TG3: AO-GHG (Asia-Oceania Greenhouse Gases)

Toward policy-relevant global carbon cycle observation and analysis

Kazuhito ICHII (Chiba University, Japan)
Yi Liu (Chinese Academy of Science, China)

TG3: Asia-Oceania Greenhouse Gases (AO-GHG)

Paris Agreement (UNFCCC) in 2015

Article 4:

… to undertake rapid reductions thereafter (peak emissions) in accordance with best available science, so as to achieve a **balance between** *anthropogenic* **emissions by sources** and **removals by sinks** of greenhouse gases in the second half of this century…

Global Stocktake (every 5 years: 2023, 2028…)

track regions **towards zero net emissions**, anthropogenic and natural fluxes (Paris Agreement)

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TG-3 AO-GHG Task Group Meeting Agenda				
		Date: Sep 4, 10:00-13:00		
		Room: Conference Room #2		
		https://us02web.zoom.us/j/85361896886?pwd=XaSimXvb7UJH2GltHjPuEyJE3yeDRZ.1		
		meeting ID: 853 6189 6886 passcode: aogeo16		
Time	**Name**	**Affiliation**	**Country**	**Title**
10:00-10:05	Kazuhito Ichii	Chiba University	Japan	Setup Goals, Introduction
10:05-10:20	Osamu Ochiai	JAXA	Japan	CEOS priority initiative for Climate Policy Impact and GHG Observation
10:20-10:35	Yang Dongxu	Chinese Academy of Science	China	TanSat and TanSat-2 mission achievements
10:35-10:50	Hibiki Noda	NIES	Japan	Overview of GHGs Observation Mission with GOSAT Series
10:50-11:05	Shuai Shao	Chiba University	Japan	Development of Global Primary Production and Evapotranspiration Products derived from Enhanced BESS Model and GCOM-C SGLI Datasets
		Photo and Break		
11:15-11:30	Liu Yi	Chinese Academy of Science	China	The Achievement and Challenge of Top-down method to calculate Carbon emission
11:30-11:45	Naveen Chandra	JAMSTEC	Japan	Verification of sub-continental scale fluxes with natural and anthropogenic sector separation
11:45-12:00	Jiang Fei	Chinese Academy of Science	China	Satellite data application in emission estimation
12:00-12:15	Deepshikha	IIT-Delhi	India	Refining Methane Emission Estimates for USA, China, and India Using GOSAT XCH4 Data and Atmospheric Modeling
12:15-12:30	Dan Henri	Chiba University	Japan	The effect of different MODIS versions on a data-driven estimation of CO2 Fluxes in Asia
12:30-13:00		Discussion Statement Preparation		
				※ Each presentation has 12 min talk + 3min QA

