



GEOSS: A Global, Coordinated, Comprehensive and Sustained System of Observing Systems



GEOSS Asian Water Cycle Initiative (AWCI)

To promote integrated water resources management by making usable information from GEOSS, for addressing the common water-related problems in Asia.

Uniqueness

- A River Basin of Each Countries
- Observation Convergence
- Interoperability Arrangement
- Data Integration
- Open Data & Source Policies
- Capacity Building
- Early Achievements

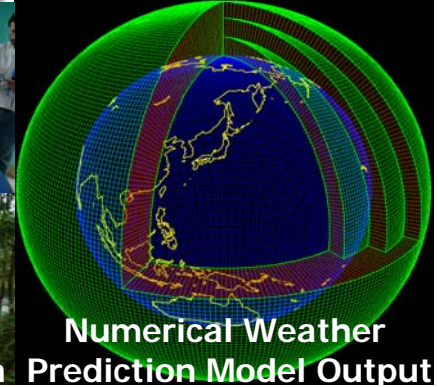
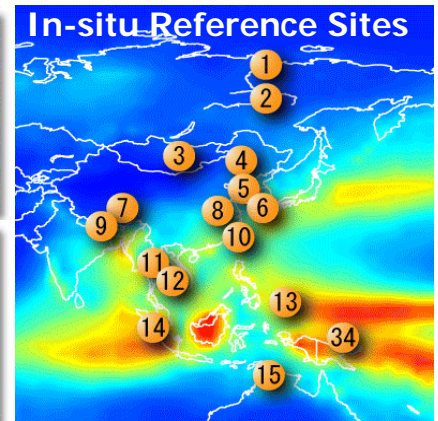
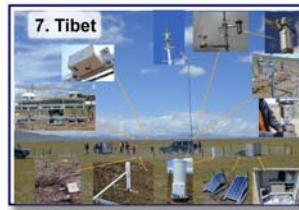
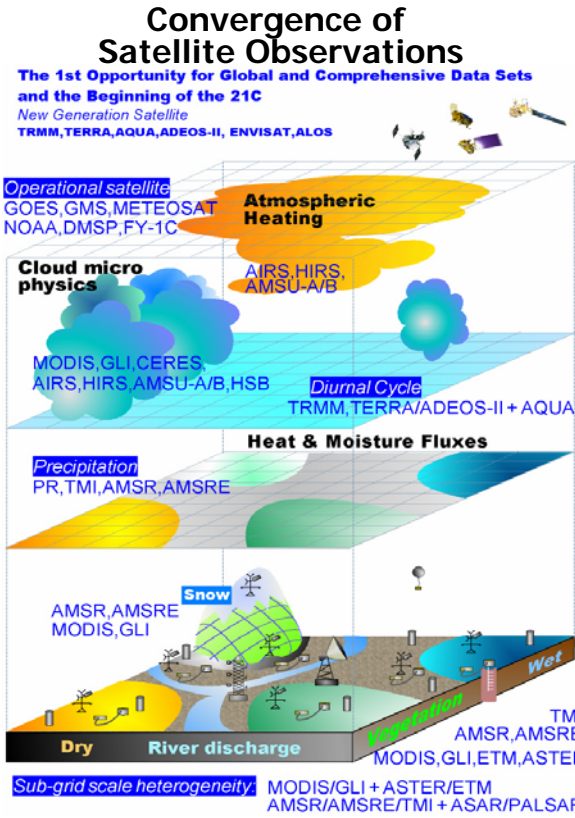


GEOSS Asian Water Cycle Initiative (AWCI) 17 River Basins for Initial Demonstration



GEOSS Asian Water Cycle Initiative (AWCI)

Observation Convergence



GEOSS Asian Water Cycle Initiative (AWCI)

