ECV T04

LAKE AND RESERVOIR LEVELS AND VOLUMES

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OBSERVATIONAL IMPORTANCE

Lakes and reservoirs data and information are indispensable for water resources management and regional and global water cycle studies. Likewise, information on water volume changes in lakes can be critical indicators of regional climate change.

The creation and subsequent operation of an international data centre on the hydrology of lakes and reservoirs has been for a long time expected by the international scientific community. Despite the existence of various national and international data collections, such an international centre does not yet exist. However, such a centre would be expected to provide global data on lakes and reservoirs under the auspices of the World Meteorological Organization (WMO) in a similar fashion to the other international data centres in the field of hydrology, such as the Global Runoff Data Centre (GRDC), the Global Precipitation Climatology Centre (GPCC) and the International Groundwater Resources Assessment Centre (IGRAC).

SCOPE

The objectives of the Centre would be the establishment, development and regular update of a global database on the hydrological regime of lakes and reservoirs in order to stimulate development of a global monitoring system on lakes and reservoirs for rational use, preservation and management of their water resources and to supply data for scientific and educational purposes, modelling and the development of different global and regional activities.

CENTRE ESTABLISHMENT

In 2002, the Federal Service of Russia for Hydrometeorology & Environmental Monitoring (ROSHYDROMET) made the original proposal for the development of an international data centre on lakes and reservoirs (HYDROLARE). The first meeting of the International Steering Committee of HYDROLARE was hosted by the State Hydrological Institute (SHI) in St Petersburg, Russia, in June 2007. The Committee noted that with the establishment of HYDROLARE as a member of the family of global data centres, one of the most critical gaps in global observations in hydrology and water resources will be closed. Facilitated by ROSHYDROMET, the final steps for the formal establishment of HYDROLARE are in progress. The Centre will be hosted by SHI and will operate under the auspices of WMO.

OPERATIONAL OUTPUTS

The principal outputs of the Centre will be:

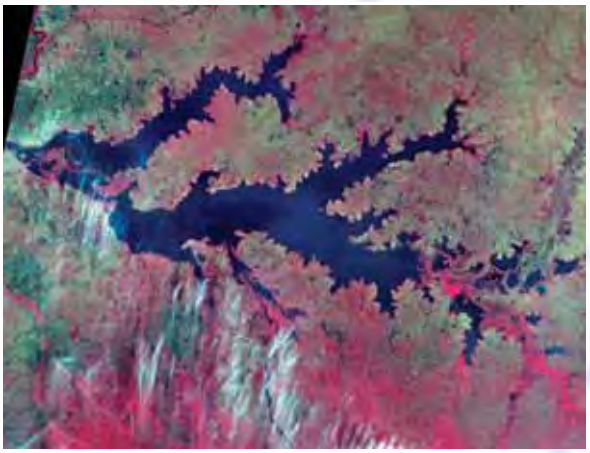
- Basic data on permanently studied lakes and reservoirs of the world collected and processed, including physiographic and morphometric characteristics of water bodies and their catchments.
- Global-scale inventories of existing monitoring systems of lakes and reservoirs.
- Global-scale inventories of existing data of permanent hydrological observations of lakes and reservoirs.
- Global-scale database of long-term time series of lakes and reservoirs having permanent hydrological observations.
- Development of basic processing and presentation tools for lakes and reservoirs data for distribution to stakeholders.
- Analysis and assessment of spatial and temporal tendencies of hydrological elements of lakes and reservoirs.

Closing a critical gap in surface water observations

Although lakes and ponds cover only 2 percent of the world's land surface, they contain most of the world's fresh water

CURRENT STATUS

The technical establishment of HYDROLARE continues, and, by March 2008, the prototype database system should be operational and contain lake and reservoir data from Russia and the former Soviet Union, as well as additional data from other countries, based on a priority list of major lakes and reservoirs. Likewise, the database system will be fully established and WMO member countries will be requested to contribute data and information on lakes and reservoirs. The Centre will undertake all efforts to cooperate with international organizations and institutions, including those holding information relevant for the Centre. HYDROLARE will establish the observational requirements of stakeholders and will undertake activities using agreed methodologies and standards, which, when possible, will be based on existing protocols. ROSHYDROMET is providing financial support to SHI to support HYDROLARE at the national level, but additional donor support will be required to establish an operational global system.



Lake Kyoga, is a large shallow lake complex of Uganda, about 1 720 km² in area and at an elevation of 914 m. Accurate and continuous monitoring of lakes is possible using satellite altimetry, which could be used to develop temporal and spatial times series of lakes water levels for the whole Earth

RELATED LINKS:

Lake level standards: www.fao.org/gtos/ECV-T04.html