

# Hydrology Data Infrastructure: Metadata Description, WHOS/WIS2.0 and HydroSOS

Presented by:

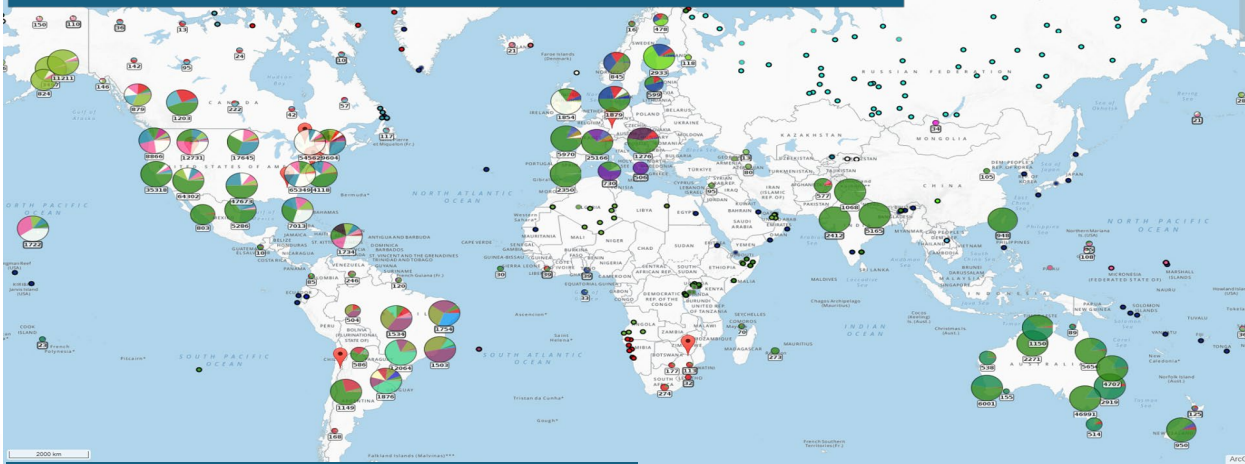
Artem Shevchenko, Expert RA VI Infrastructure and TT-W2FH

Philipp Saile, chair TT-W2FH

Sylvain Grellet, Member RA VI HCP, TT-W2FH, WMO Rep in OGC-WMO  
HDWG

# Unlocking the power of Hydrological data for people, policy, and the planet: Changing Lives • Informing Decisions • Sustaining Our World

Contact: [whos@wmo.int](mailto:whos@wmo.int)



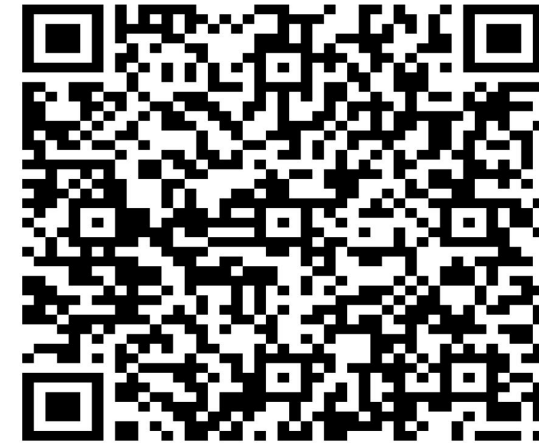
3,357,885 time series  
126 Web services

Link to WHOS portal: <https://whos.geodab.eu/gs-service/whos/search.html>

✓ ***Let's Share Hydrology Data:*** Data sharing empowers smarter policies, stronger science, and safer communities. Be part of the change -Join the WHOS community.



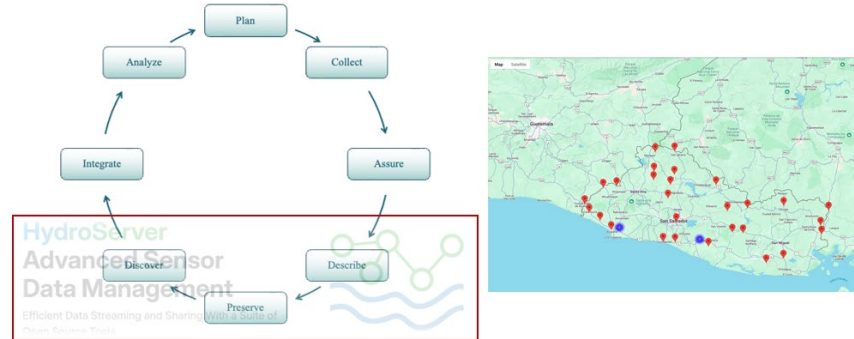
Join WHOS – Participate in the  
WHOS Implementation



