Deltares

Delft-FEWS Stable 2023.01 New features

Gebruikersdag Delft-FEWS 2023

Delft-FEWS Product Management

Marcel Ververs and Gerben Boot

June 2023

Introduction…

- Welcome
- What's new in 2023.01?
- Events & webinars
- Vision & Roadmaps: update & outlook
- Outlook to 2023.02

As usual: Links for more info

Delft-FEWS organisation

- **Delft-FEWS Product Management Team**

Ilonka ten Broeke
focus: community

Gerben Boot
focus: developments

Marcel Ververs
focus: support

fews-pm@deltares.nl

- **NEW Delft-FEWS Developers**

Michael Topsom
Started: November 2022

Anass Drif
Started: February 2023

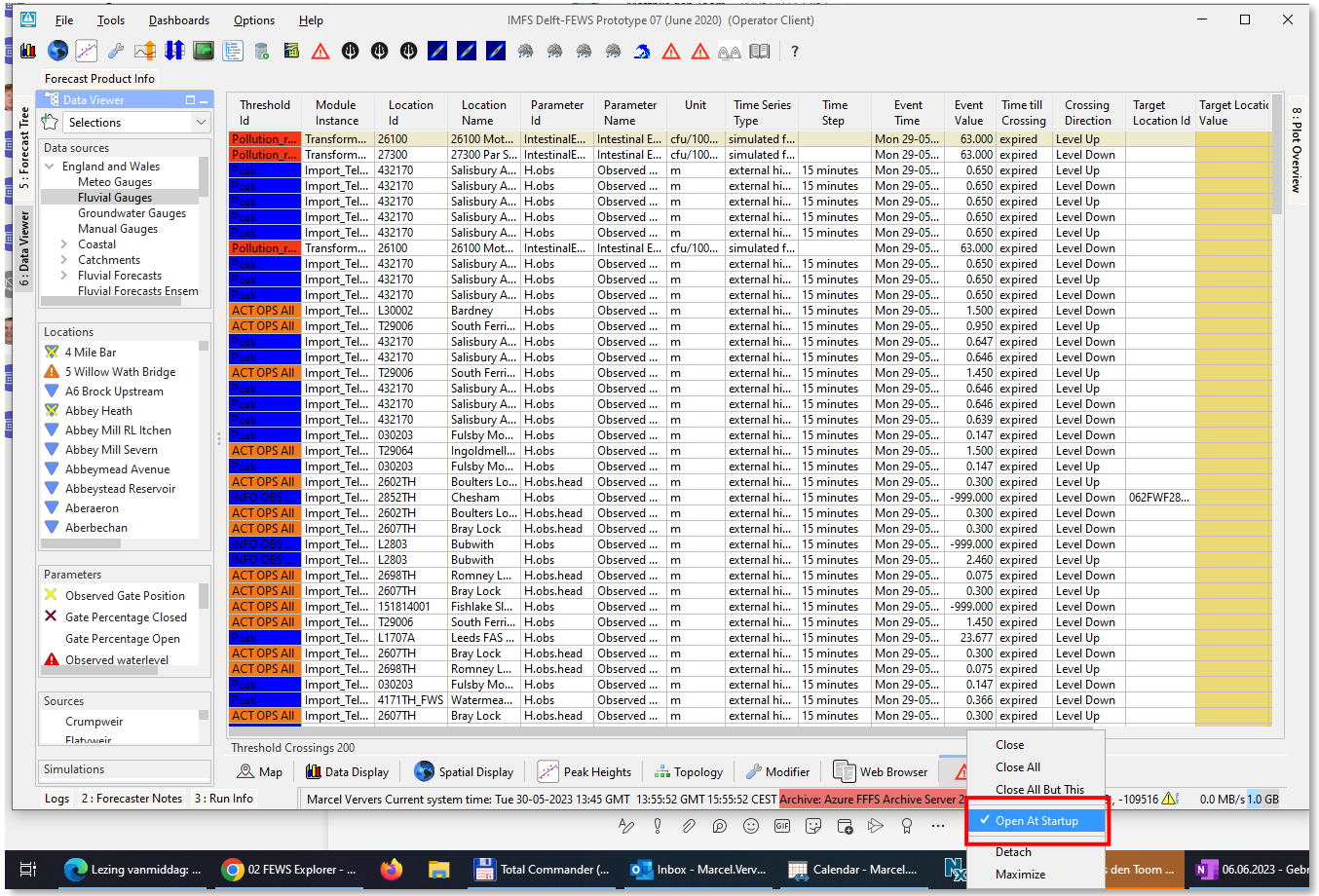
Delft-FEWS 2023.01 Benchmarks

Delft-FEWS 2023.01

- **±115** new features
- **± 150** bugs reported **(100+** fixed**)**
- 11 new import modules
- **13** new features in FEWS-webservices
- **WFS** as a new service
- **Tomcat 10** migration
- **Web OC** configuration
- Migrated to **Java 17**
- **Many new** and **updated** 3rd party libraries
- **10+** improvements to the open archive
- Integration with Azure DevOps
- **continuous** improvements to what-if functionality

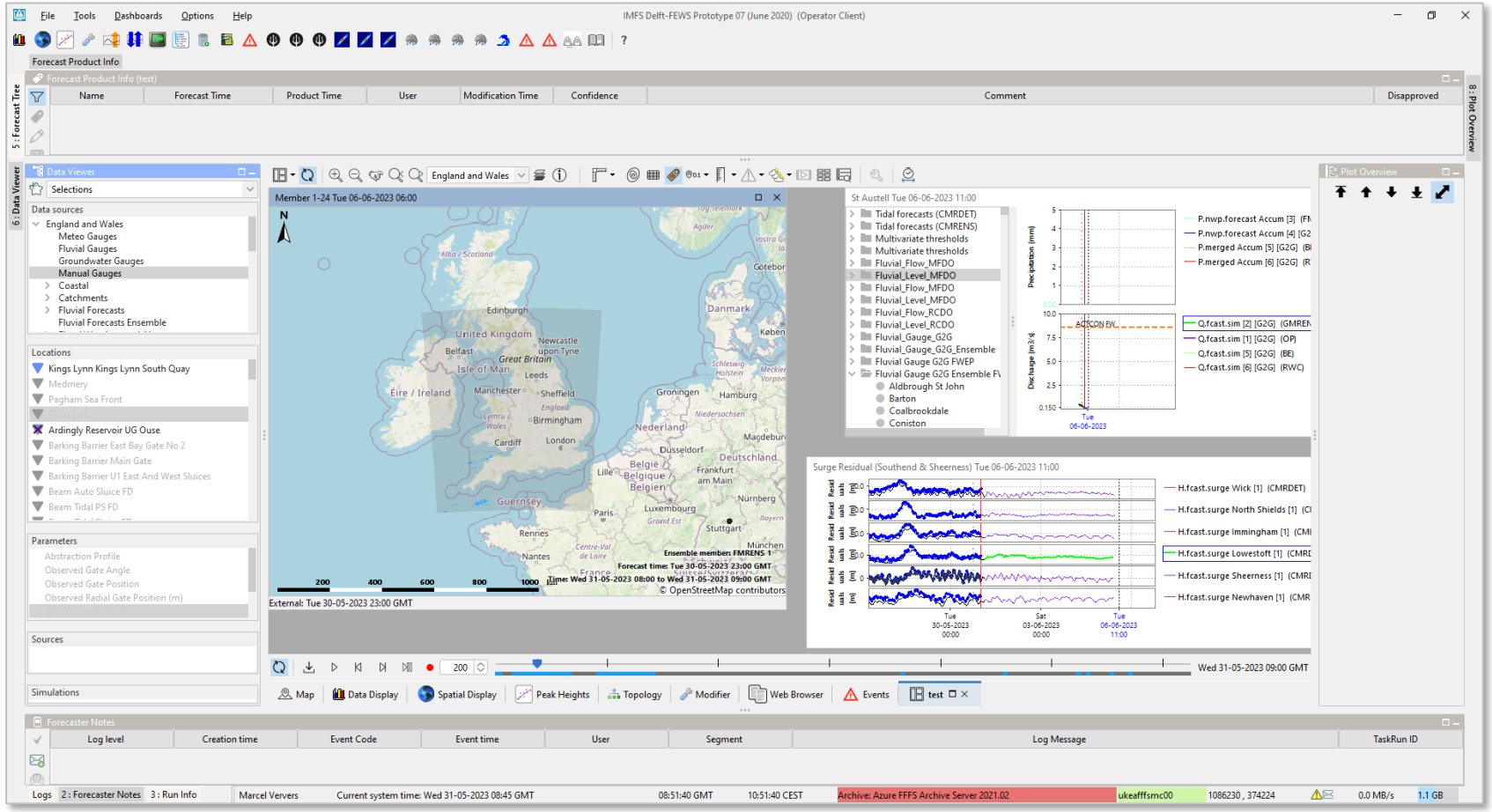
Explorer

- Open At Startup" menu item
- Only available when not already opened at start-up
- Last selected tab also saved in user settings

