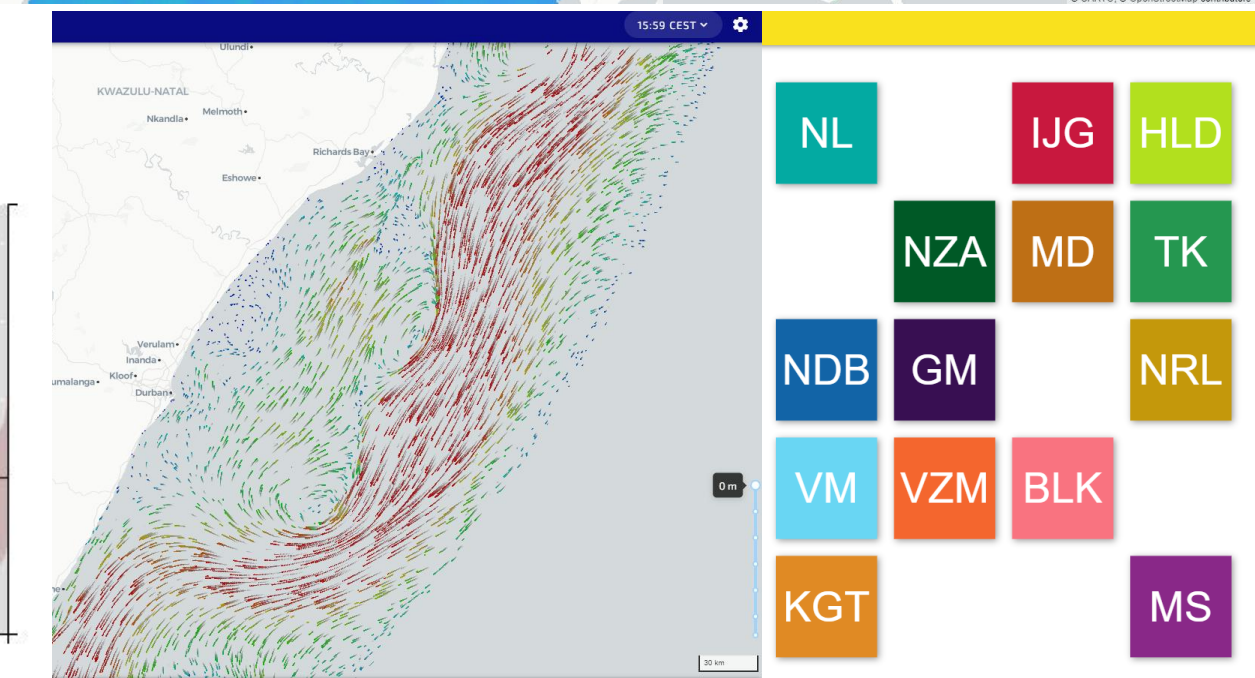
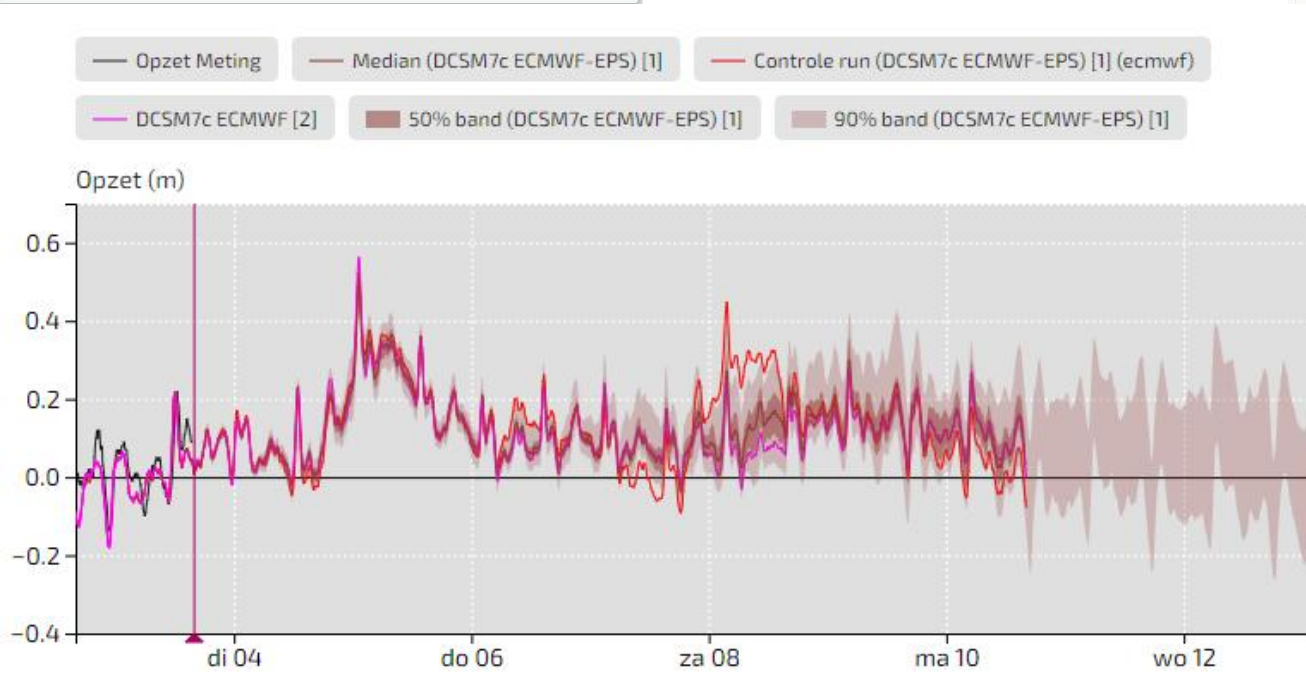
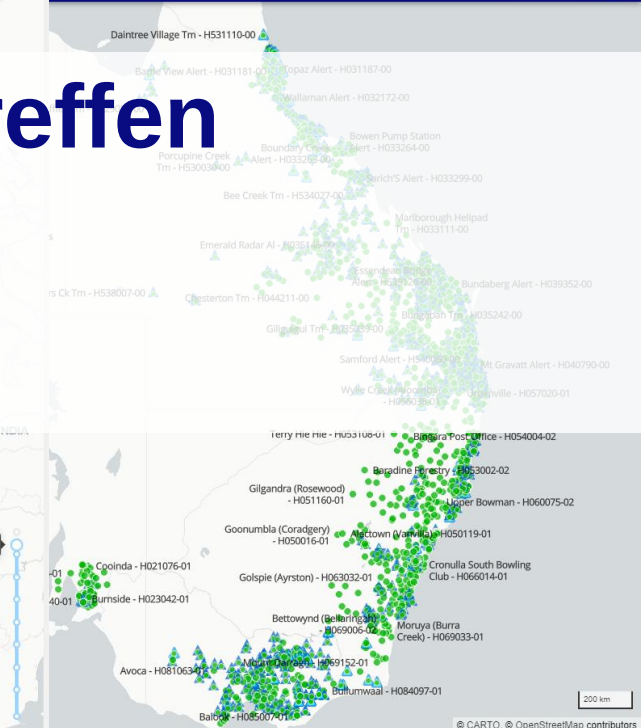
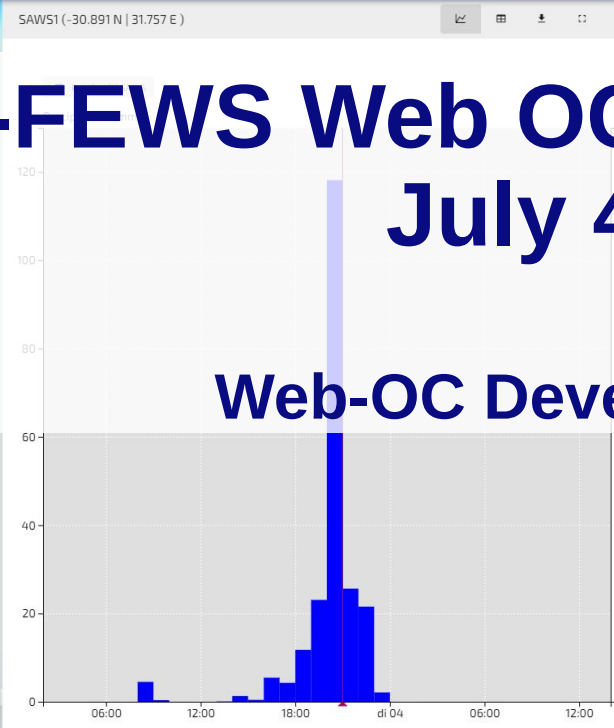
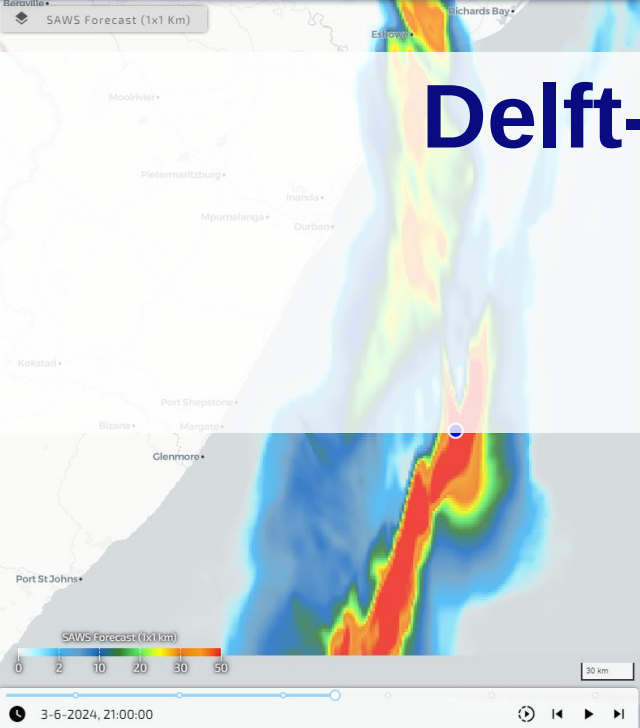
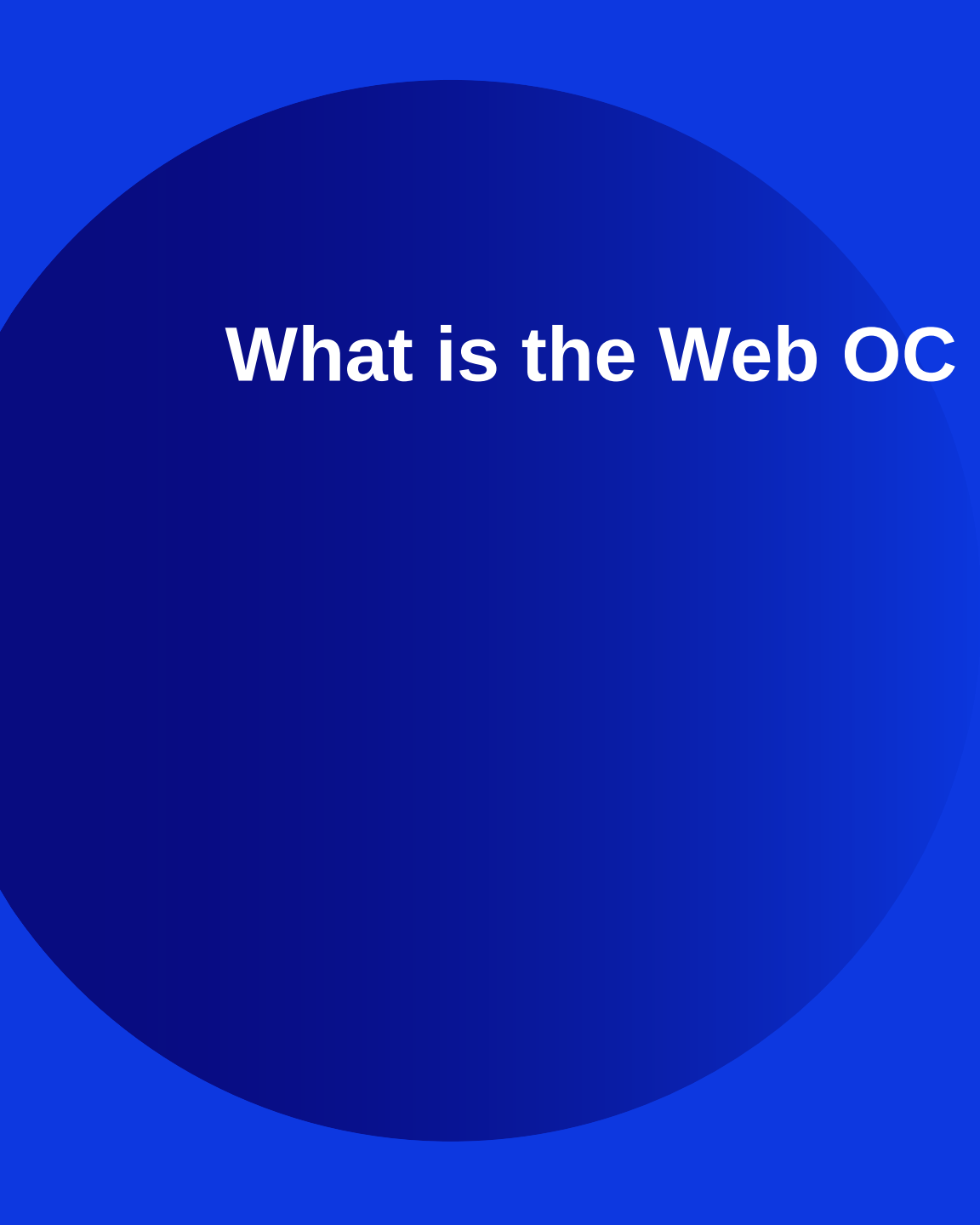




Content

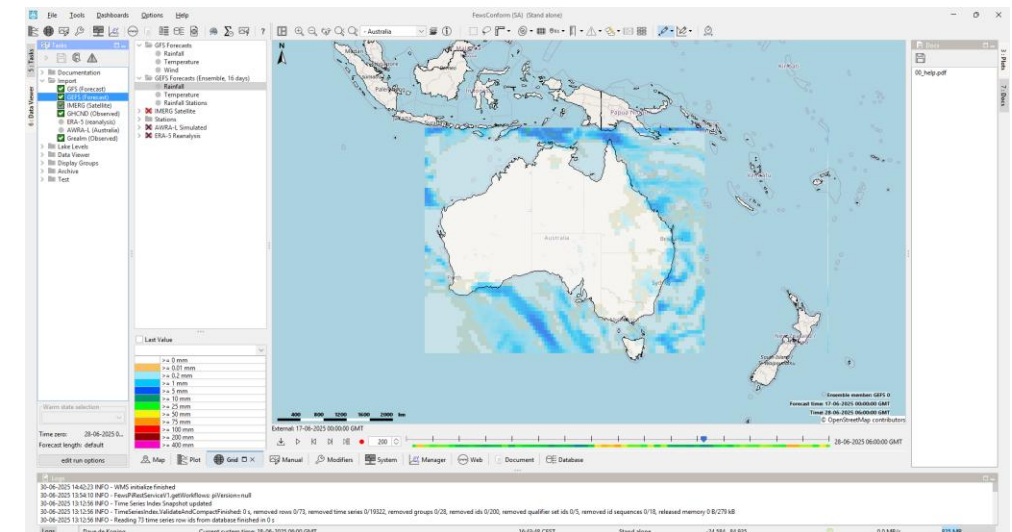
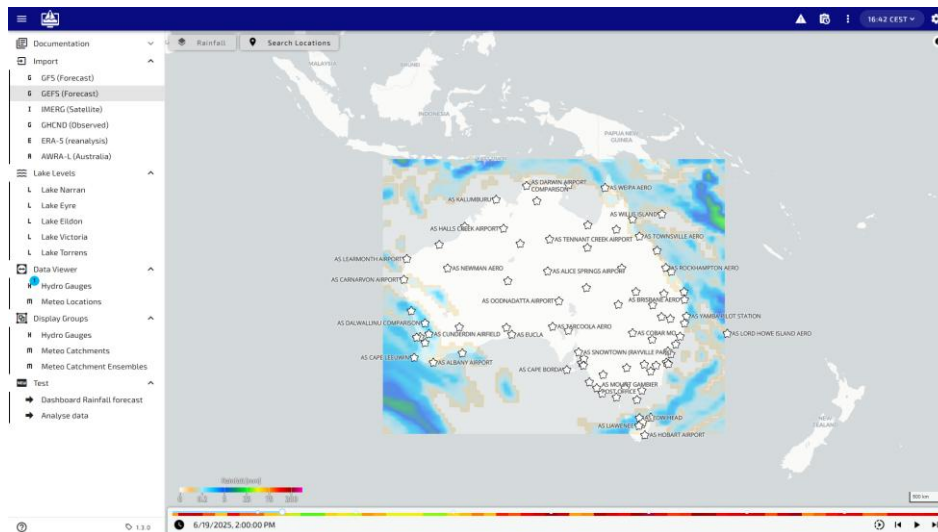
1. What is the Web OC
2. (New) features in the Web OC
3. Showcase Bureau of Meteorology (Australia)
4. Future plans

A large, dark blue circle is positioned on the left side of a solid blue background. The circle is centered vertically and extends from the top to the bottom of the frame. Inside the circle, the text "What is the Web OC" is written in white, bold, sans-serif font.