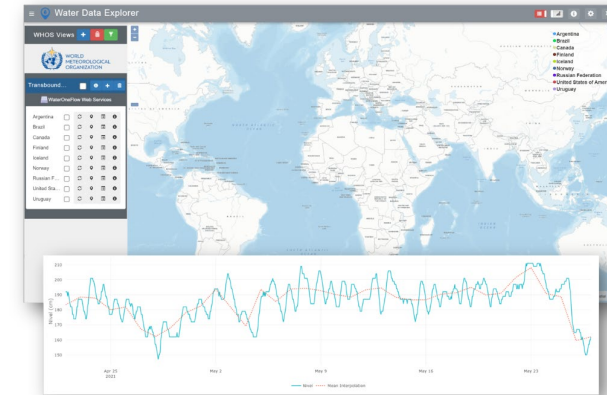
Link to WHOS implementation form:  
<https://forms.office.com/e/9u7Bg3vBUg>

# What is WHOS

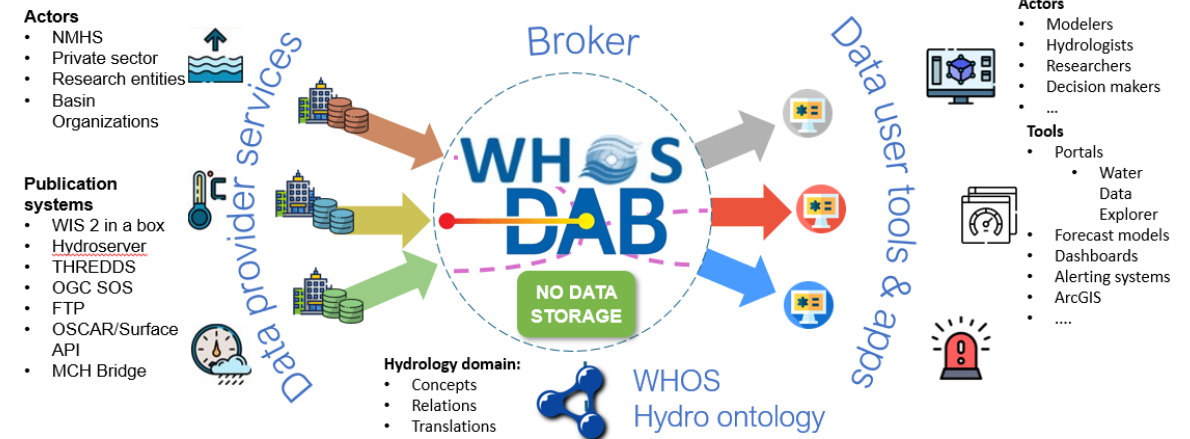
- WHOS is the hydrological component of WIS
- Is a System of Systems
- WHOS ensures interoperable hydrological data discoverability by connecting the dots,
  - **Harmonization** of complex hydrological data using sustainable technologies
  - **Visibility**, a single point for discovering and accessing numerous hydrological data sources



HydroServer –  
Data publication and  
management



Water Data Explorer  
Data publication



WMO Standards

OGC SensorThings API and  
WaterML2.0 + Other  
Standards



# WHOS data flow: Connecting the Dots



## CUAHSI Hydrological Information System (CUAHSI-HIS)

- 102 originator organizations
- Research community



## Global Runoff Data Center (GRDC)

- For historical discharge data from several countries



## International Groundwater Resources Assessment Center (IGRAC)

- Groundwater level data from various countries



NMHSS

## Direct connection from countries/ Members

- Over 30 countries providing multiple hydrological variables
- Discharge, water level, Temperature, etc



