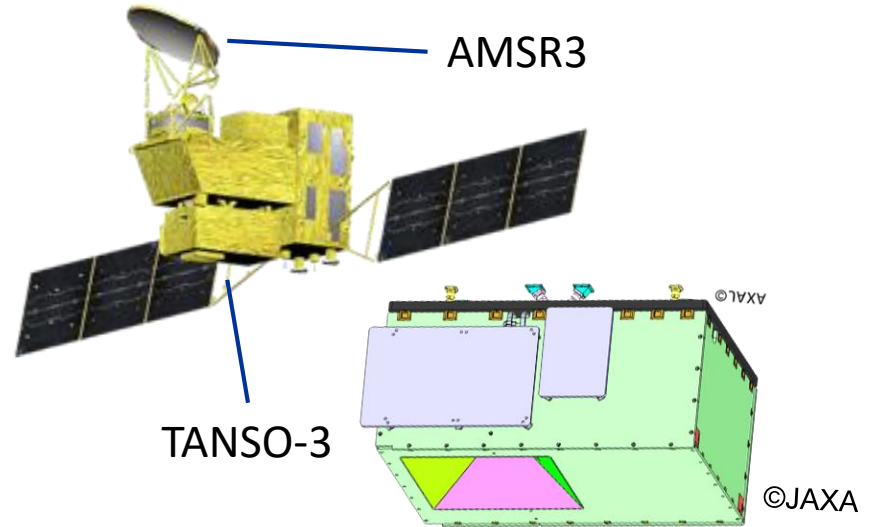
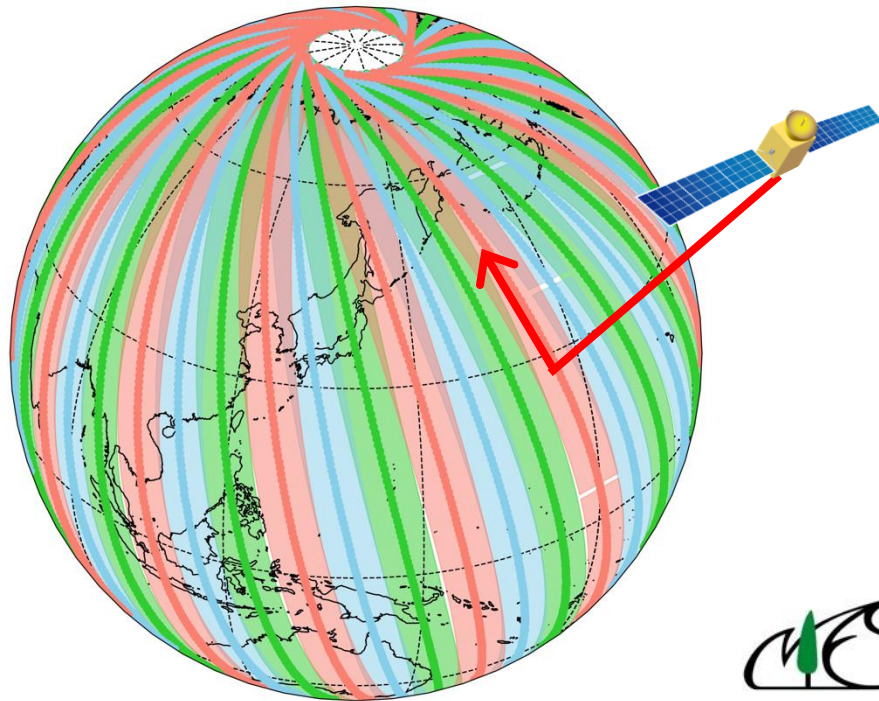


GOSAT-GW GHG (& NO₂) Observing Mission

Hiroshi Tanimoto

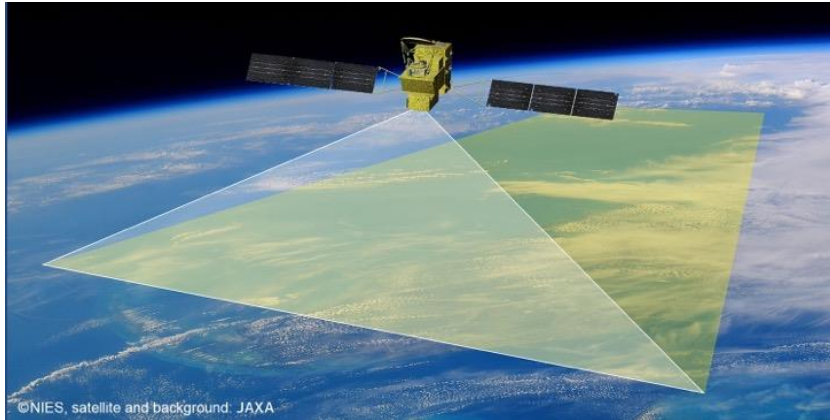
National Institute for Environmental Studies, Japan