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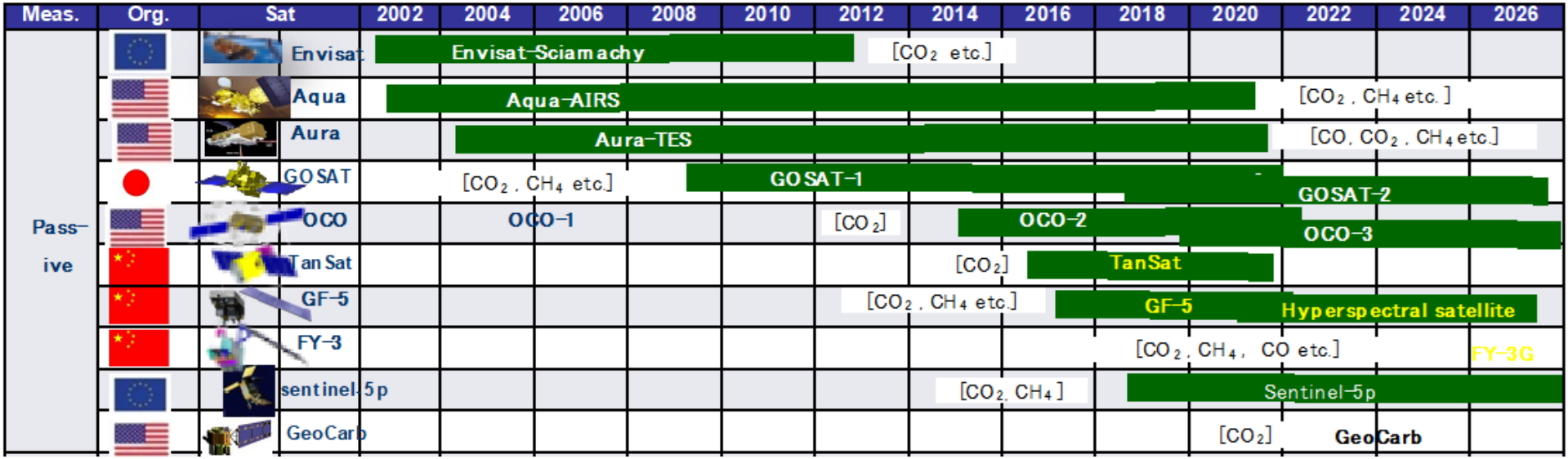
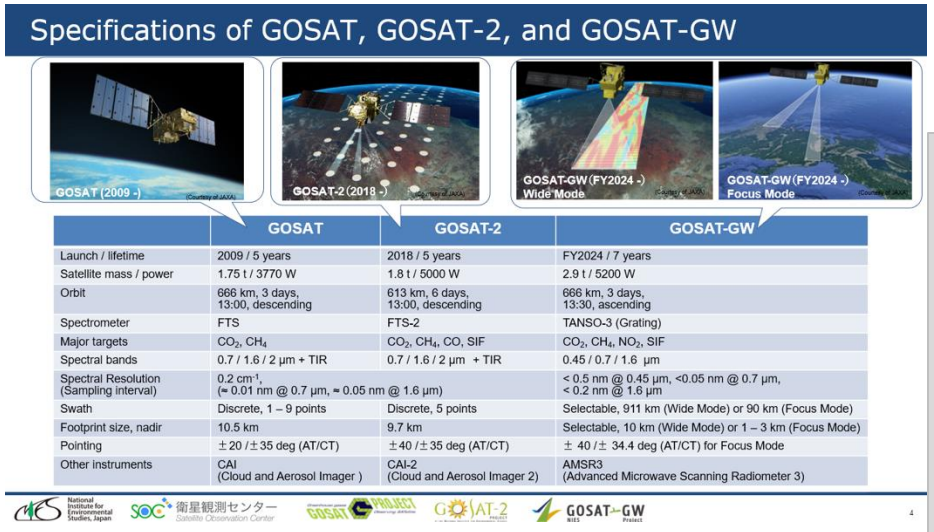
Achievement:

History/Future of GHG Satellites (AO region: GOSAT (Japan), Tansat (China), GF-5, FY-3 (China)





[Slide by Prof. Yi Liu]

