DanubeHIS

Danube River Basin
Hydrological Information System

ICPDR IKSD

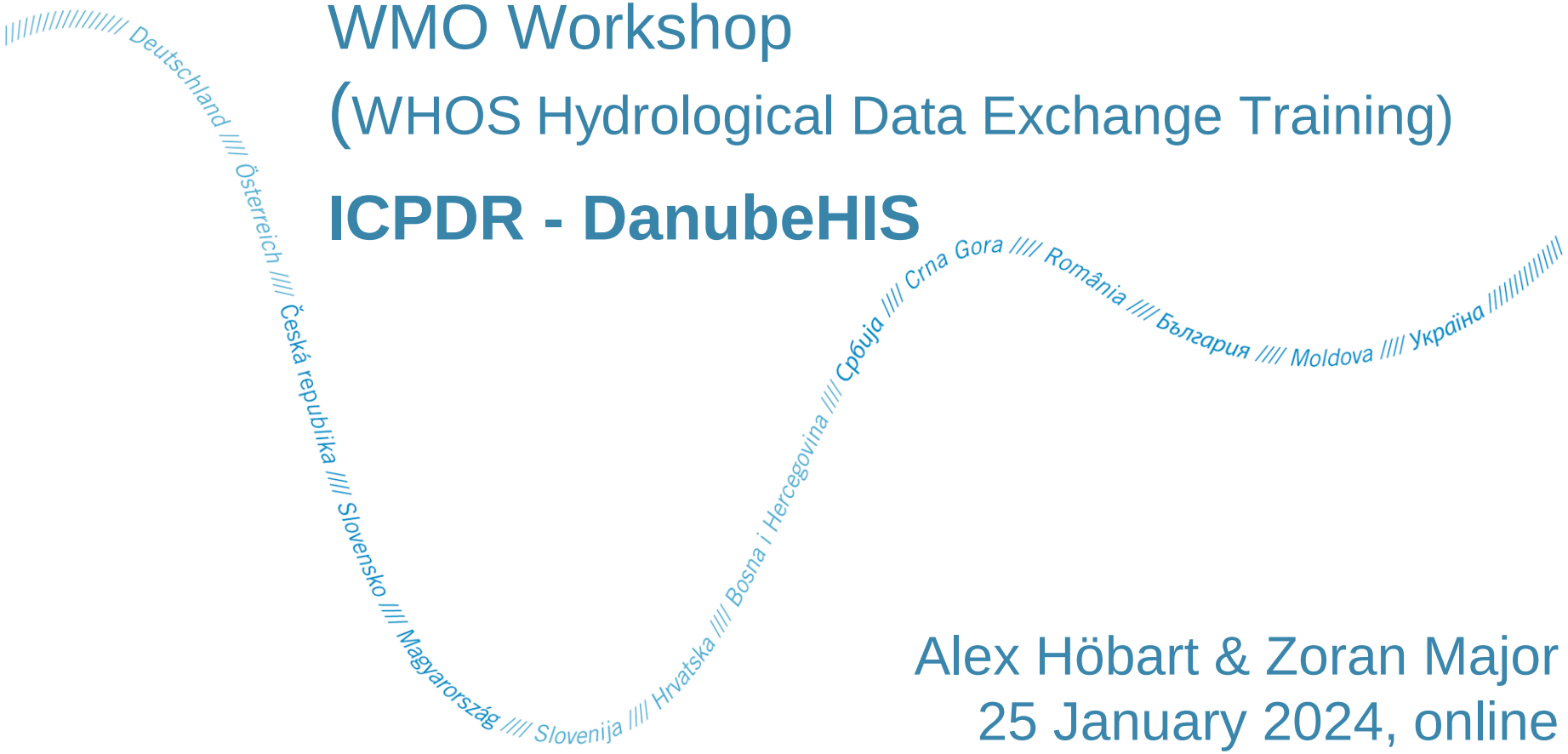
International Commission
for the Protection
of the Danube River

Internationale Kommission
zum Schutz der Donau

WMO Workshop

(WHOS Hydrological Data Exchange Training)

ICPDR - DanubeHIS



Alex Höbart & Zoran Major

25 January 2024, online

ABOUT US

Content pages

The International Commission for the Protection of the Danube River (ICPDR) works to ensure the sustainable and equitable use of waters in the Danube River Basin. The work of the ICPDR is based on the Danube River Protection Convention (DRPC), the major legal instrument for cooperation and transboundary water management in the Danube River Basin.