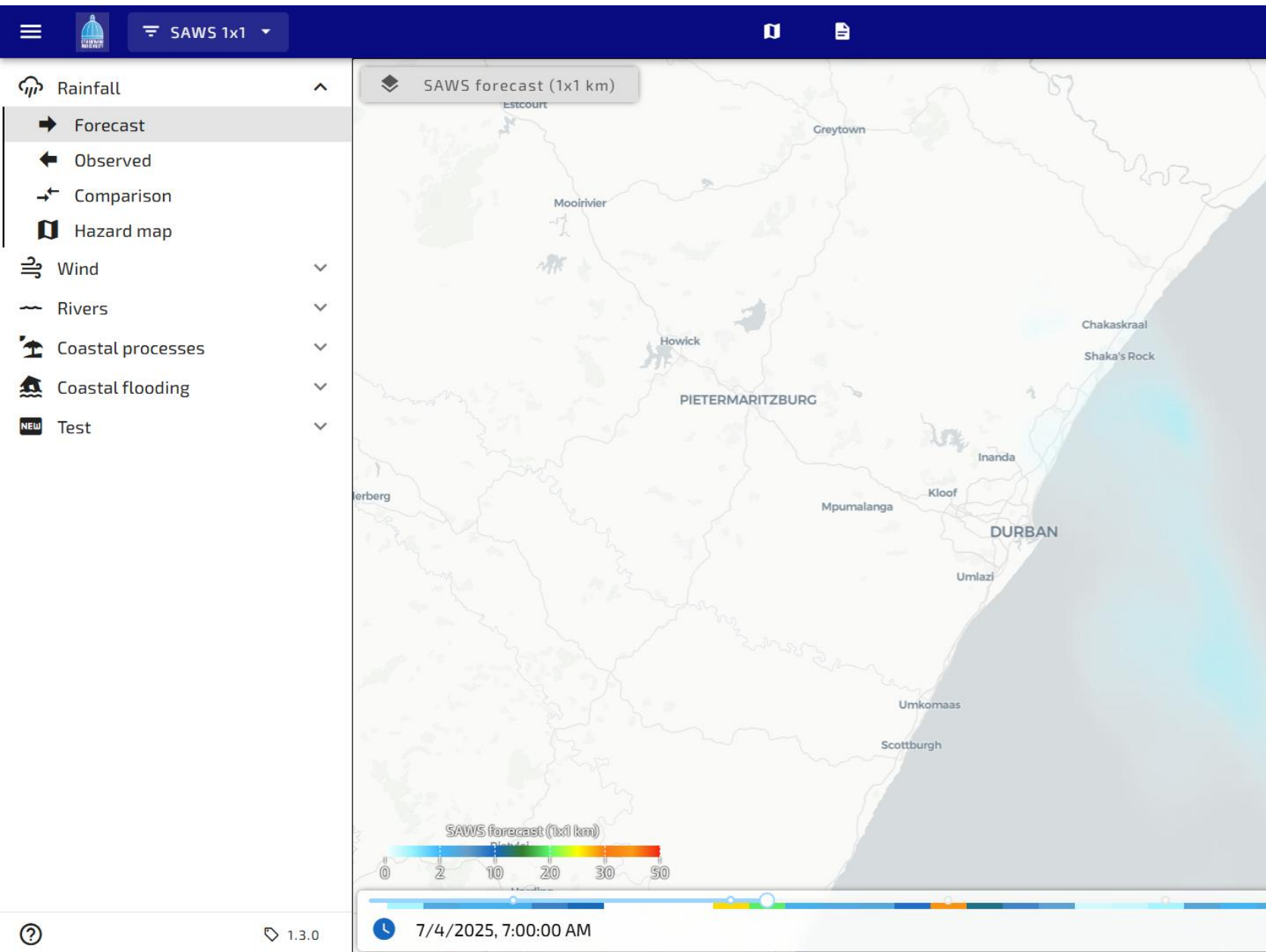
What is the Web OC

What is the Web OC?

- For whom and why
- Web OC Timeline
- Relation to desktop OC
- Release management
- Open source

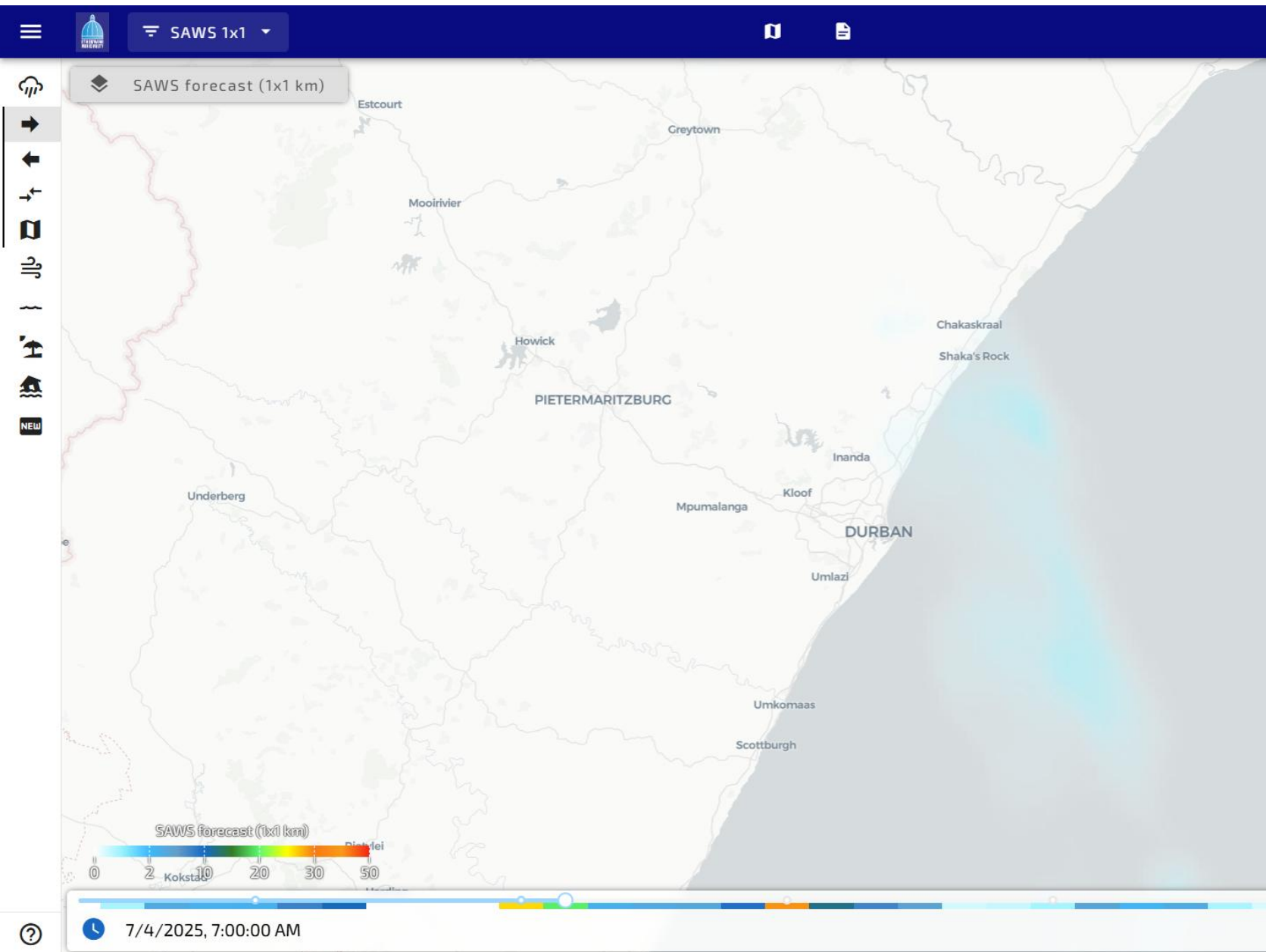


Web OC features



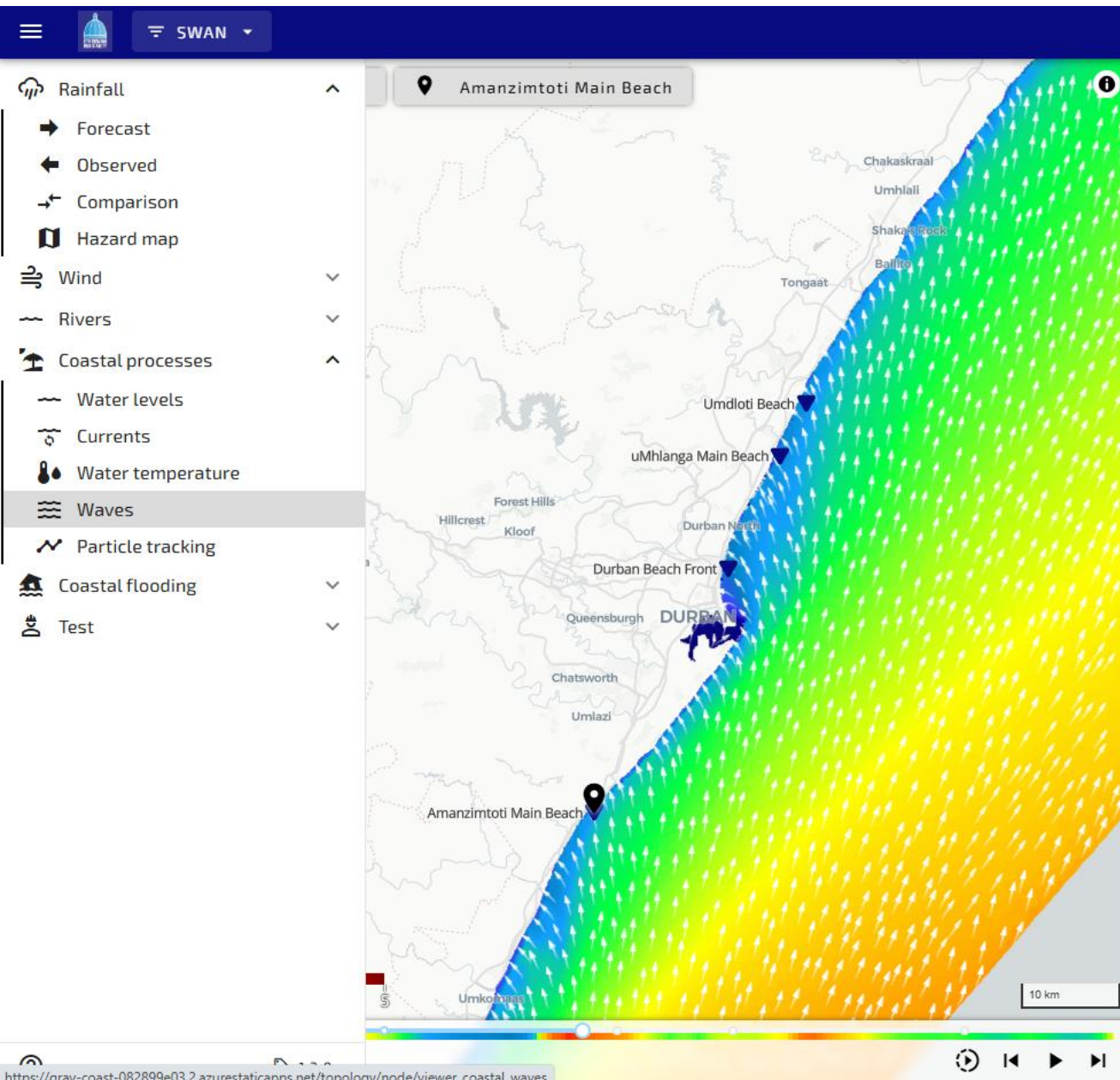
Topology based

- All displays are linked to the topology
- Custom icons



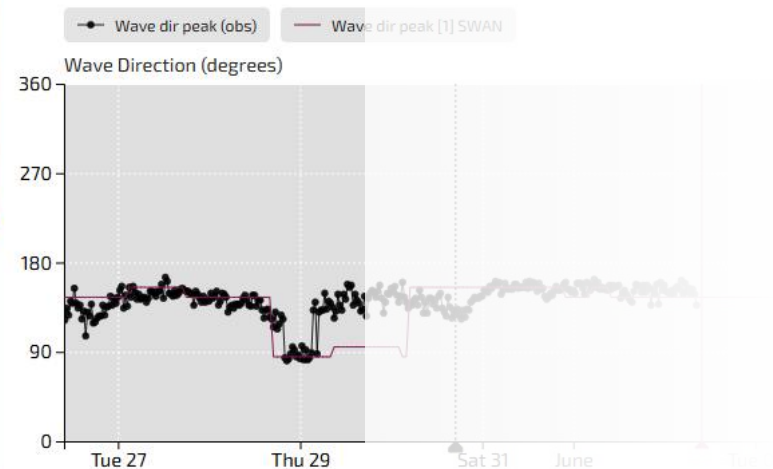
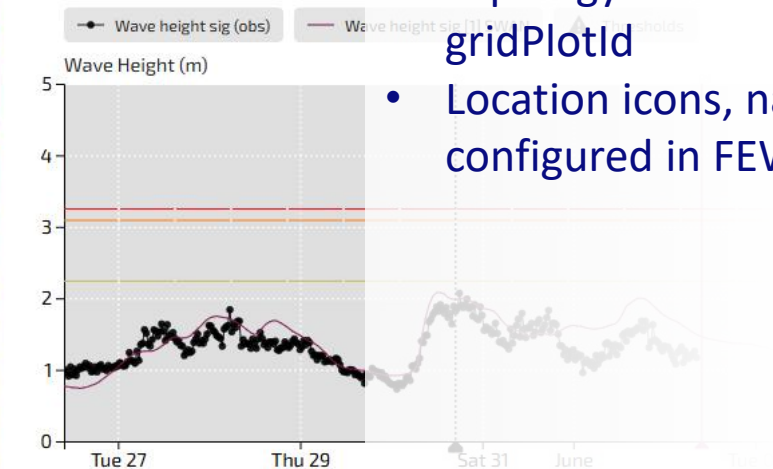
Topology based

