

# **Update on the IGWCO Community of Practice**

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March 3, 2010

# Summaries of Recent Meetings and Follow-on

Data Centre Alliance Workshop in Washington (November, 2009)

Workshop on Integrated Data Sets held in Frascati (November 2009)

GEO Water Cycle Capacity Building Workshop in Lima Peru (December, 2009)


IEEE /Water Cycle COP Workshop held in San Francisco (December, 2009)

Water Resource Assessment and Applications Workshop held in New York (February, 2010)

IGWCO Planning Meeting held in New York (February, 2010)

# Assessment of WA-08-01 Activities based on a workshop on Integrated data sets held in Frascati in November 2010.

		In-situ		Satellite		Integration	
	Archive	QC	Product	Exp.	Routine	Within	Between

Good Progress 

## Key Recommendations:

Each sub-task lead will develop a plan for producing an experimental integrated data product in the next 12 months.

A workshop will be held in the next 12 months to assess the Commitment to integrated Evapotranspiration products and to develop a work plan for an Evapotranspiration task.

Discussions will be held with GEWEX to determine the need for new GEO activities related to clouds and water vapour.

	Evapotranspiration	water vapour	SKIN temperature				



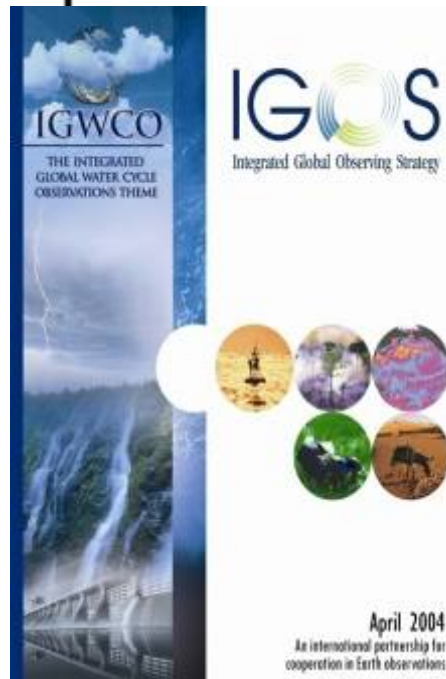
# The Structure of Water Cycle Activities under the Community of Practice framework

Water Cycle Community of Practice  
(WCCOP Coordination)

Regional  
Water Cycle  
COP's  
(deployment)

- WaterNET
- Asian Water Cycle Init. (AWCI)
- TIGER

IGWCO



Water Cycle  
Applications  
(demonstration)

