

# Addressing Climate Change – a GEO Priority

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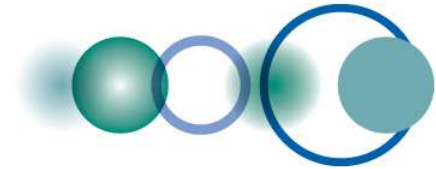
## Strategic Plan 2016-2025:

*“GEO will supply the requisite Earth observations in support of effective policy responses for **climate change adaptation, mitigation and other impacts across the SBAs.**”*

## 2016 Mexico City Ministerial Declaration:

*“Affirm that GEO and its Earth observations and information will support the implementation of, inter alia:*

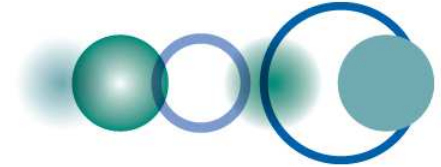
- the 2030 Global Goals for Sustainable Development,*
- the Sendai Framework for Disaster Risk Reduction 2015-2030,*
- the United Nations System of Environmental and Economic Accounts, &*
- the **United Nations Framework Convention on Climate Change.**”*



# New Societal Benefit Areas (SBAs)



**Climate change and its impacts cut across all SBAs**



## GEO Engagement Priorities 2017-2019

- 2030 Agenda for Sustainable Development
- Climate Change – Greenhouse Gas Monitoring
- Disaster Risk Reduction

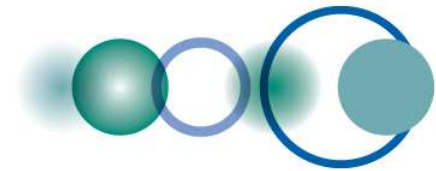


PARIS2015  
UN CLIMATE CHANGE CONFERENCE  
COP21-CMP11



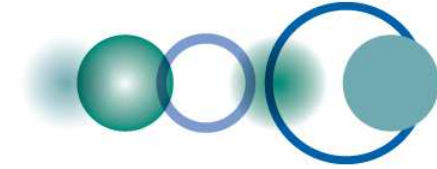
UN World Conference on  
Disaster Risk Reduction  
2015 Sendai Japan

*ExCom-38, 8 November 2016, St Petersburg*



**Transforming Our World: The 2030 Plan for Global Action**  
**- Article 76:** “We will promote transparent and accountable scaling-up of appropriate public-private cooperation to exploit the contribution to be made by a wide range of data, including Earth observation and geo-spatial information, while ensuring national ownership in supporting and tracking progress.”







# GEO Initiative “EO4SDGs”



## Earth Observations in Service of the 2030 Agenda for Sustainable Development



*Draft for Programme Board*

**GEO INITIATIVE 18:**  
**EARTH OBSERVATIONS**  
**IN SERVICE OF THE**  
**2030 AGENDA FOR**  
**SUSTAINABLE DEVELOPMENT**

*Strategic  
 Implementation  
 Plan  
 2016-2020*

### Earth Observations and Geospatial Information: Supporting Official Statistics in Monitoring the SDGs


In adopting the 2030 Agenda for Sustainable Development, world leaders agreed that a global indicator framework would be an essential tool to measure, monitor and report progress on achieving the 17 transformational Sustainable Development Goals (SDGs) and 169 associated Targets. They also recognized the critical importance of “transparent and accountable scaling-up of appropriate public-private cooperation to exploit the contribution to be made by a wide range of data, including earth observation and geospatial information, while ensuring national ownership in supporting and tracking progress”.

To track progress towards these Goals and Targets, the global indicator framework will also need to capture the multifaceted and ambitious aspirations for the continued development of nations and societies. Effective reporting of progress toward these indicators will require the use of multiple types of data, both what we have in hand - traditional national accounts, household surveys and routine administrative data – and new sources of data outside the national statistical system, namely Earth observation and geospatial information, and Big Data, in general.

Integrating all of these data will, indeed, be a quantum leap in how we monitor and track development and advance the well-being of our societies. Since Earth observation and geospatial information are often continuous in their spatial and temporal resolutions, their use in SDG monitoring will also prove essential in capturing the sustainability of developments underpinning the SDG framework. Earth observation and geospatial information, which include satellite, airborne, land- and marine-based data, as well as model outputs, will expand monitoring capabilities at local, national, regional and global levels, and across sectors.