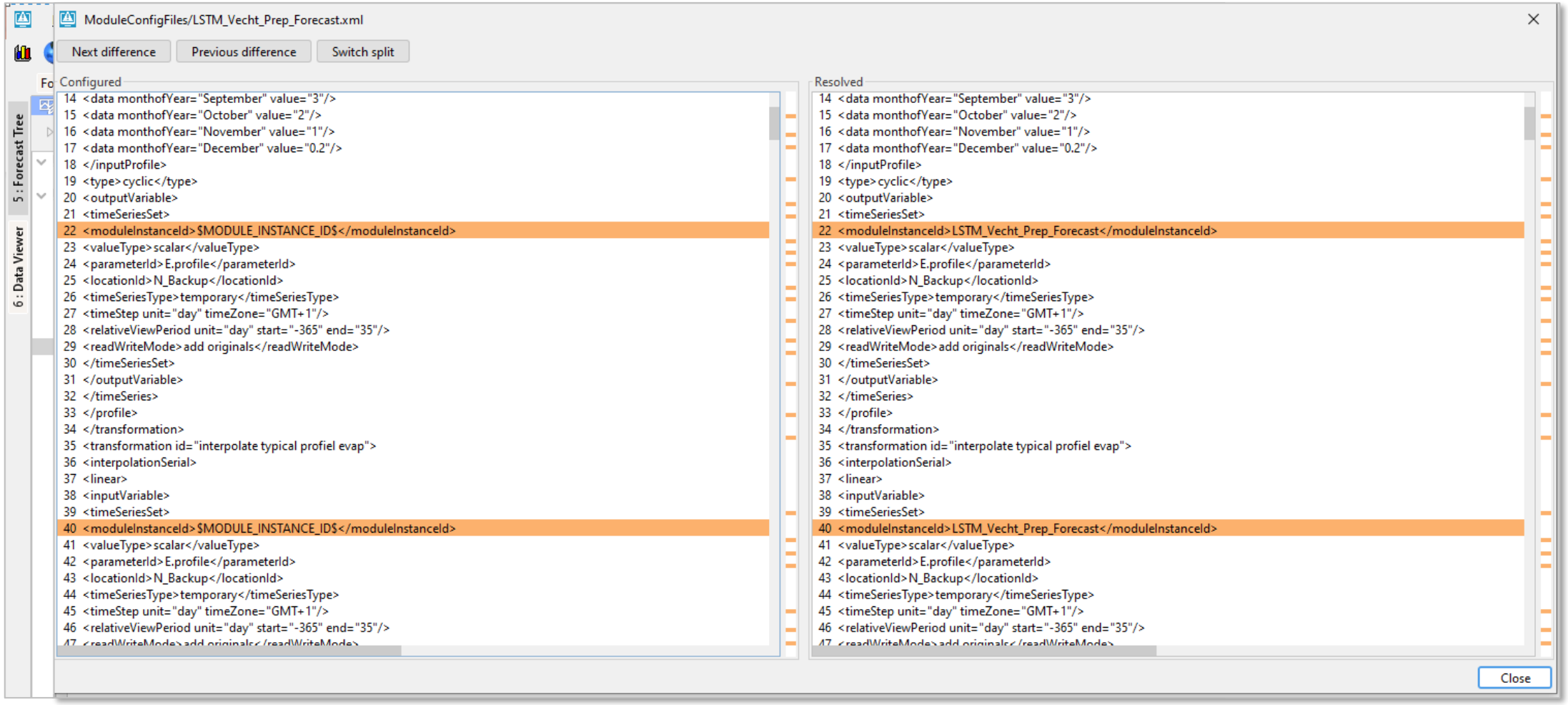


Dashboard

- ‘powerpoint' approach for aligning
- ‘Shift + space’ will toggle between free dragging / resizing and fixed steps

