

# Deltares

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## **Delft-FEWS New Features and more...**

## **Delft-FEWS Remote User Meetings**

Delft-FEWS Product Management

Marcel Ververs

Gerben Boot

June 2021

# Overview

admin interface

new import flat      seamless integration  
readiness & deployment

module run time      spatial display

auto calibration display      cloud readiness

archive & seamless      time series display

computational framework

interval statistics

transformation      annotation display      open archive  
    webservices

- In this presentation...[link to documentation](#) or other relevant information (portal, video)
- The [2021.01 Release Notes](#)

# Admin Interface (API)

The screenshot shows the Delft-FEWS Admin Interface in a web browser. The title bar reads "Delft-FEWS Admin Interface". The URL in the address bar is "ai-nldefedmc00.avi.directory.intra/admin-interface/ui/configmanagement/mcconfig". The main content area is titled "Master Controller Configuration". It contains two main sections: "Download Master Controller Configuration XML file" with a download button and "Upload Master Controller Configuration file\*" with a "Choose File" input field showing "No file chosen" and an "Upload" button. On the left, a sidebar menu lists various administrative tasks: System Status, Forecast Tasks, Workflow and FSSs, Files, User Administration, System Control, Software and Configuration Management (which is currently selected), Master Controller Configuration (also selected), Delft-FEWS Configuration, Database Analysis, and Documentation.

# Admin Interface (API)

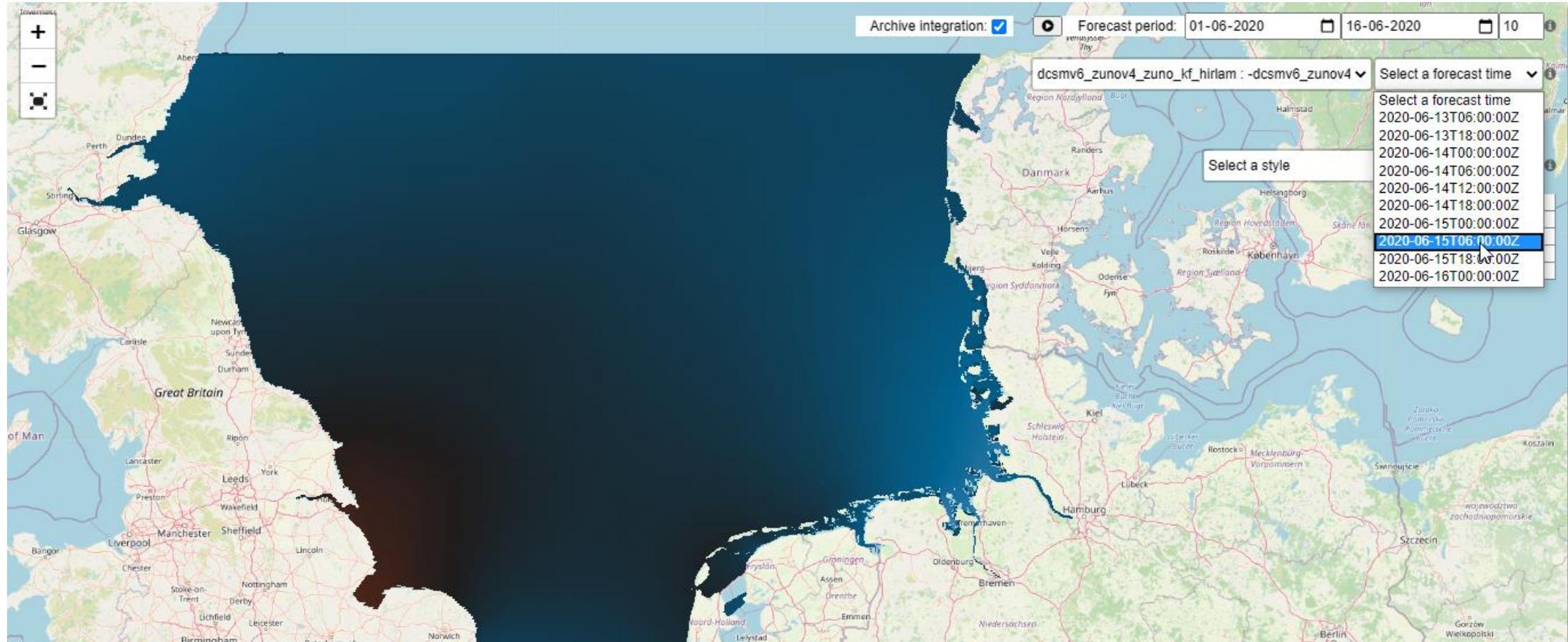
- Upload Master Controller Configuration
- Upload (zipped) Delft-FEWS configuration
- Manage (delete) base builds
- Logging in with Single Sign on using Active Directory (AD) or Azure AD (OAuth2)
- Statistics on Model Run Times
- More information
  - [Single Sign on](#)
  - [Admin Interface](#)
  - [Admin Interface API](#)

The screenshot displays three distinct panels of the Delft-FEWS Admin Interface:

- Left Panel (Login):** A "Single Sign-On" section followed by an "Admin Interface Login" section. It includes fields for "Username" and "Password", and a large green "Login" button.
- Middle Panel (MC Configuration):** A "Master Controller Configuration" section with a "Download Master Controller Configuration XML file" button and an "Upload Master Controller" section containing a "Choose File" input field. Below this is a "Upload Base Build" section with a "Base Build File\*" input field.
- Right Panel (Build Management):** A table titled "Delft-FEWS Admin Interface - Upload Base Build" showing base build versions and builds. The table has columns for "Version", "Build", and "Actions". A red dashed box highlights the "Actions" column. The data in the table is:

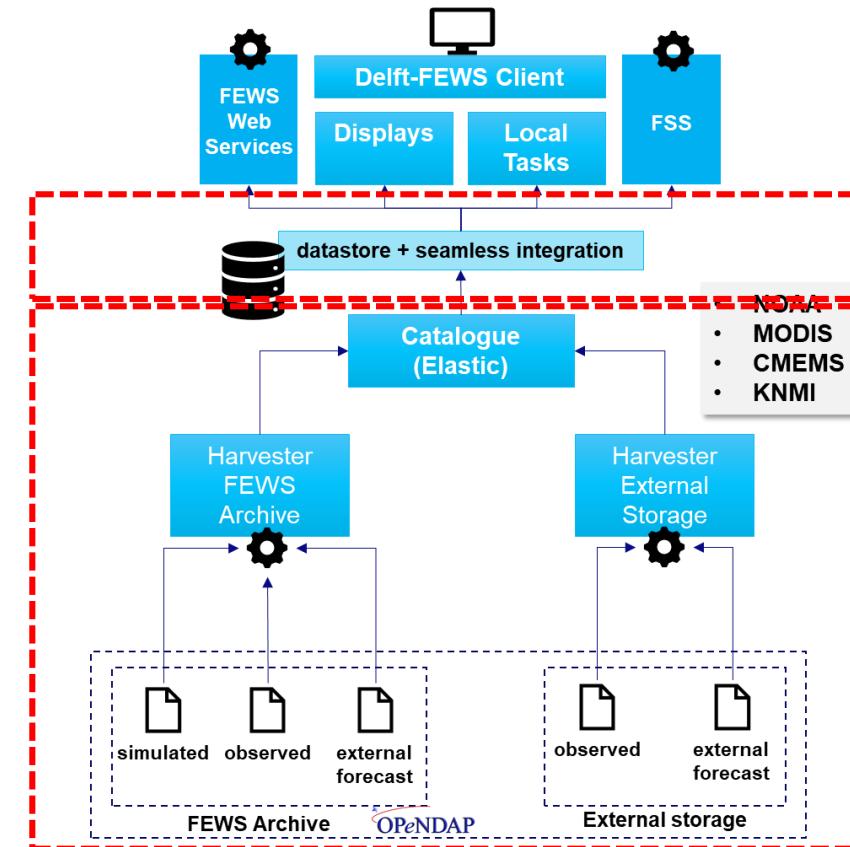
Version	Build	Actions
2020.01	93468	X
2020.01	97394	X
2021.01	102382	