Simultaneously, exploiting various data sources, including Earth observation and geospatial information, will significantly reduce the costs of monitoring the aspirations reflected in the goals and targets, and make SDG monitoring and reporting manageable and sustainable within the limited resources available to national governments. In addition, use of Earth observation and geospatial information to measure and monitor progress toward achieving the SDGs will provide developing countries and regions with increased capacity to acquire, analyze and utilize these data for other policy-making purposes.

<sup>1</sup> [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E)





GEO GROUP ON EARTH OBSERVATIONS

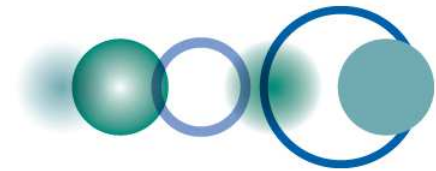
## Sustainable Development Goals

### Earth Observations in Service to Agenda 2030



Contribute to progress on the Target yet not the Indicator per se		Target	Goal	Indicator
		1.5	1 NO POVERTY	
	2.3	2.4	2.c	2.4.1
	3.3	3.4	3.9	3.9.1
			4 QUALITY EDUCATION	
			5 GENDER EQUALITY	5.9.1
6.3	6.4	6.5	6.6	6.3.2
		6.a	6.a	6.4.2
		6.b	6.b	6.5.1
			7 AFFORDABLE AND CLEAN ENERGY	6.6.1
	7.2	7.3	7.a	7.1.1
			8 ECONOMIC GROWTH	
		8.4		
	9.1	9.4	9.5	9.1.1
			9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	
			10 REDUCED INEQUALITIES	
11.3	11.4	11.5	11.6	11.3.1
		11.7	11.7	11.6.2
		11.c	11.c	11.7.1
			11 SUSTAINABLE CITIES AND COMMUNITIES	
			12 RESPONSIBLE CONSUMPTION AND PRODUCTION	
		12.2	12.a	
			12.b	
			13 CLIMATE ACTION	
		13.1	13.3	13.1.1
			13.b	
14.1	14.2	14.3	14.4	14.3.1
		14.6	14.7	
		14.a	14.a	
			14 LIFE BELOW WATER	
15.1	15.2	15.3	15.4	15.1.1
		15.5	15.7	15.2.1
		15.8	15.8	15.3.1
		15.9	15.9	15.4.1
			15.4.2	
			15 LIFE ON LAND	
			16 PEACE, JUSTICE AND STRONG INSTITUTIONS	
			17 PARTNERSHIPS FOR GOALS	
	17.6	17.7	17.9	17.16
		17.16	17.17	17.17