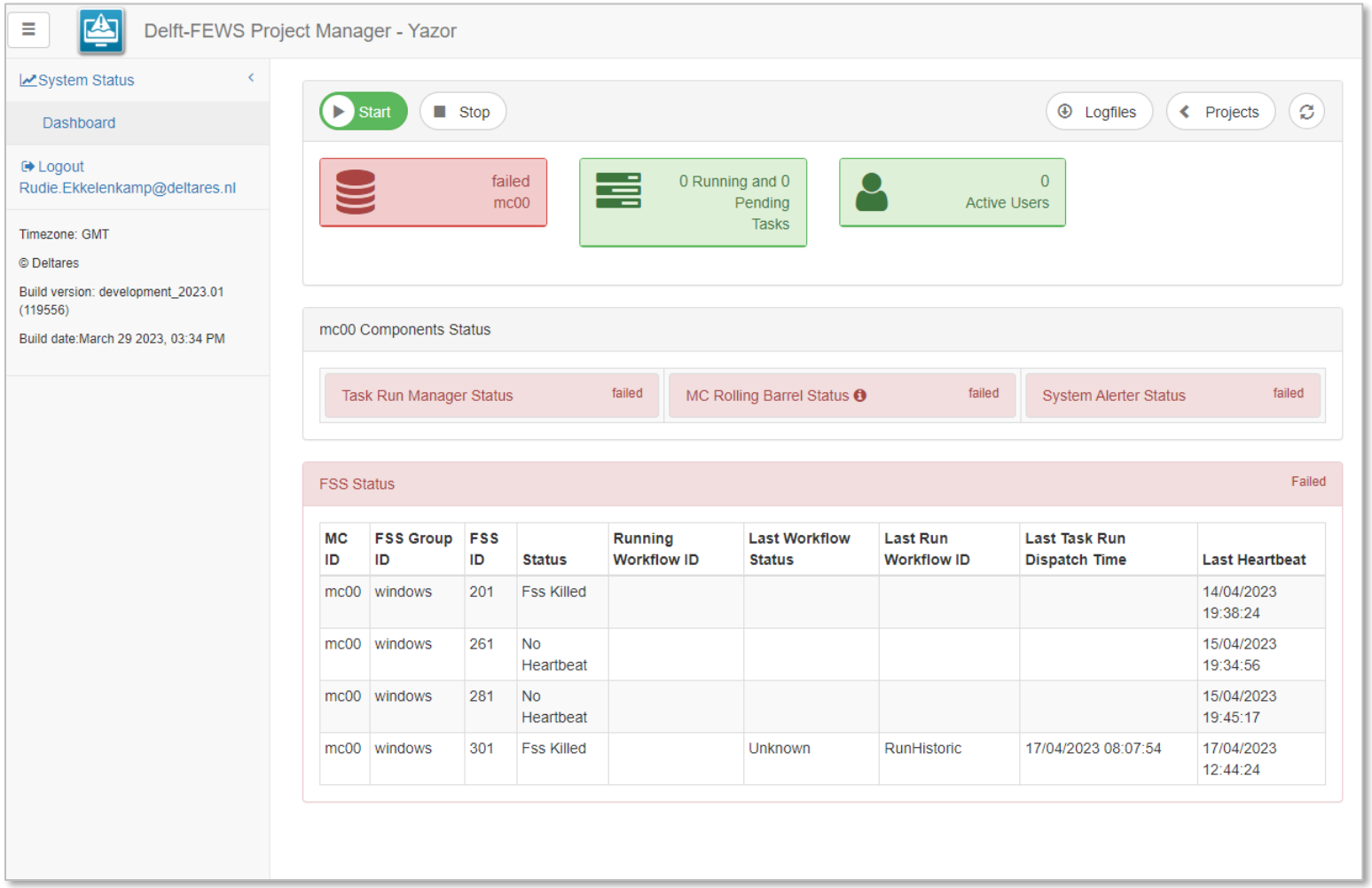


Workflow navigator



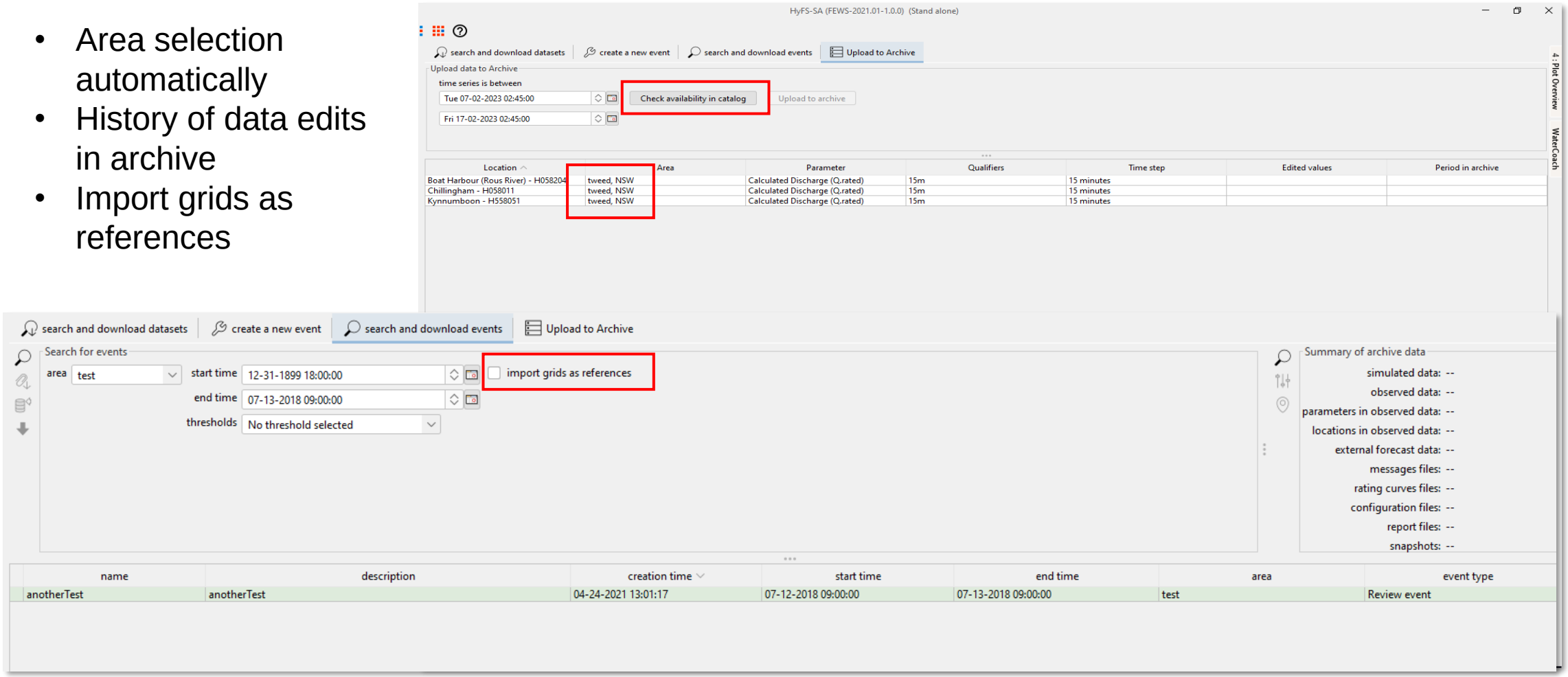
Continuous Deployment

- Project Manager → webapplication to kick-off Azure DevOps pipeline
- Build a new system based on Delft-FEWS images in Azure Cloud
- Delete an existing system in Azure Cloud
- Using Kubernetes, Docker images and GIT repository

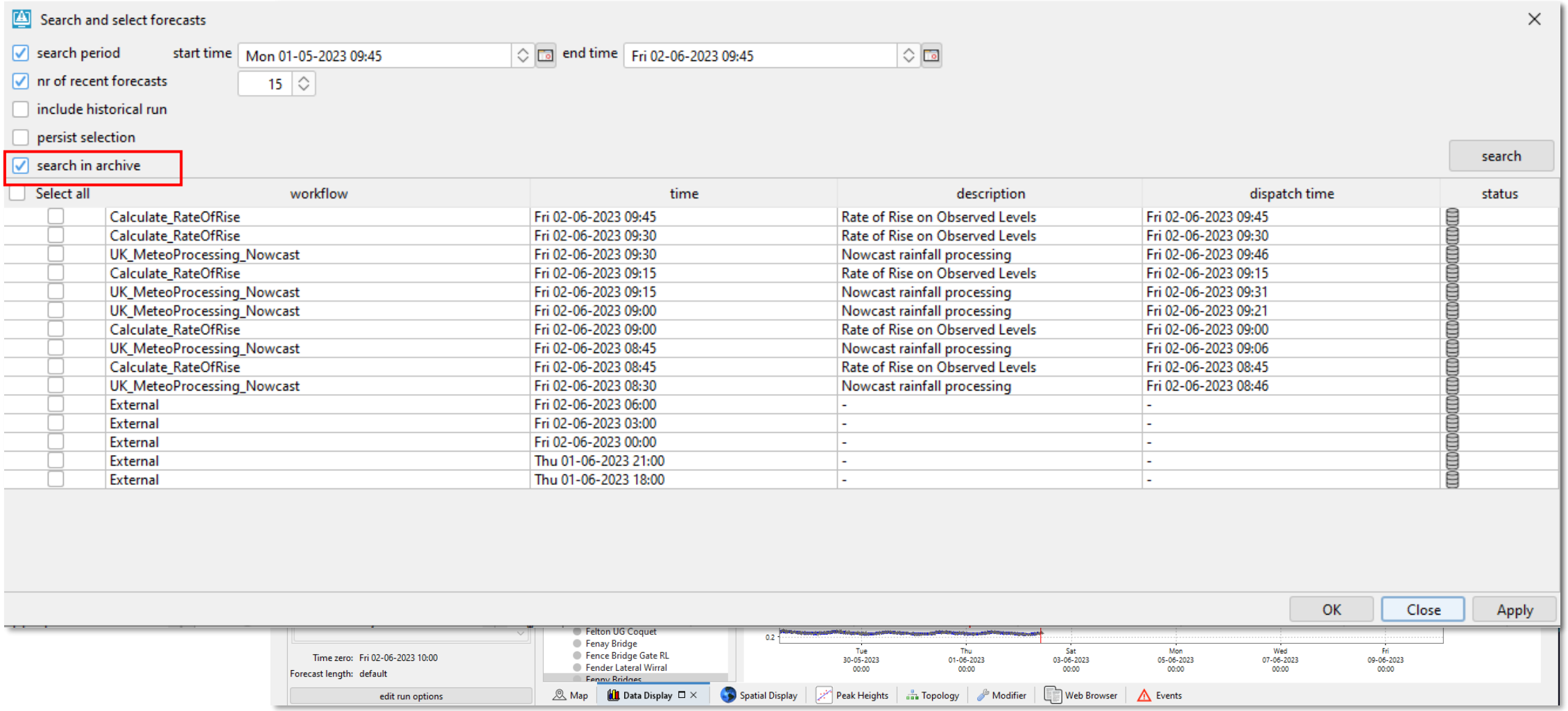


Open Archive

- Area selection automatically
- History of data edits in archive
- Import grids as references



