Deltares

Delft-FEWS Stable 2022.02 New features

International Delft-FEWS User Days 2022

Delft-FEWS Product Management

Marcel Ververs and Gerben Boot

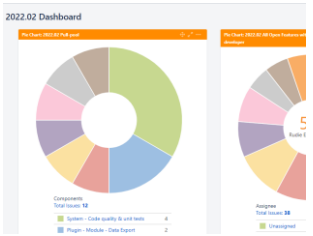
November 2022

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



Delft-FEWS 2022.02

- **±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

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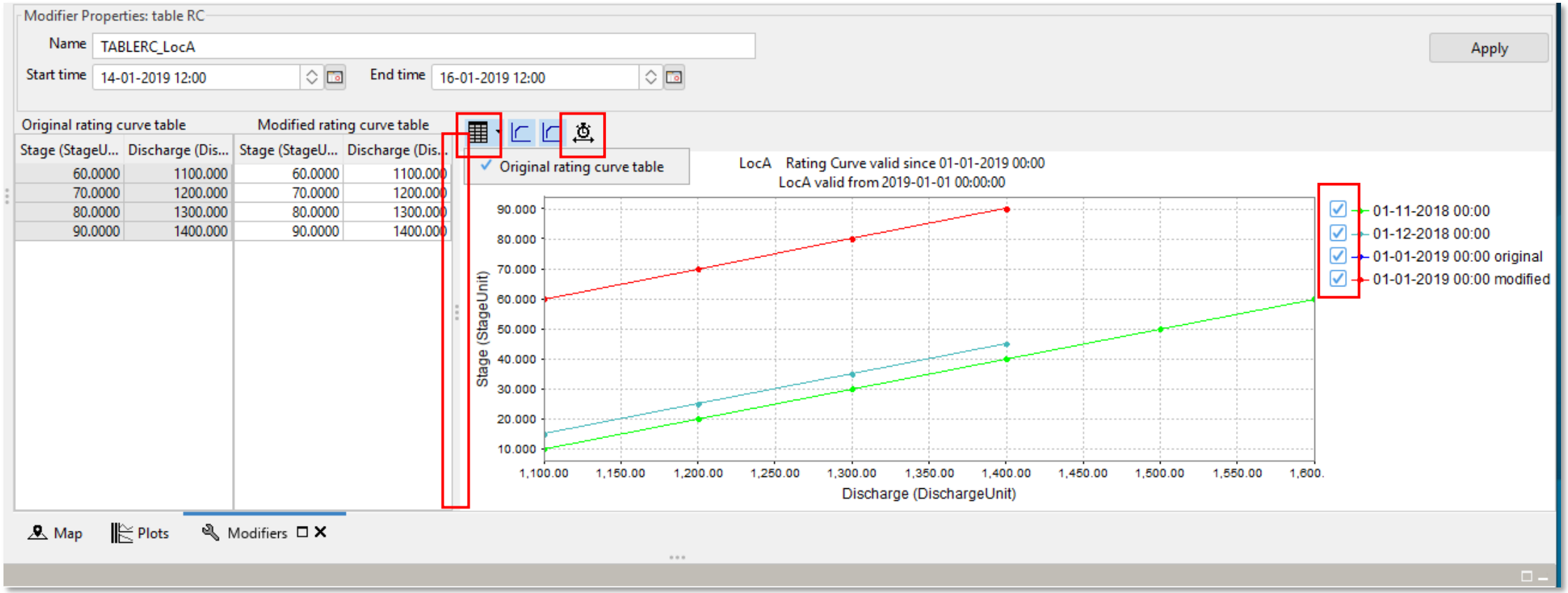
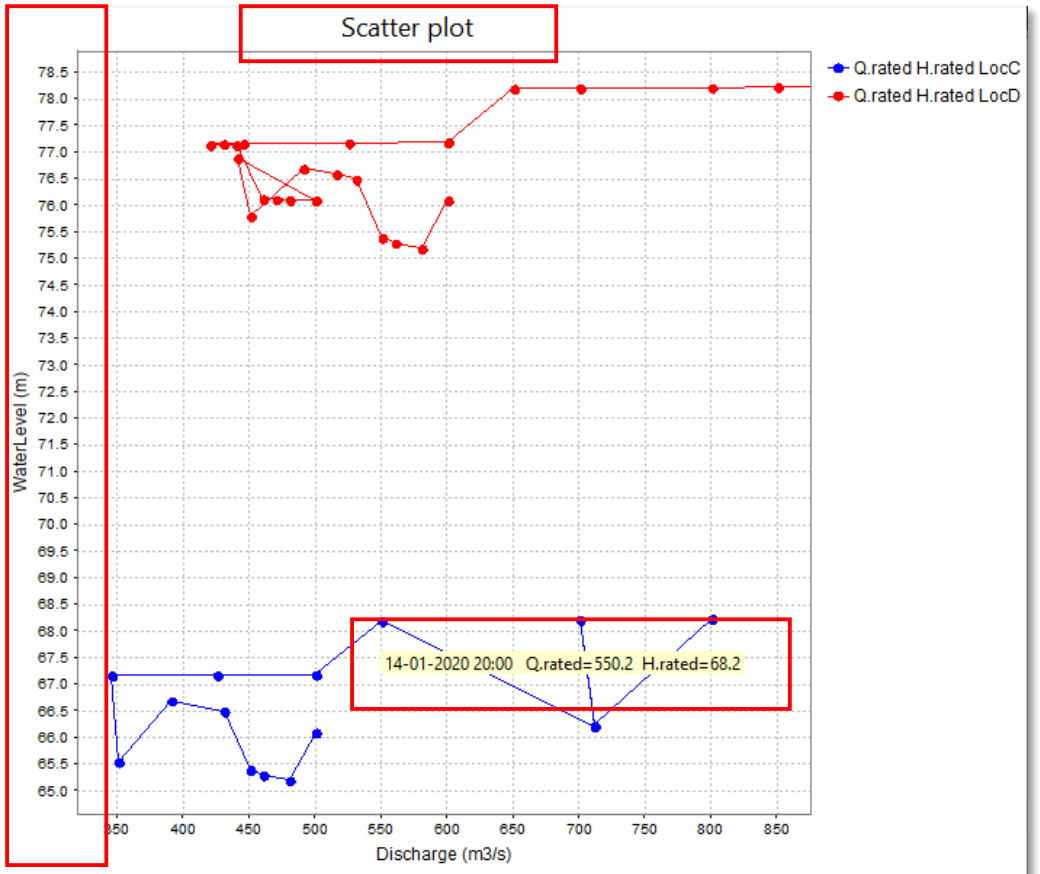
Rating Curve Modifiers



