

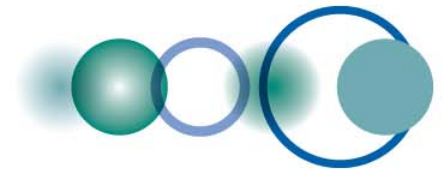
# **GEO WP & Climate Tasks**

**Espen Volden**

**CEOS WG Climate Meeting**

**Geneva, 20-21 Feb 2013**





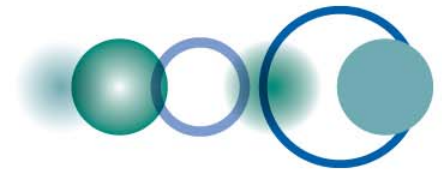
**Created in 2005, to develop a coordinated and sustained  
Global Earth Observation System of Systems (GEOSS) to  
enhance decision making in nine Societal Benefit Areas  
(SBAs)**



**GEO today:**

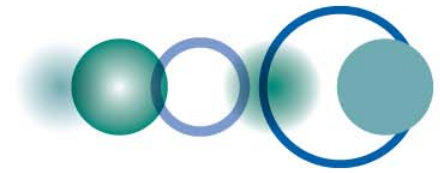
**89 Members**

**67 Participating  
Organizations**



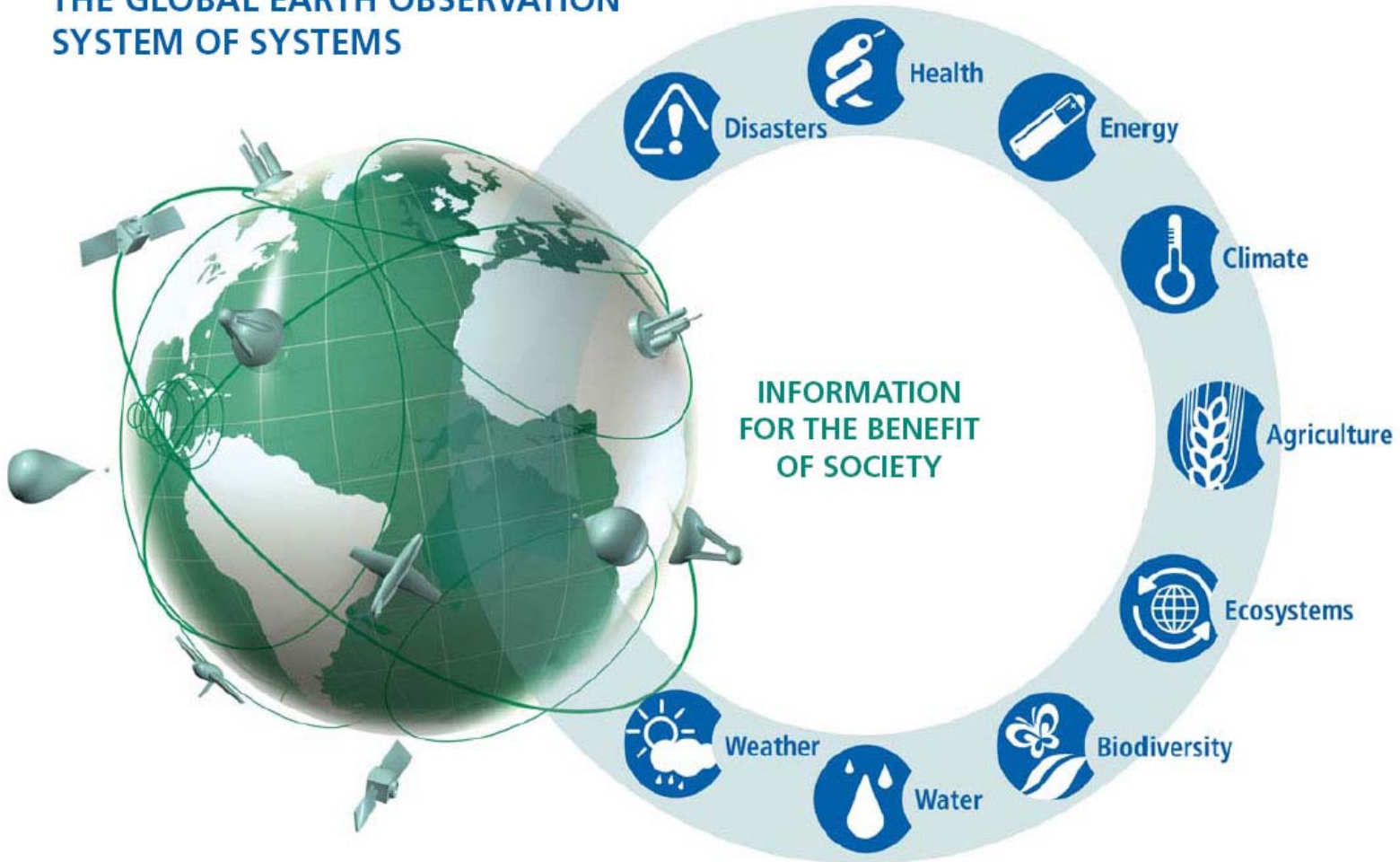
## **GEO Objectives**

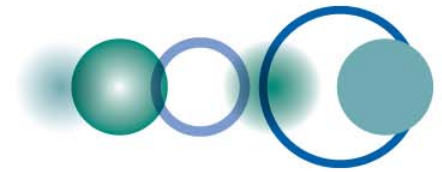
- Improve and Coordinate Observation Systems
- Advance Broad Open Data Policies/Practices
- Foster Increased Use of EO Data and Information
- Build Capacity



# A Global, Coordinated, Comprehensive and Sustained System of Observing Systems

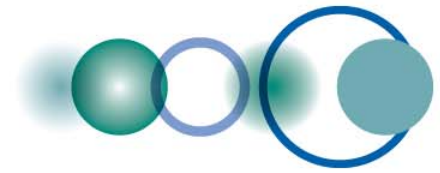
