Satellite observations supporting National GHG Inventories

November 2017

Research and Information Office
Ministry of the Environment Japan

GOSAT Series

Image courtesy of JAXA and NIES

GOSAT-3

(Under consideration)

GOSAT-2(FY2018-)

- Observing with higher accuracy
- Observing CO in addition to CO2 and CH4

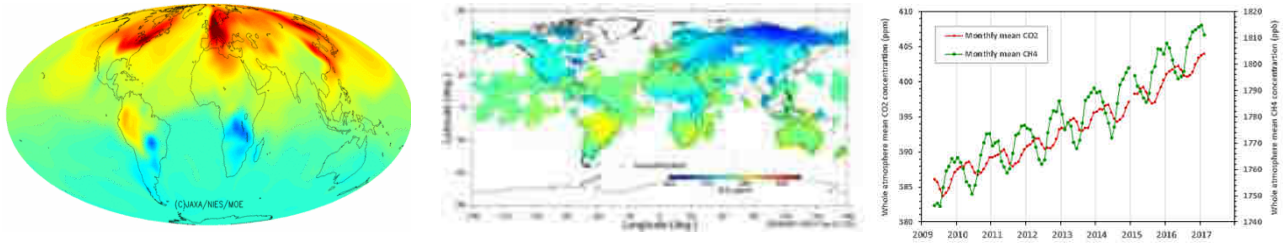
GOSAT (2009-)

The target of GOSAT series

- Continuing observation of whole-atmospheric GHG concentration
- Monitoring large-scale point sources
- **Each countries using satellites GHG data for the comparison of national GHG inventories**

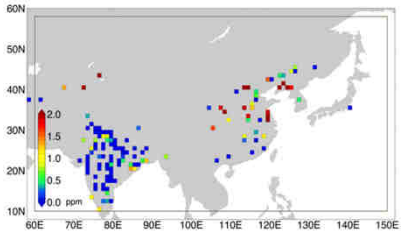
Achievement on GOSAT

- Contributing the science of climate change



Global CO2 distribution and time series of whole-atmosphere monthly mean CO2 / CH4 concentration

- Showing the possibility of utilizing for environment policies

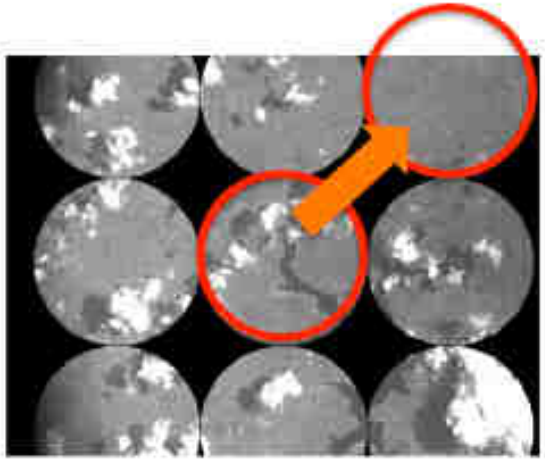


Observation of anthropogenic CO2 emissions

About GOSAT-2

New features of GOSAT-2

- Intelligent pointing
  (Automatically identify and avoid clouds)
- Target mode observation
  (Fully programmable pointing)
- Monitoring CO emissions
  (Byproducts of human activity)
- Improved signal-to-noise ratio and extended range of along-track pointing angle for ocean sunglint, high latitude, and dark target measurements



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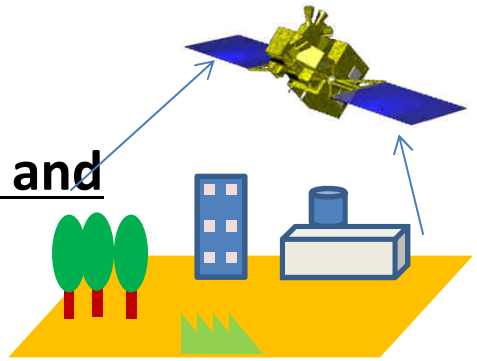
Example image of intelligent pointing

Enhancements in GOSAT-2

① <u>Improving the measurement accuracy</u>

② <u>Monitoring GHG emission at mega-city regions and large scale point source</u>

③ <u>Detecting anthropogenic CO2 emissions</u>



Paris Agreement and GHG emission monitoring with satellite

- ✓ Parties will account for anthropogenic emissions and removals corresponding to their nationally determined contributions
- ✓ Parties will provide national inventory reports under the transparency framework

