



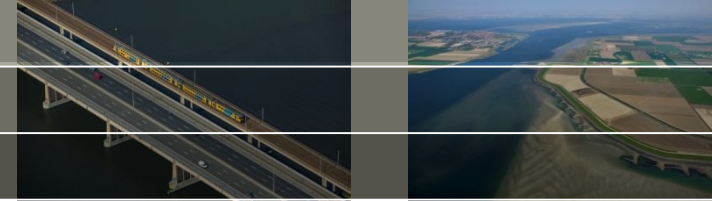
# **Delft-FEWS New Features** *Highlights*

International Delft-FEWS User Days 2012

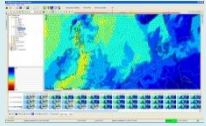
Marcel Ververs & Gerben Boot

14 december 2012

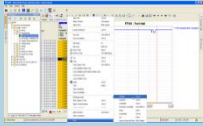
# New Features Highlights



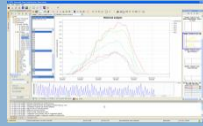
Spatial Thumbnails



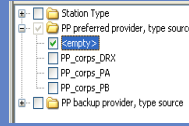
Quality Flags



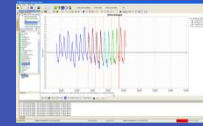
Historical Analysis



Location Attributes



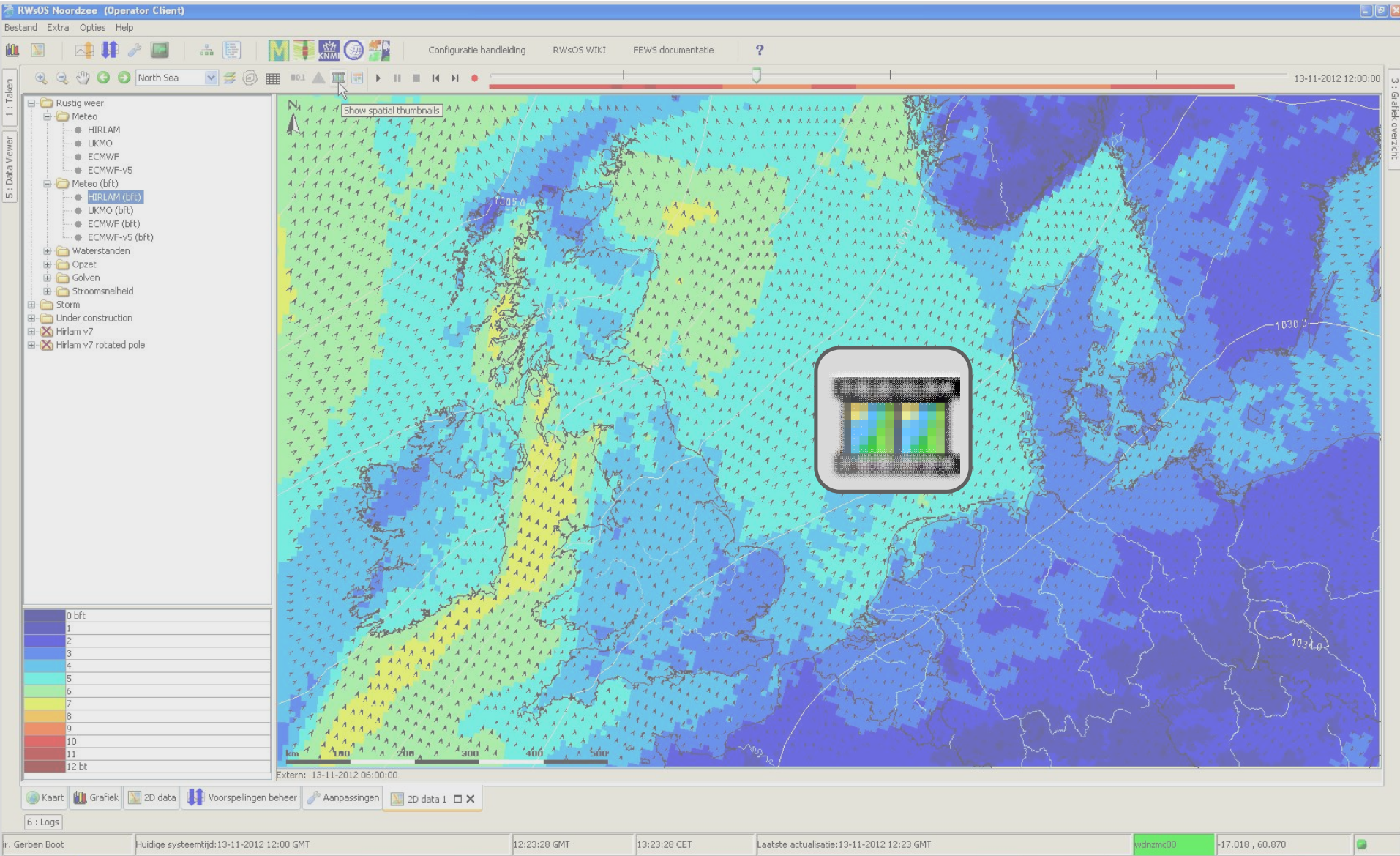
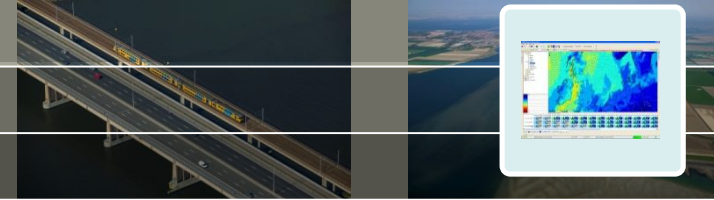
Multiple Forecasts