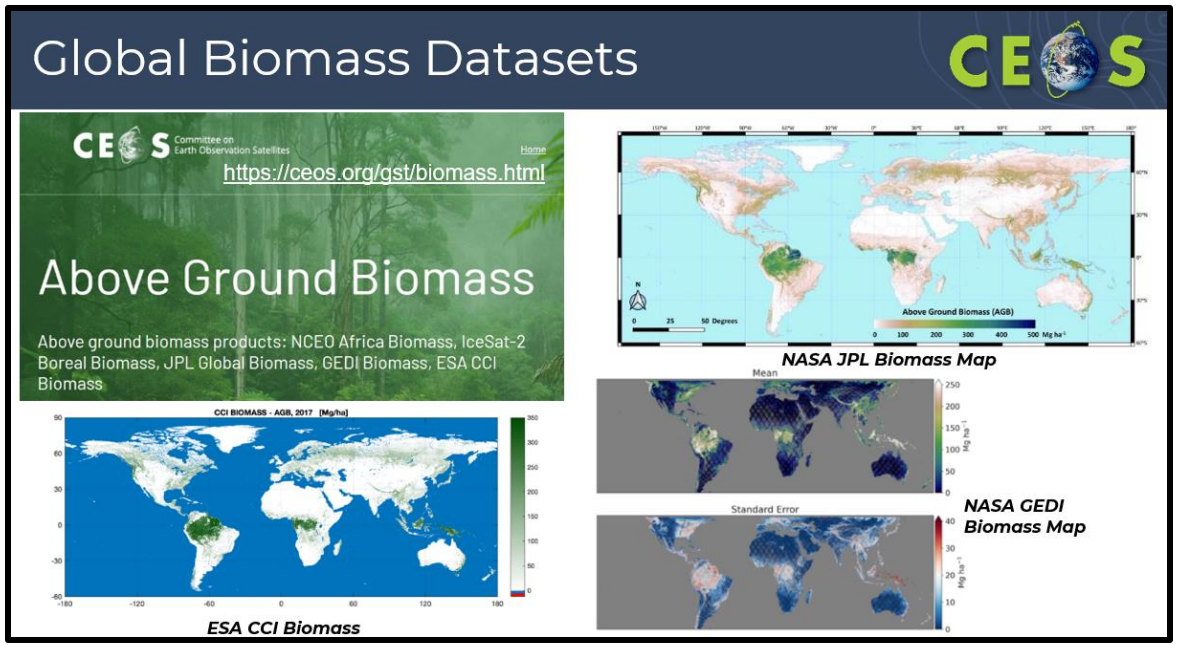
Challenges

✓ Accuracy improvement with more observation data Is expected.

✓ More collaboration (within Asia-Oceania) is expected.

TG3: Asia-Oceania Greenhouse Gases (AO-GHG)

Achievement: Bottom-up Carbon Products using various sensors



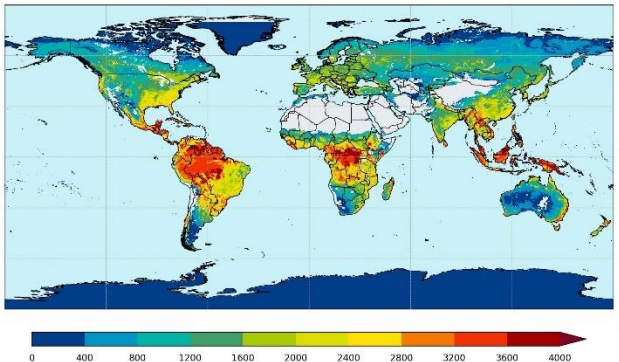
Carbon Stock (Biomass) Products

Substantial investment ($4.5Bn) in biomass-related mission launches 2018-2025: ICESat-2, GEDI, MOLI, SAOCOM-1A/B, ALOS-4, NISAR, BIOMASS

[Ochial]

Carbon Flux Products

[Shao]



(4) GCOM-C SGLI

Table.1 Details of different medium-resolution satellites

Satellite	Launch Date	Expected End Date	Temporal Resolution	Spatial Resolution	Coverage Band	Agency
GCOM-C SGLI	2017	TBD	1 day	250 m to 1 km	Visible to Infrared	JAXA
MODIS (Terra)	1999	In coming years	1-2 days	250 m to 1 km	Visible to Infrared	NASA
VIIRS (NPP)	2011	TBD	1 day	375 m to 750 m	Visible to Infrared	NASA/NOAA