THE GLOBAL EARTH OBSERVATION  
SYSTEM OF SYSTEMS



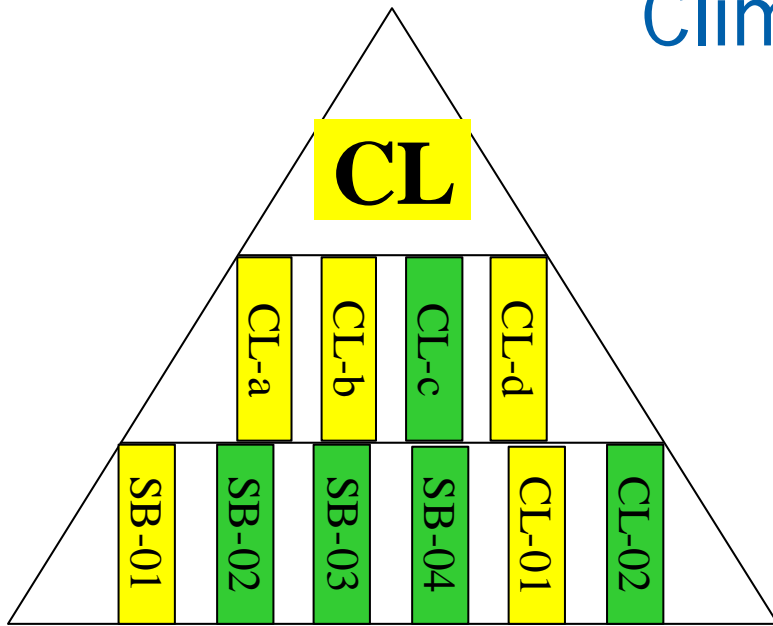


## Towards 2015

1. Post-2015 WG -> CEOS
2. Ministerial WG -> CEOS
3. Sprint to Summit -> CEOS



# Climate Target



*Achieve effective and sustained operation of the global climate observing system and reliable delivery of climate information of a quality needed for predicting, mitigating and adapting to climate variability and change, including for better understanding of the global carbon cycle.*

- Facilitate the access to satellite and in-situ datasets used by weather and climate models;
- Provide resources for the global carbon observation and analysis system;
- Support the development of new, and maintenance of the current carbon monitoring networks;
- Support the expansion of the carbon observations activities to the less developed regions, like Africa.