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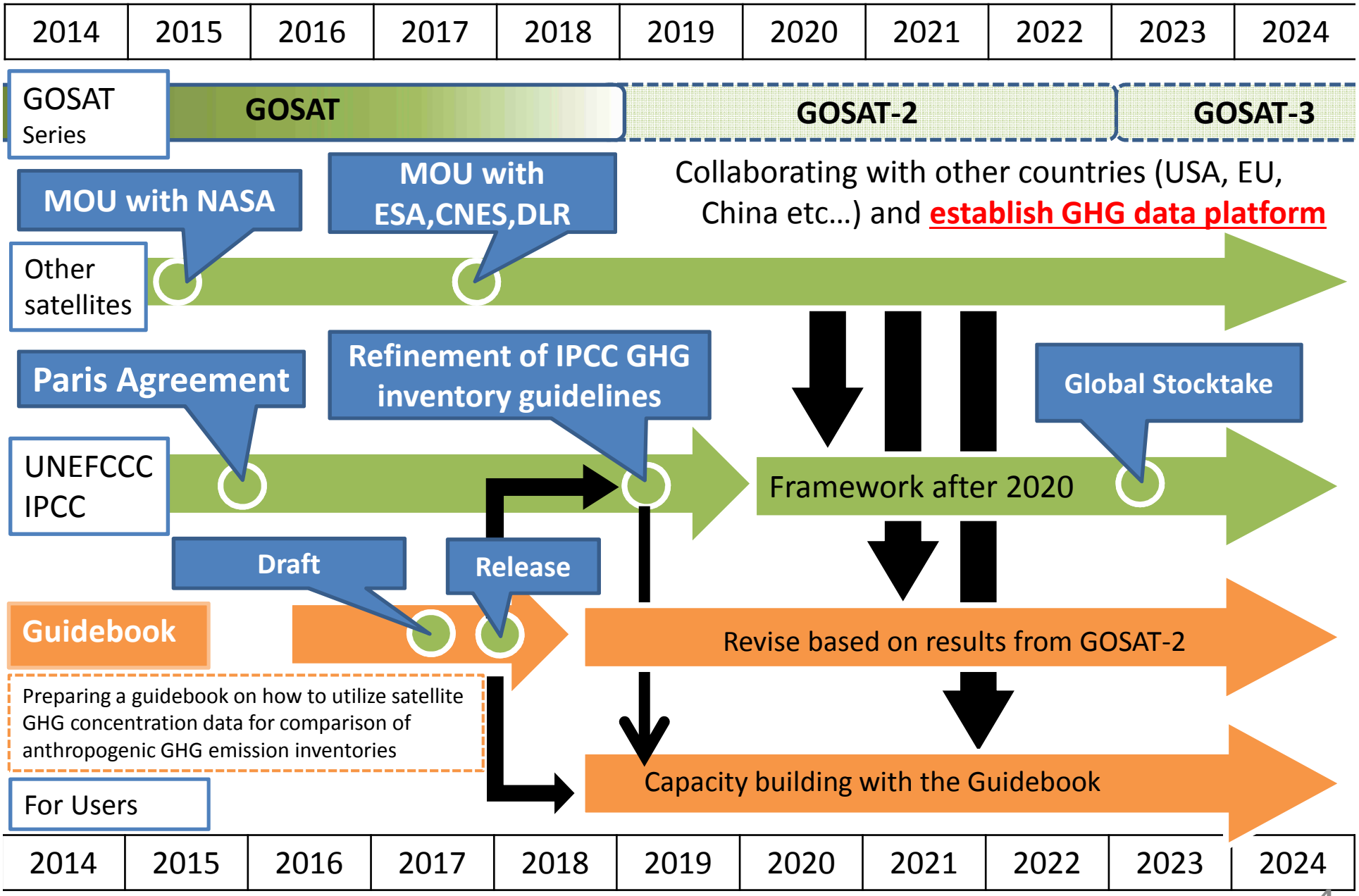
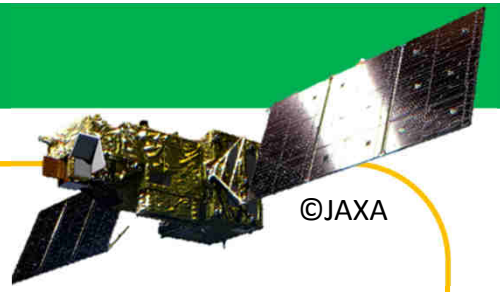
- Satellite can monitor the whole earth in the same way.

- ✓ Comparing GHG emissions and removals with satellite data will be a key to verify accounting for anthropogenic GHG emissions and removals in more transparent way, which will contribute to promoting Paris Agreement.

Future Time Line



Way Forward



- ✓ GOSAT-2 will be launched in JFY2018
- ✓ Will develop methodology to estimate anthropogenic GHG emissions and removals with satellites
- ✓ Will input to IPCC GHG Inventory Guidelines to enable all countries utilize GOSAT series data for comparing with national reports on GHG emissions
- ✓ Will promote training practitioners engaged in GHG inventories and accounting in developing countries with the guidebook.
- ✓ Will collaborate with other countries for monitoring GHG emissions