

Delft-FEWS Stable 2022.02

New features

International Delft-FEWS User Days 2022

Delft-FEWS Product Management

Marcel Ververs and Gerben Boot

November 2022

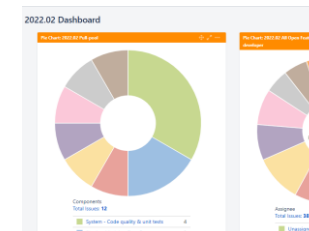
Introduction...

- Welcome
- What's new in 2022.02?
- Events & webinars
- Vision & Roadmaps: update & outlook
- Outlook to 2023

As usual: [Links for more info](#) 



Delft-FEWS 2022.02 Benchmarks



±120 new features



97 bugs repaired (+ ?? in testing)



7 new import modules



10 new features in FEWS-webservices



5 improvements to the admin interface



10 new features in timeseries display



Web OC components testable on OC/SA



Graphical editing & **Scatterplot** improvements



4 new export modules



8 improvements to the open archive

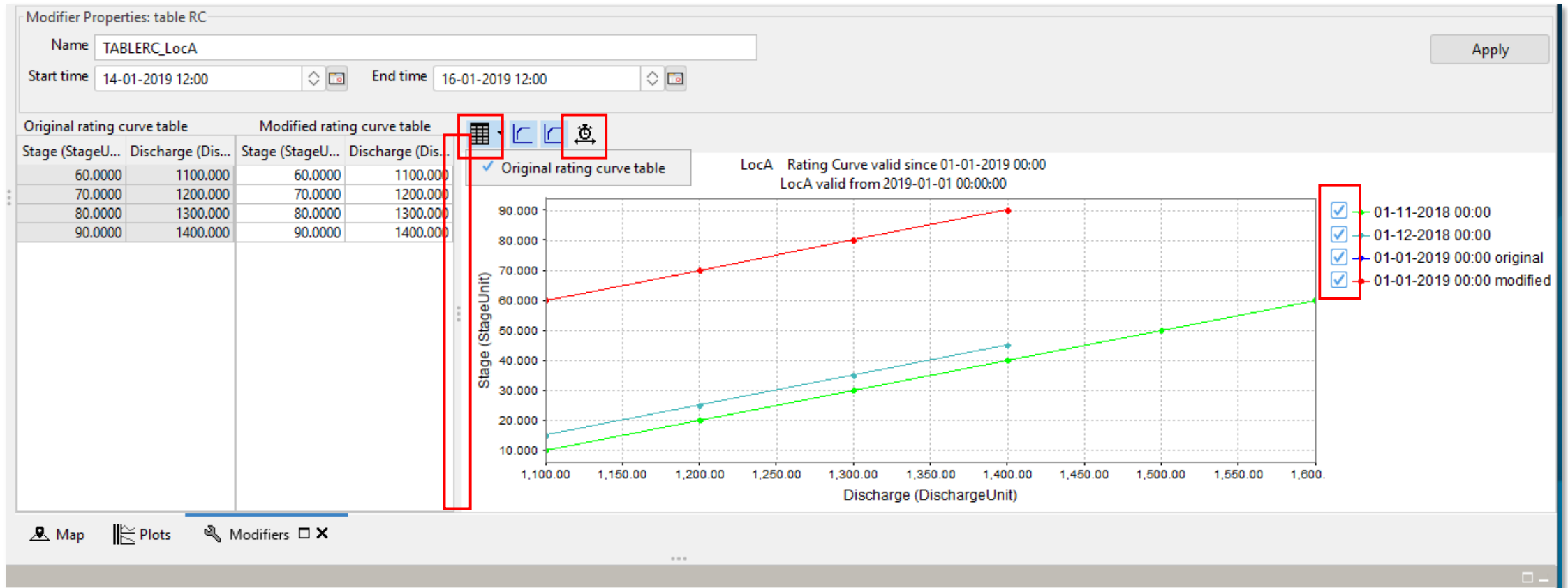


600+ new (scalable) icons in the GUI

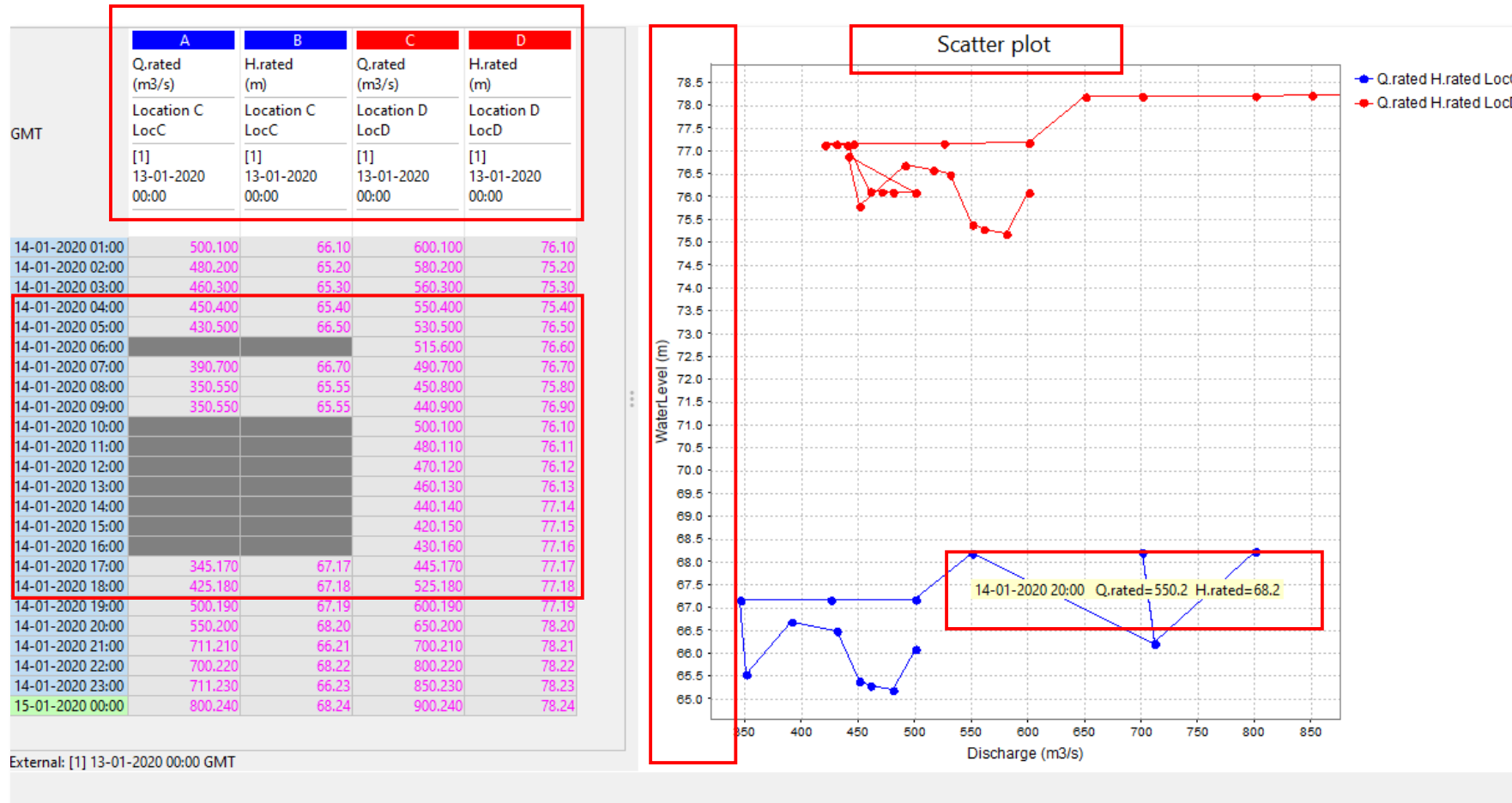


numerous improvements to What-if functionality

Rating Curve Modifiers

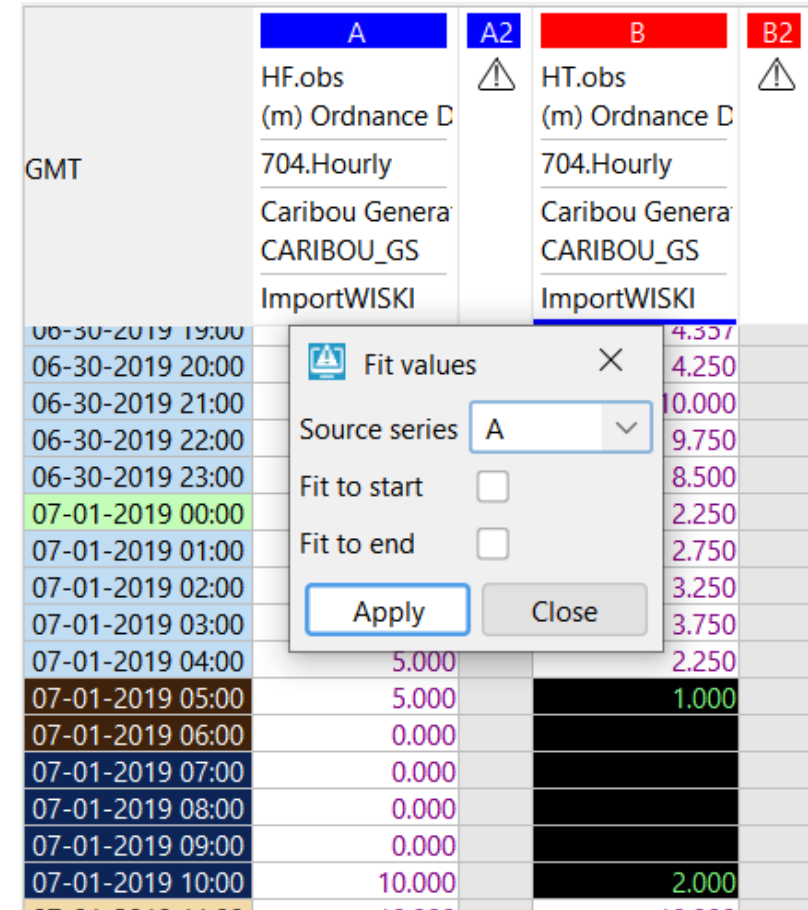


Scatterplot



Graphical Editing

- New function in data editor to enable user to fit values from one time series into another
- Selecting "fit to start" and/or "fit to end" data from the source series will be linearly transformed to be equal to the start and/or end of the selected part of the target time series



System Monitor

- Show fss id, fss group id and region home in separate columns instead of one
