



МЕЖДУНАРОДНЫЙ ЦЕНТР ДАННЫХ
ПО ГИДРОЛОГИИ ОЗЁР И ВОДОХРАНИЛИЩ
INTERNATIONAL DATA CENTRE
ON HYDROLOGY OF LAKES AND RESERVOIRS

ANNUAL NEWSLETTER

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Dear readers!

We are pleased to introduce the first issue newsletter of the International Data Centre on Hydrology of Lakes and Reservoirs (HYDROLARE). The Centre operates under the auspices of WMO and is hosted by the State Hydrological Institute (SHI) of the Federal Service for Hydrometeorology and Environmental Monitoring (ROSHYDROMET). HYDROLARE is very «young» — it was put into operation on 1 January 2009. This newsletter will inform the stakeholders, interested parties and specialists from WMO Member states with the HYDROLARE activities, new possibilities of data exchange and acquisition and future plans.

The first issue of the newsletter contains the information about activities of the Centre during establishment period as well as about database content and data acquisition and dissemination. The Current Events section will familiarize you with recent and upcoming important events.

We kindly ask countries which have agreed to collaborate with HYDROLARE to reply to our request and submit their data of hydrological observations on lakes and reservoirs. You can download special forms for data representation at www.hydrolare.ru. We also call for other WMO Member states to agree to collaborate with HYDROLARE and make their contribution to establishing the international database on the hydrology of lakes and reservoirs.

The staff of the Centre will appreciate any constructive criticism which would help us improve our newsletter.

Prof. Valery S. Vuglinsky
Acting Chief of HYDROLARE



WWW.HYDROLARE.RU

BACKGROUND TO THE ESTABLISHMENT OF HYDROLARE

Lakes of the world are important natural reservoirs of water used in industry, agriculture and domestic water supply, recreation, fishery, hydroelectric power generation and transport. Water resources of lakes and reservoirs are the most stable and readily available source of fresh water on our planet.



Lake Baikal

There are about 4 million lakes on all continents of the Earth. In some countries, they cover a vast part of the area. For example, in Canada 7.9% is covered by lakes, in north-western Russia — 10% and in Finland — 12%.

Observations available only for the largest lakes. The total storage in 145 largest lakes of the world is 168,000 km³. The total volume of water in all lakes is estimated at 176,400 km³, of which 91,000 km³ is fresh water.

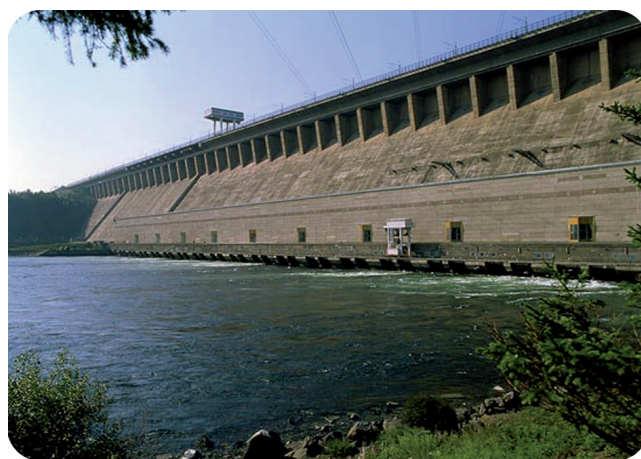
Large volume of water is stored in artificial reservoirs, most of which were constructed in the XX century to be used in hydropower sector, irrigation and flood control.

Total water storage in 10,000 reservoirs operating throughout the world is 5,000 km³, their working storage being about 2,000 km³. Reservoirs regulate around 14% of the total annual river runoff. Construction of large reservoirs not only affects intra-annual runoff distribution, but also changes considerably the thermal, ice, dynamic, chemical and biological characteristics of water bodies.

Having certain inertia, large inland lakes receive, transform and intensify climatic signal and their

hydrologic characteristics most adequately reflect climate changes on a global scale.

Extensive anthropogenic use, as well as natural processes, often has negative impact on lakes and reservoirs, which may result in a catastrophic level drop or rise, depletion of water resources, contamination, eutrophication, acidification, accelerated siltation and extinction of indigenous ecosystem and biota. Therefore, management of lake and reservoir water resources, as well as mitigation of adverse effects, is among most urgent problems facing many countries. For large lakes and reservoirs, vast lake regions with similar genesis and, particularly, for their lake watersheds shared by several states these problems may turn out into international or even global ones (Aral Sea, Lake Chad). Progress in dealing with the aforementioned problems and the use of lakes as indicators of climate change are impossible without a reliable database on the hydrology of lakes and reservoirs. HYDROLARE's principal objectives are to establish, develop and regularly update the international database on the hydrological regimes of lakes and reservoirs.