Open Archive – Seamless Integration



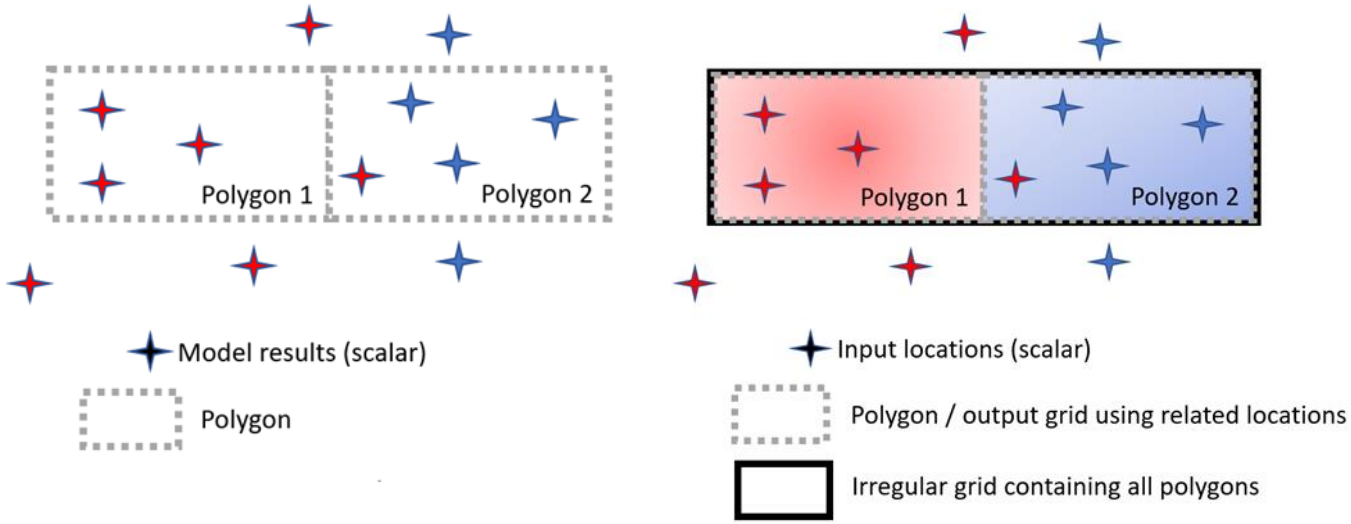
Transformations

- New transformation to write values to output series when threshold values are crossed on input series
- Use case: threshold crossing one location should lead to warnings for another location
- Multi-valued attributes consisting of different output locationId's and different threshold levels

```
<transformation id="MultipleOutputLocationThresholdsDown">
        <multipleLocationAttributes>
                <multipleOutputLocationThresholds>
                        <inputVariable>
                                <variableId>input</variableId>
                        </inputVariable>
                        <thresholdValueAttributeId>thresholdValue</thresholdValueAttributeId>
                        <crossingDirection>down</crossingDirection>
                        <filterAttribute id="filter" value="include"/>
                        <outputValue>1</outputValue>
                        <outputLocationAttributeId>outputId</outputLocationAttributeId>
                        <outputVariable>
                                <variableId>output</variableId>
                        </outputVariable>
                </multipleOutputLocationThresholds>
        </multipleLocationAttributes>
</transformation>
```

Transformations

- New transformation to convert point model results to irregular grid
- For each output cell:
  - find polygon that contains grid cell
  - find related locations for polygon
  - lookup resolved locations in input data
  - copy weighted average (=inverse distance) of found input to output grid cell

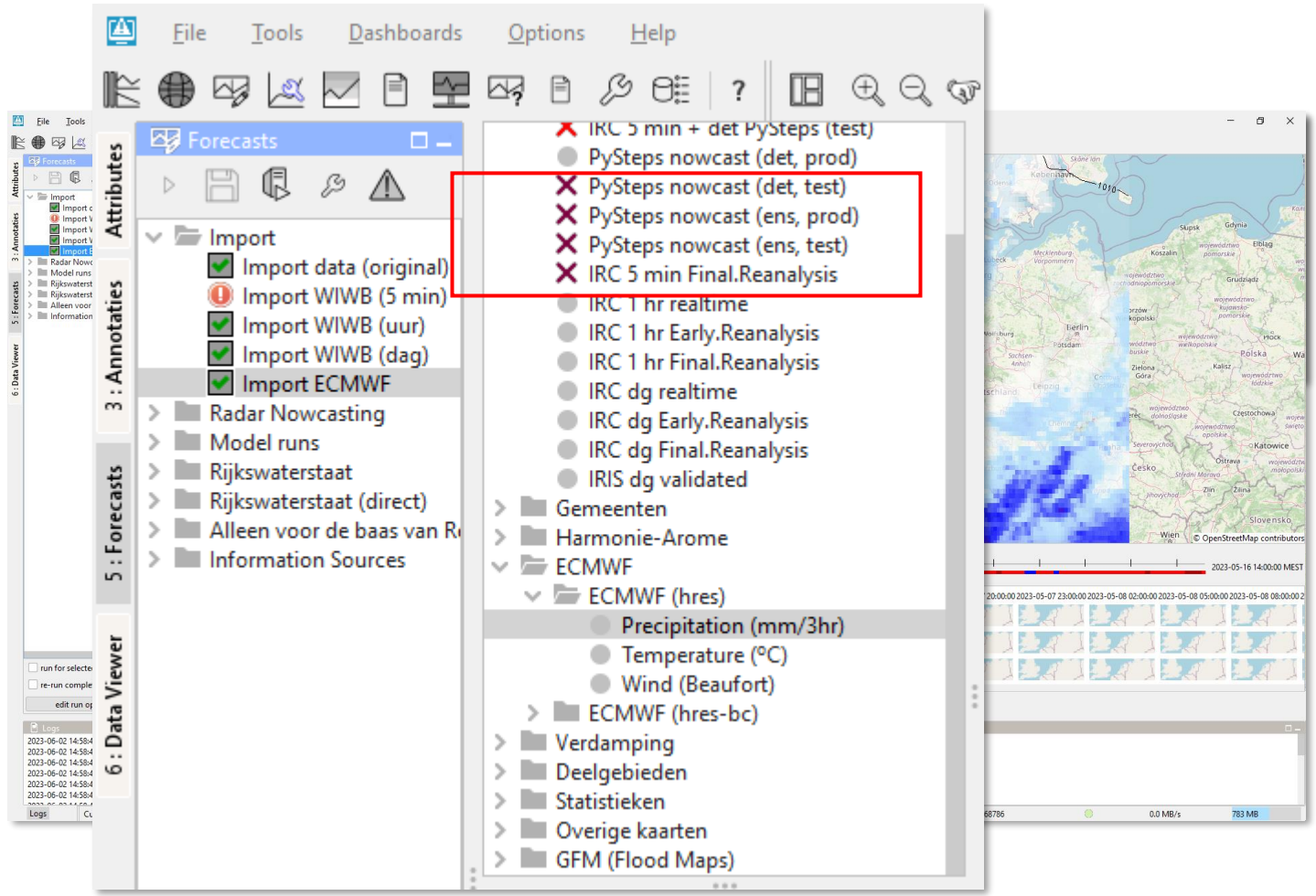


IFD - Topology

- From the **Topology** you can open a **Spatial Display** and select a specific groupId and plotId from the tree.
- **<gridDisplaySelection>** element