Interoperability Arrangement

Land use

Population

Country	Population
1. China	1,300,000,000
2. India	1,000,000,000
3. USA	280,000,000
4. Russia	140,000,000
5. Brazil	180,000,000
6. Indonesia	210,000,000
7. Japan	125,000,000
8. South Korea	45,000,000
9. Australia	20,000,000
10. Canada	30,000,000
11. France	60,000,000
12. Germany	80,000,000
13. Italy	60,000,000
14. Spain	40,000,000
15. UK	60,000,000
16. Mexico	100,000,000
17. Argentina	40,000,000
18. Chile	15,000,000
19. Colombia	40,000,000
20. Peru	25,000,000
21. Venezuela	25,000,000
22. Ecuador	10,000,000
23. Bolivia	10,000,000
24. Paraguay	7,000,000
25. Uruguay	3,500,000
26. Cuba	11,000,000
27. Haiti	8,000,000
28. Dominican Republic	7,000,000
29. Puerto Rico	3,500,000
30. Greenland	1,000,000

Economics

Agriculture

Location	Area (km²)	Use
1. Tsukuba	1135.234	22.1 forest
2. Asahi	1135.234	21.1 paddy
3. Yatabe	1135.234	22.5 crop field
4. Ohsato	1135.234	21.5 residential
5. Yanaka	1135.234	19.8 bare soil
6. Otsumo	1135.234	20.1 bare soil
7. Ushiku	1135.234	19.5 paddy
8. Iimozuma	1135.234	22.1 paddy

Health

Disaster

Climate

Water

Biodiversity

Interoperability Arrangement

River Observatory

Observatory name	River name	Amount of flowing	Level of water	Weather	Address of observatory	...
Kawabe	Tone River	1,200m ³ /s	5.5m	rain	Mugikura, saitama Prefecture	
Umehara	Tone River	1,000m ³ /s	5.0m	cloudy	Umehara, Saitama Prefecture	