# Open Archive and Seamless Integration



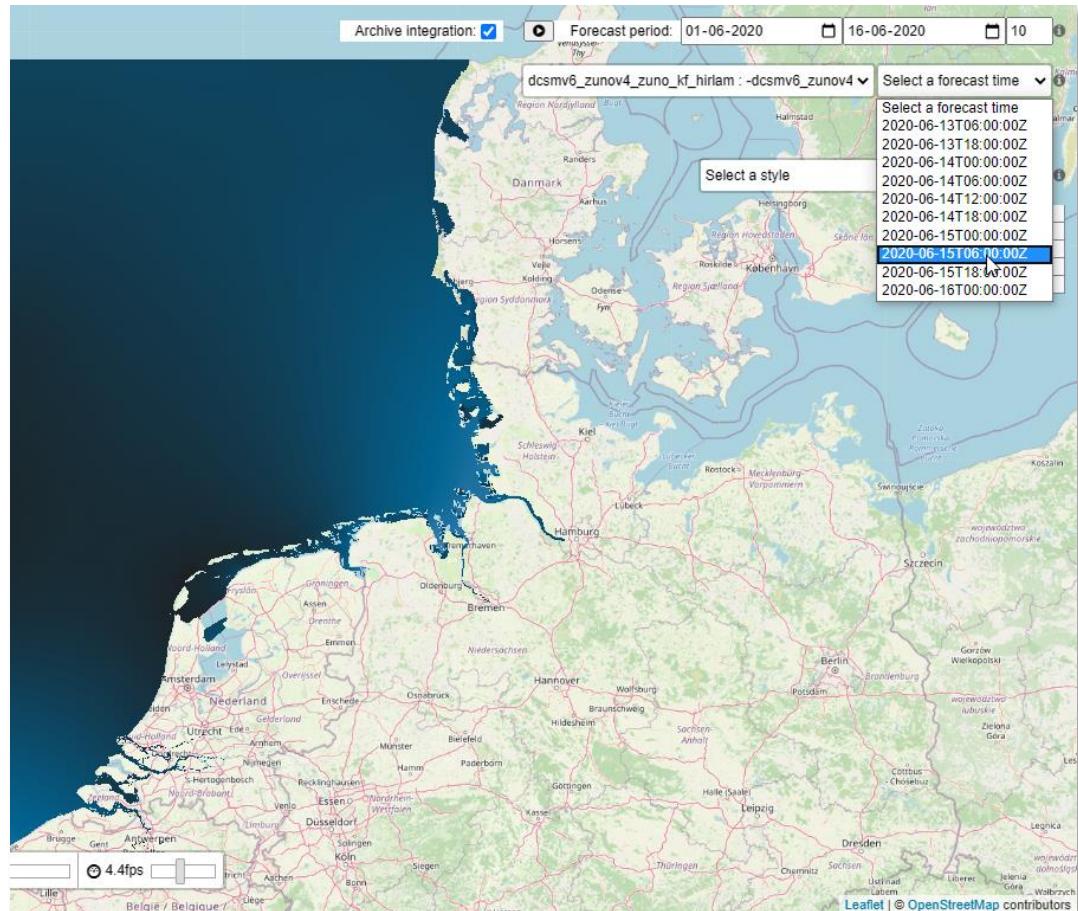
# Open Archive and Seamless Integration (intermezzo)

- Open Archive
  - FEWS archive
  - External storage
  - Catalogue
- Seamless integration
  - Knowledge AND mechanism to find, retrieve AND serve the data
- What makes this complex?
  - Different data types (sources): external data (observations, forecasts) and simulated data (historical runs, forecast runs)
  - Different data dimensions: scalar, 2d, 3d
  - Different data 'end points' (receivers): PI Webservice (WMS), various displays in the OC (TimeSeries Display or Grid Display) or to run a workflow with (Transformation)



# Open Archive and Seamless Integration

- **Backend improvements:** integrating the different timeseries types and different dimensions (scalar, 2d grids, 3d grids) in the various archive solutions.
- Making sure the **seamless integration** has the knowledge **where** to fetch the data from and **how to serve it**
- **Configuration options** added to define in which external data storage (Open Archive, NetCDF storage) certain timeseries are stored. This results in quicker searches in 2021.01
- More information
  - [Open Archive](#)
  - [2020.02 new features presentation](#)



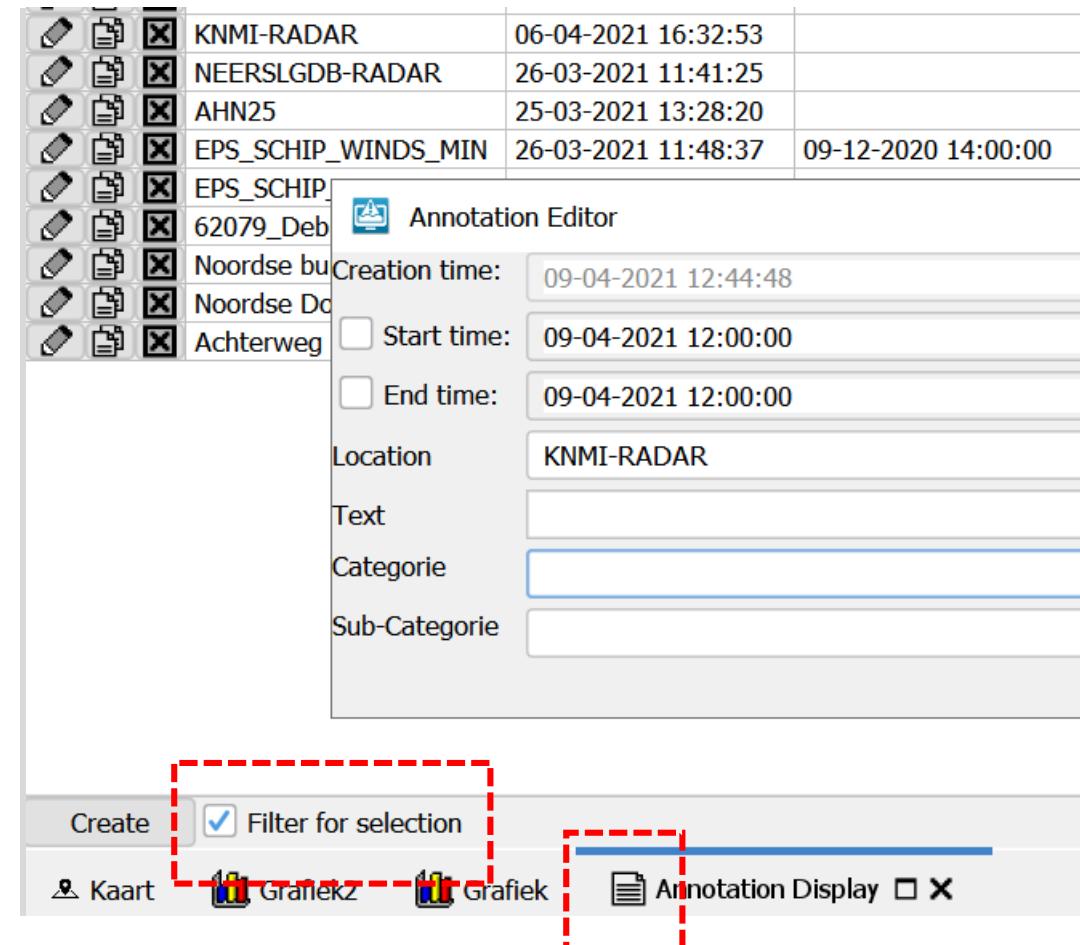
# Annotation Display

Delft-FEWS Waternet 2017-01 64T (Stand alone)

Actions	Location	Creation time	Start time	End time	Annotation	Categorie	Sub-Categorie
	KNMI-RADAR	01-01-1900 01:00:00			goed	Grondwater	hemelwater
	KNMI-RADAR	18-11-2020 14:00:00	18-11-2020 14:00:00	30-12-2020 14:00:00	Goed	Peilbesluiten	Peilbesluit kan niet ingesteld worden.
	KNMI-RADAR	09-12-2020 14:00:00	09-12-2020 14:00:00		Is	Alermen CAW	
	KNMI-RADAR	25-03-2021 13:24:26	18-11-2020 14:00:00	30-12-2020 14:00:00	Goed	Peilbesluiten	Peilbesluit kan niet ingesteld worden.
	KNMI-RADAR	25-03-2021 13:24:27		30-12-2020 14:00:00	Zelfs nog beter	Peilbesluiten	Peilbesluit kan niet ingesteld worden.
	KNMI-RADAR	25-03-2021 13:24:27	18-11-2020 14:00:00		Nog beter	Peilbesluiten	Peilbesluit kan niet ingesteld worden.
	KNMI-RADAR	25-03-2021 13:24:28	18-11-2020 14:00:00	30-12-2020 14:00:00	Heel Goed	Peilbesluiten	Peilbesluit kan niet ingesteld worden.
	KNMI-RADAR	25-03-2021 13:28:20			goed	Grondwater	hemelwater
	KNMI-RADAR	25-03-2021 13:28:21			goed	Grondwater	hemelwater
	KNMI-RADAR	26-03-2021 15:39:11			Z	Grondwater	Grondwater
	KNMI-RADAR	26-03-2021 15:40:02				Alermen CAW	
	KNMI-RADAR	01-04-2021 14:53:00	18-11-2020 14:00:00	30-12-2020 14:00:00	Goed	Peilbesluiten	Peilbesluit kan niet ingesteld worden.
	KNMI-RADAR	06-04-2021 12:03:52		30-12-2020 14:00:00	Zelfs nog beter	Peilbesluiten	Peilbesluit kan niet ingesteld worden.
	KNMI-RADAR	06-04-2021 16:32:53			Text close after apply		
	NEERSLGDB-RADAR	26-03-2021 11:41:25			My first annotation		
	AHN25	25-03-2021 13:28:20			goed		
	EPS_SCHIP_WINDS_MIN	26-03-2021 11:48:37	09-12-2020 14:00:00		My second		
	EPS_SCHIP_WINDR_GEM	26-03-2021 11:48:37	09-12-2020 14:00:00		My second		
	62079_Debiet_Westslu...	31-03-2021 16:32:47		09-12-2020 14:00:00	Veranderde locatie en eindtijd		
	Noordse buurt	01-04-2021 14:27:14			Test location dropdown		
	Noordse Dorpsweg	01-04-2021 14:28:58			Test location dropdown		
	Achterweg Krooshekpeil	02-04-2021 11:36:45			Gevonden		

# Annotation Display

- Create a [new annotation](#) and specify the details
- Overview of [existing annotations](#)
- Filter for the [active selection](#) you made in e.g. the timeseries display or spatial display
- If (no) annotations are available for a certain selected location, the user is informed.
- Annotations can be [imported](#) and [exported](#).
- [More information](#)



