

Deltares

Deltares

Delft-FEWS New Features and more...

Delft-FEWS Remote User Meetings

Delft-FEWS Product Management

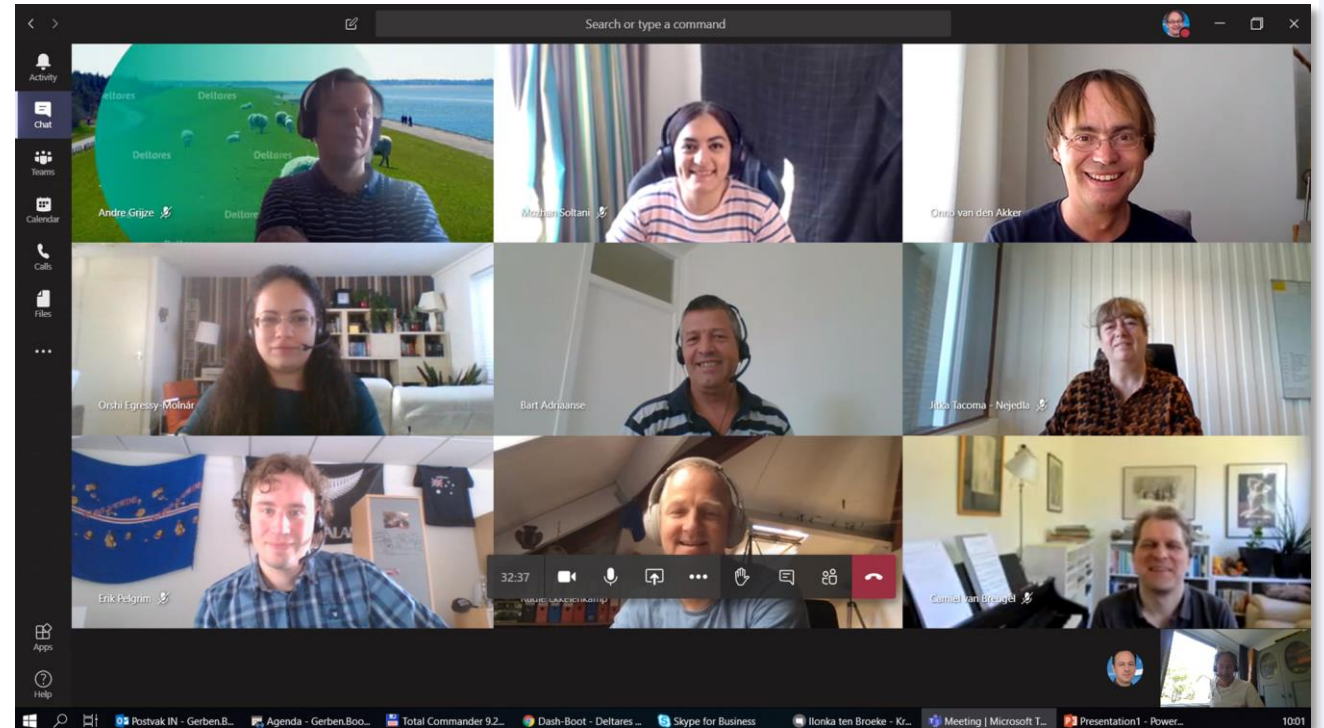
Marcel Ververs

Gerben Boot

November 2020

Overview

- **O**n the fly statistics
- **B**ackend Improvements
- **S**chematic Status Display
- **E**xternal data imports
- **R**IBASIM Network Editor
- **V**isualization in Dashboards
- **E**valuating layer attributes

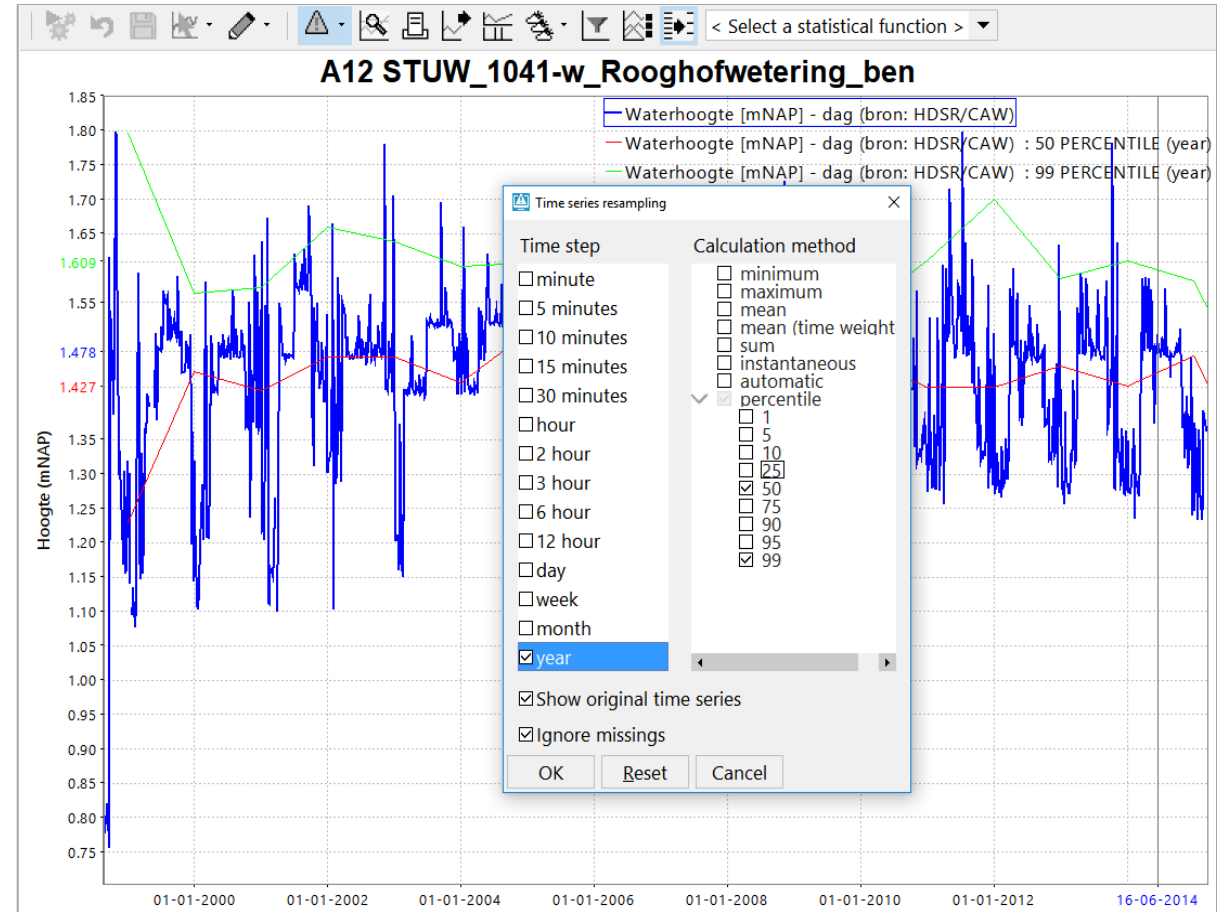


[Delft-FEWS 2020.02 Release Notes](#)

Deltares

On the fly statistics

- Long term periodic (percentile) statistics
- Periodic time series based on long term scroller
- More information on [wiki](#)
- Percentile Resampling
- Compare values to current month or year (or chosen interval)
- More information on [wiki](#)



Backend Improvements

Admin Interface

- Download + upload MC Config file
- Upload of whole Config, replacing whole config revision
- Schedule yearly task
- Use this [link](#) for more information

REST API

- [Config zip upload](#)

Master Controller

- MClauncher
- Single build, patchable
- MC config schema

Deltares

Master Controller Configuration

Download Master Controller Configuration XML file

Upload Master Controller Configuration XML file* Geen bestand gekozen

Delft-FEWS Configuration

Description

Upload Delft-FEWS Configuration zip file* Geen bestand gekozen

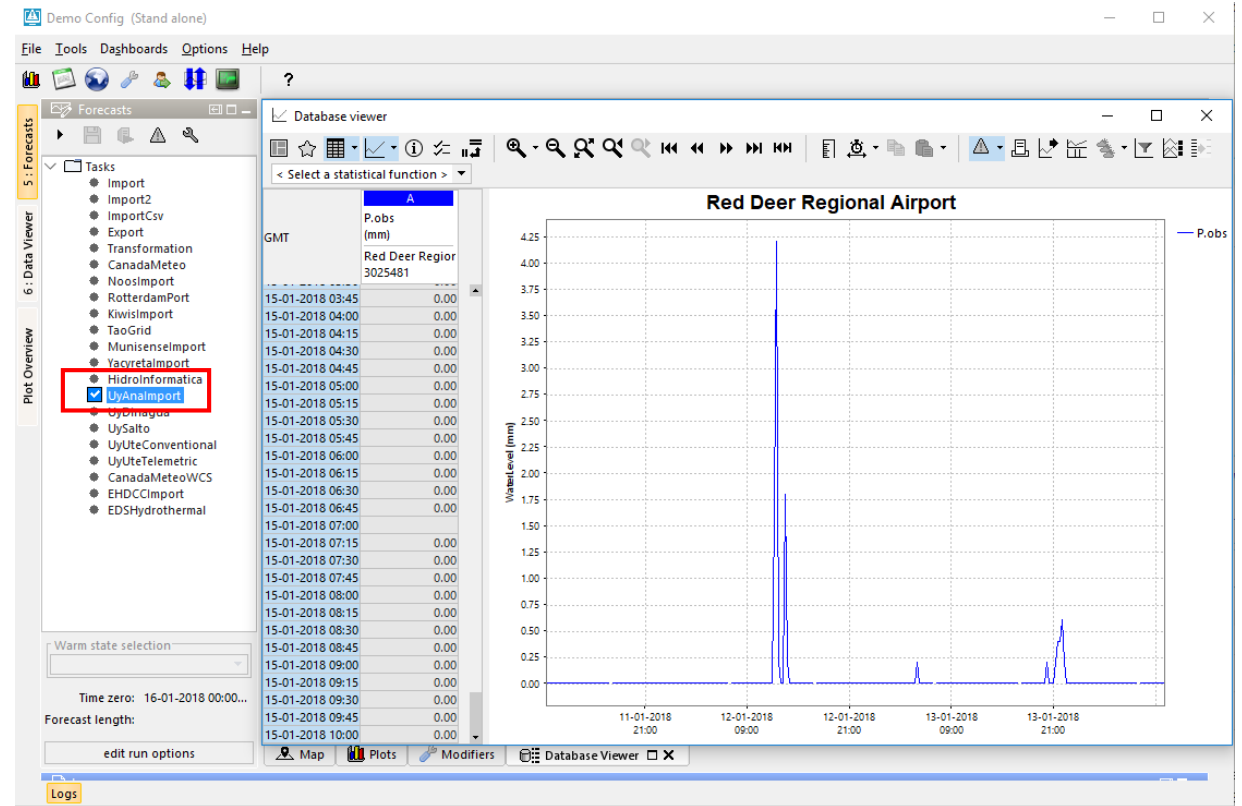
Repeat Mode

Once only
 Fixed interval
 One or more times each day
 One or more days each month
 Yearly

e.g. 7/13 for July the 13th at midnight GMT-0. Multiple month/day entries can be specified separated with a space. e.g. 7/13 11/5 12/31

External data

- [UTE Web Service Import](#)
- [ANA Web Service Import](#)
- [DINAGUA Web Service Import](#)
- [Salto Grande Web Service Import](#)
- [EDS hydrothermal](#) file format
- Improved [NetCDF OpenDAP importer](#) for Global Precipitation Monitoring satellite data
- [Ottawa River Regulation Import](#)
- [Minerve JSon forecasts Import](#)
- Extend trigger mechanism import for multiple files