- Implementation of ICPDR responsibilities is supported and coordinated by the permanent secretariat in Vienna
- Specific activities are managed by the Expert Groups (EG) each including the representatives from 15 Contracting Parties

ICPDR organisational chart

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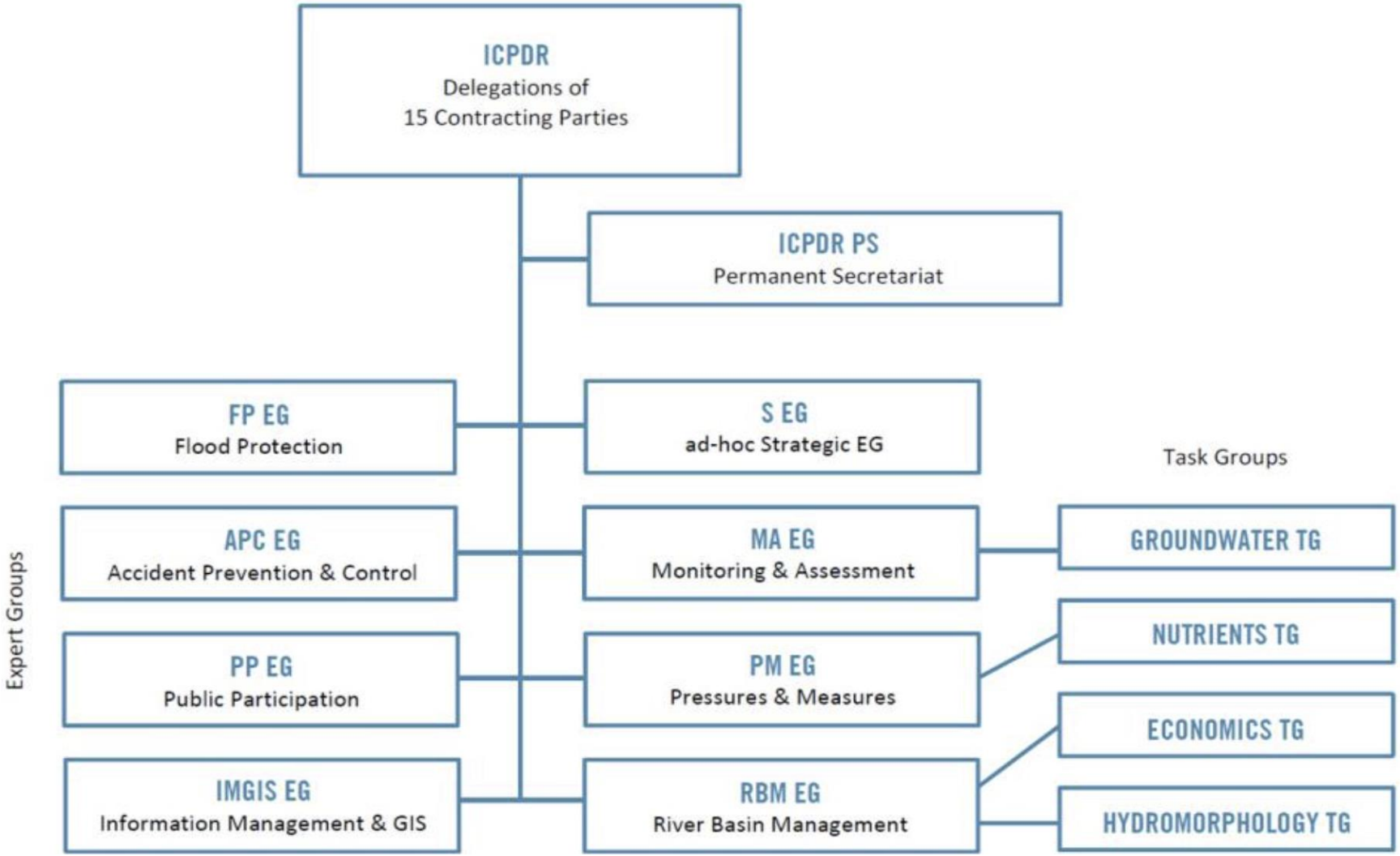
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau



Danube River Basin
From the Black Forest to the Black Sea

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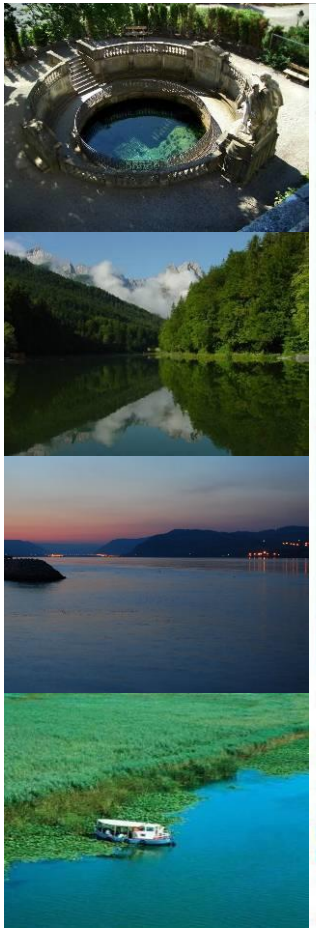

Danube River Protection Convention

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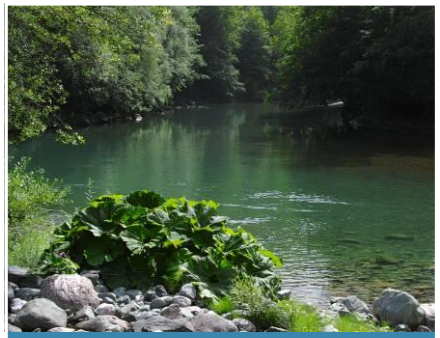
signed 29 June 1994, Sofia (Bulgaria)



Protection of water & ecological resources

Sustainable use of water

Reduce nutrients & hazardous

Manage floods & ice hazards

ICPDR coordinates implementation of EU Water Framework Directive & EU Floods Directive on basin-wide level

Secretariat and the Expert Groups

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DanubeHIS: Basic Facts

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- Strategic guidance by ICPDR Flood Protection Expert Group (FP EG)
- Support by ICPDR Information Management & GIS Expert Group (IMGIS EG) for integration with DanubeGIS (stations metadata and background layers)
- DAREFFORT project provided software for data exchange
- System development and operation by ICPDR Secretariat
- Countries (via FP EG) nominated DanubeHIS stations
- DanubeHIS portal launched end of 2023

DanubeHIS: Scope & Data

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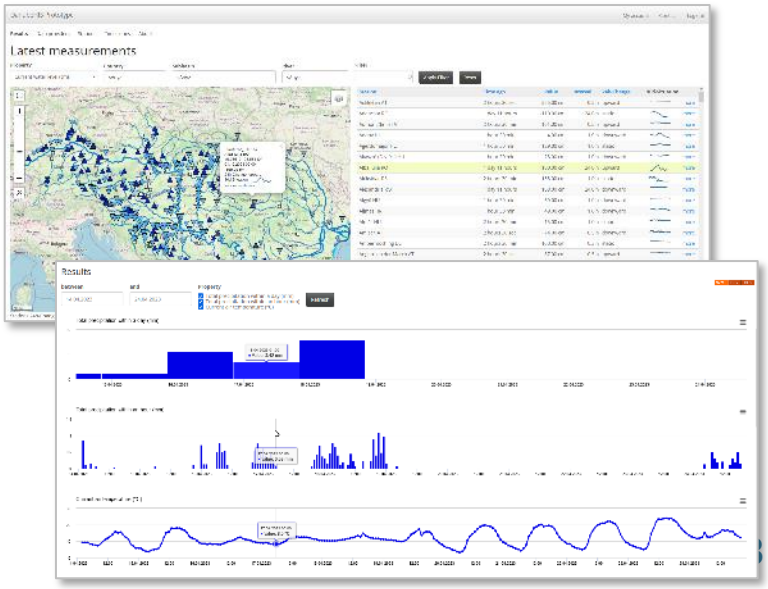
Scope:

- Providing Danube basin-wide level basic hydrological and meteorological near real time data in a standard format,
- *and, if possible*, the validated long-term data series, for flood risk management or for any water related scientific activities in DRB.

Data: (*not mandatory, if available*)

- Water Level
- River Discharge
- Water Temperature
- Precipitation (hourly/daily)

Standard format: WaterML 2.0



DanubeHIS Data Policy

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- Based on the core principle of voluntary data exchange, the policy is designed to support the continuous and long-term cooperation of Data Providers using well-defined, flexible and stable data exchange platform.
- This Policy provides conceptual principles, as well as technical details required for exchange and interoperability of hydro-meteorological data in the Danube River Basin.
- DanubeHIS Data Policy document was developed by ICPDR Secretariat, then carefully discussed in FP EG, approved and signed by ICPDR and by all of the Data Providers.