HYDROLOGICAL  
OBSERVING  
SYSTEM

WMO

WHOS

HYDRO  
SERVER

DAB

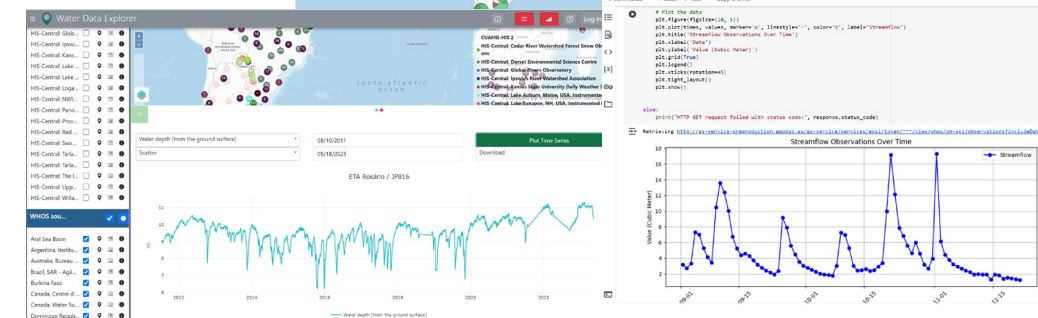


WHOS  
Ontology

WaterML



WHOS  
global  
portal



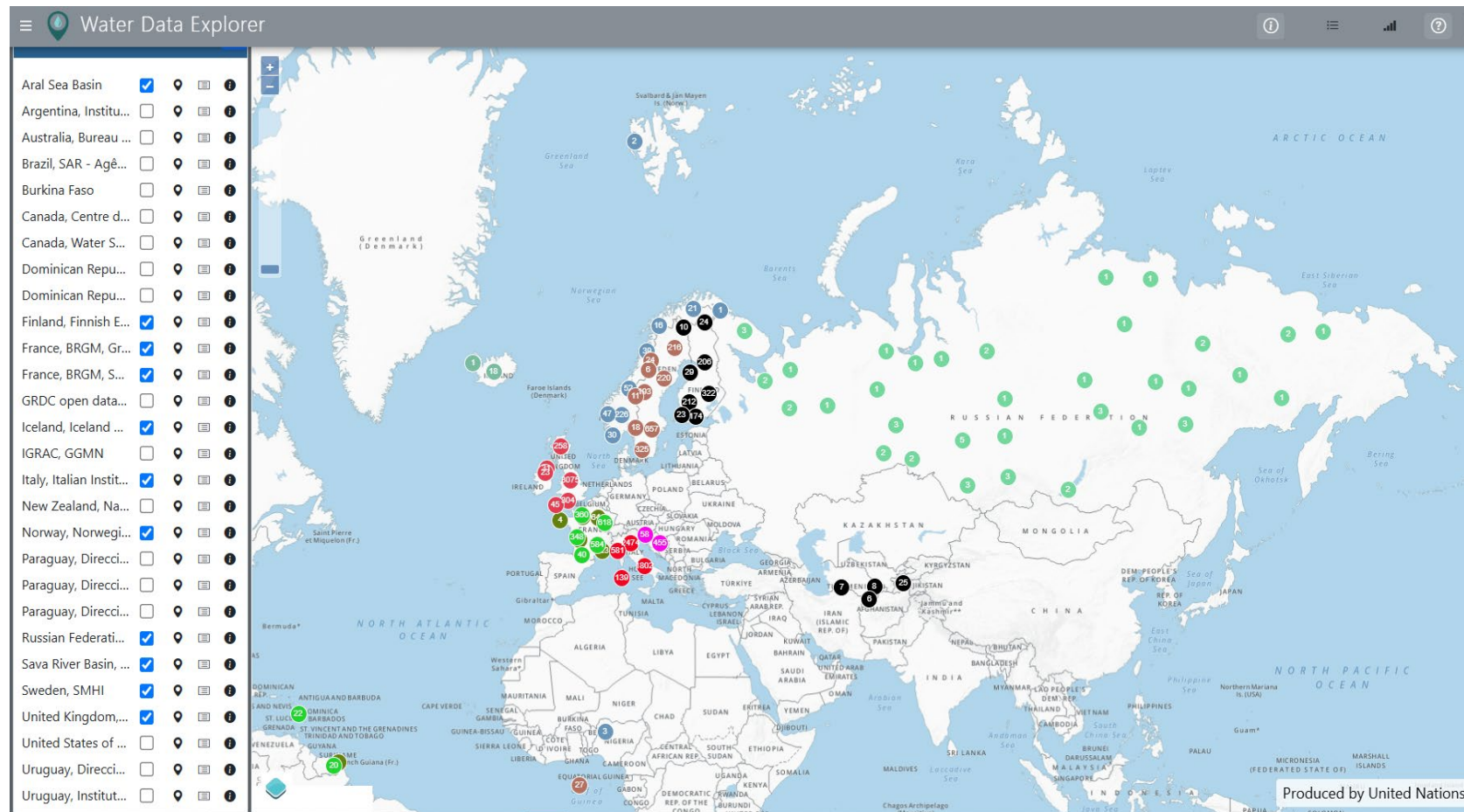
Water Data Explorer

Programmatic access

# RA VI Countries Minus GRDC, IGRAC and CUAHSI

## RA VI Countries

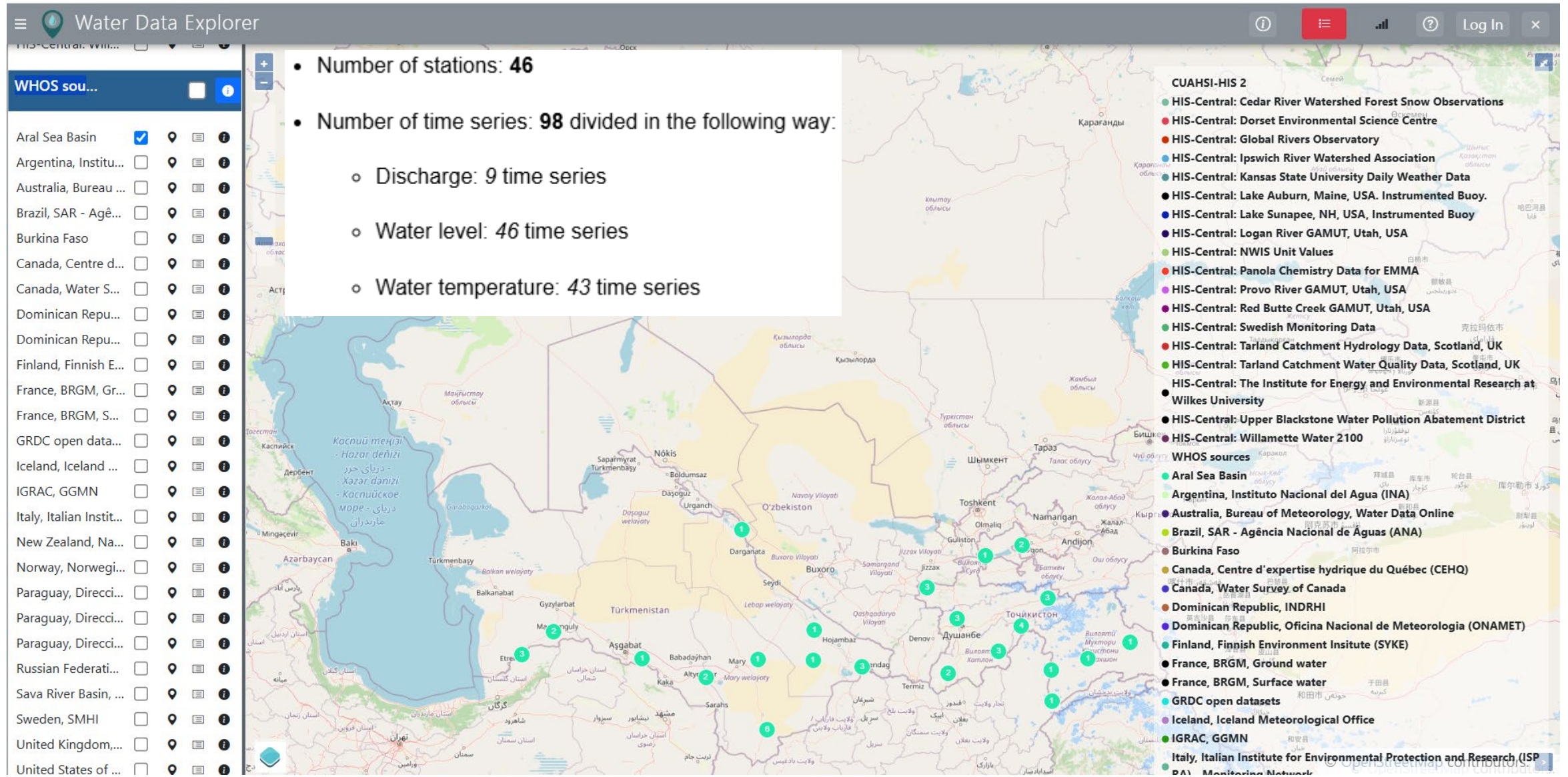
Albania	Latvia
Andorra	Lebanon
Armenia	Lithuania
Austria	Luxembourg
Azerbaijan	Malta
Belarus	Monaco
Belgium	Montenegro
Bosnia and Herzegovina	Netherlands (The Kingdom)
Bulgaria	North Macedonia
Croatia	Norway
Cyprus	Poland
Czechia	Portugal
Denmark	Republic of Moldova
Estonia	Romania
Finland	Russian Federation
France	Serbia
Georgia	Slovakia
Germany	Slovenia
Greece	Spain
Hungary	Sweden
Iceland	Switzerland
Ireland	Syrian Arab Republic
Israel	Türkiye
Italy	Ukraine
Jordan	United Kingdom of Great Britain and Northern Ireland
Kazakhstan	