Scatterplot

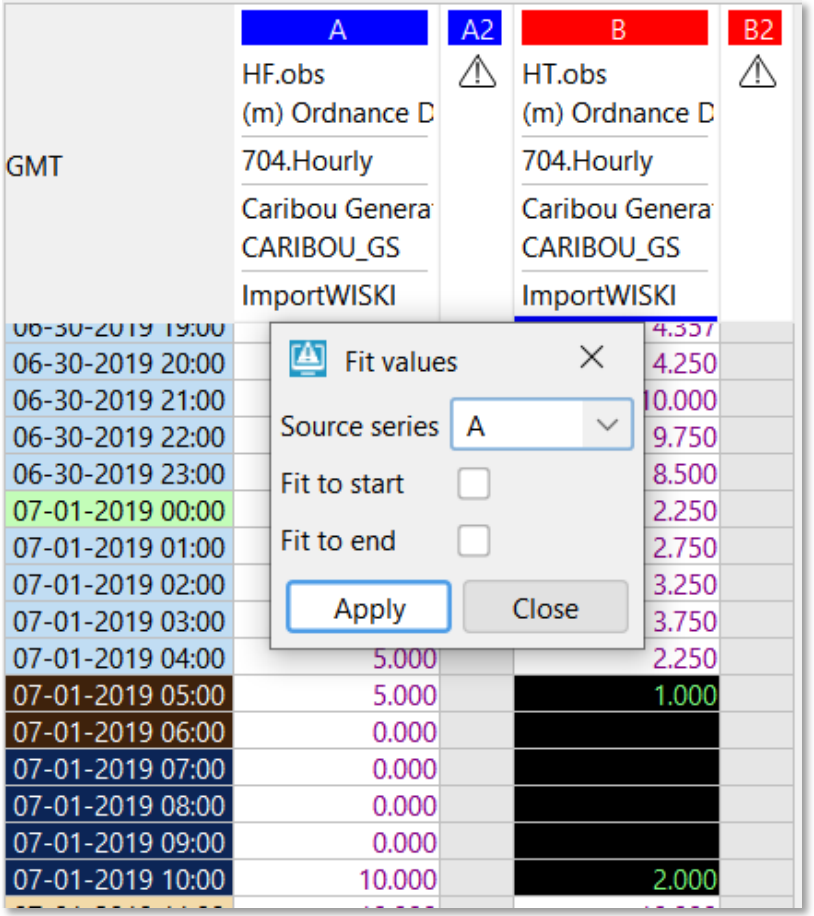
GMT	A Q.rated (m3/s) Location C LocC [1] 13-01-2020 00:00	B H.rated (m) Location C LocC [1] 13-01-2020 00:00	C Q.rated (m3/s) Location D LocD [1] 13-01-2020 00:00	D H.rated (m) Location D LocD [1] 13-01-2020 00:00
14-01-2020 01:00	500.100	66.10	600.100	76.10
14-01-2020 02:00	480.200	65.20	580.200	75.20
14-01-2020 03:00	460.300	65.30	560.300	75.30
14-01-2020 04:00	450.400	65.40	550.400	75.40
14-01-2020 05:00	430.500	66.50	530.500	76.50
14-01-2020 06:00			515.600	76.60
14-01-2020 07:00	390.700	66.70	490.700	76.70
14-01-2020 08:00	350.550	65.55	450.800	75.80
14-01-2020 09:00	350.550	65.55	440.900	76.90
14-01-2020 10:00			500.100	76.10
14-01-2020 11:00			480.110	76.11
14-01-2020 12:00			470.120	76.12
14-01-2020 13:00			460.130	76.13
14-01-2020 14:00			440.140	77.14
14-01-2020 15:00			420.150	77.15
14-01-2020 16:00			430.160	77.16
14-01-2020 17:00	345.170	67.17	445.170	77.17
14-01-2020 18:00	425.180	67.18	525.180	77.18
14-01-2020 19:00	500.190	67.19	600.190	77.19
14-01-2020 20:00	550.200	68.20	650.200	78.20
14-01-2020 21:00	711.210	66.21	700.210	78.21
14-01-2020 22:00	700.220	68.22	800.220	78.22
14-01-2020 23:00	711.230	66.23	850.230	78.23
15-01-2020 00:00	800.240	68.24	900.240	78.24