DanubeHIS System Overview

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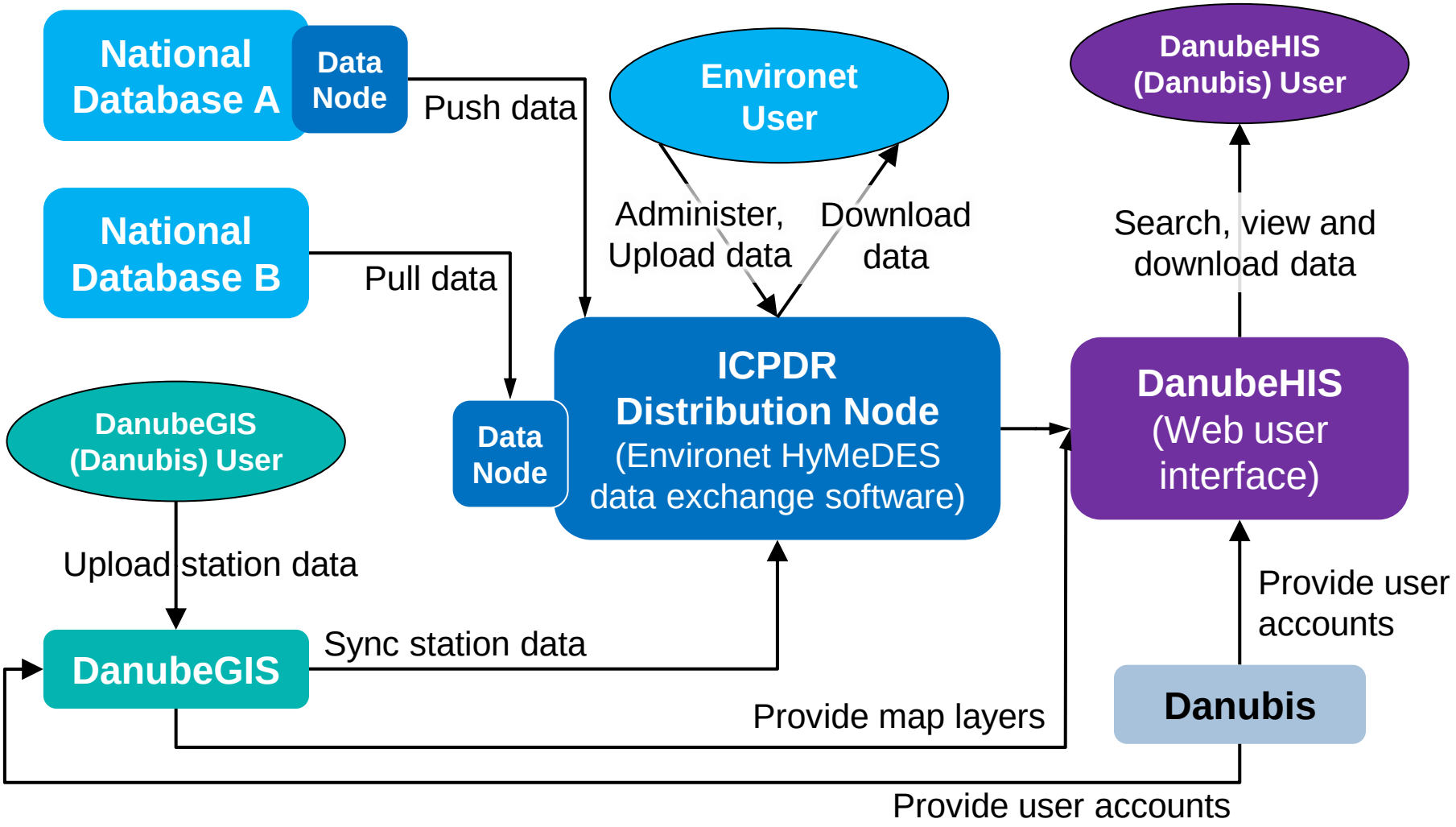