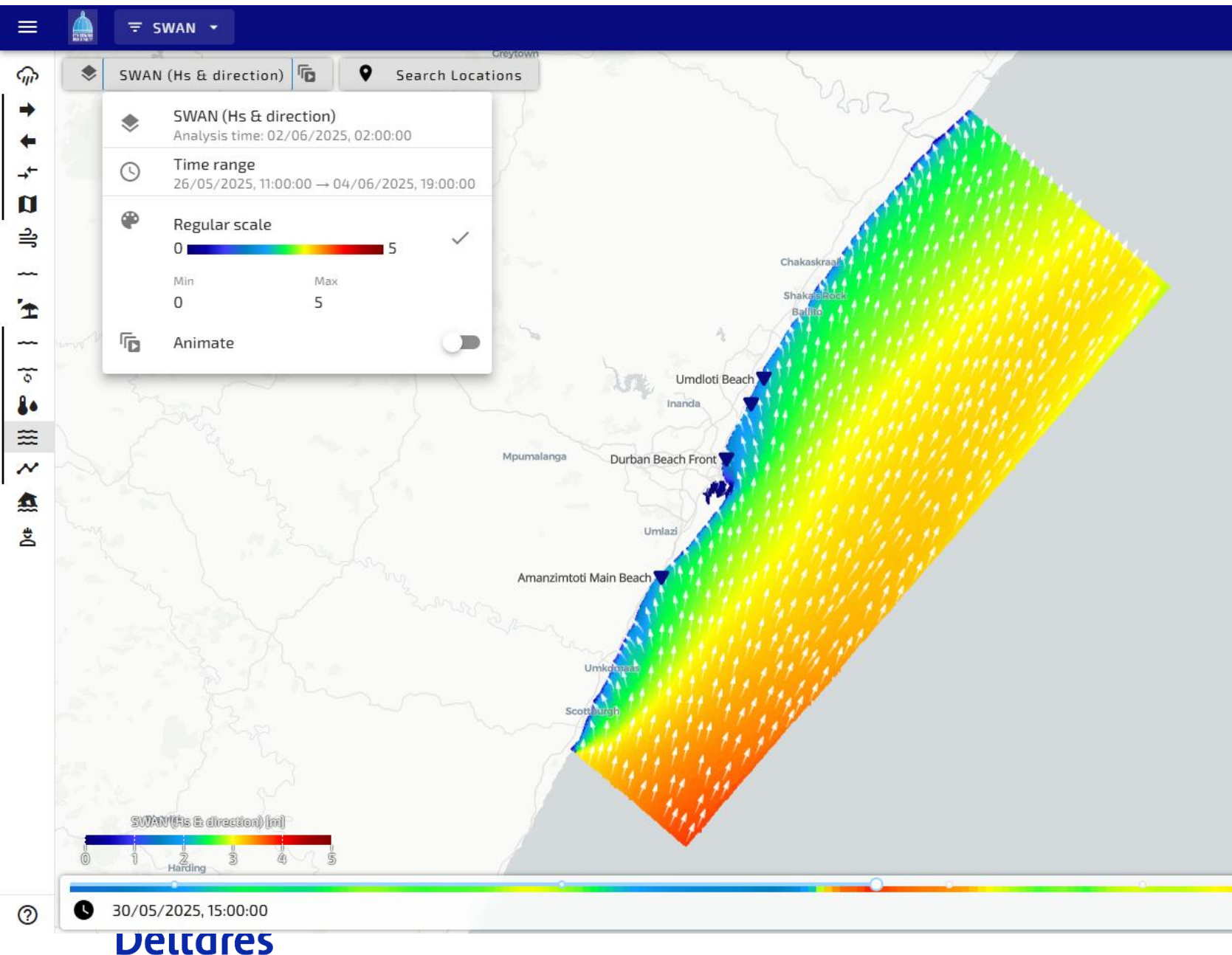
- All displays are linked to the topology
- Custom icons



Map display: spatial data & locations

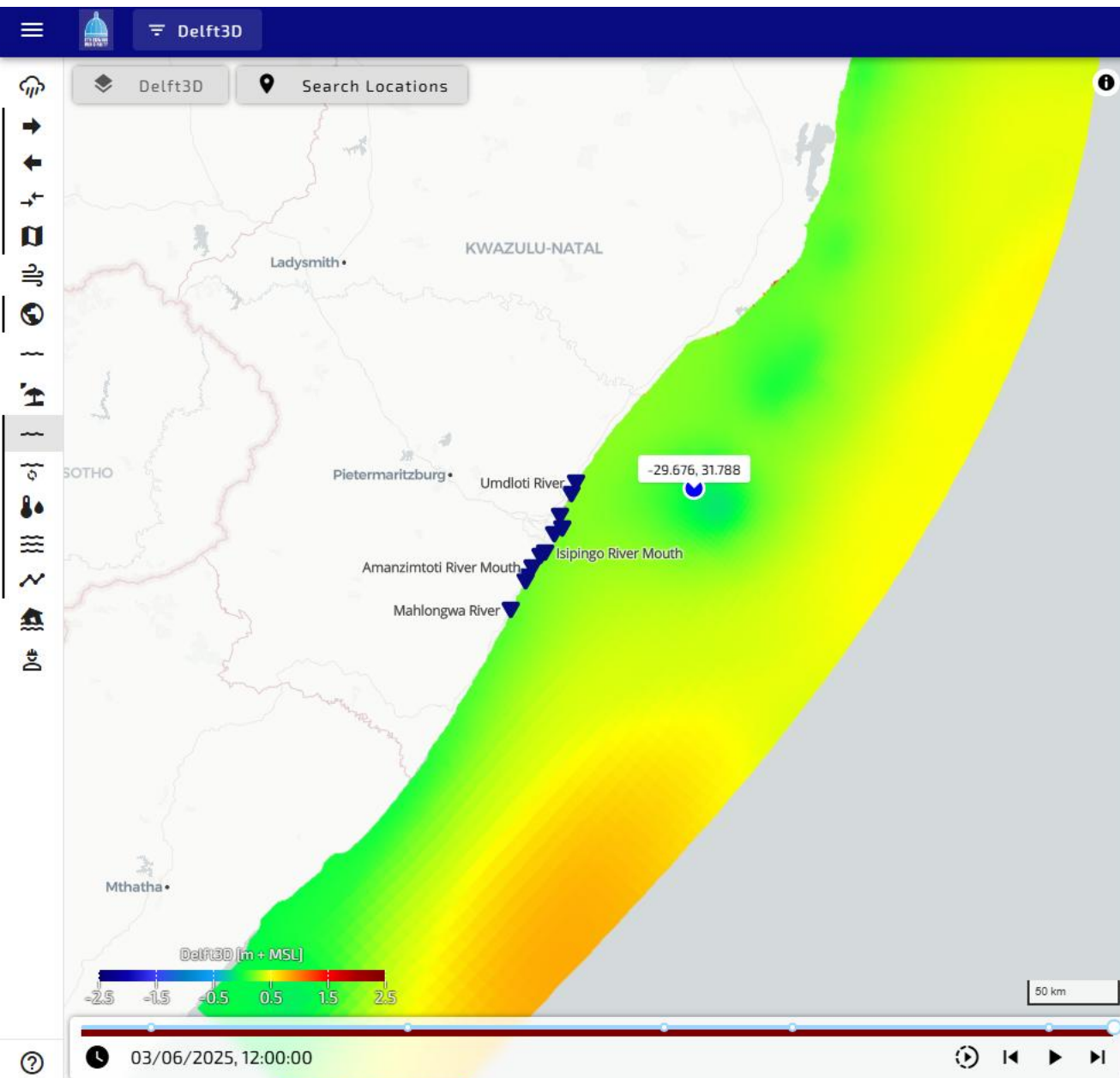
- Topology linked to filterId and gridPlotId
- Location icons, names, grid data etc. as configured in FEWS





Map display: spatial data

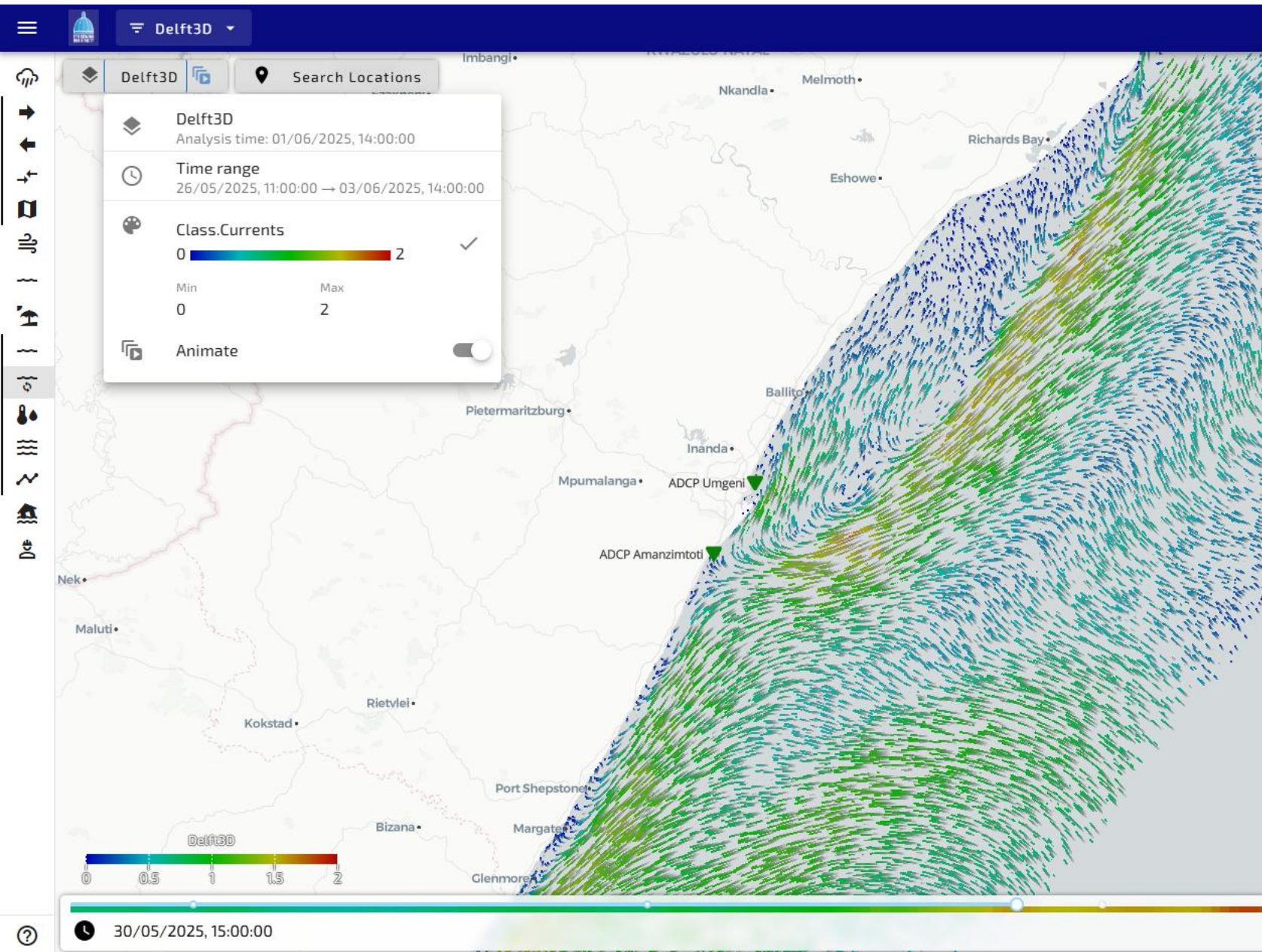
- Maximum value indicator (slider)
- Spatial meta-data & styling



