

### Water level at Buoy 09 -0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.8 0.9 1.0 C Fri, Jun 17, 2022 01-00 GMT+2

# Current speed at Buoy 09 Current direction at Buoy 09 Number of days forward 0 3

#### Web OC Team Tom Bogaard, Daniel Twigt



#### 2022/06/20

## **Deltares**

#### **Delft-FEWS WEB OC Status update June 2022**

### Outline

- Reasons for developing the Web OC
- Timeline status update
  - Web OC
  - FewsWebServices
- Use and re-use of Web OC building blocks
- Next steps



#### Delft-FEWS desktop OC







2020











### Reasons for developing the Web OC

- Increased **mobility** (fast access through browser, also from mobile devices)
- Increased **flexibility** (the intention to have further options to customize the interface to user needs)
- Increased modularity (possibility to incorporate into existing online environments already in use by clients)
- **Technological** developments (benefit from all the technological developments and 3rd party functionality available for the web)
- **Easier deployment** (compared to Desktop OC)
- Improvements to performance and security of Delft-FEWS web-services in consequence of the development of a secure and performant Web OC
- Need from the international market to have a lightweight web interface as part of the overall Delft-FEWS product

### Key starting points

Key technical starting points as presented during 2020 and 2021 User Days:

- The Web OC will connect to the **Delft-FEWS web services** to interact with other Delft-FEWS components.
- The Web OC will serve **expert users** primarily.
- Web OC will **not be a clone of thick Client** regarding functionality and design.
- The Web OC will be **responsive web application**, building on experience gained in prior web applications developed by Deltares

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### Summary of key MVP features

Functional:

- Visualize data (time series, map fields, SCADA displays, also including associated information such as thresholds and attributes)
- Dispatching jobs, Visualize monitoring information

Non-functional:

• Security, Performance, Testing, release management, Configurability\*

Which key functionality should an Minimum Viable Product (MVP) version of the Web OC provide?								
Spatial display	time series, SSD and WMS	Visualising Data and forecasts						
Data viewer, including predefined plots and spatial data,	Threshold crossings	Pre defined Display Groups						
XML configuration	visualisation of time series	Forecast times						

### FewsWebServices improvements

Work carried out thus far: improvements to **performance and security of Delft-FEWS webservices** in consequence of the development of a secure and performant Web OC

During design and development, present day insights and requirements regarding **cyber security** will be adhered to from the start.

#### Web OC equivalent of Topology nodes: GET Topology nodes

- Visualize display groups on the Web: GET Display groups
- Extend WMS getCapabilities regarding data availability
- Automated ZAP scan on OWASP security risks
- Authentication/Autorization: Delft-FEWS WebService support for Open ID Connect (PI/SSD/WMS)
- Proper versioning of endpoints
- Implement JSON schemas for new PI REST endpoints
- XML schemas for fewsWebServices property configuration
- OpenAPI specification response for endpoints
- Steps taken towards continuous deployment of fewsWebServices
- Integration testing using Postman test collection

### MVP – Web OC Sign in





### MVP – Schematic Status Display





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### MVP – Spatial Data

Delft-FEWS Web OC	VERVIEW OISPLAY	SPATIAL DISPLAY	TIME SERIES DISPLAY	EXPLORE ARCHIVE	TASKS	ТВ
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### MVP – Topology / DisplayGroups





### MVP - Next steps

Spatial data

Graphs

Installation

- Show data availability
- Display Groups linked to Topology
- Data browser / Filters
- Provide Plug-and-Play Web OC package for beta-testers.
  embedded Pl Service for testing purposes in 2022.02



#### Deltares

Input from User Day sessions
building on

UX

UI

D

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- building on experience inside and outside Deltares
- Interviews (Martijn Kwant)

#### Why?

- Insight in quality of model+weather forecasts combinations for different lead times
  - reports are soon outdated and the analysis requires additional work
  - models change over time
- Monitor processes (near-real time)
  - Hindcasts
  - Forecasts
  - Data availability
- 1 online overview for 4 FEWS systems
  - Easy access
  - More possible than in FEWS GUI
  - Fast and flexible development

#### How?

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- Compute metrics in FEWS and archive these with relevant metadata in External NetCDF Storage
- Dissemination through a webservice
- Front-end website (made by Vortech)
  - Light setup, very little hard coded configuration
  - User defines graphs and tables (s)he want to see (depending on source, local



lead time

#### Work in progress!!!

#### Status

- Computed on data in operational FEWS
- Only deterministic forecasts
- Limited flexibility in analysis

#### **Future**

- Computed on archived data
- Deterministic, ensemble, and probabilistic
- More flexibility (online) to full flexibility (offline)







**Examples** 







After this meeting:

- 1. Web-OC and Webservices: contact Tom Bogaard (<u>tom.bogaard@deltares.nl</u>) or Daniel Twigt (<u>daniel.twigt@deltares.nl</u>),
- 2. Forecast verification: contact Maarten Smoorenburg (Maarten.Smoorenburg@Deltares.nl), or
- 3. Contact FEWS PM (through the regular channels)

