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Addressing Climate Change – a GEO Priority

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São José *dos Campos*
9 February 2017

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**."*

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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

ExCom-38, 8 November 2016, St Petersburg

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THE GLOBAL GOALS
For Sustainable Development

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."

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EO and Geospatial Information

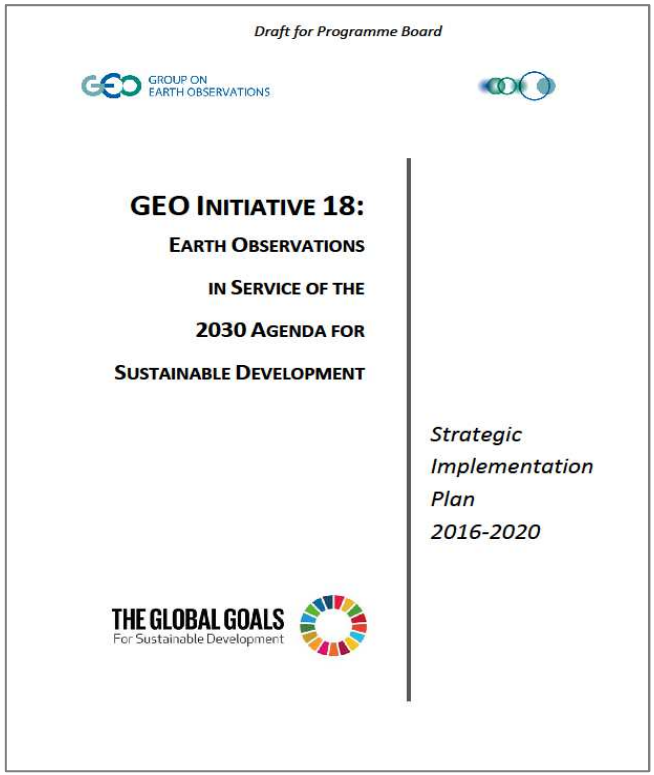
Support to SDGs

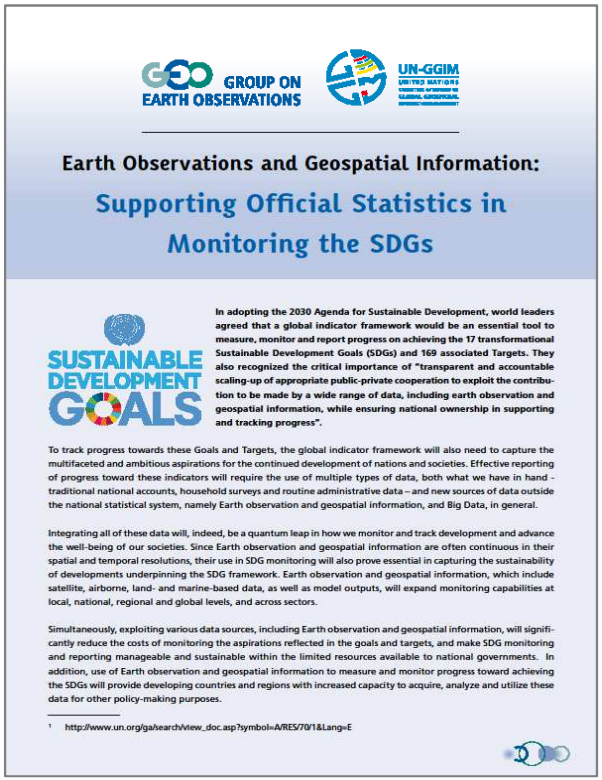
Direct measures of some *Indicators* and indirect support to others.

Contribute to progress on the *Targets*, which will show up in the Indicators.