# Cloud (readiness) and Deployment of Delft-FEWS



# Cloud (readiness) and Deployment of Delft-FEWS

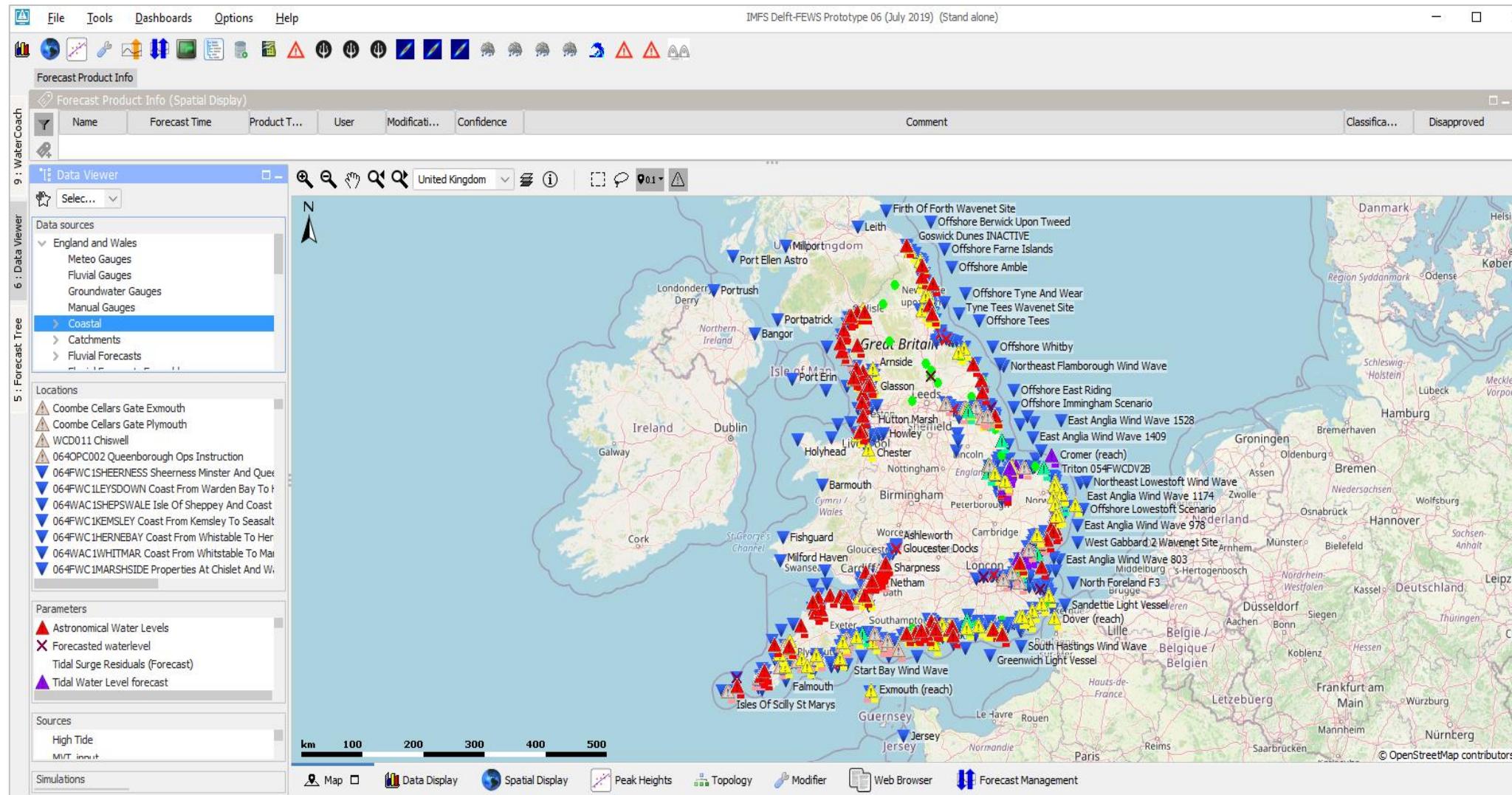
## Cloud

- (automated) Installation of Delft-FEWS components cloud- ready
- Development of ARM\* templates for:
  - Creating the Virtual Machines AND
  - Deploying the Delft-FEWS components
- All of our test systems in Delft are now on cloud based technology
- More information: [fews-pm@deltares.nl](mailto:fews-pm@deltares.nl)



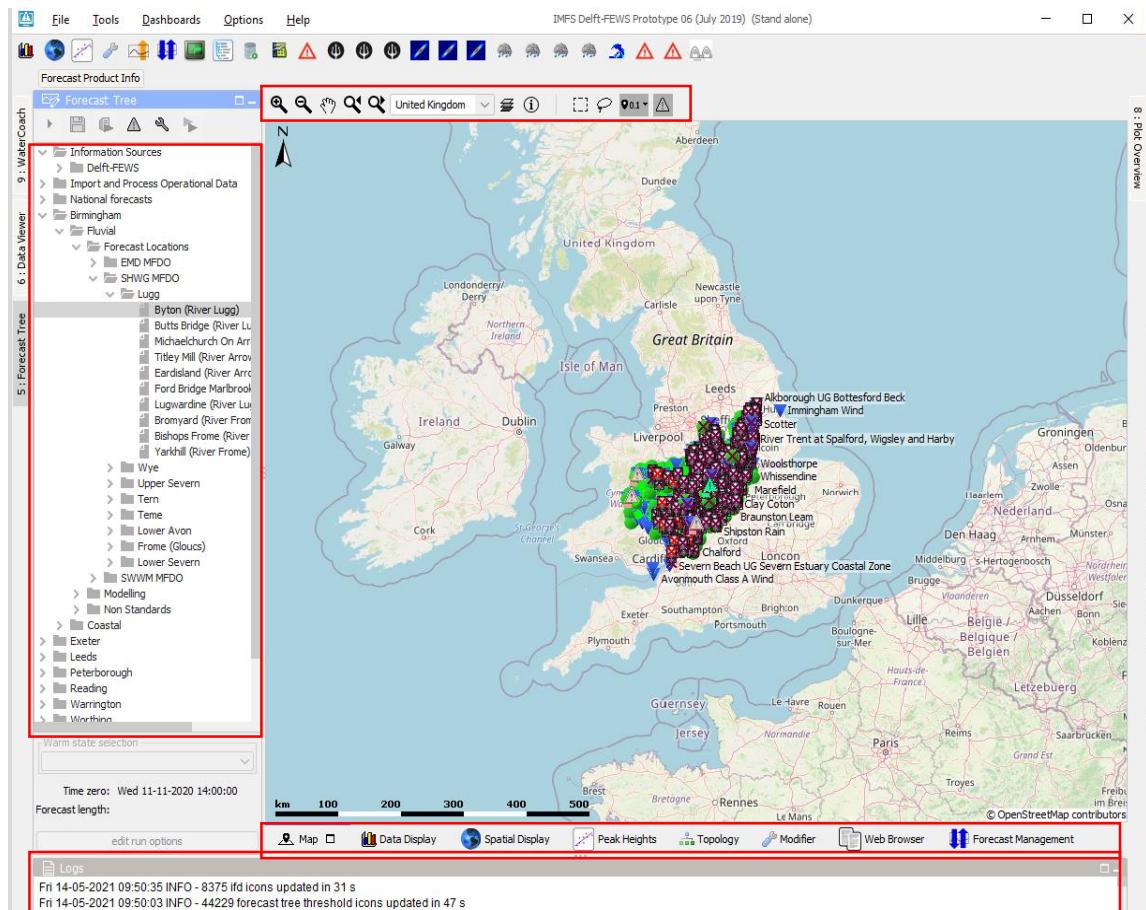
\*Azure Resource Manager

# Flat Look and Feel

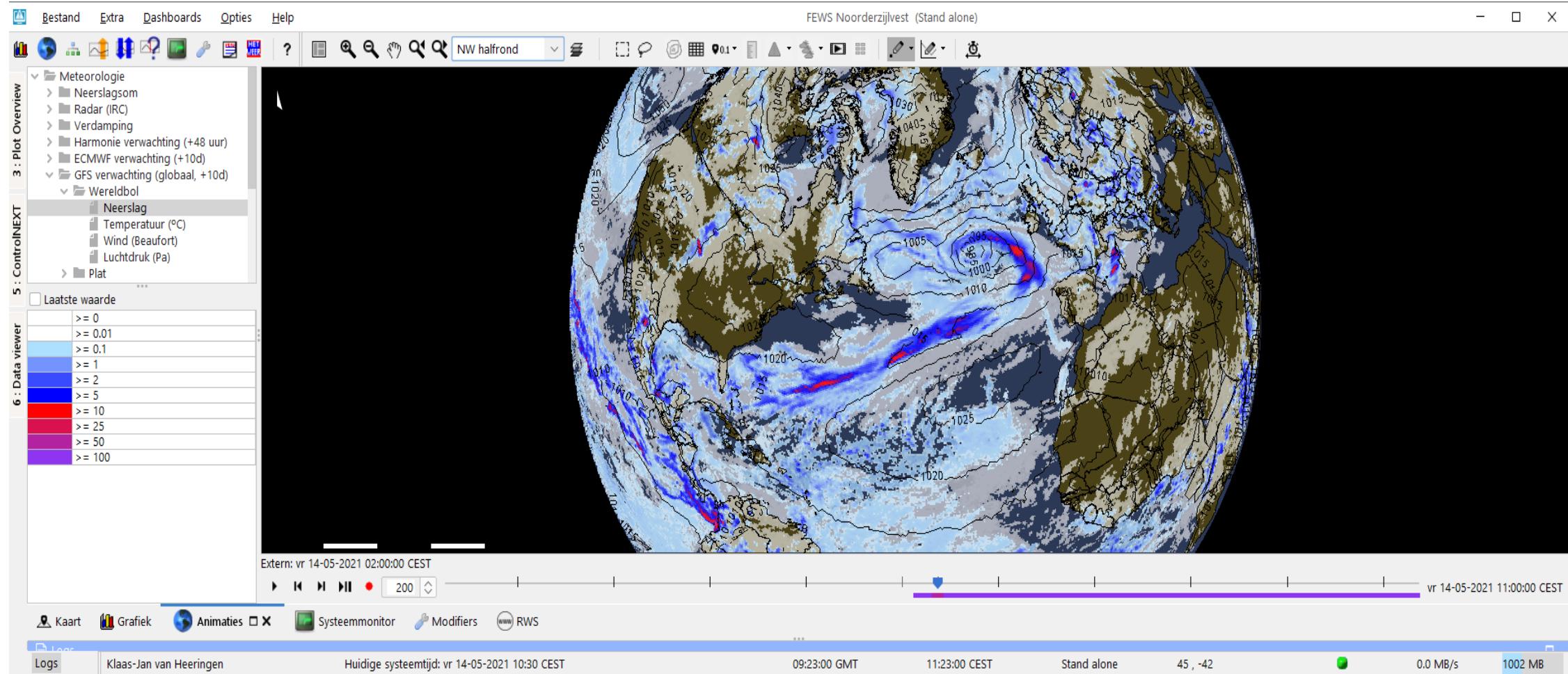


# Flat Look and Feel

- Default look & Feel (Windows & linux)
- Font identical as 2020.02
- Also in combination with own color schemes