Behind the Scenes



# Spatial Thumbnails



# Spatial Thumbnails - Start

RWOS Noordzee (Operator Client)

Bestand Extra Opties Help

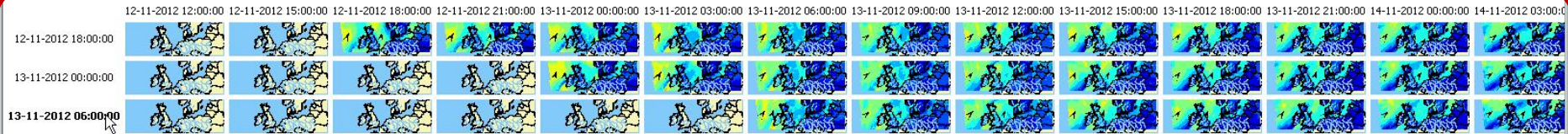
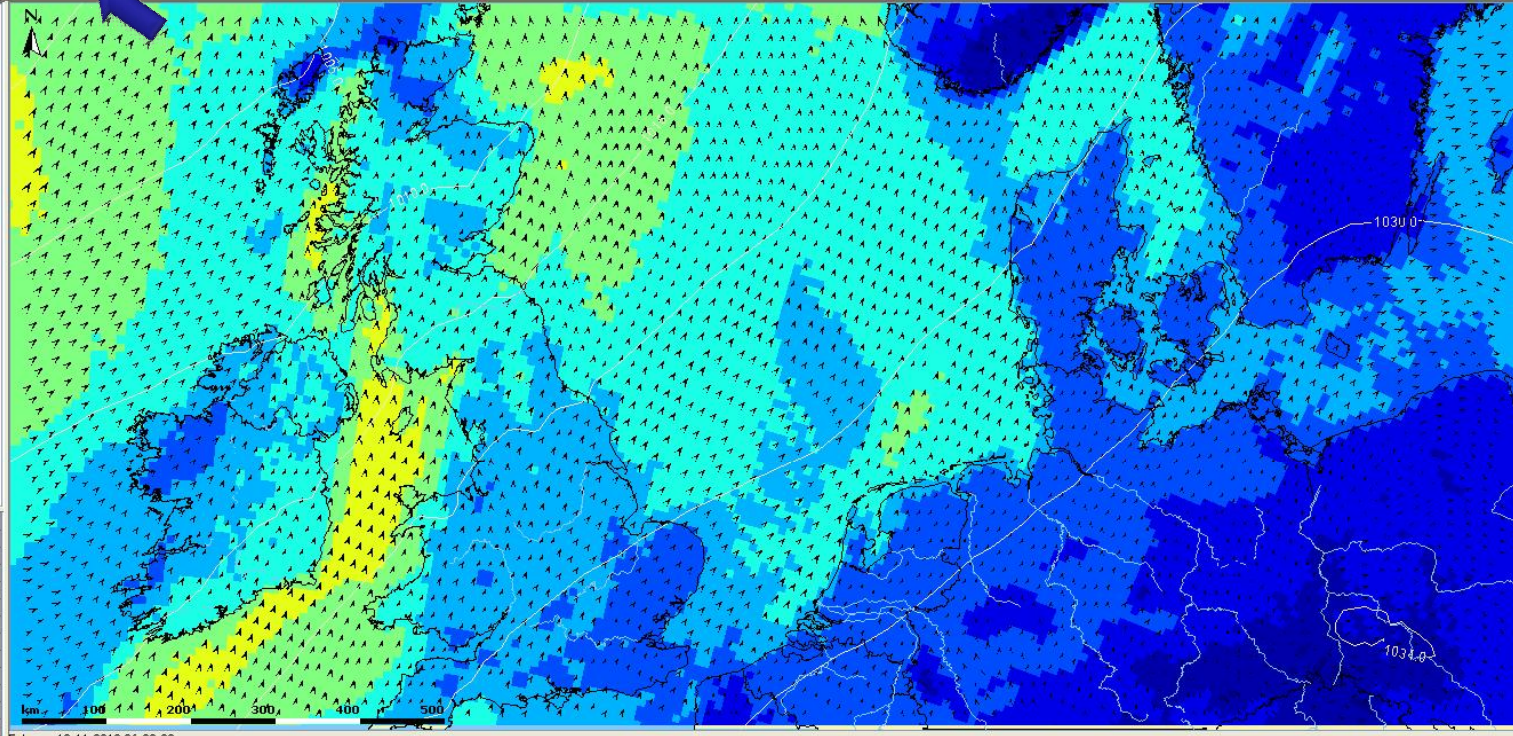
Configuratie handleiding RWOS WIKI FEWS documentatie ?