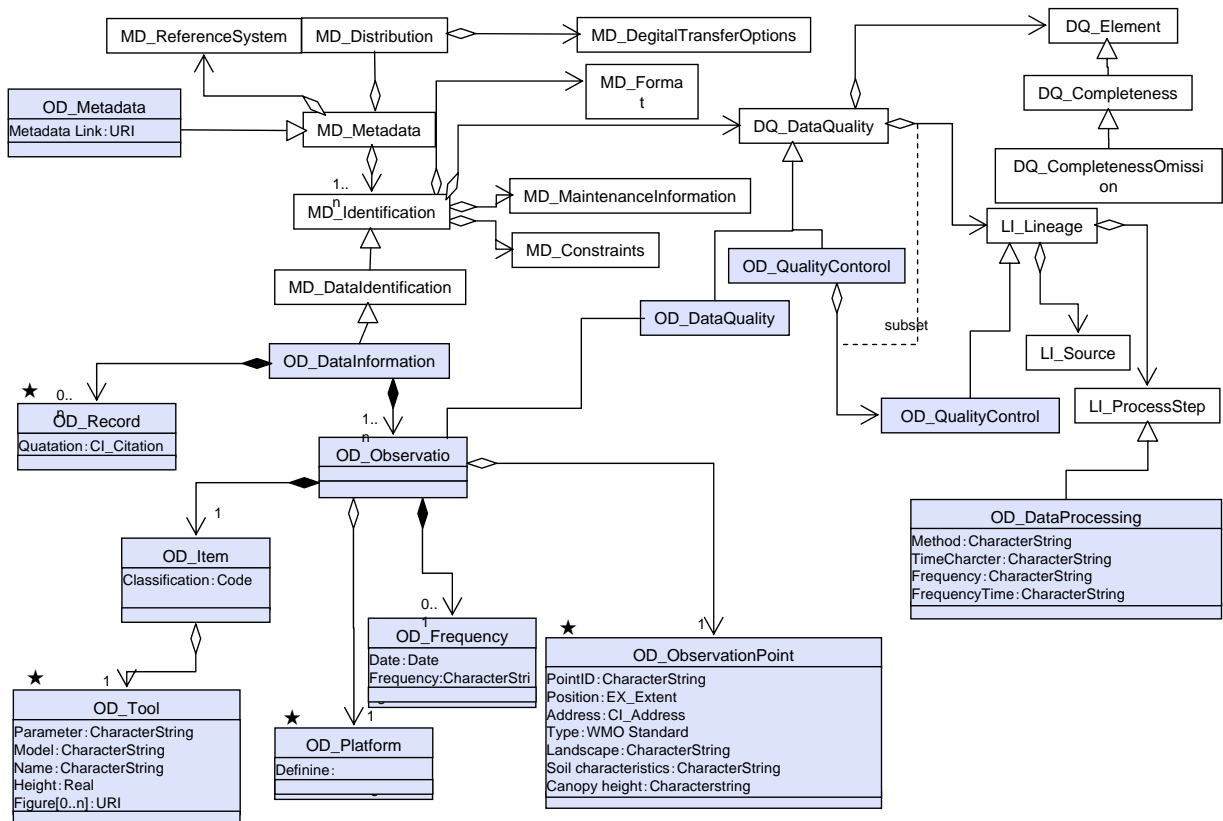
Weather Stations

Weather point	Address of observatory	precipitation	humidity	wind direction	wind velocity	...
Ohtone	Ohtone machi, Saitama	5mm	50%	North	5m/s	
Kurihashi	Kurihashi, Saitama	0mm	45%	North east	3m/s	

Census Reports

Town name	Total population	Lower than 15 years old population	15~64 years old population	higher than 65 years old population	the number of households	...
Mugikura	2512	445	1635	432	673	
Sakae	1949	368	1379	202	542	

GEOSS Asian Water Cycle Initiative (AWCI) Interoperability Arrangement



GEOSS Asian Water Cycle Initiative (AWCI) Data Integration



satellite



ocean

- Discovery work Flow Assist
- Data Quality Manager
- Data Crawler
- ETL
- Data Navigator
- Meta Data Manger

