

TOWARD SOUND DECISION MAKING ON WATER RESOURCES MANEGEMENT IN ASIA

Toshio Koike
The University of Tokyo

ABSTRACT:

About 60 % of the world population lives in Asia, and their various social activities including agriculture depend on the bountiful Monsoon rain. At the same time, the vast water cycle variation in Asia can be the cause of droughts and floods, and consequently, may be responsible for an enormous amount of human and economic damage. There is a rapidly growing concern about the common water issues, including flood and landslide, drought and water scarcity, water pollution and environmental degradation, climate change impacts in Asia.

To establish a comprehensive, coordinated and sustained earth observation scheme, an agreement for a 10-Year Implementation Plan for a Global Earth Observation System of Systems, known as GEOSS, was reached at the Third Earth Observation Summit held in Brussels, in February 2005. "Improving water resource management through better understanding of the water cycle" has been agreed to as one of the targeted societal benefit areas of GEOSS. Based on the regionally common and sharable ideas on the water-related issues in Asia and their natural and socio-economical backgrounds, a well coordinated regional challenge, "Asian Water Cycle Initiative (AWCI) Contributing to GEOSS", has been organized in cooperation among 18 countries in Asia.

The goal of GEOSS/AWCI is to better understand the mechanism of variability in the Asian water cycle and to improve its predictability, and furthermore to interpret the information applicable to various water environments in different countries in Asia, then to help to mitigate water-related disasters and promote the efficient use of water resources. GEOSS/AWCI promotes observation convergence by making seamless access to the data from earth observation satellites, in-situ reference site networks, and operational observation systems, integrates the observed data, numerical weather prediction model outputs, geographical information, and socio-economic data, and disseminates usable information for sound decision making of water resources management.

The Data Integration and Analysis System (DIAS) at the University of Tokyo supports GEOSS/AWCI to realize observation convergence, data integration and data and information sharing. Diverse and large-volume Earth Observation data is archived by a well-managed data infrastructure where user can explore targeted data and information and analyze and integrate them easily and effectively. A meta data directory system, coupled with ontology systems of dictionary and geographical information, supports users to understand the meaning of the data and information across various disciplines and geographical locations.

KEYWORDS: *Earth observation, Interoperability, Data integration, Ontology, Down-scaling*