1.: Taken

5.: Data Viewer

3.: Grafiek overzicht

0 bft  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12 bft

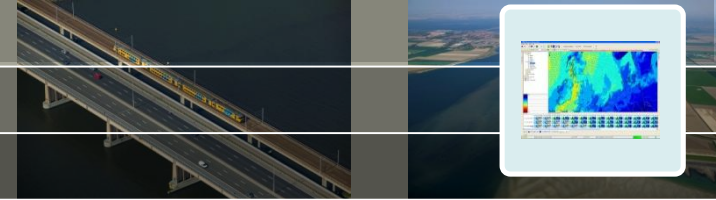


Kaart Grafiek 2D data Voorspellingen beheer Aanpassingen 2D data 1 X

6.: Logs

Ir. Gerben Boot Huidige systeemtijd: 13-11-2012 12:00 GMT 12:24:15 GMT 13:24:15 CET Laatste actualisatie: 13-11-2012 12:24 GMT wdznmc00 -17.018, 60.870

# Switching between forecasts



RW5OS Noordzee (Operator Client)

Bestand Extra Opties Help

Configuratie handleiding RW5OS WIKI FEWS documentatie ?

North Sea

14-11-2012 12:00:00

1.: Taken

5.: Data Viewer

- Rustig weer
  - Meteo
    - HIRLAM
    - UKMO
    - ECMWF
    - ECMWF-v5
    - Meteo (bft)
      - HIRLAM (bft)**
      - UKMO (bft)
      - ECMWF (bft)
      - ECMWF-v5 (bft)
  - Waterstanden
  - Opzet
  - Golven
  - Stroomsnelheid
  - Storm
  - Under construction
    - Hirnam v7
    - Hirnam v7 rotated pole

0 bft  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12 bt

Extern: 13-11-2012 06:00:00

0:00:00 13-11-2012 12:00:00 13-11-2012 15:00:00 13-11-2012 18:00:00 13-11-2012 21:00:00 14-11-2012 00:00:00 14-11-2012 03:00:00 14-11-2012 06:00:00 14-11-2012 09:00:00 14-11-2012 12:00:00 14-11-2012 15:00:00 14-11-2012 18:00:00 14-11-2012 21:00:00 15-11-2012 00:00:00 15-11-2012 03:00:00 15-11-2012 06:00:00

Kaart Grafiek 2D data Voorspellingen beheer Aanpassingen 2D data 1

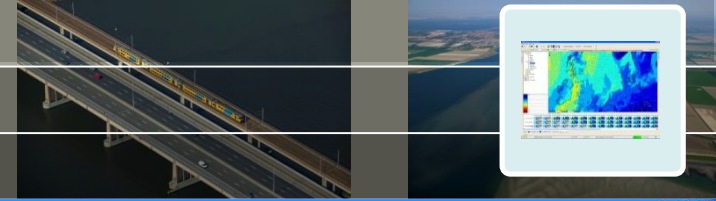
6.: Logs

Ir. Gerben Boot Huidige systeemtijd:13-11-2012 12:00 GMT 12:24:53 GMT 13:24:53 CET Laatste actualisatie:13-11-2012 12:24 GMT wdznmc00 -17.018 , 60.870

# Switching between forecasts

The screenshot displays the RWsOS Noordzee (Operator Client) interface. The main window shows a weather forecast map of the North Sea region, with a color scale ranging from 0 bft (dark blue) to 12 bft (red). The map includes a vector field of arrows representing wind direction and speed. A timeline at the bottom of the map area shows a sequence of forecast snapshots from 00:00 on 13-11-2012 to 03:00 on 15-11-2012. A red box highlights the current forecast snapshot at 12:00 on 14-11-2012, with a blue arrow pointing to it. The interface includes a menu bar (Bestand, Extra, Opties, Help), a toolbar with various icons, and a sidebar on the left with a tree view of data categories such as 'Rustig weer', 'Meteo', 'Waterstanden', 'Opzet', 'Golven', 'Stroomsnelheid', 'Storm', 'Under construction', 'Hirlam v7', and 'Hirlam v7 rotated pole'. The status bar at the bottom shows the current system time as 12:24:47 GMT on 13-11-2012, the last update time as 13:24:47 CET, and the user ID as wdzmcc00.