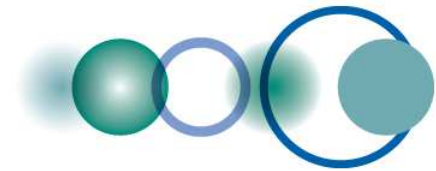




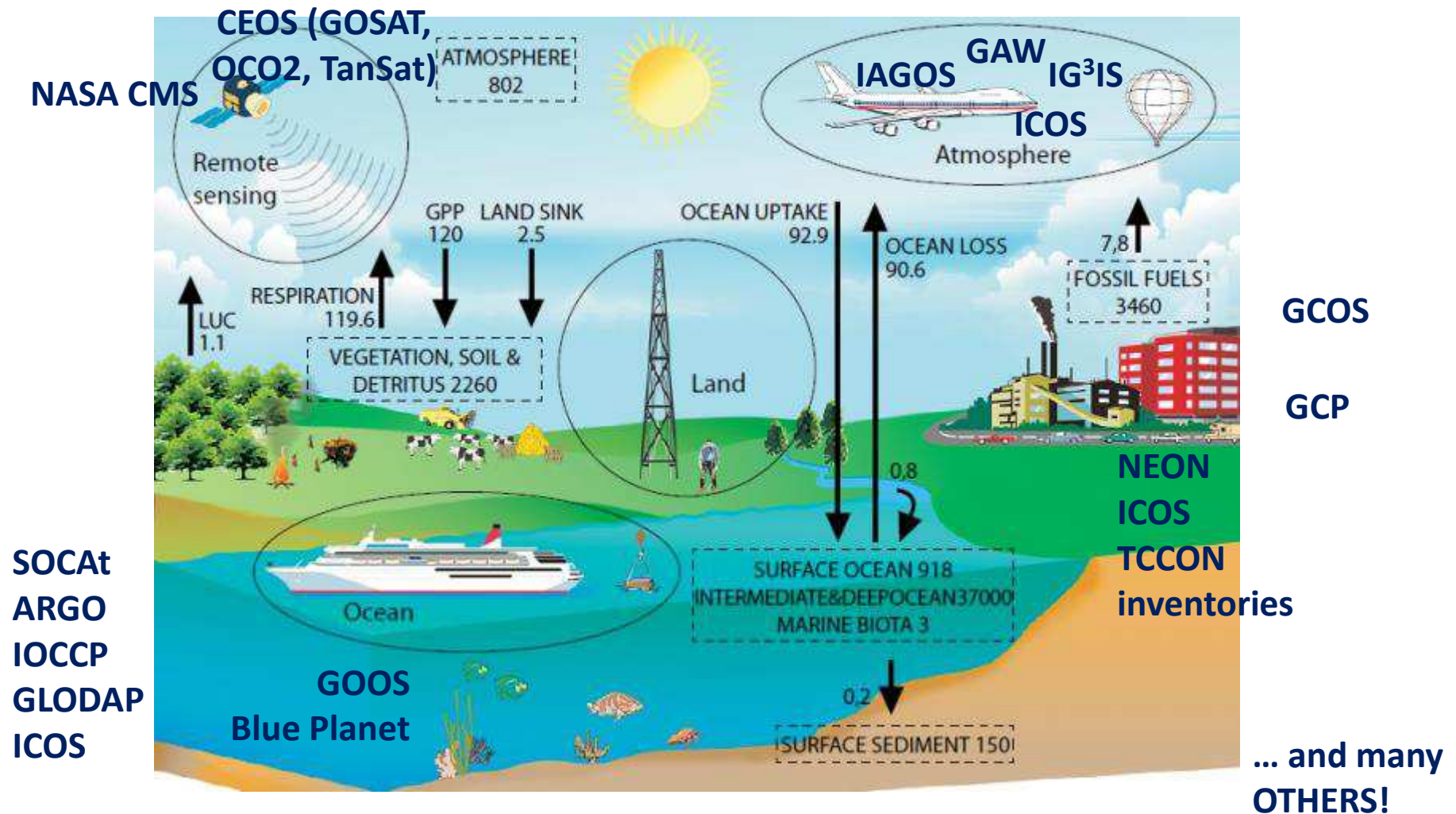
## Climate Change – GHG Monitoring



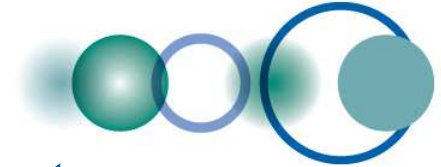
  
**CARBON AND  
GHG INITIATIVE**



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



Source: GEOCARBON project



# 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

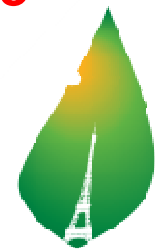


## Article 7 Adaptation

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

***Policy needs reliable  
GHG-related  
information***

## Article 10 Technology Transfer & Article 11 Capacity Development

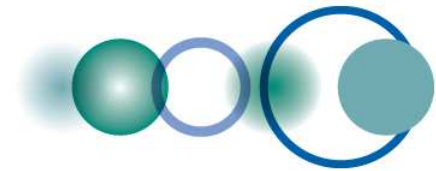


## Article 14 Global stocktaking

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

PARIS2015  
UN CLIMATE CHANGE CONFERENCE  
COP21 - CMP11

## Article 15 Compliance

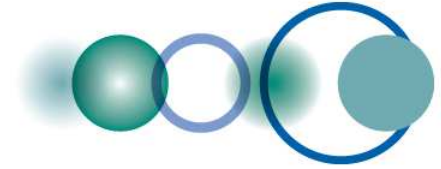


## Informing policy agendas

- Presented to Parties at UNFCCC SBSTA-44, Bonn (19 May 2016)
- Presentation at UNFCCC COP-22 Earth Info Day (10 Nov 2016)
- Full-Day Session at GEOSS Asia-Pacific Symposium  
→ Engagement with IPCC TFI