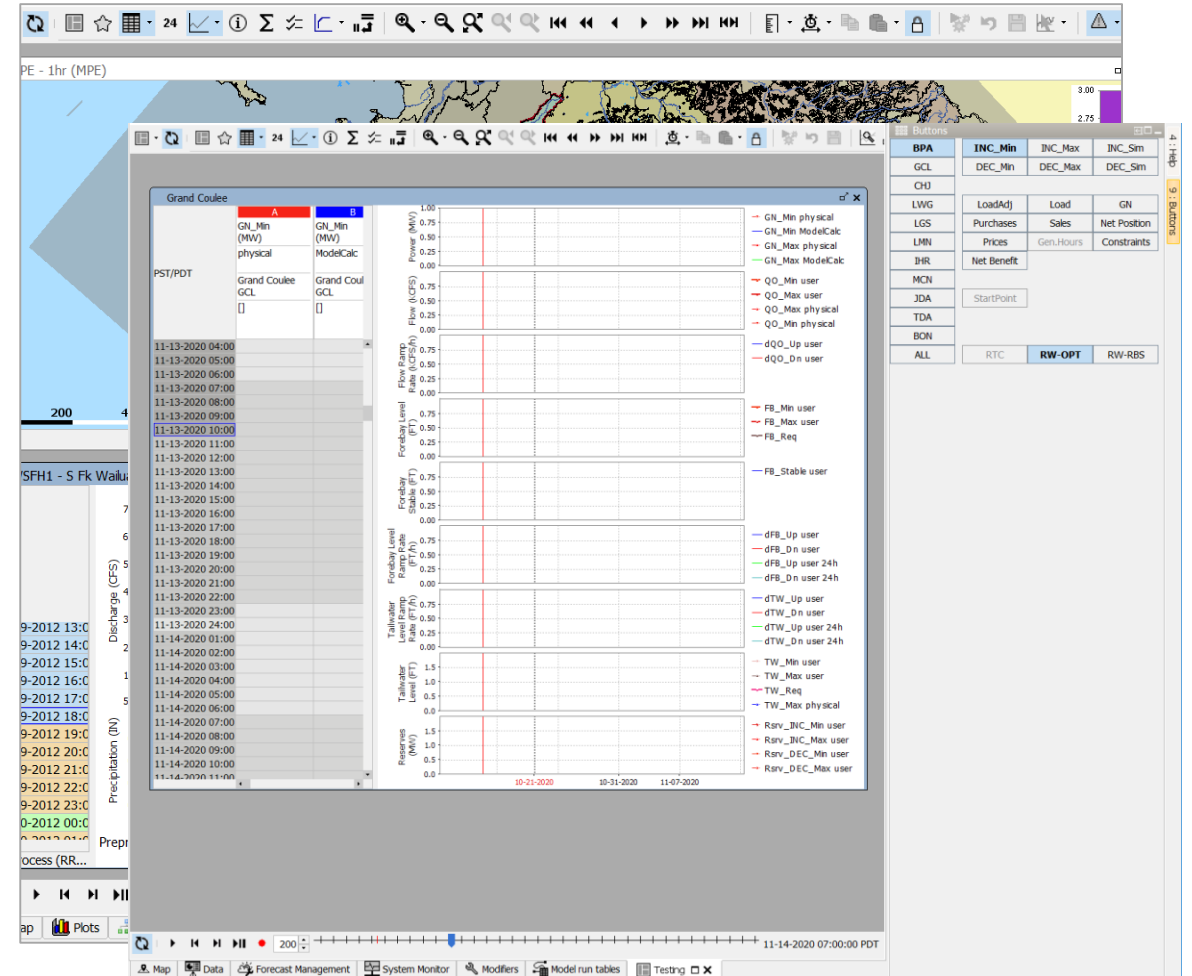
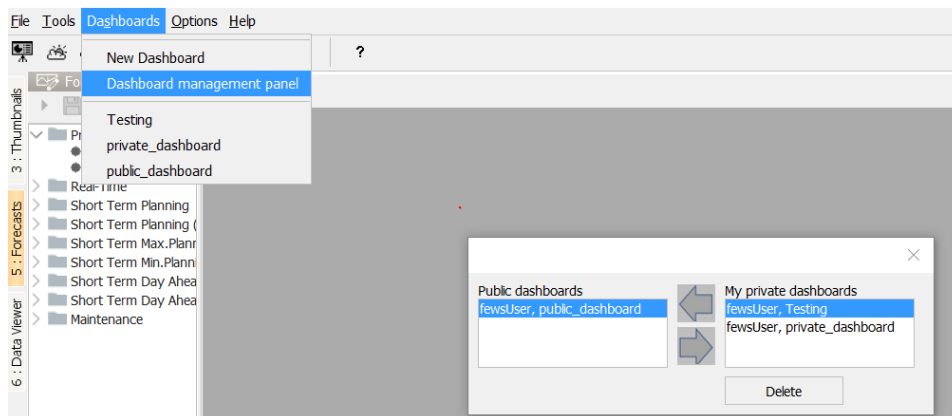
RIBASIM Network Editor

- Specific topology editor for RIBASIM
 - Visualize model topology
 - Edit topology
 - Show/Edit node properties
 - Show/Edit link actions
- Hosting custom displays in FEWS
- Link to Computational Framework

Hydrology		Water Quality	
Id	Feature	WQ Emmission	
10	Fif1	-	
5	Fif2	-	
		edit table	
		edit table	

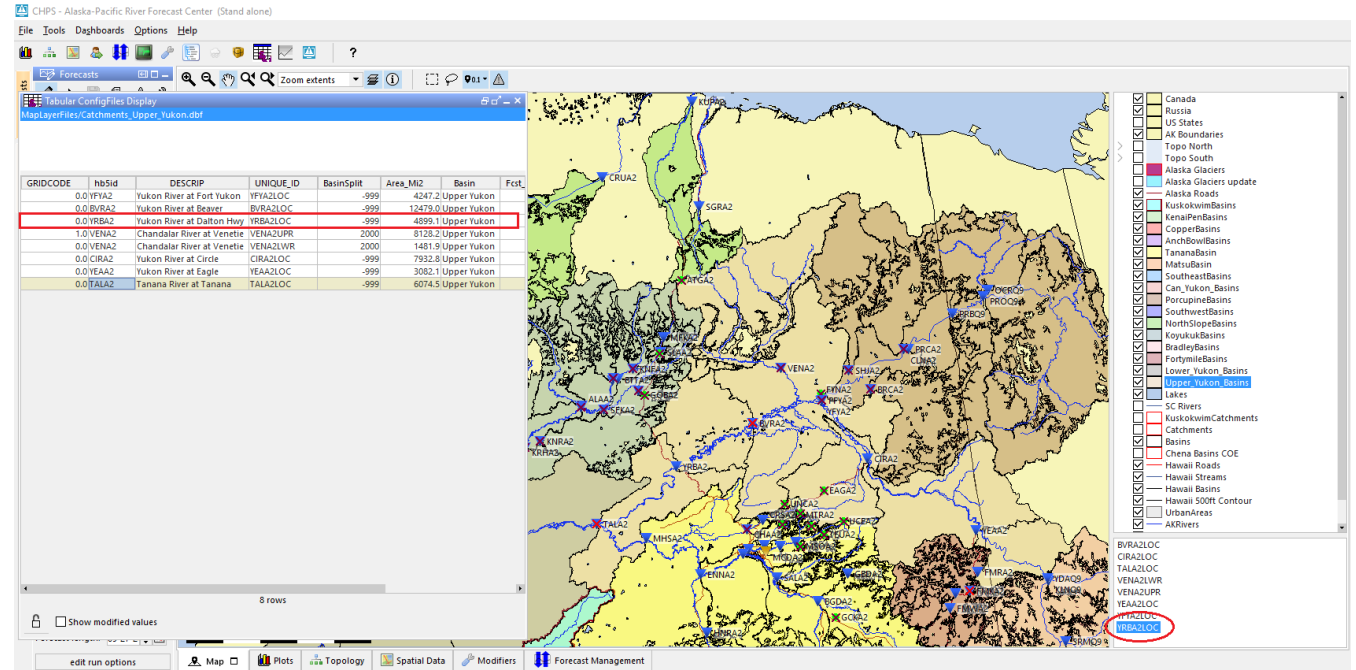
Visualization in Dashboard

- Add graph to Dashboard
- Edit / update graphs in Dashboard
- Interaction with Buttons Panel
- Save and Load Dashboards
- Share Dashboards with others
- More information on [FEWS wiki](#)



Evaluating layer attributes

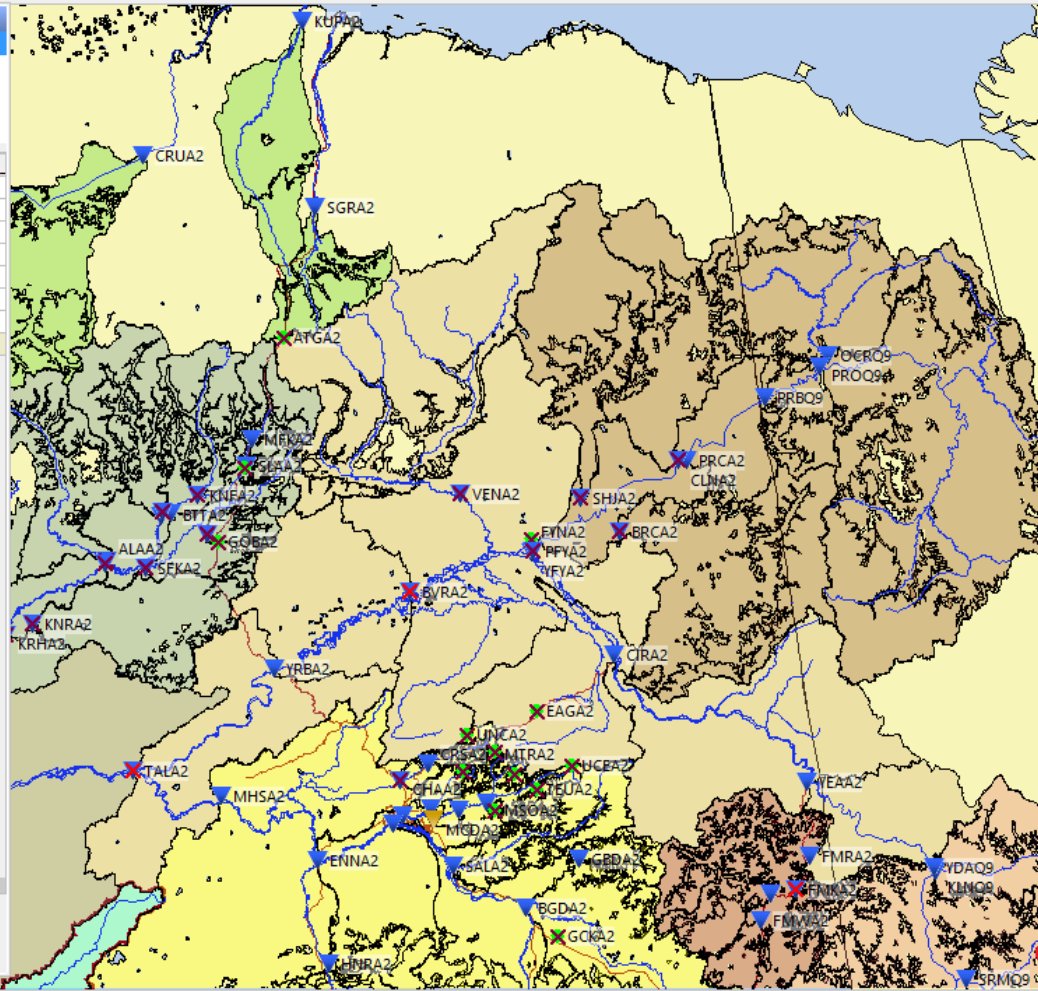
- View attributes of layer
- Interaction between table and map (select and zoom)
- Please check [FEWS wiki](#) for more information



Tabular ConfigFiles Display
MapLayerFiles/Catchments_Upper_Yukon.dbf

GRIDCODE	hbSid	DESCRIP	UNIQUE_ID	BasinSplit	Area_Mi2	Basin	Fcst
0.0	YFYA2	Yukon River at Fort Yukon	YFYA2LOC	-999	4247.2	Upper Yukon	
0.0	BVRA2	Yukon River at Beaver	BVRA2LOC	-999	12479.0	Upper Yukon	
0.0	YRBA2	Yukon River at Dalton Hwy	YRBA2LOC	-999	4899.1	Upper Yukon	
1.0	VENA2	Chandalar River at Venetie	VENA2UPR	2000	8128.2	Upper Yukon	
0.0	VENA2	Chandalar River at Venetie	VENA2LWR	2000	1481.9	Upper Yukon	
0.0	CIRA2	Yukon River at Circle	CIRA2LOC	-999	7932.8	Upper Yukon	
0.0	YEAA2	Yukon River at Eagle	YEAA2LOC	-999	3082.1	Upper Yukon	
0.0	TALA2	Tanana River at Tanana	TALA2LOC	-999	6074.5	Upper Yukon	

Show modified values



- Canada
- Russia
- US States
- AK Boundaries
- Topo North
- Topo South
- Alaska Glaciers
- Alaska Glaciers update
- Alaska Roads
- KuskokwimBasins
- KenaiPenBasins
- CopperBasins
- AnchBowlBasins
- TananaBasin
- MatsuBasin
- SoutheastBasins
- Can_Yukon_Basins
- PorcupineBasins
- SouthwestBasins
- NorthSlopeBasins
- KoyukukBasins
- BradleyBasins
- FortymileBasins
- Lower_Yukon_Basins
- Upper_Yukon_Basins
- Lakes
- SC Rivers
- KuskokwimCatchments
- Catchments
- Basins
- Chena Basins COE
- Hawaii Roads
- Hawaii Streams
- Hawaii Basins
- Hawaii 500ft Contour
- UrbanAreas
- AKRivers

- BVRA2LOC
- CIRA2LOC
- TALA2LOC
- VENA2LWR
- VENA2UPR
- YEAA2LOC
- YFYA2LOC
- YRBA2LOC

Questions... 

