

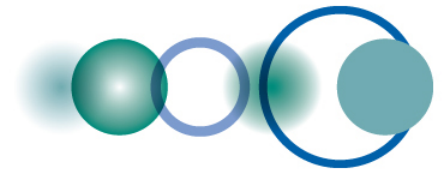
Working Group 3: The GEO Carbon and GHG Initiative

Wrap-up



9th GEOSS AP Symposium
10-12 January 2017
Tokyo, Japan





Session overview

Introduction and Background

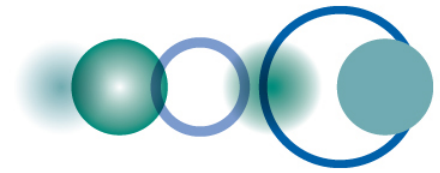
Observing the Carbon Cycle and GHG

Budget Calculations and Breakdown Across Scales

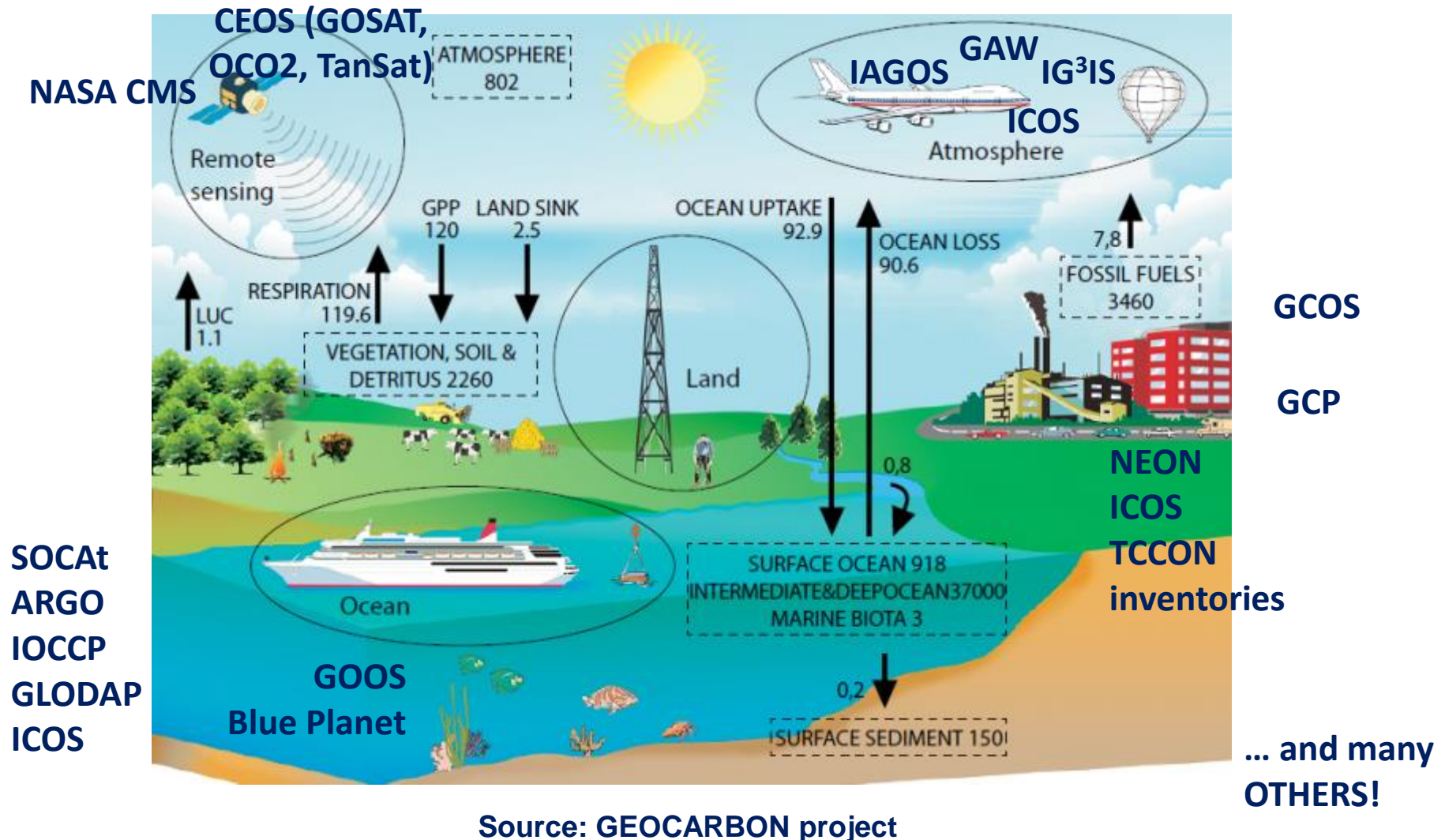
Synergies with other Initiatives (IG3IS, GFOI)