Werner Kutsch, Director ICOS,  
presenting the GEO Carbon  
and GHG Initiative



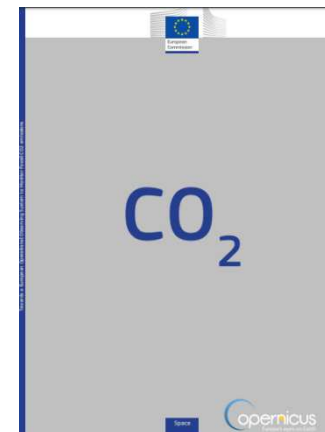
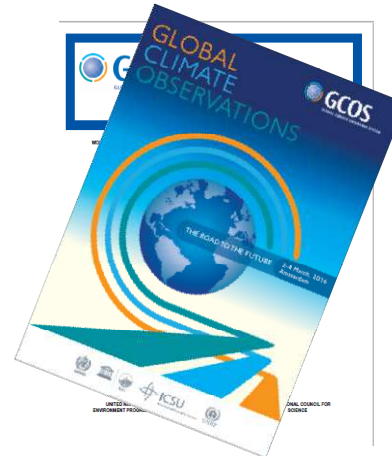
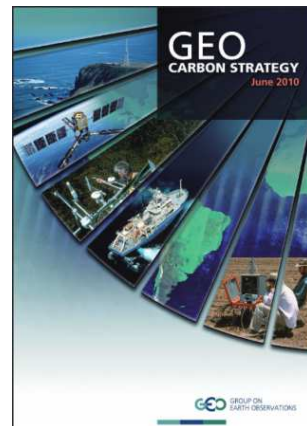
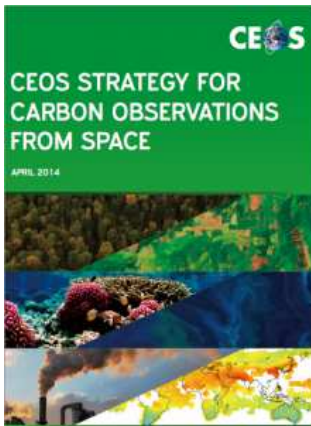
## What the C-Initiative will do:

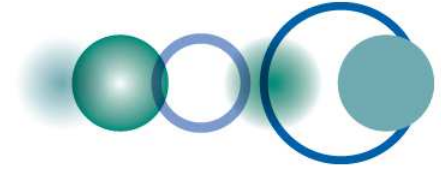
- to build on existing initiatives and networks,
- to support their continuity and coherence,
- to facilitate their cooperation and interoperability,
- to obtain a comprehensive, globally coordinated GHG observation & analysis system



## What the C-Initiative will not be/do

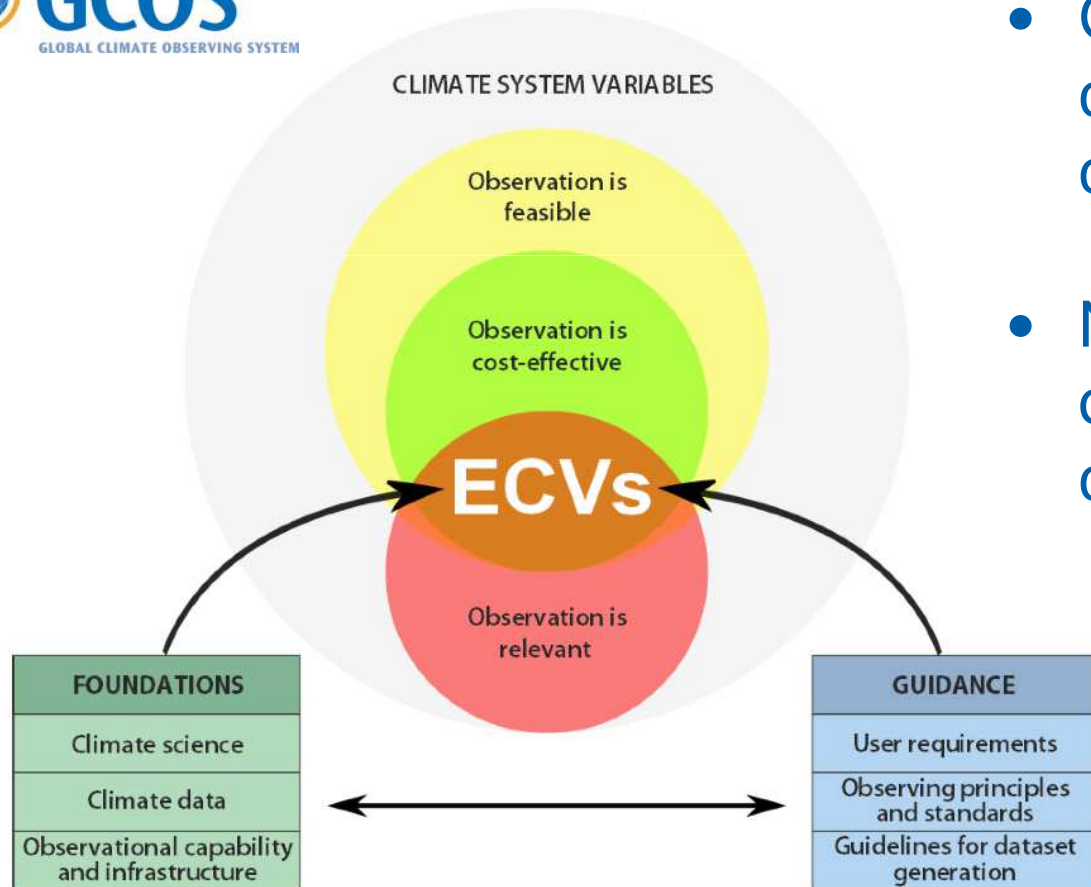
- It will not be a self-standing entity in competition with others
- It will neither create new strategies nor duplicate existing efforts