Contact

 www.delft-fews.com

 [@DelftFEWS](https://twitter.com/DelftFEWS)

 [linkedin.com/company/deltares](https://www.linkedin.com/company/deltares)

 fews-pm@deltares.nl

 [@deltares](https://www.instagram.com/deltares)

 [facebook.com/deltaresNL](https://www.facebook.com/deltaresNL)



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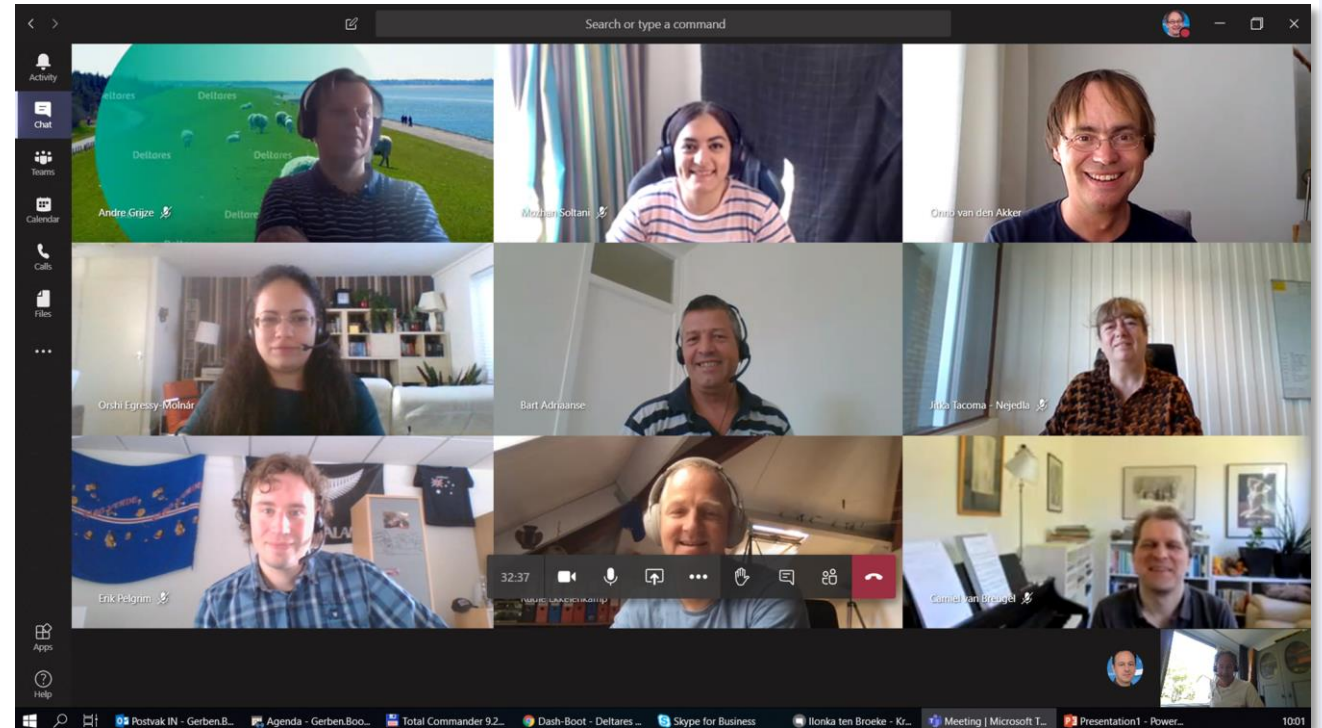
Marcel Ververs

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November 2020

Overview

- **F**orecasting Process
- **O**pen Archive
- **R**equesting bulk data
- **E**xporting data
- **C**omputational Framework
- **A**xes in plots
- **S**patial display
- **T**ime Series Display

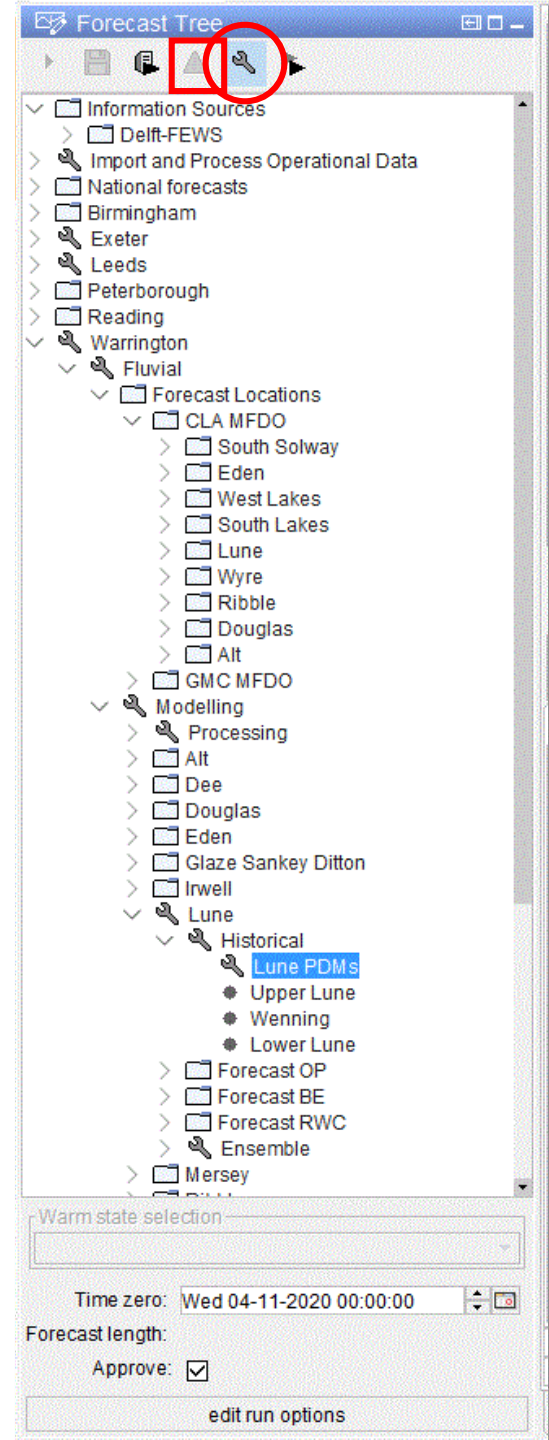


[Delft-FEWS 2020.02 Release Notes](#)

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Forecasting Process (Topology)

- Topology shows where **modifiers** are **applied**
- **Run Options Description** (always selected so you can easily edit it)
- **State selection** can also be configured in **workflow descriptors**. GUI (always) overrules
- **ColdStateStartTime** can be configured (at node)
- More information on FEWS wiki
 - [Modifier button](#)
 - [Run options](#)



Forecasting Process (Topology)

- Topology shows where modifiers are applied
- Run Options Description (always selected so you can easily edit it)
- State selection can also be configured in workflow descriptors. GUI (always) overrules
- ColdStateStartTime can be configured (at node)
- More information on FEWS wiki
 - [Modifier button](#)
 - [Run options](#)

The screenshot displays the FEWS software interface. The main window shows a map with a 'Run options' dialog box open. The dialog box is titled 'Run options' and contains several sections:

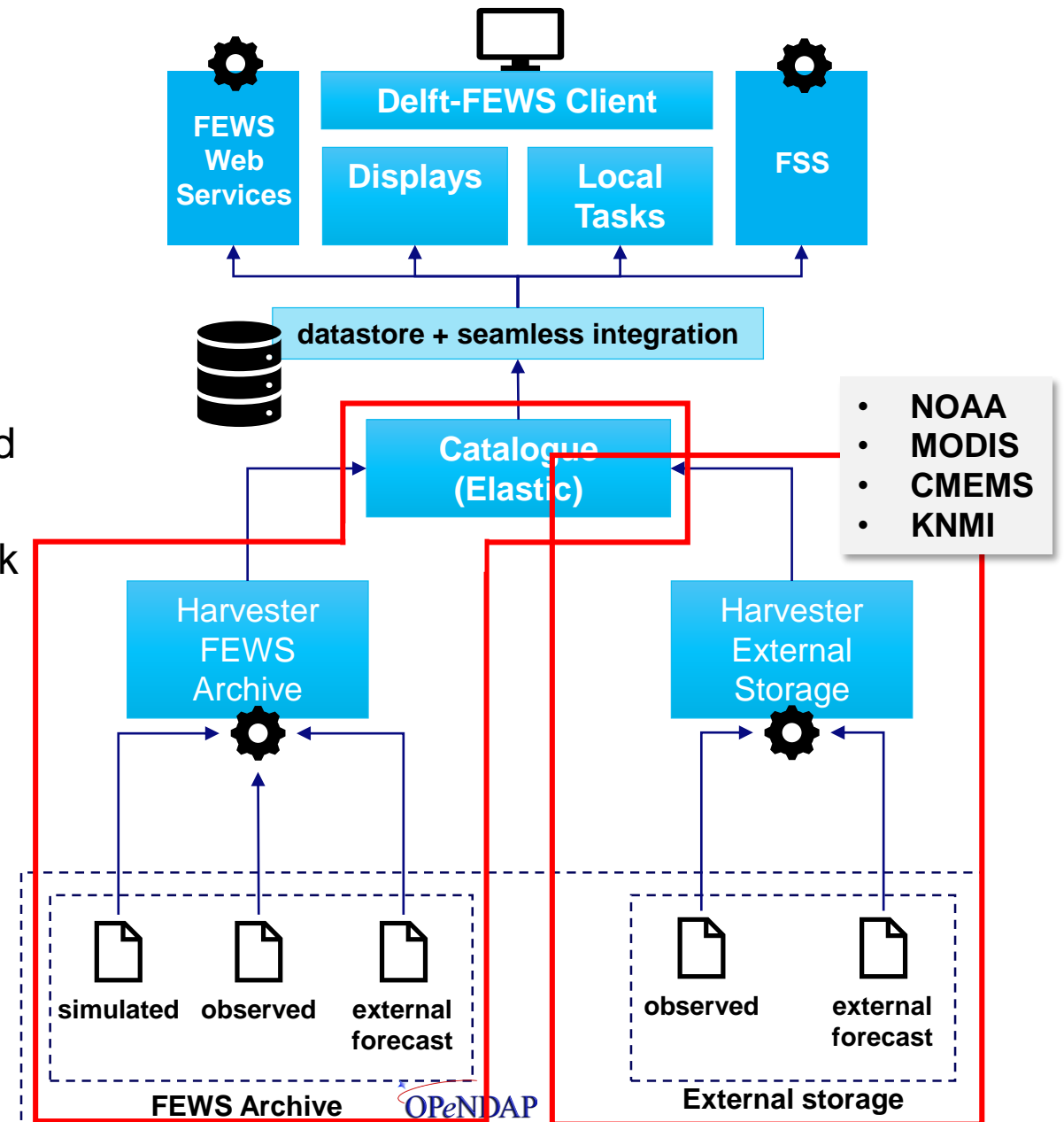
- State selection:** Includes options for 'Select initial state', 'Warm state selection', 'Warm state', 'Warm state search interval' (with start and end times), 'Cold state', and 'Cold state selection'.
- Forecast length:** Includes 'Estimate length' (selected), 'Date' (with start and end times), and 'Interval' (set to 10 days).
- Scheduled forecast:** Includes 'Start time', 'End time', 'Interval', and 'Shift T0'.
- Forecasting shells:** Includes 'Single' and 'Parallel' (set to 1).
- Workflow:** Includes 'Import WIWB' (selected) and 'what-if scenario'.
- Description:** Includes 'Import Test Run' (highlighted with a red circle).
- Run for ensemble member indices:** Includes a text input field.

A 'Select an option' dialog box is also visible, asking: 'The following description is specified: Import Test Run. Do you want to keep it?' with 'Yes' and 'No' buttons.

The background interface shows a map with a 'Forecasts' panel on the left and a 'Data Viewer' panel at the bottom. The 'Forecasts' panel lists 'Import' (with sub-items 'Import data (original)' and 'Import WIWB'), 'model', 'Rijkswaterstaat', and 'Rijkswaterstaat (direct)'. The 'Data Viewer' panel shows 'run for selected locations', 're-run completed workflows', and 'run for period'.

