The WMO Information System
WIS 2.0

RA VI Regional Conference
30 September 2026

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Hassan Haddouch
WIS 2.0 Manager

WMO Information System (WIS 2.0)

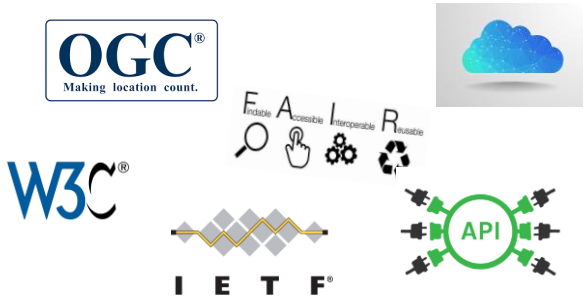
1963 World Weather Watch

1970s Global Telecommunication System

2007 WMO Information System (WIS)

2019 WMO Reform (Earth System Approach)

2021 WMO Unified Data Policy / GBON



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WIS 2.0

… system of systems using Web-architecture and open standards to provide simple, timely and seamless sharing of trusted data and information …

- Open Standards (OGC, W3C, IETF, …)
- Open Source (use off the shelf tools)
- Data sharing through Web and publication/subscription (pub/sub) protocols
- Cloud ready (turn-key solutions)
- Web APIs (Application Programming Interface)

WIS2 nodes and Global Services

- WIS2 node is the component to provide data and associated metadata
- WIS2 node replaces the GTS Message Switching System
- NCs / DCPCs are going to implement a WIS2 Node to exchange data in WIS2
- The WIS2 Node shares data from an HTTPS service and sends notifications to MQTT subscribers
- No need to provide access to all the users in the world, only to some WIS2 Global Services

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WIS2 Components: Global Services

Global Services

Global Monitoring

Global Discovery Catalogue

Provides an API to discover datasets and services

Global Broker

Sends notifications of new data to be downloaded from Global Caches or WIS2 nodes

Global Cache

Provides users HTTP download of core data cached from WIS2 nodes

Discovers datasets

Subscribes to topics

Downloads core data

Data users

Downloads recommended data

Downloads recommended data

Downloads recommended data

WIS2 node (NC)

WIS2 node (DCPC)

WIS2 node (NC)

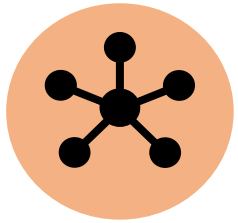
Scale to highly-available, global data sharing

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1950-2025 SCIENCE for ACTION

WIS2 Global Service instances

Global Broker



China
Brazil
France
USA

Global Discovery Catalogue



Canada
China
Germany

Global Cache



China
Germany
Japan
Korea
Saudi Arabia
USA/UK

Global Monitoring



China
Morocco

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What is WIS2 in a box?

- WIS2 in a box (wis2box) is a Reference Implementation of a WIS2 Node
- Developed as Docker Compose stack using existing Free and Open Source implementations and wis2box-specific components
- Free Open-Source Software (FOSS) https://github.com/wmo-im/wis2box
- Developed by WMO in collaboration with Canada to help accelerate the implementation of WIS 2.0
- Designed to be cost-effective and low-barrier to operate
- **Currently over 80 WMO-Members are using wis2box to share data on WIS2**

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wis2box hosting requirements:

- minimum 2 vCPUs with 4GB Memory and 24GB of local storage
- requires Python, Docker and Docker Compose pre-installed
- HTTP and MQTT ports routed to a publicly accessible address
- See documentation at https://docs.wis2box.wis.wmo.int