# Switching between forecasts



RW:OS Noordzee (Operator Client)

Bestand Extra Opties Help

North Sea

Configuratie handleiding RW:OS WIKI FEWS documentatie ?

14-11-2012 12:00:00

1 : Taken

5 : Data Viewer

- Rustig weer
  - Meteo
    - HIRLAM
    - UKMO
    - ECMWF
    - ECMWF-v5
  - Meteo (bft)
    - HIRLAM (bft)
    - UKMO (bft)
    - ECMWF (bft)
    - ECMWF-v5 (bft)
  - Waterstanden
  - Opzet
  - Golven
  - Stroomsnelheid
  - Storm
  - Under construction
  - Hirlam v7
  - Hirlam v7 rotated pole

0 bft  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12 bt

Extern: 12-11-2012 18:00:00

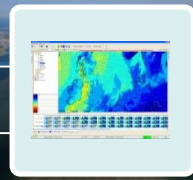
0:00:00 13-11-2012 12:00:00 13-11-2012 15:00:00 13-11-2012 18:00:00 13-11-2012 21:00:00 14-11-2012 00:00:00 14-11-2012 03:00:00 14-11-2012 06:00:00 14-11-2012 09:00:00 14-11-2012 12:00:00 14-11-2012 15:00:00 14-11-2012 18:00:00 14-11-2012 21:00:00 15-11-2012 00:00:00 15-11-2012 03:00:00 15-11-2012 06:00:00

Kaart Grafiek 2D data Voorspellingen beheer Aanpassingen 2D data 1

6 : Logs

ir. Gerben Boot Huidige systeemtijd:13-11-2012 12:00 GMT 12:24:42 GMT 13:24:42 CET Laatste actualisatie:13-11-2012 12:24 GMT wdznmc00 17.018 , 60.870

# Visibility through Configuration



RWOS Noordzee (Operator Client)