External: [1] 13-01-2020 00:00 GMT



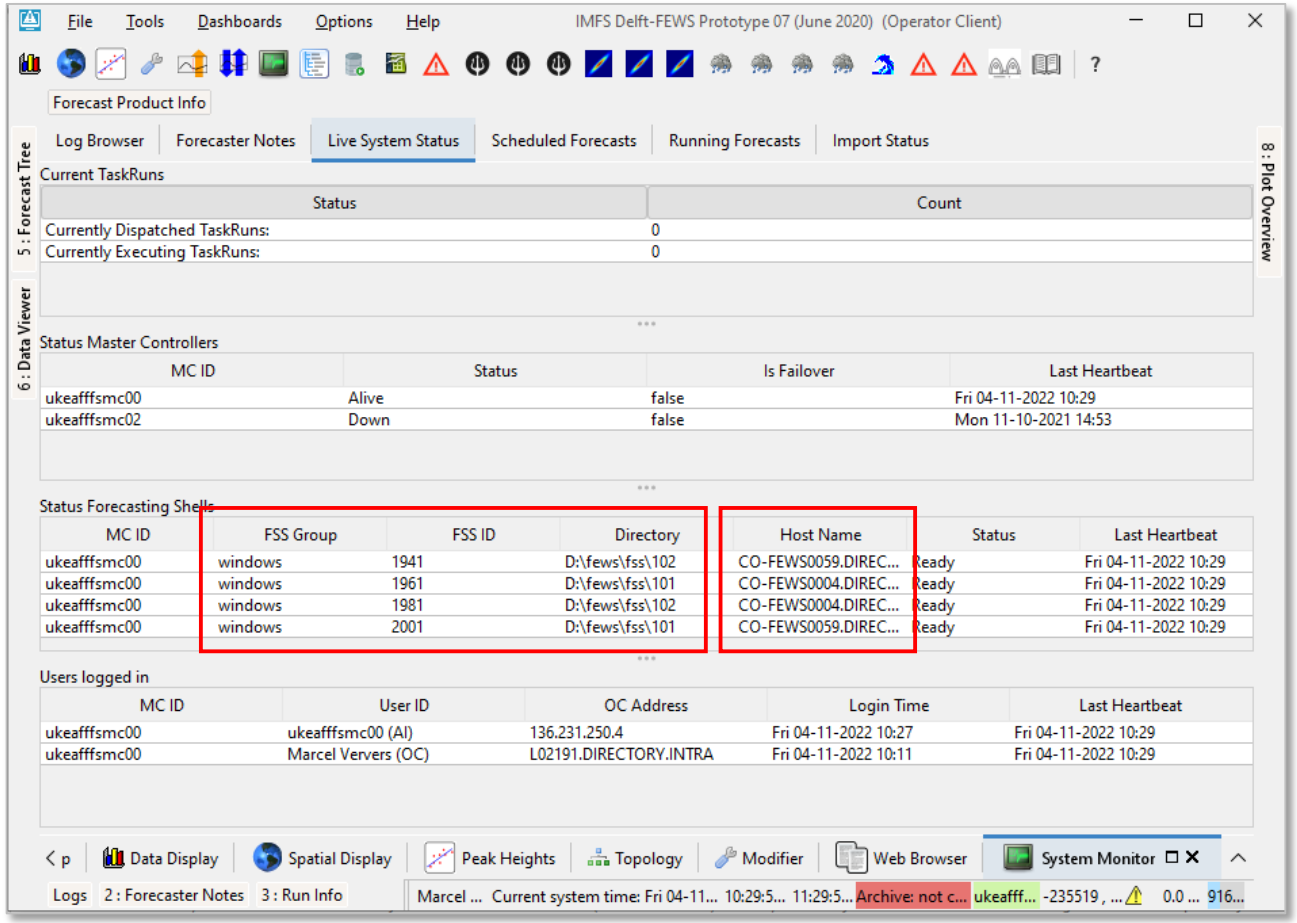
Graphical Editing

- 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



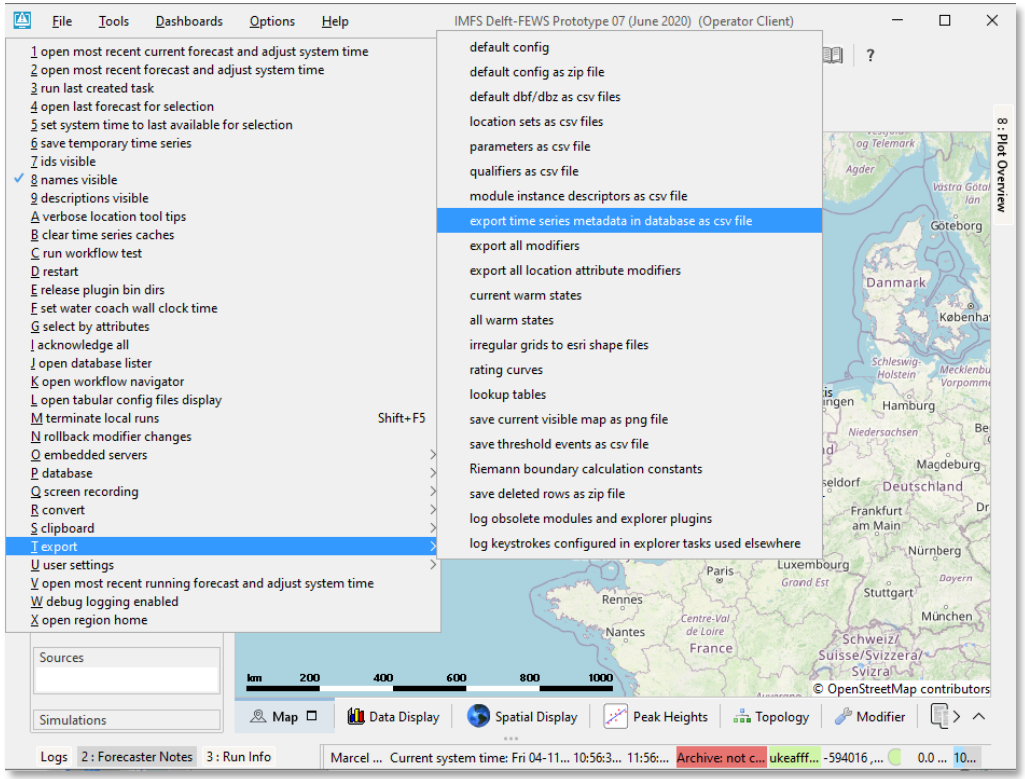
System Monitor

- 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



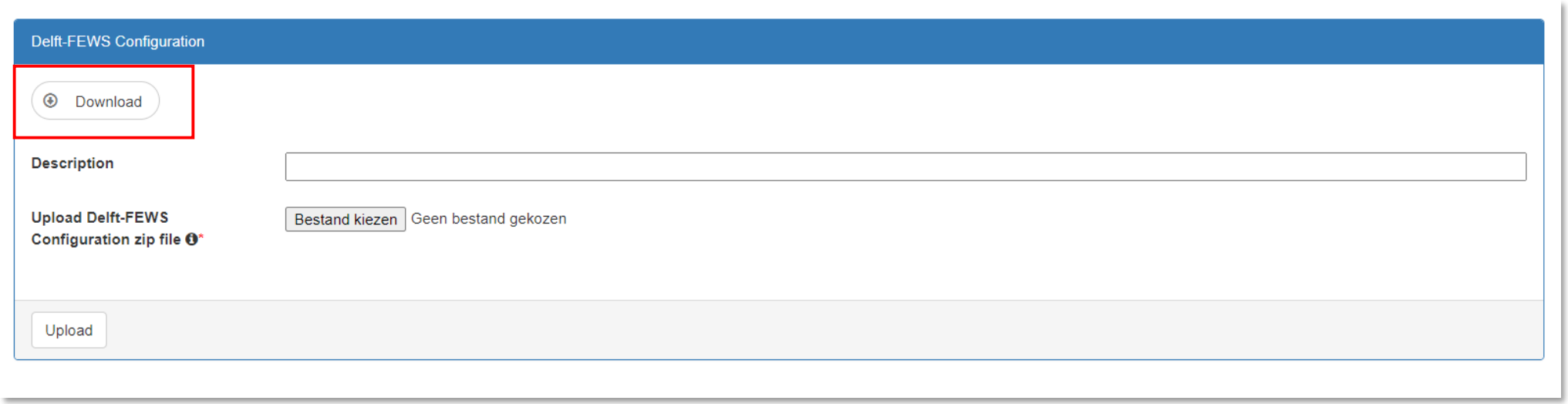
Content Database

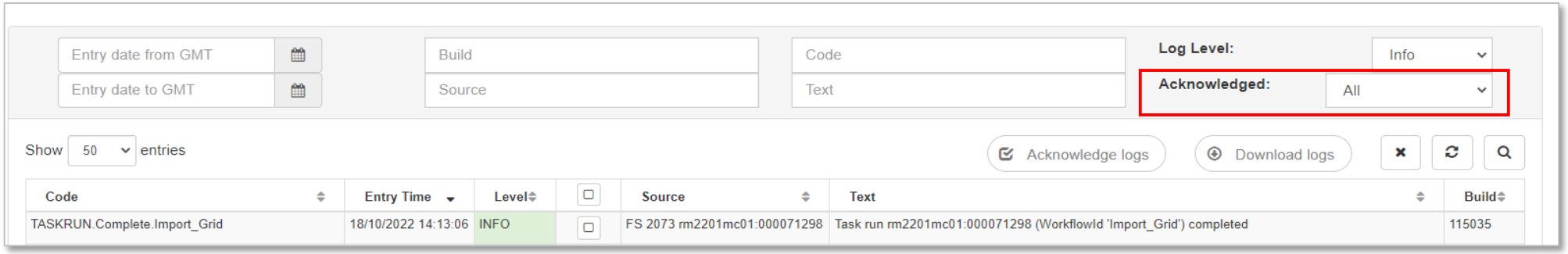
- F12 option that exports the meta data info of all time series in the database as csv file
- Csv contains 1 line for each time series and columns for all meta data



	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





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

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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