Map display: spatial data

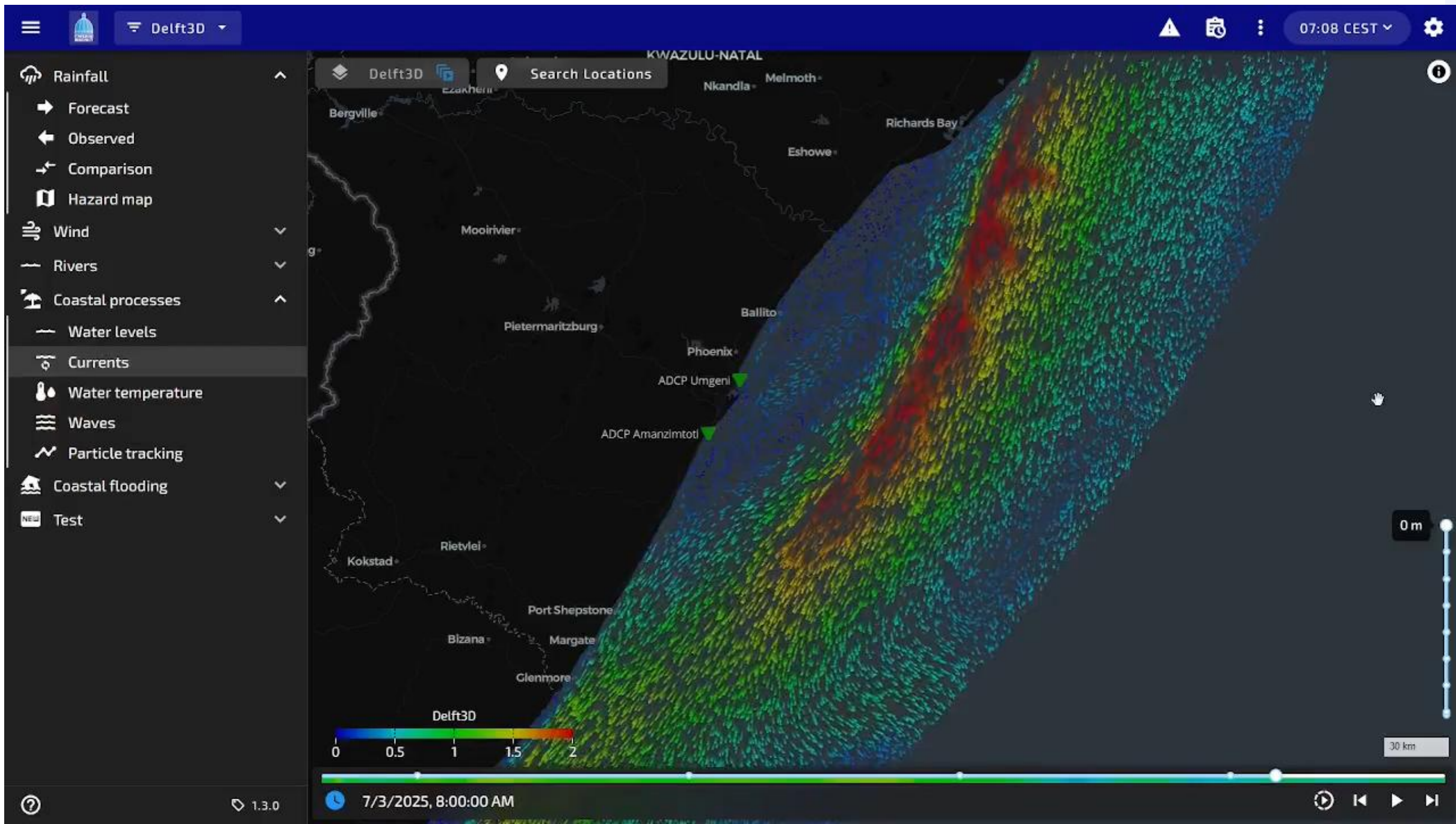
- Grid time series

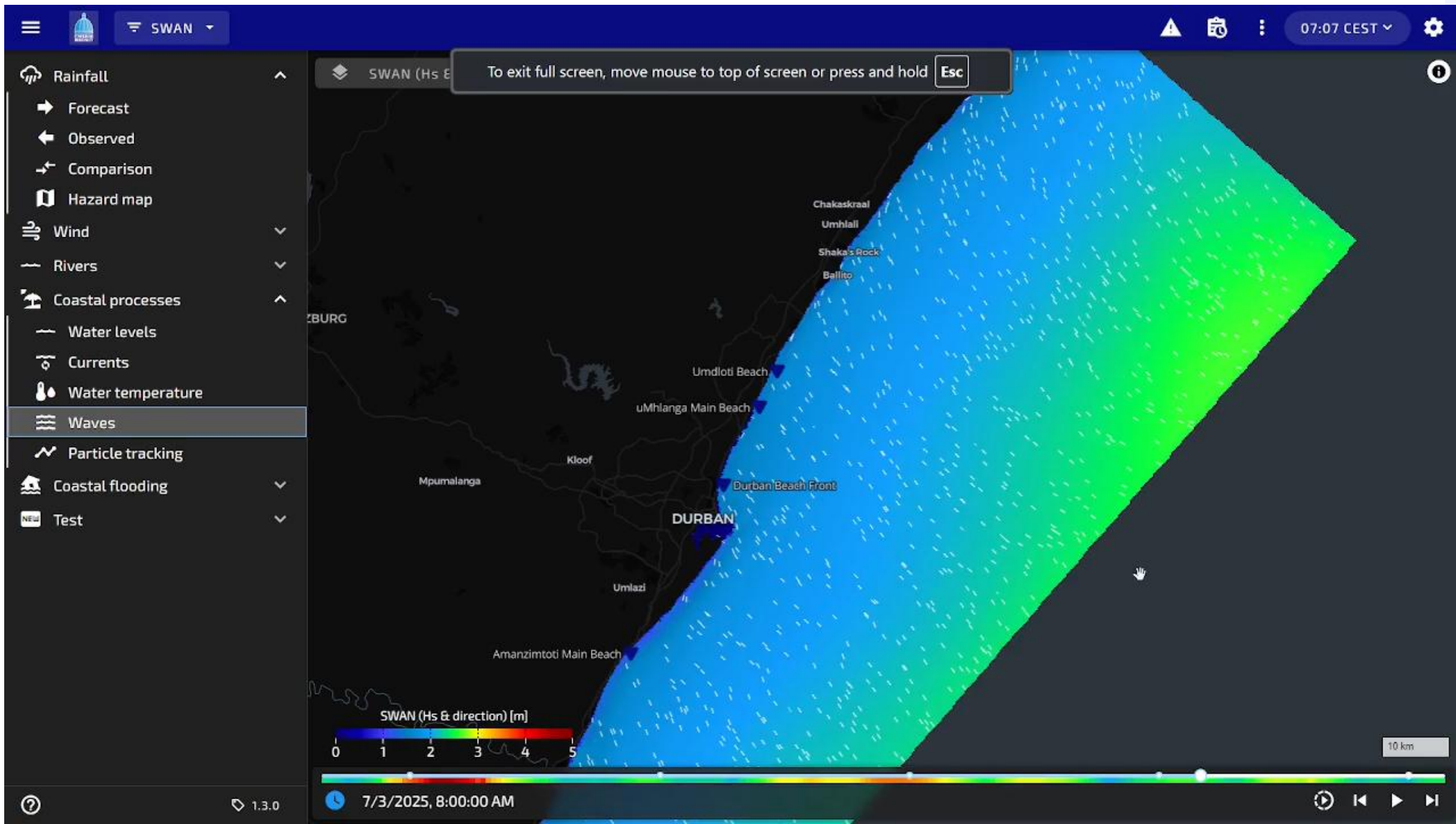


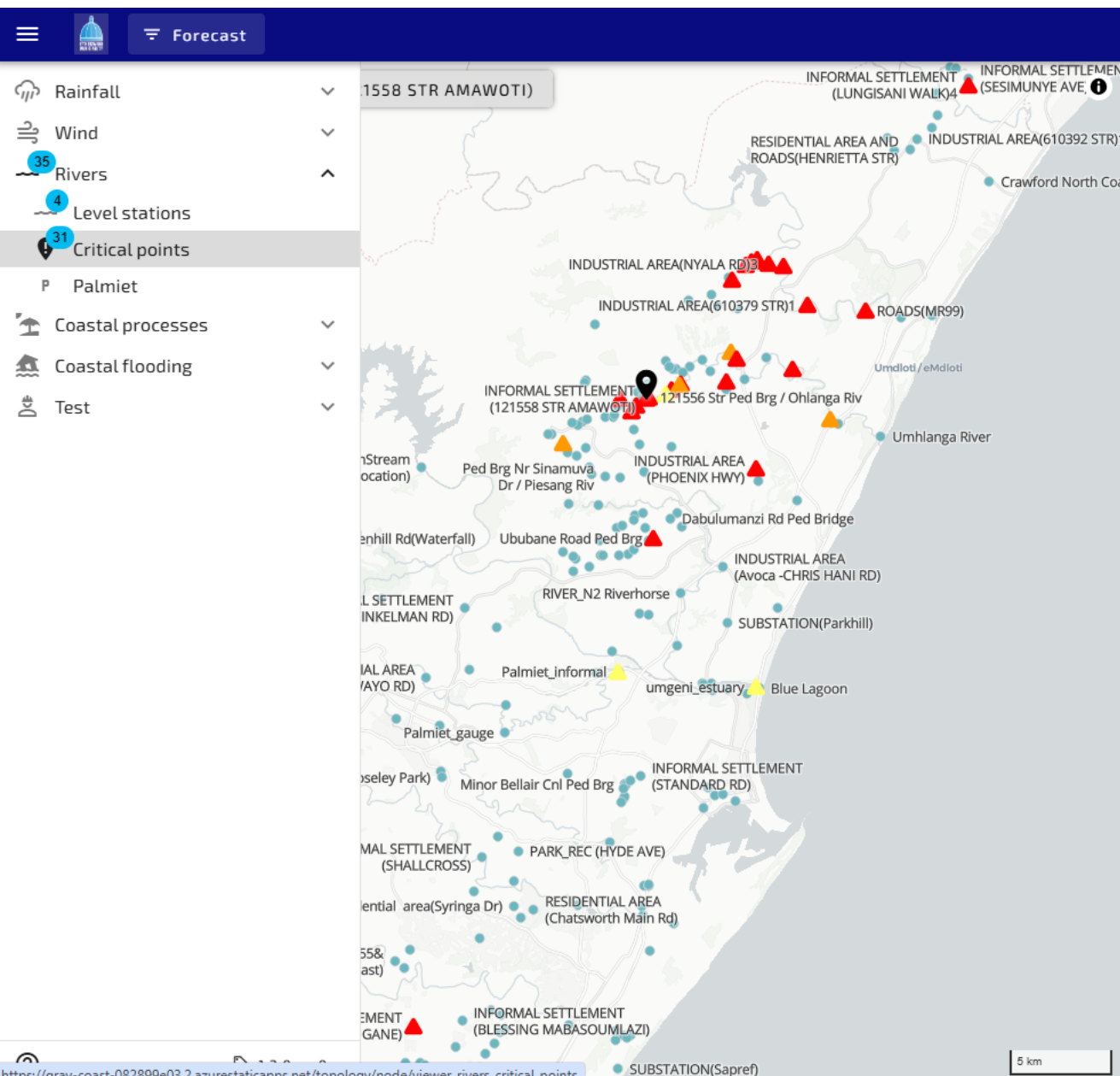


Map display: spatial data

- Animated vectors

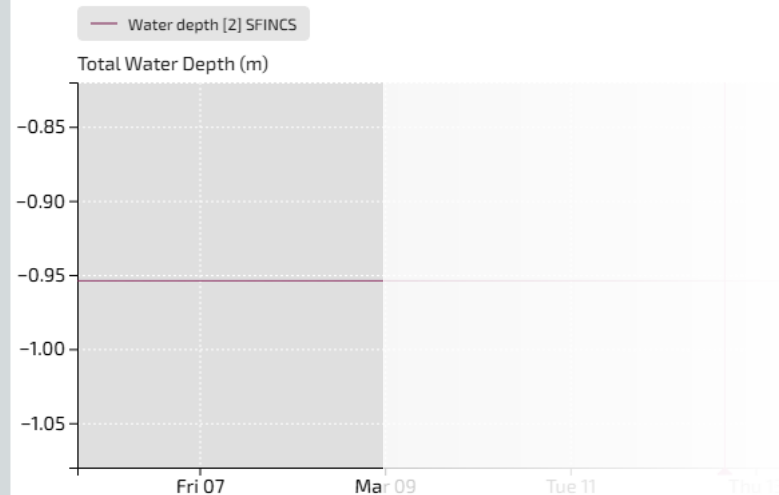
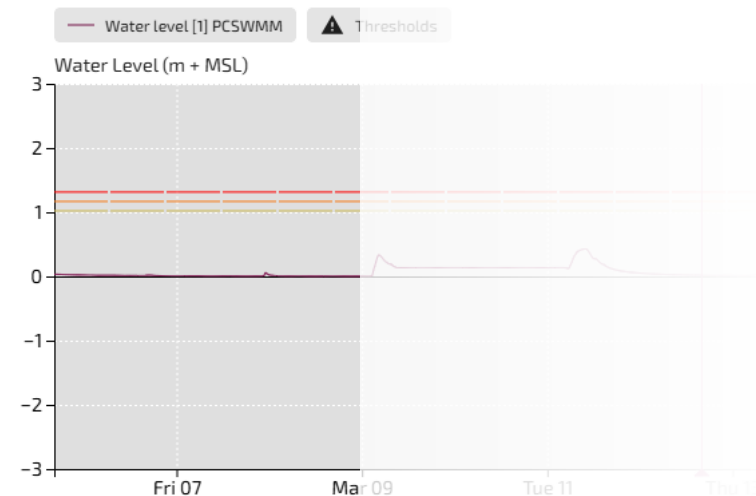


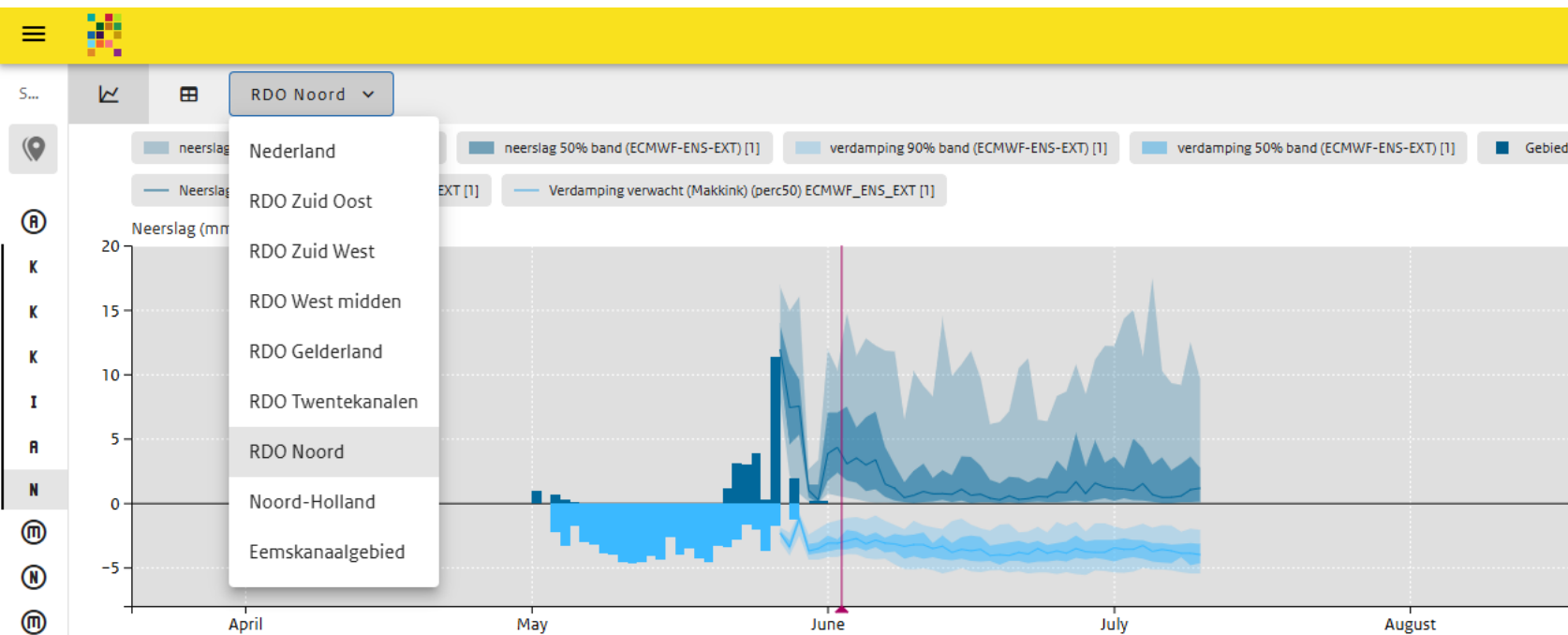




Map display: spatial data & locations

- Threshold indicators (map & topology)





Web OC charts

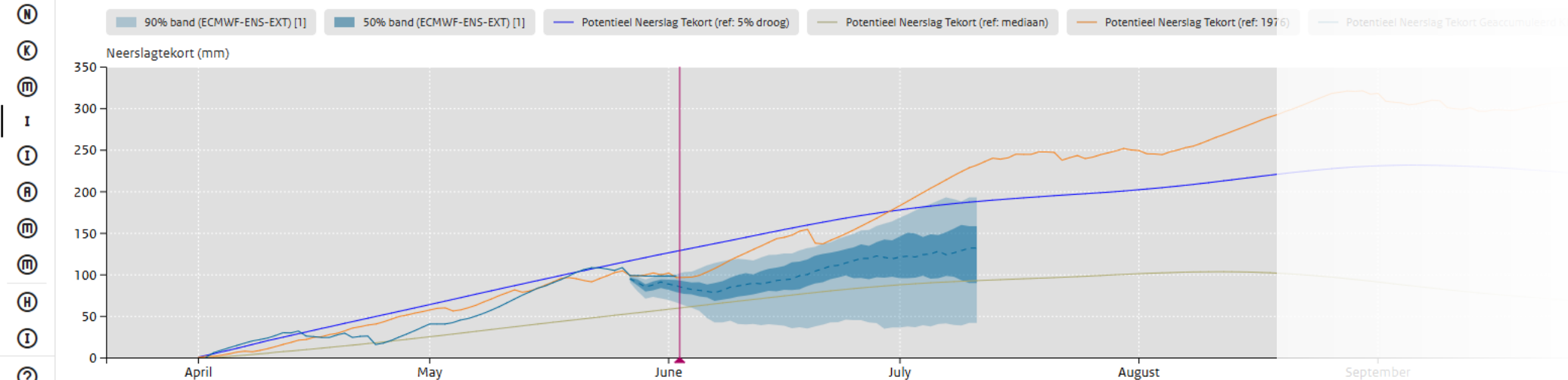
Line, area, bar, etc. as configured in FEWS

Filters

- Map component based on Filters: location + filterId → chart for all available parameters.