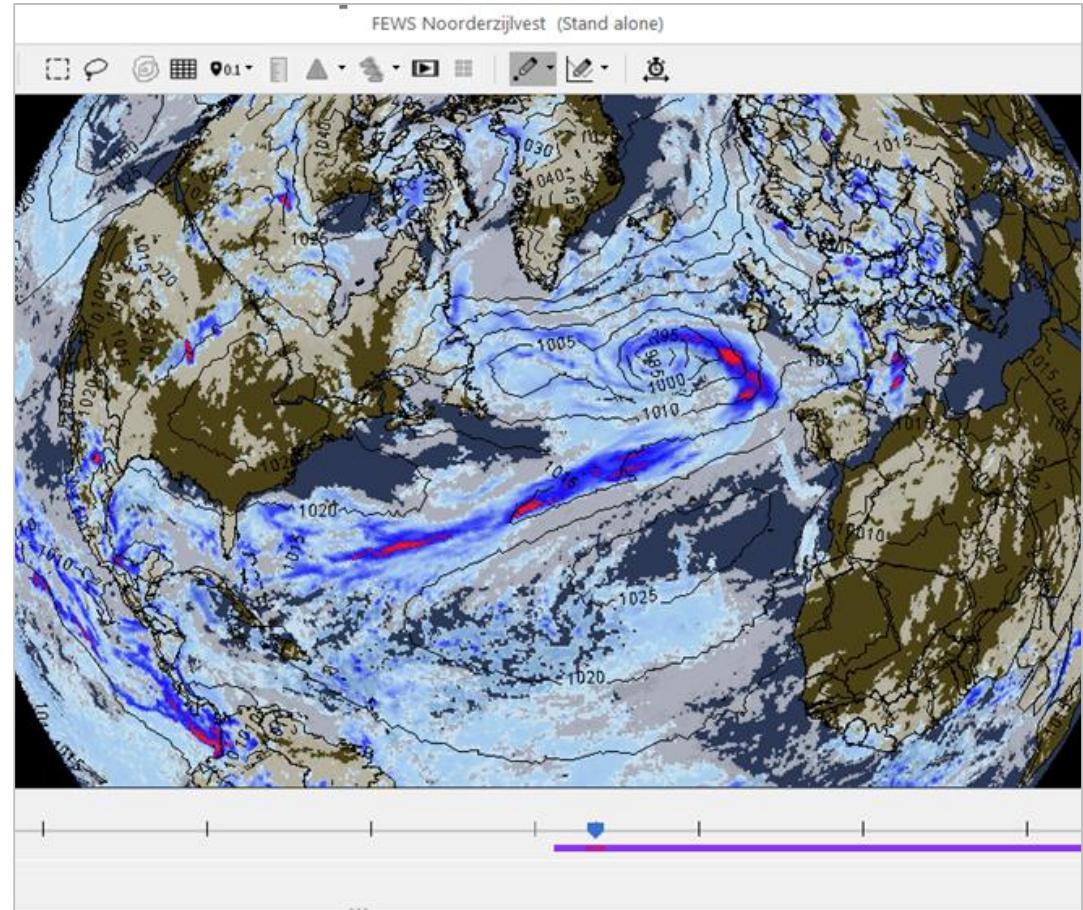


# Improvements to Spatial Display



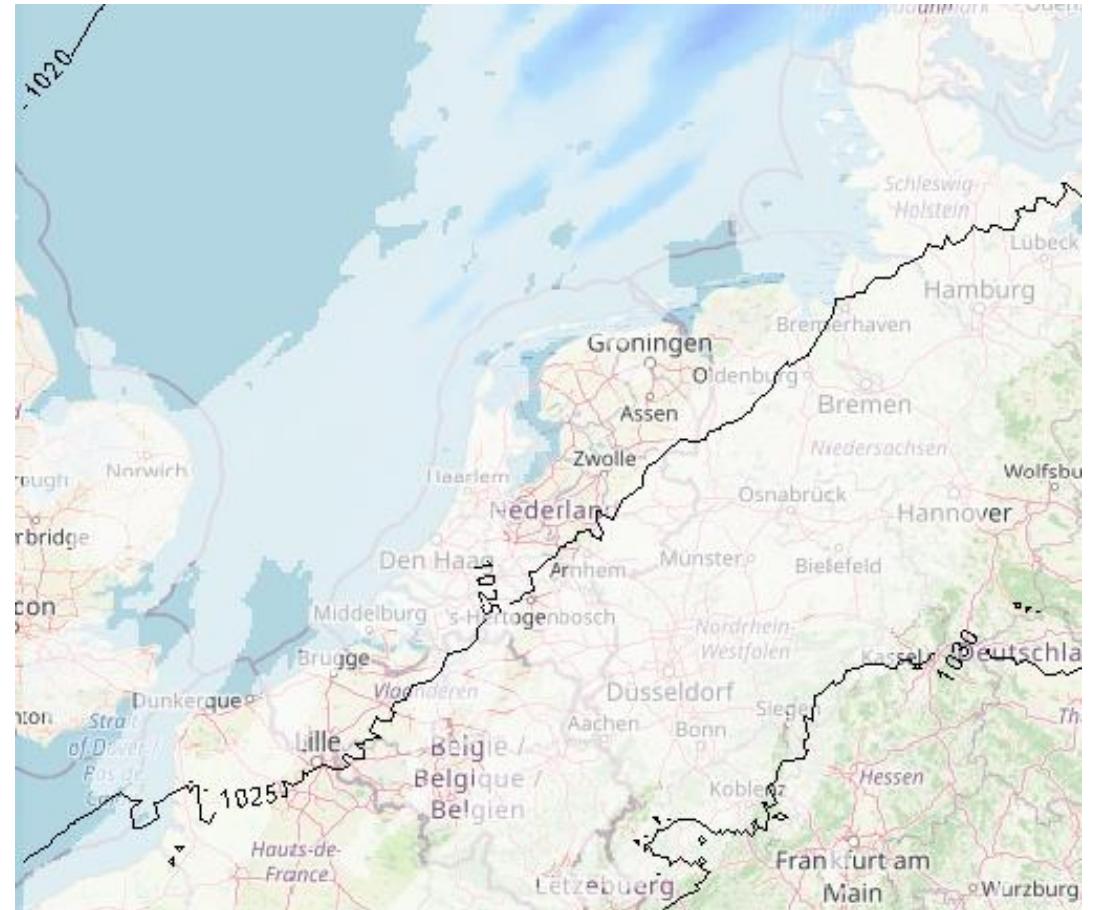
# Improvements to Spatial Display

- Smoothening of isolines
- Display [true color image](#) and normal grid together



# Improvements to Spatial Display

- Smoothening of isolines
- Display [true color image](#) and normal grid together



# Module Run Times

Delft-FEWS Admin Interface - Module Run Times

Show 1000 entries

Workflow Id	Module Instance Id	Expected Pending Duration	Expected Running Duration	Expected Start Time	Expected Completion Time
Spatial_Forcing_ECMWF_ENS_EXT	Dummy	0s	0s	22/04/2021 13:13:54	22/04/2021 13:13:54
Spatial_Forcing_ECMWF_ENS	Dummy	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53
Spatial_Forcing_DWD_ICON_EU	Dummy	0s	0s	22/04/2021 13:13:54	22/04/2021 13:13:54
Spatial_Forcing_DWD_ICON	Dummy	0s	0s	22/04/2021 13:13:54	22/04/2021 13:13:54
Spatial_Forcing_DWD_COSMO_LEPS	Dummy	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53
Rhine_WFLOW_HBV_Spatial_Forcing_Update	GENRE_CalculateRain	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53
Rhine_WFLOW_HBV_Spatial_Forcing_Update	CalculateHourlyTemp	4s	0s	22/04/2021 13:13:57	22/04/2021 13:13:57
Rhine_WFLOW_HBV_Forecast	Rhine_WFLOW_HBV_Forecast	54s	0s	10/05/2021 16:30:54	10/05/2021 16:30:54
Rhine_WFLOW_HBV_Forecast	HYRAS_Temperature_ModelGrid	23s	0s	10/05/2021 16:30:23	10/05/2021 16:30:23
Rhine_WFLOW_HBV_Forecast	HYRAS_Temperature_DEM	22s	0s	10/05/2021 16:30:22	10/05/2021 16:30:22
Rhine_WFLOW_HBV_Forecast	Export_Rhine_WFLOW_HBV_Forecast	3m 52s	0s	10/05/2021 16:33:52	10/05/2021 16:33:52
Rhine_WFLOW_HBV_Forecast	CalculateDailyTemp	1s	0s	10/05/2021 16:30:01	10/05/2021 16:30:01
Rhine_Spatial_Forcing_Update	GENRE_CalculateRain	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53
Rhine_Spatial_Forcing_Update	CalculateHourlyTemp	9s	0s	22/04/2021 13:14:02	22/04/2021 13:14:02
Rhine_NO_RAIN	Dummy	0s	0s	10/05/2021 16:15:00	10/05/2021 16:15:00
Rhine_ECMWF_HRES	Rhine_MeteoPreprocessing	1s	0s	11/05/2021 01:00:01	11/05/2021 01:00:01
Rhine_ECMWF_HRES	Dummy	2s	0s	11/05/2021 01:00:02	11/05/2021 01:00:02
Rhine_ECMWF_ENS_EXT	Dummy	0s	0s	22/04/2021 13:13:54	22/04/2021 13:13:54
Rhine_ECMWF_ENS	Dummy	0s	0s	11/05/2021 00:00:00	11/05/2021 00:00:00