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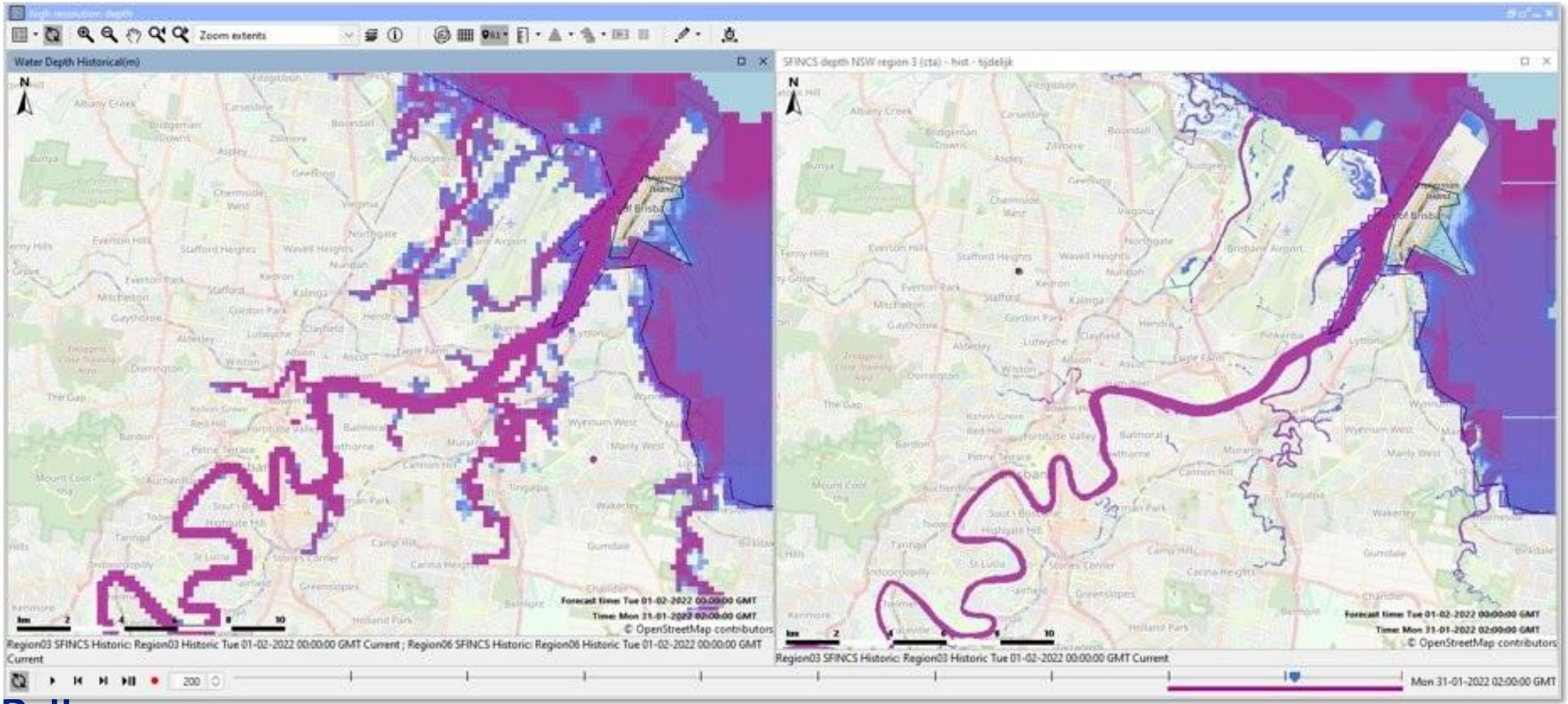
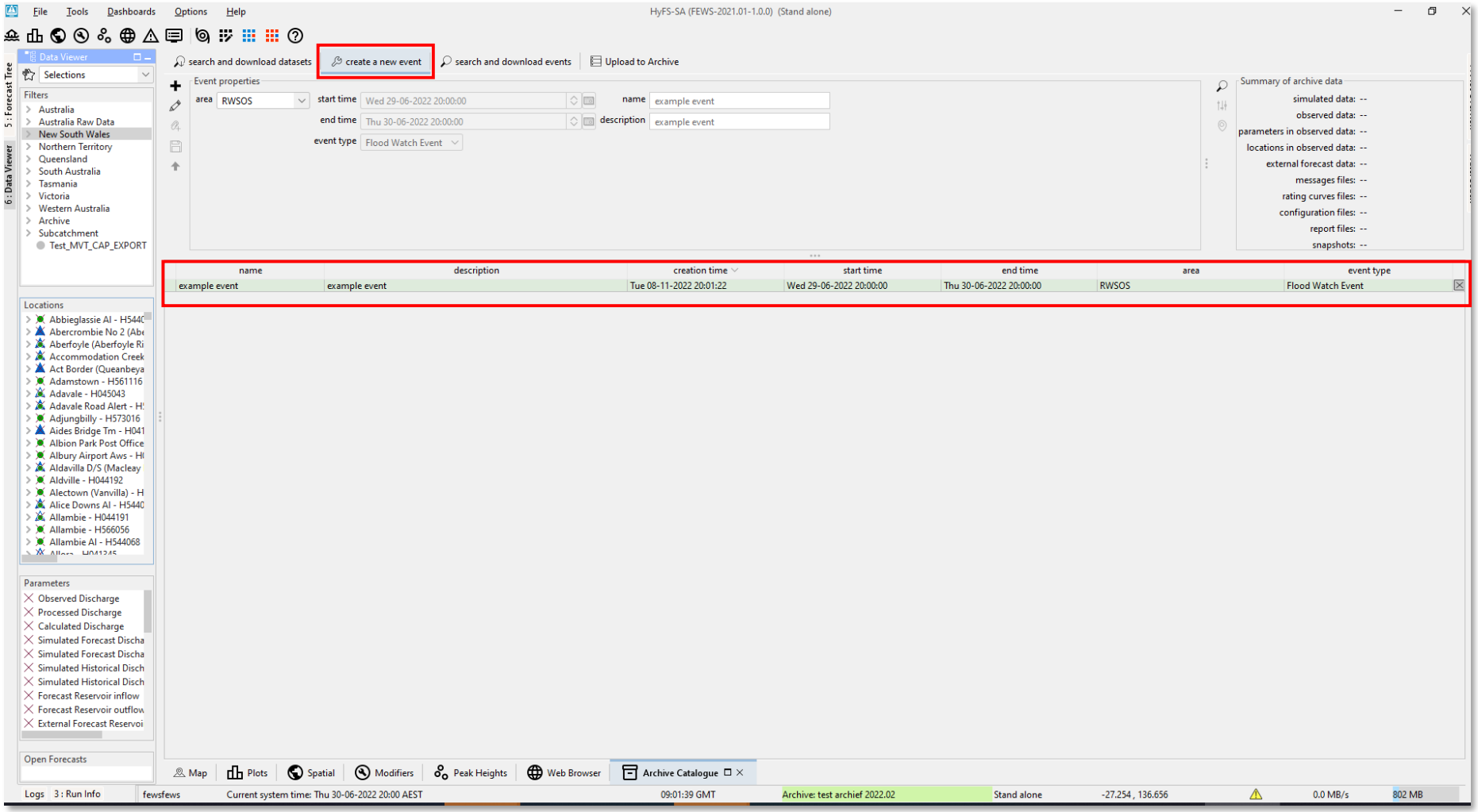
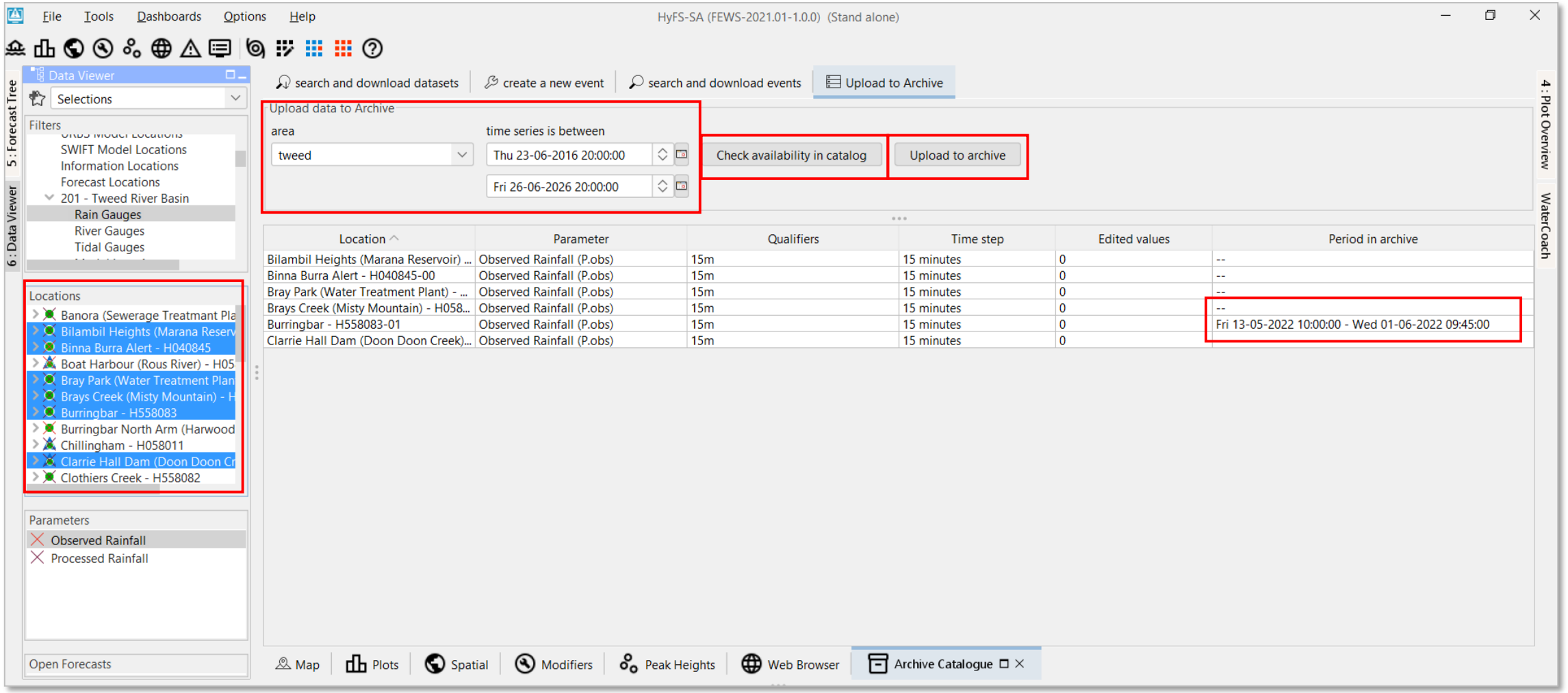
Grid transformations
(for e.g. supporting flood inundation calculations)