Data Management Layer •DBMS

File System Layer

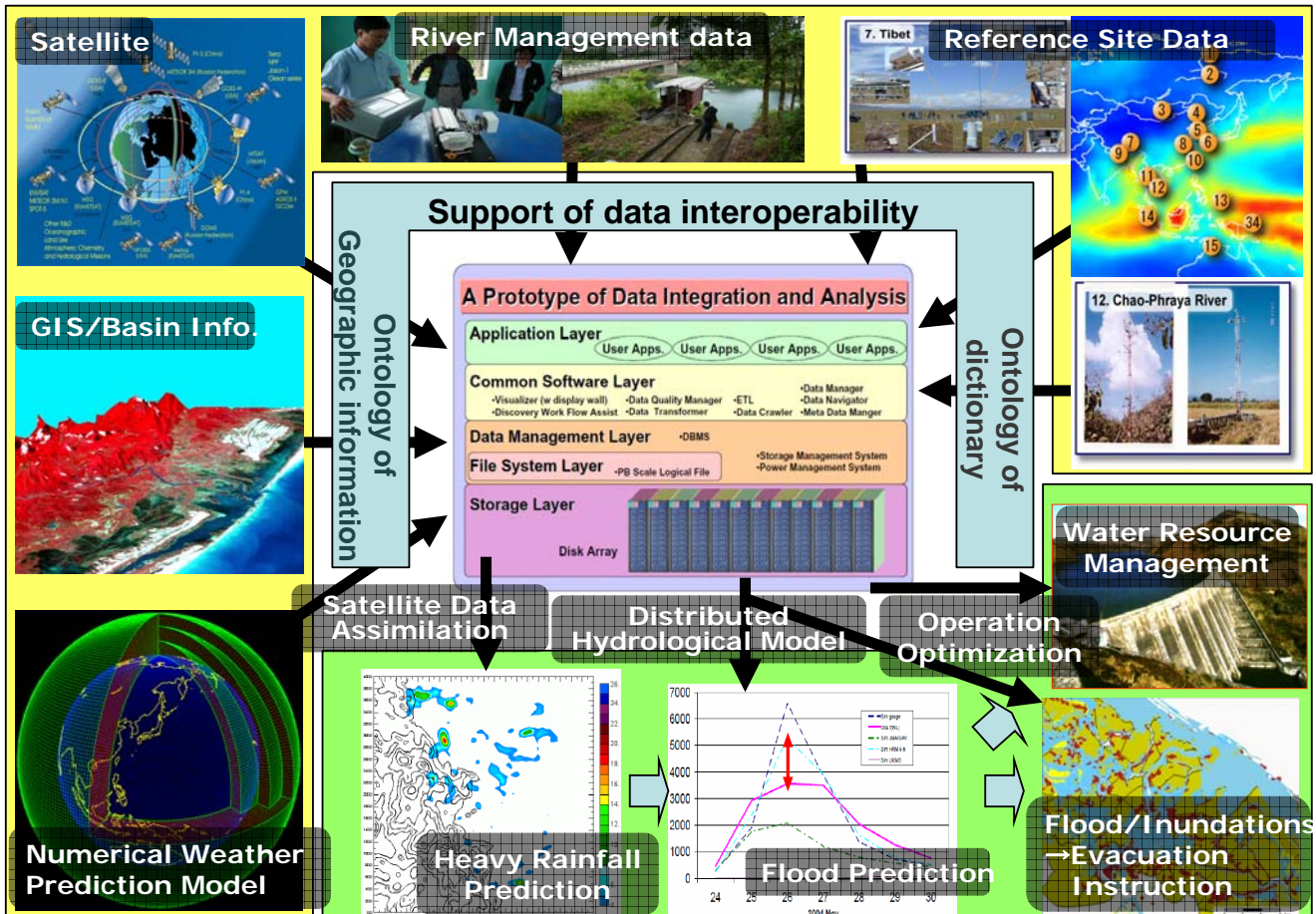
- Storage Management System
- Power management System

Storage Layer

Disk Array



Tape Library



GEOSS Asian Water Cycle Initiative (AWCI)

Open Data & Source Policies

- 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 (AWCI)

Capacity Building

Targets

1. Professional/Practitioners:

Introducing new methods, tools, standards

2. Administrative/Local Governors:

Over view of technology and science

3. Researchers/Scientists:

Customizing existing knowledge to suit local conditions supported by global experiences



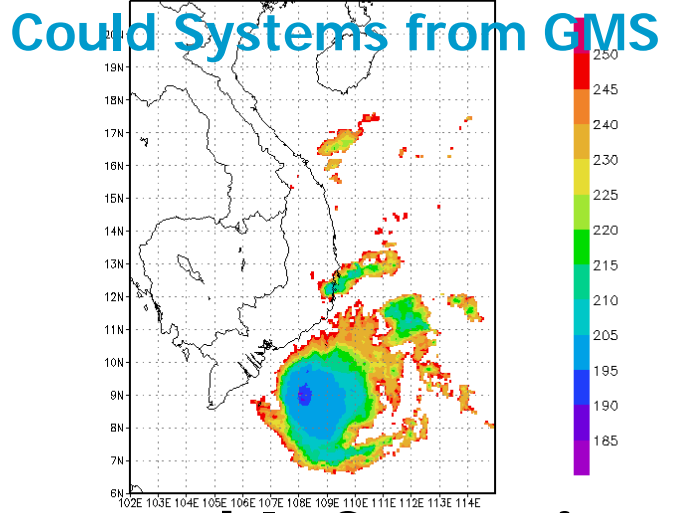
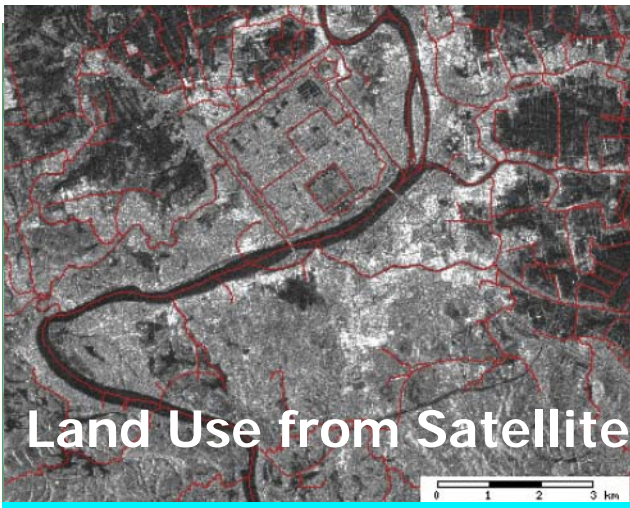
Caravan training class scene in Sri Lanka, December 2005