DisplayGroups

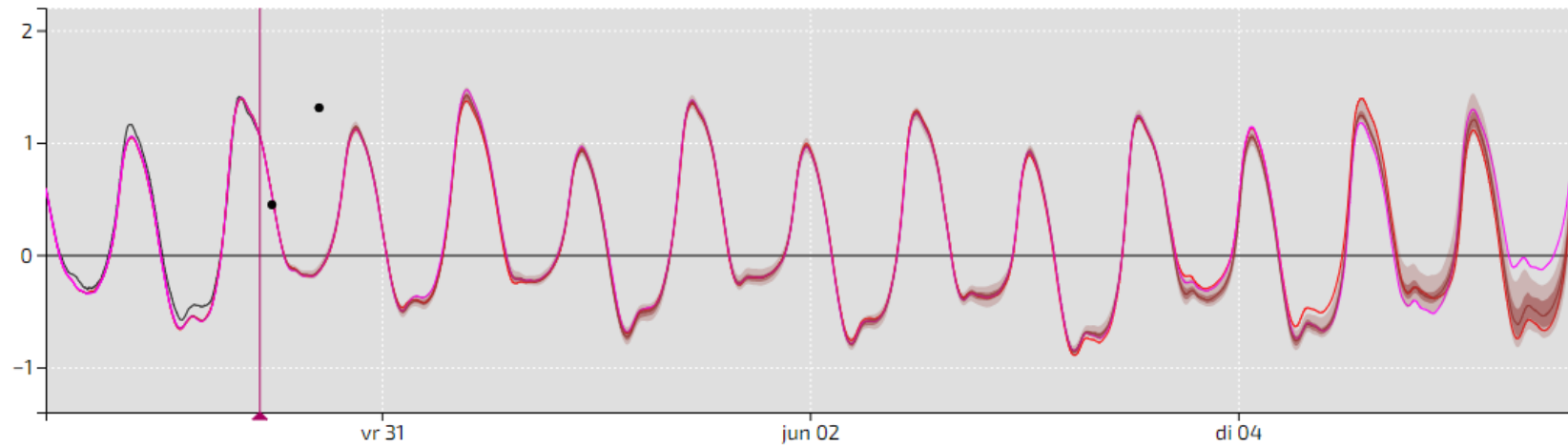
- Linked to topology node.



— H Meting — Median (DCSM7c ECMWF-EPS) [1] — Controle run (DCSM7c ECMWF-EPS) [1] (ecmwf) — DCSM7c ECMWF [2] — 50% band (DCSM7c ECMWF-EPS) [1]

Line, area, bar, etc. as configured in FEWS

Waterstand (m)



Filters

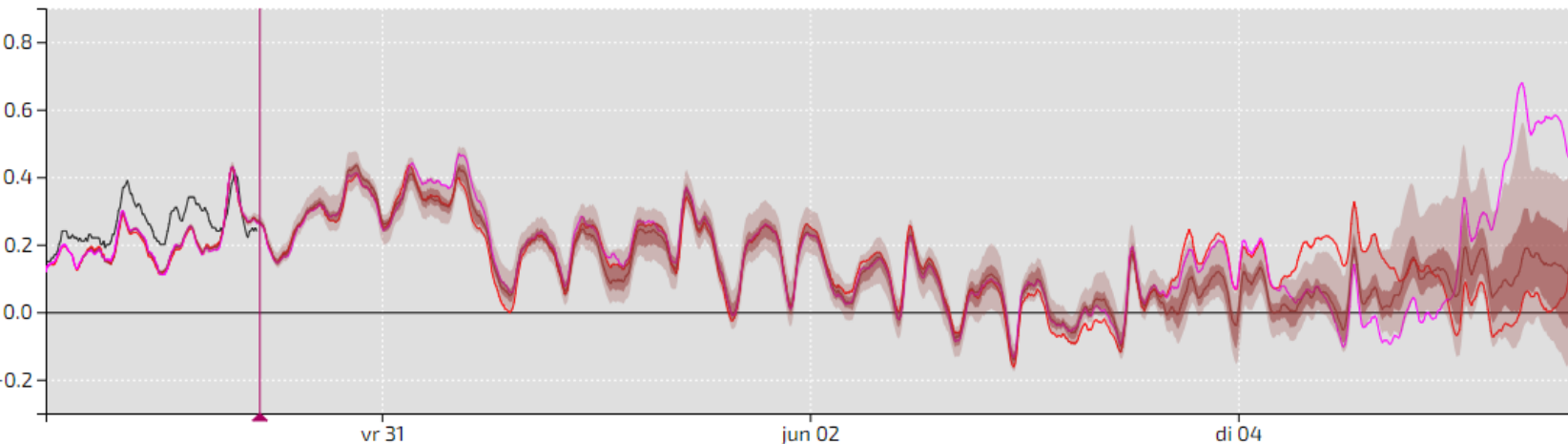
- Map component based on Filters: location + filterId → chart for all available parameters.

DisplayGroups

- Linked to topology node.

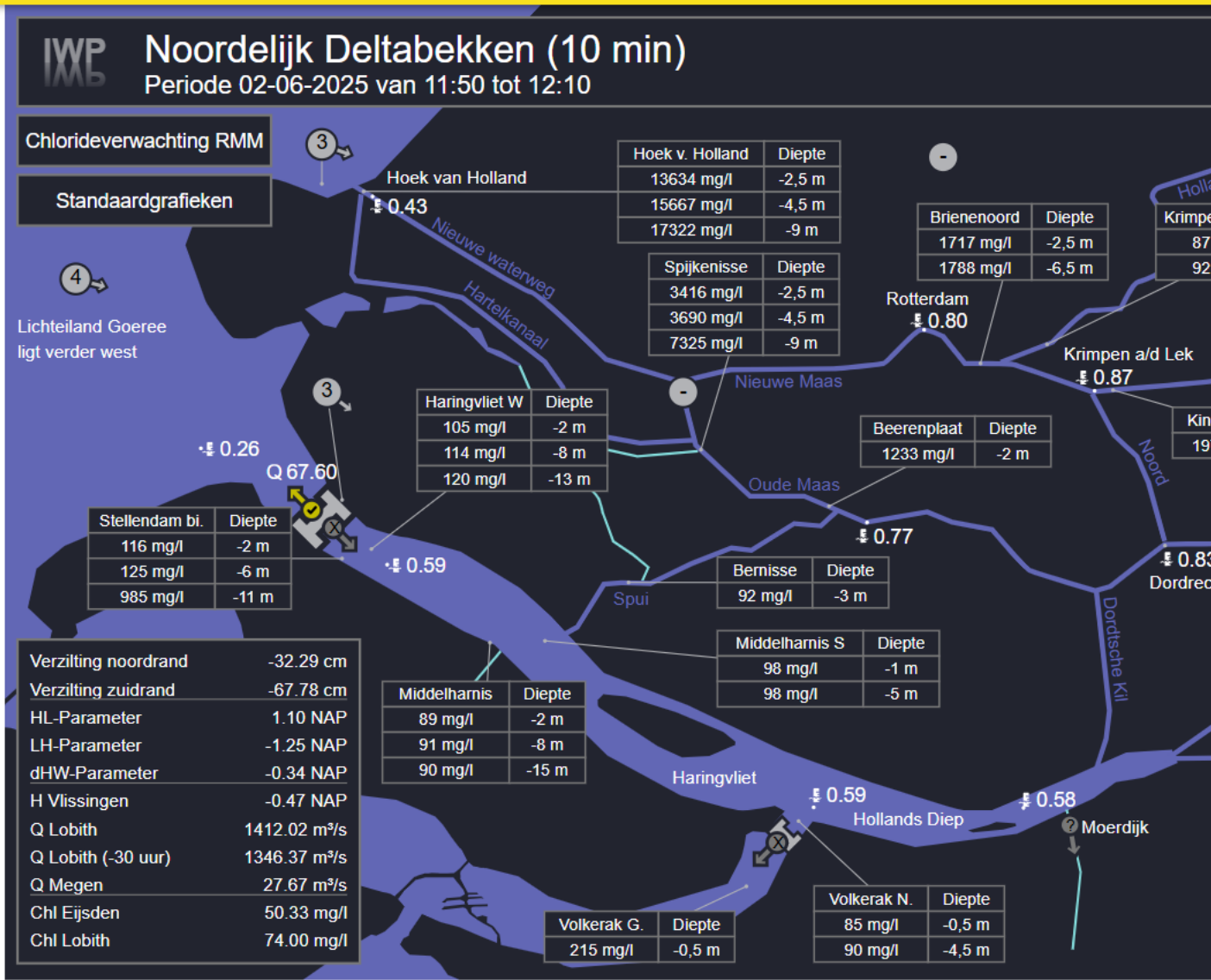
— Opzet Meting — Median (DCSM7c ECMWF-EPS) [1] — Controle run (DCSM7c ECMWF-EPS) [1] (ecmwf) — DCSM7c ECMWF [2] — 50% band (DCSM7c ECMWF-EPS) [1] — 90% band (DCSM7c ECMWF-EPS) [1]

Opzet (m)



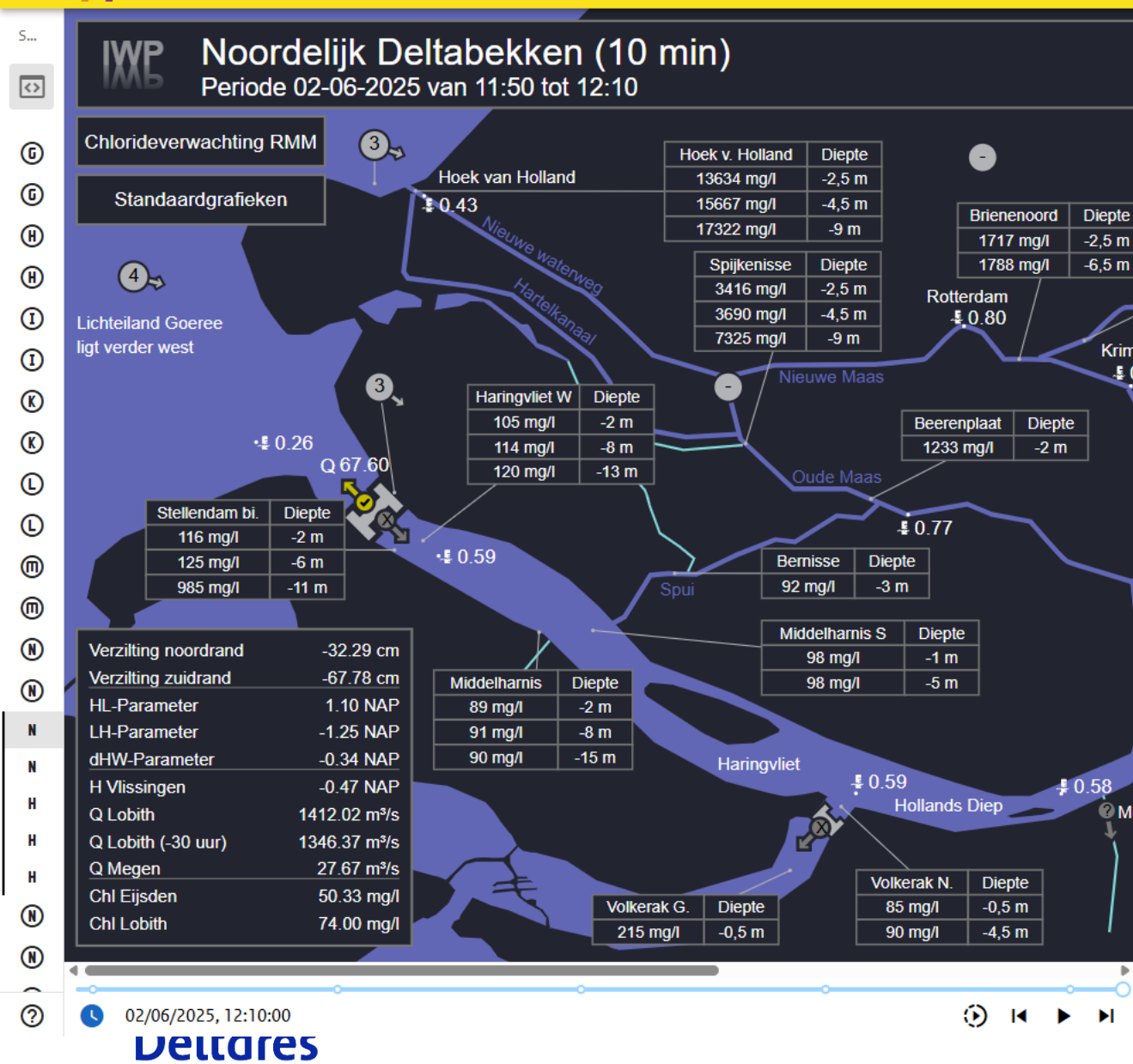
Web OC Schematics

- Schematic configured in FEWS, linked to topology node



02/06/2025, 12:10:00

Deltares



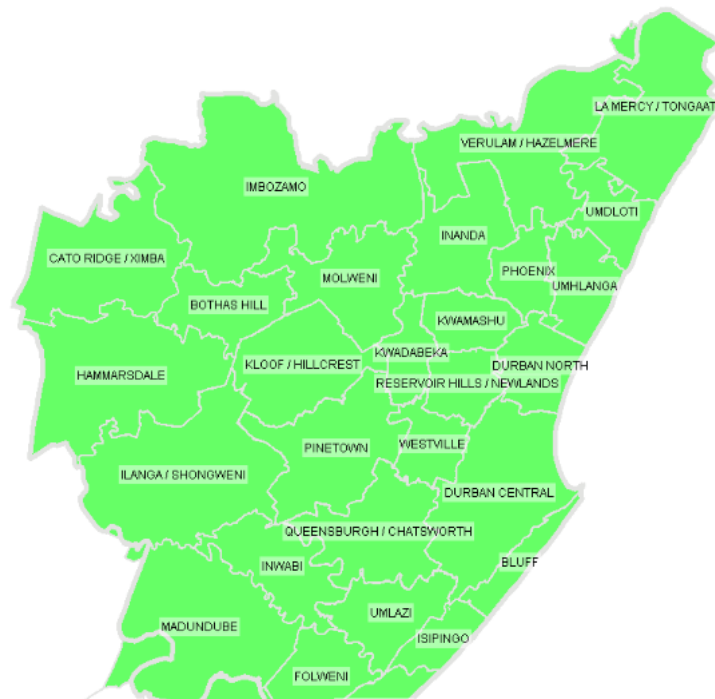
Ethekwini Municipality Flood Early Warning System (FEWS)

Hazard Maps (Forecast - SAWS)

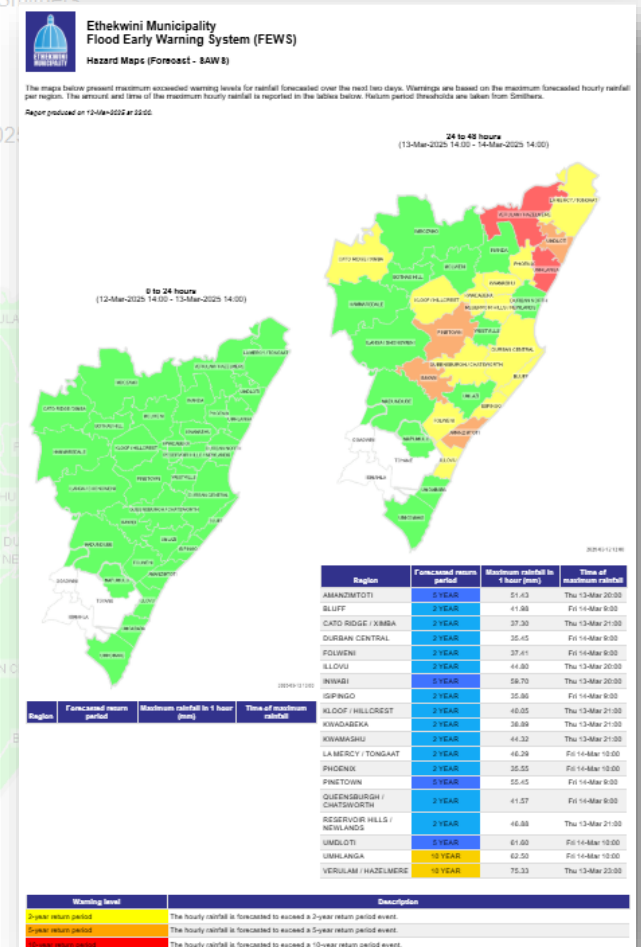
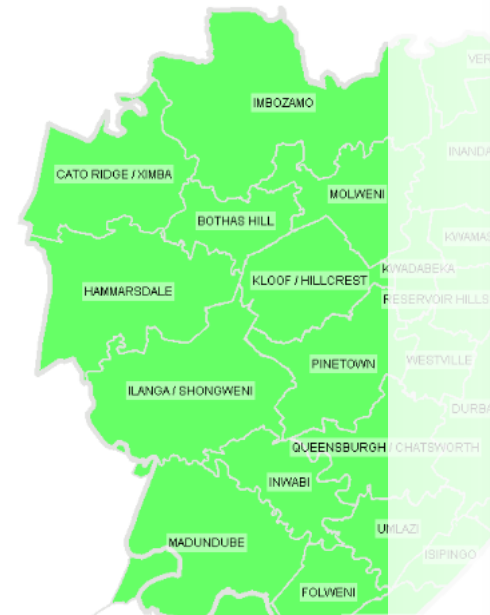
The maps below present maximum exceeded warning levels for rainfall forecasted over the next two days. Warnings are based on the maximum forecasted hourly rainfall per region. The amount and time of the maximum hourly rainfall is reported in the tables below. Return period thresholds are taken from Smithers

Report produced on 2-Jun-2025 at 11:00.