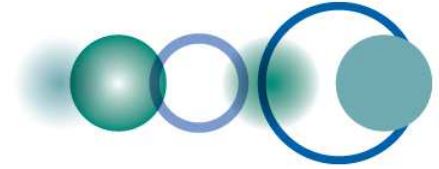
# Global Climate Observing System

The ECV concept



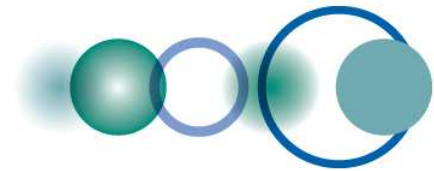
- GCOS constitutes the climate-observing component of GEOSS
- New IP provides opportunities for collaboration

Bojinski et al. 2014, BAMS



## GCOS Implementation Plan

- GCOS has been very responsive to the comments from the GEO Secretariat and the GEO community at large
- 15+ action items list GEO as an agent for implementation
- Several concrete collaboration areas:
  - Addressing the lack of coordination in the terrestrial domain
  - Synergies with MEAs and SDGs
  - Maintain and improve coordination with GEO Initiatives/Flagships (such as GEO Carbon, GFOI, Blue Planet)
  - Data access and discoverability; GCOS and GEO have complementary mandates



# GEOS Common Infrastructure (GCI)

International Data Providers\*

Environment



**ESSENTIAL CLIMATE VARIABLE (ECV) INVENTORY**



Biodiversity



Energy



Water



Regional and National Providers\*

Chile



China



New Zealand



Norway



India



Italy



Japan



South Africa



Spain



Switzerland



United Kingdom



USA



DATA.DV



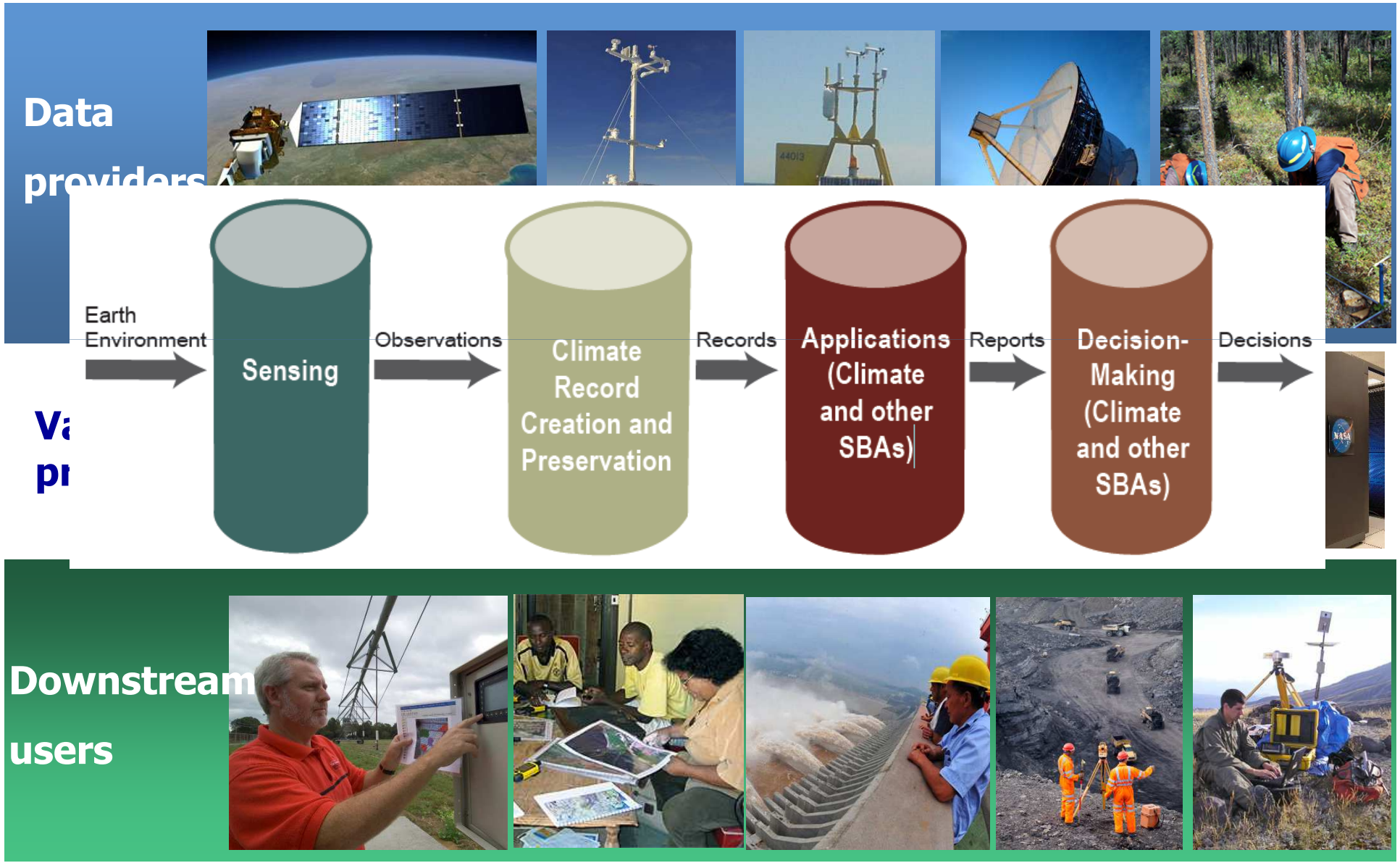
Private Sector Providers

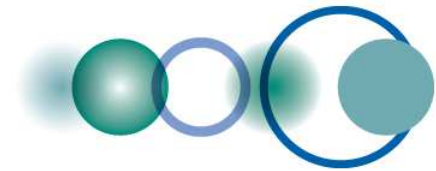


\* a selection of more than 150 providers



