

# ***Integration of Earth Observation Data for IWRM under GEOSS***

## **1. Objectives**

- To develop an information system of systems for promoting the implementation of integrated water resources management (IWRM).
- To make a bridge of the data and information from the global scale to a river basin scale for sound decision making.
- To shift from research activities and achievements to operational use for contributing to societal benefits.

# *for IWRM under GEOSS*

## 2. Targeted River Basin Criteria

1. Importance of the basin from the point of view of the socio-economic benefit area and hydrological sciences
2. Minimum requirement of data availability:
  - Data type: rainfall, streamflow, weather station data (air temp., wind speed, pressure, humidity, ...)
  - Spatial density of observation stations: according to the WMO standard but local specifics to be considered;
  - **Upper air observation is highly recommended**
  - **Near-real time data availability is highly recommended;**
  - **Watershed characteristics information (land use, soil characteristics, dams and other regulation works made to river channels)**
  - **Ground water and water quality data availability for the river basins where those problems should be addressed.**
3. Size of the watershed: 100 km<sup>2</sup> - 1,000,000 km<sup>2</sup>

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## **3. Data Interoperability**

- Meta-data design
- Meta-data registration
- Data quality check and archive
- Data format unification
- Data integration function
- Distributed- and Centralized- data distribution

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## **4. User Interface**

- Data request: global/regional/local, observed/modeled, natural science/socio-economic
- Function request: data integration, information fusion, analysis, prediction, dissemination

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## **5. Data Policy**

**1) Release of Data in Compliance with WMO Resolution 40 (CG-XII) and WMO Resolution 25 (CG-XIII)**

**2) No Commercial Use or Exploitation**

**3) No Data Transfer to Third Parties**

**4) Timing for Release of AWCI River Basin Data from the CDA Archive**

category 1 - standard data - data release after 6 months

category 2 - special data - data release after 15 months

*• Streamflow data - (i) operational - category 1 data; (ii) research site maintained by university, through a project - category 2 data; also remote sites need to be included in category 2 data*

*• Suggestion: to have 3 categories of data - the third category - real time or near-real time data (radiosonde data from operational sites)*