## Climate Information for Adaptation Task CL-01

- Improved scientific understanding, modelling and prediction of climate
- Availability of ECVs needed by WCRP, IPCC, UNFCCC
- Accessibility of all the observational data needed for climate monitoring and services in support of adaptation to climate variability and change



## Global Carbon Observation & Analysis Task CL-02

- Global carbon observation and analysis system



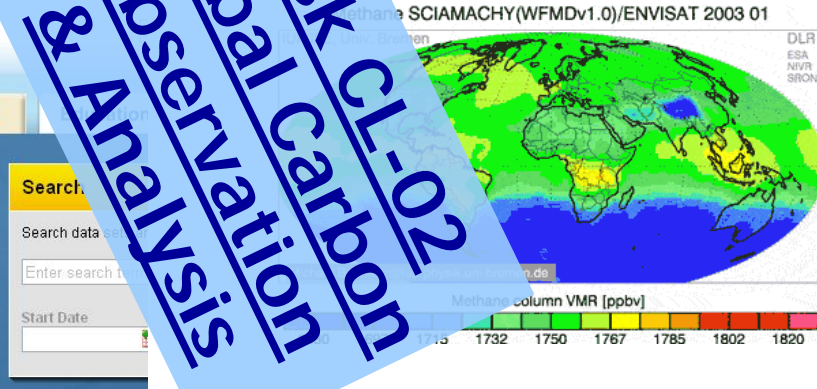
Climate.gov  
science and services for society

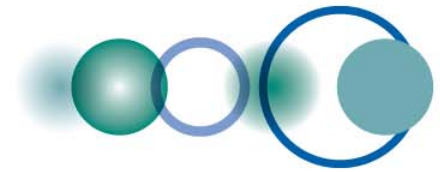
Explore: [ClimateWatch Magazine](#) [Data & Services](#) [Understanding Climate](#)

### Integrated Map Application

Access multiple layers of free, searchable climate data quickly and easily through the integrated data set map application.

[Go to map now>>](#)

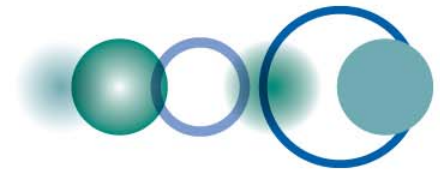




## CL-02 Global Carbon Observation and Analysis

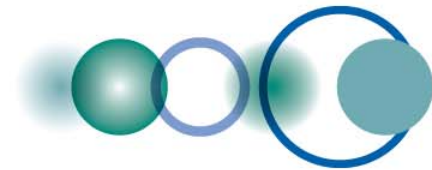
- Develop a comprehensive global carbon observation and analysis system integrated across the atmosphere, land and ocean (including anthropogenic) domains
- Provide
  - improved estimates of carbon budget at different scales (from global to regional/national)
  - reliable information and products for decision-makers
- Improve global observation networks of CO<sub>2</sub>, CH<sub>4</sub>, isotope ratios and exchange fluxes
- Develop an integrated carbon-cycle data assimilation system
- Provide communication points to increase the information flow from providers to users, and disseminate current state-of-the-art information





## CL-01 Climate Information for Adaptation

- Produce high-quality temporally-homogeneous **estimates of past and current climate** to better **detect climate variability and change**
- Accelerate the implementation of the Global Climate Observing System (**GCOS**) – the climate-observing component of GEOSS
- Accelerate advances in **Earth-system prediction** with a focus on coupling and interaction of the various Earth domains
- Strengthen the ability worldwide to deliver new and improved climate, weather, water and environmental **services**
- Support the **integration** of climate products and services **into adaptation processes**
- Encourage the **use** of this information **by policy and decision makers** at all levels



## Task CL-01 Climate Information for Adaptation



**4 Components**

**Extension & Improvement of  
the Climate Record**

**Accelerated Implementation of the  
Global Climate Observing System**

**Weather, Climate and Earth-  
System Prediction Systems**

**Easy Access to, and Use of,  
Climate Information**

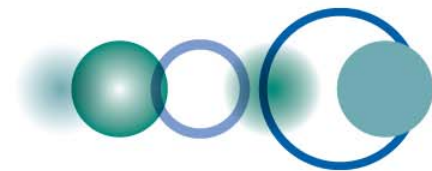


## Component 1: Extension & Improvement of the Climate Record

### PRIORITY ACTIONS:

- Support reanalysis (including coupled) & reprocessing efforts at global & regional scale.
- Facilitate recovery, imaging, digitization, & archiving of **historical observations**. Develop datasets for global climate applications. Support ACRE initiative & build upon ERA-CLIM project & GMES services
- Compile **proxy-based paleo-climate records** over the last two millennia.
- Produce regional-scale reconstructions of seasonal variations in temperature, precipitation and atmospheric pressure fields.
- Promote proxy calibration, data-model comparison, and understanding of inter-decadal & longer climate change at global & regional scales