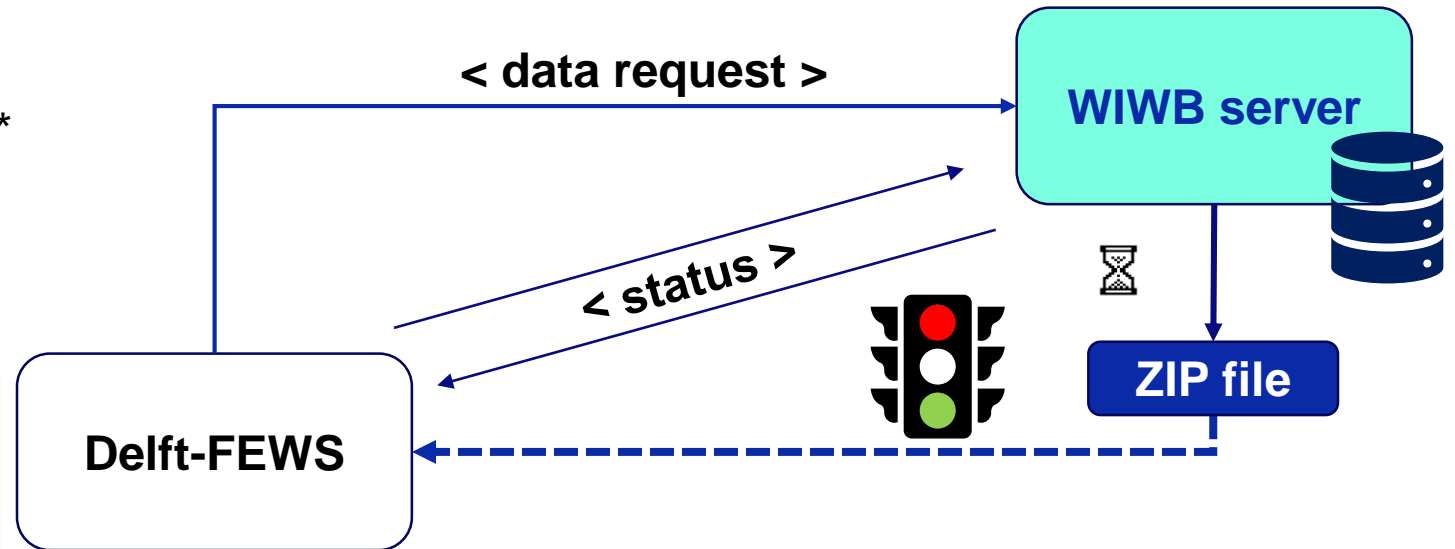
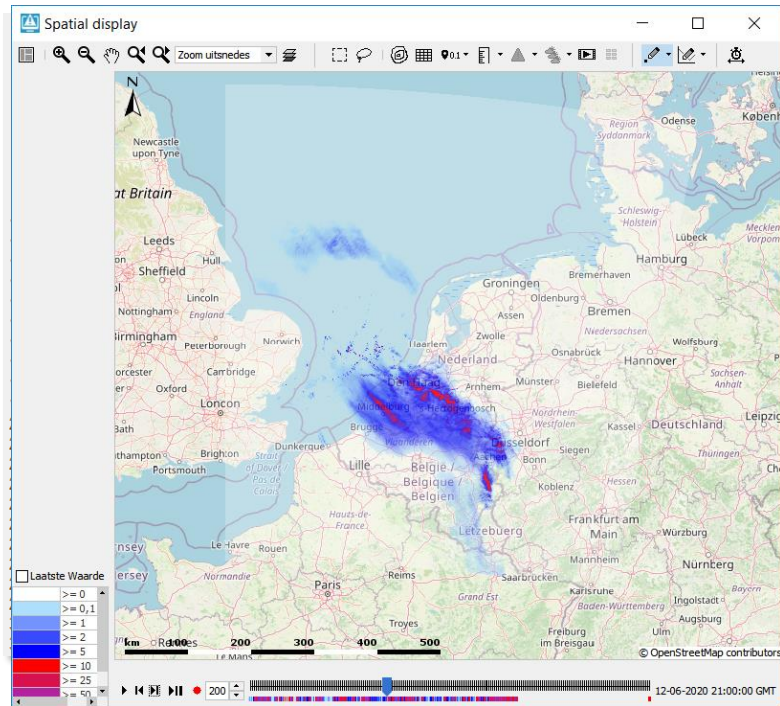
Open Archive

- Open Archive – mostly **backend** improvements
- **NetCDF External Storage**: external THREDDS/OpenDAP based server can be linked to the Open Archive
- *Seamless integration* takes care of “where to look for the data”...
- The time **forecasts** became **available** in the NetCDF External Storage (search)
- Workflow: ability to import **latest/current forecast**
- Log messages export: with **event time**
- More information: FEWS [WIKI](#)



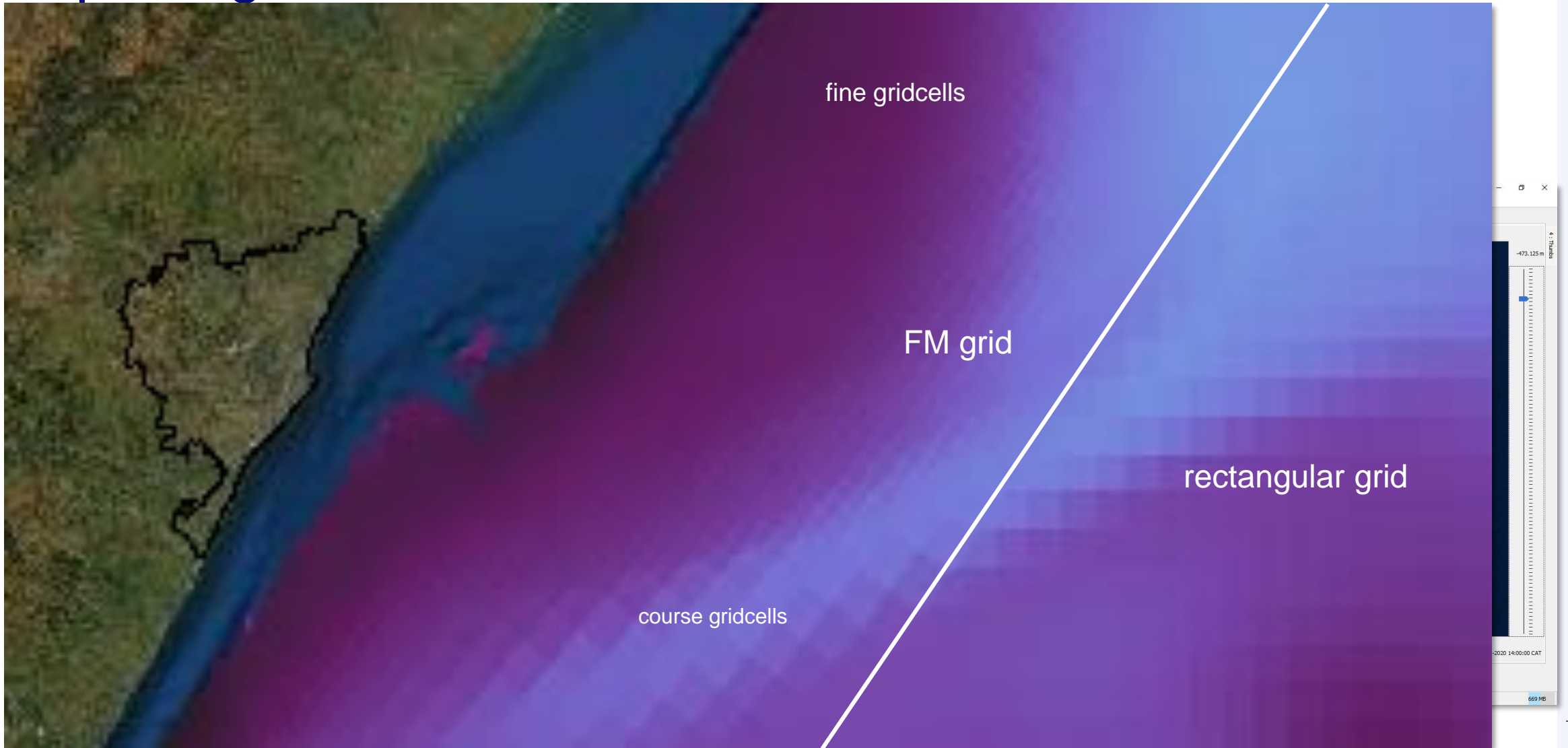
Requesting Bulk Data (WIWB_async)

- New: *Asynchronous* Import WIWB*
- More information: [FEWS WIKI](#)



* Weer Informatie voor Waterbeheer / Weather Information for Water Management

Exporting Data



Computational Framework (CF)

- CF is...use of Delft-FEWS as **scenario/modelling environment** (not strictly limited to an operational context)
- New **composed what-if** concept (based on modifiers)
- **Composition** of scenario (runs)
- **Managing** scenario (runs), including storage in and access via the Open Archive to archived runs
- **Comparison** of results (runs) in both **timeseries** and **spatial display**
- Full functionality will become available in 2021
- Break-out (Event #3)

RIBASIM-CF prototype - Delft-FEWS version 2021.01 #98039 (patched from 97924) (Stand alone)

File Tools Dashboards Options Help

3: Documents Overview

5: Tasks

6: Data Viewer

Validate Ribasim model Rhine

- climate A02
 - base case
- climate A03
 - PWS distribution loss
 - PWS capacity + 10%
 - Interventions F01
- climate A01
 - PWS distribution loss
 - PWS capacity +10%
 - intervention F01

Group	Property	PWS distribution loss -10%	PWS capacity +10%	intervention F01	base case
Ribasim cases					
Scenarios					
	Hydrological scenario	Rhine_hydrology_W03	Rhine_hydrology_W03	Rhine_hydrology_W03	Rhine_hydrology_W03
	Climate change scenario	Rhine_climatechange_A01	Rhine_climatechange_A01	Rhine_climatechange_A01	Rhine_climatechange_000
	LandUse and population growth scenario	Rhine_landuse_000	Rhine_landuse_000	Rhine_landuse_000	Rhine_landuse_000
	Agricultural planning scenario	Rhine_agriculturePlan_000	Rhine_agriculturePlan_000	Rhine_agriculturePlan_000	Rhine_agriculturePlan_000
	Water Quality scenario	Rhine_waterquality_000	Rhine_waterquality_000	Rhine_waterquality_000	Rhine_waterquality_000
Composed intervention strategy					
	Interventions (ini)	Rhine_interventions_000	Rhine_interventions_000	Rhine_interventions_F01	Rhine_interventions_000
	Reservoir Management	-	-	-	-
	Public Water Supply Measures	Cut loss by -10%	PlantCapacity +10%	-	-

Map Documents Graphs Spatial results Whatif Composition Interventions

Logs

Peter Gijbbers Current system time:22-07-2020 11:00 (GMT+1) 14:08:41 GMT 15:08:41 CET Stand alone -17.201, 18.008 0.0 MB/s 307 MB

Computational Framework (CF)

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File Tools Dashboards Options Help

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- Validate Ribasim model Rhine
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Group	Property	PWS distribution loss -10%	PWS capacity +10%	intervention F01	base case
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Climate change scenario	Rhine_climatechange_A01	Rhine_climatechange_A01	Rhine_climatechange_A01	Rhine_climatechange_A01	Rhine_climatechange_000
LandUse and population growth scenario	Rhine_landuse_000	Rhine_landuse_000	Rhine_landuse_000	Rhine_landuse_000	Rhine_landuse_000
Agricultural planning scenario	Rhine_agriculturePlan_000	Rhine_agriculturePlan_000	Rhine_agriculturePlan_000	Rhine_agriculturePlan_000	Rhine_agriculturePlan_000
Water Quality scenario	Rhine_waterquality_000	Rhine_waterquality_000	Rhine_waterquality_000	Rhine_waterquality_000	Rhine_waterquality_000
Composed intervention strategy					
Interventions (ini)	Rhine_interventions_000	Rhine_interventions_000	Rhine_interventions_000	Rhine_interventions_F01	Rhine_interventions_000
Reservoir Management	-	-	-	-	-
Public Water Supply Measures	Cut loss by -10%	PlantCapacity +10%	-	-	-

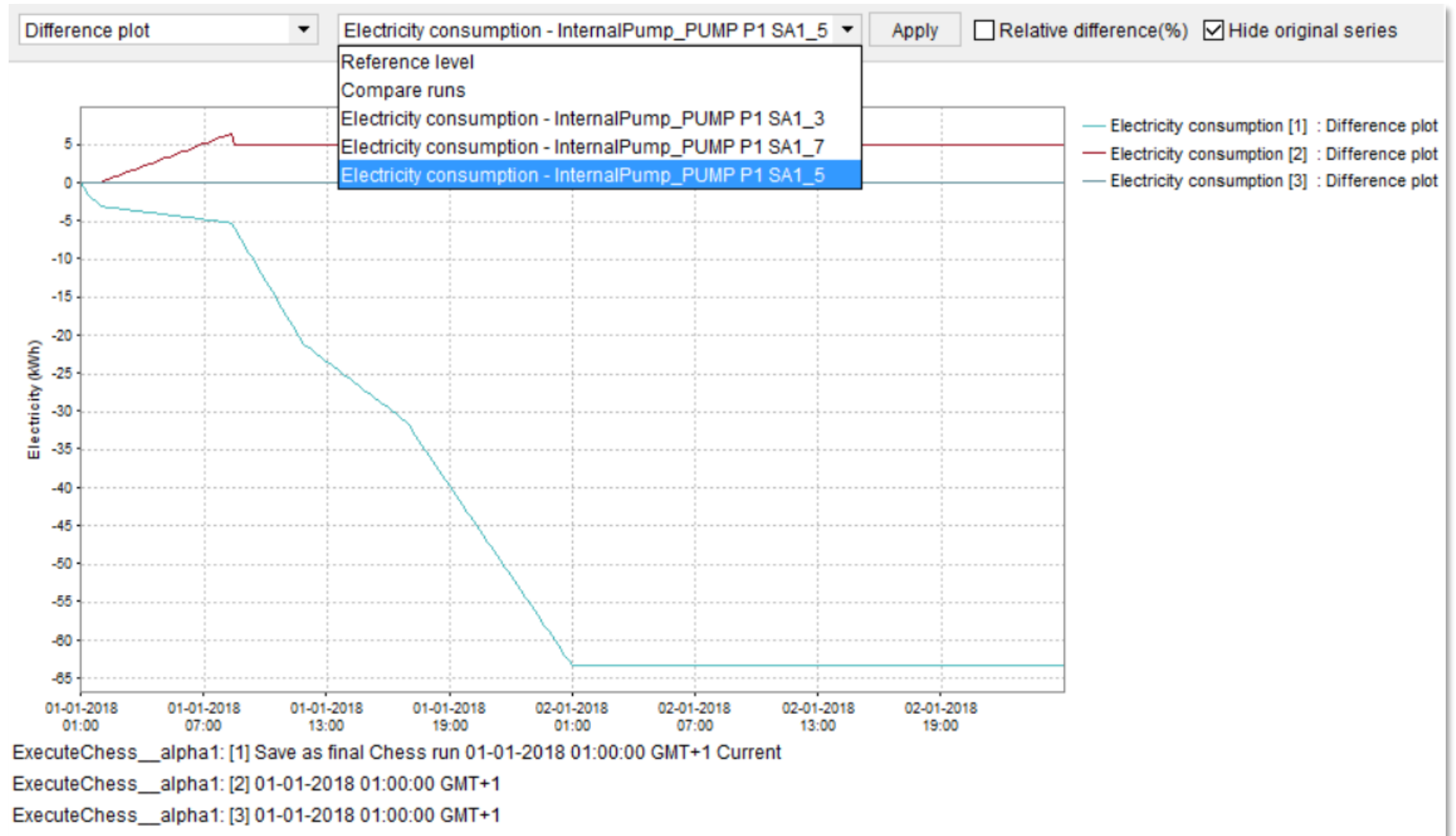
Map Documents Graphs Spatial results Whatif Composition Interventions