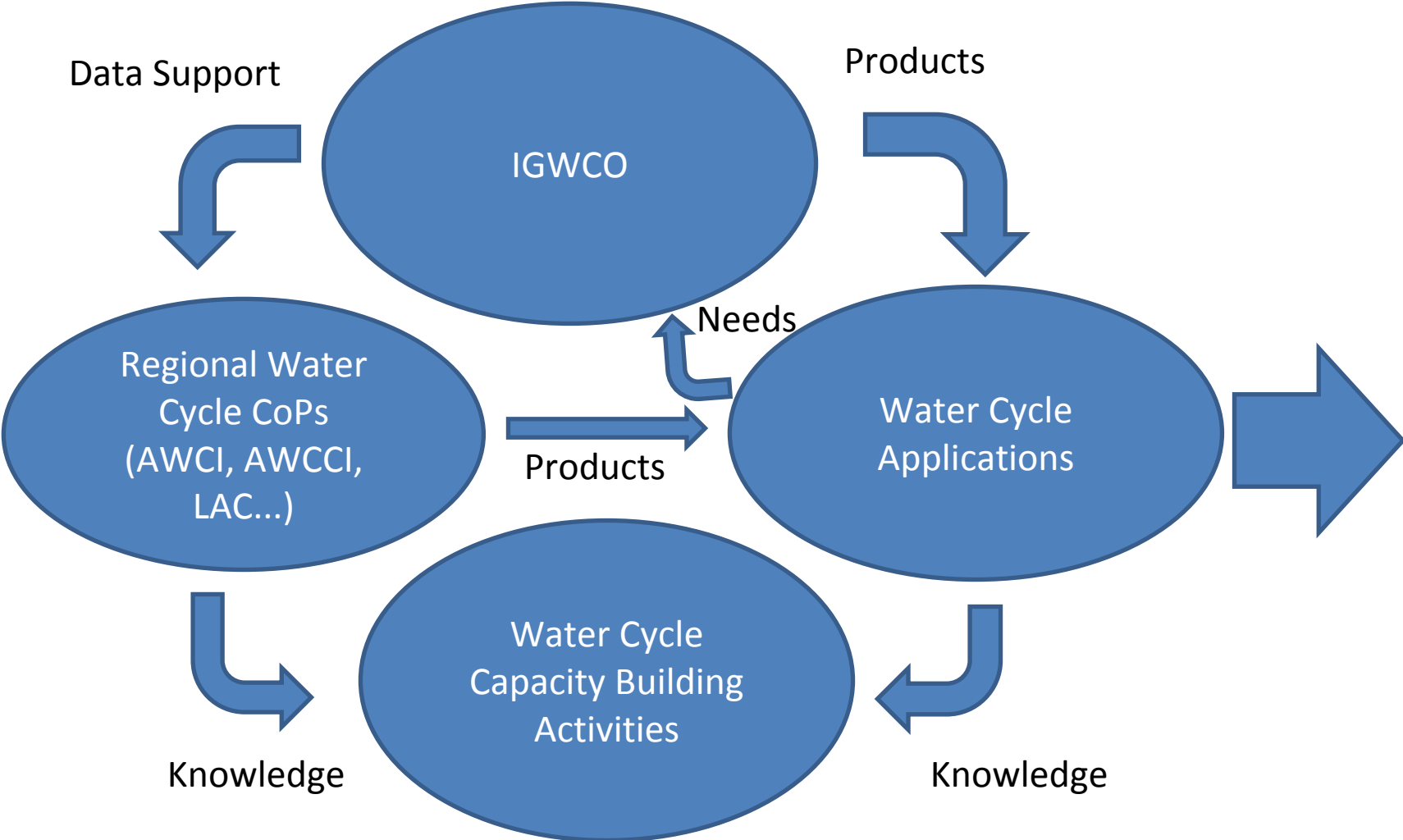
Coordination  
by various  
international  
and national  
Bodies.

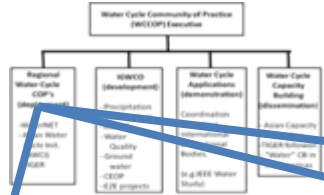
(e.g. IEEE Water  
Study)

Water Cycle  
Capacity  
Building  
(dissemination)

- Asian Capacity Building
- TIGER followon
- "Water" CB in the Americas

# Possible New Structure for the Water Cycle Community of Practice





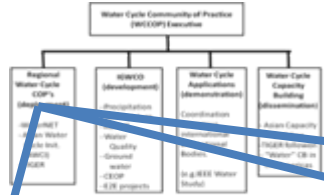
Tunisia (01/09)



Peru (12/09)



Japan (02/09)



Tunisia (01/09)



Peru (12/09)



Japan (02/09)

# A GEO Water Cycle Capacity Building Workshop

## Latin America & Caribbean

Argentina  
Belize  
Bolivia  
Brazil  
Chile  
Columbia  
Costa Rica  
Ecuador  
Guatemala  
Haiti  
Honduras  
Jamaica  
Mexico  
Panama  
Paraguay  
Peru  
Uruguay

## Supporting Countries:

Canada  
The Netherlands  
United States

**Lima Peru at 'CONIDA', Nov. 30 to Dec. 4, 2009**

## Goals

- To develop an inventory of the national and regional data needs and data infrastructure in Latin America and the Caribbean.
- To introduce representatives of countries in Latin America and the Caribbean to the tools that are available for analysis through GEO and GEO members.
- To develop a plan for a program of Capacity Building in the water sector for the countries of Latin and Caribbean America and a framework to support “North-South” and “South-South” support and collaboration.



# Recommended Actions from the Water Resource Assessment and Applications Workshop (New York, February, 2010)

1. The UN Water Statistics presentation identified an important link between water, economics and governance. IGWCO would benefit from one or two test cases where satellite data or data products were used to drive the UN accounts spreadsheets for two or three countries to see how the balances would be affected.
2. The water sector provides many opportunities to blend socio-economic data and physical data. However we do not fully understand the spatial and (especially) temporal characteristics of economic data (e.g., GDP). IGWCO will launch a small project where we could assess the compatibility of economic data and indicators derived from physical data.
3. The Geodetic community believes they have considerable information that could benefit the hydrological community. Should the IGWCO challenge them to produce a product which we could compare with our existing products? If so what should that product be?