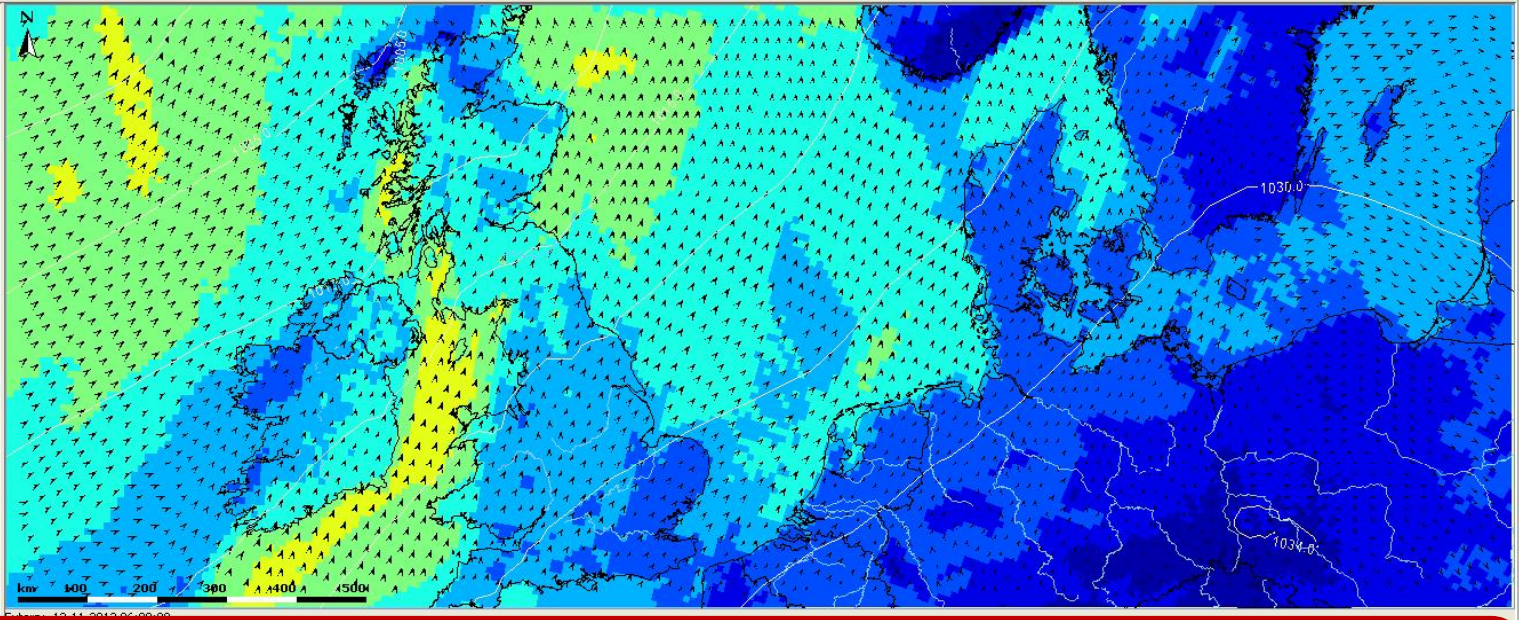
Bestand Extra Opties Help



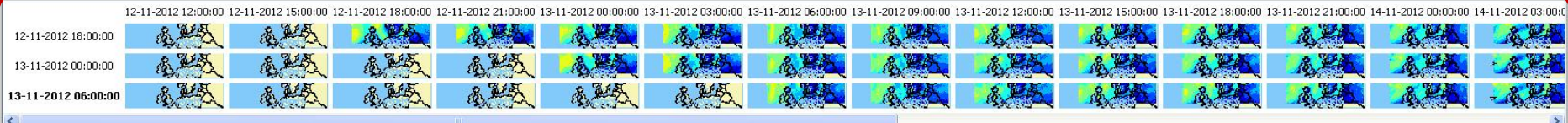
Configuratie handleiding RWOS WIKI FEWS documentatie ?

1 : Taken  
5 : Data Viewer

- Rustig weer
  - Meteo
    - Meteo (bft)
      - HIRLAM (bft)**
      - UKMO (bft)
      - ECMWF (bft)
      - ECMWF-v5 (bft)
  - Waterstanden
  - Opzet
  - Golven
  - Stroomsnelheid
  - Storm
  - Under construction
    - Hirlam v7
    - Hirlam v7 rotated pole



3 : Grafiek overzicht



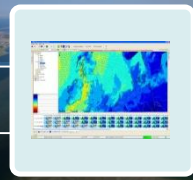
Kaart Grafiek 2D data Voorstellen beheer Aanspellingen Systeem monitor

Logs  
13-11-2012 12:41:53 INFO - Rolling barrel completed in 0.2 s  
13-11-2012 12:41:53 INFO - Rolling barrel started  
13-11-2012 12:41:50 INFO - Retrieving configuration from system resources.  
\*\*\*\*\* ERROR, PLEASE READ BELOW !!! \*\*\*\*\*  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed

6 : Logs  
r. Gerben Boot Huidige systeemtijd:13-11-2012 12:00 GMT 12:48:54 GMT 13:48:54 CET Laatste actualisatie:13-11-2012 12:40 GMT Uitgelogd -17.929 , 49.678



# Visibility through Configuration



RWOS Noordzee (Operator Client)

Bestand Extra Opties Help

Configuratie handling RWOS WIKI FEWS documentatie ?

North Sea

13-11-2012 12:00:00

1 : Taken

5 : Data Viewer

- Rustig weer
  - Meteo
    - Meteo (bft)
      - HIRLAM (bft)
      - UKMO (bft)**
      - ECMWF (bft)
      - ECMWF-v5 (bft)
  - Waterstanden
  - Opzet
  - Golven
  - Stroomsnelheid
  - Storm
  - Under construction
  - Hirlam v7
  - Hirlam v7 rotated pole