- Host Name is now available in the Live System Status page of the System Monitor
- [New module](#) to write log messages (with self-defined event code and log level) when certain data feeds have not been imported for certain amount of time

IMFS Delft-FEWS Prototype 07 (June 2020) (Operator Client)

Forecast Product Info

Log Browser | Forecaster Notes | **Live System Status** | Scheduled Forecasts | Running Forecasts | Import Status

5 : Forecast Tree

Current TaskRuns

Status	Count
Currently Dispatched TaskRuns:	0
Currently Executing TaskRuns:	0

6 : Data Viewer

Status Master Controllers

MC ID	Status	Is Failover	Last Heartbeat
ukeafffsmc00	Alive	false	Fri 04-11-2022 10:29
ukeafffsmc02	Down	false	Mon 11-10-2021 14:53

Status Forecasting Shells

MC ID	FSS Group	FSS ID	Directory	Host Name	Status	Last Heartbeat
ukeafffsmc00	windows	1941	D:\fews\fss\102	CO-FEWS0059.DIREC...	Ready	Fri 04-11-2022 10:29
ukeafffsmc00	windows	1961	D:\fews\fss\101	CO-FEWS0004.DIREC...	Ready	Fri 04-11-2022 10:29
ukeafffsmc00	windows	1981	D:\fews\fss\102	CO-FEWS0004.DIREC...	Ready	Fri 04-11-2022 10:29
ukeafffsmc00	windows	2001	D:\fews\fss\101	CO-FEWS0059.DIREC...	Ready	Fri 04-11-2022 10:29

Users logged in

MC ID	User ID	OC Address	Login Time	Last Heartbeat
ukeafffsmc00	ukeafffsmc00 (AI)	136.231.250.4	Fri 04-11-2022 10:27	Fri 04-11-2022 10:29
ukeafffsmc00	Marcel Ververs (OC)	L02191.DIRECTORY.INTRA	Fri 04-11-2022 10:11	Fri 04-11-2022 10:29