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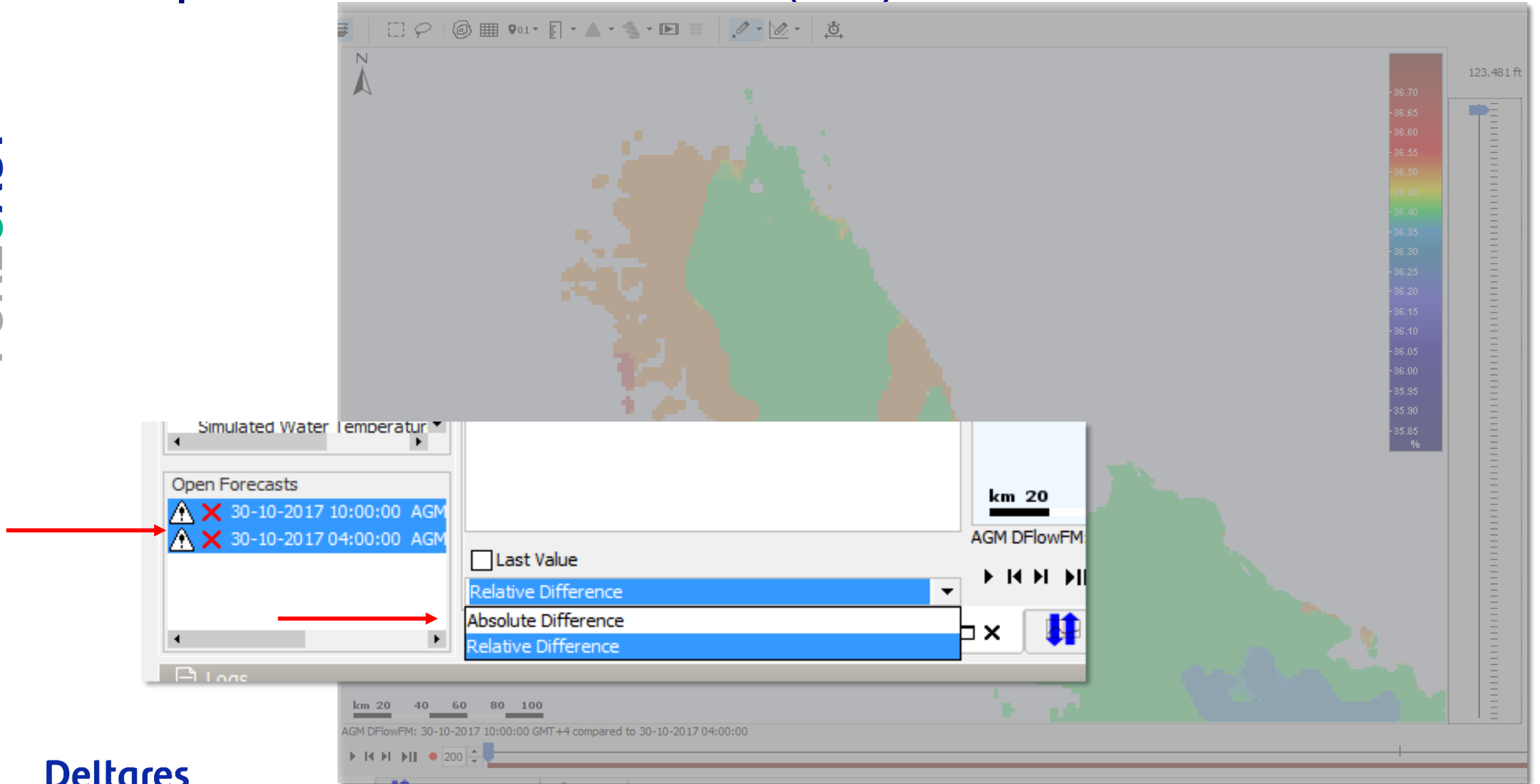
Computational Framework (CF)

FORECAST



Computational Framework (CF)

FORECAST

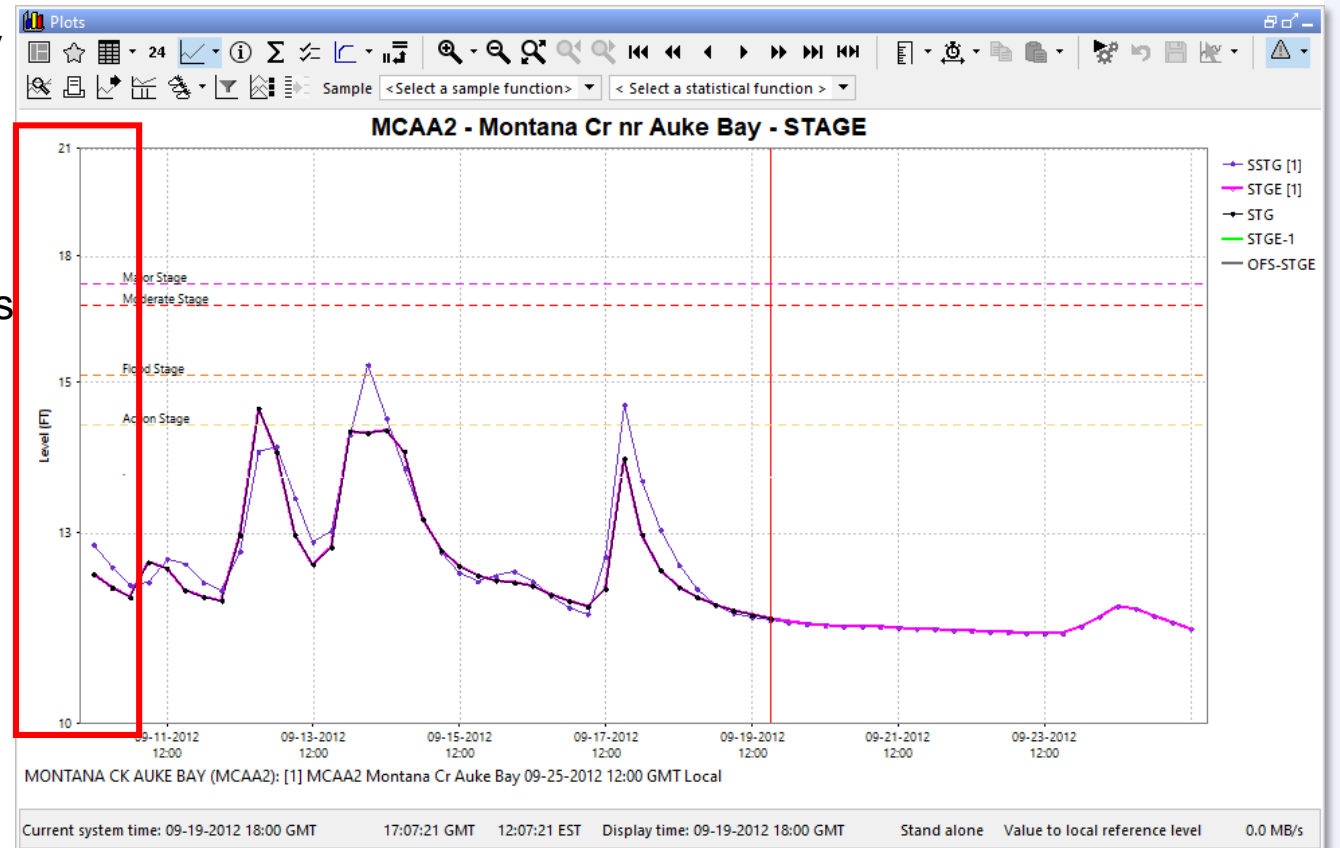
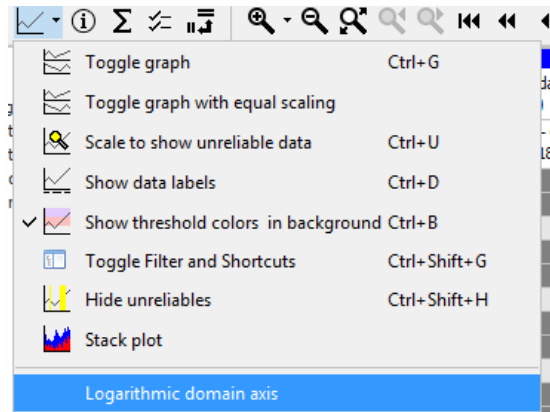


Deltares

comparison of runs: spatial display

Axes in plots

- [Logarithmic axes](#) in the TimeSeries Display
- Configurable:
 - Parameter level
 - Subplot level (overrides Parameter)
 - Same plot can contain both normal/log scales
- User interaction
 - Menu bar option in TimeSeries Display

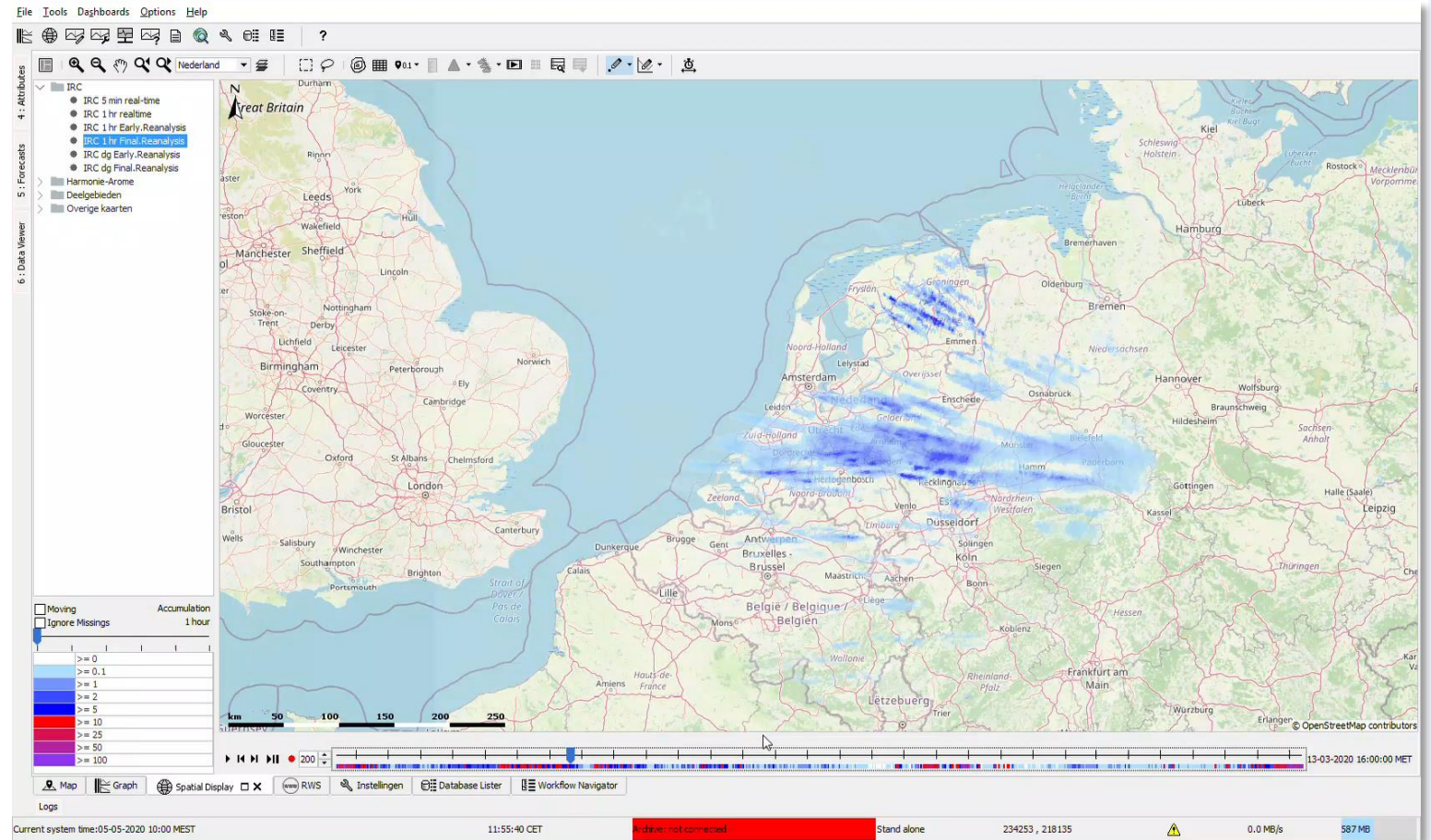


Axes in plots

- [Logarithmic axes](#) in the TimeSeries Display
- Configurable:
 - Parameter level
 - Subplot level (overrides Parameter)
 - Same plot can contain both normal/log scales
- User interaction
 - Menu bar option in TimeSeries Display
- [Y-axis Scaling Options](#)
 - `<scaleOutsideMinAndMax>` → Automatic scaling based on available data (default)
 - `<fixedBetweenMinAndMax>` → Always scale between configured min and max (regardless the data)
 - `<scaleBetweenMinAndMax>` → Automatic scaling within configured min and max (optimize visualisation)