Summary

wis2box is a Free and Open Source Reference Implementation of a WIS2 Node

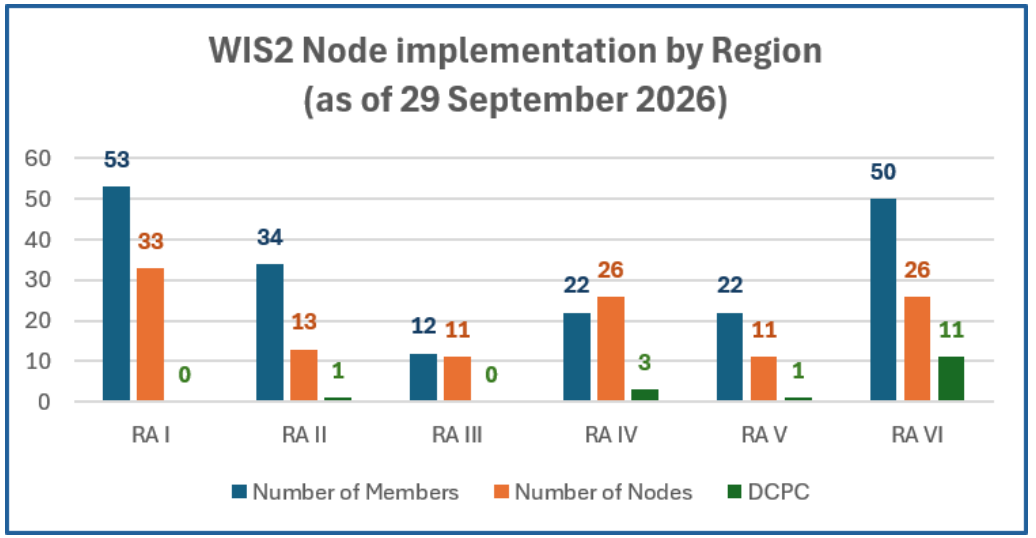
- Developers can freely use components used inside of wis2box to adapt existing systems to be WIS 2.0 compliant
- Source code: https://github.com/wmo-im/wis2box
- **Feedback by the community is appreciated to help improve wis2box**

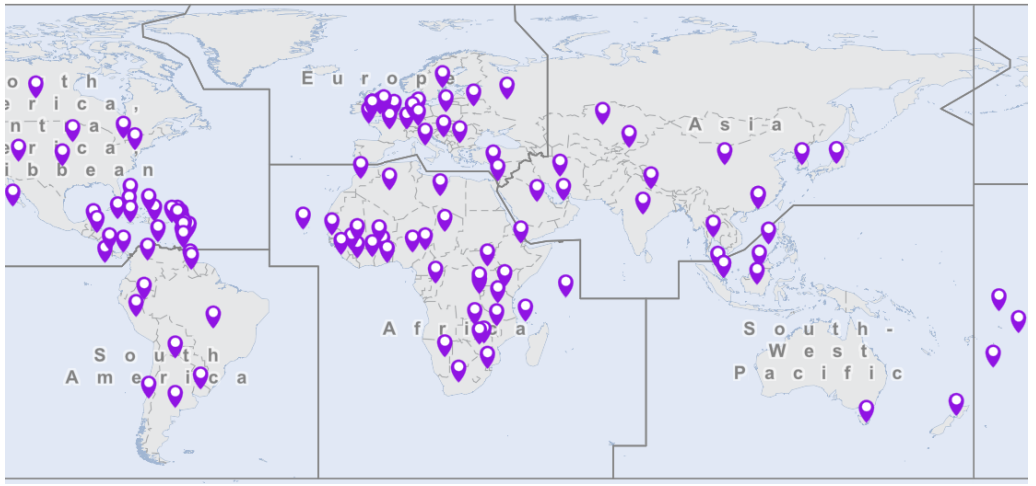
- **wis2box is software not hardware**
- To be deployed on a host with Python, Docker and Docker Compose pre-installed
- Download latest release from: https://github.com/wmo-im/wis2box/releases
- Documentation: https://docs.wis2box.wis.wmo.int

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Operational WIS2 Nodes

- **125** operational WIS2 Node registered in the WIS2 Global Registry
- **109** National Centres (NCs)
- **16** Data Collection or Production Centres(DCPCs)
- Approximately **80%** of operational Nodes use the open-source wis2box implementation





