Datasets in WIS 2.0

Why are datasets so important ?

A Dataset groups data items into a single, conceptual resource (collection):

- Helps to categorize and make easier to analyze
- The dataset has an identifier (metadata-id) associated to all data items
- Statements about the Dataset (i.e., metadata) apply to the entire collection

The Dataset concept is central for WIS 2.0:

- Publish *Discovery Metadata* for Datasets using **WMO Core Metadata Profile 2 (WCMP2)**
- Search for Datasets that contain relevant data using the **Global Discovery Catalogue**
- Subscribe to notifications about updates for a Dataset via a **Global Broker**
- Access the data that comprises a Dataset from a single location using a well described mechanism (HTTP)

WORLD METEOROLOGICAL ORGANIZATION

1950-2025 SCIENCE *for* ACTION

Why are datasets so important ?

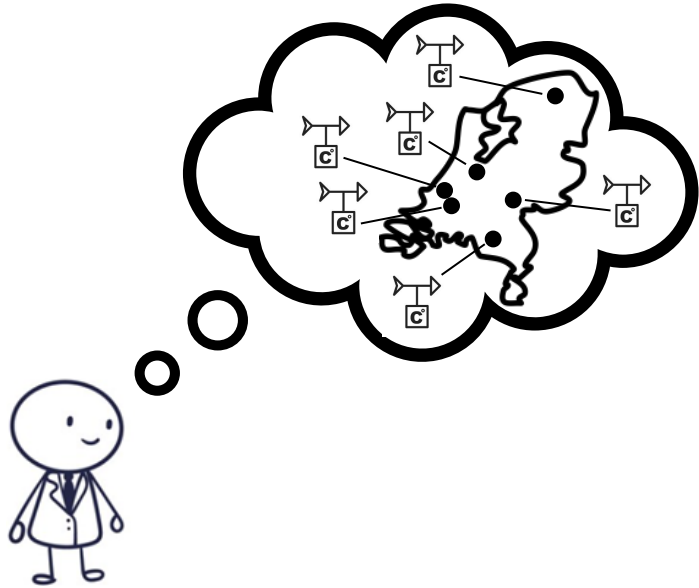**Datasets in WIS 2.0 provide consistency to make it easier to write applications to process data**

For example, in a Dataset:
- All the data should be of the same **type** (e.g., observations from weather stations).
- All the data should have the same **license** and/or usage conditions.
- All the data should be subject to the same **quality management** regime - which may mean that all the data is **collected or created using the same processes**.
- All the data should be **encoded** in the same way (i.e., using the same data formats and vocabularies).
- All the data should be **accessible** using the same protocols - ideally from a single location.

Examples of datasets
- Synoptic observations (surface-based) from a network of monitoring stations
- Predictions from an NWP model
- Archive of daily climate observations, Archive of hourly climate observations
- Real-time water levels and flow (discharge)

WORLD METEOROLOGICAL ORGANIZATION
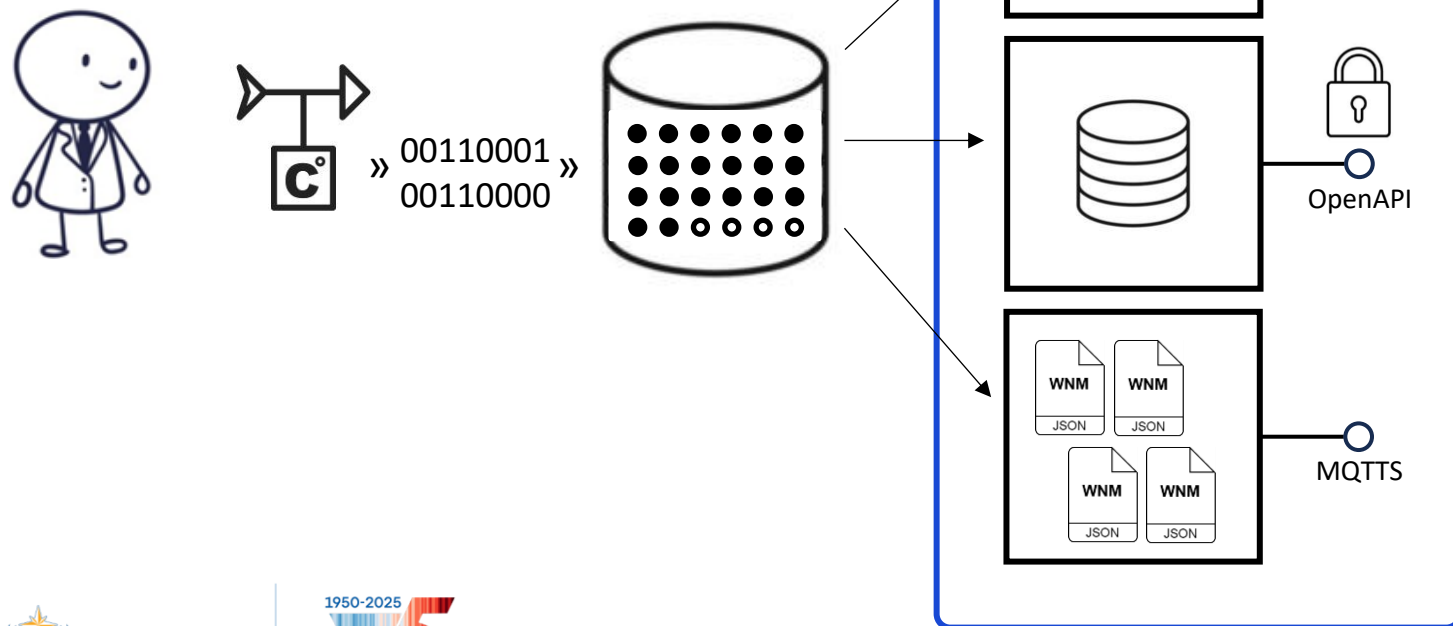
1950-2025
SCIENCE for ACTION