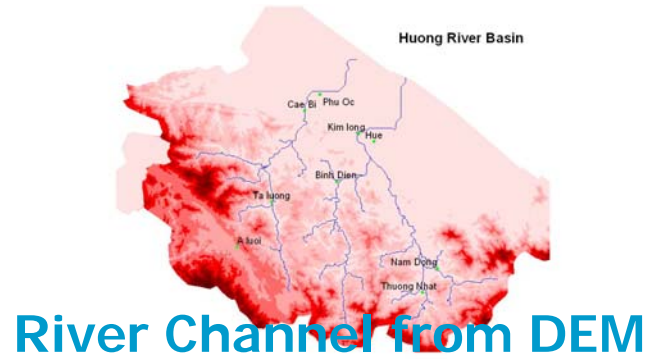
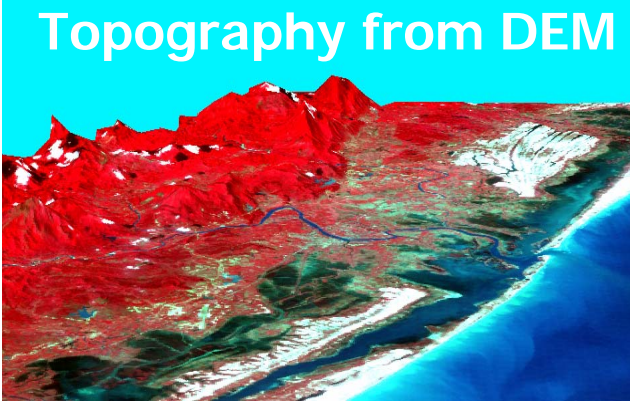
A Scene from Mini-Project Fieldwork in Philippines, 2005



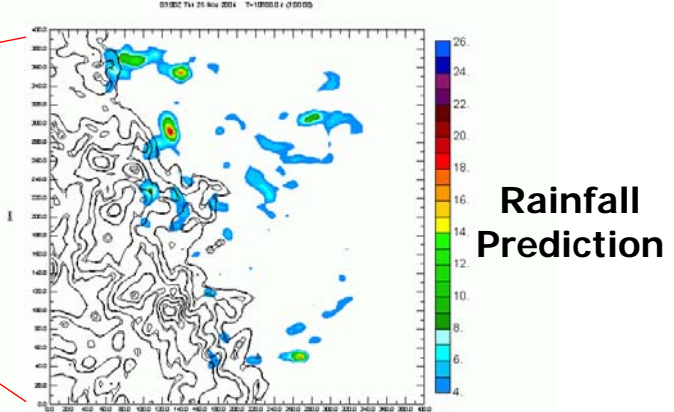
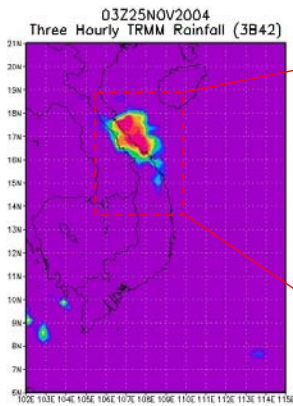
Discussion and Suggestion at AIT, 2005 Mini-Project Final Presentation