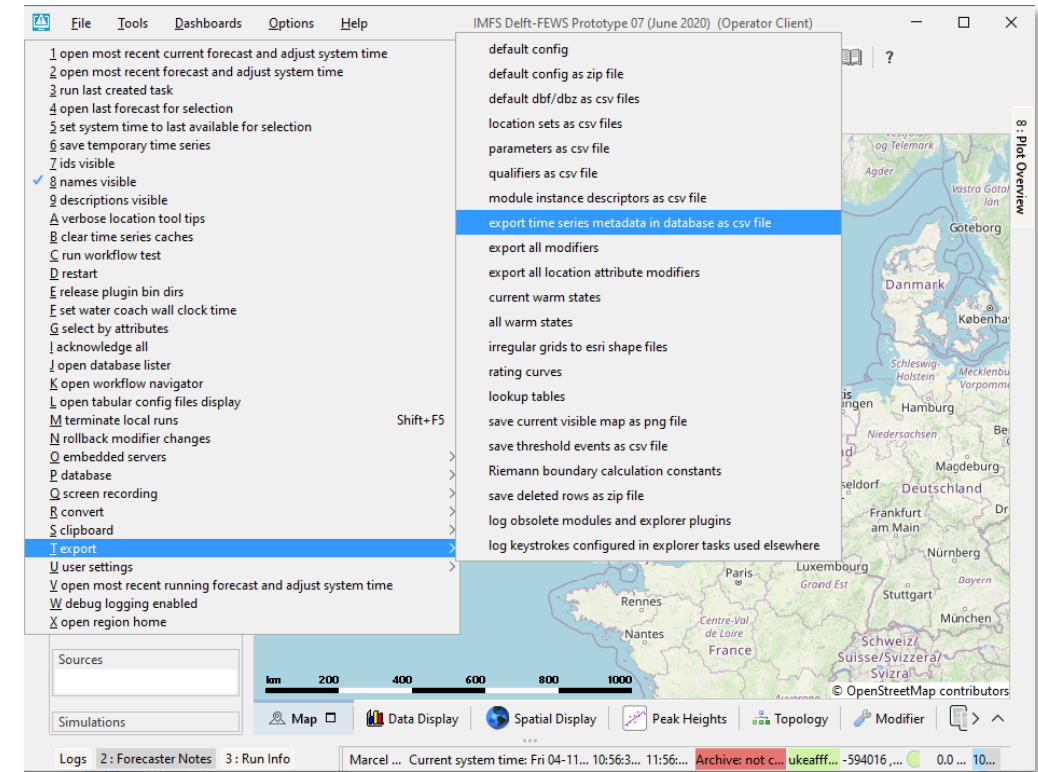
8 : Plot Overview

Log Browser | Data Display | Spatial Display | Peak Heights | Topology | Modifier | Web Browser | **System Monitor**

Logs 2 : Forecaster Notes 3 : Run Info Marcel ... Current system time: Fri 04-11-2022 10:29:5... 11:29:5... Archive: not c... ukeafff... -235519, ... 0.0 ... 916...

Content Database

- F12 option that exports the meta data info of all time series in the database as csv file
- Csv contains 1 line for each time series and columns for all meta data



	A	B	C	D	E	F	G	H	I	J
1	filters	moduleInstance	parameter id	parameter name	location id	location name	qualifiers	timeStep	valueType	timeSeriesType
2	Peilgebieden	ImportWaterwatch	B.y	Biomassa productie [kg/ha] - jaar	PG0568	_PG0568_naam onbekend		year GMT+1	scalar	external historical
3	Draaiduur	VlaggenTellen	DD.AM.m	Draaiduur missend [-] - maand	KW437113	HAANWIJK_4371-K_HAANWIJK-pompvijzel1_afvoer		month GMT+1	scalar	external historical
4		AggregeerBegroeiingsMonitoring	BegKrA.a	Totaal aantal algenkroosbedekking	RAYON 8	RAYON 8	ruimshifted	year GMT+1	scalar	external historical
5		PeilbesluitEvaluatie	H.G.d	Waterhoogte [mNAP] - dag	PG0656	_PG0656_Polder Blokhoven		day GMT+1	scalar	external historical
6	Peilbesluit Honswijk									
7	Debiet CAW	VlaggenTellen	Q.G.AM.m	Debiet CAW missend [-] - maand	KW100511	GOYERBRUG_1005-K_GOYERBRUG-pompvijzel1_aanvoer		month GMT+1	scalar	external historical
8	Afvoergebieden	GFGProfile	GFG	Gebiedsfactoren gewassen [-]	AFVG21	Kamerik - Teylingens		day GMT+1	scalar	external historical
9	Afvoergebieden	BalansAfvoergebieden	H.B.n.y	Netto WIS [mm] - jaar	AFVG29	Bijleveld		year GMT+1	scalar	external historical
10	Kruinhoogte	VlaggenTellen	Hk.G.AM.m	Kruinhoogte missend [-] - maand	KW217211	STATION TERWIJDE_2172-K_STATION TERWIJDE-stuw1_afvoer		month GMT+1	scalar	external historical

Admin Interface

Delft-FEWS Configuration

Download

Description

Upload Delft-FEWS Configuration zip file ⓘ

Bestand kiezen

Geen bestand gekozen

Upload

Entry date from GMT

Entry date to GMT

Build

Source

Code

Text

Log Level:

Info

Acknowledged:

All

Show 50 entries

Acknowledge logs

Download logs

Code	Entry Time	Level		Source	Text	Build
TASKRUN.Complete.Import_Grid	18/10/2022 14:13:06	INFO		FS 2073 rm2201mc01:000071298	Task run rm2201mc01:000071298 (WorkflowId 'Import_Grid') completed	115035

- Parallel Run Options available through PI REST Webservices (same options as available for scheduled tasks in AI)

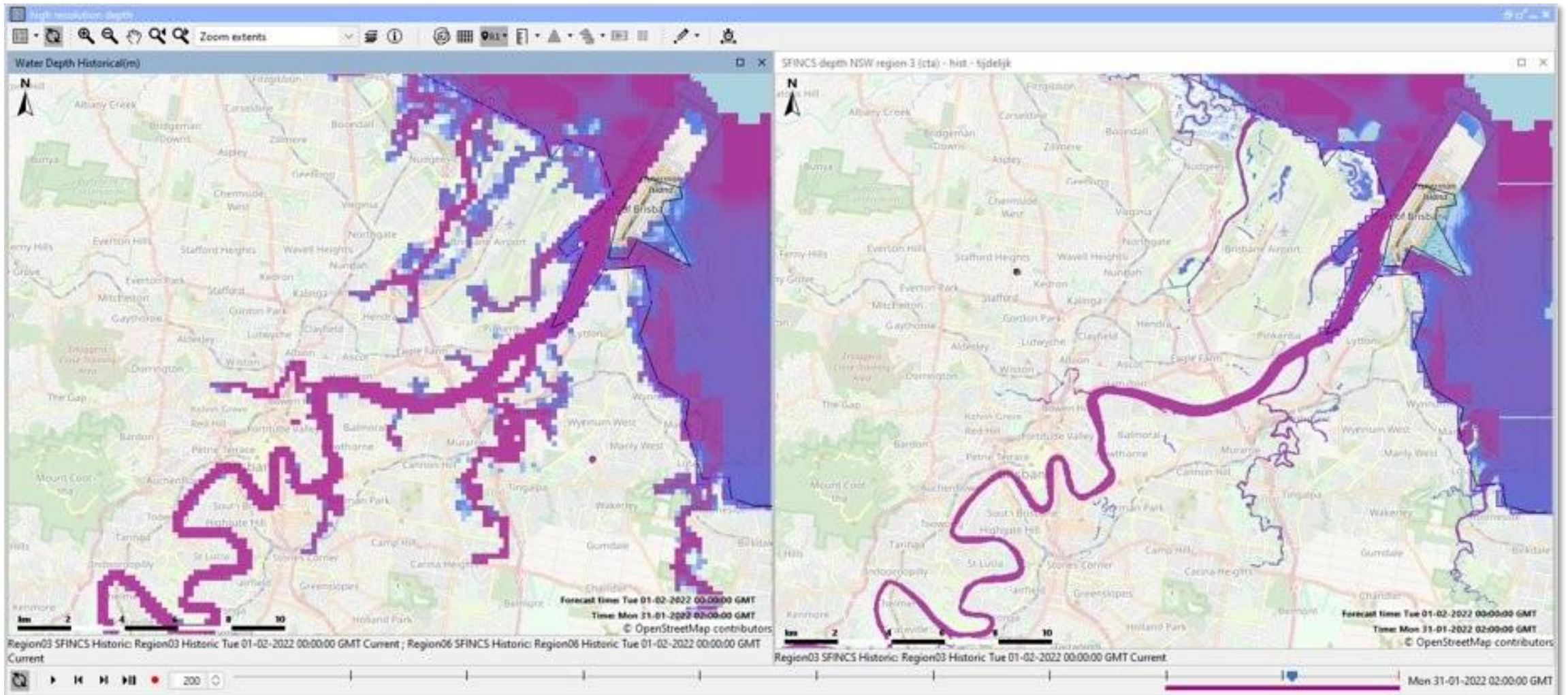
Grid transformations (for e.g. supporting flood inundation calculations)