0 to 24 hours
(2-Jun-2025 2:00 - 3-Jun-2025 2:00)

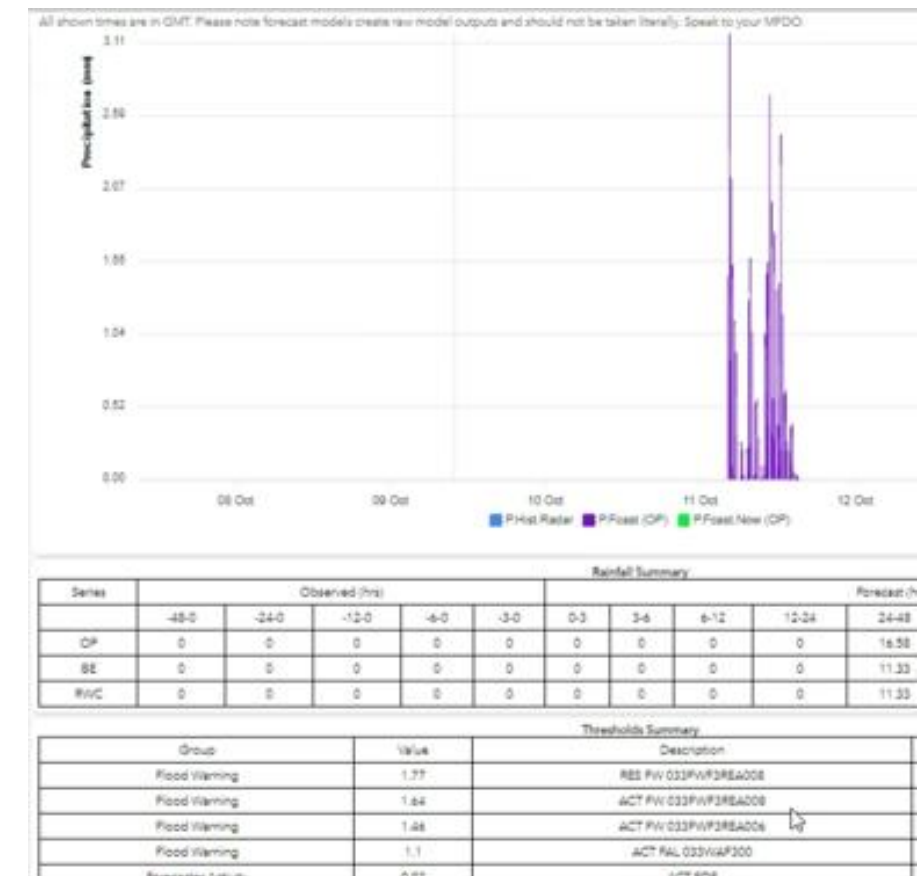


24 to 48 hours
(3-Jun-2025 2:00 - 4-Jun-2025 2:00)



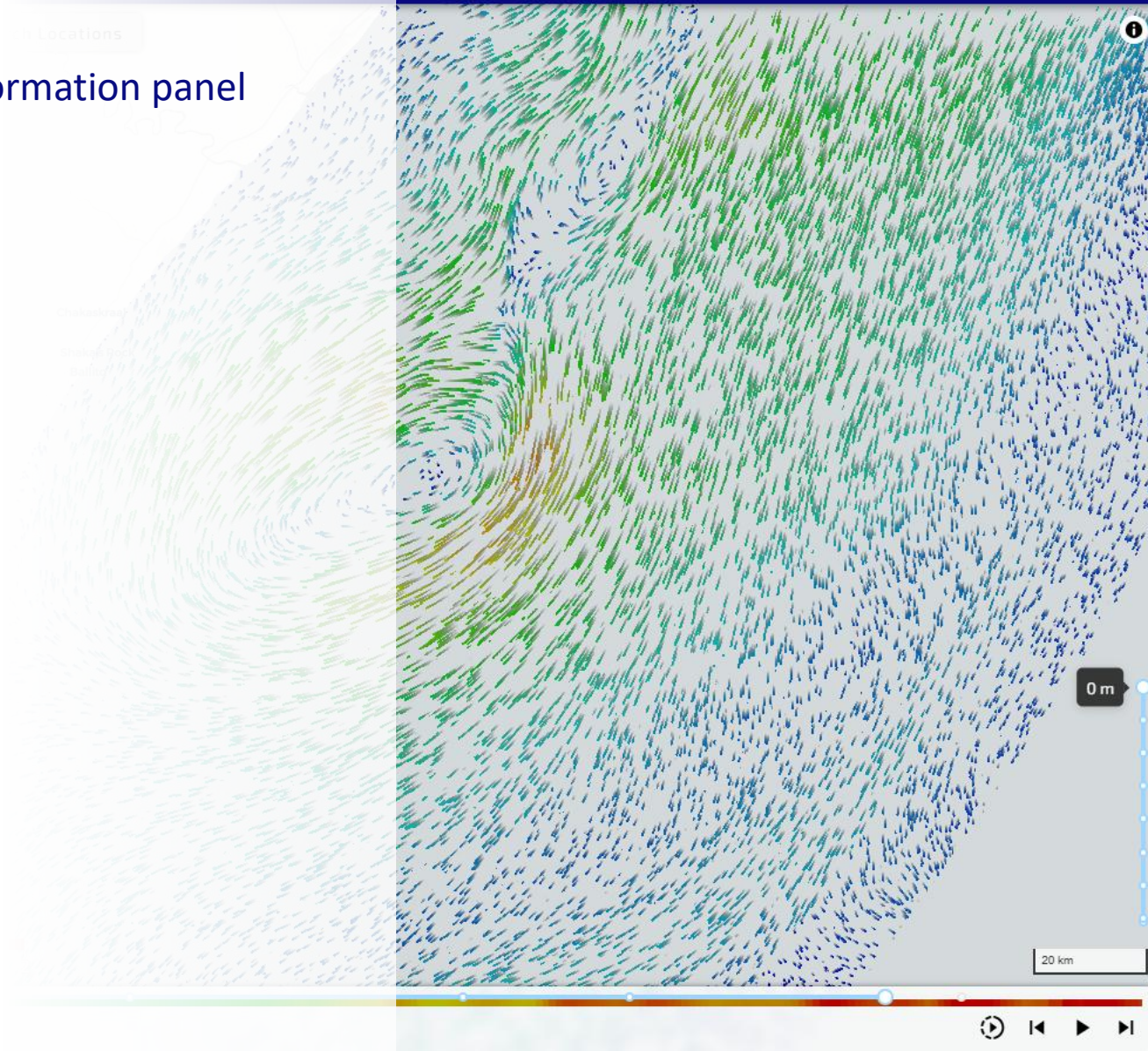
- View and download current and non-current FEWS generated reports
- Switch Web OC component in top bar (charts, reports, schematics, etc.)

- Different styles of tables
 - Table configured as a report module, linked to Topology



Help / background information

- Node specific information panel



Information

Run tasks...

More Info

Water levels and currents

In order to include the dynamics of all relevant nearshore processes along the eThekweni coastline, a regional-scale 3-dimensional ocean model was developed based on the [Delft3D Flexible Mesh](#) hydrodynamic modelling software. This 3D model simulates the complex interactions between tides, winds, and ocean currents. In particular the latter, in the form of the Agulhas Current, was found to have a dominant role on the currents along eThekweni's coastline. The Agulhas current is a strong western boundary current that flows along the east coast of South Africa.

The model is forced by time- and spatial-varying wind, air pressure and various atmospheric data fields (air temperature, humidity, cloudiness and radiation fluxes) from [NOAA GFS](#). The composite heat flux module is applied to compute the heat exchange at the free surface by taking into account the separate effects of solar (short wave) and atmospheric (long wave) radiation, and heat loss due to back radiation, evaporation and convection. The heat losses due to evaporation and convection are functions of the wind speed.

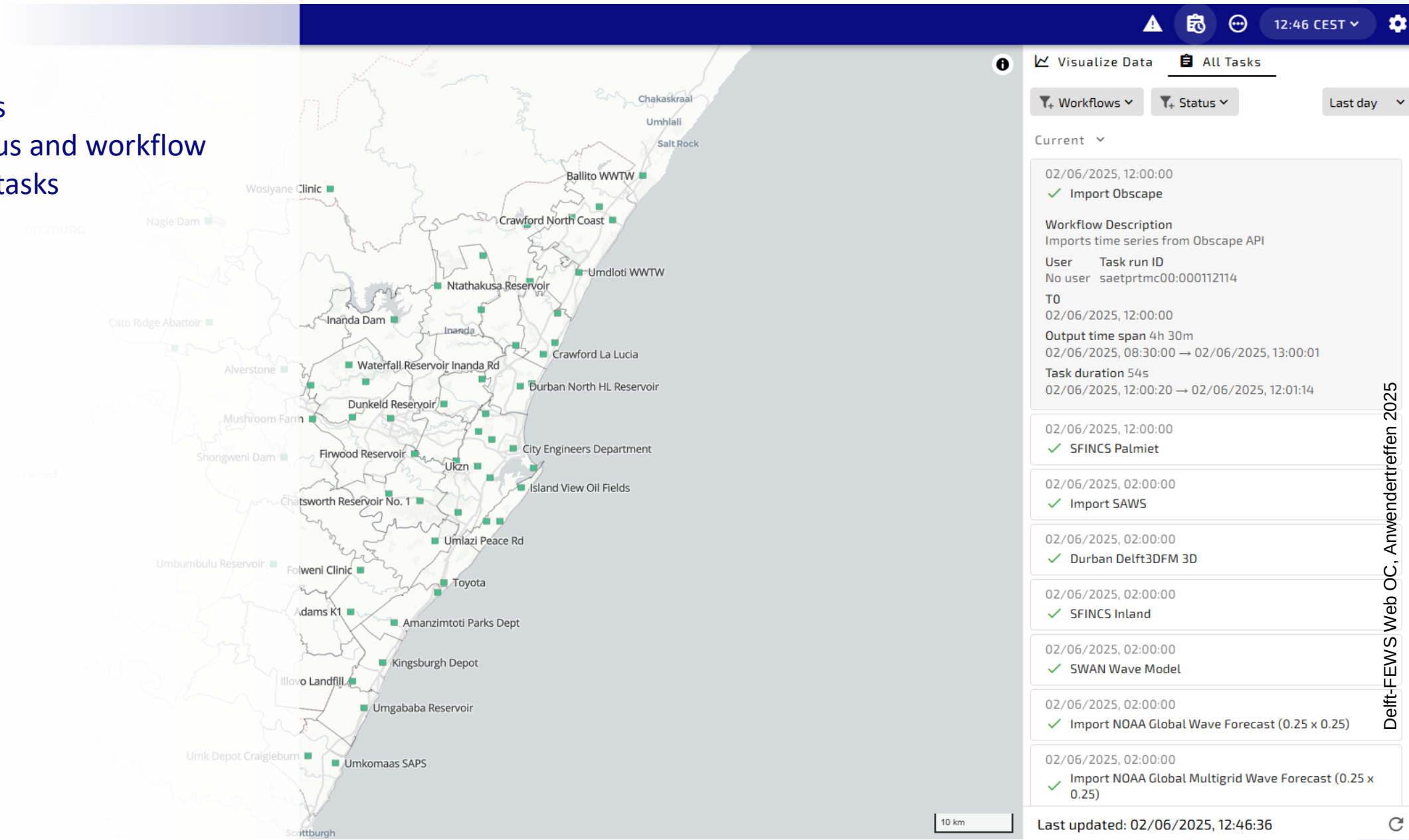
The open boundaries of the model receive forcing from astronomical tide components from the Empirical Ocean Tide model ([EOT20](#)), combined with time- and location-varying non-tidal water level variations, currents, temperature and salinity from the Copernicus Marine Environment Monitoring Service (CMEMS) [Global Ocean Physics Analysis and Forecast System](#). At this stage, the model includes no river discharges.



Computational grid of the regional-scale Delft3D Flexible Mesh model covering eThekweni coastal waters, plotted as an overlay in Google Earth.