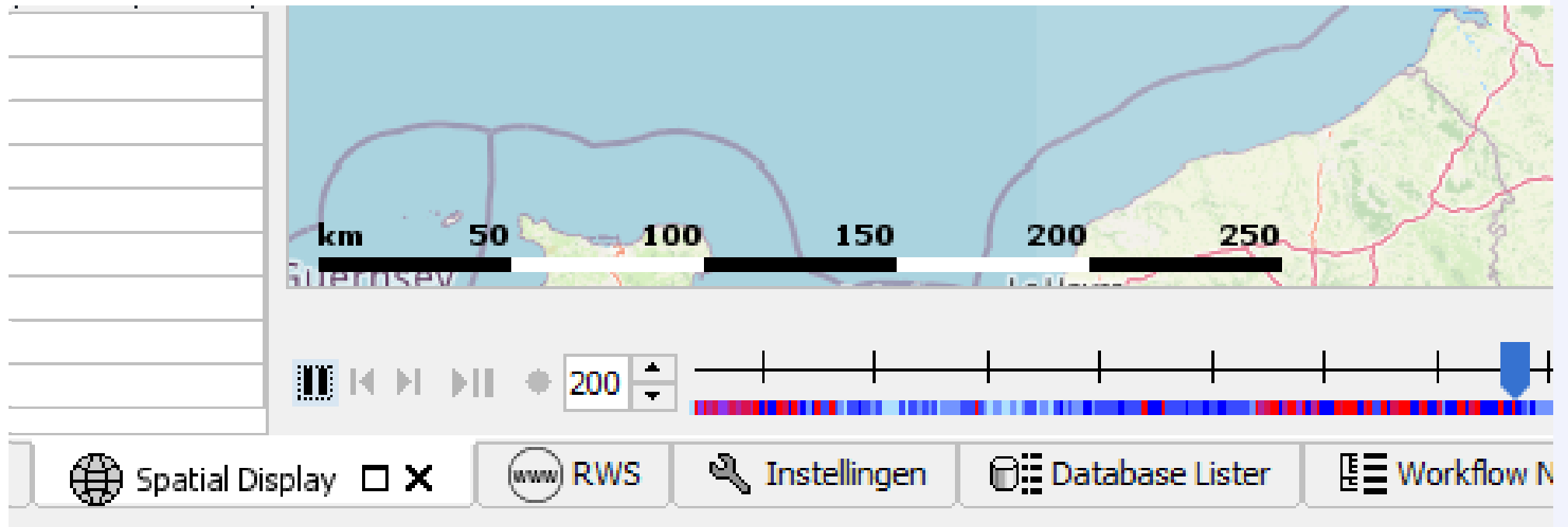
Spatial Display

- Play – Pause Button integrated
- More information: FEWS [WIKI](#)



Spatial Display

- Play – Pause Button integrated
- More information: FEWS [WIKI](#)



Timeseries Display

- Ability traces

Christchurch high flow tidal forecast

Search and select forecasts

search period start time: Fri 26-06-2009 05:30:00 end time: Tue 21-07-2020 05:30:00
 nr of recent forecasts: 5
 include historical run
 persist selection

search

Select all	workflow	time	description	dispatch time
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMRENS Current	Mon 27-07-2020 18:00:00 (hidden)	Coastal Forecast Processing MRENS	Tue 28-07-2020 07:49:41
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMRENS	Mon 27-07-2020 18:00:00	Coastal Forecast Processing MRENS	Tue 28-07-2020 01:51:32
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMRENS	Mon 27-07-2020 06:00:00	Coastal Forecast Processing MRENS	Mon 27-07-2020 19:49:15
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMRENS	Mon 27-07-2020 00:00:00	Coastal Forecast Processing MRENS	Mon 27-07-2020 13:49:21
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMRENS	Sun 26-07-2020 18:00:00	Coastal Forecast Processing MRENS	Mon 27-07-2020 07:49:23
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMREDET Current	Mon 27-07-2020 18:00:00	Coastal MRDET processing	Tue 28-07-2020 04:49:11
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMREDET	Mon 27-07-2020 12:00:00	Coastal MRDET processing	Mon 27-07-2020 22:49:12
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMREDET	Mon 27-07-2020 06:00:00 (hidden)	Coastal MRDET processing	Mon 27-07-2020 16:49:16
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMREDET	Mon 27-07-2020 00:00:00	Coastal MRDET processing	Mon 27-07-2020 10:49:14
<input checked="" type="checkbox"/>	ComputeCoastalForecasts_CMREDET	Sun 26-07-2020 18:00:00	Coastal MRDET processing	Mon 27-07-2020 04:49:05

H.fcast.tidal Bournemouth [2] (CMRENS)
 H.fcast.tidal Bournemouth [3] (CMRENS)
 H.fcast.tidal Bournemouth [4] (CMRENS)
 H.fcast.tidal Bournemouth [5] (CMRENS)
 H.fcast.tidal Bournemouth [6] (CMRDET)
 H.fcast.tidal Bournemouth [7] (CMRDET)
 H.fcast.tidal Bournemouth [9] (CMRDET)
 H.fcast.tidal Bournemouth [10] (CMRDET)

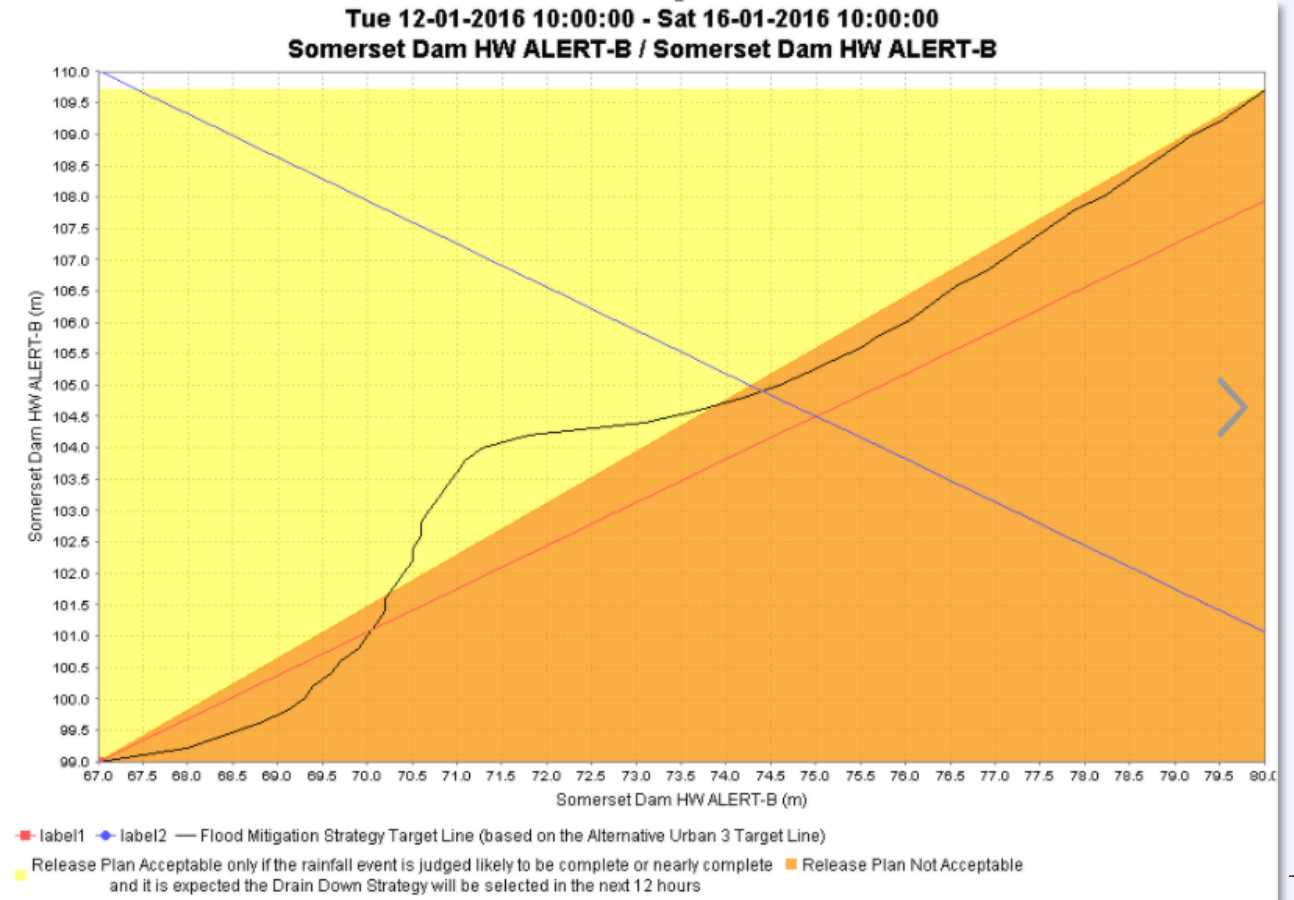
H.obs Throop
 H.obs Knapp Mill Main Channel Only

Sun 12-07-2020 Sun 19-07-2020
 MT
 MT
 Mon 27-04-2020 18:00:00 GMT Current
 MT
 MT

OK Close Apply

Timeseries Display

- Ability to [toggle off/on multiple simulation traces](#) directly in plot
- [Scatterplot](#) improvements
 - automatically pair up the time series based on their configured order: `<matchTimeSeriesPair>`
 - [Color](#) areas based on configured points
- (many) Small improvements
 - Copying timeseries from [WorkflowNavigator](#) into existing plots will NOT influence plot layout
 - Full column headers visible in 24h view (even with one location)



Questions... 

Contact

 www.delft-fews.com

 [@DelftFEWS](https://twitter.com/DelftFEWS)

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 [@deltares](https://www.instagram.com/deltares)

 [facebook.com/deltaresNL](https://www.facebook.com/deltaresNL)



Delft-FEWS New Features and more...

International Delft-FEWS User Days Online – Event #3



Delft-FEWS Product Management

Marcel Ververs

Gerben Boot

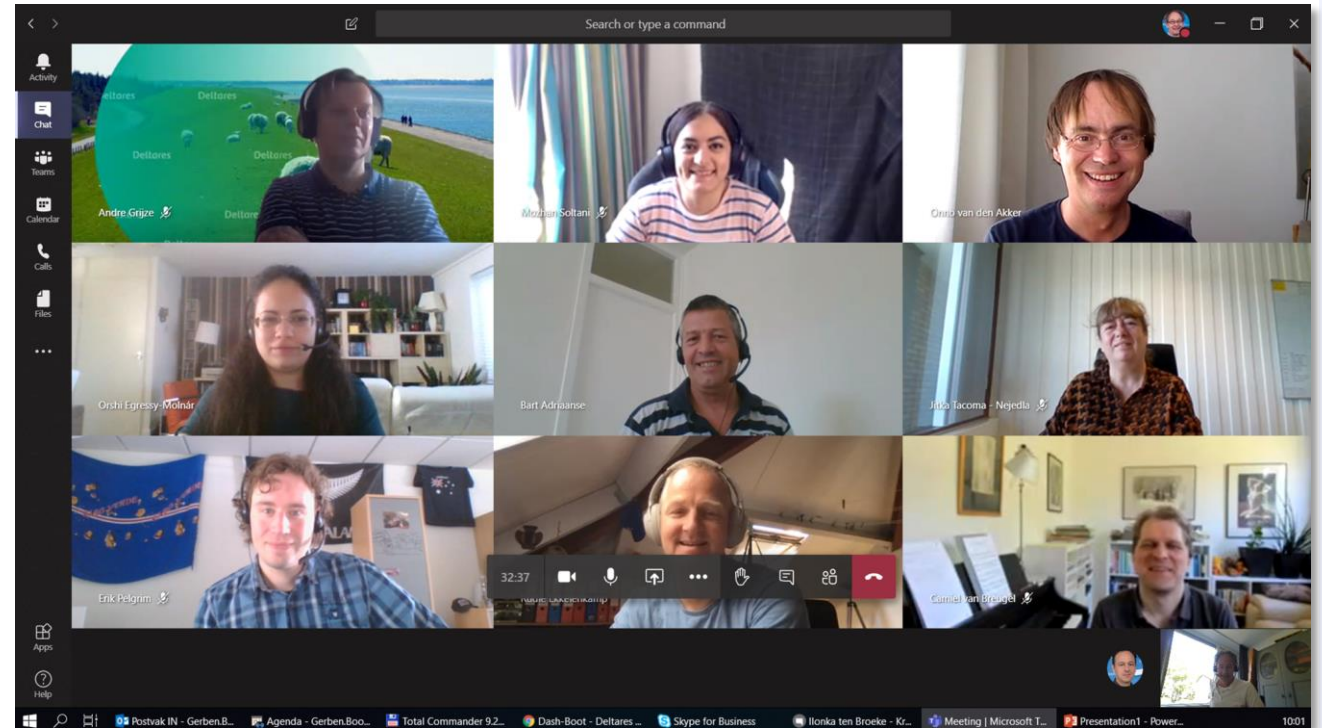
November 2020

Overview

- **P** I and WMS Webservices 
- **R** unning Models
- **E** xtension Transformation Module
- **P** rofiles with time dependent locations
- **A** pplying modifiers 
- **R** oadmap 2021
- **E** xternal contributions

