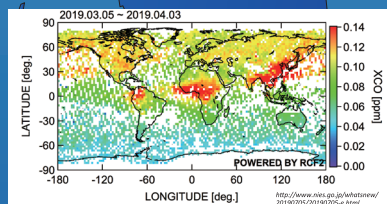
GOSAT PROJECT  
JAXA / NIES / MOE



GOSAT-2 PROJECT  
JAXA / NIES / MOE

GOSAT-2, the successor of GOSAT was launched on October 29, 2018 from JAXA Tanegashima Space Center in Kagoshima, Japan. The satellite carries Fourier Transform Spectrometer 2 (FTS-2), which measures concentrations of  $\text{CO}_2$ ,  $\text{CH}_4$  and carbon monoxide ( $\text{CO}$ ) with higher accuracy than its predecessor. In addition, Cloud and Aerosol Imager 2 (CAI-2) observes clouds and aerosols including  $\text{PM}_{2.5}$ .

### The global concentration of carbon monoxide derived from GOSAT-2 data



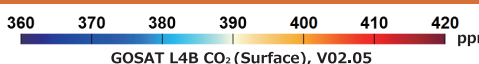
Scan the QR code to access the website of Satellite Observation Center, NIES, Japan



Scan the QR codes to view the global simulations of  $\text{CO}_2$  and  $\text{CH}_4$  concentration



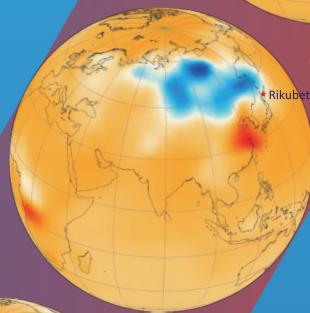
Global simulations of  $\text{CO}_2$  concentration at the Earth's surface using GOSAT data. Based on Level 4B  $\text{CO}_2$  products (V02.05): July 2009 - July 2015.



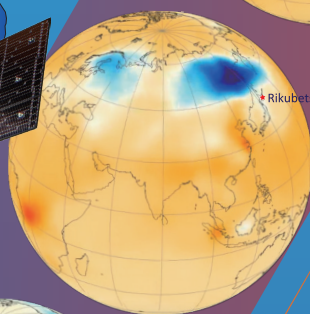
July 2009



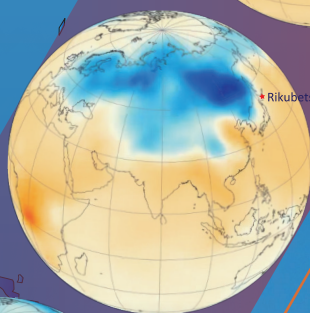
July 2015



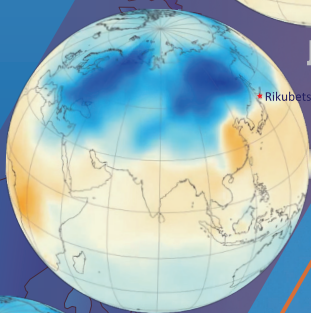
July 2014



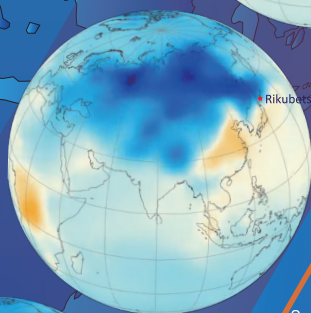
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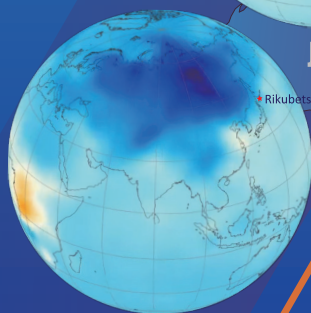
July 2012



July 2011



July 2010

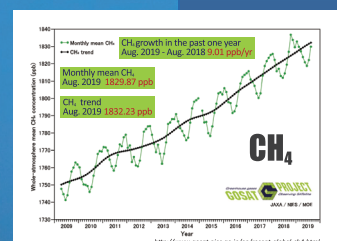
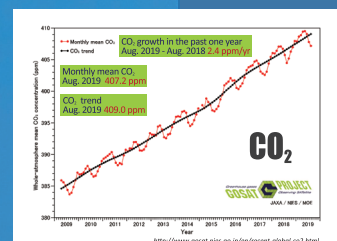


### One of GOSAT data validation sites in Japan



Rikubetsu TCCON site at Rikubetsu Integrated Stratospheric Observation Center, NIES, Hokkaido, Japan.

### Whole-atmosphere monthly mean $\text{CO}_2$ and $\text{CH}_4$ concentration based on GOSAT observations



### GOSAT-2 Launch

The GOSAT Series is a joint effort of the Ministry of the Environment (MOE), the Japan Aerospace Exploration Agency (JAXA) and the National Institute for Environmental Studies (NIES).

[www.nies.go.jp/soc/en](http://www.nies.go.jp/soc/en)