Open Archive



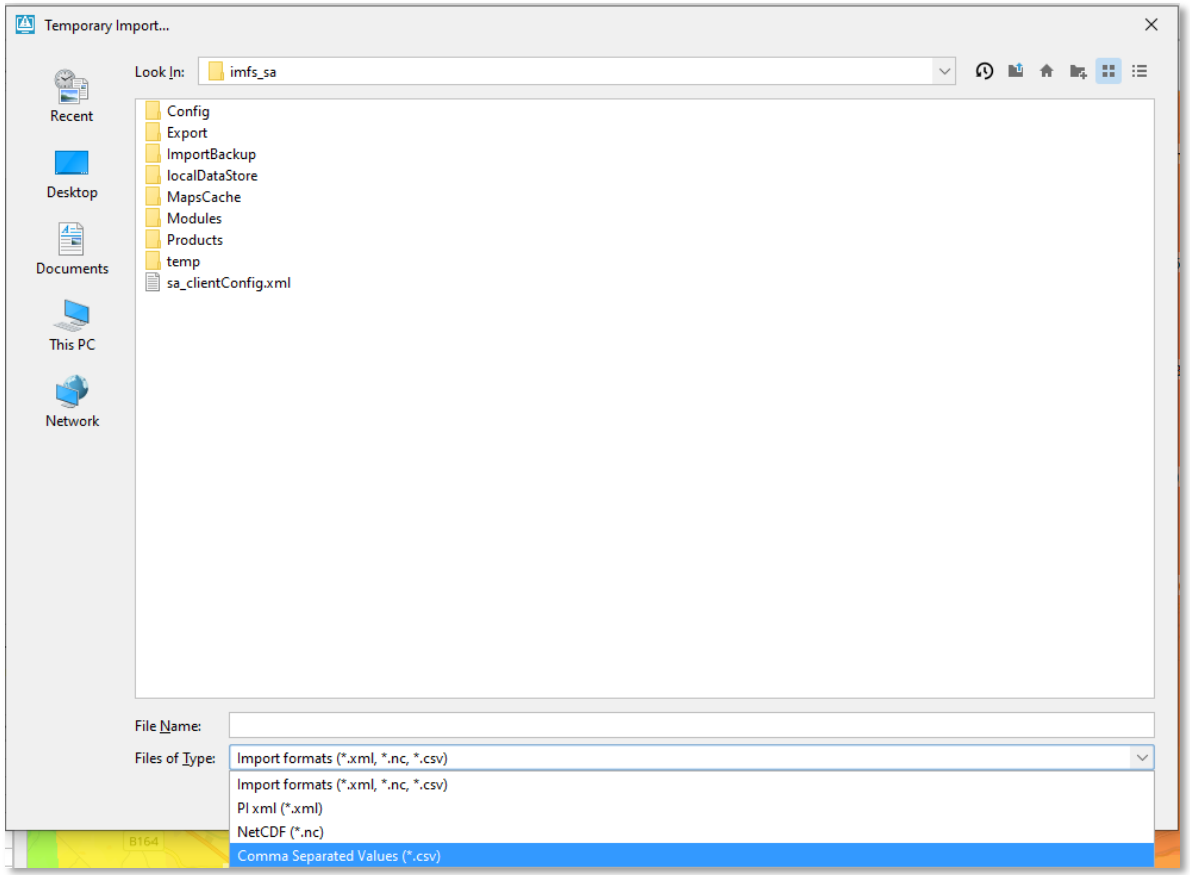
Open Archive



Import routines

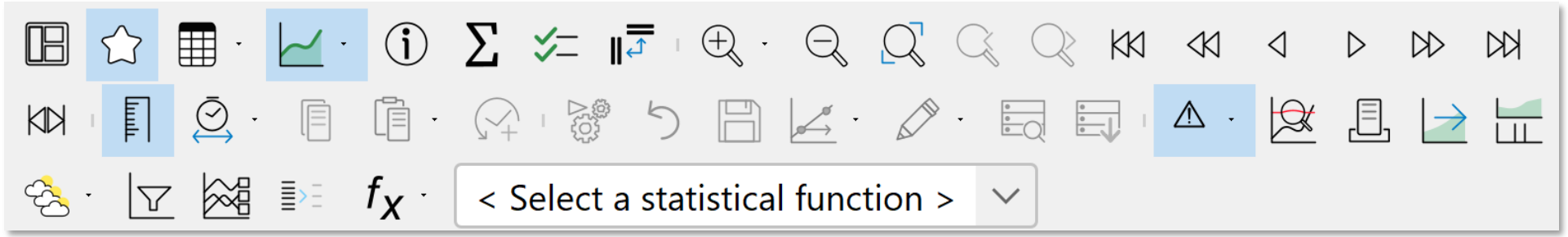
- Service imports: added option <onlyGaps> to ensure only **missing data enclosed with non-missing data** is imported
- Temporary import options extended with CSV files (configuration similar as the generalCSV import)

```
</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>
```

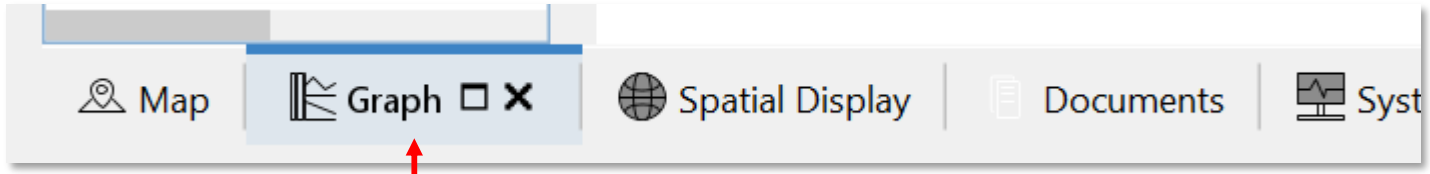


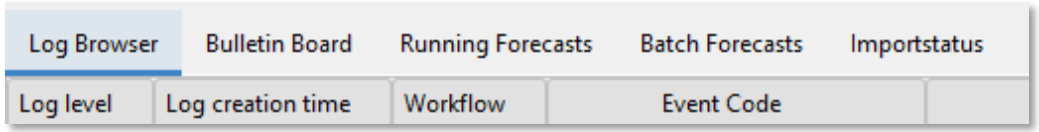
GUI improvements

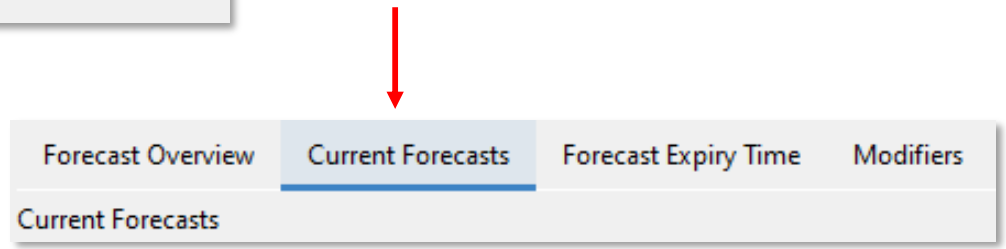
- New icons
  - **500-600** icons replaced
  - All **SVG**-based → scalable without losing quality (4K monitors)