[1] Guide to WIS (WMO No. 1061), Vol II, §1.1.4 Why are datasets so important

Sharing data in WIS 2.0

Sharing data in WIS 2.0

[1] Guide to WIS (WMO No. 1061), Vol II, §1.1.4 Why are datasets so important [draft]
[2] Guide to WIS (WMO No. 1061), Vol II, §1.3.1 How to get started [draft]
[3] Manual on WIS (WMO No. 1060), Vol II, Appendix E: Notification Message [draft]
[4] Manual on WIS (WMO No. 1060), Vol II, Appendix D: WIS2 Topic Hierarchy [draft]

For WIS 2.0 I see that my collection of real-time observation data is called a **'Dataset'**[1]
Following instructions in the WIS2 Guide[2], I establish a WIS2 Node to share my **Dataset**

» 00110001
00110000 »

WIS2 Node

FM 94 BUFR FM 94 BUFR
FM 94 BUFR FM 94 BUFR

HTTPS

OpenAPI

WNM JSON WNM JSON
WNM JSON WNM JSON

MQTTS

files in BUFR format
or other WMO approved data formats

interactive API (optional)
self-describing RESTful APIs, ideally with OpenAPI metadata

WIS2 Notification Messages[3]
GeoJSON published on standardised topic hierarchy[4]

WORLD METEOROLOGICAL ORGANIZATION

1950-2025 SCIENCE for ACTION

But I still don't know anything about your Dataset!

Datasets need metadata

- Description/documentation

- Identification

- Contact(s)
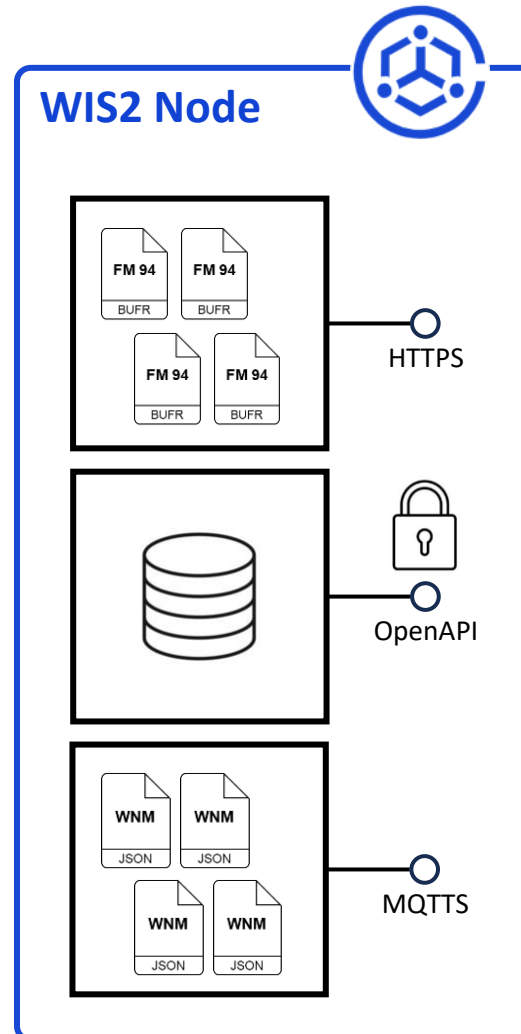
- Access

- Fees and usage

Sharing metadata in WIS 2.0

Ahh, good point! The next section in the WIS2 Guide[5] says that I need to provide '**discovery metadata**'[6] about my Dataset

Description of the Dataset

Identifier
Title
Description
Keywords
Geometry (extent)
Time (extent)

Who to contact

Publisher contact

How to access

Data access (files)
Data access (API)
Data access (notifications)