Member or PO	Implementing Entity	Contact Name
IGBP	PAGES	T. Kiefer
China	CMA	J. Fan
EC	EC FP7	D. Dee
WCRP	WCRP	M. Rixen
CEOS	NOAA	J. Bates
ECMWF	ECMWF	M. Kloeppel
EUMETSAT	EUMETSAT	J. Schulz
Germany	DLR	S. Bernonville
Germany	DLR	O. Reitebuch
Germany	DLR	T. Trautmann
Germany	DWD	M. Werscheck
Japan	AIST	A. Suzuki
Japan	JAMSTEC	A. Yamada
Japan	JMA	T. Hashimoto
Norway	NERSC	J. Johannessen
South Africa	CSIR	F. Engelbrecht
Uganda	ESIPPS	J. Bemigisha
WMO	OBS	S. Bojinski

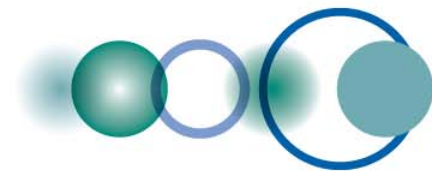


## Component 2: Accelerated Implementation of the Global Climate Observing System

### PRIORITY ACTIONS:

- Support implementation of specific Actions of GCOS-IP to make available ECV datasets
- Provide support to GCOS component systems: GOS, GAW, GOOS, GTOS, global hydrological networks & satellite systems
- Establish actions securing provision of ECV data from satellite systems
- Build upon international initiatives such as the ESA Climate Change Initiative (CCI)
- Support the GCOS programme in its assessment of progress and adequacy, and its development of a new IP, including review & refinement of list of ECVs (2014-2015)

Member or PO	Implementing Entity	Contact Name
GCOS	WMO	C. Richter
CEOS	NOAA	M. Goldberg
EC	EC FP7	J-L. Brenguier
Nigeria	Dep. Geogr.	F. Adesina
Norway	NR	R. Solberg
UK	GMI	V. Djepa
ECMWF	ECMWF	M. Kloeppel
EUMETSAT	EUMETSAT	J. Schulz
Germany	DWD	S. Rösner
Japan	JAMSTEC	A. Yamada
Japan	NICT	S. Uratsuka
Nigeria	NASRDA	M. Aderoju
Norway	IMR	H. Wehde

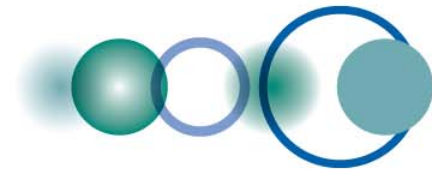


## Component 3: Weather, Climate and Earth-System Prediction Systems

### PRIORITY ACTIONS:

- Foster advances on **seamless prediction**, sub-seasonal to seasonal prediction, and polar prediction through the implementation of dedicated international research projects.
- Capitalize on **expertise of both weather & climate** research communities
- Improve representation of organized tropical convection in models and of its interaction with the global circulation. In particular, support YOTC.
- Develop diagnostics/metrics for robust simulation of the Madden Julian Oscillation

Member or PO	Implementing Entity	Contact Name
<b>WMO</b>	<b>WWRP-THORPEX</b>	<b>J. Caughey</b>
ECMWF	ECMWF	M. Kloeppel
Germany	MPI	A. Boetius
Japan	JAMSTEC	A. Yamada
Japan	NICT	S. Uratsuka
Norway	IMR	H. Wehde
Spain	MARM	F. Pascual
US	NASA - JPL	D. Waliser
US	UCAR	M. Moncrieff