0 bft  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12 bft

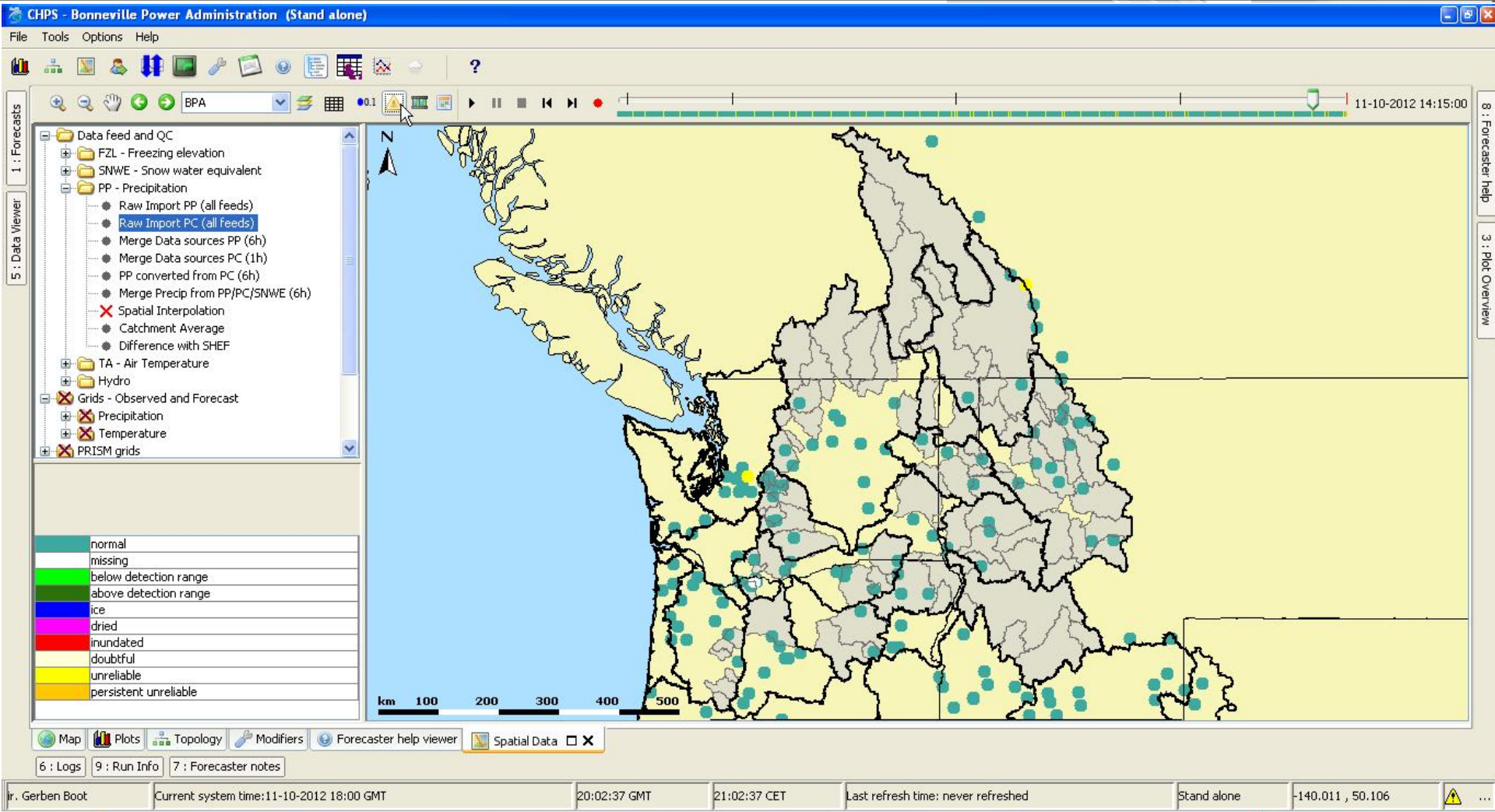
Extern: 13-11-2012 06:00:00

13-11-2012 12:41:53 INFO - Rolling barrel completed in 0.2 s  
13-11-2012 12:41:53 INFO - Rolling barrel started  
13-11-2012 12:41:50 INFO - Retrieving configuration from system resources.  
\*\*\*\*\* ERROR, PLEASE READ BELOW !!! \*\*\*\*\*  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed  
13-11-2012 12:41:50 WARN - User permissions not initialized! Permission FC will be allowed

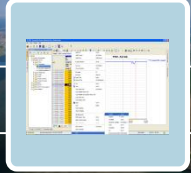
6 : Logs

ir. Gerben Boot Huidige systeemtijd:13-11-2012 12:00 GMT 12:48:40 GMT 13:48:40 CET Laatste actualisatie:13-11-2012 12:40 GMT Uitgelgd -17.929 , 49.678