- **GridToPolygons** transformation supports now **DEM*/CTA* layers**
- The grid is first converted to a **high resolution grid** based on the resolution of the DEM/CTA layer.
- Then it is converted to a time series of polygons
- Warning: **high memory setting** of several GBs is required to perform the transformation in most cases.

```
<transformation id="gridToPolygon">
  <interpolationSpatial>
    <gridToPolygons>
      <inputVariable>
        <timeSeriesSet>
          <moduleInstanceId>SpatialInterpolationGridToPolygonsCtaTest</moduleInstanceId>
          <valueType>grid</valueType>
          <parameterId>T.historical</parameterId>
          <locationId>ECMWF</locationId>
          <timeSeriesType>external historical</timeSeriesType>
          <timeStep unit="day"/>
          <relativeViewPeriod unit="day" start="0" end="0"/>
          <readWriteMode>add originals</readWriteMode>
        </timeSeriesSet>
      </inputVariable>
      <polygonValue>7</polygonValue>
      <polygonValue>8</polygonValue>
      <polygonValue>9</polygonValue>
      <areaOfInterestLocationId>triangle</areaOfInterestLocationId>
      <localDatumCoverageTileArchiveFile>dem.cta</localDatumCoverageTileArchiveFile>
      <zoomLevel>5</zoomLevel>
    </outputVariable>
    <timeSeriesSet>
      <moduleInstanceId>SpatialInterpolationGridToPolygonsCtaTest</moduleInstanceId>
      <valueType>polygon</valueType>
      <parameterId>T.historical</parameterId>
      <locationId>polygonLocation2</locationId>
      <timeSeriesType>external historical</timeSeriesType>
      <timeStep unit="day"/>
      <relativeViewPeriod unit="day" start="0" end="10"/>
      <readWriteMode>add originals</readWriteMode>
    </timeSeriesSet>
  </outputVariable>
</gridToPolygons>
</interpolationSpatial>
</transformation>
</transformationModule>
```

* DEM: Digital Elevation Model
CTA: Coverage Tile Archive

Grid transformations (for e.g. supporting flood inundation calculations)





Open Archive

HyFS-SA (FEWS-2021.01-1.0.0) (Stand alone)

File Tools Dashboards Options Help

search and download datasets **create a new event** search and download events Upload to Archive

Event properties

area: RWSOS start time: Wed 29-06-2022 20:00:00 name: example event
end time: Thu 30-06-2022 20:00:00 description: example event
event type: Flood Watch Event

Summary of archive data

- simulated data: --
- observed data: --
- parameters in observed data: --
- locations in observed data: --
- external forecast data: --
- messages files: --
- rating curves files: --
- configuration files: --
- report files: --
- snapshots: --

name	description	creation time	start time	end time	area	event type
example event	example event	Tue 08-11-2022 20:01:22	Wed 29-06-2022 20:00:00	Thu 30-06-2022 20:00:00	RWSOS	Flood Watch Event

Locations

- Abbieglassie AI - H544C
- Abercrombie No 2 (Ab)
- Aberfoyle (Aberfoyle R)
- Accommodation Creek
- Act Border (Queanbey
- Adamstown - H561116
- Adavale - H045043
- Adavale Road Alert - H
- Adjungbilly - H573016
- Aides Bridge 1m - H041
- Albion Park Post Office
- Albury Airport Aws - H
- Aldavilla D/S (Macclay
- Aldville - H044192
- Alectown (Vanvillia) - H
- Alice Downs AI - H544C
- Allambie - H044191
- Allambie - H566056
- Allambie AI - H544068
- Allambie - H044191

Parameters

- Observed Discharge
- Processed Discharge
- Calculated Discharge
- Simulated Forecast Discha
- Simulated Forecast Discha
- Simulated Historical Disch
- Simulated Historical Disch
- Forecast Reservoir inflow
- Forecast Reservoir outflow
- External Forecast Reservoir

Open Forecasts

Map Plots Spatial Modifiers Peak Heights Web Browser Archive Catalogue

Logs 3: Run Info fews Current system time: Thu 30-06-2022 20:00 AEST 09:01:39 GMT Archive: test archief 2022.02 Stand alone -27.254, 136.656 0.0 MB/s 802 MB

HyFS-SA (FEWS-2021.01-1.0.0) (Stand alone)

File Tools Dashboards Options Help

search and download datasets create a new event search and download events Upload to Archive

Upload data to Archive

area time series is between

tweed Thu 23-06-2016 20:00:00 Fri 26-06-2026 20:00:00

Check availability in catalog Upload to archive

Location ^	Parameter	Qualifiers	Time step	Edited values	Period in archive
Bilambil Heights (Marana Reservoir) ...	Observed Rainfall (P.obs)	15m	15 minutes	0	--
Binna Burra Alert - H040845-00	Observed Rainfall (P.obs)	15m	15 minutes	0	--
Bray Park (Water Treatment Plant) - ...	Observed Rainfall (P.obs)	15m	15 minutes	0	--
Brays Creek (Misty Mountain) - H058...	Observed Rainfall (P.obs)	15m	15 minutes	0	--
Burringbar - H558083-01	Observed Rainfall (P.obs)	15m	15 minutes	0	Fri 13-05-2022 10:00:00 - Wed 01-06-2022 09:45:00
Clarrie Hall Dam (Doon Doon Creek)...	Observed Rainfall (P.obs)	15m	15 minutes	0	

Locations

- Banora (Sewerage Treatment Plant)
- Bilambil Heights (Marana Reservoir)
- Binna Burra Alert - H040845
- Boat Harbour (Rous River) - H05...
- Bray Park (Water Treatment Plant)
- Brays Creek (Misty Mountain) - H...
- Burringbar - H558083
- Burringbar North Arm (Harwood)
- Chillingham - H058011
- Clarrie Hall Dam (Doon Doon Creek)
- Clothiers Creek - H558082