Advocacy/call for more countries and data providers to participate in WHOS by sharing data sets or metadata



# Aral sea basin WHOS Pilot



# International Data Center on Hydrology of Lakes and Reservoirs connection

## Web service metadata WaterML 2.0

International Data Centre  
on Hydrology  
of Lakes and Reservoirs

HOME ABOUT US NEWS DATA PRODUCTS CONTACT

HOME

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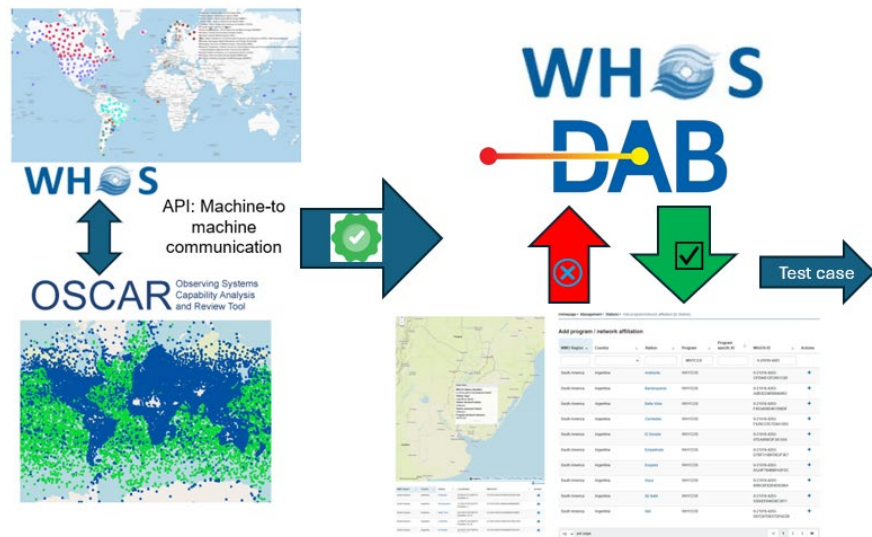
1950-2025  
75  
SCIENCE for ACTION

PARTNERS

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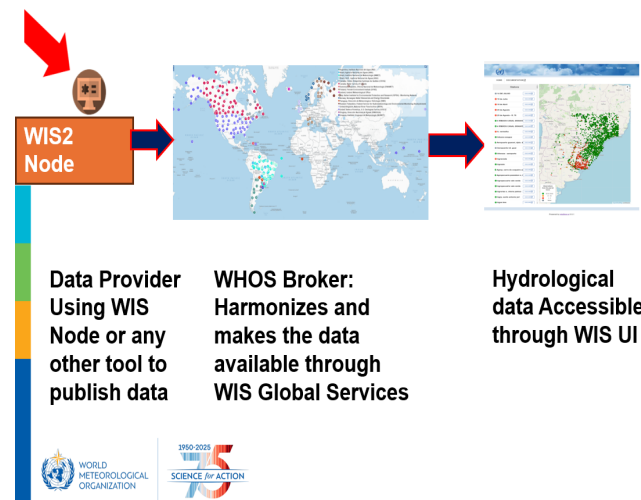