DanubeHIS
Data Providers Overview

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Country	Data provider	Option*	Method	Format	HYDRO	METEO
AT	BMLRT	B	HTTPS	xml	x	x
BA	AVPS	B	FTP	zrxp	x	x
BA	FHMZ	B	FTP	zrxp	x	x
BA	RHMZRS	B	FTP	zrxp	x	x
BG	NIMH	B	FTPS	csv	x	x
CZ	CHMI	B	FTP	xml	x	x
DE	DWD	B	HTTPS	csv		x
DE	LfU	B	HTTPS	xml	x	x
HR	DHMZ	A	FTP	csv	x	x
HU	OVF	A	local file	csv	x	
MD	SHS	B	FTP	csv	x	x
RO	NIHWM	A	FTPS	csv	x	x
RS	RHMSS	A	HTTP	csv	x	x
SI	ARSO	B	HTTP	xml	x	x
SK	SHMU	B	HTTPS	xml	x	x
UA	UHMI	A	local file	csv	x	x

*Option A: Data Node including conversion filter on provider's server configured for pushing data
Option B: Conversion Plugin including conversion filter on the Distribution Node configured for pulling data

DanubeHIS
Observed Properties

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Symbol	Unit	Description	Type
h_mean_daily	cm	Daily mean water level	processed
Q_mean_daily	m³/s	Daily mean river discharge	processed
tw_mean_daily	°C	Daily mean water temperature	processed
h	cm	Current water level	real time
Q	m³/s	Current river discharge	real time
tw	°C	Current water temperature	real time
P_total_daily	mm	Total precipitation within a day	real time
P_total_hourly	mm	Total precipitation within an hour	real time

DanubeHIS Manual for Data Providers

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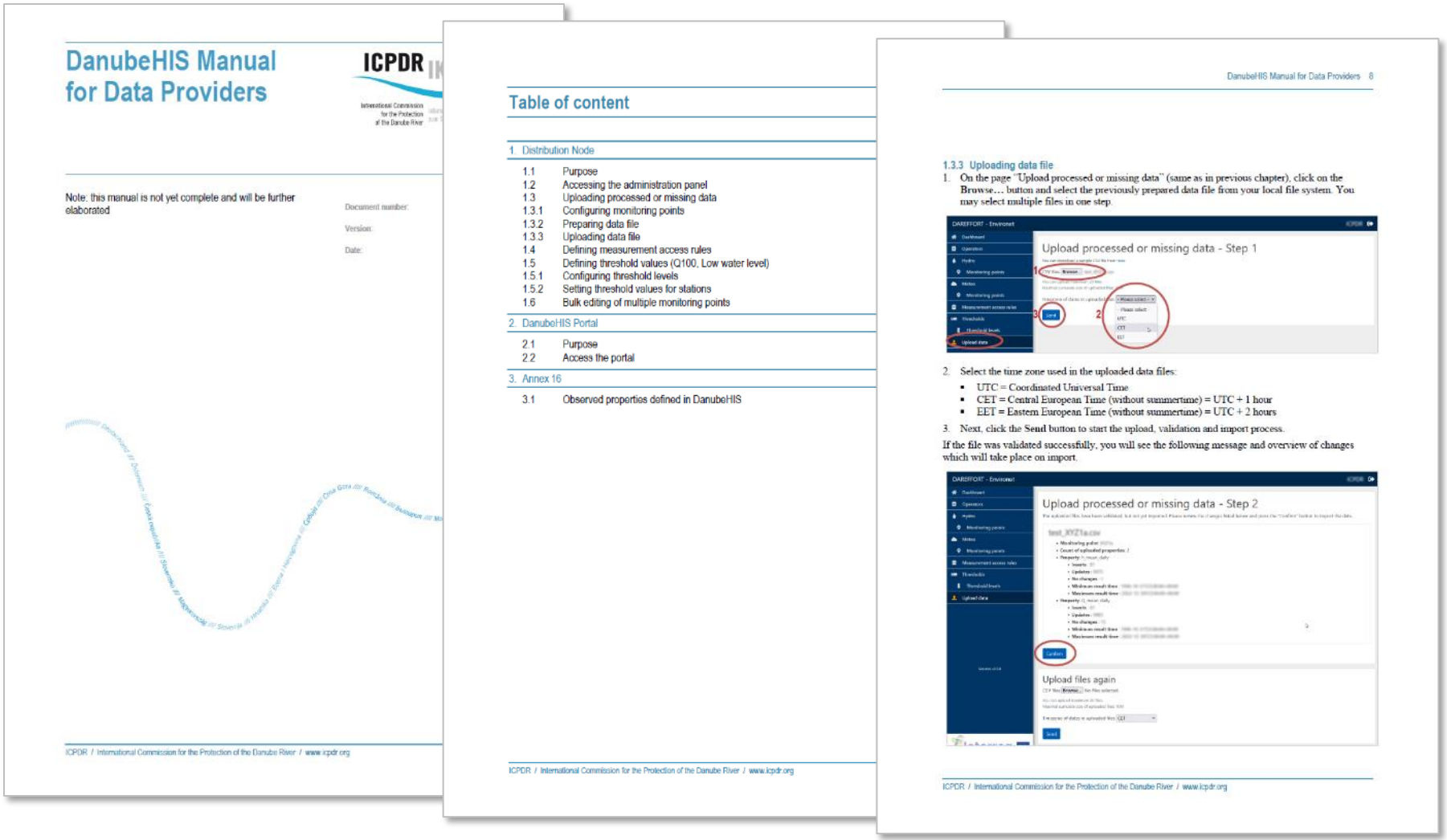