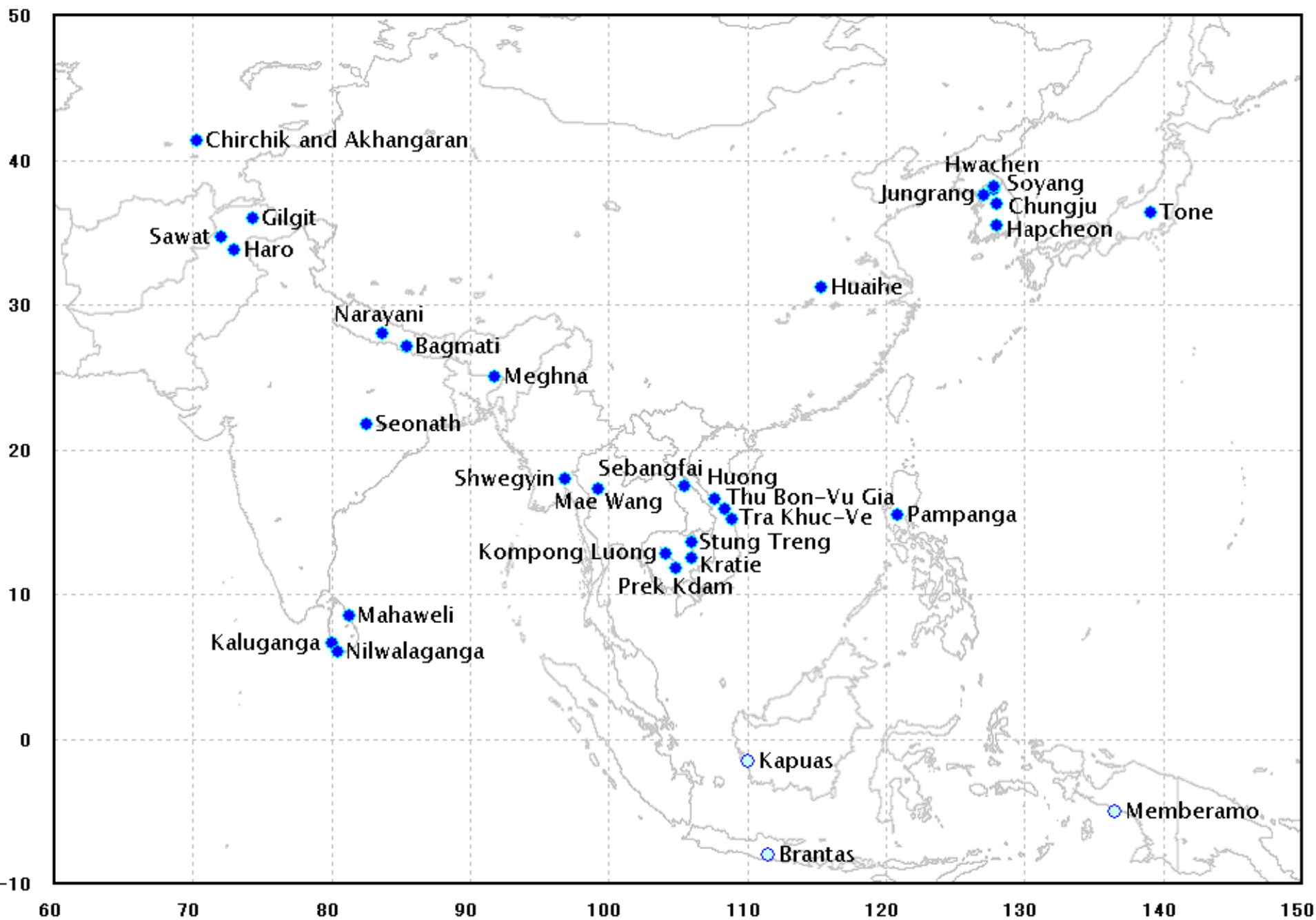
**5) Acknowledgement and Citation**

**6) Co-operation between AWCI Data Users and AWCI River Basin**

**Principal Investigators (PIs)**

**7) Co-Authorship for AWCI River Basin Principal Investigators (PIs)**

**8) AWCI Publication Library**



# GEOSS/Asian Water Cycle Initiative

[integration of earth observation data] + [capacity development] programme

\* GEOSS Implementing Agencies  
(observations, predictions, data integration)

Integration and use of earth observation data

Satellite data, global network data, numerical forecasting model, assimilation of data

Area data / information

In-situ data

In-situ data

In-situ data

In-situ data

Capacity Building

use of satellite data

\* Space Agencies

Research obs, Modeling and analysis

\* UNU, universities Research Institute, etc.

In-situ observation River management

\* ICHARM, MRC ESCAP, etc.

