World Meteorological Organization

Weather • Climate • Water

WMO Hydrological Observing System (WHOS)

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Prelude -- 2013

- Second session of the Inter-Commission Group on the WMO Integrated Global Observing System (ICG-WIGOS-2) in February 2013.

- WIGOS is an integrated, comprehensive, and coordinated system comprised of present WMO global observing systems; i.e., Global Observing System (GOS), Global Atmosphere Watch (GAW), the observing component of Global Cryosphere Watch (GCW), and the **World Hydrological Cycle Observing System (WHYCOS)**.

- ICG-WIGOS saw WHYCOS as the hydrological version of GCOS, GTOS, and GOOS.

- Original WHYCOS concept (1993) was a global network of 1,000 stations collecting and disseminating data on the hydrological cycle.

- In practice, however, WHYCOS became a capacity-building mechanism and never fulfilled the intent of becoming an “observing system.”

- So it was clear that WHYCOS was not the platform for meeting the needs of WIGOS.

Question of Hydrologic Input to WIGOS

Establishment of WHYCOS was coincident with

- Rapid expansion in monitoring network technology (DCPs, telemetry) which enabled near real-time monitoring.
- Water information systems capable of processing, storing, and manipulating data, as well as delivering it via the internet.

Click for News Bulletins

USGS Water Data for the Nation

Search for Sites With Data

Current Conditions — Sites with real-time or recent surface-water, groundwater,or water-quality data.

Site Information — Descriptive site information for all sites with links to all available water data for individual sites.

Map of all sites with links to all available water data for individual sites.

Frequent Searches By Data Category

Surface Water — Water flow and levels in streams and lakes.

Groundwater — Water levels in wells.

Water Quality — Chemical and physical data for streams, lakes, springs, wells and other sites.

Water Use — Water use information.

Introduction

These pages provide access to water-resources data collected at approximately 1.5 million sites in all 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa and the Commonwealth of the Northern Mariana Islands. Online access to this data is organized around the categories listed to the left.

The USGS investigates the occurrence, quantity, quality, distribution, and movement of surface and underground waters and disseminates the data to the public, State and local governments, public and private utilities, and other Federal agencies involved with managing our water resources.

About Us | Help | Tutorial

Hydrological foundations and data

Hydrological data
- Overview maps: Explanations
- Current hydrological bulletin
- Hydrological Data by SMS

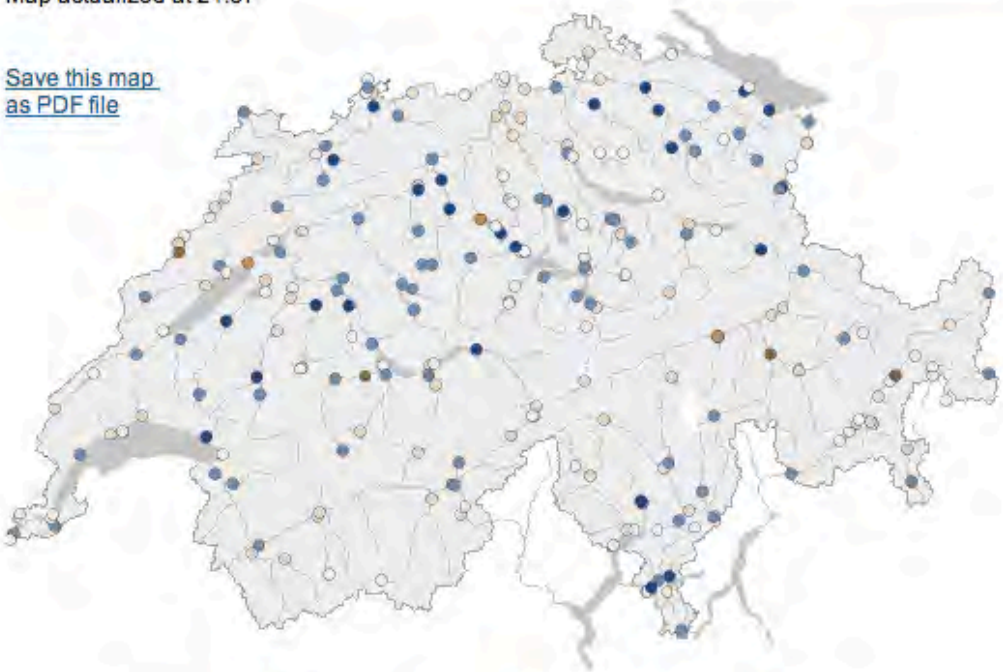
Forecasts and warnings
Services and links
Extreme flood events and statistics
Monitoring networks
Information systems and methods
Legislation
Authorities and institutions
Publications
150 years of Hydrometry in Switzerland

Search on the FOEN website
search
advanced search

Current situation rivers and lakes | Comparison with hazard levels | Temperature rivers | Forecasts | Current situation groundwater

Map actualized at 21:57

Save this map as PDF file



- Flood forecasts - FOEN
- Flood forecasts for the Lake Constance
- Water level Lake Maggiore