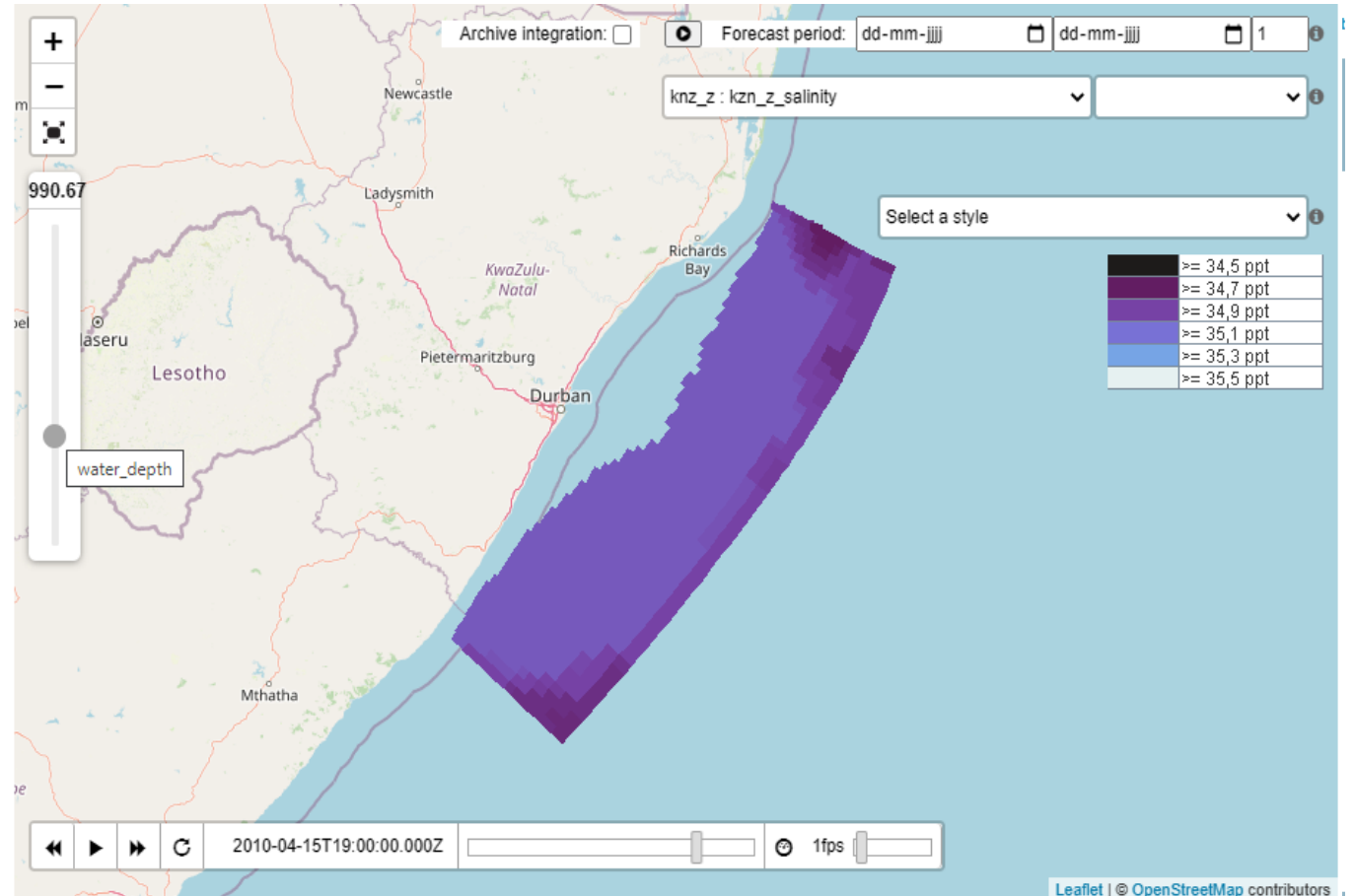
[Delft-FEWS 2020.02 Release Notes](#)

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PI and WMS Webservices

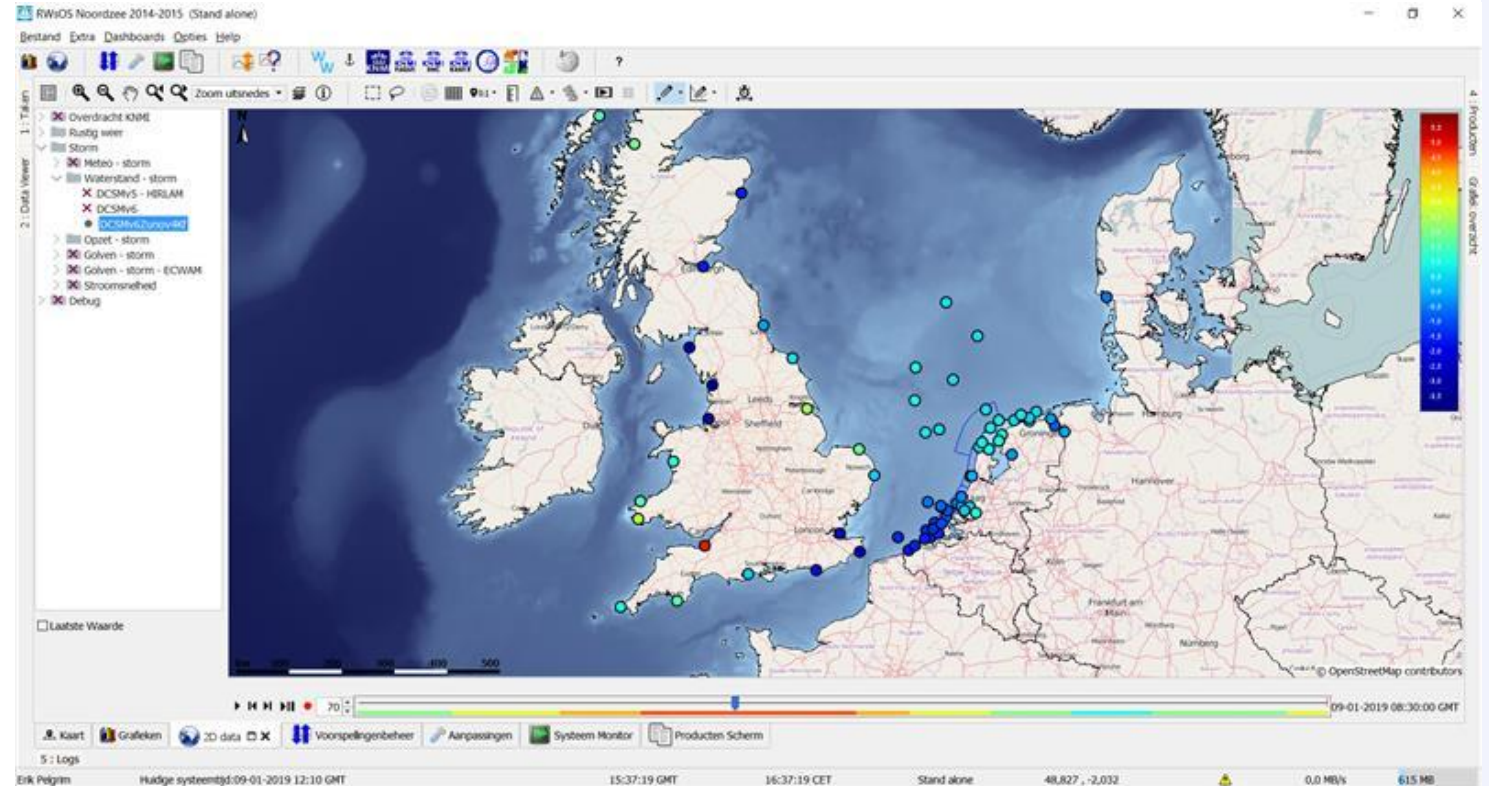
- Possibility to [get vertical profile](#) for grid cell
- Possibility to [get time series](#) for grid cell
- Possibility to [select elevation](#) with vertical slider
- [Get Legend Graphic](#) for Gridplot
- Preloading sigma and z-layers
- Comments & description for thresholds
- Pi Service [run with ENV variables](#)



Running Models

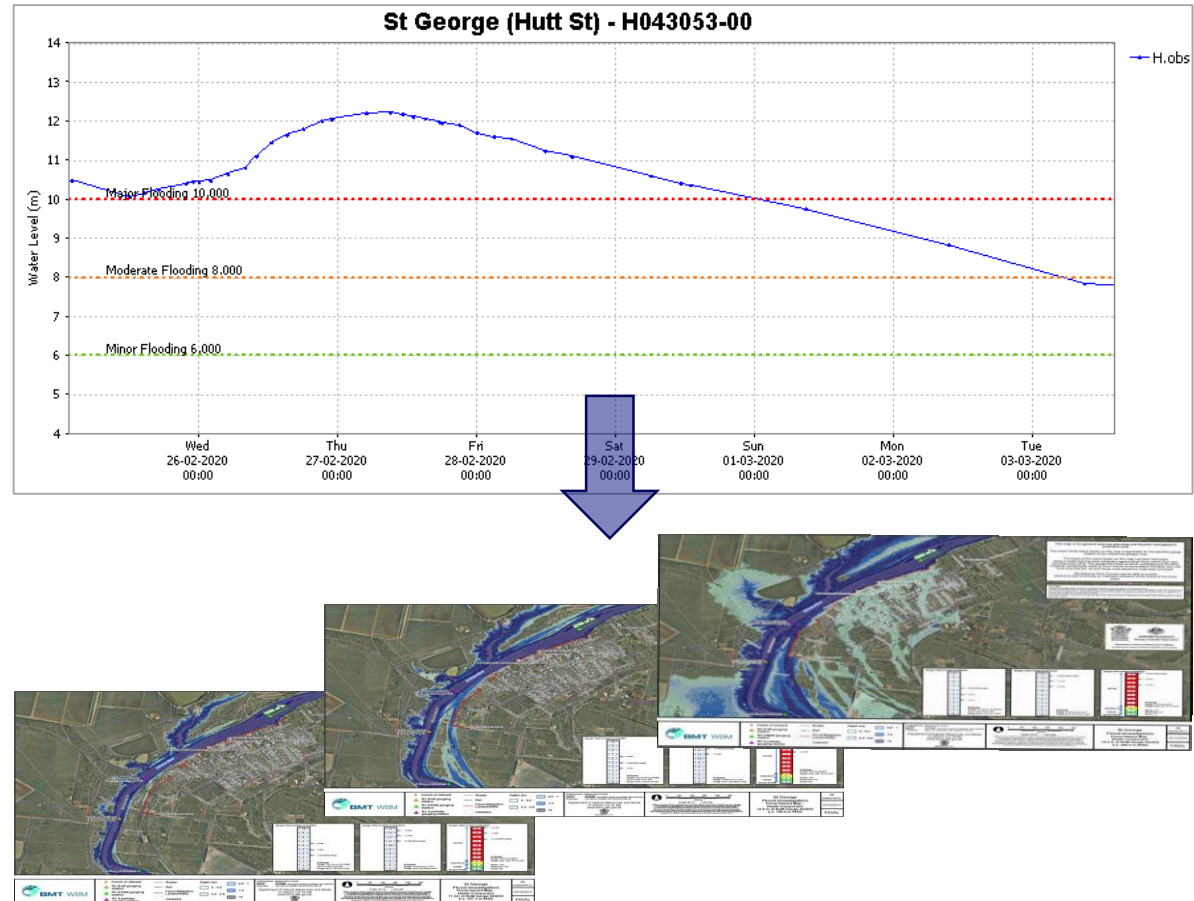
Module Adapters in 2020.02

- [EPA-SWMM model adapter](#)
- CHES model adapter
- [DIMR adapter extension](#)
 - partitioning function of DFlowFM
 - Migration of SWAN adapter code