Parameters

- Observed Rainfall
- Processed Rainfall

Open Forecasts

Map Plots Spatial Modifiers Peak Heights Web Browser Archive Catalogue

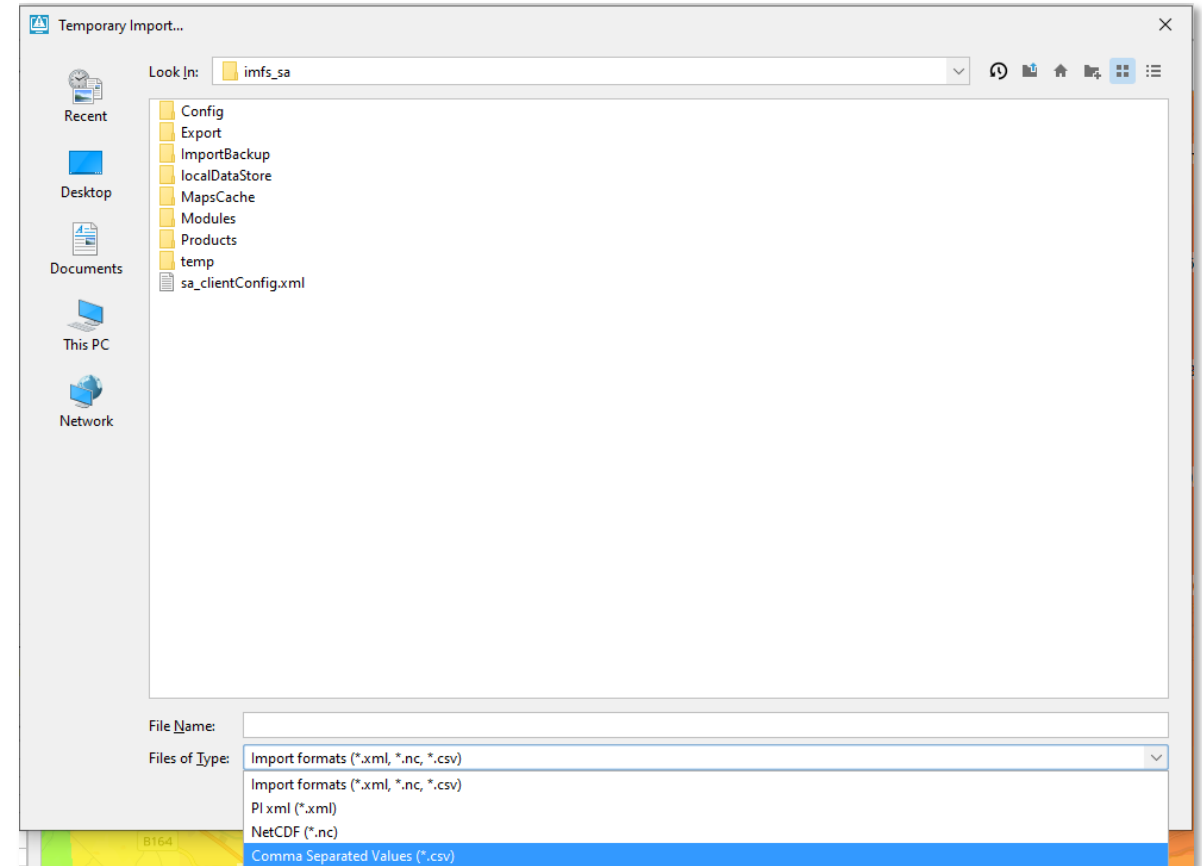
Import routines

- Service imports: added option `<onlyGaps>` to ensure only **missing data enclosed with non-missing data** is imported
- Temporary import options extended with CSV files (configuration similar as the generalCSV import)

```

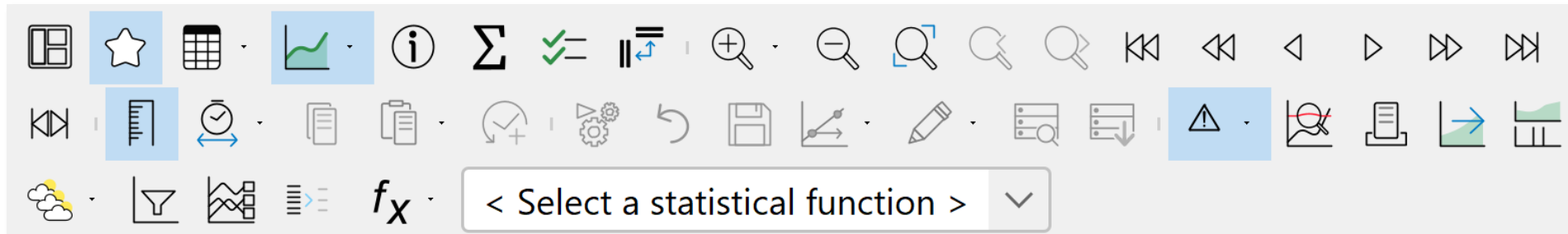
</interactiveExportFormats>
<temporaryImportFormats>
  <temporaryImportFormat>
    <name>General CSV</name>
    <table>
      <dateTimeColumn name="DateTime" pattern="dd-MM-yy HH:mm"/>
      <locationColumn name="Location"/>
      <parameterColumn name="Parameter"/>
      <valueColumn name="Value"/>
    </table>
  </temporaryImportFormat>
</temporaryImportFormats>
<explorerTasks>

```

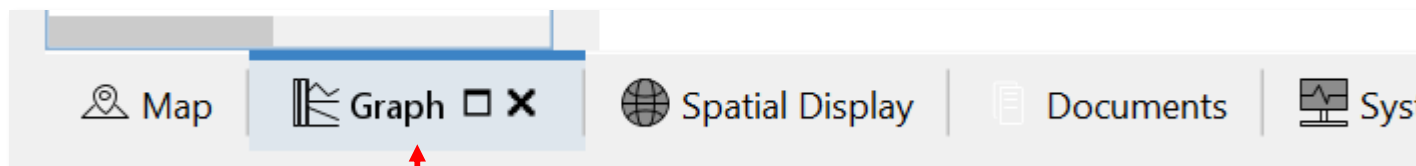


GUI improvements

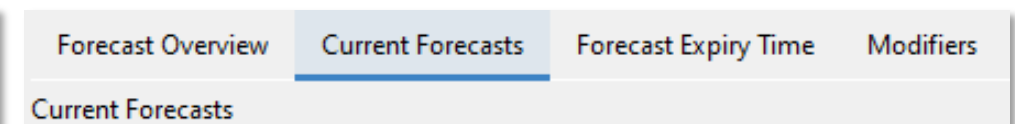
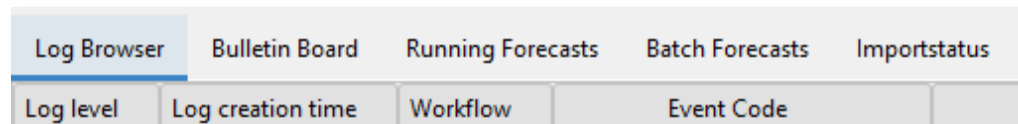
- New icons
 - **500-600** icons replaced
 - All **SVG**-based → scalable without losing quality (4K monitors)