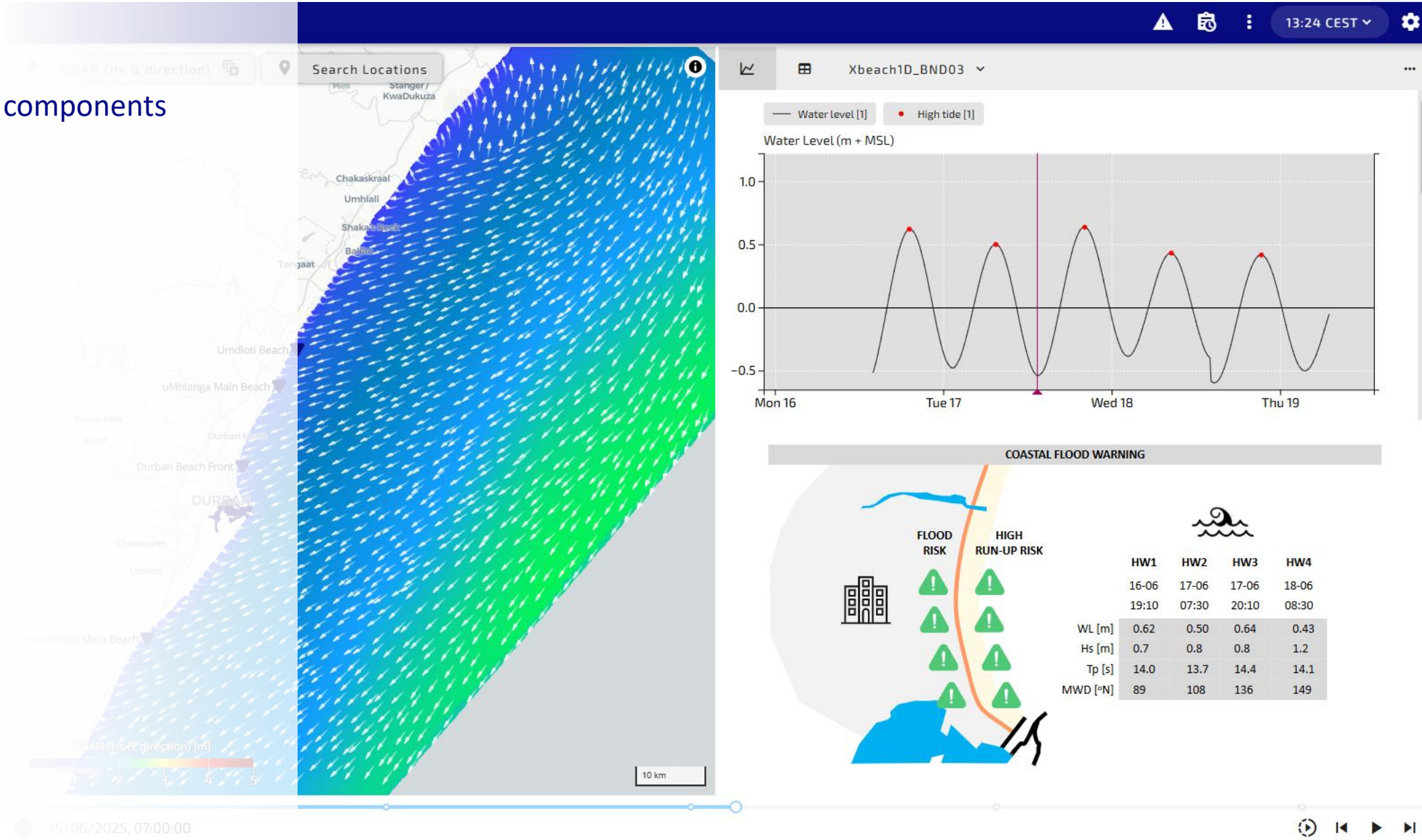
Task menu

- View system tasks
- Filter by task status and workflow
- Monitor running tasks



Web OC Dashboards

- Combine Web OC components
- Shared timeslider



- Rainfall

Forecast

Observed

Comparison

Hazard map

Wind

Rivers

Coastal processes

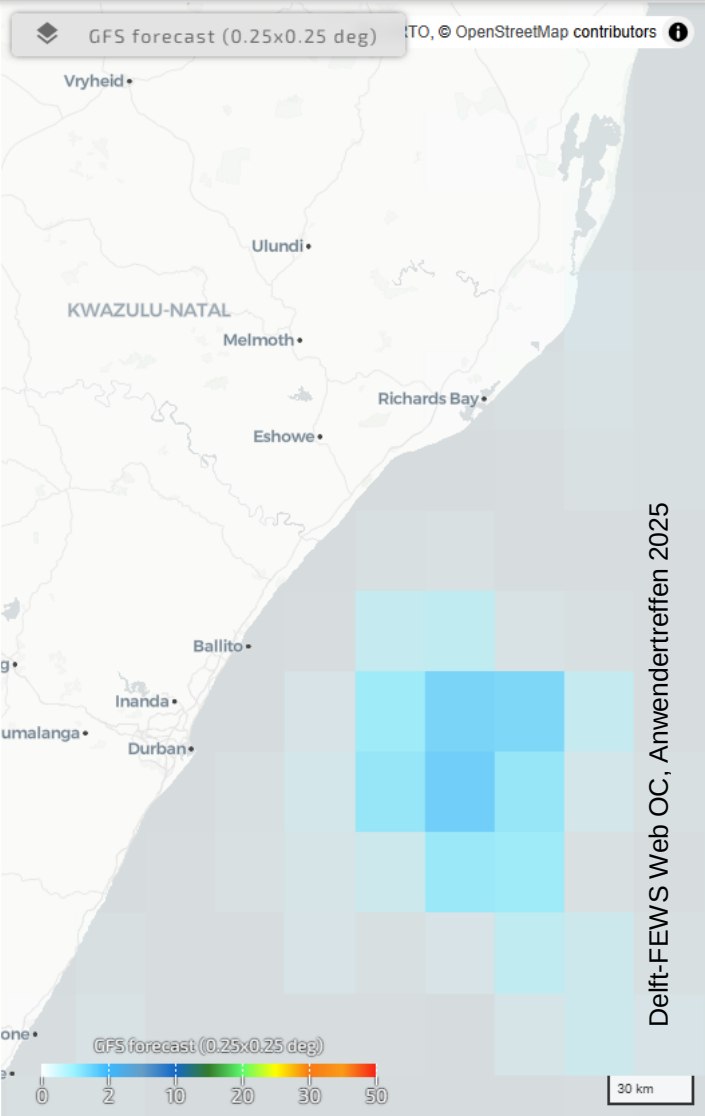
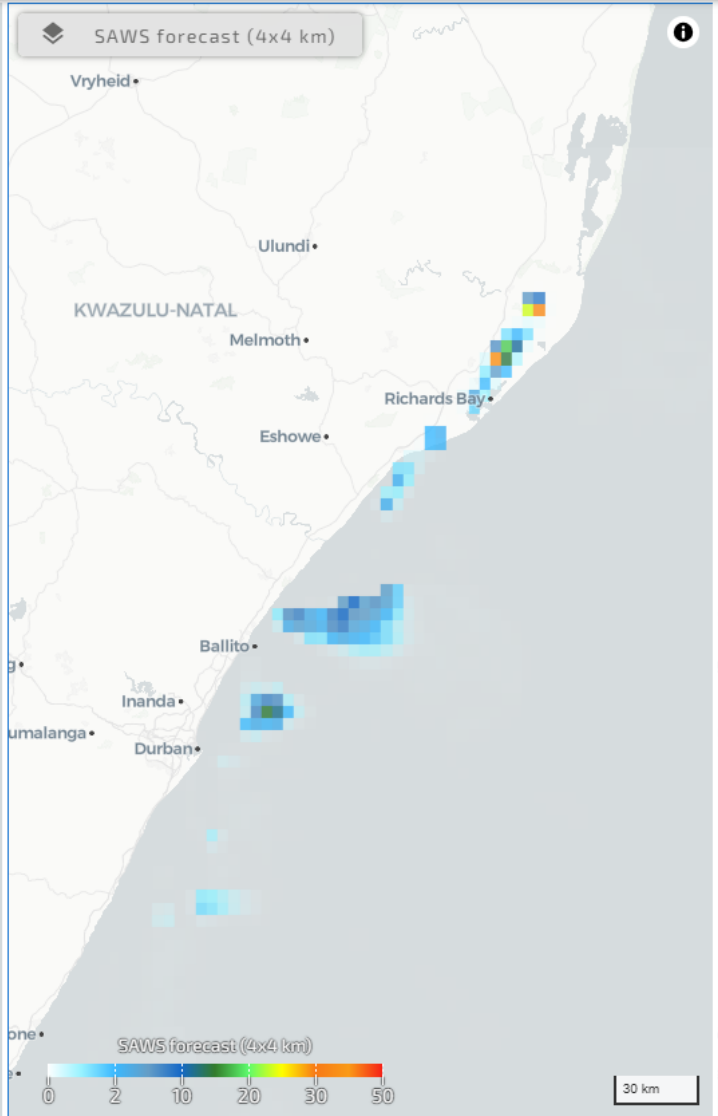
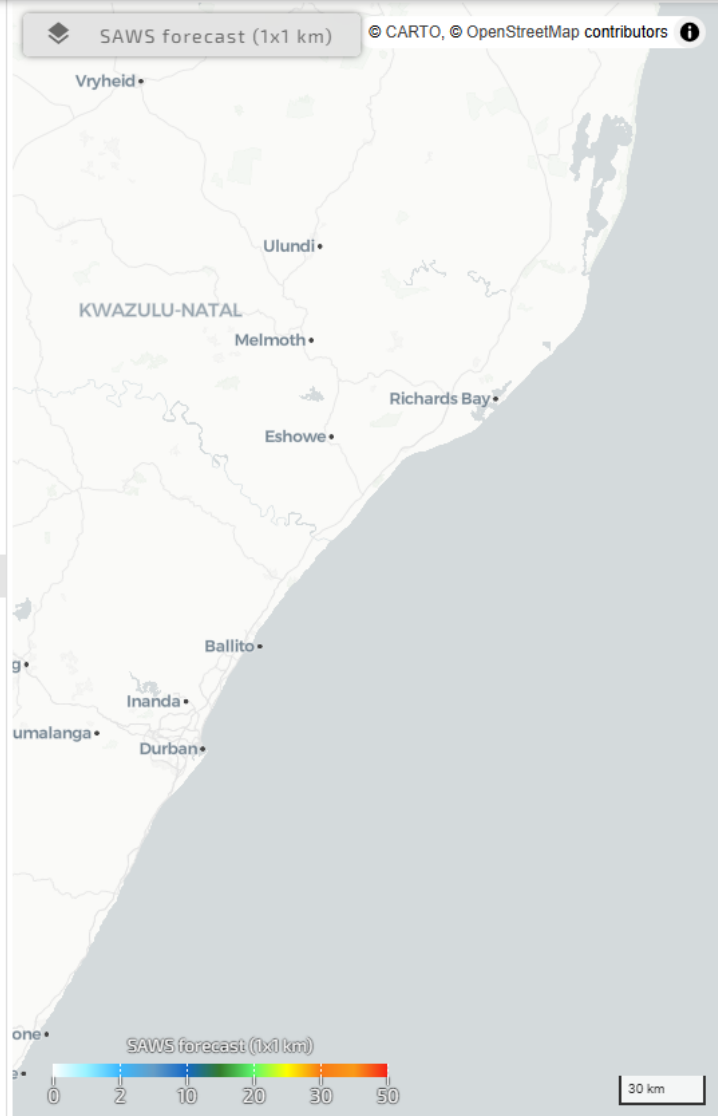
Coastal flooding

Test

System Log

Flood Warning

Rainfall forecast



Data analysis display

- Similar to the data viewer and time series dialog in Delft-FEWS
- Allows to store and share collections
- Create products (stored in the Archive)

IN PROGRESS

NewsConform

sources

ProcessObserved

realm

wp

ProcessGefs

locations

AS WILLIS ISLAND

AS LORD HOWE ISLAND AERO

AS MACQUARIE ISLAND

AS KALUMBURU

AS HALLS CREEK AIRPORT

AS BROOME AIRPORT

AS PORT HEDLAND AIRPORT

AS LEARMONTH AIRPORT

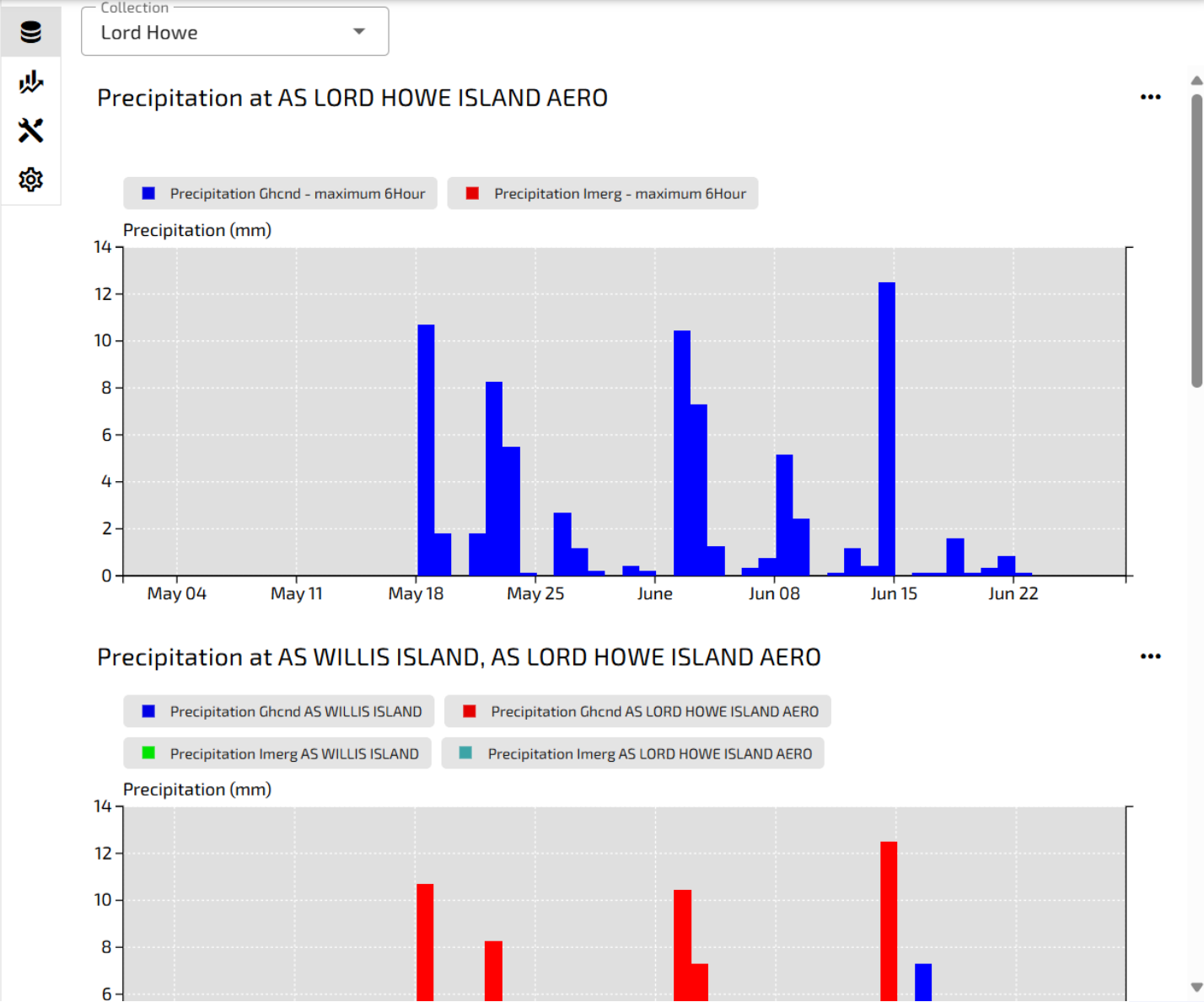
AS CARNARVON AIRPORT

+

 CREATE NEW CHARTS

≡

 ADD TO CHART



Berichten

Maak nieuw bericht >

Concept berichten 9

Berichten ter review 3

Definitieve berichten 2

Uitgifte van 2025-06-26

Uitgifte tot 2025-07-04

July 2025

SMTWTFSS

293012345

6789101112

13141516171819

20212223242526

272829303112

3456789

Signalering & Beoordeling

Berichtgeving

Uitgifte

Aanpassen

Concept

Watermanagementcentrum Nede
WMCN Rivieren
Team Expertise Maas (TEM)

Maas

Kleurcode Oranje

Hoogwaterbericht
Verzonden: donderdag 03 juli 2025, 11:00 (lokale tijd)
Nummer: H13

Verwachte situatie

Waterstand en afvoer te St. Pieter Noord

Station: St. Pieter Noord	Waterstand [cm + NAP]	Afvoer [m³/s]	Tijdstip
Huidige (gemeten)	4420	146	03-jul 07:00
Verwachting +12 uur	4410	50	03-jul 19:00
Verwachting +24 uur	4410	50	04-jul 07:00
Verwachting +48 uur	4405	50	05-jul 07:00
Maximum binnen 48 uur	4415	110	03-jul 07:00
Onzekerheid verwachte maximale afvoer binnen 48 uur	xxxx - xxxx	xxxx - xxxx	dd-MMM h

Alle waterstandsverwachtingen zijn afgerond op 5 cm en afvoerwachtingen op 10 m³/s.

