МЕЖДУНАРОДНЫЙ ЦЕНТР ДАННЫХ
ПО ГИДРОЛОГИИ ОЗЁР И ВОДОХРАНИЛИЩ

INTERNATIONAL DATA CENTRE
ON HYDROLOGY OF LAKES AND RESERVOIRS

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Dear reader! We present to your attention the next, fourteenth issue of the bulletin, which traditionally begins with information on the status and replenishment of the Center's database and the development of its information technology complex. In 2024, work on collecting, analyzing and preparing data continued. The Center's database has been expanded with the results of ground-based observations of the water level and temperature of water bodies in a number of countries. Currently, the Center's database contains information on the water levels of 1069 lakes and reservoirs in 48 countries.

The article by V. S. Vuglinsky (HYDROLARE) contains information on the results of the consideration of the report "Assessment and Future Role of WMO Global Hydrological Data Centres" at the third session of the WMO Commission for Observations, Infrastructure and Information Systems (15–19 April 2024, Geneva, Switzerland) and the decisions taken on the report.

The Chronicle section reports on two important events that occurred in 2024 and were directly related to the activities of the Centre.

The next ninth meeting of the Steering Committee of the WMO International Data Centre for the Hydrology of Lakes and Reservoirs (HYDROLARE) is planned to be held in the autumn of 2025 in the format of a video conference.

In conclusion, as always, I would like to express my sincere gratitude and appreciation to the representatives of the organizations cooperating with the Centre.

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DEVELOPMENT OF THE IT-IFRASTRUCTURE OF THE CENTER

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In 2024, the Center continued collecting, analyzing and preparing data, as well as converting them into a single form necessary for uploading to the HYDROLARE database. As before, work was carried out to search, recognize and select data on the levels and temperature of water bodies presented on the websites of the relevant services of Slovenia, the USA and Canada. In addition to those previously obtained, data were obtained on various elements of the regime of lakes and reservoirs in Belarus for 2022 and Switzerland for 2019 and 2020.

The database has been expanded to include information on water levels at posts in Belarus (10), Slovenia (2), the USA (32), Canada (23), Switzerland (32), Russia (131), as well as on the average water levels of lakes in Russia (8).

Data on average monthly and maximum water temperatures at posts in Belarus (10), Slovenia (2) and Russia (21) have been prepared and uploaded.

In 2024, a program was developed to obtain data on request from an integrated database of in-situ and satellite observations of water levels of large reservoirs, posted on the website of the WMO International Data Centre for the Hydrology of Lakes and Reservoirs (HYDROLARE).

The program allows you to extract from the database simultaneously average monthly in-situ water levels and levels measured from satellites during the month for a given water body, and present them in a form convenient for comparison. The Table 1 shows an example of executing such a query for Lake Balkhash

Table 1. Average monthly levels and levels measured by satellites at Lake Balkhash

Year	Month	Monthly average level (in-situ)	Levels measured by satellite during the month								
2014	1	342.34	342.81	342.83	342.79						
2014	2	342.28	342.78	342.78	342.78						
2014	3	342.28	342.83	342.97	343.03						
2014	4	342.48	343.03	342.83	342.87						
2014	5	342.51	342.84	342.87	342.84						
2014	6	342.46	342.88	342.77	342.81						
2014	7	342.40	342.78	342.71							
2014	8	342.32	342.70	342.68							
2014	9	342.12	342.58	342.49	342.27						
2014	10	342.04	342.40	342.45	342.43	342.46	342.28	342.34	342.23	342.31	
2014	11	342.06	342.40	342.36	342.50	342.39	342.36	342.44	342.38	342.36	342.26
2014	12	342.12	342.47	342.49	342.52	342.37	342.23	342.34	342.49		
2015	1	342.12	342.58	342.52	342.46	342.64	342.47	342.29			
2015	2	342.13	342.57	342.47	342.59	342.50	342.67	342.50			
2015	3	342.14	342.65	342.76	342.66	342.82					
2015	4	342.21	343.01	342.74	342.83	342.67	342.57				
2015	5	342.29	342.58	342.72	342.81	342.72	342.69	342.51			
2015	6	342.31	342.66	342.60	342.78	342.58	342.74	342.49			
2015	7	342.15	342.58	342.49	342.56	342.57	342.44				
2015	8	342.01	342.52	342.48	342.52	342.29	342.37	342.58			
2015	9	341.89	342.47	342.45	342.35						
2015	10	341.87	342.39	342.29							
2015	11	341.89	342.41	342.16	342.21	342.29	342.18	342.19			
2015	12	341.90	342.14	342.26	342.26	342.42	342.33				
2016	1	341.94	342.43	342.26	342.57	342.57	342.39	342.47			
2016	2	341.92	342.47	342.58	342.39	342.54	342.59				
2016	3	341.93	342.57	342.64	342.58	342.73	342.59	342.51			
2016	4	342.10	342.62	342.51	342.64	342.48	342.63	342.49			
2016	5	342.14	342.62	342.54	342.45	342.46	342.61	342.57			
2016	6	342.20	342.64	342.56	342.52	342.64	342.37	342.67	342.67	342.72	
2016	7	342.21	342.64	342.69	342.66	342.64	342.71	342.69	342.62	342.62	342.60
2016	8	342.27	342.60	342.58	342.46	342.58	342.44	342.71	342.54	342.43	342.48
2016	9	342.27	342.53	342.52	342.38	342.56	342.56	342.61	342.50	342.44	342.57
2016	10	342.26	342.52	342.39	342.47	342.51	342.35	342.47	342.44	342.50	342.46
2016	11	342.27	342.54	342.62	342.59	342.39	342.57	342.58	342.45	342.63	342.44
2016	12	342.14	342.49	342.49	342.85	342.58	342.61	343.03	342.58	342.84	342.62