Bratskoye Reservoir

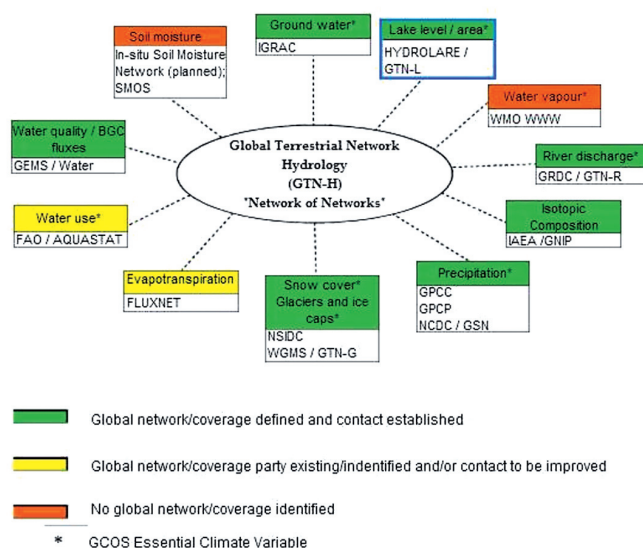
The decision to establish such a centre at the SHI is based on the fact that since 1988 the institute has performed functions of a national data centre in Russia where regular hydrometeorological observations are carried out on 432 lakes and reservoirs.

PRINCIPAL OBJECTIVES AND FUNCTIONS OF THE CENTRE

HYDROLARE is a part of the Global Terrestrial Network-Hydrology (GTN-H).

Its principal objectives are:

- to support the exchange and dissemination of information on the hydrology of lakes and reservoirs on a global scale;



- to contribute important information for decision-making on regional and global scales concerning water resources of lakes and reservoirs;
- to develop standard procedures for collection, processing and analysis of data on the hydrological regime of lakes and reservoirs;
- to assist WMO Member states in implementation of related international projects and programs.

These goals are accomplished by the Centre through performing its basic function, i.e. the development, support and regular update of the international database on the hydrology of lakes and reservoirs, including:

- collection, validation, processing and provision of historical and current data on the hydrological regime of water bodies to users;
- periodic review of the state and changes in water resources of the largest lakes, reservoirs and lake districts of the world under natural and human impacts;
- development of technological solutions for accomplishing the above activities.

STATUS OF HYDROLARE DATABASE

The database contains annual data on hydrological regime of lakes and reservoirs as well as metadata ("passport data") for lakes, reservoirs and gauging stations. Annual regime data include mean monthly water level, mean monthly and highest water temperature per year (including date), maximal ice thickness per year (including date) and (averaged for water bodies) mean monthly water level and water level at the first date of each month. Information about the database structure is presented at the HYDROLARE website.

Formation of the database started with a range of metadata for 697 lakes and 1242 gauging sta-

tions in Russia and former Soviet Union states available at the SHI. Data collected from former Soviet Union states until 1991 were compiled and delivered to these states for correction and completion. Moreover, those WMO Members which expressed their willingness to collaborate with HYDROLARE began to deliver their data to the Centre. Collected were data from Kyrgyzstan, Kazakhstan, Belarus, Tajikistan, Sweden, and metadata from Switzerland. Preparation of data for loading into the HYDROLARE database is work in progress.

POLICY OF DATA COLLECTION AND DISSEMINATION

Guidelines regulating the dissemination of data by HYDROLARE are downloadable at www.hydrolare.ru. The Centre accepts and dis-

seminates data under WMO principles. In particular, data acquisition is performed based on respective requests, coordinated protocols or

agreements. Requests for data must be submitted to HYDROLARE in written form: by letter, facsimile, telex or email. The request should provide the user's contact details and signature. The data

user agrees in writing that the data received are not transferred to third parties, used for commercial purposes or without proper citation. Data are available in principle free of charge.

COUNTRIES AGREED TO DELIVER THEIR DATA TO HYDROLARE

Country	Stations	Country	Stations
EUROPE			
Armenia	8	Moldova	2
Austria	53	Romania	142
Azerbaijan		Serbia	2
Belarus	14	Slovenia	4
Cyprus	57	Spain	360
Estonia	6	Sweden	200
Finland	300	Switzerland	35
Hungary	20	Ukraine	60
ASIA			
Hong Kong	17	Mongolia	16
India	81	Oman	
Kazakhstan	34	Tajikistan	6
Kyrgyzstan	5	Uzbekistan	25

Country	Stations	Country	Stations
AFRICA			
Mali	2	Zambia	
Tanzania	5		
NORTH AMERICA, CENTRAL AMERICA AND THE CARIBBEAN			
Antigua and Barbuda		Dominica	2
Belize	3	Mexico	176
Canada	444		
SOUTH AMERICA			
Chile	60	Colombia	7
SOUTH-WEST PACIFIC			
Australia	200		

 Countries, which sent the data

CURRENT EVENTS

Following the recommendations of the second session of the HYDROLARE International Steering Committee, a HYDROLARE — GRDC



HYDROLARE — GRDC Workshop participants

workshop took place in GRDC, Koblenz, Germany, on 15–18 June 2010. During the meeting parties informed each other about their current activities. The following issues of mutual interest were discussed: database support and development, provision of data to users, provision of information via website, product generation etc.

The third meeting of the HYDROLARE Steering Committee will be held on 5–7 July 2011 at the SHI. It is expected that representatives of partner institutions, such as WMO, GCOS, GEMSWater, GRDC, ILEC, LEGOS/CNES, will participate in the meeting. SC-III will assess progress against the milestones agreed at the second meeting and outline a new HYDROLARE work plan for 2011–2012. More detailed information will be posted to the HYDROLARE website.