Hydrological bulletin - FOEN
Groundwater Bulletin - FOEN
Overview maps - FOEN
The flood hazard levels 5 - FOEN

WATER IS LIFE, SANITATION IS DIGNITY

DWA Home

Hydrological Services - Surface Water (Data, Dams, Floods and Flows)

Data, Dams and Flow Information

Verified Data	Data from the Hydrological Information System and Peak Flows (monthly and hydrological year)
Unverified Data	Near real-time stage, flows and rainfall received from more than 400 stations
Orange River	Daily flows, dam level and rainfall information in the Vaal and Orange River System
State of Dams	Weekly state of approximately 180 dams in South Africa
Rainfall Trends	Provincial Rainfall Trends (data supplied by SAWS)

Flood Management

Vaal Dam Bloemhof Dam Gariep Dam Vanderkloof Dam	Dam Optimisation: Routing through dams showing capacity, inflow and outflow
Routed River Hydrographs	Routed hydrographs showing actual and predicted stage and flows in major rivers in South Africa

Services

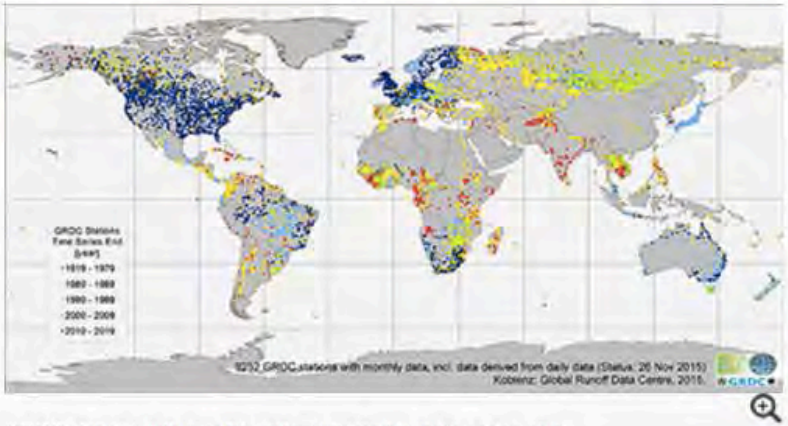
- Global Runoff Database
- River Discharge Data
- GIS Layers

Themes

ARDB GRDC Reference Dataset WMO Regions Partner Data Centres Data Policy EWA Our Clients Long-Term Mean Monthly Discharges Data Collection Criteria GRDC Report Series Watershed Boundaries of GRDC Stations National Services Station Selection Criteria SA Flow Global Freshwater Fluxes Your Contribution BfG Home

Welcome to the Global Runoff Data Centre

This is the Global Runoff Data Centre, a repository for the world's river discharge data and associated metadata.



GRDC stations with monthly data, indicated by time series end

The GRDC is an international archive of data up to 200 years old, and fosters multinational and global long-term hydrological studies. Originally established two decades ago, the aim of the GRDC is to help earth scientists analyse global climate trends and assess environmental impacts and risks. Positioned as a facilitator for exchanges between data providers and data users, the GRDC has become a focal point

News and Updates

04.01.2016
Institutions that received a set of GRDC data in December 2015

11.12.2015
2015-11-26 Update USA (997 Stations)

11.12.2015
2015-11-23 Update Canada (1111 stations)

11.12.2015
2015-10-20 Update Latvia (4 Stations)

11.12.2015
2015-09-09 Update Belgium (58 stations, 55 new)

10.12.2015
2015-06-23 Update Finland (101 stations)

07.12.2015

Initial Concept -- Spring 2013

Concept paper prepared that called for the establishment of a WMO Hydrological Observing System **(WHOS)** as a portal to facilitate access to already available on-line real-time and historical data, drawing from the water information systems of countries around the world that make their data freely and openly available, including HYCOS projects.

Early Development -- 2014

CHy expert (Silvano Pecora) was tasked with developing an interactive map that would provide links to those National Hydrological Services that make their real-time stage and discharge data available online.

AWG Endorsement -- September 2014

At AWG-2, I proposed that WHOS be developed as the mechanism whereby CHy would provide the most comprehensive hydrological component in fulfillment of the WIGOS objective of “an integrated, comprehensive, and coordinated system which is comprised of the present WMO global observing systems.”

The proposal was formally endorsed by the AWG.

Congress-17 -- June 2015

Phase 1:

Map interface with links to those NHSs that make their real-time and historical stage and discharge data available online. Initial implementation occurred in August 2015.

http://www.wmo.int/pages/prog/hwrp/chy/whos/index.php

Phase 2:

A fully WIS/WIGOS compliant services-oriented framework linking hydrologic data providers and users through a hydrologic information system enabling data registration, data discovery, and data access.

Current Status

Beta version of Phase 2 capability available for review and endorsement at CHy-15 (December 2016)

Initial implementation for EC approval (June 2018)

Regional prototypes currently being developed for Arctic HYCOS, La Plata basin in South America, and . . . .

The Phase 1 platform and how it works

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Thank you for your attention

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