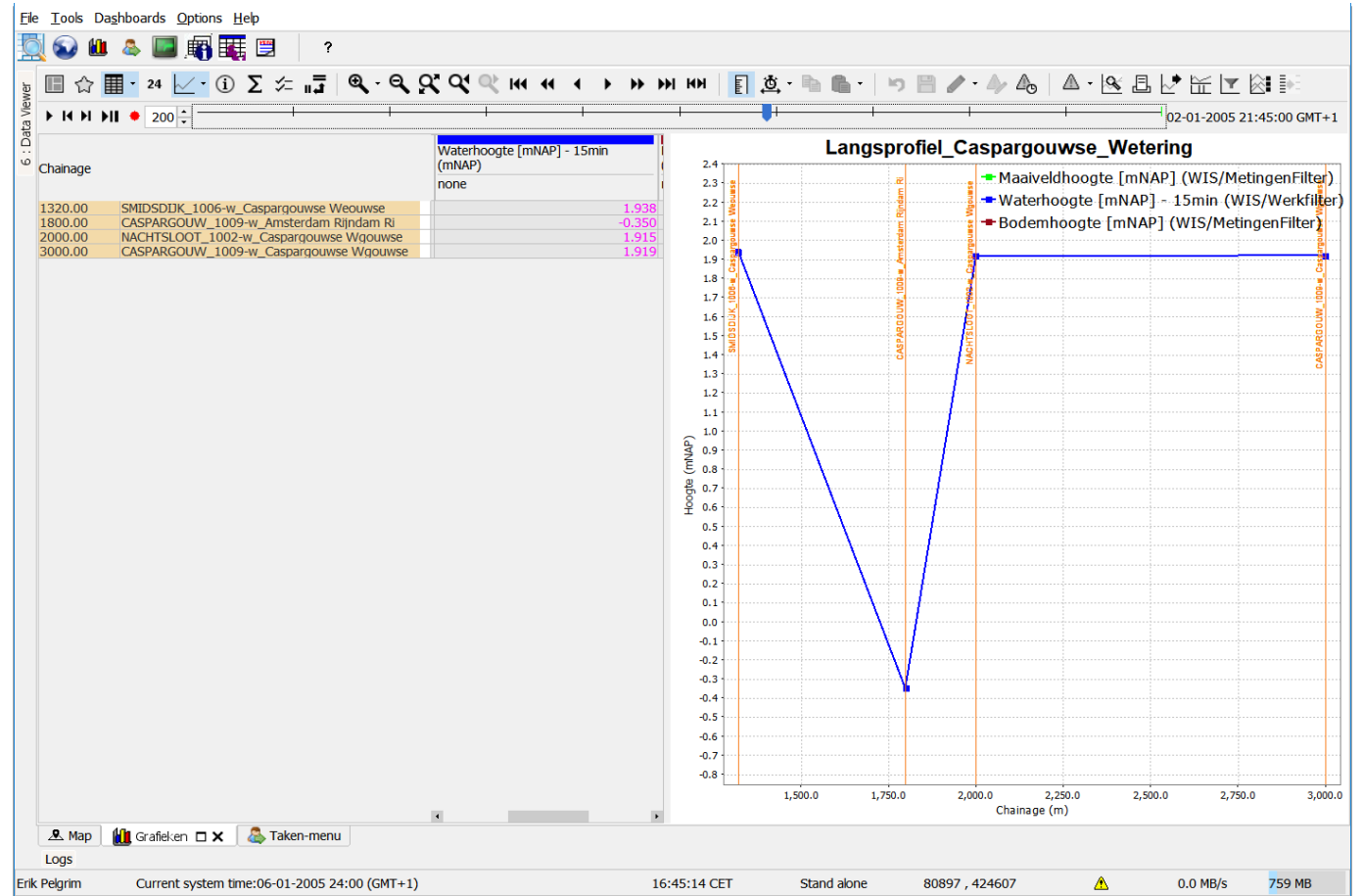
Extension of Transformation Module

- [GridEnsembleMemberByIndex](#) transformation added
- Allows you to choose from a selection of grids (with ensemble ids) using a scalar time series of indices
- Value in scalar time series determines which grid to be used in output
- Example use peak level to choose from library of flood maps



Profiles with time dependent locations

- Use time dependent attributes
- Chainage point is not part of profile
 - Table shows missing
 - Connect line to next point
- More information on [FEWS wiki](#)



Applying Modifiers

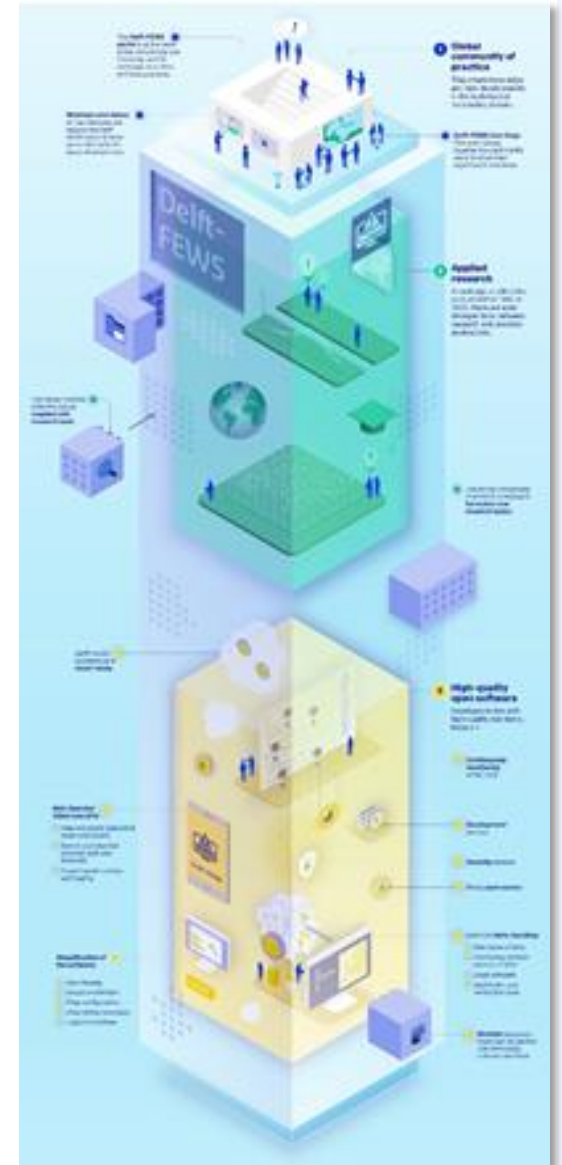
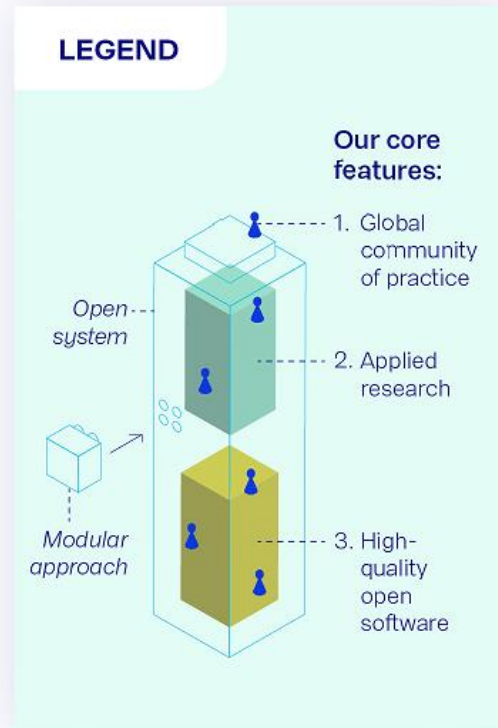
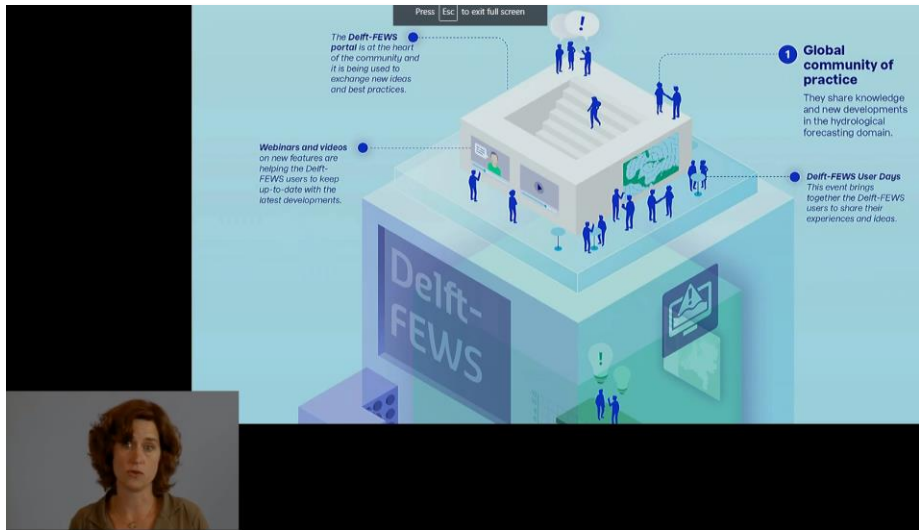
- New option to change attributes using math operands
- Right Mouse option “Apply Operation”
- Select operand and enter value
- Apply to selected values
- Apply to table
- Apply to multiple locations

The screenshot shows the 'Demo Config (Stand alone)' application window. The main window displays a table of 'Evapotranspiration' data for the 'AGSI4' segment. The table has columns for 'attribute', 'modified value', and 'original value'. The 'Apply Operation' dialog box is open, showing a dropdown menu for 'Operation' with 'Add' selected, and a 'Value' field set to '0.5'. The dialog also has 'Apply', 'Apply to table', and 'Close' buttons.

attribute	AGSI4	
	modified value	original value
January	1.6	1.6
February	2.6	2.6
March	3.6	3.6
April	4.6	4.6
May	5.6	5.6
June	6.6	6.6
July	7.6	7.6
August	8.6	8.6
September	9.6	9.6
October	10.6	10.6
November	11.6	11.6
December	12.6	12.6

Roadmaps (part of the Delft-FEWS vision 2025)

- **Storyline** [Delft-FEWS vision 2025](#) – a 5 year vision, based on yearly roadmaps
- **Infographic** Delft-FEWS Vision 2025 / open architecture ([recording](#))
- **Funding:** aligning to (on-going) projects, community contributions and Deltares investments












Roadmap 2020

PREPARE

Feature / Theme	Parallel projects	Deltares Investment
Backlog (old) roadmaps <ul style="list-style-type: none"> Master Controller (patchable) Roll-out facilitation (AI-API) 	RWS (NL)	
Computational Framework <ul style="list-style-type: none"> Composed what-if concept Comparing runs in TimeSeries Display Comparing runs in Spatial Display 	Blue Earth WarmingUp	RIBASIM
Cloud experiences	MDBA (AUS)	Deltares Private Cloud
Development Process & Code Quality <ul style="list-style-type: none"> Description of workflows Implementation of tools: Sonarqube Review of Release testing Process: SYSQA 		FEWS-PM
Web-based Operator Client Outline for development		FEWS-PM

Roadmap 2021

PREPARE

Feature / Theme	Parallel projects	Deltares Investment	Community Funding
Backlog (old) roadmaps <ul style="list-style-type: none"> Automatic FSS scaling Finalize seamless integration grids 			
Computational Framework <ul style="list-style-type: none"> Scenario (case) Management Coupling to Python (?) 	Blue Earth WarmingUp	RIBASIM	
Development Process <ul style="list-style-type: none"> Sonarqube: set objectives (per release) SYSQA Release Testing Process: recommendations Security Aspects Code Clean-Up 		FEWS-PM	
Web-based Operator Client Design and MVP implementation 	RWS (NL)		
Open Archive Extension Open Database (MongoDB) 	TVA		

event #1

External input & Extra focus (2021)

PREPARE

Theme	owner	indication
Code Quality & Test process <ul style="list-style-type: none"> • Sonarqube and SIG • SYSQA recommendations • Objective: Plan + concrete goals and developments per release 	FEWS-PM	50 kE
Security aspects <ul style="list-style-type: none"> • Server side aspects: Tomcat, database proxy, https, AD authentication etc. • Objective: Plan + concrete measures, developments per release 	Deltares Internal Expert Group	50 kE
Code Clean-up plan <ul style="list-style-type: none"> • Rough plan is (was) already available: more concrete • Planned development – <i>Config Scan</i> (WFN) to highlight the modules which will be obsolete (soon) and link to WIKI how to adjust 	Expert Configurator & Senior Developer	30 kE
Standardization of S&M packages <ul style="list-style-type: none"> • Selection of 4 standard packages • Optional elements can be added • New clients: 1/1/2021, existing clients: 1/1/2022 	FEWS-PM	

Eagerly looking forward to release 2021.01

- Computational Framework (Case management, Archive improvements)
- Open Archive Extension (Open Database/MongoDB)
- MC task scheduling simplification
- Schematic overview of Workflow chainage (WFN)
- Timeseries Annotations Panel (general comments to timeseries)
- Depth averaging transformations (3D model outputs)
- Improving configurability of legend in Spatial Display
- New PI JSON Timeseries format (FEWS webservice)
- Several new imports
- ...

Course (23/11/2020)



- [Delft-FEWS Advanced Course](#) by Marc van Dijk and Martijn Kwant
- Voting for the content! www.menti.com – **49 43 911**
- FYI: A new **Delft-FEWS webservices** course is in the making!
 - PI webservice
 - SSD webservice
 - AI webservice



Questions... 

- **(and) Or visit our break-out session!!!**

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