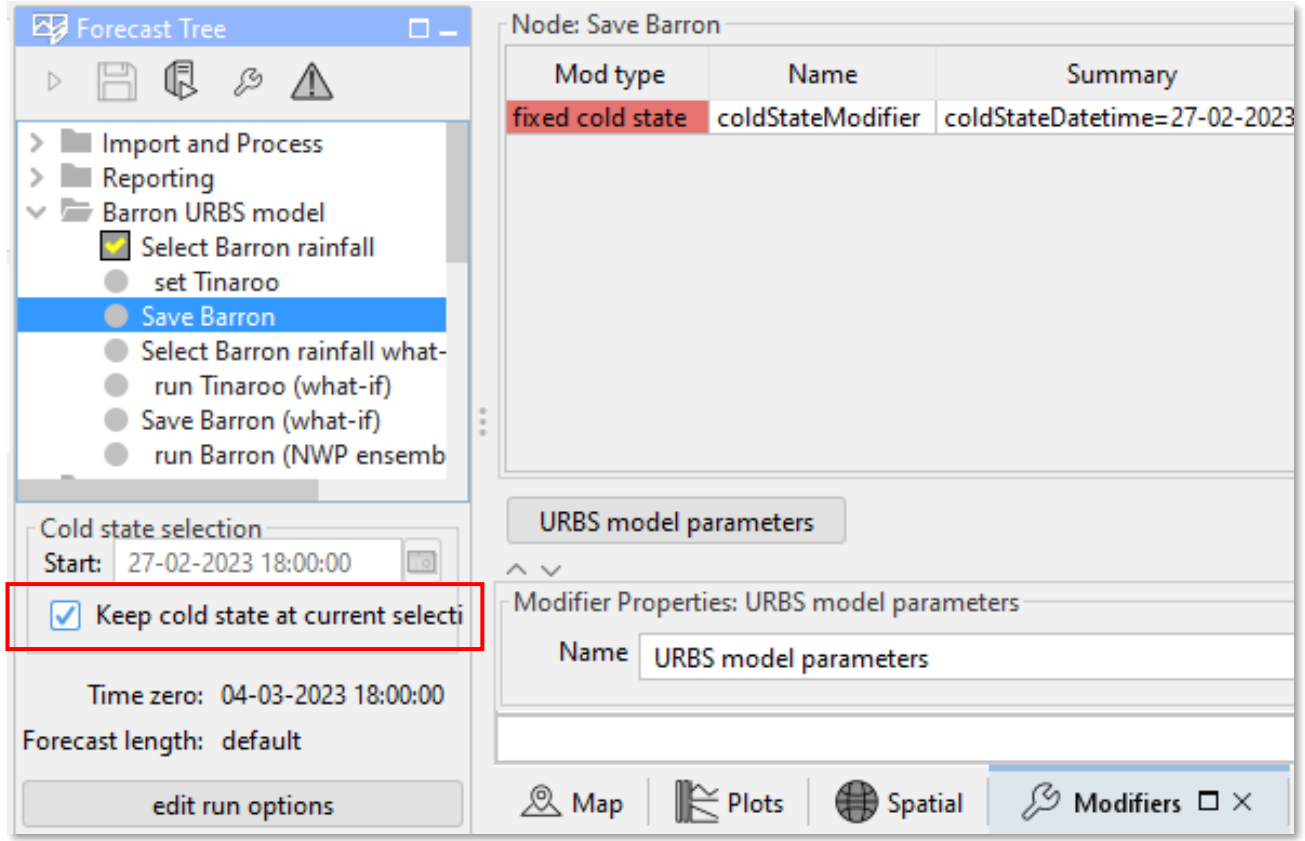
Node in Topology.xml:

```
<node id="node-id" name="Node Name">
  <workflowId>workflow</workflowId>
  <gridDisplaySelection>
    <groupId>group name</groupId>
    <plotId>plot name</plotId>
  </gridDisplaySelection>
</node>
```



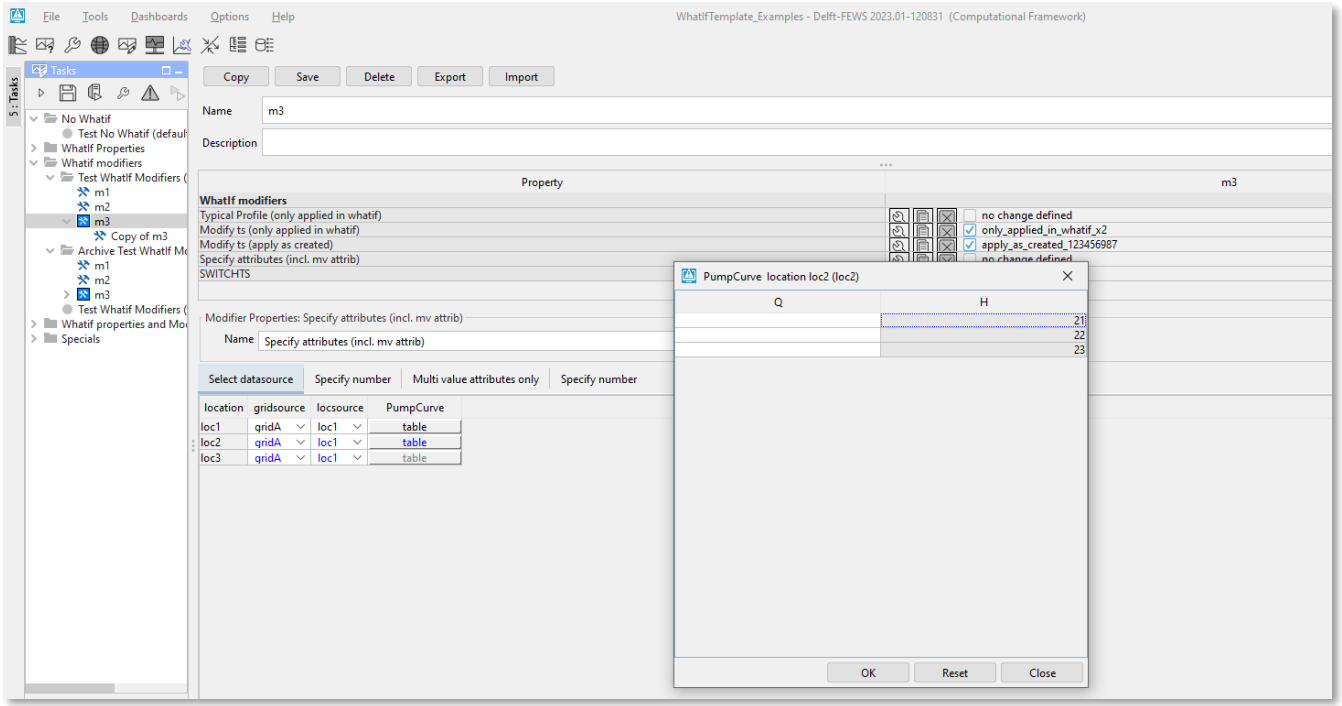
IFD - Topology

- From the **Topology** you can open a **Spatial Display** and select a specific groupId and plotId from the tree.
- **<gridDisplaySelection>** element
- **Fixed** coldstate start time/date



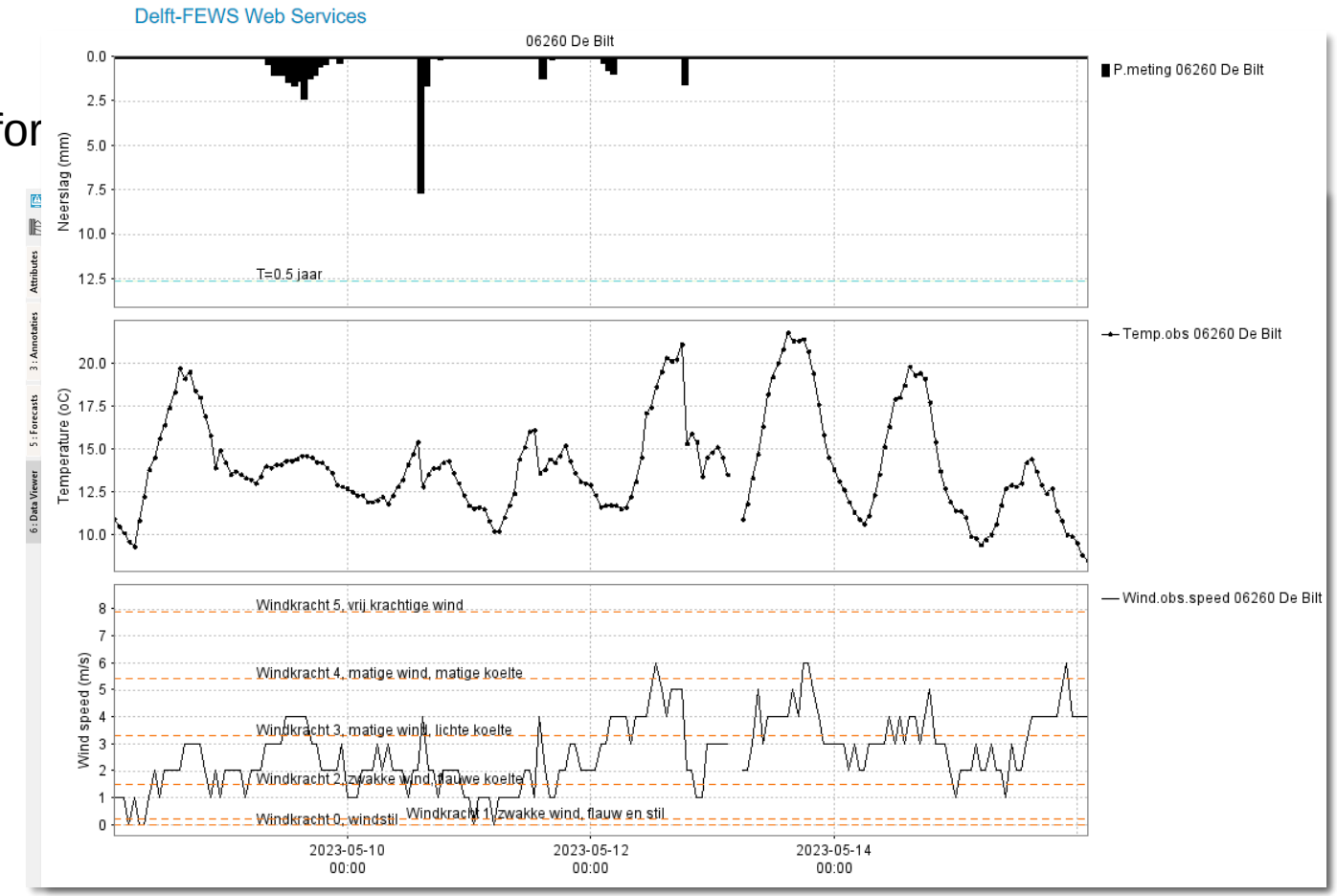
WhatIf Editor (Scenarios)