# WHOS and WMO Systems

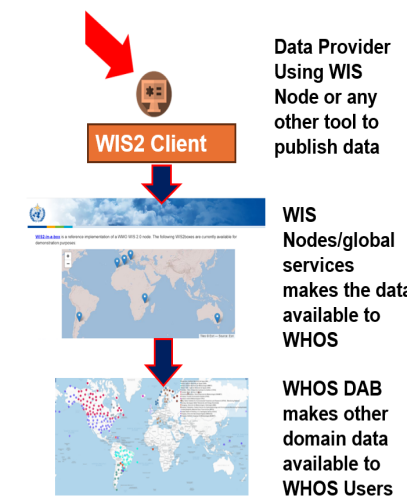


Testing with WHOS La Plata

## WIS 2 as a WHOS Data Consumer



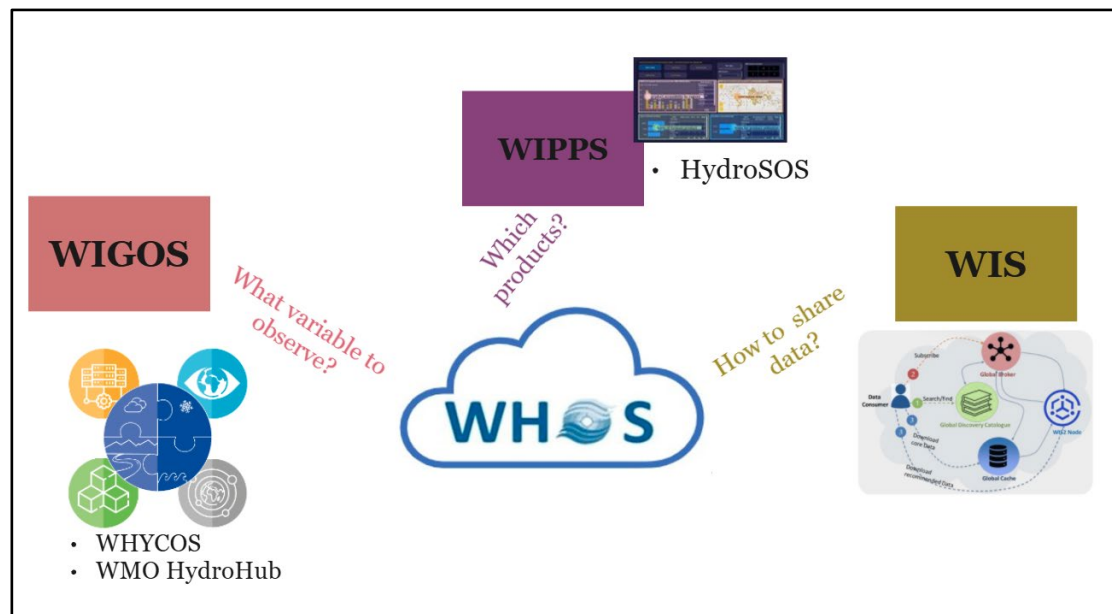
## WIS 2 as a WHOS Data Provider



## WHOS and OSCAR Connectivity



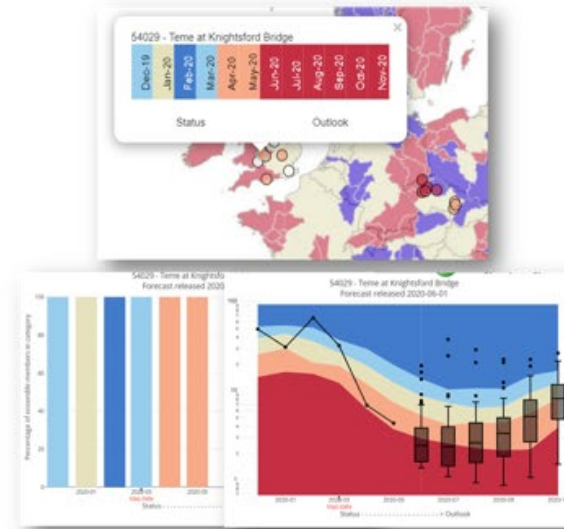
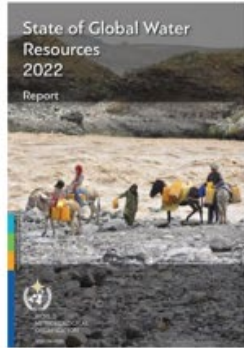
## WHOS and WIS2.0