DanubeHIS Manual for Data Providers

Note: this manual is not yet complete and will be further elaborated

Document number:
Version:
Date:

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2. DanubeHIS Portal
- 2.1 Purpose
- 2.2 Access the portal

3. Annex 16
- 3.1 Observed properties defined in DanubeHIS

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1.3.3 Uploading data file

1. On the page "Upload processed or missing data" (same as in previous chapter), click on the **Browse…** button and select the previously prepared data file from your local file system. You may select multiple files in one step.

2. Select the time zone used in the uploaded data files:
   - UTC = Coordinated Universal Time
   - CET = Central European Time (without summertime) = UTC + 1 hour
   - EET = Eastern European Time (without summertime) = UTC + 2 hours
3. Next, click the **Send** button to start the upload, validation and import process.

If the file was validated successfully, you will see the following message and overview of changes which will take place on import.

Measurement access rules

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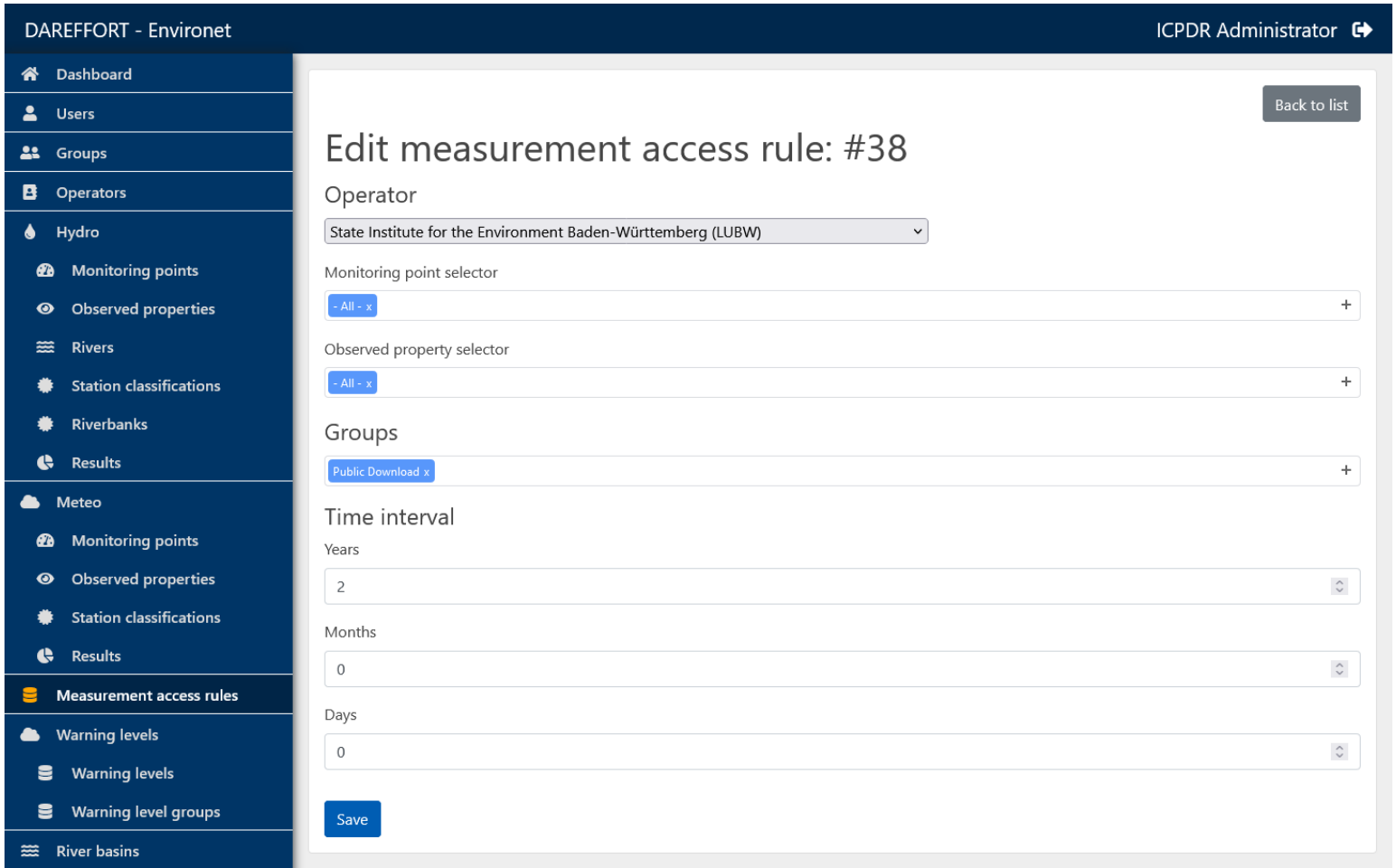
Access to data is defined by the data providers