- New WhatIf **ModifierType**
  - “apply according to creation method”
  - Modifier created in ModifierDisplay → apply in regular forecast workflow only
  - Modifier created in Whatif Editor → apply in what-if workflows only
- The **Import button** is now always enabled in the What-if editor
- Improvements:
  - Robustness (general)
  - Consistency (icons)
  - Logic (automatic re-run of sub workflows)
  - Visibility of modifiers (type of node)
  - Documentation



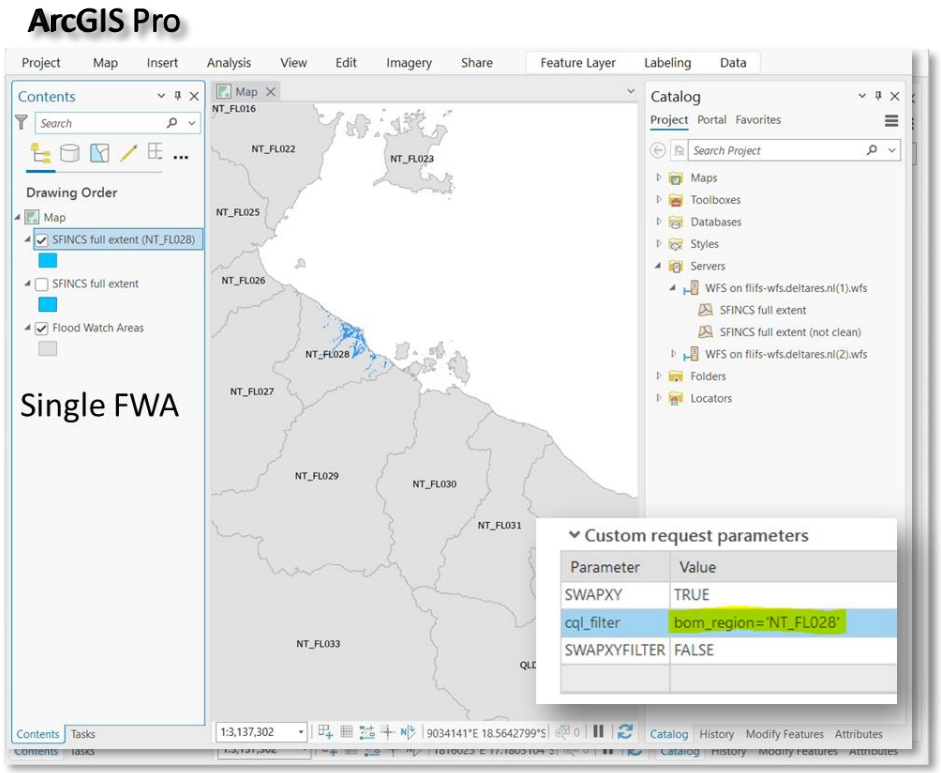
FEWS Web services

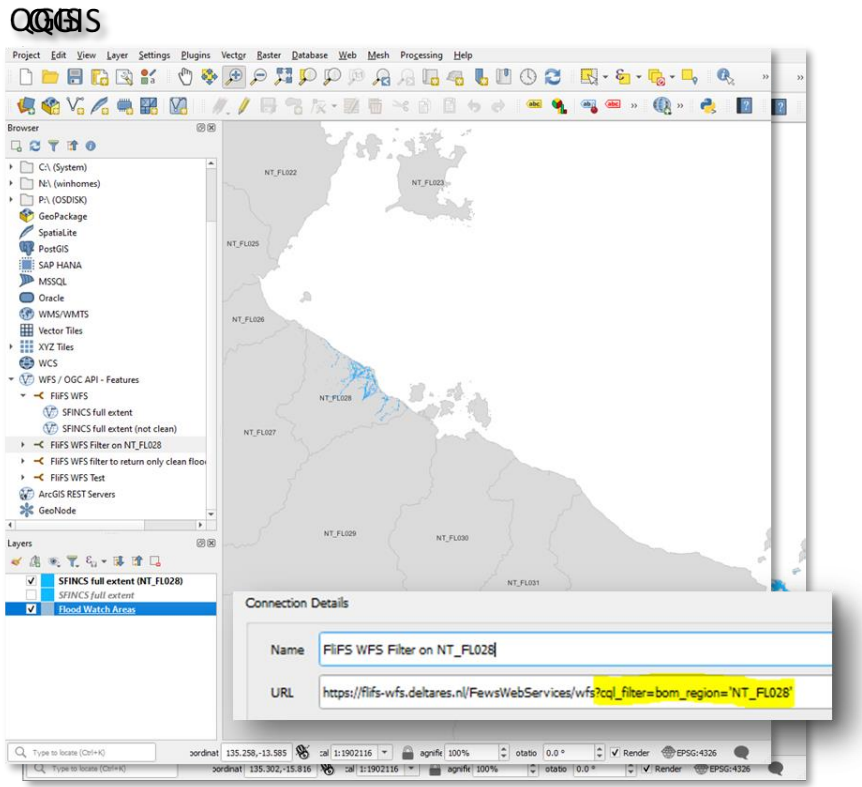
- Web Feature Service (WFS) 1.0
- Locations endpoint: get GeoJSON file for associated polygons
- Get **plot** directly in PNG (thumbnails)
- **Rating Curve** endpoints
  - Convert values (POST)
  - Add key-value pairs (for recognizability)
  - Retrieve headers only
- **EnsembleMemberIds** endpoint
- SOAP → REST migration (NWS)
  - GetLastModificationTime
  - Get timeseries in binary format
  - Get Cold/Warm States
  - Enabling UnitConversions
  - Get GUI selections