# Module Run Times

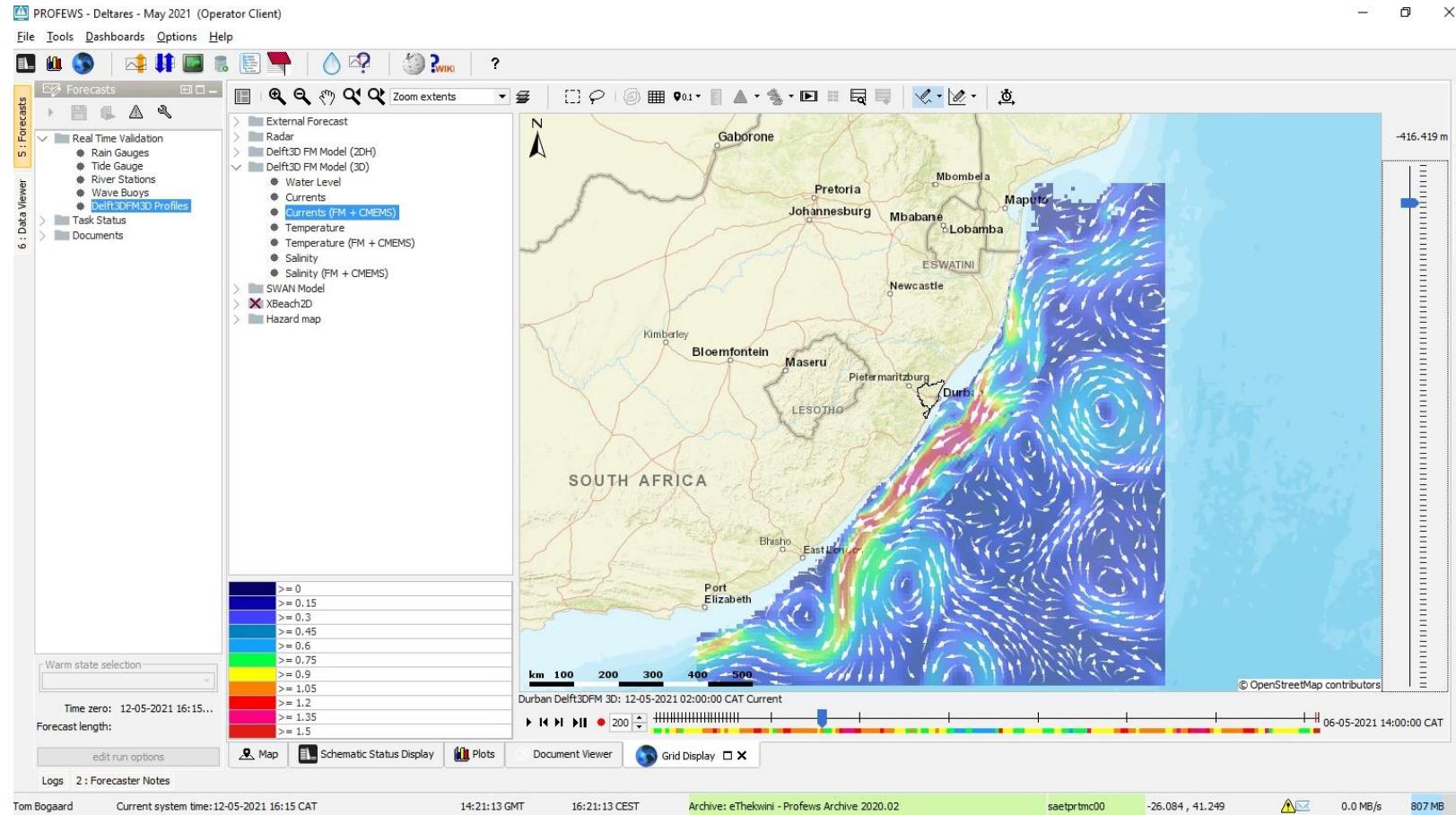
- Estimate run times based on history of results
- For longer workflows to know:
  - Progress status
  - How long to complete
- Information is stored in database
- Now info only in Admin Interface + REST API
  - In future also in client
- Approval while running workflow is possible

Admin Interface - Module Run Times						
Show 1000 entries						
Workflow Id	Module Instance Id	Expected Pending Duration	Expected Running Duration	Expected Start Time	Expected Completion Time	⋮
Spatial_Forcing_ECMWF_ENS_EXT	Dummy	0s	0s	22/04/2021 13:13:54	22/04/2021 13:13:54	
Spatial_Forcing_ECMWF_ENS	Dummy	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53	
Spatial_Forcing_DWD_ICON_EU	Dummy	0s	0s	22/04/2021 13:13:54	22/04/2021 13:13:54	
Spatial_Forcing_DWD_ICON	Dummy	0s	0s	22/04/2021 13:13:54	22/04/2021 13:13:54	
Spatial_Forcing_DWD_COSMO_LEPS	Dummy	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53	
Rhine_WFLOW_HBV_Spatial_Forcing_Update	GENRE_CalculateRain	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53	
Rhine_WFLOW_HBV_Spatial_Forcing_Update	CalculateHourlyTemp	4s	0s	22/04/2021 13:13:57	22/04/2021 13:13:57	
Rhine_WFLOW_HBV_Forecast	Rhine_WFLOW_HBV_Forecast	54s	0s	10/05/2021 16:30:54	10/05/2021 16:30:54	
Rhine_WFLOW_HBV_Forecast	HYRAS_Temperature_ModelGrid	23s	0s	10/05/2021 16:30:23	10/05/2021 16:30:23	
Rhine_WFLOW_HBV_Forecast	HYRAS_Temperature_DEM	22s	0s	10/05/2021 16:30:22	10/05/2021 16:30:22	
Rhine_WFLOW_HBV_Forecast	Export_Rhine_WFLOW_HBV_Forecast	3m 52s	0s	10/05/2021 16:33:52	10/05/2021 16:33:52	
Rhine_WFLOW_HBV_Forecast	CalculateDailyTemp	1s	0s	10/05/2021 16:30:01	10/05/2021 16:30:01	
Rhine_Spatial_Forcing_Update	GENRE_CalculateRain	0s	0s	22/04/2021 13:13:53	22/04/2021 13:13:53	
Rhine_Spatial_Forcing_Update	CalculateHourlyTemp	9s	0s	22/04/2021 13:14:02	22/04/2021 13:14:02	
Rhine_NO_RAIN	Dummy	0s	0s	10/05/2021 16:15:00	10/05/2021 16:15:00	

Rhine_WFLOW_HBV_Forecast	Rhine_WFLOW_HBV_Forecast	54s	0s	10/05/2021 16:30:54	10/05/2021 16:30:54
Rhine_WFLOW_HBV_Forecast	HYRAS_Temperature_ModelGrid	23s	0s	10/05/2021 16:30:23	10/05/2021 16:30:23
Rhine_WFLOW_HBV_Forecast	HYRAS_Temperature_DEM	22s	0s	10/05/2021 16:30:22	10/05/2021 16:30:22
Rhine_WFLOW_HBV_Forecast	Export_Rhine_WFLOW_HBV_Forecast	3m 52s	0s	10/05/2021 16:33:52	10/05/2021 16:33:52
Rhine_WFLOW_HBV_Forecast	CalculateDailyTemp	1s	0s	10/05/2021 16:30:01	10/05/2021 16:30:01