To see the latest status please check:

Operational WIS2 Nodes on the WMO Knowledge Hub

automatically updated when a new Operational WIS2 Node is recorded in the WIS2 Global Registry

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Operational WIS2 Nodes in RA VI

- **26** operational WIS2 Node registered in the WIS2 Global Registry
- **15** National Centres (NCs)
- **11** Data Collection or Production Centres(DCPCs)
- Approximately **30%** of operational Nodes use the open-source wis2box implementation

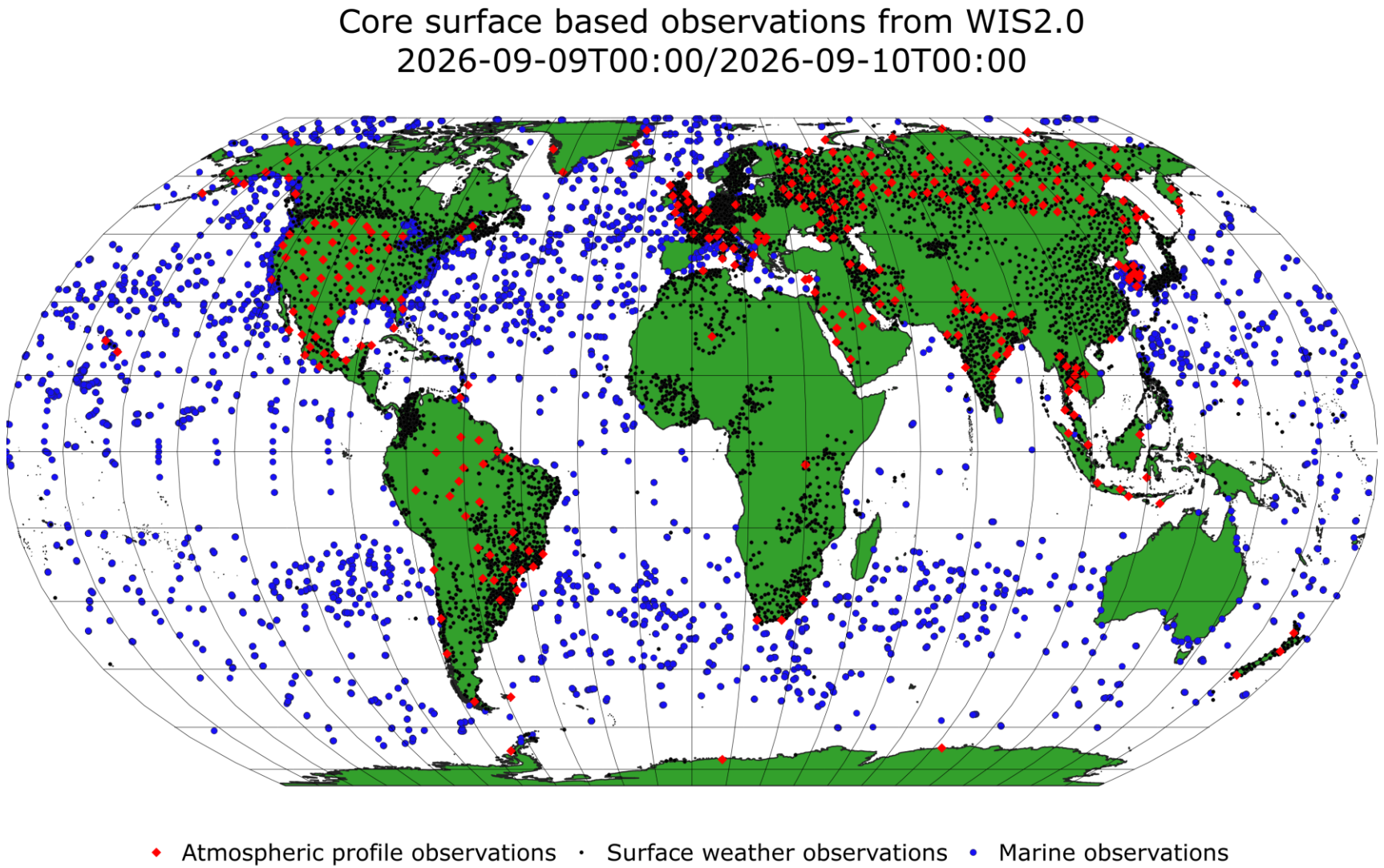
Austria	NC
Belarus	NC
Belgium	NC
Bulgaria	NC
Cyprus	NC
France	NC
Germany	NC
Israel	NC
Italy	NC
Poland	NC
Russian Federation	NC/DCPC
Serbia	NC
Sweden	NC
Switzerland	NC
United Kingdom	NC/DCPC
ECMWF	DCPC
EUMETSAT	DCPC
EUMETNET	DCPC
Ifremer	DCPC