# Quality Flags - Function



# Quality Flags – Mark persistent unreliable



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

1 : Forecasts

5 : Data Viewer

6 : Logs 9 : Run Info 7 : Forecast

ir. Gerben Boot Current system

11-09-2012 16:15:00 5.91000  
 11-09-2012 16:30:00 5.92000  
 11-09-2012 16:45:00 5.94000  
 11-09-2012 17:00:00 5.95000  
 11-09-2012 17:15:00 5.96000  
 11-09-2012 17:30:00 6.04000  
 11-09-2012 17:45:00 6.08000  
 11-09-2012 18:00:00 6.08000  
 11-09-2012 18:15:00 6.08000  
 11-09-2012 18:30:00 6.08000  
 11-09-2012 18:45:00 6.08000  
 11-09-2012 19:00:00 6.08000  
 11-09-2012 19:15:00 6.08000  
 11-09-2012 19:30:00 6.08000  
 11-09-2012 19:45:00 6.08000  
 11-09-2012 20:00:00 6.08000  
 11-09-2012 20:15:00 6.08000  
 11-09-2012 20:30:00 6.08000  
 11-09-2012 20:45:00 6.08000  
 11-09-2012 21:00:00 6.08000  
 11-09-2012 21:15:00 6.08000  
 11-09-2012 21:30:00 6.08000  
 11-09-2012 21:45:00 6.08000  
 11-09-2012 22:00:00 6.08000  
 11-09-2012 22:15:00 6.08000  
 11-09-2012 22:30:00 6.08000

PC (IN)  
 noaaport.IRG  
 FTH11 - Fort Hall  
 FTH11  
 noaaport

11-09-2012 12:00:00 11-11-2012 12:00:00 11-13-2012 12:00:00 11-15-2012 12:00:00

— PC noaaport.IRG noaaport

Last refresh time: never refreshed Stand alone -140.011 , 50.106

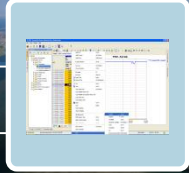
8 : Forecaster help 3 : Plot Overview

Mark

Select All Ctrl+A  
 Select Column Ctrl+Space  
 Select Row Shift+Space  
 Expand Selection Ctrl+E  
 Save As... Ctrl+Shift+S  
 Save as special... Ctrl+P  
 Edit Value F2  
 Edit Time Shift+F2  
 Insert Time Insert  
 Remove Time Ctrl+Backspace  
 Cut Ctrl+X  
 Copy Ctrl+C  
 Copy Values Only Ctrl+Shift+C  
 Copy Reliable Values Only  
 Copy Reliable and Doubtful Values Only  
 Copy Times Only  
 Copy Headers Only  
 Paste Ctrl+V  
 Clear Delete  
 Clear Doubtfuls  
 Clear Unreliables  
 Fill Missing Data  
 Shift Values in Time Ctrl+T  
 Apply Transformation Ctrl+F  
 Apply Calibration Ctrl+M  
 Add Comment Ctrl+Insert  
 Clear Comments  
 Remove Manual Marks Shift+Delete

Reliable Ctrl+R  
 Doubtful Ctrl+D  
 Unreliable Ctrl+U  
**Persistent unreliable Ctrl+Shift+U**  
 Dried Ctrl+Y  
 Inundated Ctrl+N  
 Ice Ctrl+I

# Quality Flags – Save Changes



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

Sample <Select a sample function> Functions <Select a statistical function>

1 : Forecasts  
5 : Data Viewer  
8 : Forecaster help  
3 : Plot Overview

GMT	PC (IN)
11-09-2012 16:15:00	5.91007
11-09-2012 16:30:00	5.91998
11-09-2012 16:45:00	5.94004
11-09-2012 17:00:00	5.94995
11-09-2012 17:15:00	5.96011
11-09-2012 17:30:00	6.04012
11-09-2012 17:45:00	6.08000
11-09-2012 18:00:00	6.08000
11-09-2012 18:15:00	6.08000
11-09-2012 18:30:00	6.08000
11-09-2012 18:45:00	6.08000
11-09-2012 19:00:00	6.08000
11-09-2012 19:15:00	6.08000
11-09-2012 19:30:00	6.08000
11-09-2012 19:45:00	6.08000
11-09-2012 20:00:00	6.08000
11-09-2012 20:15:00	6.08000
11-09-2012 20:30:00	6.08000
11-09-2012 20:45:00	6.08000
11-09-2012 21:00:00	6.08000
11-09-2012 21:15:00	6.08000
11-09-2012 21:30:00	6.08000
11-09-2012 21:45:00	6.08000
11-09-2012 22:00:00	6.08000
11-09-2012 22:15:00	6.08000
11-09-2012 22:30:00	6.08000

### FTH1 - Fort Hall

Accumulative Precipitation (IN)

— PC noaaport.IRG noaaport

Select an Option

Store changes permanently in the database?