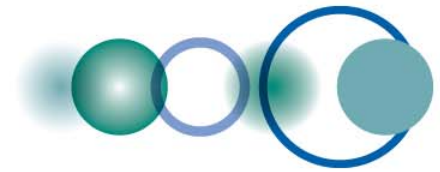


## Component 4: Easy Access to, and Use of, Climate Information

### PRIORITY ACTIONS

- Ensure **delivery of climate information needed for adaptation** through the GEO Portal
- **Build upon existing** “Climate Services” portals and clearinghouses
- Accelerate development of **regional climate downscaling** efforts (e.g. CORDEX) & **assessment of related products** – to better meet needs of vulnerability, impact and adaptation communities
- Build upon WMO **GFCS** (as it develops)

Member or PO	Implementing Entity	Contact Name
WCRP	START	H. Virji
ECMWF	ECMWF	M. Kloeppel
Germany	DWD	S. Rösner
Madagascar	Min of Env. & Forests	A. Noasilalaonomenjanahary
Spain	MARM	F. Pascual
Uganda	ESIPPS	J. Bemigisha
US	NOAA	G. Rutledge
US	USAID	C. Stokes



**CEOS = GEO Space coordinator**  
**GCOS = GEO Climate coordinator**

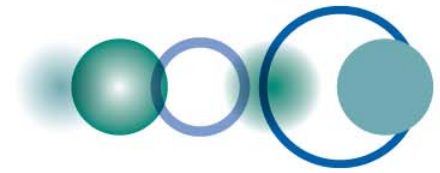
GCOS mission (<http://gcos.wmo.int>): [...] GCOS is intended to meet the full range of national and international requirements for climate and climate-related observations. As a system of climate-relevant observing systems, it constitutes, in aggregate, the climate observing component of the Global Earth Observation System of Systems (GEOSS).

### Opportunities:

- GEO can reinforce GCOS goals, objectives and leadership to a broader community
- GEO intended to reach policy, ministerial levels
- GEO is a vocal advocate for broad, open, data-sharing policies and practices

### Challenges:

- Need for consistent messages regarding role that GCOS intends to play in the GEO Work Plan

**GFCS IP:**

“There are obvious **parallels** between the Framework and the Global Earth Observation System of Systems (GEOSS).

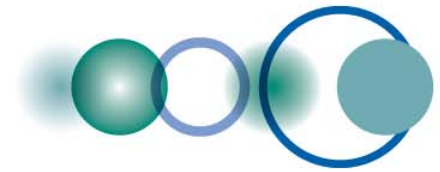
Moreover, GEOSS provides a **framework for preparing services** such as those that the Global Framework for Climate Services is targeting. As the **four identified priority areas** of the Framework are already **Societal Benefits Areas** for GEOSS (i.e. agriculture and food security, water, health and disaster risk reduction), there is an opportunity for the Framework to collaborate with these ongoing efforts.

Furthermore, for each of these areas GEOSS has fostered the growth of **Communities of Practice** that could contribute significantly to the User Interface Platform.

GEOSS has also developed applications and services in collaboration with these user communities that could be shared more fully to advance the Framework implementation.

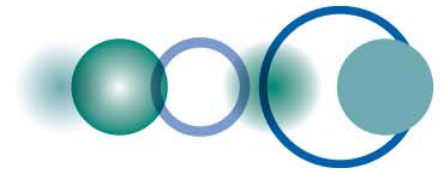
Additionally, GEOSS comprises components that could advance the Framework’s goals (i.e. improved **discovery** of, and **access** to, climate information; promotion of **Data Sharing** Principles; **involvement of end-users**; and **capacity building** coordination).”





# GEO added value for Climate community

- Framework for collaboration with other institutions outside current networks (e.g. Cold Regions)
- Framework for collaboration between other communities (e.g. SBAs)
- Advancing data-sharing (e.g. Landsat announcement at GEO summit)
- Discovery and access to data you need: GCI & Portal, brokering & 2-way link
- Making your data more visible and more used
- Visibility of activities and organisations towards government representatives
- Budgets earmarked for GEO activities (e.g. 18.7 MEUR to GEO projects for Climate in EC FP7; Horizon 2020?)



# GEO Climate challenges 2013

- Clarify and make effective GCOS and GCOS Sec role
- Clarify GFCS-GEO relations
- Functioning CL-01 Task Team
- Strengthen GEO Climate added value
  - Key climate datasets more visible and accessible
  - Cross-SBA activities
  - Community of Practice?
  
- Successful GEO Carbon conference
- End-user products focus in GEO Carbon Task
- More integrated space involvement in Carbon Task

***Thank you!***

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