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15 WMO Global Information System Centres (GISCs)

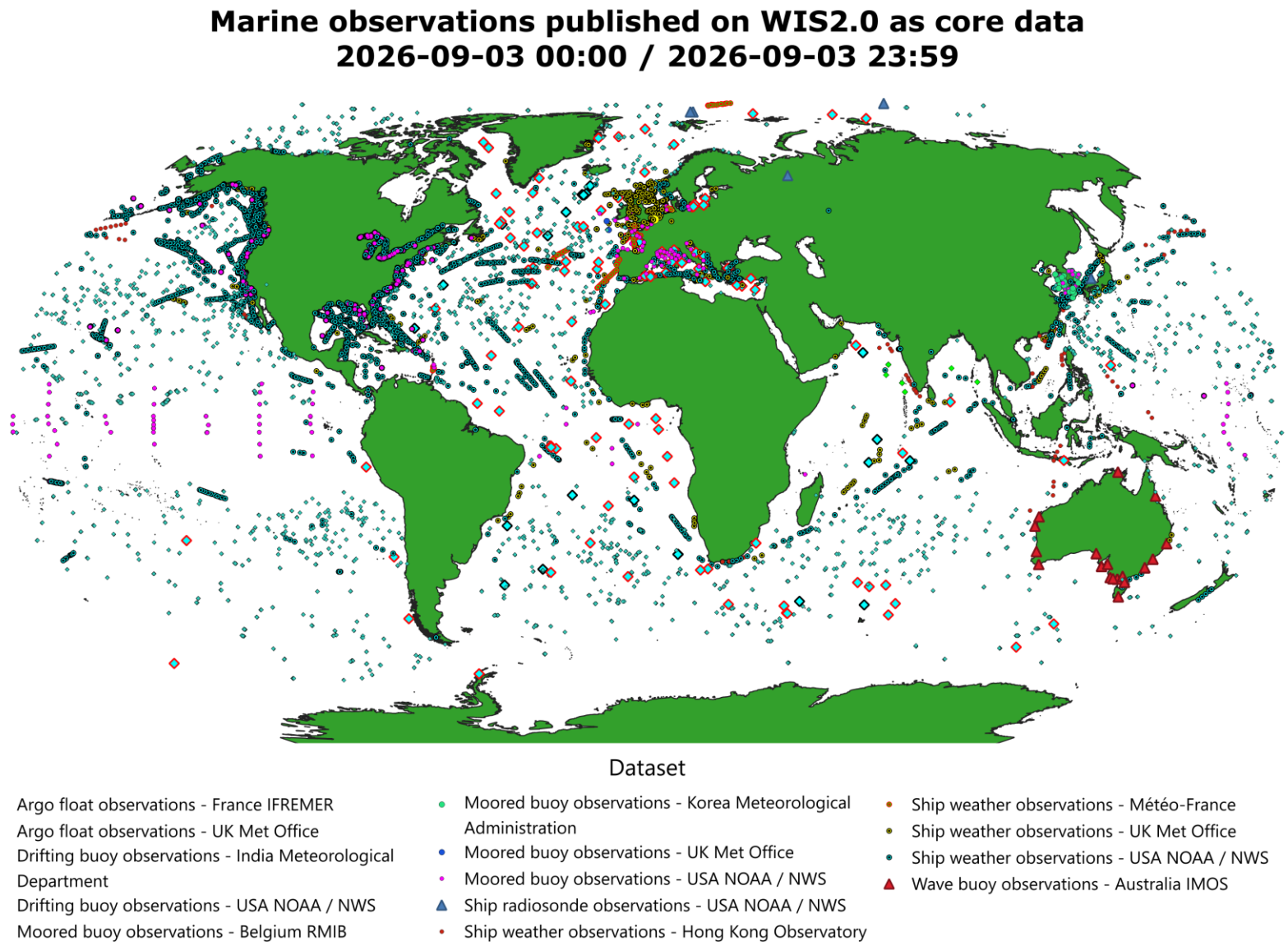


Surface based observations in WIS 2.0



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Marine Observations in WIS 2.0

