

# **GEOSS Water Strategy**

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Meeting/ College Park/MD  
March 3, 2015

GEO - voluntary partnership of governments and international organizations

GEOSS - an **integrating public infrastructure**, interconnecting a diverse, growing array of Earth observing instruments and information systems



## The international Water Task Target:

By 2015, produce comprehensive sets of data and information products to support decision-making for efficient management of the world's water resources, based on coordinated, sustained observations of the water cycle on multiple scales.

**Within the GEO Water Task US scientists provides:**

- **Inputs to all WA-01 components**
- **Coordination of numerous GEO water activities**
- **major contributions to Capacity Development (SERVIR, 'CIEHLYC', Water ML2).**

GEO has recently developed a GEOSS Water Strategy that updates the information on observational systems and the GEO water community's efforts and needs. It also outlines the scope of the contributions that the water community could make (with adequate support) to the new post-2015 GEO program.



## Some 2014 achievements/outcomes:

New initiatives have been launched which deal with two of the six theme areas.

1. Addressing water security and sustainable development  
(GEO Water is collaborating in the design of a monitoring system for indicators for the proposed Water SDG)
2. Supporting the climate change adaptation agenda.
3. Warning systems for hydrometeorological hazards.
4. Enhancing human and environmental resilience.
5. Addressing the Water-Energy-Food nexus issues.  
(GEO Water is collaborating in a new Future Earth Water-Energy-Food initiative)
6. Improving the welfare of the poor in developing countries through more effective water management.

In addition to identifying gaps, the Strategy advances recommendations on ways to address those gaps.

Recommendation	CEOS-Lead	GTN-H Lead	Other?
A. Enhancing User Engagement (8)	2?	4	2-4
B. Encouraging and conducting research and product development (16)	0	2	14
C. Advancing satellite data acquisition (10)	10	0	0
D. Strengthening in-situ data acquisition (10)	2	7	1-2
E. Encouraging and conducting research and product development (16)	7	1	8
F. Facilitating data sharing and common standards (7)	2	0	5
G. Expanding capacity development	1	0	2

## GEO Phase II

GEO is making changes as it moves into the post-2015 phase.

Many of these changes have yet to be worked out in detail. However it seems very likely that some large global projects such as GEOGLAM will be designated as **flagships** and will be profiled more highly. They will also be expected to be transferred to an implementation agency once they become operational.

Smaller sectorial activities may end up getting less attention under this new framework.

How can the US effectively contribute to this new structure in the water area and at the same time strengthen its domestic EO water program?



- **Develop an approach where US GEO Water Task Components are well-integrated**
- **Provide a framework where entities addressing US Water Priorities, such as USG agencies, can participate**

Component	Name	Lead (*) and Contributors
C1	Integrated Water Products and Services	Brad Doorn*, Dave Toll, Rick Lawford, Christine Lee
C2	Information Systems for Hydrometeorological Extremes (Droughts and Floods)	Roger Pulwarty*, Michael Brewer, Carrie Stokes, Dan Beardsley
C3	Information Service for Cold Regions	Marco Tedesco*, Bert Davis
C4	Global Water Quality Products and Services	Larry Liou*, Gary Foley, Christine Lee, Dave Toll
C5	Information System Development and Capacity Building	Angelica Gutierrez*, Nancy Searby

# GEO Global Water Sustainability Partners



**US Army Corps of Engineers®**



World Meteorological Organization



# GEO Global Water Sustainability

## **Introduction to GEO GloWS: A U.S. Program Addressing Water Security**

- **Addressing Societal Needs**
  - Water scarcity, poor water quality and extreme events including floods and droughts will increase risk of loss of life, instability and state failures (UN Science Development Goals, US Inter-Intelligence Community Assessment)
- **Maximizing use of US GEO Network and EO Capabilities**
  - Earth observations (satellite and in-situ) are a critical component of a systematic approach towards addressing water challenges
  - Continuous satellite capabilities to study water cycle (SMAP and GPM)
- **Maximizing Benefits to NASA and other USG agencies**
  - Allows NASA to maximize its contribution to addressing water security issues
  - Provides the US with an opportunity to influence directions in the new GEO program

## **GEO Global Water Sustainability (GEOGLoWS) Initiative**

### **1. Global Water Security Enhancement**

Water Scarcity  
Water Quality  
Water Use  
Climate Change  
Sustainable Development Goals

### **2. Water Cycle Understanding**

Precipitation  
Soil Moisture  
Groundwater  
Streamflow  
Surface Water Storage  
(includes snow pack)

### **3. Minimizing Basin Risk**

Droughts  
Floods  
Transboundary Basins  
(IWRM)  
Water and Energy-Food-  
Environment- Health  
Climate Change  
Adaptation

### **4. Earth Observations, Integrated Data Products and Applications and Tool Development**

### **5. Data Sharing, Dissemination and Transfer of Data, Information, Products and Tools**

### **6. Capacity Building**



## ? Next Step Possibilities {DRAFT}

- 1) Hold an interagency workshop where scientists/experts and program managers would discuss activities that they would like to advance and support at part of GEOGLoWS.
- 2) Global Drought Monitoring Tasks (GLDAS DM, WR Focus Team, Integrate with GDIS, NASA lead a DM, coordinate with USACE and GCRP drought, USWP, Western US and Developing World Drought, etc. )
- 3) Development of a routine measure of Water Use (with USGS, NASA ET, etc.)
- 4) Water Indicators Workshop and activities (Include Climate and SDGs)
- 5) ET Applications Workshop (replaces Western ET Workshop) Being planned
- 6) Improving in-situ data integration and archiving (NOAA US Soil Moisture Network)
- 7) Use EO in a Water-Energy-Food-Environment-Health Nexus Testbed.
- 8) Follow up on priority GEOSS Water Strategy needs
- 9) Development and testing of indicators derived from satellite data for the Water SDG
- 10) Develop a multiagency Call for Proposals to support the use of EO to provide insights on the Water SDG Targets and indicators.

## **Summary:**

Within US GEO there is an opportunity to consolidate activities in a number of areas where US agencies are providing data and information to assist water management. Given NASA's leadership in satellite applications to water management, it is a natural leader for this effort. The result could also be the basis for a Flagship in the new phase of GEO.

NASA is doing work that applies to the GEOSS Water Strategy recommendations. These activities (and NASA and US GEO) could receive more visibility internationally by being included in either the CEOS response to the GEOSS water strategy or through direct responses to the GEO Water activities.