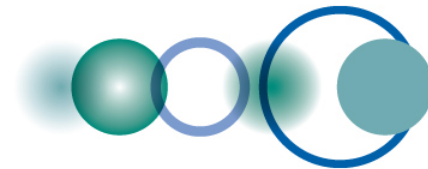
Policy linkages and discussion on user perspectives

Wrap-up

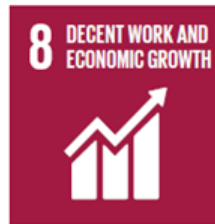


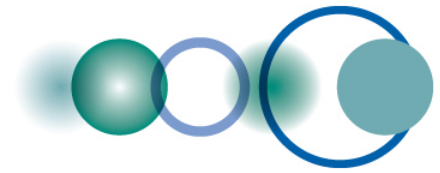
Monitoring the Global Carbon Cycle: a complex ensemble of different players, countries, systems, networks, datasets, methodologies, rules, standards, etc.





Addressing multiple SDGs





Responding to the Paris Agreement

Article 4 and Article 13 – National Reporting

- Reported five-yearly by parties, successive reductions in emissions
- Using existing methods and guidance; not validation

Article 5 Mitigation

- Knowledge of evolution of sinks and sources

Article 7 Adaptation

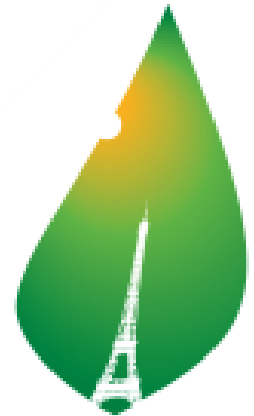
- (7.6) Strengthening cooperation,
- (7.7c) Research, systematic observation

Article 10 Technology Transfer & Article 11 Capacity Development

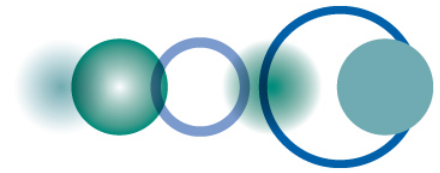
Article 14 Global stocktaking

- in the light of equity and the best available science: 2023, 2028...

Article 15 Compliance

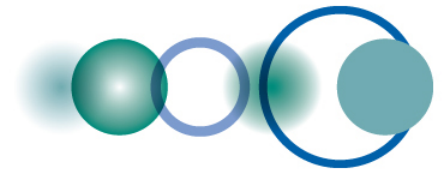


PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11



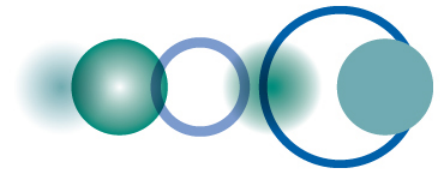
Carbon and GHG observations

- CO₂ monitoring from space (e.g. TanSat, GOSAT-1, GOSAT-2, OCO-2)
 - Close cooperation envisaged to provide CO₂ data continuously
- Ground-based measurement networks (e.g. flux towers)
 - Assessment of Carbon Pools, Fluxes and Net Carbon balance for terrestrial biosphere
 - Validation of satellite data
- CONTRAIL project: monitoring GHG observations by commercial airliners
 - provides great number of GHG data in upper air; long record of CO₂ over Pacific
 - Aircraft data constrain CO₂ fluxes especially in Asia