DECISIONS OF THE WMO COMMISSION FOR OBSERVATIONS, INFRASTRUCTURE AND INFORMATION SYSTEMS ON THE ACTIVITIES OF GLOBAL HYDROLOGICAL DATA CENTRES

V. Vuglinsky (HYDROLARE, Russia)

The third session of the Commission for Observations, Infrastructure and Information Systems (INFCOM-3) was held at WMO Headquarters in Geneva from 15 to 19 April 2024. The agenda of the session included the item "WMO Integrated Global Observing System - networks" (agenda item 8.1). As part of the consideration of this item, a report was heard on the topic "Assessment and Future Role of WMO Global Hydrological Data Centres".

The decision on the report noted that WMO activities related to observing systems for the hydrological cycle are supported by three global hydrological data centres:

- The Global Runoff Data Centre (GRDC), located at the Federal Institute of Hydrology, Koblenz, Germany;
- International Groundwater Resources Assessment Centre (IGRAC), located in Delft, the Netherlands;
- International Data Centre for the Hydrology of Lakes and Reservoirs (HYDROLARE), located at the State Hydrological Institute, St. Petersburg, Russia.

Already in 2016, the fifteenth session of the Commission on Hydrology (CHy-15) noted the significant contribution of these data centres to making hydrological information sets available to the global hydrological community.

The WMO Extraordinary Congress (Cg-Ext) held in 2021 recognized the need to carefully assess the evolving role of these centres, including in light of technological developments and the impact of the Internet on data availability.

Figure 1. Water bodies for which observation data are available at the HYDROLARE Centre.

The Commission, having noted the report "Assessment and future role of WMO Global Hydrological Data Centres" and its recommendations, decided:

• 1. To develop, in cooperation with the Global Terrestrial Network-Hydrology (GTN-H) and the WMO Global Hydrological Data Centres (the Global Runoff Data Centre (GRDC), the International Groundwater Resources Assessment Centre (IGRAC), the International Data Centre on Hydrology of Lakes and Reservoirs (HYDROLARE) and the Global Precipitation Climatology Centre (GPCC)), a detailed workplan, based on the report "Assessment and future roles of WMO Global Hydrological Data Centres";

To explore the possibility of other operational global water data centres, which are federated in GTN-H - and notably the International Soil Moisture Network (ISMN), to improve interoperability within the UN system with regards to freshwater observations of the entire global water cycle;

Priority will be given to the following objectives:

a) Improving interoperability and integration between data set and product, to allow an integrated water-cycle approach;

b) Acting as data backup for those NHSs and other organizations that do not yet have their own data backup system in place;

c) Collaborating with the United Nations Environment Programme's (UNEP), Global Environmental Monitoring System (GEMS) Water Programme and its GEMS/Water Data Centre, hosted by the German Federal Institute of Hydrology (BfG) and the International Centre for Water Resources and Global Change (ICWRGC) UNESCO Category 2 centre to allow an integrated water quality/water quantity approach to global data collection and product dissemination;

d) Providing input to HydroSOS and to the State of Global Water Resources reports;

e) Support the WMO training programme on hydrological data collection, management, and QA/QC;

f) Development of the procedure for regularly providing the centres with relevant data;

The draft plan will be submitted to the Commission for approval at its fourth session in 2026;

- 2. To foster Members' regular submission of historical and, when feasible, near-real time data to these centres through the development of necessary technical standards based on WIS2.0 and WHOS;
- 3. To enable WMO Global Hydrological Data Centres to access data using WIS2.0 and WHOS.

CHRONICLE

A number of important events related to the Centre's activities took place in 2024. Brief information about some of them is given below.

The 11th meeting of the GTN-H (Global Terrestrial Network - Hydrology) Steering Committee was held on 05-06 June 2024 at WMO Headquarters in Geneva, Switzerland. The GTN-H project integrates existing networks and systems for observing the global water cycle. The main objective of the project is to contribute to the solution of scientific problems in the field of climate and water resources, building on existing global observation networks and hydrological data centres. The meeting reviewed the activities of global hydrological data centres, including HYDROLARE, and outlined prospects for the development of the project.

On June 26, 2024, the 15th meeting of the Steering Committee of the Global Runoff Data Centre (GRDC), located in Koblenz, Germany, was held. The meeting was held via videoconference. At the meeting, the Director of the Centre, S. Michel, presented a report on the activities of the Centre. Representatives of WMO and UNESCO, as well as a number of related global hydrology centres, took part in the discussion of the report. HYDROLARE was represented at the meeting by its Director, V. S. Vuglinsky, who presented a report on the activities of the center ("HYDROLARE: Current Status and Prospects"). The GRDC activity plan for the next two years was discussed and approved.

The next ninth meeting of the HYDROLARE Steering Committee is planned to be held in November 2025 in the format of a videoconference