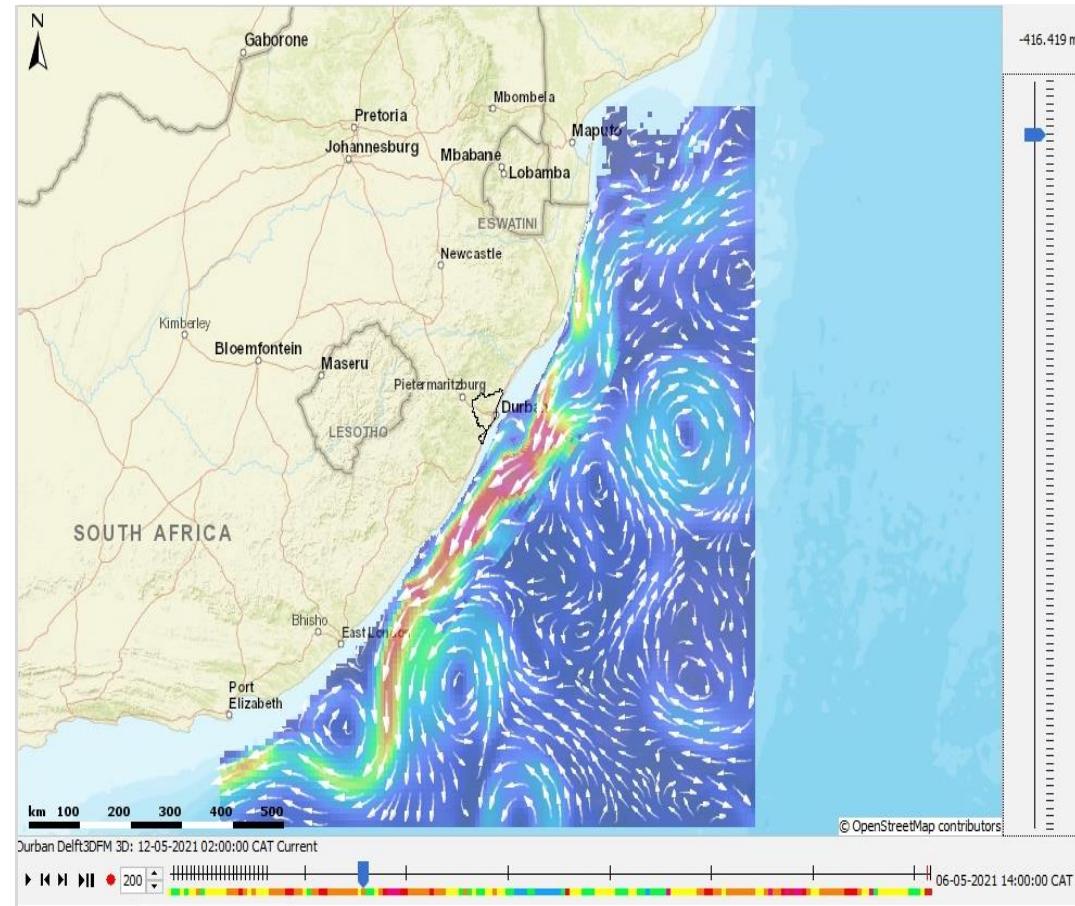
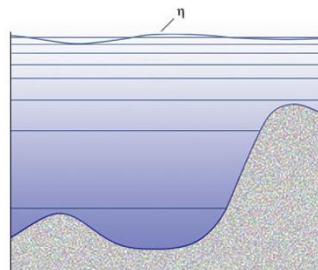
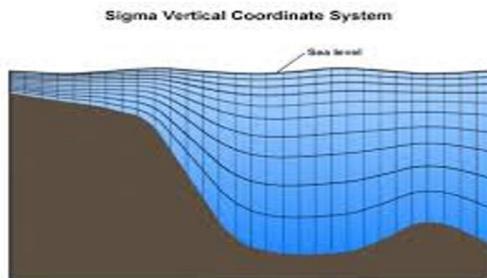
# Transformation: Vertical interpolation/averaging



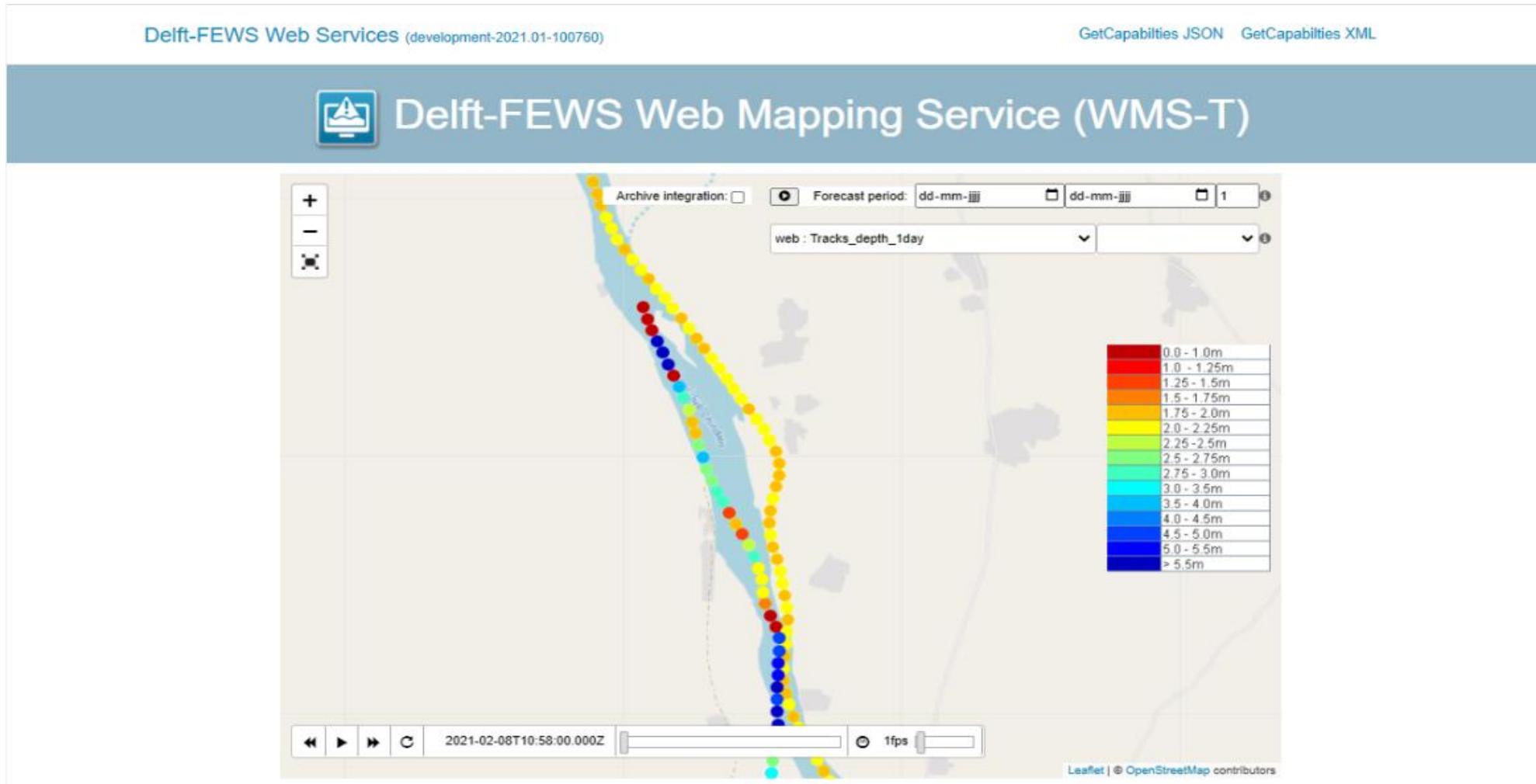
# Transformation: Vertical interpolation/averaging

Transformations to average velocities for:

- Sigma layers
- Z-layers
- Specific domain
- Specific time window
- [More Information](#)