Summary of user roles and access permissions

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	User roles			
Permission	**Anonymous**	**Self-registered**	**Internal**	**Administrator**
View stations	All active stations		All stations	
Select properties	Properties listed in Policy		All properties	
View measurements	According to measurement access rules			All
Download measurements	None	According to measurement access rules		All

Measurement Access Rules Groups:

Public View

Public Download

Internal Download

Station metadata availability

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	AT	BA	BG	CZ	DE	HR	HU	MD	ME	RO	RS	SI	SK	UA	Total
Stations															
HYDRO Stations	77	53	6	6	46	43	123	16	4	164	26	27	13	20	**624**
METEO Stations	78	62	6	1	214	12	14	6	3	158	15	7	22	17	**615**
Total stations	**155**	**115**	**12**	**7**	**260**	**55**	**137**	**22**	**7**	**322**	**41**	**34**	**35**	**37**	**1239**
Attributes															***Availability***
River*	77	51	6	6	44	43	123	0	0	164	26	27	13	0	580	93%
River-KM*	77	2	3	6	46	0	123	0	0	1	26	27	13	0	324	52%
Catchment*	77	46	3	6	46	0	121	0	0	21	26	27	13	0	386	62%
Subbasin	155	101	12	7	44	0	137	0	0	322	26	34	35	0	873	70%
Vertical reference	155	104	12	7	52	43	137	0	2	322	41	34	35	1	945	76%
Gauge zero/Altitude	155	66	12	7	44	43	137	0	0	322	41	34	35	0	896	72%
Related Station**	0	7	0	0	0	0	0	0	0	0	0	0	22	0	29	5%
Q100*	0	19	0	6	0	0	0	0	0	0	0	0	13	0	38	6%
Low water level*	0	0	0	6	0	0	0	0	0	0	0	0	13	0	19	3%