GEO Initiative “EO4SDGs”

Earth Observations in Service of the 2030 Agenda for Sustainable Development





Sustainble Development Goals

Earth Observations in Service to *Agenda 2030*

Target — *Contribute to progress on the Target yet not the Indicator per se*								*Goal*	*Indicator* — *Direct measure or indirect support*				
							1.5	1					
					2.3	2.4	2.c	2	2.4.1				
				3.3	3.4	3.9	3.d	3	3.9.1				
								4					
								5	5.9.1				
		6.3	6.4	6.5	6.6	6.a	6.b	6	6.3.2	6.4.2	6.5.1	6.6.1	
				7.2	7.3	7.a	7.b	7	7.1.1				
							8.4	8					
				9.1	9.4	9.5	9.a	9	9.1.1				
								10					
	11.3	11.4	11.5	11.6	11.7	11.b	11.c	11	11.3.1	11.6.2	11.7.1		
					12.2	12.a	12.b	12					
					13.1	13.3	13.b	13	13.1.1				
	14.1	14.2	14.3	14.4	14.6	14.7	14.a	14	14.3.1				
15.1	15.2	15.3	15.4	15.5	15.7	15.8	15.9	15	15.1.1	15.2.1	15.3.1	15.4.1	15.4.2
								16					
			17.6	17.7	17.9	17.16	17.17	17					

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Climate Change – GHG Monitoring

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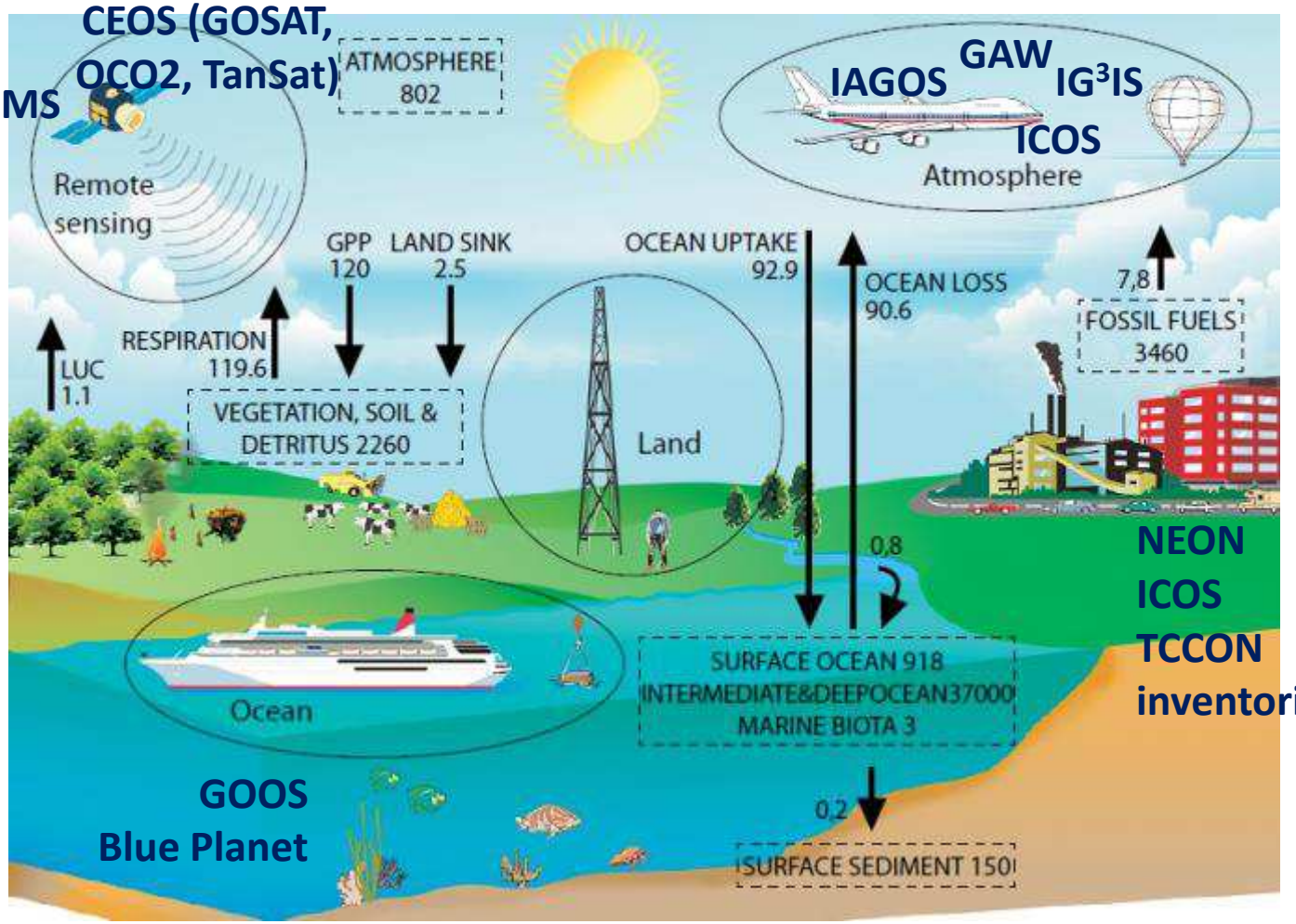
Monitoring the Global Carbon Cycle: a complex ensemble of different players, countries, systems, networks, datasets, methodologies, rules, standards, etc.