# Information Value Chain





# GEO and Climate Services



Agriculture and food security



Disaster risk reduction



Energy



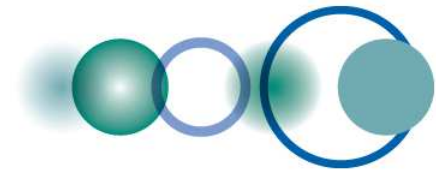
Health



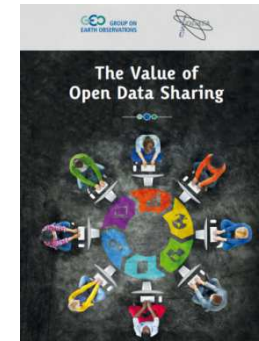
Water



# Challenges



- **Access to climate data**  
Broad, open data policies are needed for global monitoring and transparency
- **Interoperability**  
Data discoverability and access through federated systems
- **Downstream services**  
Applications and information are needed to make data useful for decision-makers
- **Addressing policy agendas**  
Support countries to implement the Paris Agreement

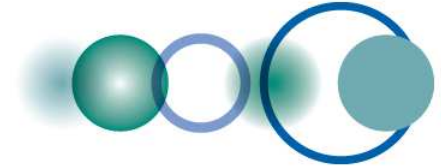


**Thank you!**

[aobregon@geosec.org](mailto:aobregon@geosec.org)

[www.earthobservations.org](http://www.earthobservations.org)





# Climate in the GEO Work Programme

## *Community Activities*

- Access to climate data in GEOSS
- Collaboration between GEO and GFCS
- Copernicus Climate Change Service (C3S) & Copernicus Atmospheric Monitoring Service (CAMS)
- Land Cover, Water Cycle, Floods, Droughts and others

## *GEO Initiatives/Flagships*

- GEO Carbon and GHG Initiative
- Global Drought Information System
- Climate Change Impact Observation on Africa's Coastal Zones
- Information Service for Cold Regions