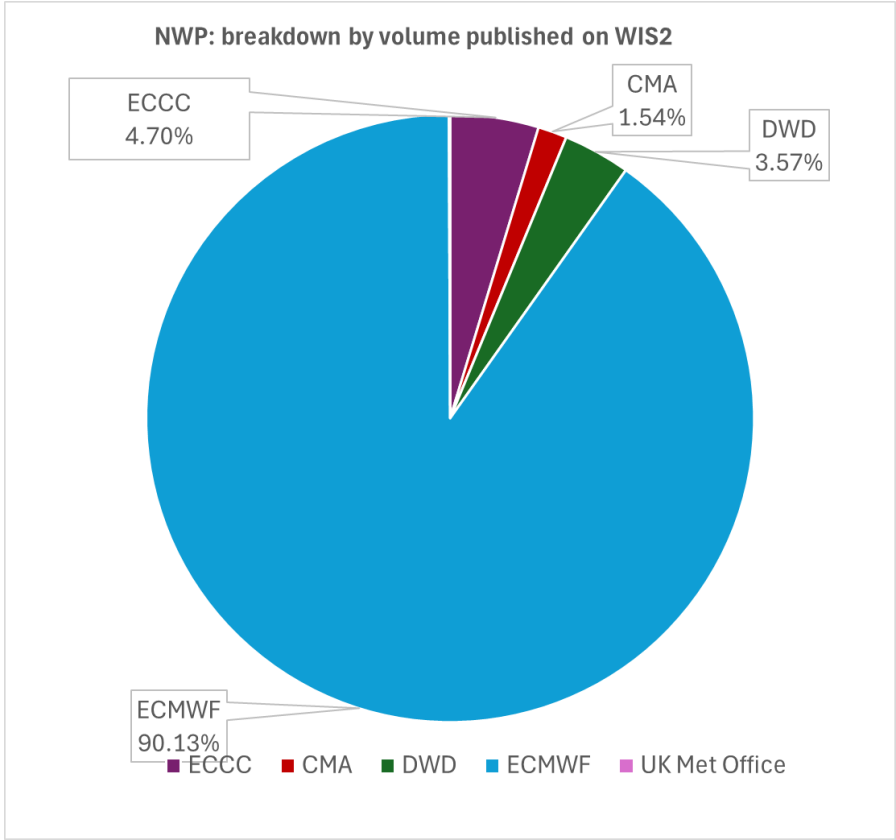


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NWP shared on WIS2

24-hour period on 3 March 2026

Centre	Total Volume GB
ECCC	57.6
CMA	18.9
DWD	43.8
ECMWF	1,105.3
UK Met Office	0.8