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

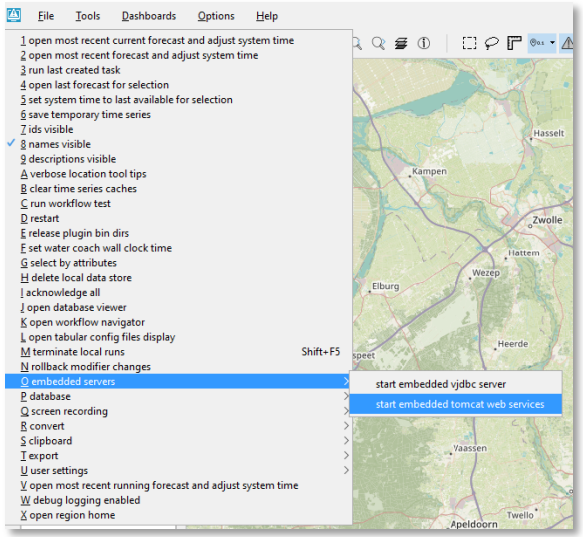


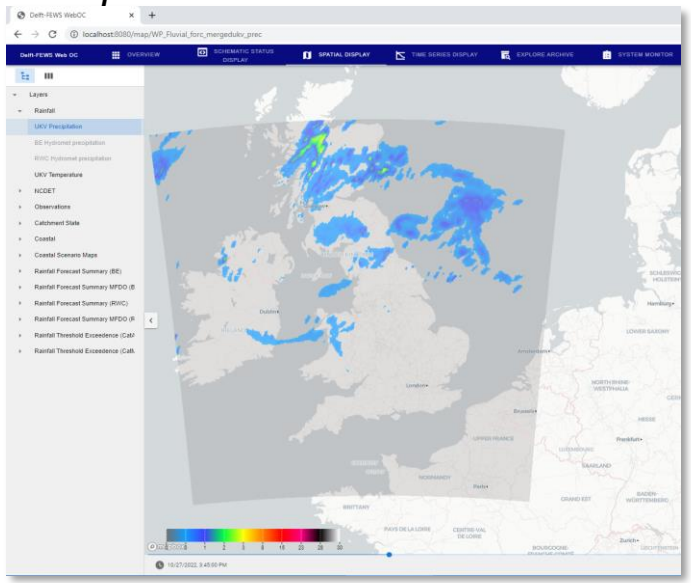


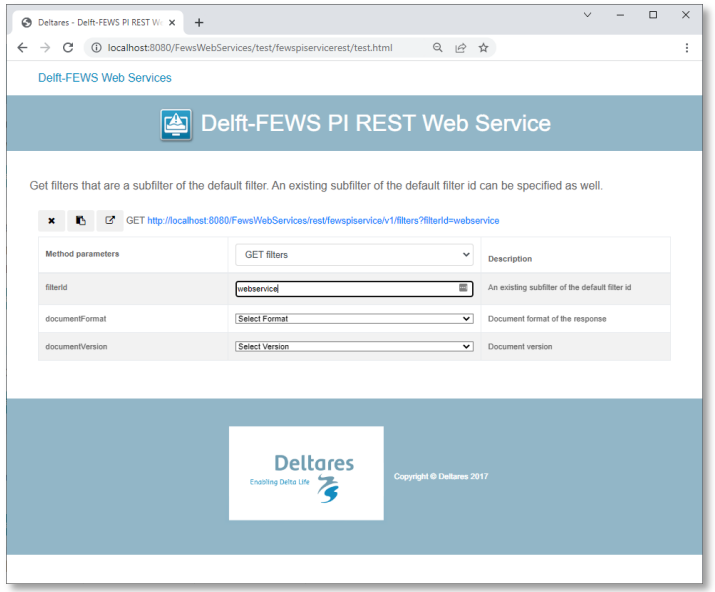


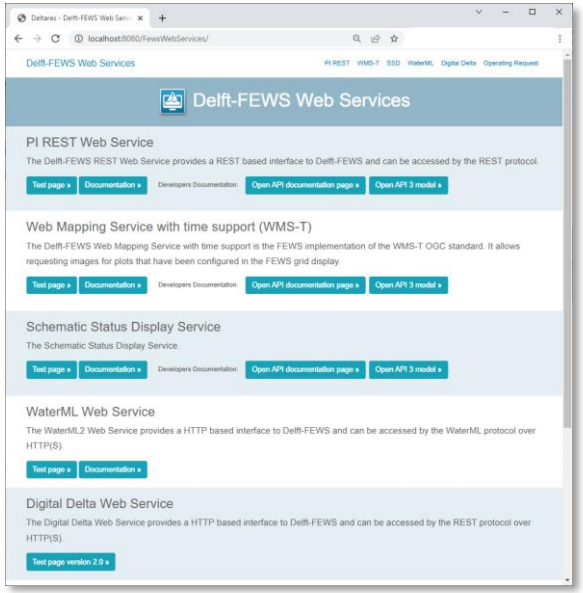
Launch & test the FEWS web services easily

- **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*



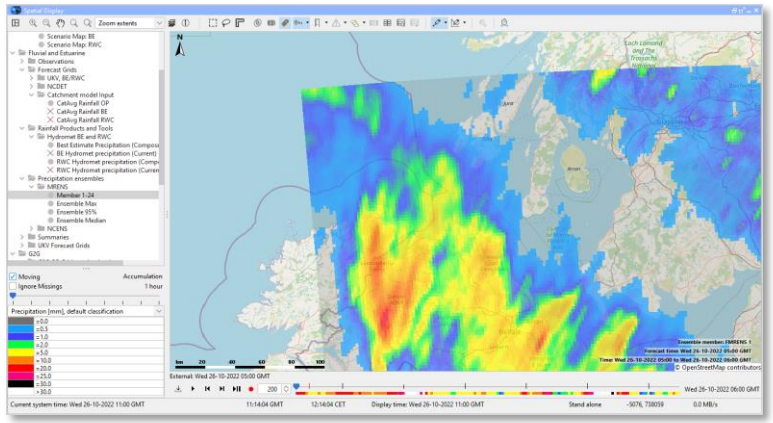
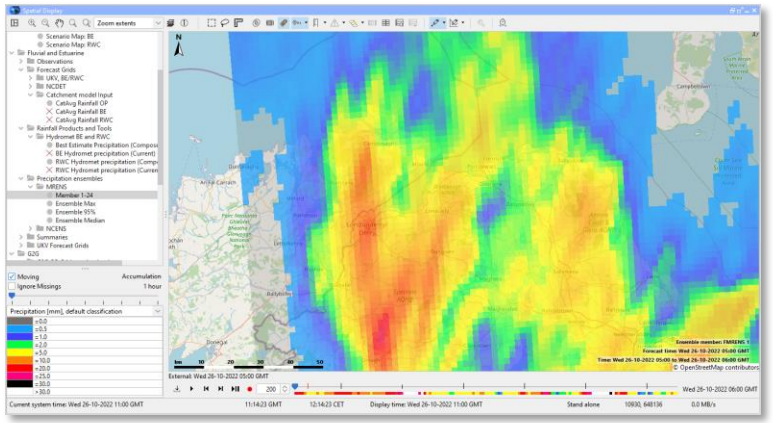
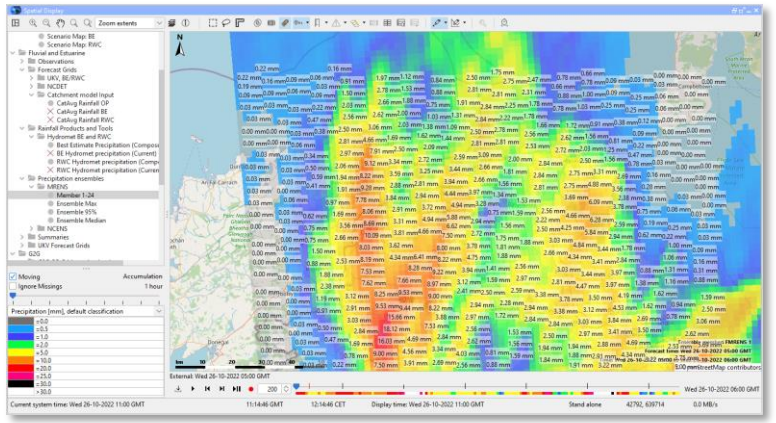
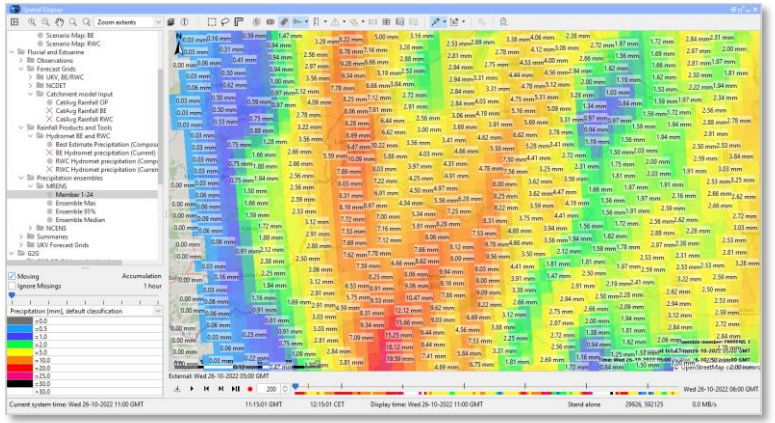
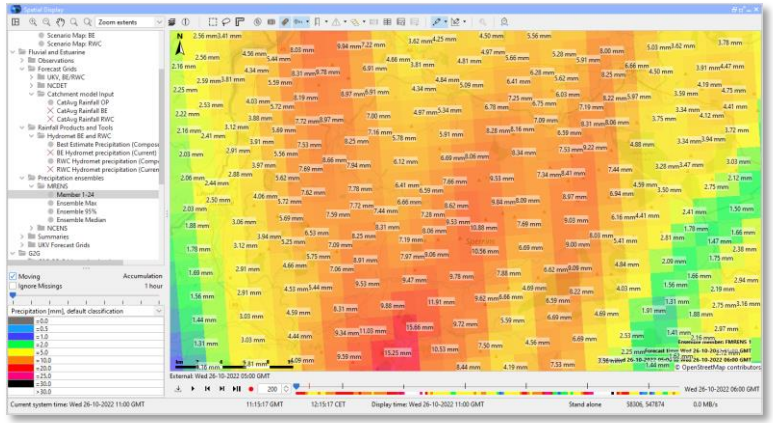
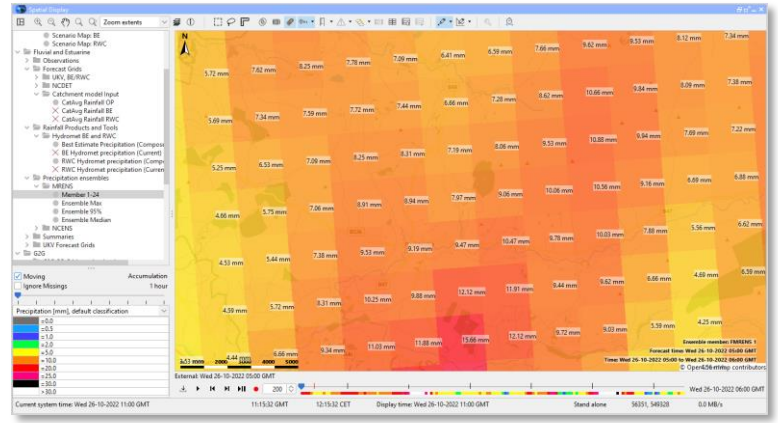