# Other Issues from this workshop for continued discussion in IGWCO

1. Through its regional initiatives, GEO Water /Water CoP is developing a unique framework for implementing regional projects. The AWCI, AWCCI and L&CA initiatives are at different levels of development but each have capabilities of supporting and coordinating new initiatives. Are there projects/proposals that could be accelerated by working through the framework?
2. US Agencies have a number of data systems that could be used in IGWCO product development and demonstration projects. How can we mobilize this capability?
3. The WCRP commitment to Climate Services may provide opportunities for Regional WC CoPs to be mechanisms for developing and testing new services. How should IGWCO proceed in defining its roles within this framework?
4. There are many common variables required by the water cycle and terrestrial carbon cycle communities. Although some efforts have occurred over the past decade to develop synergies between these groups have not had many collaborative efforts. Should IGWCO pursue this effort and, if so, how should it go about doing it?

# **KEY ACTIONS ARISING FROM THE IGWCO COP PLANNING MEETING (New York, February 2010)**

1. Given the complexity of the GWC activities it is recommended that a descriptive overview be developed for the WC activities. This could be published and distributed at the GEO Summit.
2. A dialogue between JAXA and GTN-H will be opened to explore which option(s) are preferred for a JAXA data distribution System. The Task Group is asked to report to IGWCO and GEO Secretariat Water Coordinator by May 1, 2010.
3. A template (with definitions) will be established to survey all GEO Water Tasks in preparation for the May GEO Task Review.
4. ESIP has a significant capability and desire to interact with water information users. This capability could help IGWCO expand its user engagement activities. The possibility of a collaborative initiative between IGWCO and ESIP will be explored.

5. Based on the potential synergies between water and health the feasibility of a water/ health workshop will be explored. (ACTION: Jami Montgomery, RL)
6. Baseline information for the appropriate components of the UIC Call for Concept Proposals will be mapped to IGWCO initiatives.
7. A small working group will be established to decide the future actions to be taken With respect to the Water Cycle User Needs survey.
8. There is good potential for the GEO activities within the L&CA initiative to have links with the UNESCO IHP regional activities. This will be explored through IGWCO participation in US UNESCO IHP meetings.

# CEOS Virtual Constellations

Constellation for Atmospheric Composition (ACC)

Constellation for Land Surface Imaging (LSI)

Constellation for Ocean Colour Radiometry (OCR)

To collect and deliver data to improve monitoring,

To determine optimal capabilities to acquire,

To provide long time series of calibrated ocean colour radiance

## Is there a place for a Water Cycle Constellation?

**ACTION:** A small SWAT team will be established to explore the feasibility of developing a white paper for a Water Cycle Constellation as part of the CEOS program.

The implementation of a sustained, systematic capability to observe the topography of the surface of the global oceans ranging from basin-scale to mesoscale.

Promote the widespread use of scatterometer-derived surface vector winds (SVW) and altimeter-derived significant wave heights (SWH) in operational marine analyses and forecasts worldwide, as a contribution to the protection of life and property at sea.

To guide, facilitate, and coordinate continued advancements of multi-satellite global precipitation missions.