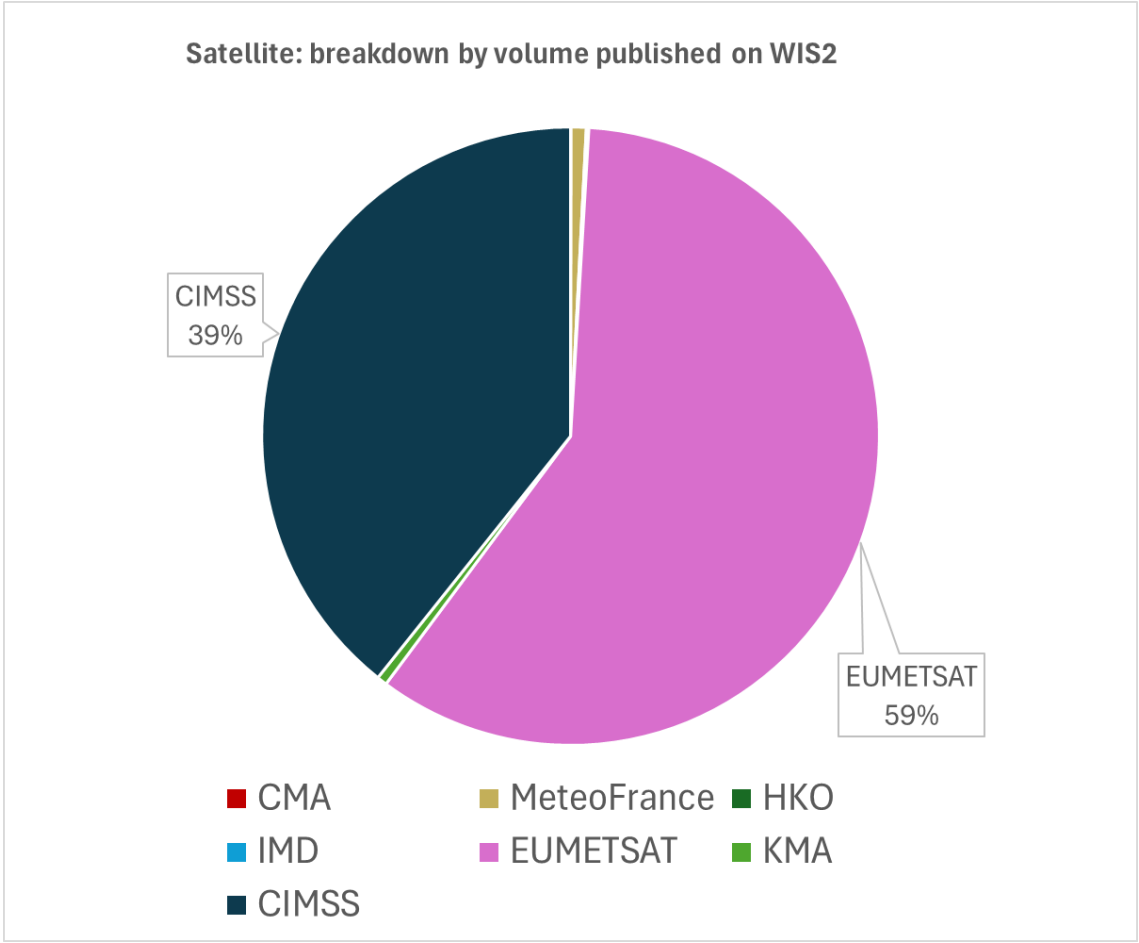


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Satellite data shared on WIS2 Satellite