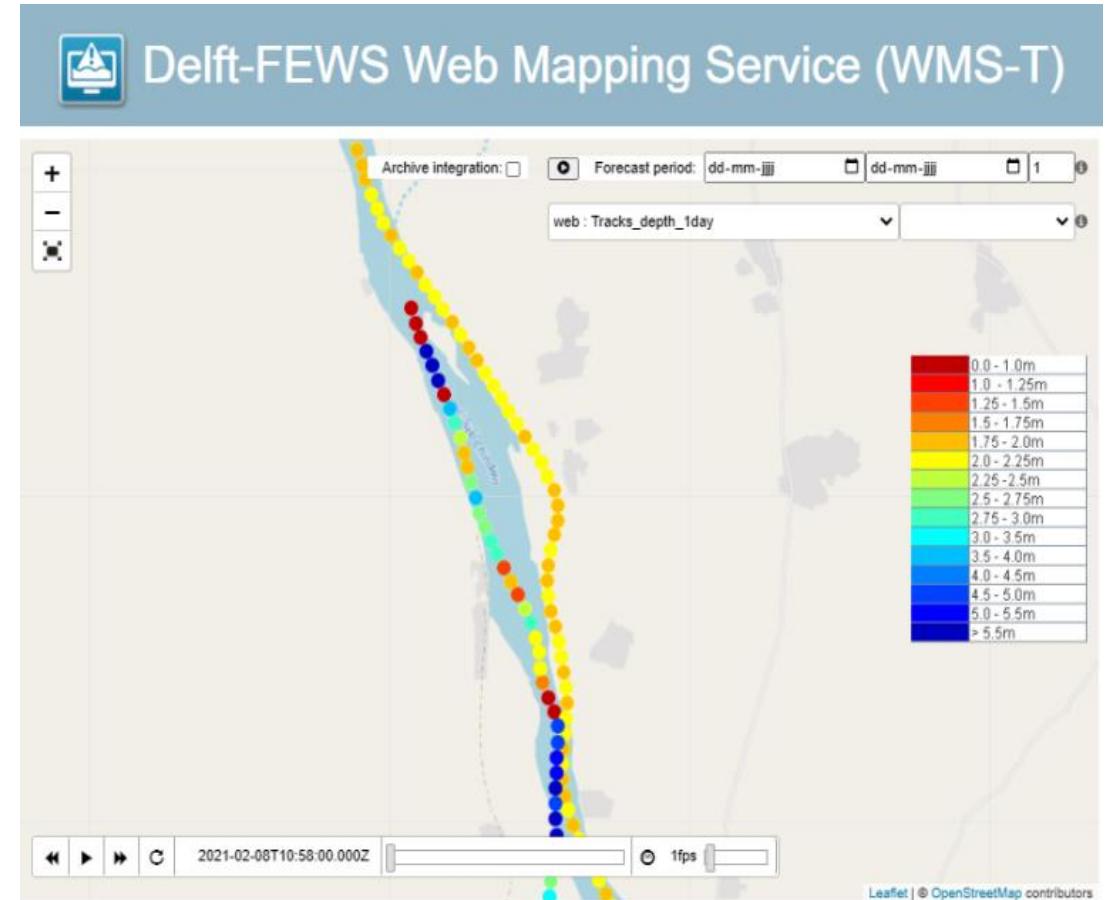


# FEWS Webservices improvements

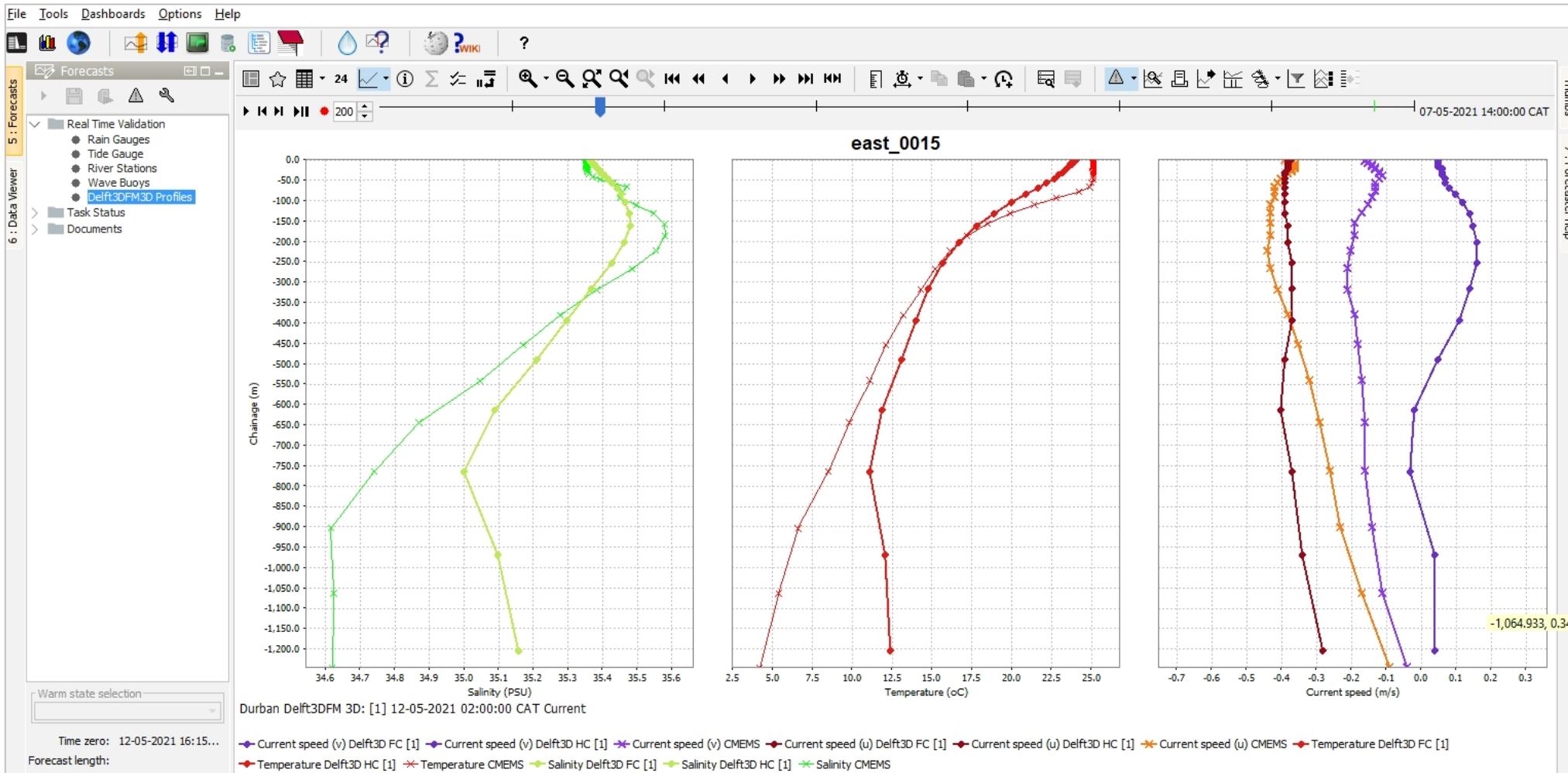


# FEWS Webservices improvements

- Tracklayer (spatial display) in webservice
- Get time series for point, layer or vertical profile for 3D data
- Limit Symbols in Webservice (read)
- WMS get latest forecast (database & archive)
- WMS GetCapabilities also reports:
  - Keywords
  - Styles
  - Elevation (3D layer)
  - default time

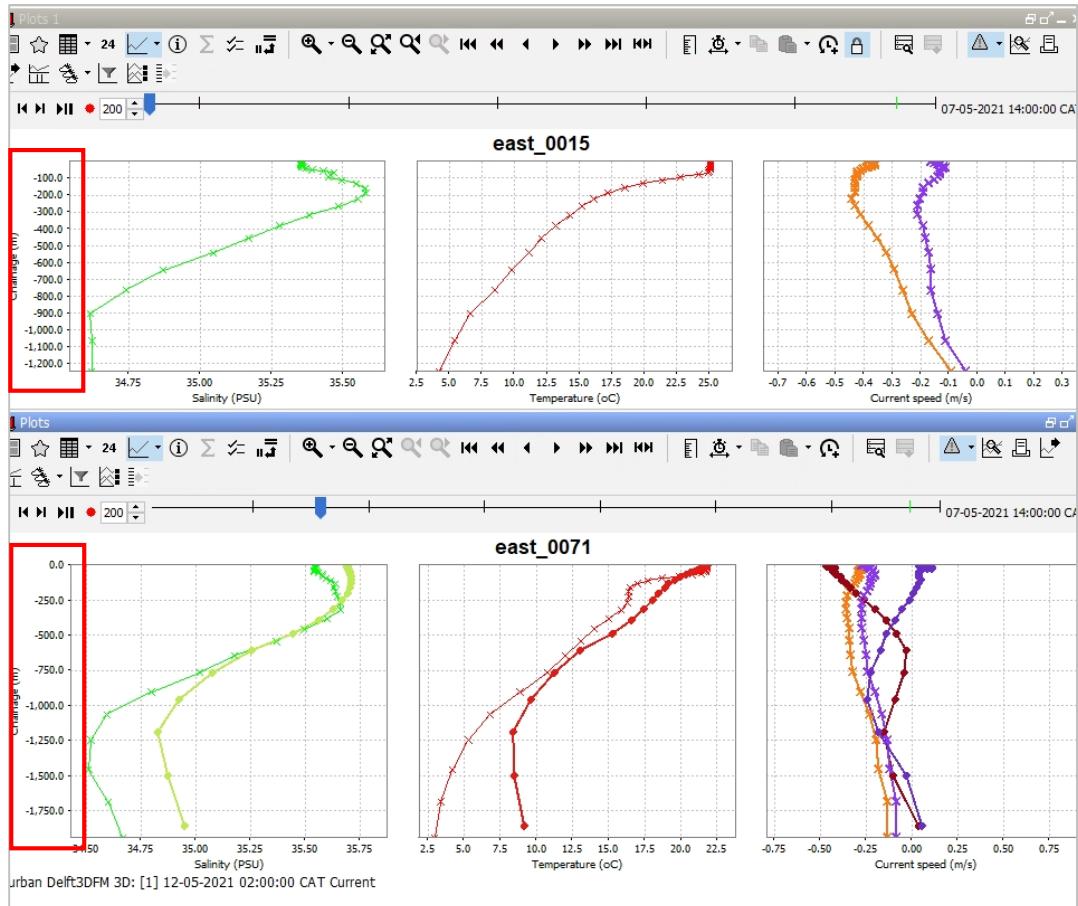


# Time Series Display Improvements



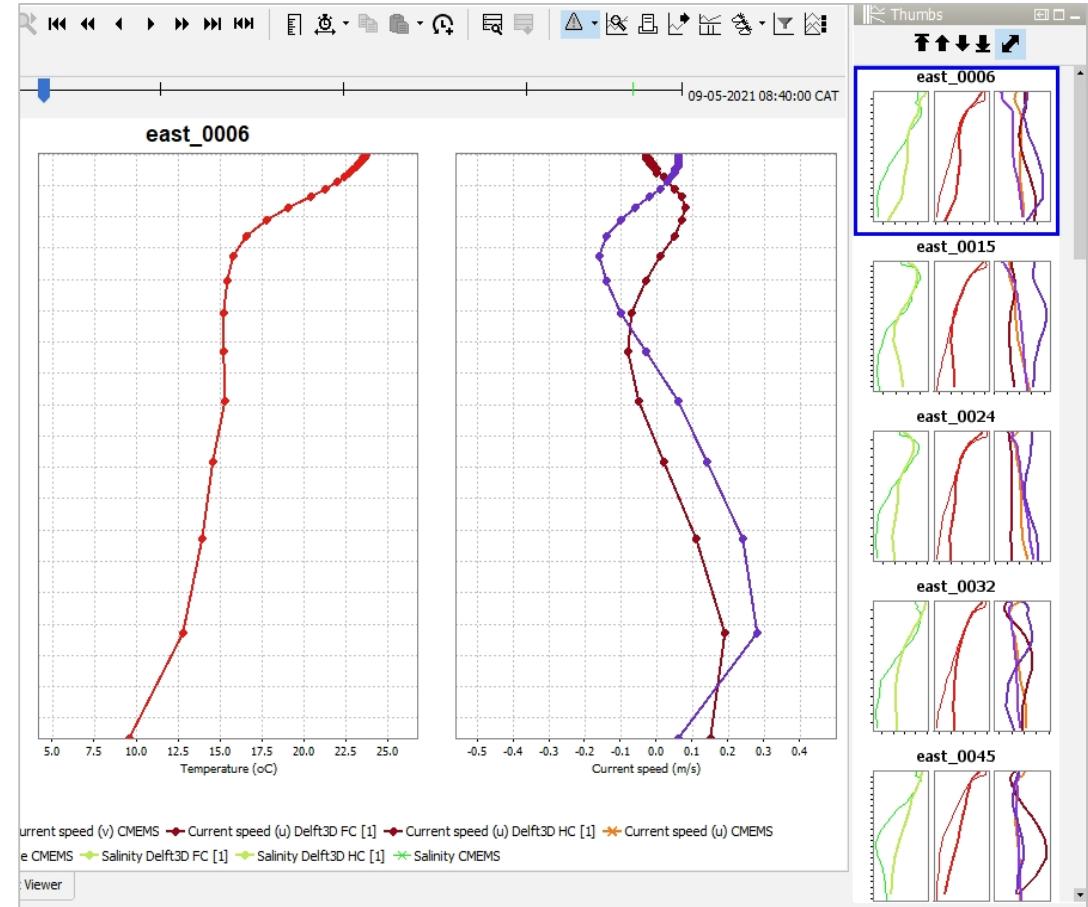
# Time Series Display Improvements

- Vertical profiles from different sources in one plot
- Automatic scaling to vertical data range
- Different sources also in Thumbnails