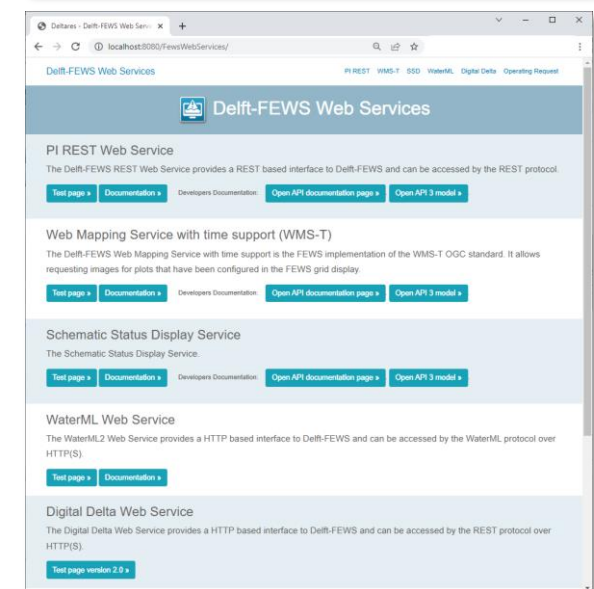
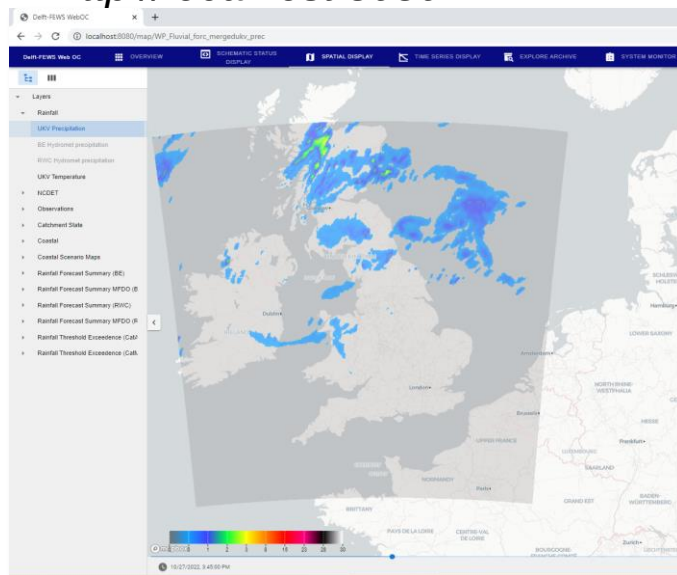
- GUI **scalable** to 300% (was: 200%)
- **Selected tab** indication (main displays) now consistent with selected tab within multi-tab displays



Deltares

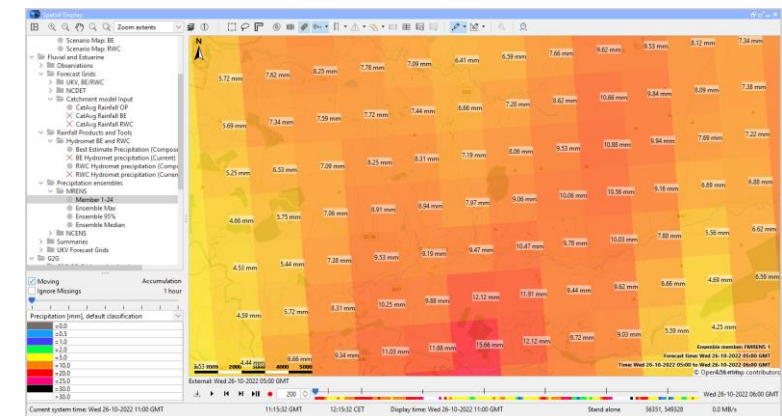
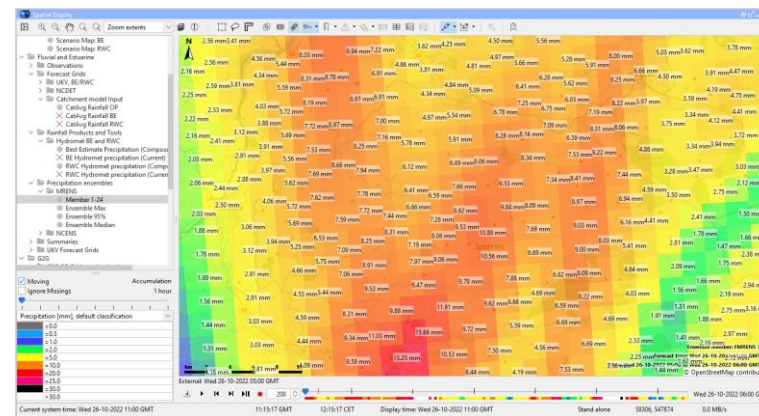
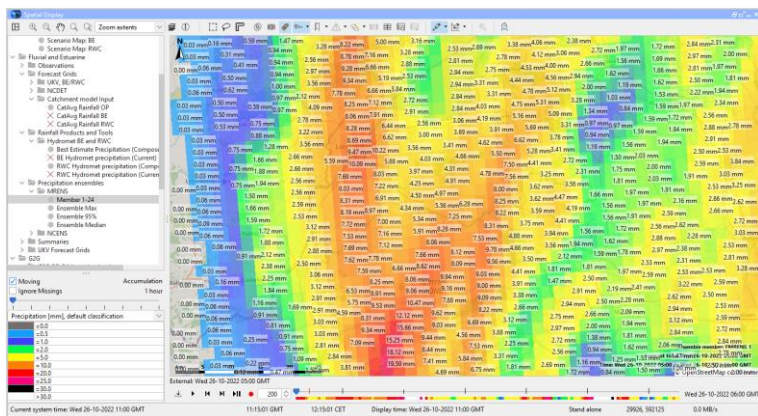
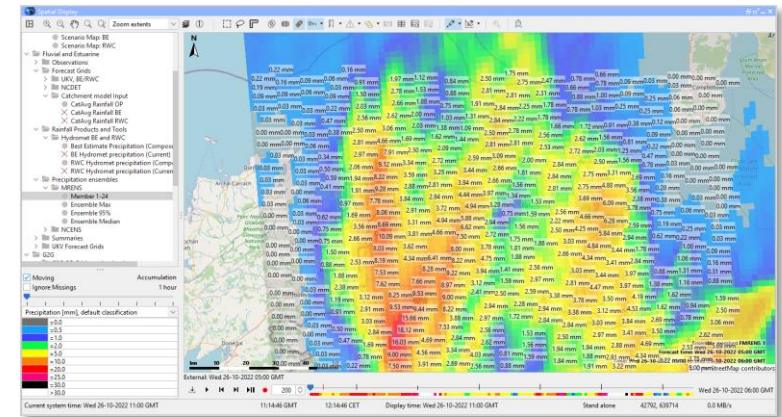
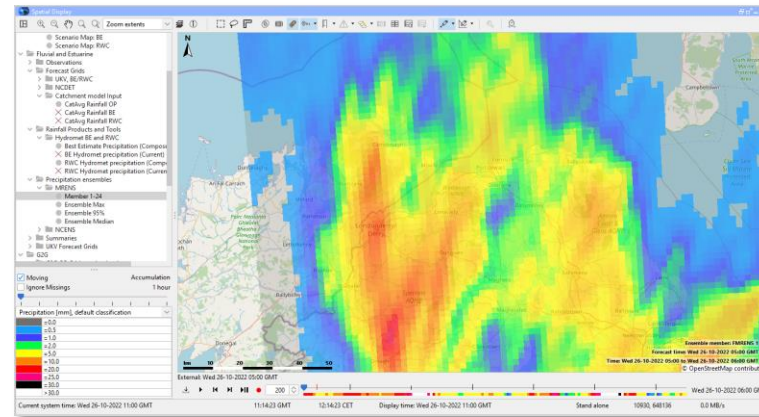
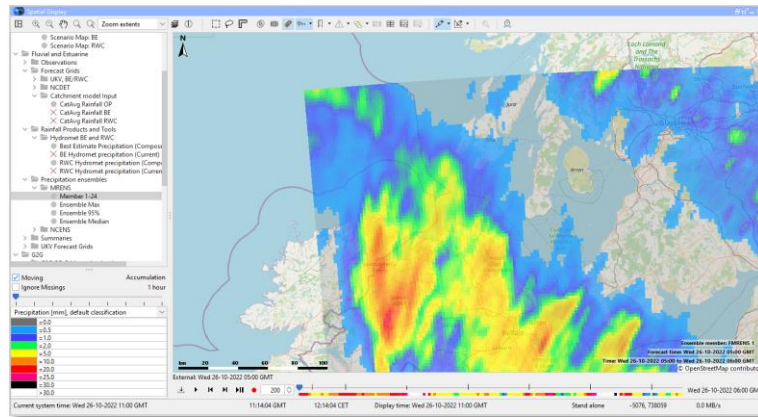