Grid Display

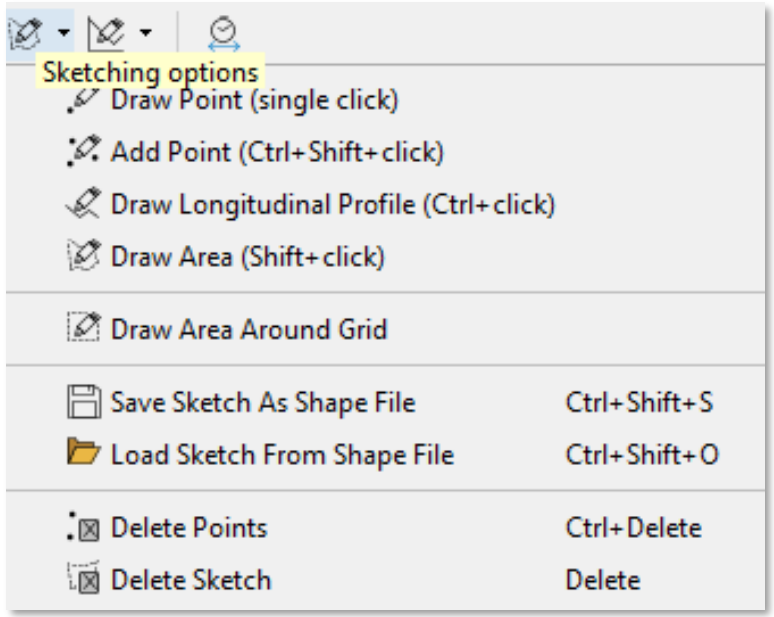
- Add **labels** to grid-values (+display while zooming)