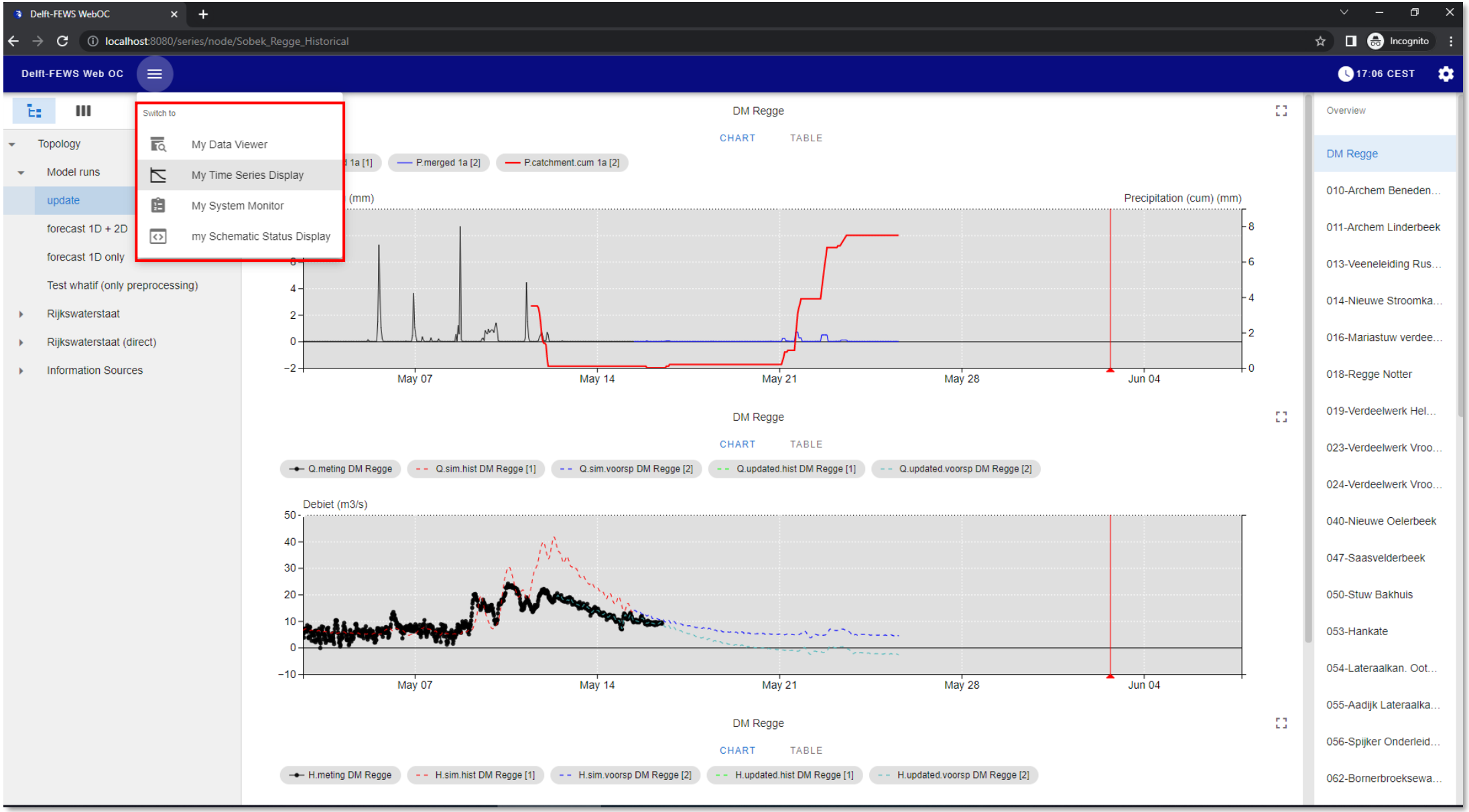
Web Feature Service (WFS) 1.0

- The FEWS Web Feature is the Delft-FEWS implementation of the **OpenGIS WFS 2.0 OGC** standard
- WFS complimentary to WMS service to provide **underlying vector data**
- It allows requesting **GML3** or **GeoJSON** data for plots that have been configured in the FEWS grid display.



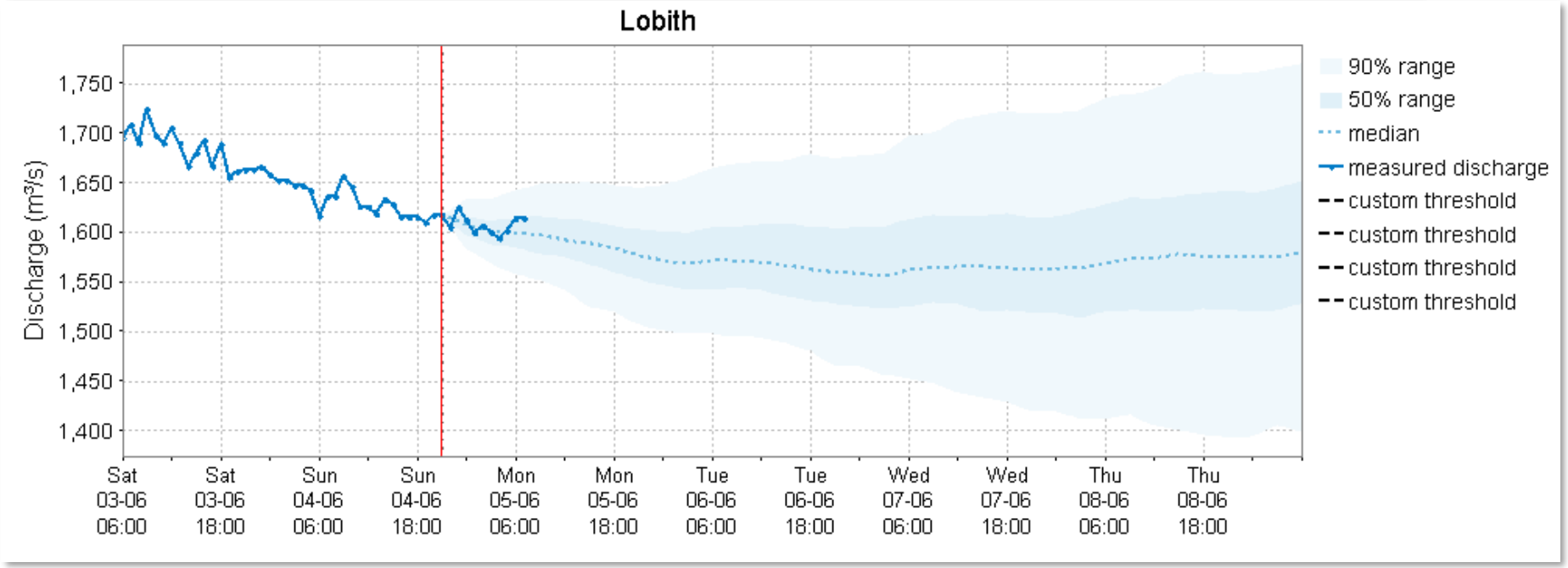


Web OC


Delft-FEWS WebOC
localhost:8080/series/node/Sobek_Regge_Historical
Incognito
Delft-FEWS Web OC
17:06 CEST
Switch to
My Data Viewer
My Time Series Display
My System Monitor
my Schematic Status Display
Topology
Model runs
update
forecast 1D + 2D
forecast 1D only
Test whatif (only preprocessing)
Rijkswaterstaat
Rijkswaterstaat (direct)
Information Sources
DM Regge
CHART
TABLE
P.merged 1a [2]
P.catchment.cum 1a [2]
(mm)
Precipitation (cum) (mm)
May 07
May 14
May 21
May 28
Jun 04
DM Regge
CHART
TABLE
Q.meting DM Regge
Q.sim.hist DM Regge [1]
Q.sim.voorsp DM Regge [2]
Q.updated.hist DM Regge [1]
Q.updated.voorsp DM Regge [2]
Debiet (m3/s)
DM Regge
CHART
TABLE
H.meting DM Regge
H.sim.hist DM Regge [1]
H.sim.voorsp DM Regge [2]
H.updated.hist DM Regge [1]
H.updated.voorsp DM Regge [2]
Overview
DM Regge
010-Archem Beneden...
011-Archem Linderbeek
013-Veeneleiding Rus...
014-Nieuwe Stroomka...
016-Mariastuw verdee...
018-Regge Notter
019-Verdeelwerk Hel...
023-Verdeelwerk Vroo...
024-Verdeelwerk Vroo...
040-Nieuwe Oelerbeek
047-Saasvelderbeek
050-Stuw Bakhuis
053-Hankate
054-Lateraalkan. Oot...
055-Aadijk Lateraalka...
056-Spijker Onderleid...
062-Bornerbroeksewa...