- *Monitoring of whole atmosphere global-mean concentrations of GHGs*
- *Verification of national (or country-specific) anthropogenic emissions inventory of GHGs*
- *Detection of GHGs emissions from megacities, LPS (power plants, industries), and permafrost*



Two Observation Modes

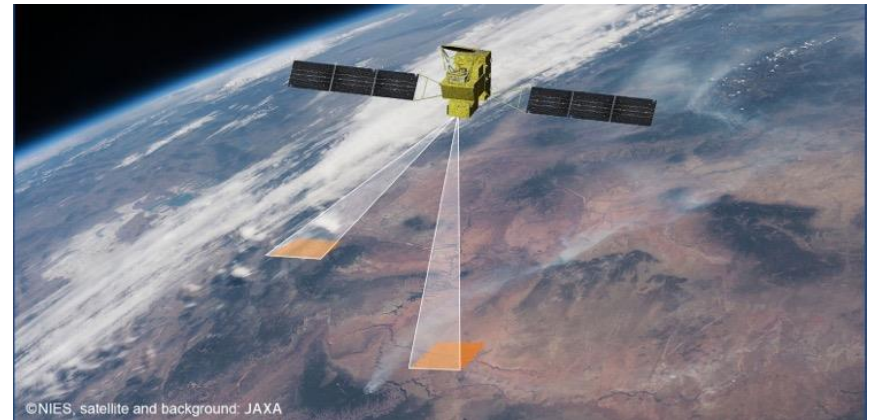
- CO₂ & CH₄ + NO₂
- Grating - 0.45 / 0.7 / 1.6 μm



Wide-Swath, Push-broom Mode

- Swath ≈ 960 km
- Footprint ≈ 10 km
- No AT/CT Pointing
- Standard operation

- 3-day global coverage (repeating)
- AMSR3 (Advanced Microwave Scanning Radiometer 3)



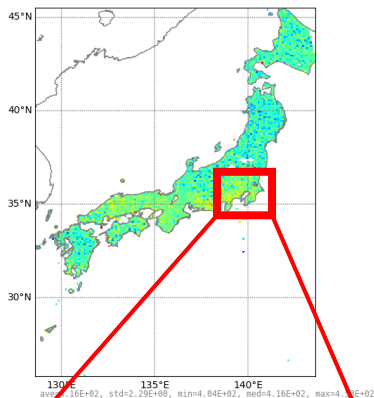
High-resolution, Target-pointing Mode

- Swath ≈ 90 km (x 90 km)
- Footprint ≈ 1 - 3 km
- AT/CT Pointing
- Upon requests