Challenges

✓ High Spatial Resolution

✓ Improvement of Accuracy

✓ International collaboration

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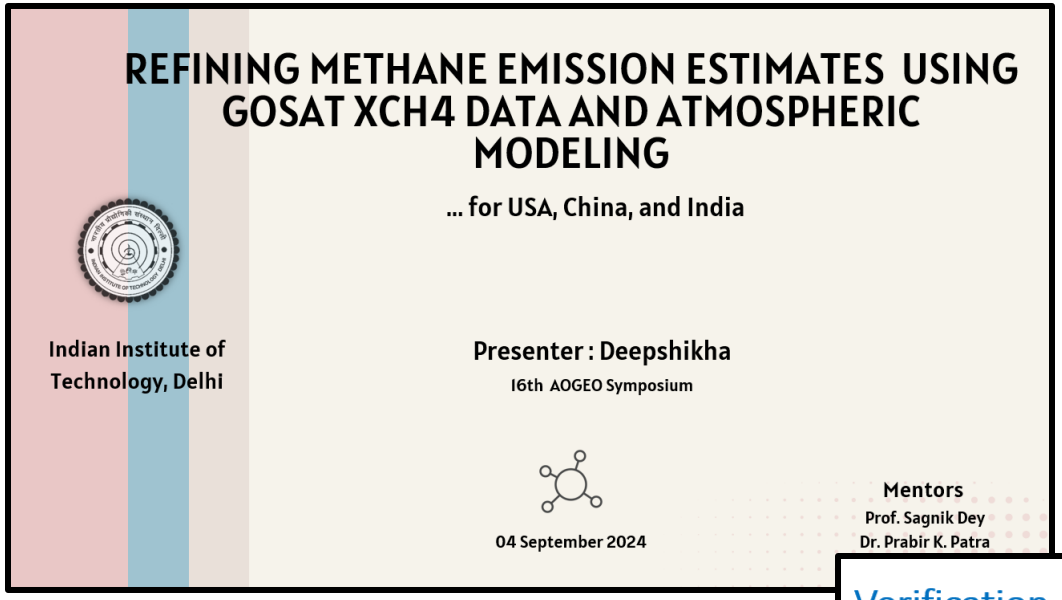
Achievement:;

Assessment of anthropogenic CO2 emissions, Separation of natural and anthropogenic esimates



[Deepshikha]

[Chandra]

Verification of sub-continental scale CO_2 fluxes with natural and anthropogenic sector separation

Naveen Chandra and Prabir. K. Patra

[1]IResearch Institute for Global Change (RIGC) / Institute of Arctic Climate and Environment Research (IACE), JAMSTEC, Yokohama

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Asia-Oceania Greenhouse Gases Symposium TG-3
AO-GHG (Asia-Oceania Greenhouse Gases)
04 September 2024

Challenges

✓Revise Inveotory
(Anthropogenic emission)

✓ (better obs converge, modeling)