CEOS (GOSAT, OCO2, TanSat)

NASA CMS



GCOS

GCP

NEON
ICOS
TCCON
inventories

SOCAt
ARGO
IOCCP
GLODAP
ICOS

GOOS
Blue Planet

… and many OTHERS!

Source: GEOCARBON project

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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

CARBON AND GHG INITIATIVE

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

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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

GEO CARBON AND GHG INITIATIVE

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

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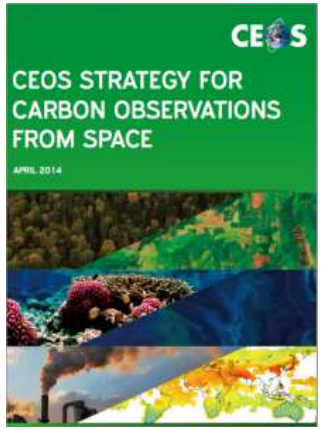
CARBON AND GHG INITIATIVE

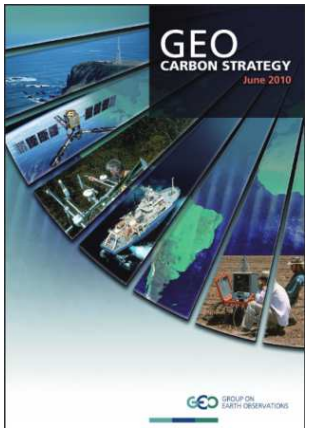
What the C-Initiative will do:

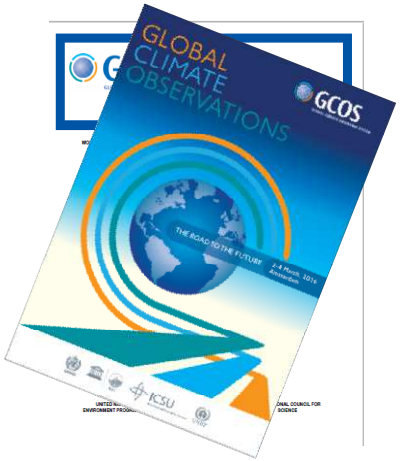
- to build on existing initiatives and networks,
- to support their continuity and coherence,
- to facilitate their cooperation and interoperability,
- to obtain a comprehensive, globally coordinated GHG observation & analysis system