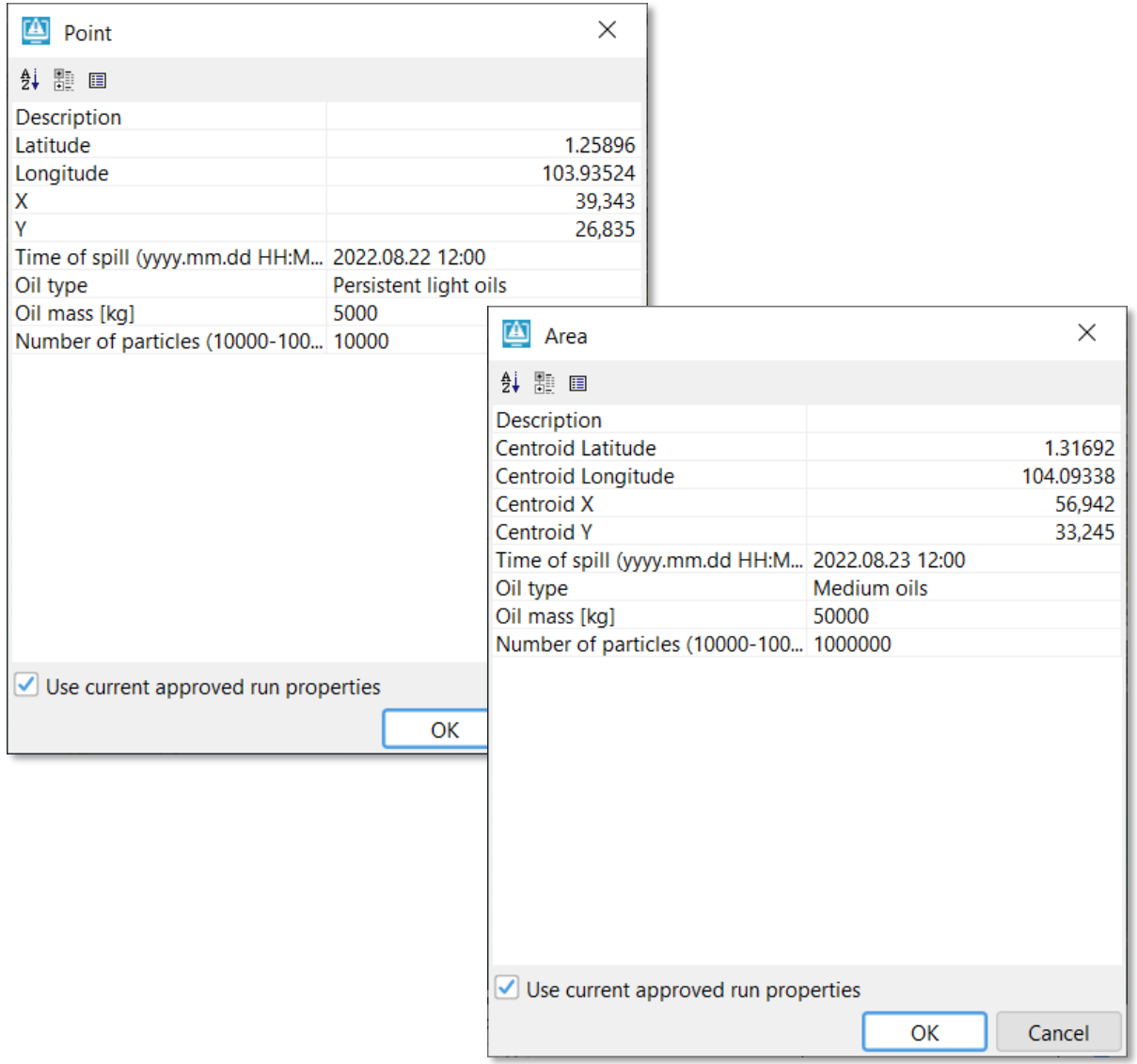







Grid Display

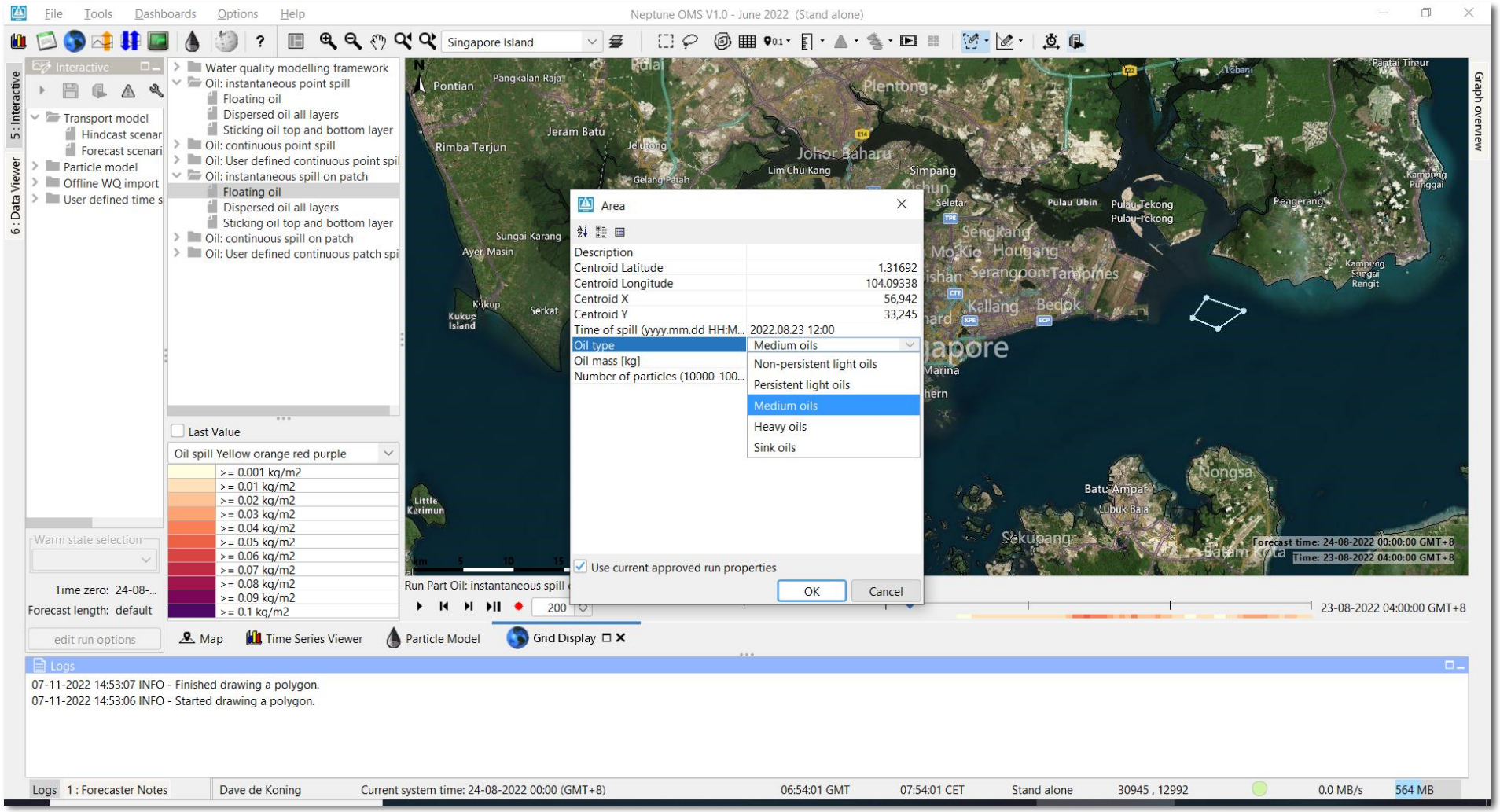
Running workflows from the Spatial Display

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





Grid Display



Events

Deltares

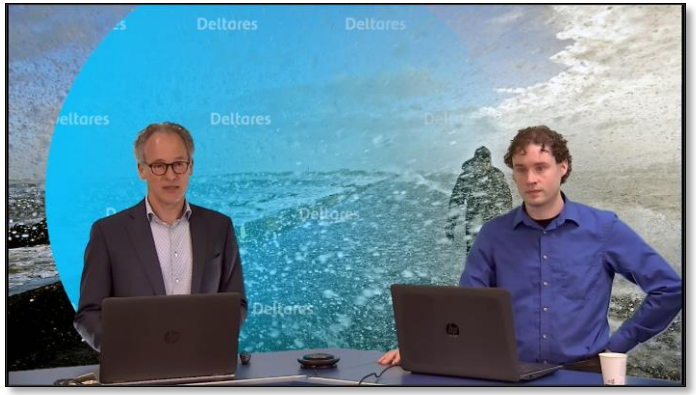
Community Talk edition #1 and #2

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

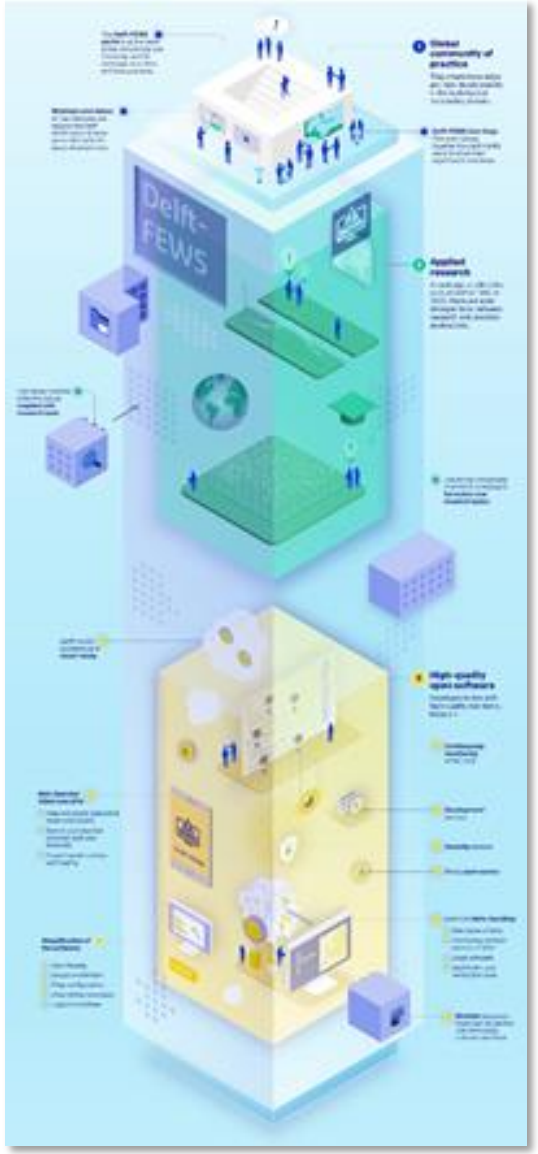
Roadmap 2022

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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