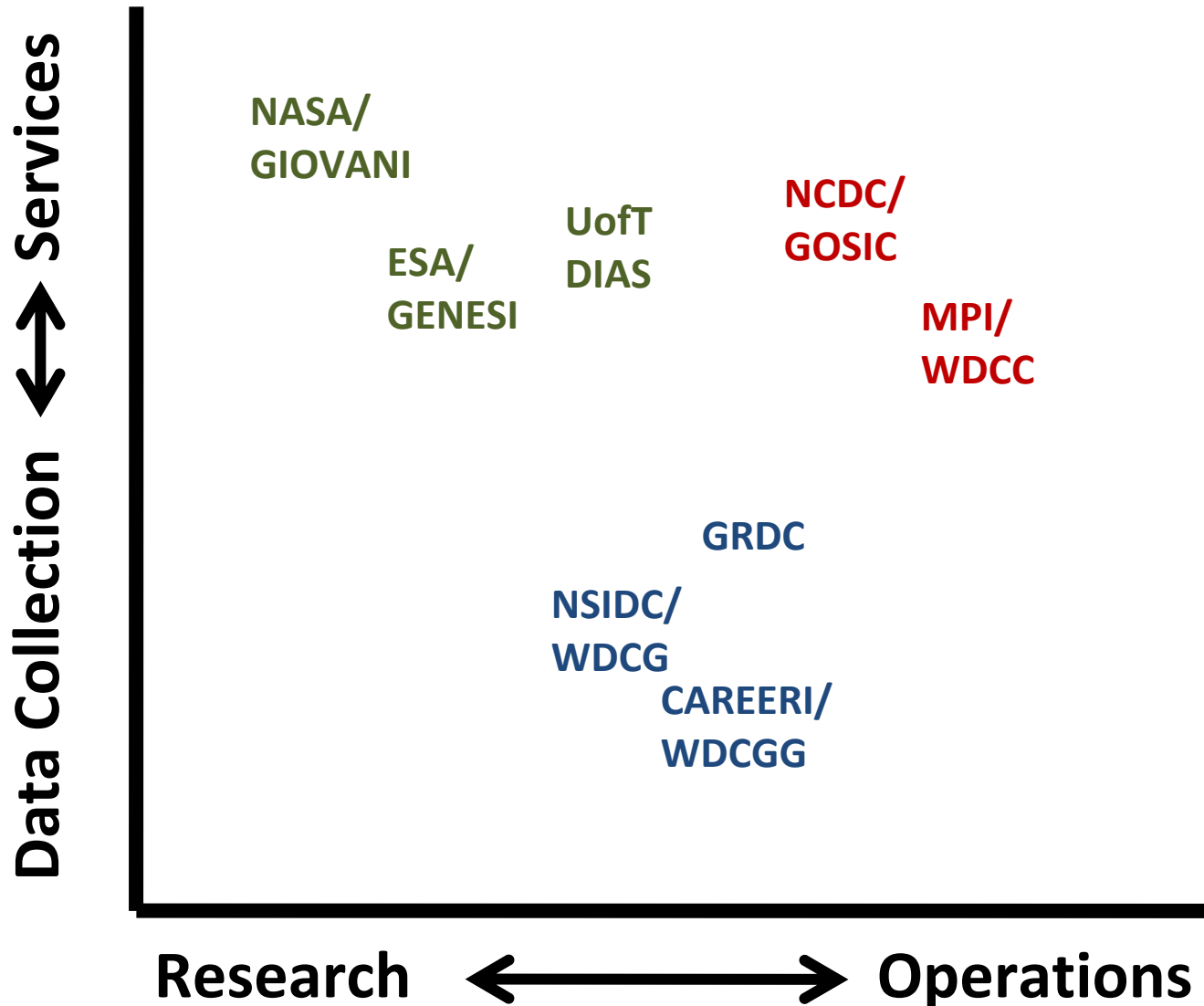
Data Centre Alliance Workshop DA-Washington, DC  
November 2010

## **Outputs**

The Alliances workshop discussed:

1. The development and analysis of inventories of the significant data centres in the Water SBA.
2. The process for developing Alliances between different data centres with similar objectives (e.g., World Data Centres, Research Data systems, etc)

# Preliminary Classification of Data Centres



## Possible Issues to be addressed in the Alliances:

### “Data Integration System Development Alliance”:

- 1.Provenance
- 2.Visualizations
- 3.Ontologies

### “Information Services Alliance”

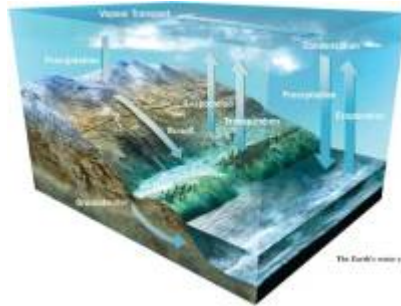
- 1.User requirements

### “Data Product Development and Archival Alliance”

1. Data transfer from collection point to Global Data Centre

# Specific opportunities for a DIAS - GENESI-DR – GIOVANNI Alliance

- Demonstrate, initially in a bilateral way, services interfaces such as (very preliminary list):
  - GENESI to DIAS:
    - use of VOMS (Virtual Organisation Management System Service) for User Certification / Data Policy
    - Genesi-fication of selected DIAS datasets
  - DIAS to GENESI:
    - Ontology/semantics for data discovery (to be confirmed)
  - GIOVANNI to GENESI:
    - discovery and access to NASA data sets
  - GENESI to GIOVANNI:
    - On demand processing for selected use case in GRID environment