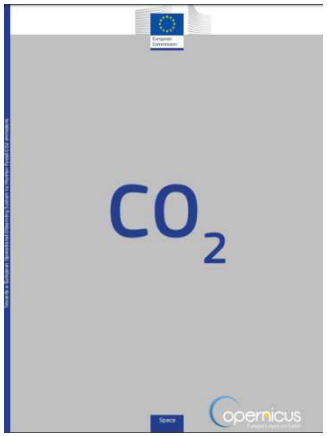
What the C-Initiative will not be/do

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

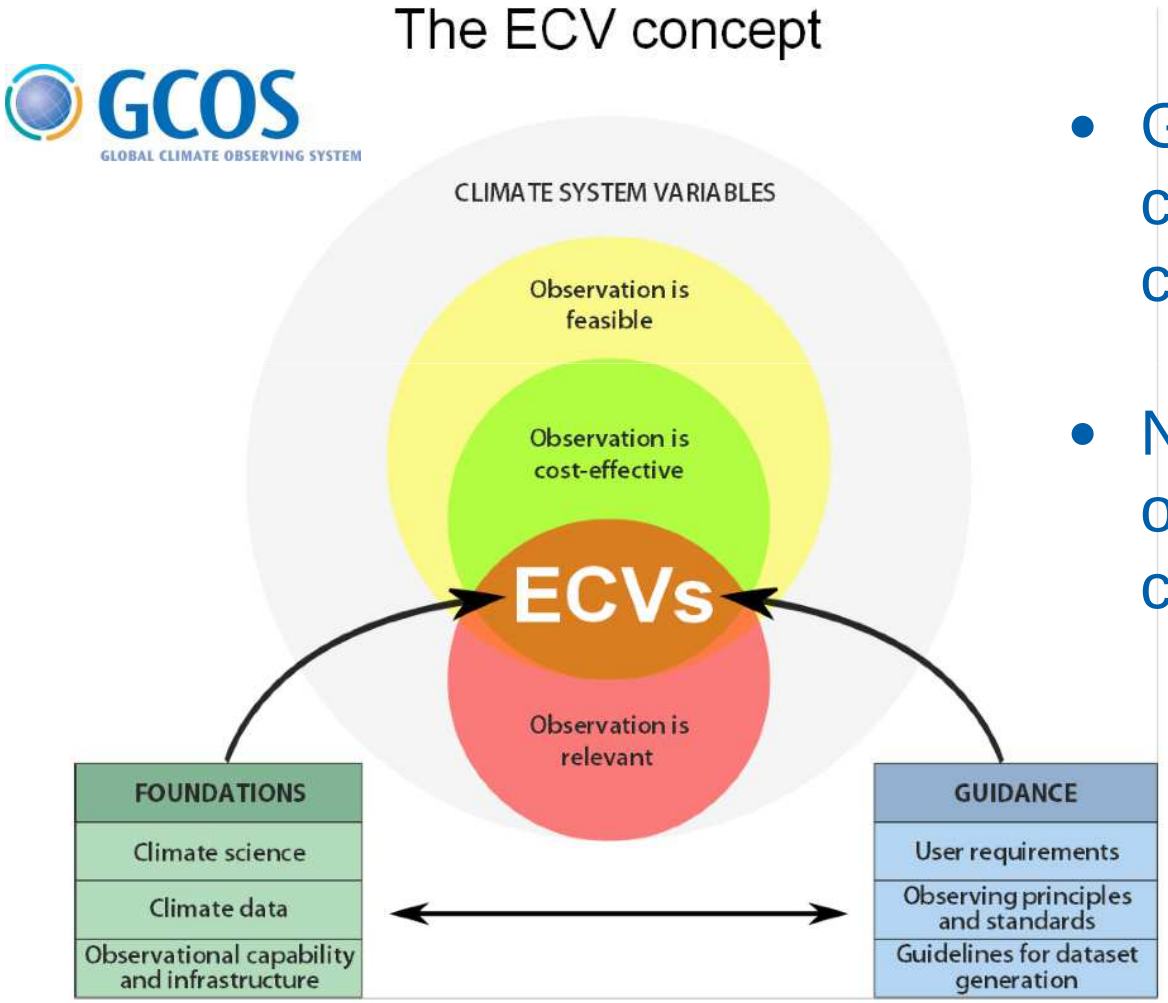








Global Climate Observing System



- 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

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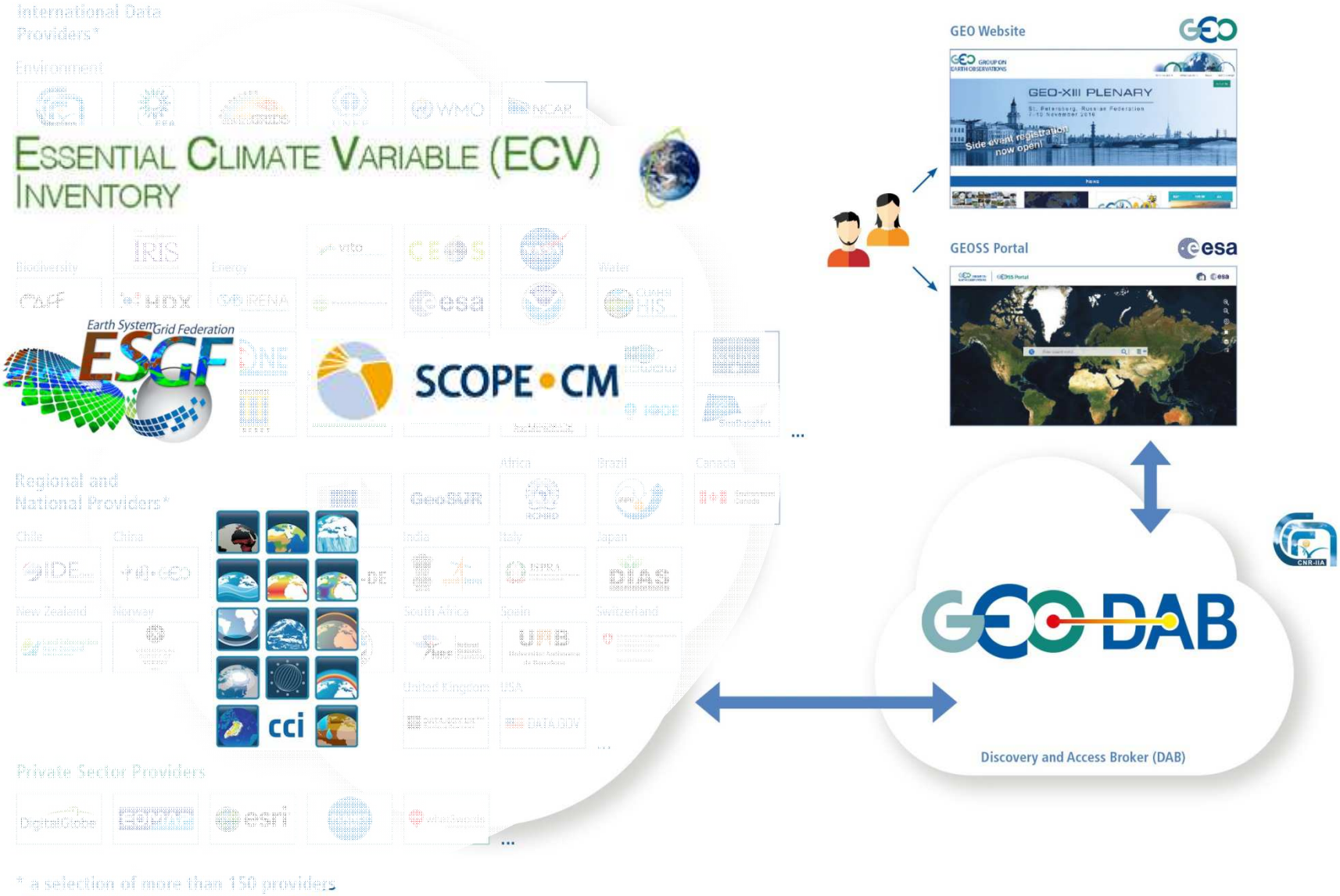
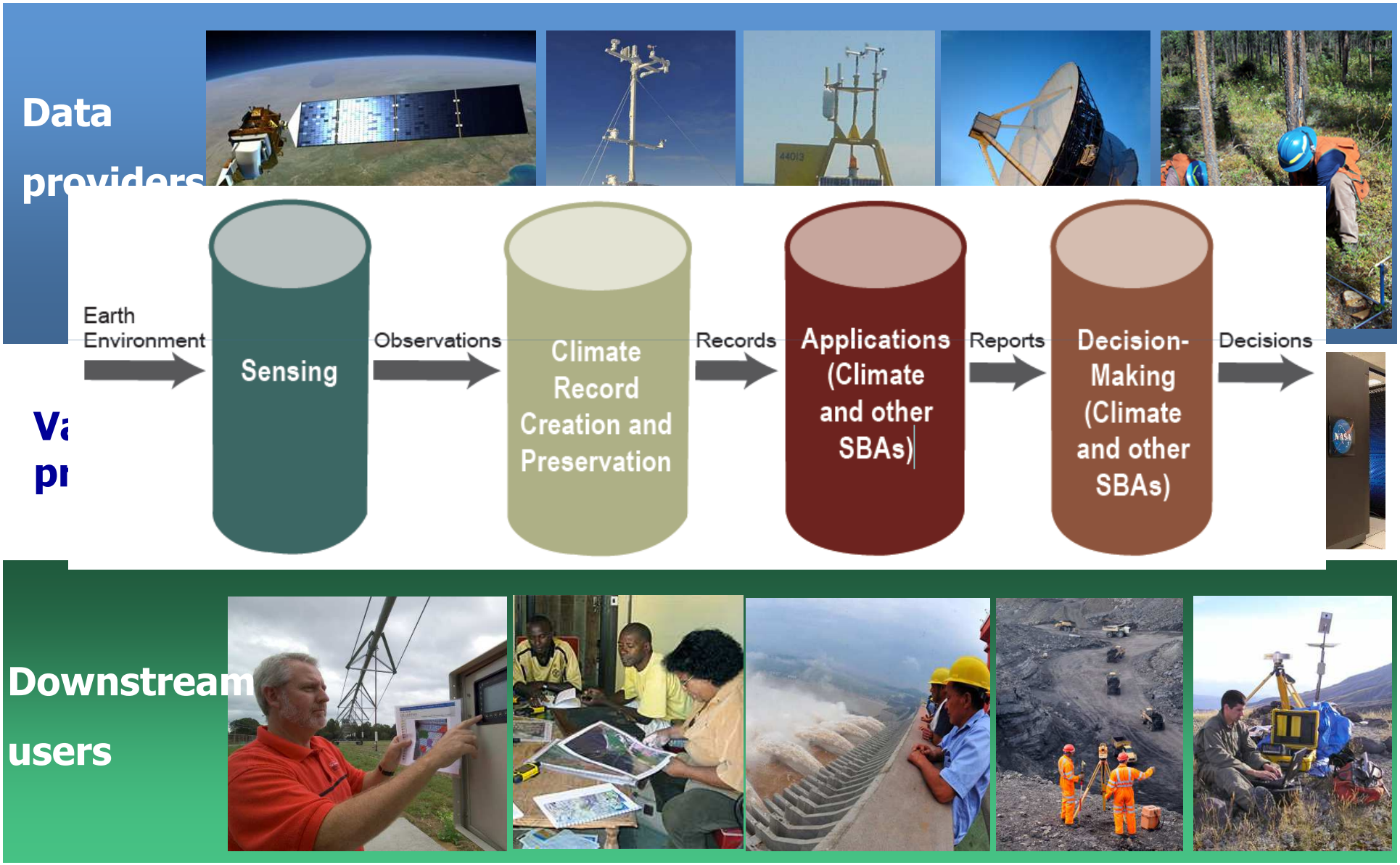
GEOSS Common Infrastructure (GCI)



Information Value Chain



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GEO and Climate Services

GFCS
GLOBAL FRAMEWORK FOR CLIMATE SERVICES

Copernicus
Europe's eyes on Earth

Climate Change Service

Challenges

- **Access to climate data**

  Broad, open data policies are needed for global monitoring and transparency

- **Interoperability**

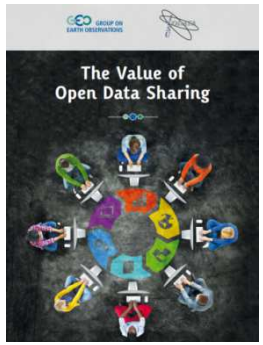
  Data discoverability and access through federated systems

- **Downstream services**

  Applications and information are needed to make data useful for decision-makers

- **Addressing policy agendas**

  Support countries to implement the Paris Agreement



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

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Thank you!

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www.earthobservations.org

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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

GEO CARBON AND GHG INITIATIVE

GEOGLAM Global Agricultural Monitoring

GFOI Global Forest Observations Initiative

GEO BON

BLUE PLANET Oceans and Society