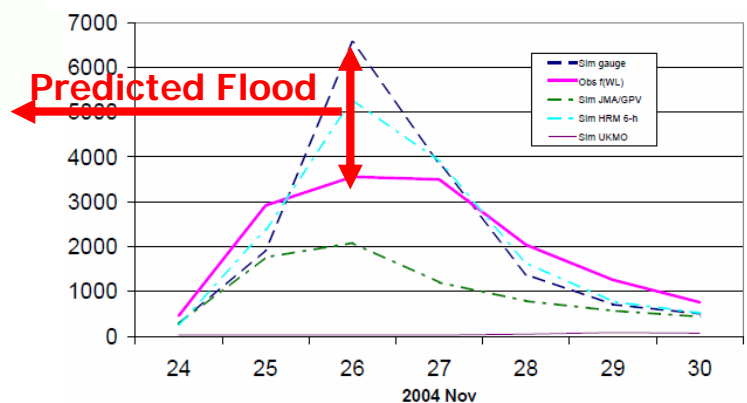
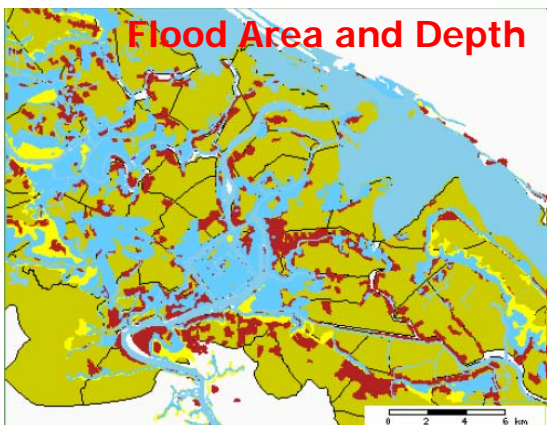
Satellite – GIS Integrated Information



Validation by TRMM Rainfall Product



Prediction Model Integration and Information Fusion



GEOSS Asian Water Cycle Initiative (AWCI)

Early Achievements

Cape Town Ministerial Summit

"Earth Observation for Sustainable Growth and Development"



GEOSS Asian Water Cycle Initiative (AWCI)

Early Achievements



Other early achievements include monitoring Africa's diverse environmental challenges, implementation of an African meningitis warning system, expansion of a drought-monitoring programme in North America, improved water-resource monitoring and management in Asia, and development of a disaster information-sharing system in the Asia Pacific region. A system in Central America monitors ecological change and forecasts the weather. Europe has an initiative on Global Monitoring for Environment and Security - GMES, including the implementation of a series of information services to address the atmospheric, marine and terrestrial domains, as well as emergency response and climate change.

Water Security for Society and the Biosphere

Comprehensive knowledge and effective management of water is paramount to every nation's well-being and economy, as water quality and availability can limit sustainable growth and development. GEOSS contributes to understanding the changing water cycle and its impacts on water supplies for human consumption, agriculture and industry, maintenance of healthy ecosystems, and mitigation of floods and droughts. This understanding significantly improves the prediction of extreme weather events that result in drought or floods, and helps monitor the state of the oceans and the impacts of land-based sources of pollution.

Water Security for Society and the Biosphere

Examples of Regional / Global Programmes and Activities
(see Annex of Early Achievements)

- Global Runoff Data Centre (GRDC)
- Global Precipitation Climatology Center (GPCC)
- Asian Water Cycle Initiative (AWCI)
- Monsoon monitoring (HARIMAU)
- North American Drought Monitor
- Water Information System for Europe (WISE)
- Sentinel Asia



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