Document Display

- Browse through products (e.g. graph, table, report, text)
- Compose new products/reports
- Review and approve products



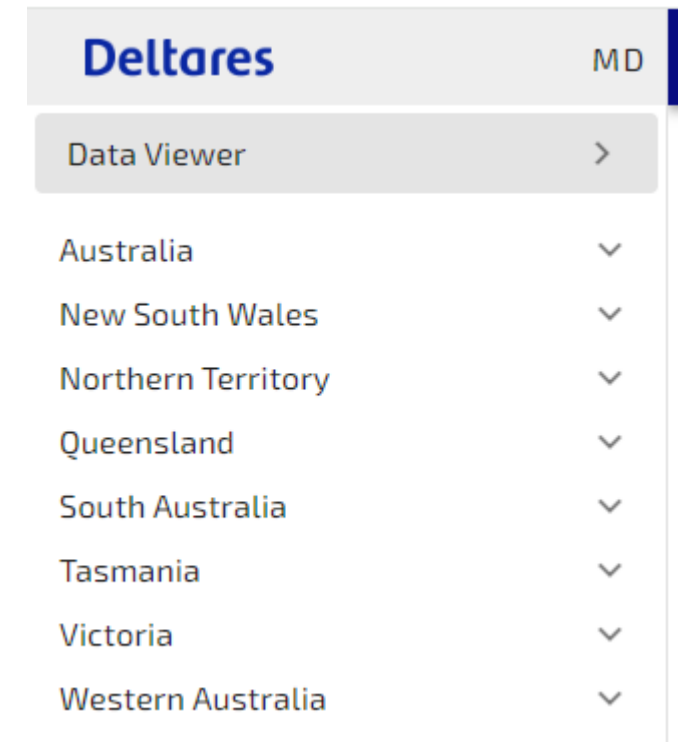
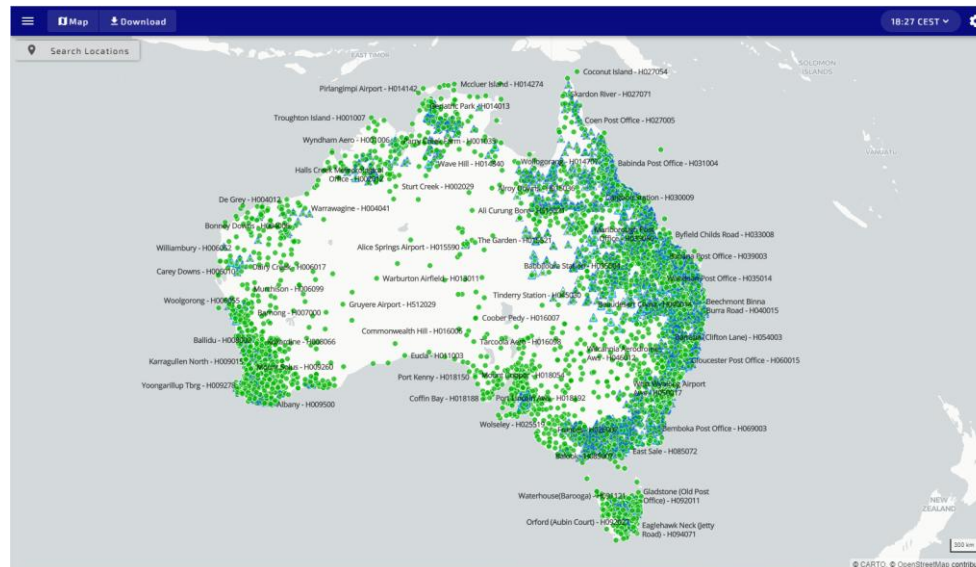
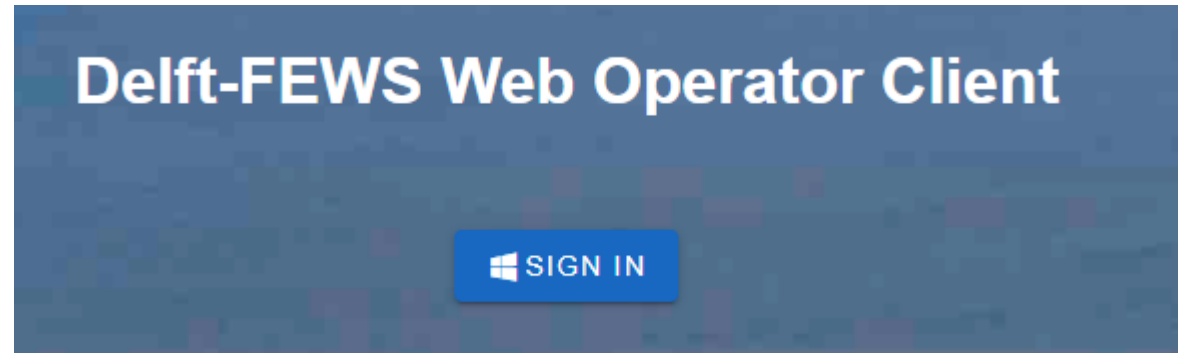
Example Bureau of Meteorology (Australia)

Web OC implementation for the Bureau of Meteorology (HyFS)

- Bureau reviewed their software stack; driving force was that all software need to be more secure
 - Delft-FEWS passed the security checks
 - Other custom-made software tools were not secure and needed to be replaced
 - Decided to have some custom-made tools added to Delft-FEWS (HyFS)
- Main components in HyFS Web-OC
 - Data quality control: special team of users for quality control of observed data
 - Download of time series data and meta data

Web OC for HyFS

- Web-OC can be accessed with OpenID
- Once logged in the Web-OC has a short list of Topology Folders
 - Contains only observed data and processed data



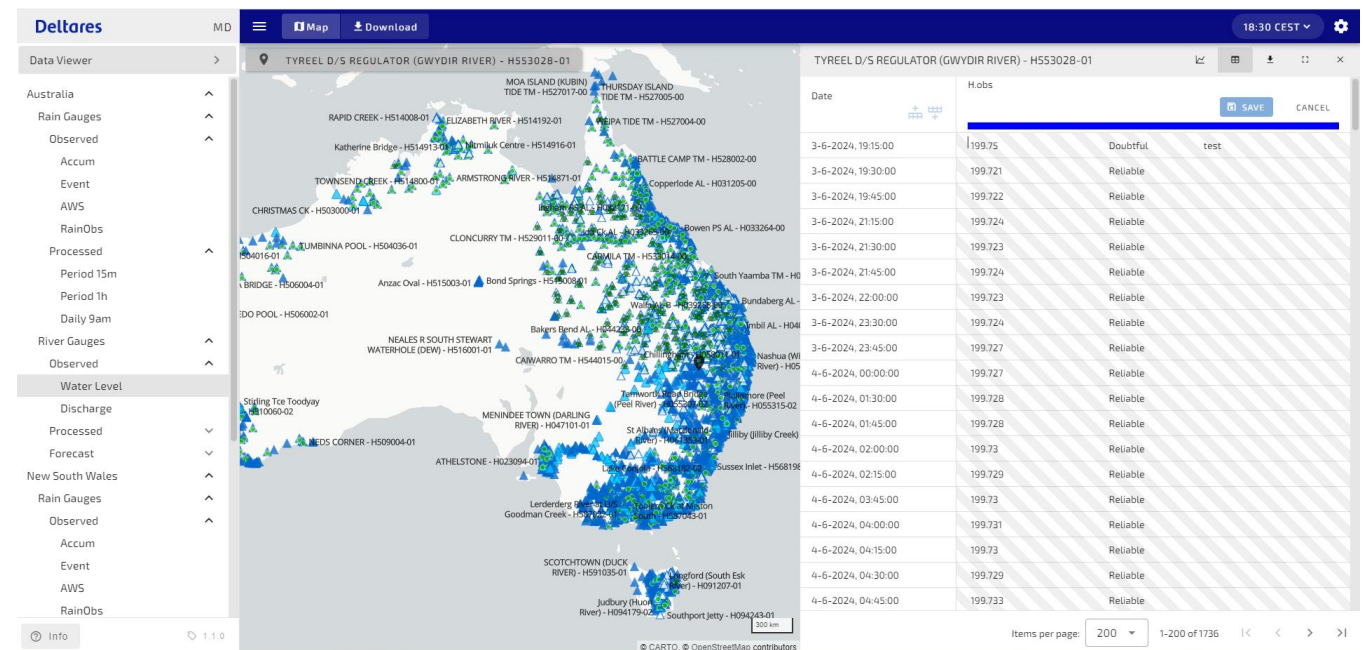
Web OC for HyFS

- Data Editing is based on Filters linked to Topology nodes
- Functionality developed to
 - Show data in tables with validation flags and comments
 - Edit data and add validation flags and comments
 - Toggle between local and MSL datums
 - Store data in FEWS database (and archive)

H.obs

199.75	Doubtful	test
199.721	Reliable	
199.722	Doubtful	
199.724	Unreliable	
	Persistent Unreliable	
	Accumulation Reset	
	Reliable	

SAVE CANCEL



Web OC for HyFS

- Data Download is based on Filters linked to Topology nodes
- Functionality developed to
 - Download data that is shown in a graph
 - Download data from a new Data Download Display panel
 - Download data in XML, Json and CSV formatted files
 - Time series and meta data can be downloaded

The screenshot displays the Deltares Web OC interface. On the left is a sidebar with a tree view of data categories: Australia, Rain Gauges, Observed, Accum, Event, AWS, RainObs, Processed, Period 15m, Period 1h, Daily 9am, River Gauges, Observed, Water Level, and Discharge. The main panel is titled 'Make a selection to download data' and contains several dropdown menus for selecting location (NSW), data type (H.obs), and specific data points (Tamworth Road Bridge (Peel River) - H055307-02 Goonoo Goonoo (Goonoo Goonoo Ck) - H055313-02 Piallmore (Peel River) - H055315-02 ... (1143 selected)). Below these are date pickers for 'Start' (2024-06-19 00:00) and 'End' (2024-07-03 00:00), and a checkbox for 'Only download meta-data'. A blue 'DOWNLOAD' button is present. A modal window titled 'Download timeseries' is open in the foreground, showing a 'File Name' field with the value 'timeseries_20240703183848', a format dropdown set to 'XML', and 'DOWNLOAD' and 'CANCEL' buttons.

Web OC for HyFS

Future requests (follow up projects):

- Change time zone to view data is always local computer time
 - Development effort to support FEWS Explorer time zones is 6 days.
- Configuration for meta data download
 - Add a new config file, or flag location attributes to download in LocationSets.xml

Future plans

Marc/Tom

Future developments and plans - Community

- Further development of the Web OC together with the community
 - Similar to current Delft-FEWS business model
- Demonstration and presentation during User Days: room for discussion and ideas!
- Continuous attention for security, performance, testing and deployment
- Community contributions to the code – open-source software

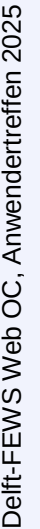


Future developments and plans – 2025 ...

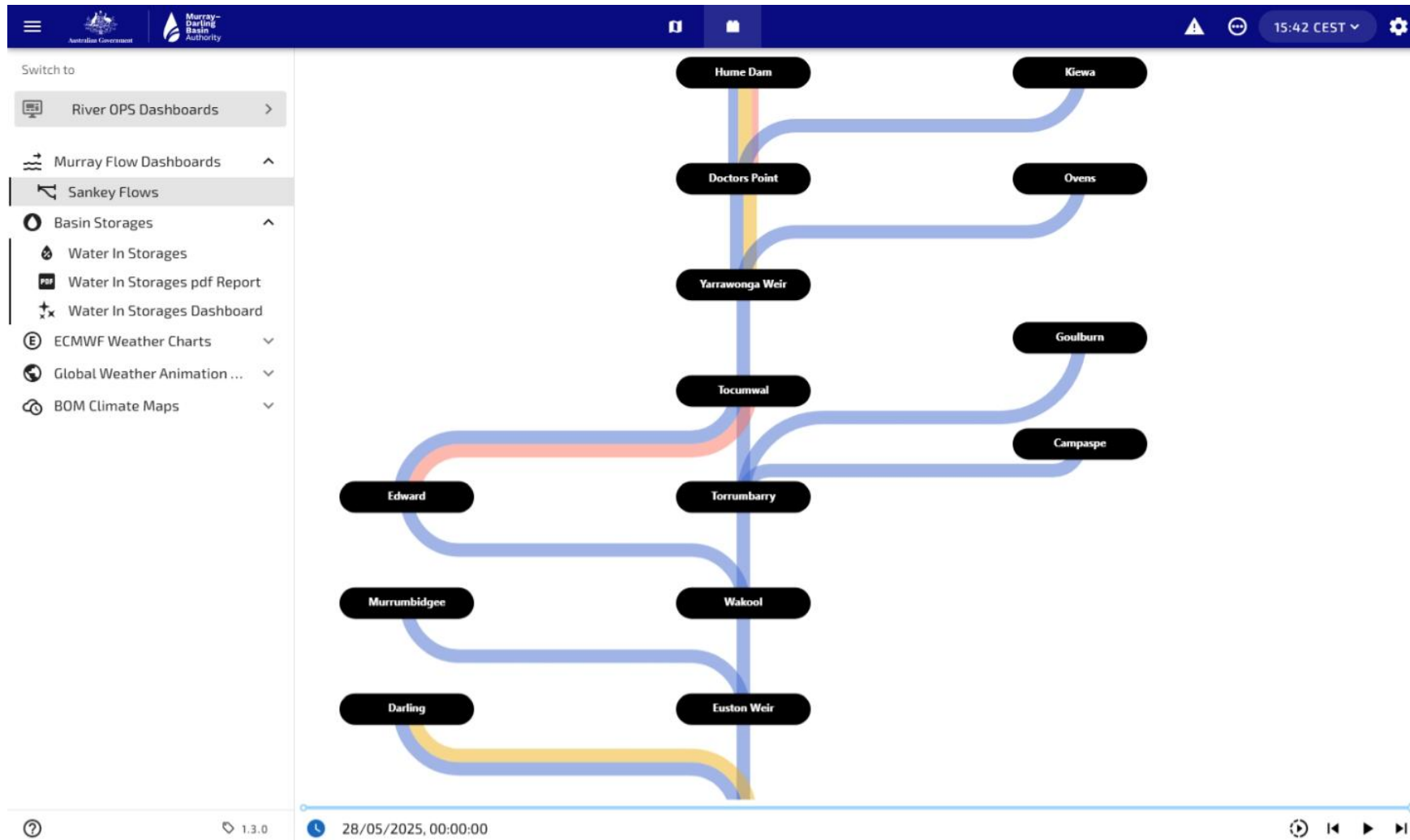
- Roadmap 2025: Web OC integration tests for all supported Delft-FEWS branches.
- Roadmap 2025: Increased flexibility and modularity.
- Review and finalize recent developments (before INT User Days 2025):
 - Run workflows and what-ifs, map related runs
 - (archive) products
 - dataAnalysisDisplay / dataDownloadDisplay
 - Threshold overview
 - Static map overlays (shapefiles)
 - Web OC Dashboards
 - LogDisplay
 - Dynamic reports

Future developments and plans – 2025 ...

- Chart improvements (zoom, pan)
- Edit and save reports
- Improve usability on phone/tablet
- Innovation sprint Hydrologic: on-the-fly spatial aggregation
- System time for Web OC

Deltare 

Custom front-end components



Links and additional information

- Code: <https://github.com/Deltares/fews-web-oc>
 - <https://github.com/Deltares/fews-web-oc-charts>
 - <https://github.com/Deltares/fews-pi-requests>
- Release notes: <https://github.com/Deltares/fews-web-oc/releases>
- Documentation on Github: <https://deltares.github.io/fews-web-oc/>
- Configuration documentation on the wiki:
<https://publicwiki.deltares.nl/spaces/FEWSDOC/pages/254117661/11+Web+Operator+Client>
- Icons: <https://pictogrammers.com/library/mdi/>

Questions?

🏠 www.deltares.nl

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✉️ info@deltares.nl

✉️ fews-pm@deltares.nl