24-hour period on 3 March 2026

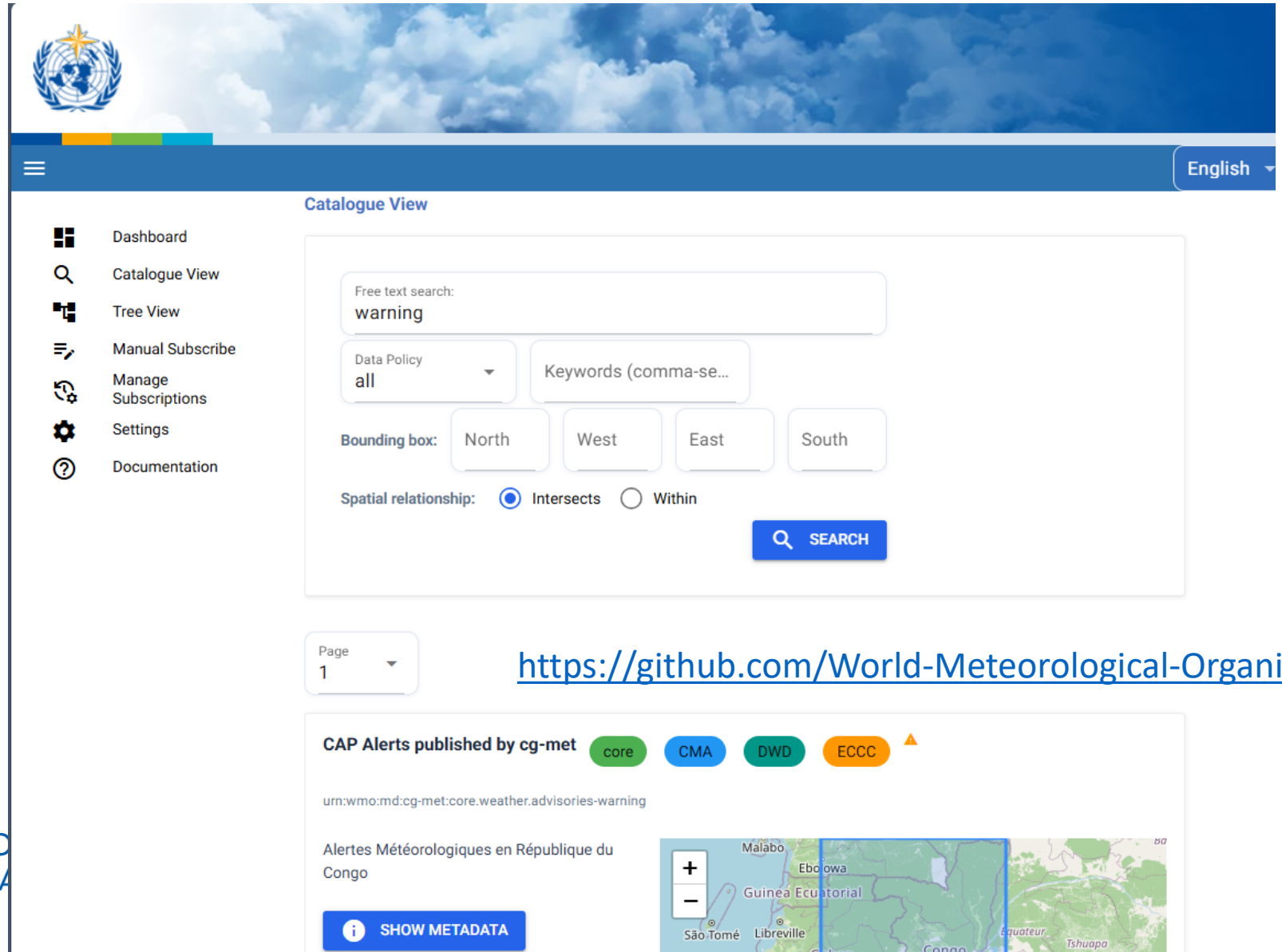
Centre	Total Volume MB
CMA	11.9
MeteoFrance	360.1
HKO	56.8
IMD	5.2
EUMETSAT	27,118.6
KMA	242.8
CIMSS	17,973.9