Conditions of use

Data policy
Rights
License

How to attribute

Citation

WIS2 Node

FM 94 BUFR
FM 94 BUFR
FM 94 BUFR
FM 94 BUFR

HTTPS

OpenAPI

WNM JSON
WNM JSON
WNM JSON
WNM JSON

MQTTS

publish

WCMP2
JSON

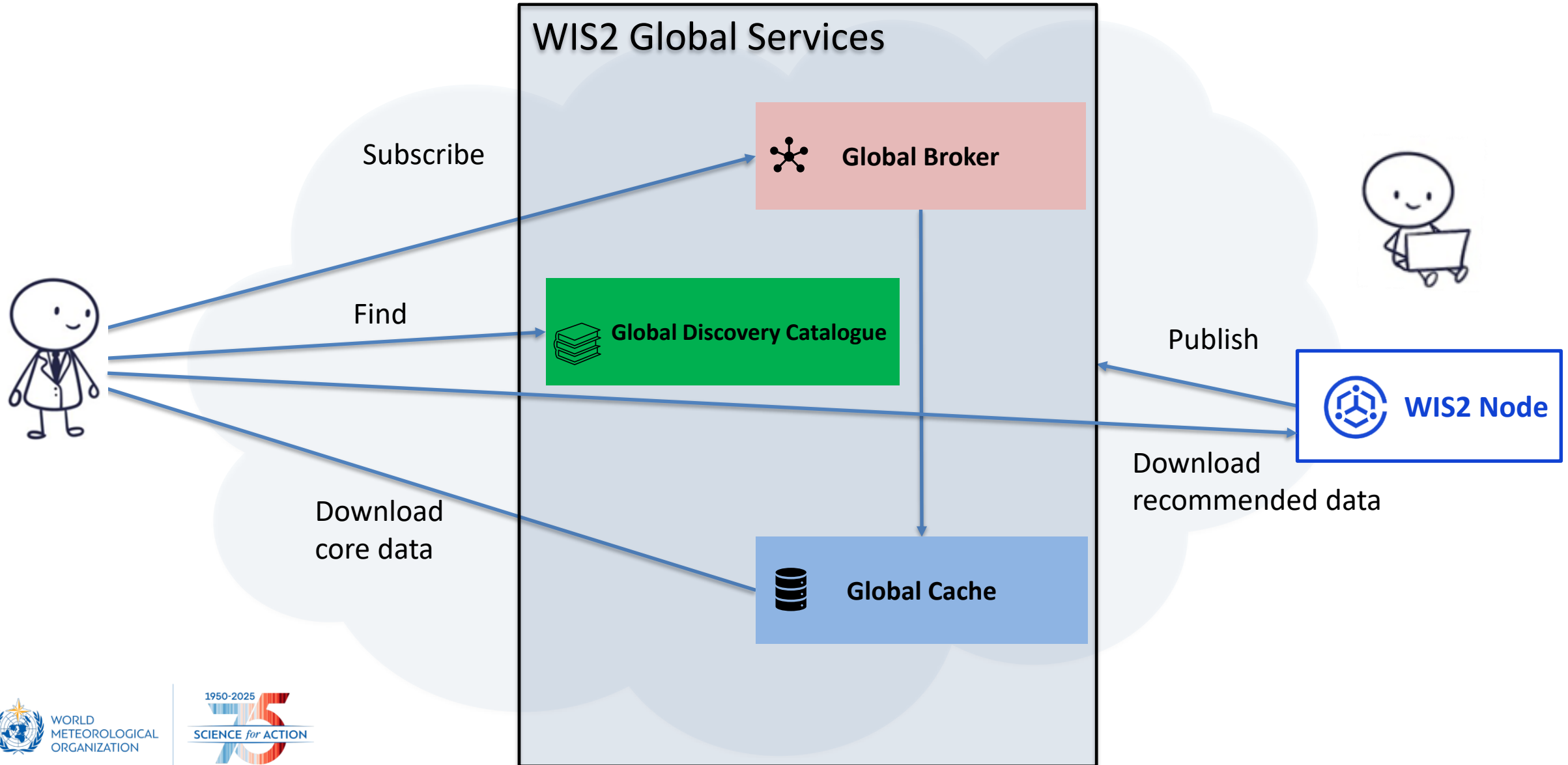**Global Discovery Catalogue**

index

search engines

That's great. I can find the description of your Dataset. I can understand **what it contains** and **how to access** it. The **conditions of use** are clear, and I see how I can **attribute** you as the source of the data !

[5] Guide to WIS (WMO No. 1061), Vol II, §1.3.2 How to provide discovery metadata to WIS2
[6] Manual on WIS (WMO No. 1060), Vol II, Appendix F: WMO Core Metadata Profile 2

Publish, Find, Subscribe, Download

Thank you
شكرًا لك

wmo.int