* attributes only relevant for HYDRO stations

** attributes only relevant for METEO stations

Data synced from DanubeGIS

Data in DanubeHIS Distribution Node

Overview map of stations

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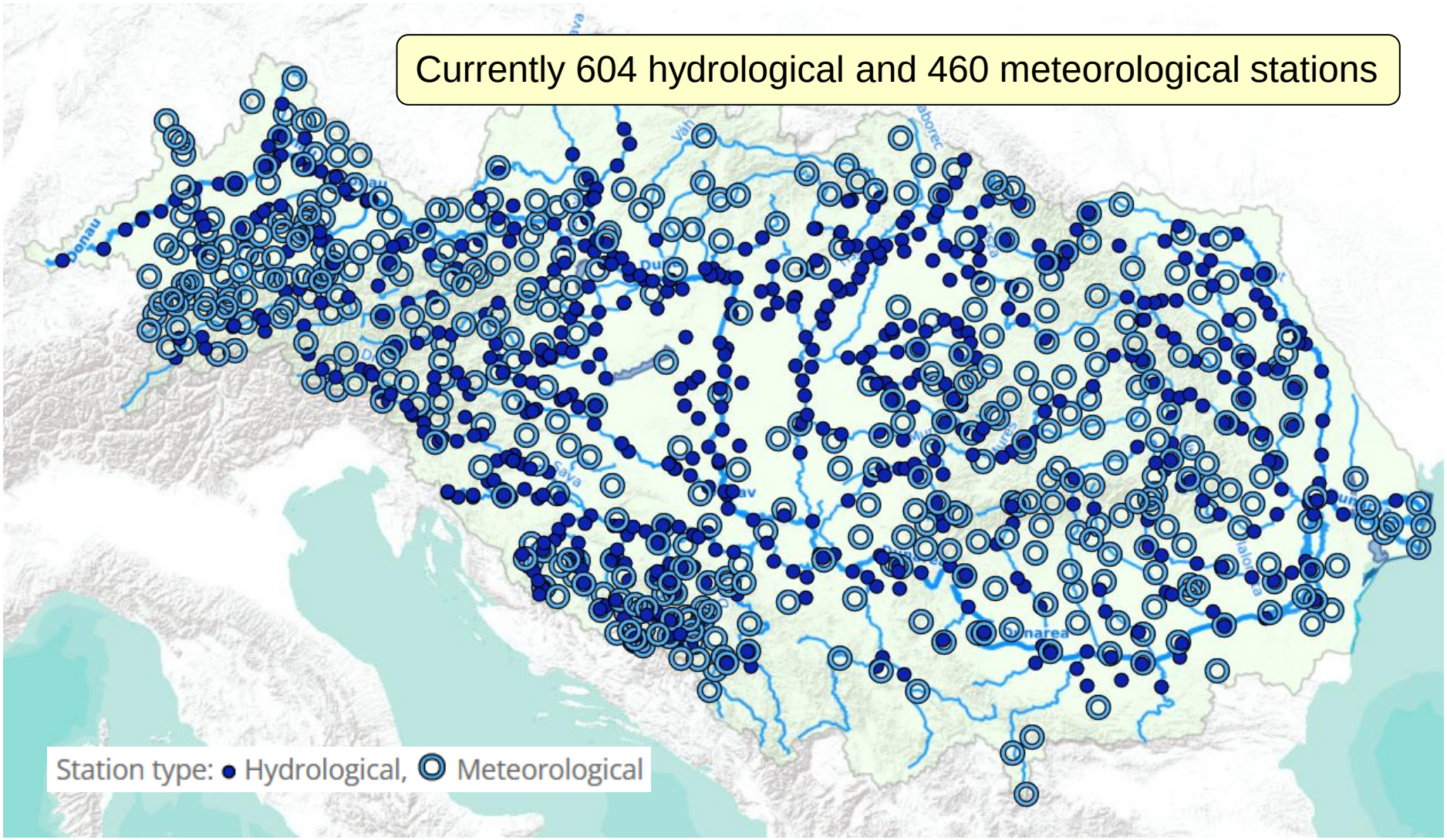

DanubeHIS portal features

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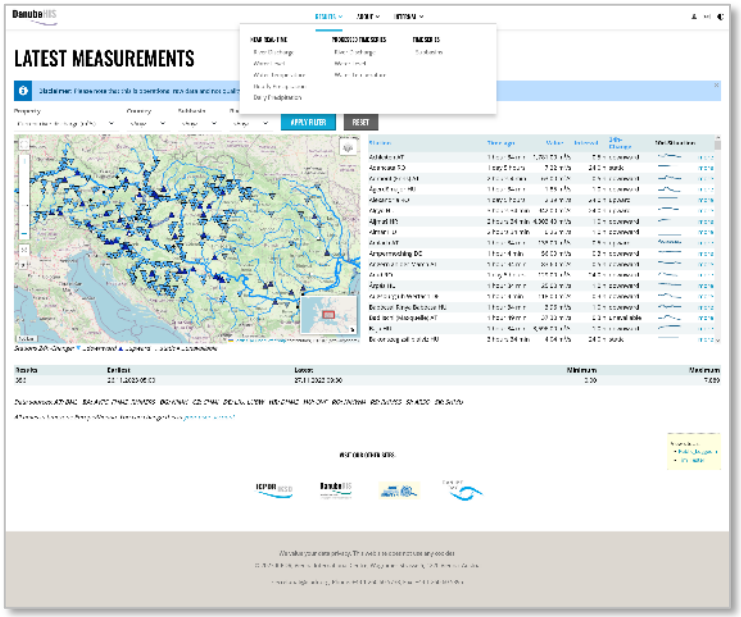
- Stations map including DanubeGIS background layers and change indicators
- Filters for country, subbasin, river
- Near real time and processed time series data
- Stations metadata
- Online charts
- Data download in WML, CSV, XLS
- Navigation, layout and design based on icpdr.org website



Thanks for your attention!

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DanubeHIS
Danube River Basin
Hydrological Information System

Please visit

https://www.danubehis.org

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