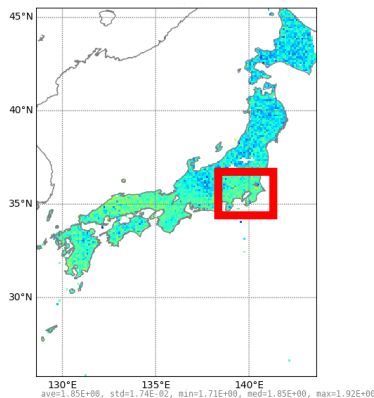
Simulated GOSAT-GW data – 10 km x 10 km

Japan

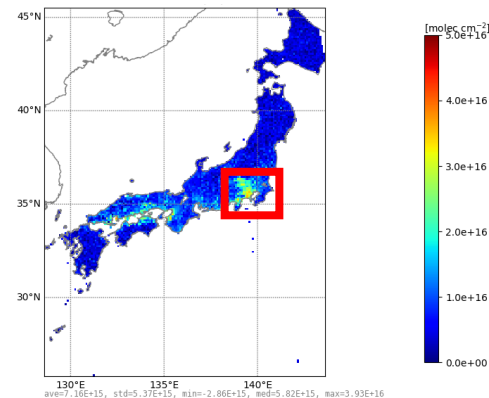
XCO₂



XCH₄

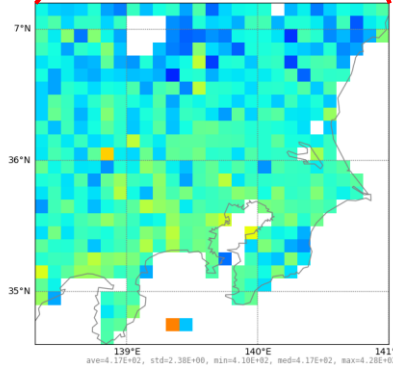


NO₂ VCD

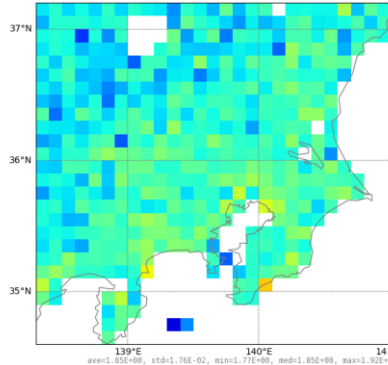


Tokyo

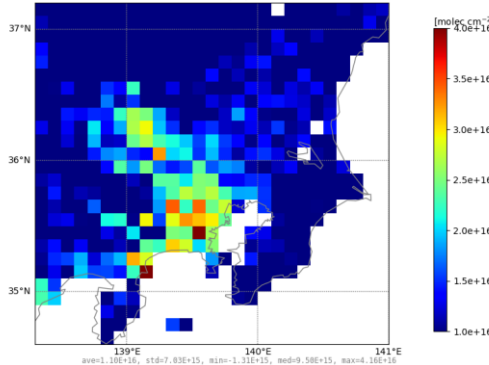
XCO₂ (L2)



XCH₄ (L2)



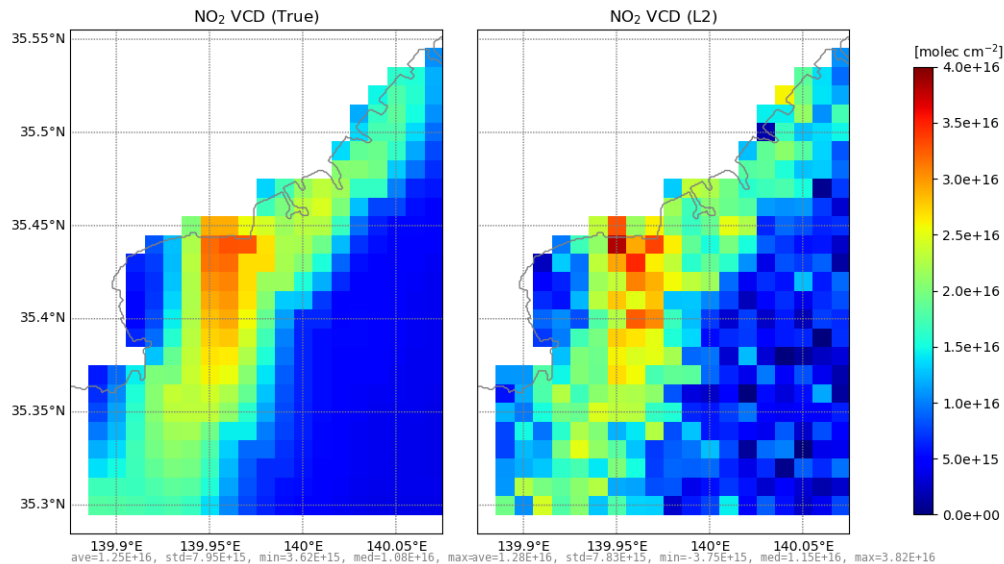
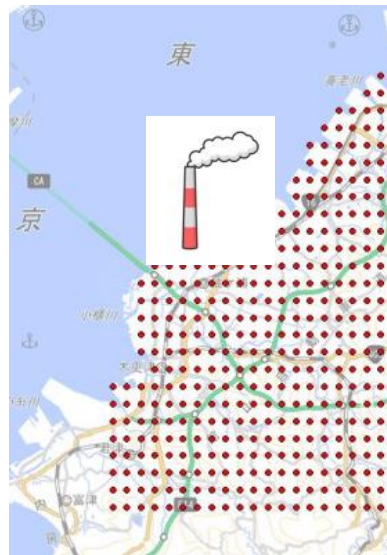
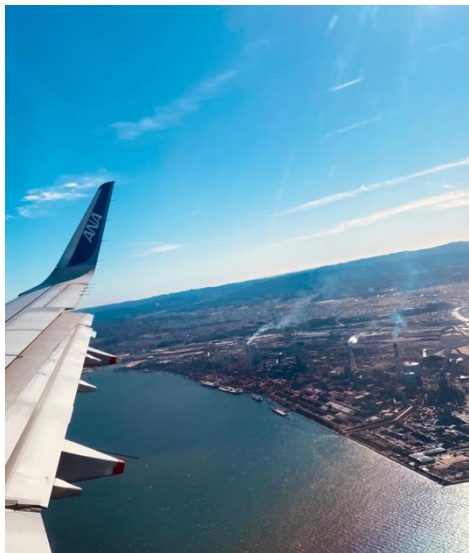
NO₂ VCD (L2)



Detection of Power Plant Emissions

*Sodegaura Power Plant
JERA, 3600 MW*

NO₂ VCD (WRF-Chem) NO₂ VCD (L2)



WRF model results:

Masahiro Yamaguchi, Masayuki Takigawa, Prabir Patra, Jagat Bisht