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WIS2 Downloader

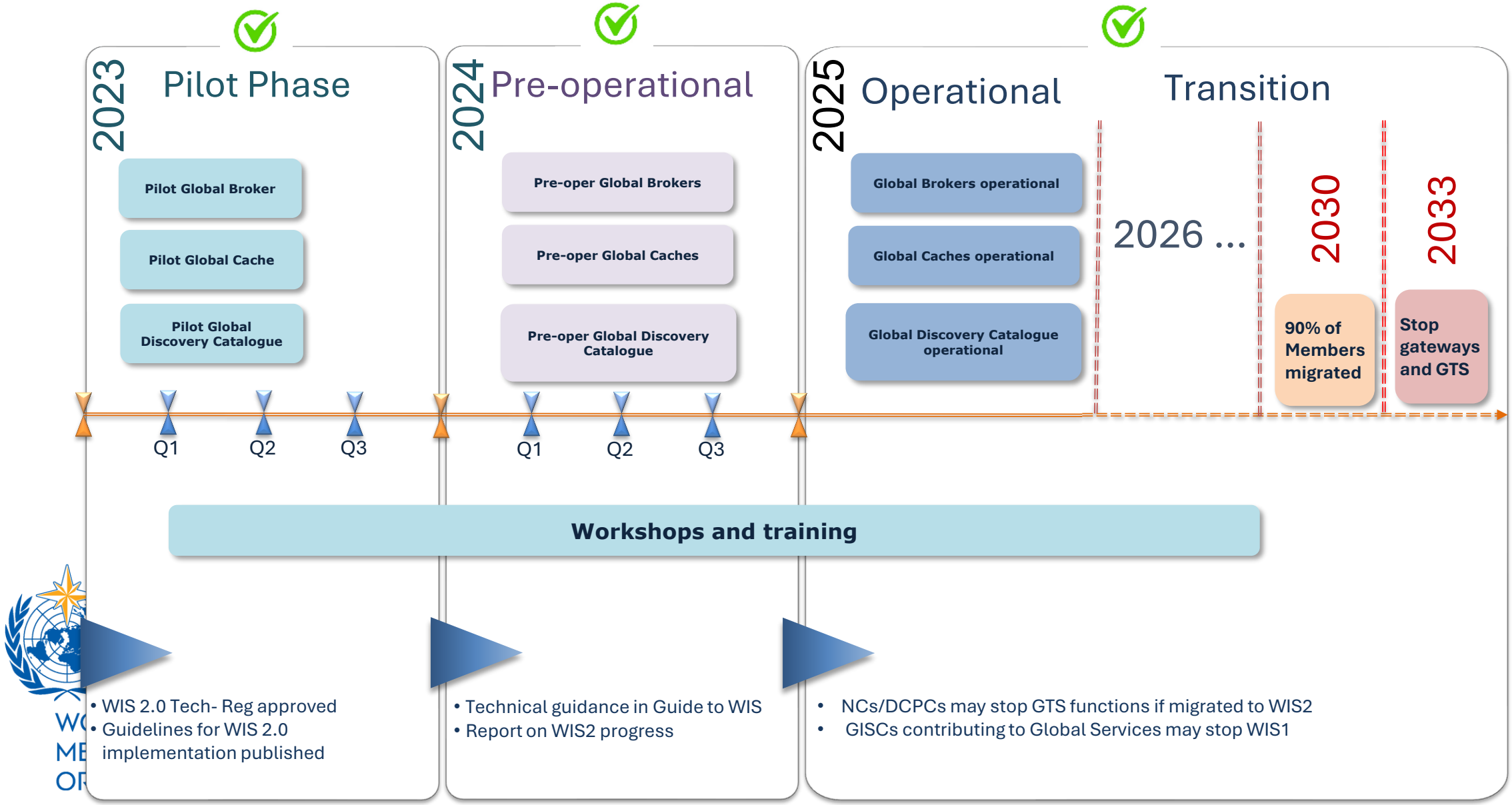
screenshot of user interface and catalogue search



https://github.com/World-Meteorological-Organization/wis2downloader

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WIS2 Implementation Timeline



Recommendations
Accelerating WIS 2.0 implementation and migration in RA VI

- Maintain national WIS 2.0 implementation and migration plans with clear milestones
- Migrate GTS data exchange to operational WIS2 Nodes in line with WMO regulations and guidance
- Monitor migration progress and readiness, including data availability and metadata quality
- Strengthen regional and subregional coordination and knowledge sharing, including through GISCs

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WIS2 support

If you need help contact us in:

wis2-support@wmo.int

wis@wmo.int

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Thank you



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