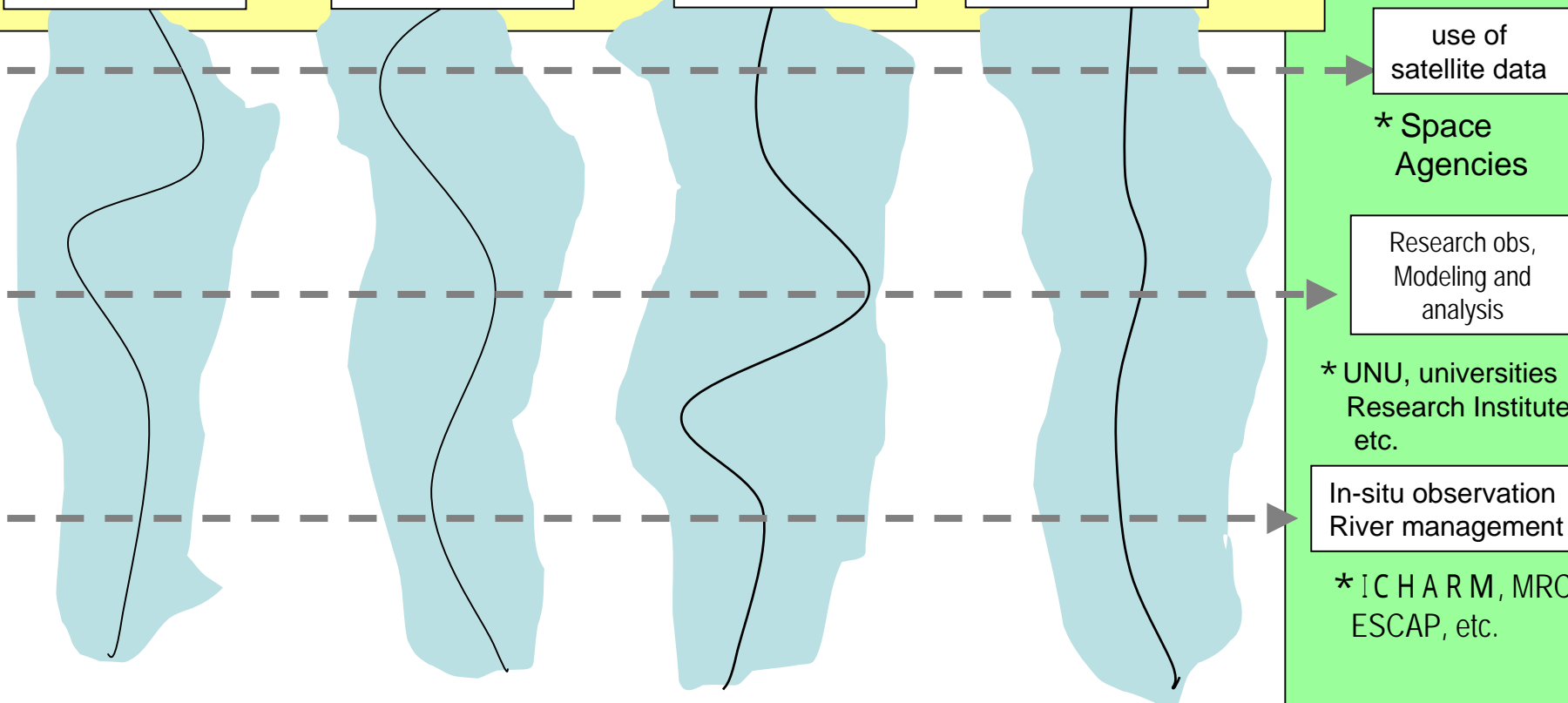
Common items

Basin 1

Basin 2

Basin 3

Basin 4





## **Improving water-resource management through better understanding of the water cycle**

### **WA-07-02: Satellite Water Quantity Measurements and Integration with In-situ Data**

*Initial support has been expressed by IAG, GCOS, WCRP, CEOS and IGWCO.*

Develop an operational mechanism to provide water level observations in rivers, lakes/reservoirs and estuaries from satellite observations to support the upgrade of deficient run-off water gauge networks. Combine different types of satellite data that are relevant for water quantity measurements (snow water equivalent, streamflow) with in-situ observations for better accuracy and global coverage. Produce an implementation plan for a broad and operational global water cycle data integration system that combines in-situ, satellite data and model outputs. An international symposium is proposed to be held to assess techniques and their maturity for transitions to operations. A workshop is planned in 2007.





## Improving water-resource management through better understanding of the water cycle

### **WA-07-01: Global Water Quality Monitoring**

Initial support has been expressed by IGWCO, NASA, JAXA, ESA, CSIRO, ICSU, CEOS and POGO.

Many aspects of water quality monitoring and assessment, both in-situ and remotely sensed are severely deficient. Many countries lack the technical, institutional, and financial resources to conduct proper assessments using in-situ water quality monitoring methods for terrestrial sources and in the coastal ocean. Remote-sensed operational systems of global-scale freshwater quality are non-existent. Operational observation systems need to be developed, and the resulting information systems should be made compatible and interoperable as part of the system of systems. This Task is built on the outcomes of the water quality workshop in 2006 (1st Inland and Coastal Water Quality workshop) and first pilot projects are being planned to begin in Asia as a result of the Asia Water Resource Management Capacity Building Workshop. This Task has relevant synergies with HE-07-02.

## Improving water-resource management through better understanding of the water cycle

### WA-06-07: Capacity Building Program for Water Resource Management

*This Task is led by IGOS-P.*

Initiate capacity building programs to develop tools for using remote sensing data in support of water management, and to show the value of Earth observations generally in water resource management. The program will be initiated in Latin America and will then be extended to Asia and Africa. Linkages with existing efforts of GEO Members and Participating Organizations will be made.