- **Embedded web services** can run on SA (OC)
 - Logging provide useful URL's
- **Testing / developing using FEWS webservices**
 - *http://localhost:8080/FewsWebServices*
- **Testing the Web Operator Client**
 - *http://localhost:8080*



Grid Display

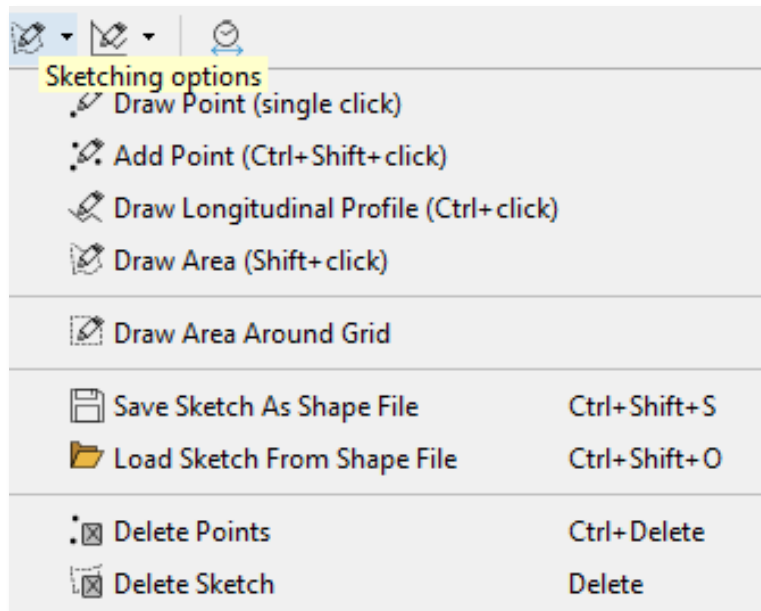
- Add **labels** to grid-values (+display while zooming)



Grid Display

Running workflows from the Spatial Display

- Add a **<description>** so it will pop-up in your Forecast Management Display
- Use configuration to **enable/disable options** for the sketch mode buttons



Point

Description	
Latitude	1.25896
Longitude	103.93524
X	39,343
Y	26,835
Time of spill (yyyy.mm.dd HH:M...	2022.08.22 12:00
Oil type	Persistent light oils
Oil mass [kg]	5000
Number of particles (10000-100...	10000