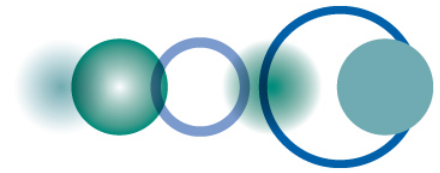
Carbon and GHG observations

- Ocean measurements (e.g. from ships)
 - Surface Ocean CO₂ Atlas (SOCAT); international effort
 - Helpful tool for understanding observed pCO₂ variation and it is available to the public
 - Oceanic CO₂ uptake increases rapidly after 2010.
- Important issue to have in mind
 - Observational gaps in Asia-Pacific (e.g. some large countries lack measurements of CO₂ concentrations of adequate quality)



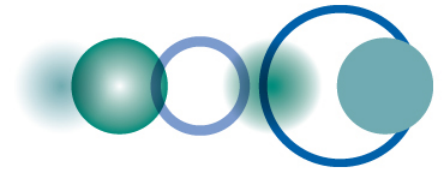
Budget calculations and breakdown

- Global Carbon Project (GCP) Regional Carbon Cycle Assessment and Processes (RECCAP)
- Global budgets of major greenhouse gases are being produced by synthesizing a large amount of data sources, involving hundreds of scientists
- Future needs are proposed toward better assessments of regional GHGs budgets and their trends
- Scientific challenges:
 - Uncertainties in carbon budgets and fluxes (growing quickly for regional breakdowns)
 - How much flux is to Land and Ocean??



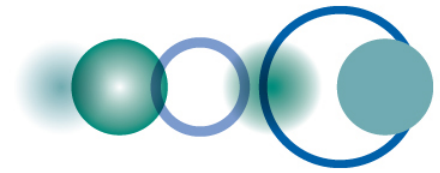
Synergies with existing efforts

- **Integrated Greenhouse Gas Information System (IG3IS)**
 - There is an immediate need for tools to assist in national emission inventory assessment
 - How to get emissions: combination of bottom-up (IPCC reporting) and top-down measurements (Inverse modelling)
 - Best practice studies to be established as pilot projects
 - Important building block of GEO-C
- **Global Forest Observation Initiative (GFOI)**
 - provides data on forest carbon; feeds into REDD+
 - need to strengthen linkages with GEO-C



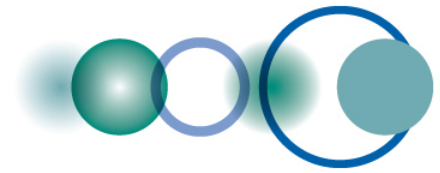
Policy linkages

- Increasing recognition of usefulness of satellite data (and EO data in general) for estimating national GHG Inventories
- IPCC 2006 Guidelines will be refined in 2019
- GEO can bring added value to the UNFCCC process by integrating data across domains



User perspectives

- *Role for GEO Carbon and GHG Initiative*
 - Advocacy for the use of EO data in policy processes
 - Provide guidance to users on how to use EO data (e.g. explain bias and uncertainties)
 - Improvement of data access
 - Assessment of observational gaps (identify and raise awareness)
 - Facilitate integration across domains (atm./oce./terr. *and* satellite/in situ/models)
 - Identify new scientific challenges regarding climate change research to be addressed in the near future



Summary points

- Assessing the status of carbon and GHG related observations in the Asia-Pacific region
- Highlighting gaps and weaknesses in the Asia-Pacific region
 - Need for improved in situ data coverage
 - Raise awareness of data availability and improve access
- Opportunities to contribute to IPCC guidelines
- Future plans
 - Strengthen linkages with existing efforts
 - UNFCCC: participate at SBSTA & COP meetings + Side Event
 - GEO-C kick-off meeting in 2017