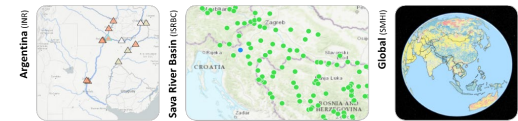
## WHOS Connection to WMO Systems



# HydroSOS – WMO Hydrological Status and Outlook System



## What will HydroSOS provide?



**An overview of the current hydrological status**  
including groundwater, river flow and soil moisture

**An appraisal of where the current status is significantly different from 'normal'**  
For example indicating drought and flood susceptibility

**An assessment of whether this is likely to get better or worse**  
over coming weeks and months

# Next Steps

RA I

- Number of data providers: Targeted 15
- Champions: Ayishetu Tani IBRAHIM-SAIDU (lead), Eng. Sara Zouriq (co-lead), Bernadette

RA II

- Number of data providers: 10
- Champions: Eng. Sara Zouriq (co-lead), Artem Shevchenko (co-lead), Dr Anoop Chamakkala Kuriakose (lead)

RA III

- Number of data providers: 5
- Champions: Marcos Devoto (Lead), Lucas Chamorro (co-lead), Juan Bianchi, João Carlos Carvalho

RA IV

- Number of data providers: 5
- Champions: John McHenry (Lead), Jim Nelson, Angelica Guterres (co-lead), Dr. Ryan M Riggs,

RA V

- Number of data providers: 5
- Champions: Tony Boston

RA VI

- **Number of data providers: 20**
- Champions: Sylvain Grellet (co-lead), Artem Shevchenko (co-lead)

Global

- Number of data providers: 3
- Champions: Sylvain Grellet (co-lead), Angel Luis Aldana Valverde (lead), Philipp Saile (lead)

WHOS

- Number of data providers:
- Champions: Dr.Naicker Sivashni (Lead), Marcos Devoto (Co-Lead), Philipp Saile, Enrico Boldrini

Request to RA VI Committee and HCP

- **Outreach:**

- ✓ Organize an engagement webinar and/or meeting with River Basins in RA VI
  - WIS2.0 session in October 2025-engage with Hydrology data providers in During HydroSOS meeting in 2025

- **Implementation:**

- ✓ Add HYDROLARE data center
- ✓ Follow up with individual countries missing on the map
- ✓ Discuss with Rhine commission and Danube

- **Capacity building**

- ✓ Organize follow up capacity building for Sava River Basin – 2026
- ✓ Plan additional training in other river basins –in 2026

# Thank you



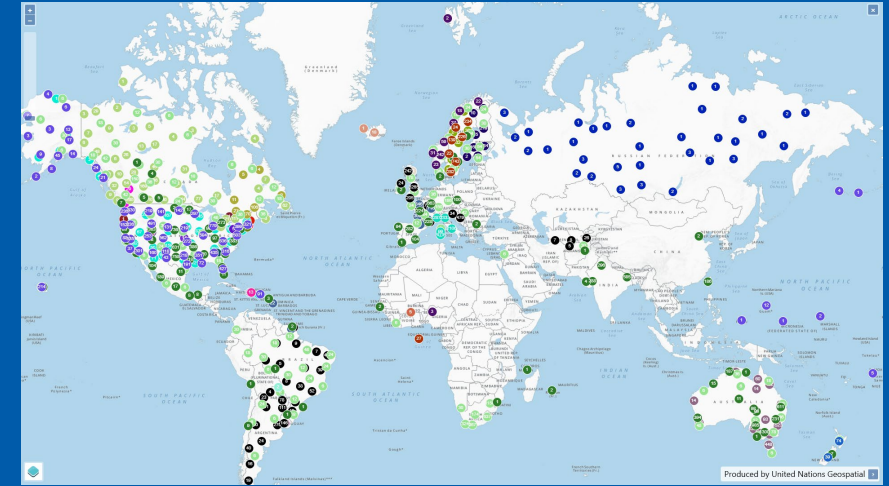
✓ *Let's Share Hydrology Data:* Data sharing empowers smarter policies, stronger science, and safer communities. Be part of the change



Join WHOS – Participate in the WHOS Implementation



<https://forms.office.com/e/9u7Bg3vBUg>



**Experts, Contributors and Partners**

For more details: Contact: [whos@wmo.int](mailto:whos@wmo.int) Or Visit: <https://wde.hydro.geodab.eu/apps/water-data-explorer-whos/>