# IEEE /Water Cycle COP Workshop (IEEE GEOSS Workshop XXXIII): Using Earth Observations for Water Management

Grand Hyatt San Francisco, San Francisco, CA, USA  
Friday December 18<sup>th</sup>, 2009

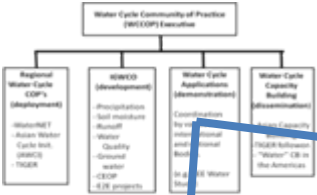


# Workshop Outcomes

- There is a need to integrate more remote sensing information in water management operations and practices. High resolution products are needed, although the private sector may want restrictions and compensation.
- Engagement of the research and operational communities by GEO is only slowly developing. For example, a method for upgrading the California hydrological forecasting system was discussed.
- Uploading data from people's mobile telephones is an exciting new prospect. Community Portals can expand the breadth of information for decision making

# Workshop Outcomes

- The WaterNet network is an example of serendipitous networking. It raises the question of whether networking can be better planned.
- There are a number of elements for an effective and interoperable network:
  - Progress in data handling capabilities may engender new standards and interoperability for hydrology globally.
  - The NIDIS test beds would be a good environment for integrating other international drought monitoring efforts.
- Several presentations on the activities of GEO indicate a great deal of enthusiasm regarding GEO tasks but how do we build on these successes to further engage the community?



## USER NEEDS SURVEY FOR WATER CYCLE DATA

- GEO (WC CoP) and NASA are in the final stages of finalizing a report on the needs of water resource managers for water cycle information.
- This report summarizes the findings of earlier reports on a wide range of variables related to:

- (1) Surface Waters, Fluxes, and Processes:**
- (2) Ground Water (Including Recharge/Discharge & Regolith Processes)**
- (3) Forcing Elements (e.g., Surface Meteorology, Surface Radiation Budgets and Clouds**
- (4) Water Quality and Water Use**

# Critical/Priority Variables/Parameters

- **(1) Surface Waters, Fluxes, and Processes:**

- Precipitation (liquid/snow/ice)
- Soil Moisture/Temperature (Surface and Vadose Zone)
- Evaporation and Evapotranspiration
- Runoff & Stream Flow/River Discharge/Stage...
- Lake/Reservoir-Area/Level/Depth....
- Snow/Ice Cover & Depth/SWE & Freeze-Thaw Margins,....
- Glaciers/Ice Sheets, Permafrost, Frozen Ground—Area/Depth/Mass balance...

- **(2) Ground Water (Including Recharge/Discharge & Regolith Processes)**

- Ground Water Table and Charge/Recharge Rates
- Aquifer Levels, Geologic Stratification, Volumetric...
- Soil type/Texture, Composition, Porosity/Conductivity..

- **(3) Forcing Elements (e.g., Surface Meteorology, Surface Radiation Budgets and Clouds**

- SW, LW Surface Radiation Budgets, Albedo, Emissivity, and Clouds
- Surface Air Temperature, Relative Humidity/Specific Humidity, Winds, Pressure..
- Vegetation Cover/Type, Land Cover & Land Use
- Topography and/or Geology

- **(4) Water Quality and Use**

- Water Quality/Composition—Organic/Inorganic/Isotopic
- Nutrient and Contaminant Effluents/Fluxes into Water Bodies
- Water Sources, Water Demand/Use & Regulation

## Workshop Plans for 2010:

February 2010: An IGWCO planning meeting is planned for CUNY in New York. A workshop that will involve a number of people from different water Programmes will be involved in the program.

March 2010: The Asian Pacific GEOSS Symposium will contain a substantial water cycle component.

April 2010: A drought monitoring meeting is planned for Ashville NC.

May 2010: A GEO-DRI drought impact monitoring workshop is planned for May 2010 in Winnipeg Manitoba.

August 2010 (TBC): A CEOP meeting will be held as part of a pan-GEWEX meeting.

September 2010: An African Water Cycle Coordination Symposium will be held in Africa.