Report Module

- THRESHOLDCROSSINGLABEL function added → add threshold crossing information for the specific threshold.
- Add custom class to “RowPerLocation” table to define style/appearance
- Legend improved for ensemble series

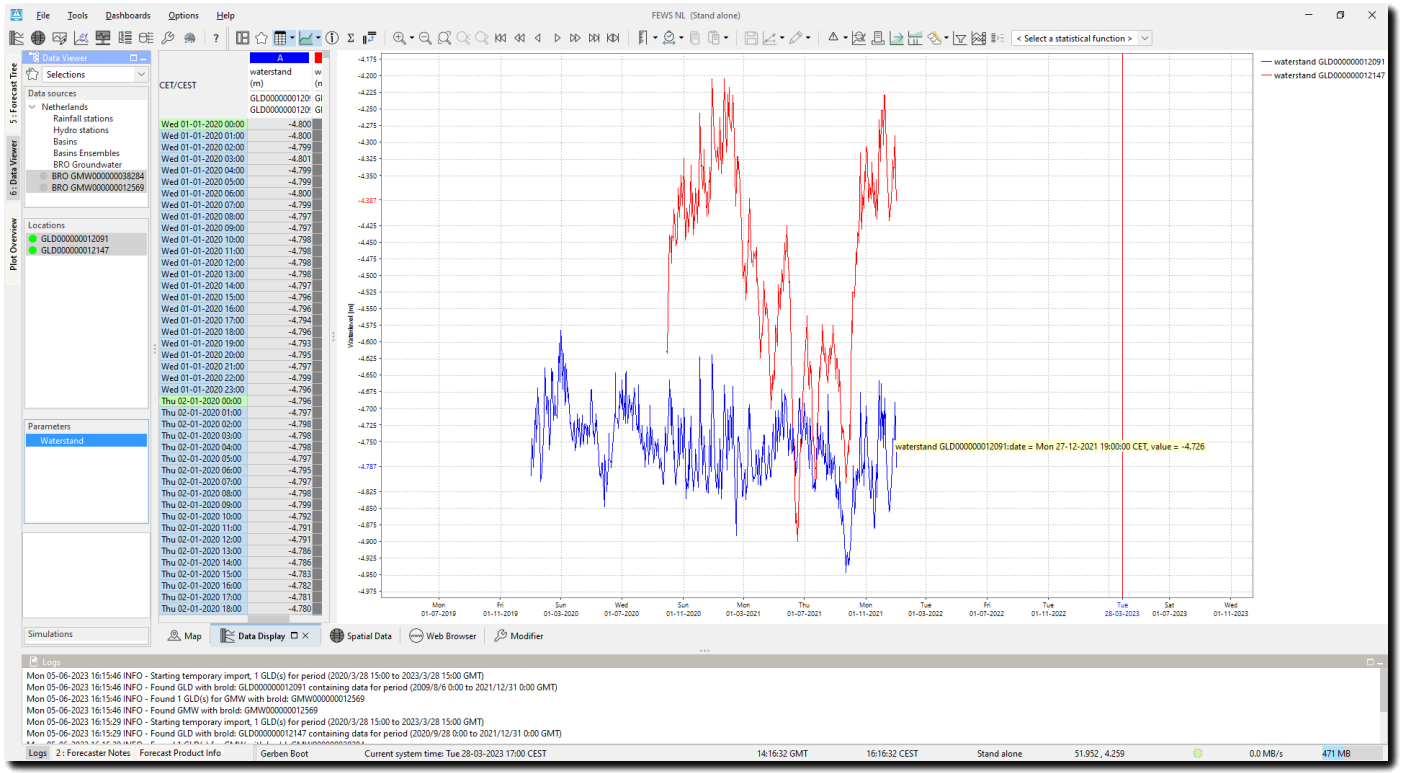


Data Imports/Exports

- EFAS SOS Server (DWD ICON, COSMO-LEPS, ECMWF-HRES & ECMWF-ENS
- Extension of Landsat-HDF5 (parameter: DSSF-TOT)
- Extension of Radolan (Parameter YW + grid dimensions dynamically)
- Extension of MeteoCanadaWCS (authentication added and visualize hidden layers)
- Improved GeoTIFF import (support for all possible floats, integer and byte values)
- Import module now ModuleInstance aware.
- Improved PI REST import: chunking of URL path to avoid exceedance

BRO fine tuning

- Extension of export: metadata options with key-value pairs to define:
  - ObservationType
  - StatusCode
  - ProcessReference
  - MeasurementInstrumentType
  - ProcessType
  - EvaluationProcedure
  - AirPressureCompensationType
- Map selection of (random) Groundwater Monitoring Wells to visualize together your data.



Community & (online) events

- Delft-FEWS User Days (programmes and presentations)
  - Gebruikersdag Netherlands/Belgium: 6th of June 2023 (Delft, NL)
  - Anwendertreffen: 15th +16th of June 2023 (Aachen, D)
  - Australia: 23rd - 25th of August 2023 (Brisbane, QLD)
  - International Delft-FEWS User Days: 8th+9th of November 2023 (Delft, NL)
- Courses
  - Around User events
  - Schedule
- Online events (recordings via portal)
  - Community Talks: next: 8th of June
  - Webinar: next: 14th of September

Community Talk

#4

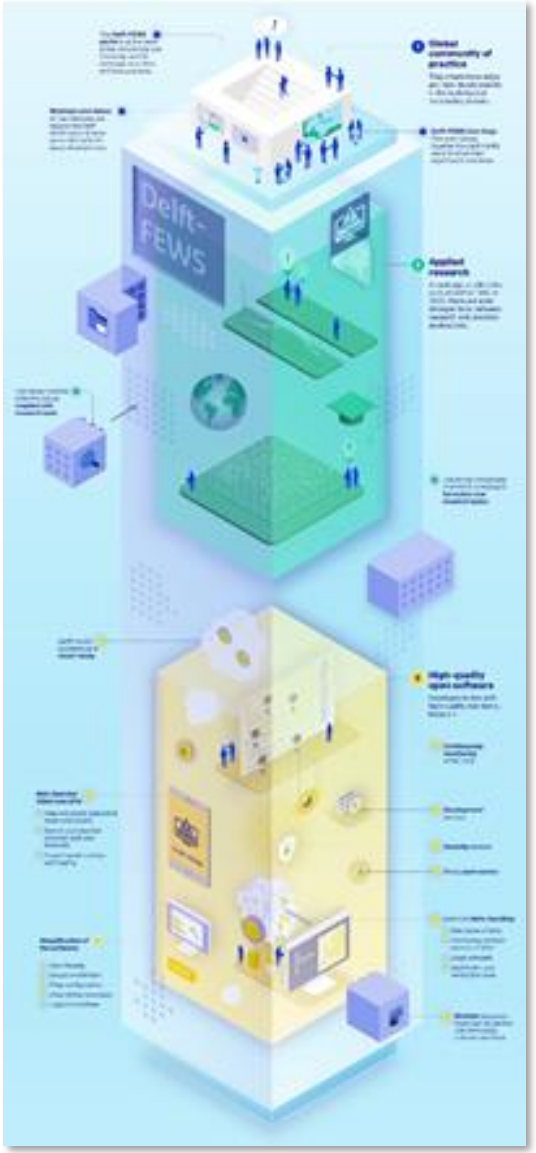
WIS systems

2023.01 features

Outlook Roadmap 2023

Outline

- Continuation:
  - Code clean-up & code quality
  - Release test automation
- Security (**2023.01**)
  - Security Matrix + **descriptive document**
  - Connectivity Guide **extended with security aspects**
  - Admin Guide **extended with security aspects**
- Python Integration
- Archive Vision (Q3)
- Start of preparation of the Delft-FEWS Vision 2025 successor



Outlook Developments 2023.02

- **Web OC** MVP (1) + enabling data edits (2)
- **Flood Warnings & Thresholds**: Generation AND dissemination (AUS)
- **Metadata** management tool (AUS)
- **Open Archive**: Create separate Vision (together with CSB)
- **Cloud**: High availability of the MasterController (without using dual MC)
- Make **web service patchable**
- **Seamless integration** with (different, external) web services, like WISKI
- Improve **Import status page** and add **Export status page** to Admin Interface
- Improved **NetCDF** for **non-equidistant** timeseries (basis is already in 2023.01)
- **Co-creation** activity on **Scaling** of Forecasting Shell Servers.
- And more…(in proposals for GO-FEWS, RWS etc)

Contact

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