# Time Series Display Improvements

- Vertical profiles from different sources in one plot
- Automatic scaling to vertical data range
- Different sources also in Thumbnails



# Time Series Display Improvements

- Show time period in History pop-up window
- Restore removed non-equidistant time steps
- Sample viewer [filtering possible on time](#)

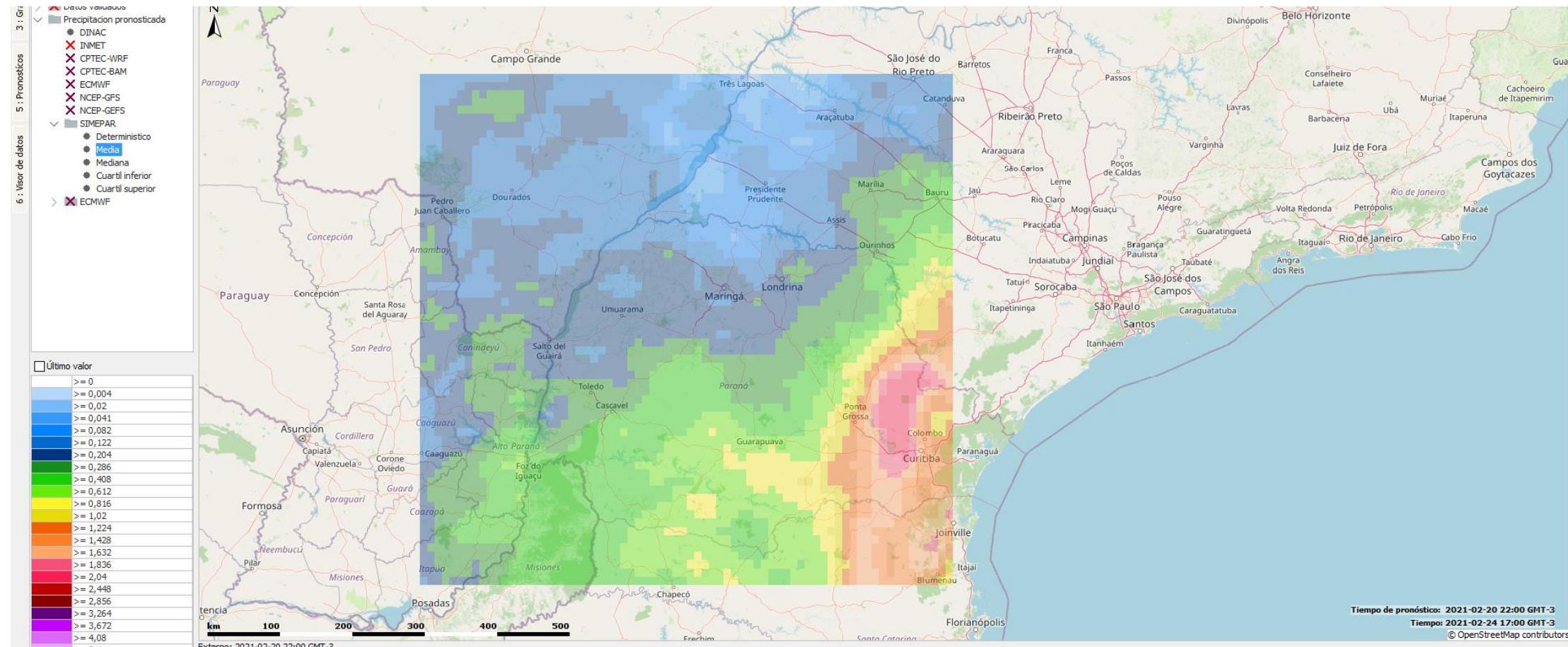
The screenshot displays a software interface with three main components:

- Left Panel:** A sidebar with various configuration options and keyboard shortcuts. The "Removed Times" option is highlighted with a red border.
- Middle Panel:** A history log titled "Historie 30\_02 BEDKG[%] (%) ACO\_17\*GH\_20\*MCO\_17\*PC\_1506\*TT\_15\*WP\_37 nonequidistant Import\_IMmetingen\_Biologie, Date: 23-07-2019 00:00:00". It lists two entries:

Gewijzigd op	Workflow/Gebruiker	Waarde	Vlag	Validatie	Commentaar	Resultaatdatum	Meetinstantie	Resultaattijd
25-05-2021 10:50:02	Erik Pelgrim	3	corrected reliable			23-07-2019	AQUON	14:50
11-05-2021 11:43:27	wf_Import_IMmetingen_Biologie	0	original reliable			23-07-2019	AQUON	14:50

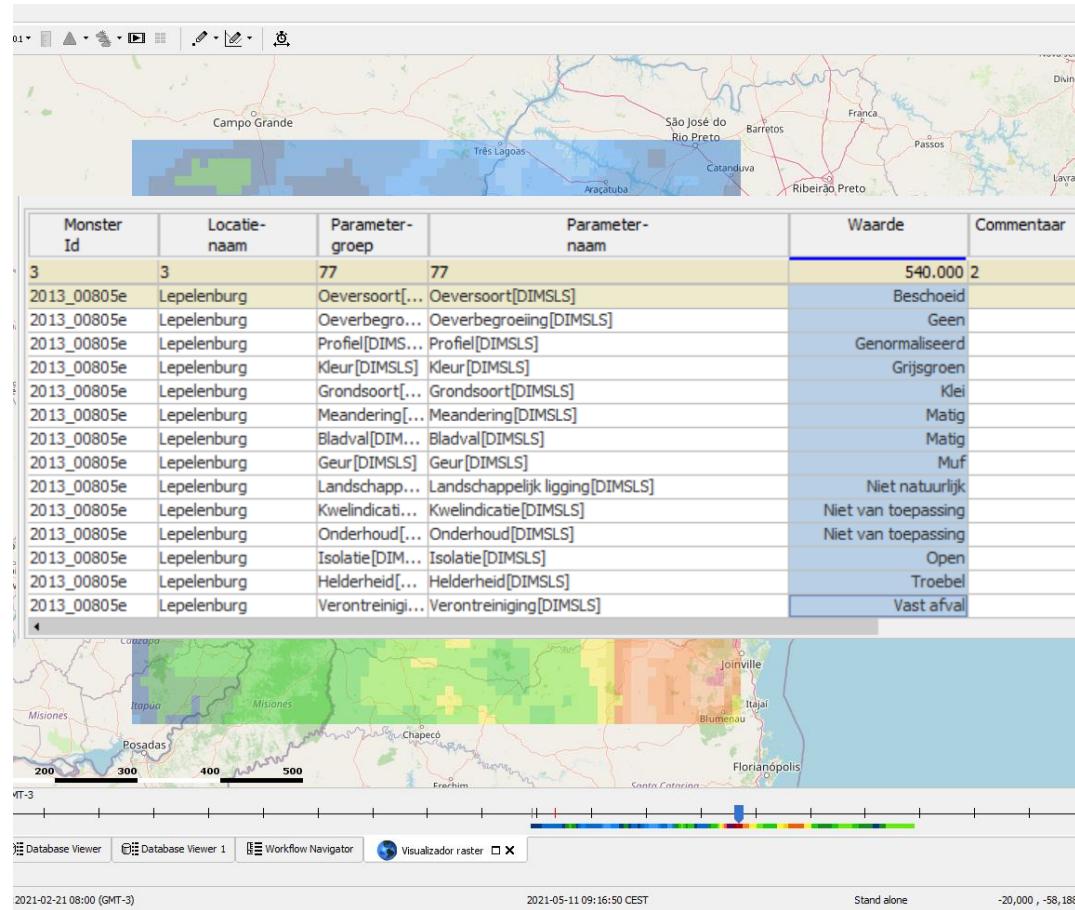
- Bottom Panel:** A search and filter interface with fields for "Starttijd" (01-01-1900 01:00:00) and "Eindtijd" (01-01-2100 01:00:00). A dropdown menu for "Groeseizoen" is open, showing "Groeseizoen" and "Off season" as options. The "Toepassen" button is also visible.

# New Imports



# New Imports

- GRADS Gridded data import
- Extend WIWB [import for older forecasts](#)
- Import from database BDH ([REST API](#))
- API import for [SENCROP](#) sensors
- API import [Soil Moisture](#) sensors
- JSON import for [observed BMA data](#)
- Import for [RivDaily Limits](#)
- Import Alpha numerical values for waterquality data



# Questions



# Contact

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 @DelftFEWS

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Deltares