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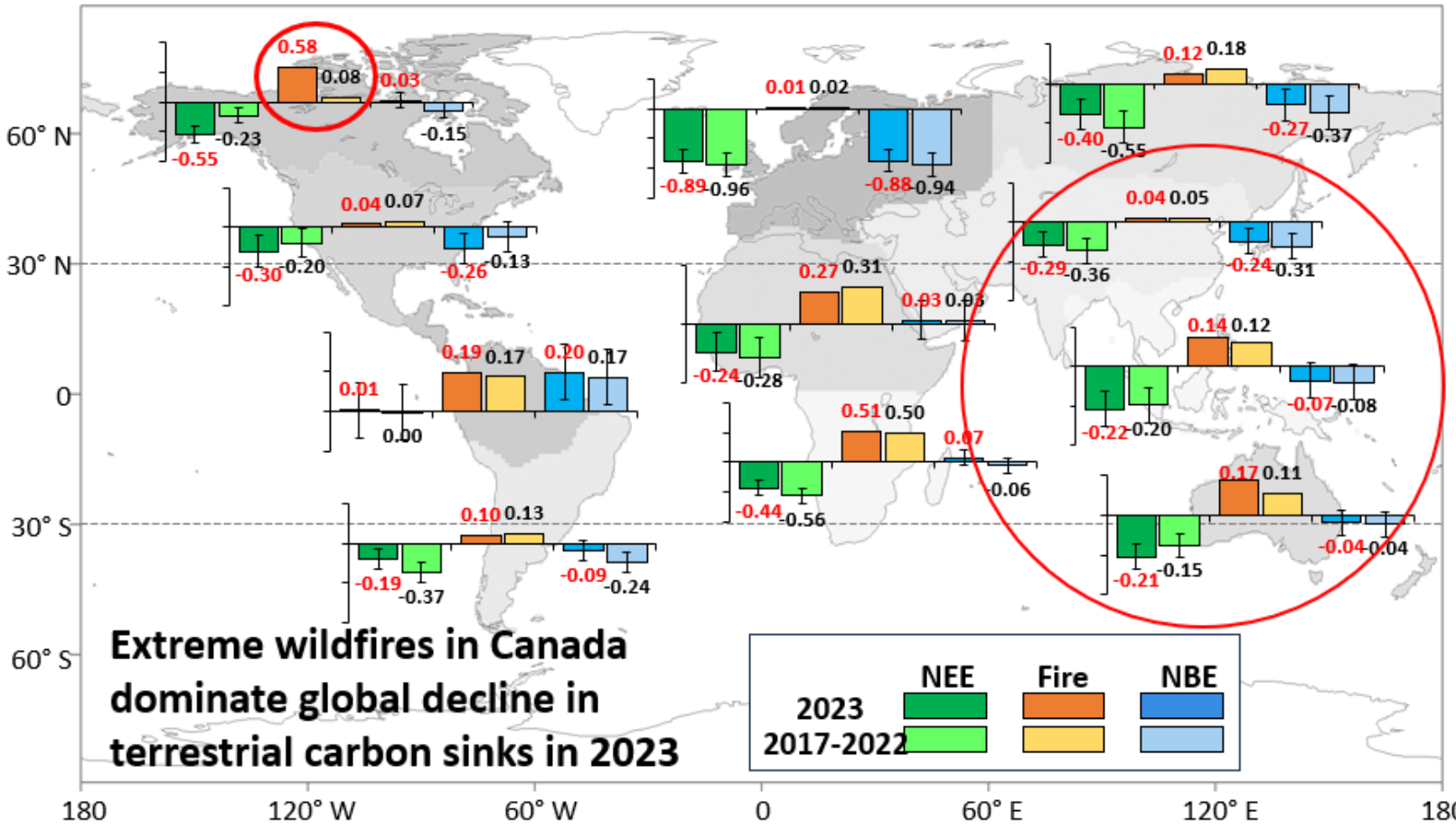
Achievement: Carbon Assessment – yearly (speedy) update

3.3 2023 Global extreme Heatwave



Challenge: toward low latency (near-real time & take action) (in-situ obs data) [Jiang]

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Challenge; Potential Collaboration with Global Frameworks for GHG

WORLD METEOROLOGICAL ORGANIZATION

Weather Climate Water

Home / All Activities / Global Greenhouse Gas Watch (G3W)

Global Greenhouse Gas Watch (G3W)

CEOS

(Committee on Earth Observation Satellites)

AOGEO

TG-3: AO-GHG

☑ where to put energy in AOGEO regions, identify key regions. Gap areas

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Ongoing Issues & Way forward

- ✓ Accuracy and data availability of measurements of GHG
- ✓ Low-latency (e.g. other in-situ takes long term)
- ✓ High spatial and temporal resolution
- ✓ Point sources, Hotspot of emission
- ✓ Separation of anthropogenic and natural carbon cycle processes
- ✓ integration system refinement
- ✓ Coordination among agencies
- ✓ Where to put energy in AOGEO regions, identify key regions. Gap areas.
- ✓ Collaboration among international frameworks.