☒ Use current approved run properties

OK

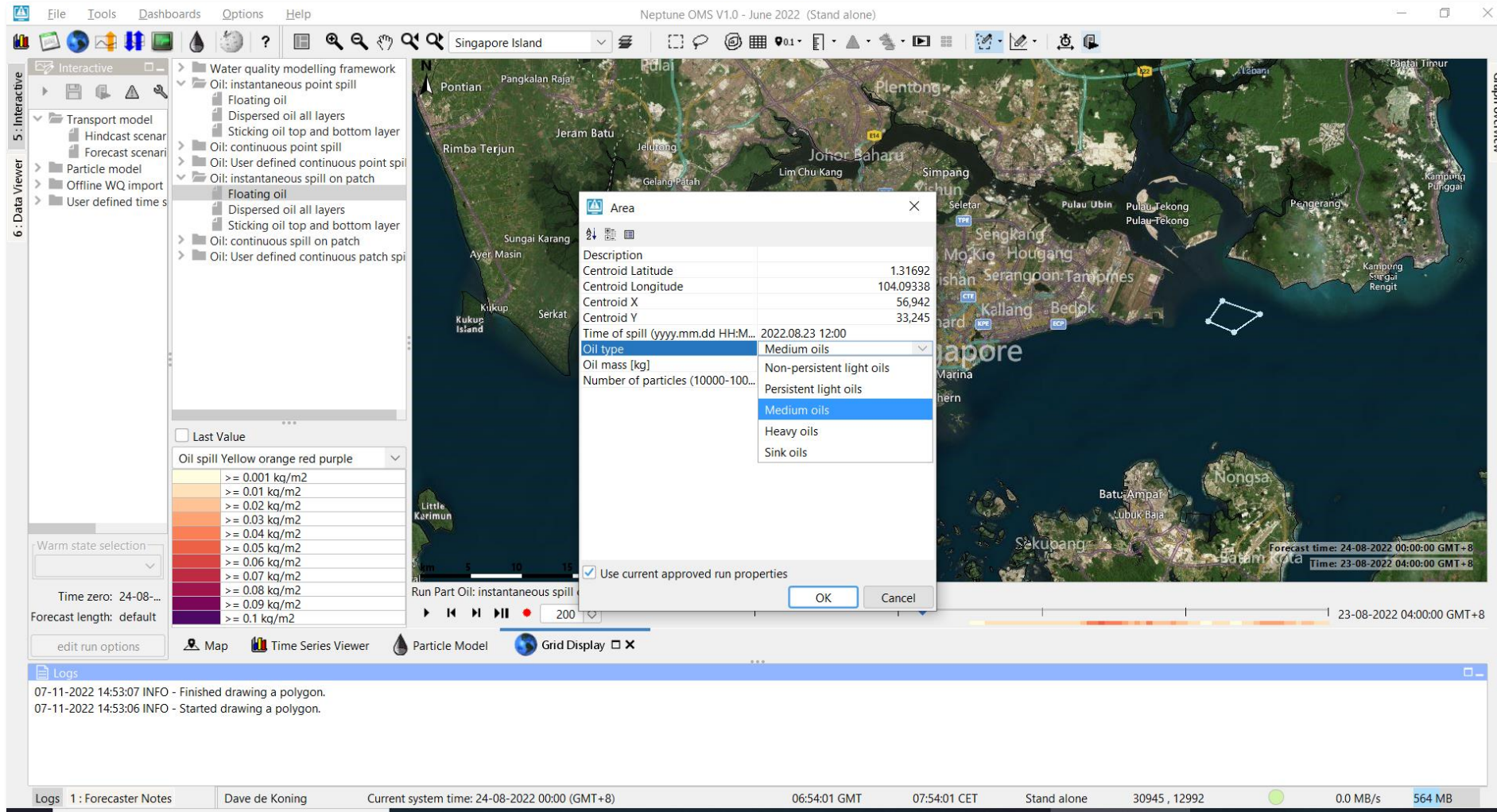
Area

Description	
Centroid Latitude	1.31692
Centroid Longitude	104.09338
Centroid X	56,942
Centroid Y	33,245
Time of spill (yyyy.mm.dd HH:M...	2022.08.23 12:00
Oil type	Medium oils
Oil mass [kg]	50000
Number of particles (10000-100...	1000000

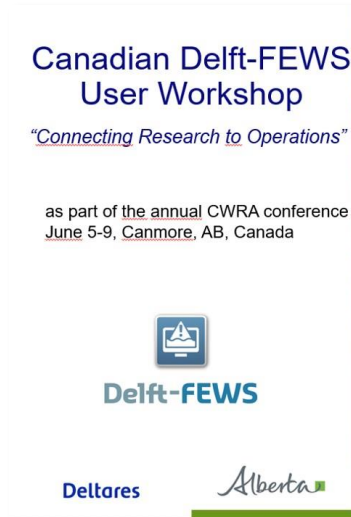
☒ Use current approved run properties

OK Cancel

Grid Display



Events



Deltares

Community
Talk

edition #1 and #2

Webinars, blogs & recordings

- [New features 2022.01](#) (September 2022)



- One more to come in 2022! **Suggestions?**
- Plan: continue in 2023! **Topics welcome!**

- [New Features 2021.02](#) (April 2022)



- [Delft-FEWS and the Cloud](#) (January 2022)



Roadmap 2022

Roadmap Theme	Goal(s)	Status	Q4 focus / remark
Code clean-up	- Continue 2021 work <F12> option/wiki up-to-date 3rd Party Library updates	✓	- SOAP removal (= done) - Configuration support
Code quality	- Sonarqube commits & reporting - DevOps pilot - Unit Test coverage	✓	- Code quality section in release notes in 2022.0* - SonarCloud (Q1 2023)
Release process & test automation	- PRA & Retrospectives - Transferable test scripts - Increase automated testing (Docker) - Master / Release test plans	✓	- Multi-purpose test open archive - Master Test plan template

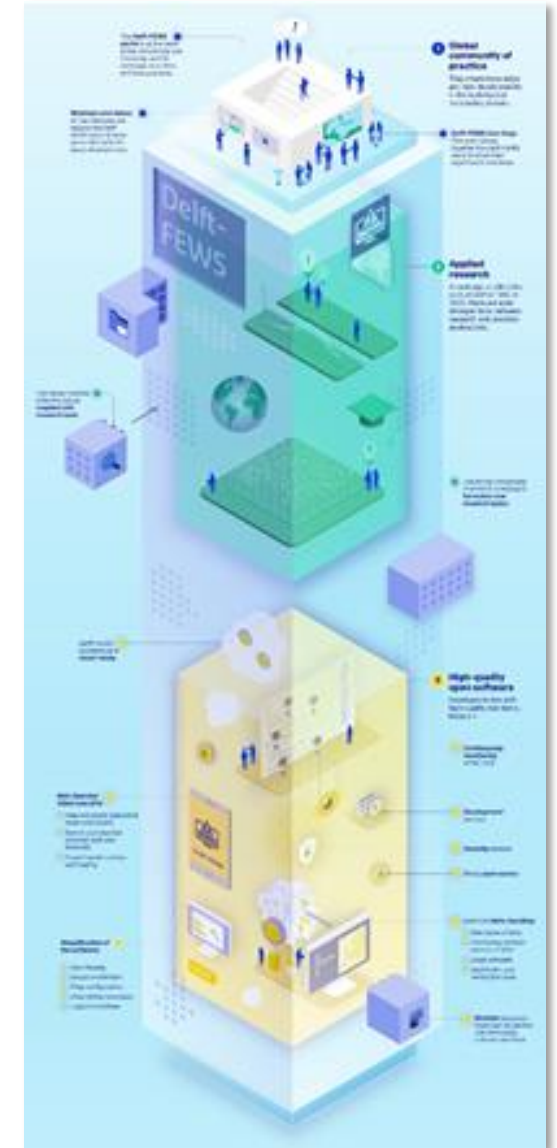
Roadmap 2022

Roadmap Theme	Goal(s)	Status	Q4 focus / remark
Security & <u>cloud</u>	- Incorporate cloud services - Sharing knowledge (WIKI, Webinar)	✓	
<u>Security</u> & cloud	- Security Matrix / discuss with clients (daily) OWASP notifications	✓	Finalize (+ handover) matrix
Web Operator Client	- MVP - Web OC testable with SA	✓	Finalize MVP
Computational Framework	- What-if functionality in CS systems - Interaction with archive for storing & searching scenarios - Exchange scenarios between users - Blueprints for Deltares models	✓	- Demos - Improved functionalities / usability in CS systems - Few model blueprints available

Outlook Roadmap 2023

Outline

- Security & Cloud
- Code quality & code clean-up
- Release Test Automation
- **New: Delft-FEWS and Python integration (Use cases needed!)**
- Parallel with ongoing projects:
 - Computational Framework
 - Web Operator Client



Outlook Developments 2023

- Migration to **Java 17** (2023.01)
- Extension of **REST API endpoints** (NWS, MDBA)
 - Retrieve rating curves (conversion calculations, meta-data)
 - Retrieve logmessages
 - Retrieve cold/warm state information
- Implementation of a **JAVA API** for **GUI selections** (NWS)
- Implementation of a **WFS (web feature service)** for polygon-timeseries (Flood Indundation Extents)
- **Flood Warnings & Thresholds**: Generation AND dissemination (EA-IMFS, AUS)
- **Web service & Archive**: Generate & retrieve products/product components (RWS)
- **Continuous deployment**, pipeline, launching components (EA-NGMS)
- **Open Archive**: Create separate Vision (together with CSB)
- **Cloud**: High availability of the MasterController (without using dual MC)
- Make **web service patchable**
- ...



Contact

- | | | | | | |
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