Yes No Cancel

6 : Logs 9 : Run Info 7 : Forecaster notes

ir. Gerben Boot Current system time:11-10-2012 18:00 GMT 19:56:11 GMT 20:56:11 CET Last refresh time: never refreshed Stand alone -140.011 , 50.106

# Quality Flags – Run workflow

CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

1: Forecasts

5: Data Viewer

- BPA
  - Hourly Incrementals
  - Quality Control
    - QC Snow
    - QC Precipitation
      - Merge Data Sources PP
      - Secondary Validation PP
      - Spatial Interpolation PP
    - QC Temperature
    - QC Stage
    - QC Flow
    - QC Reservoir Flows
    - QC Reservoir Levels
  - Forecasting
    - ESP and LTST
    - ESP and LTST (cross wateryr)
    - Snow updating

Sample <Select a sample function> Functions <Select a statistical function >

GMT	A
	PC (IN)
	noaaport.II
	FTH11 - For FTH11
	noaaport
11-09-2012 16:30:00	5.91998
11-09-2012 16:45:00	5.94004
11-09-2012 17:00:00	5.94995
11-09-2012 17:15:00	5.96011
11-09-2012 17:30:00	6.04012
11-09-2012 17:45:00	6.08000
11-09-2012 18:00:00	6.08000
11-09-2012 18:15:00	6.08000
11-09-2012 18:30:00	6.08000
11-09-2012 18:45:00	6.08000
11-09-2012 19:00:00	6.08000
11-09-2012 19:15:00	6.08000
11-09-2012 19:30:00	6.08000
11-09-2012 19:45:00	6.08000
11-09-2012 20:00:00	6.08000
11-09-2012 20:15:00	6.08000
11-09-2012 20:30:00	6.08000
11-09-2012 20:45:00	6.08000
11-09-2012 21:00:00	6.08000
11-09-2012 21:15:00	6.08000
11-09-2012 21:30:00	6.08000
11-09-2012 21:45:00	6.08000
11-09-2012 22:00:00	6.08000
11-09-2012 22:15:00	6.08000
11-09-2012 22:30:00	6.08000
11-09-2012 22:45:00	6.08000

Map Plots Topology Modifiers Forecaster help viewer Spatial Data

6: Logs 9: Run Info 7: Forecaster notes

19:58:03 GMT 20:58:03 CET Last refresh time: never refreshed Stand alone -140.011, 50.106

8: Forecaster help 3: Plot Overview

**FTH11 - Fort Hall**

Accumulative Precipitation (IN)

11-06-2012 12:00:00 11-09-2012 12:00:00 11-12-2012 12:00:00 11-15-2012 12:00:00

— PC noaaport.IRG noaaport

# Quality Flags – End ‘pole’

CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

1: Forecasts

5: Data Viewer

BPA

- Hourly Incrementals
- Quality Control
  - QC Snow
  - QC Precipitation
    - Merge Data Sources PP
    - Secondary Validation PP
    - Spatial Interpolation PP
  - QC Temperature
  - QC Stage
  - QC Flow
  - QC Reservoir Flows
  - QC Reservoir Levels
- Forecasting
  - ESP and LTST
  - ESP and LTST (cross wateryr)
  - Snow updating

GMT

Sample	Functions	Value
11-10-2012 06:30:00	noaaport.IRC	6.08000
11-10-2012 06:45:00	FTHI1 - Fort	6.08000
11-10-2012 07:00:00	FTHI1	6.08000
11-10-2012 07:15:00	noaaport	6.08000
11-10-2012 07:30:00		6.08000
11-10-2012 07:45:00		6.08000
11-10-2012 08:00:00		6.08000
11-10-2012 08:15:00		6.08000
11-10-2012 08:30:00		6.08000
11-10-2012 08:45:00		6.08000
11-10-2012 09:00:00		6.08000
11-10-2012 09:15:00		6.08000
11-10-2012 09:30:00		6.08000
11-10-2012 09:45:00		6.08000
11-10-2012 10:00:00		6.08000
11-10-2012 10:15:00		6.08000
11-10-2012 10:30:00		6.08000
11-10-2012 10:45:00		6.08000
11-10-2012 11:00:00		6.08000
11-10-2012 11:15:00		6.08000
11-10-2012 11:30:00		6.08000
11-10-2012 11:45:00		6.08000
11-10-2012 12:00:00		6.08000
11-10-2012 12:15:00		6.08000
11-10-2012 12:30:00		6.08000
11-10-2012 12:45:00		6.08000

FTHI1 - Fort Hall

Accumulative Precipitation (IN)

6.09  
6.08000  
6.07  
6.06  
6.05  
6.04  
6.03  
6.02  
6.01  
6.00  
5.99  
5.98  
5.97  
5.96  
5.95  
5.94  
5.93  
5.92  
5.91  
5.89  
5.88  
5.87  
5.86  
5.85  
5.84

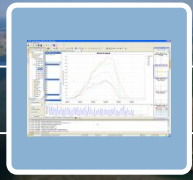
11-10-2012 02:00:00 11-10-2012 14:00:00 11-11-2012 02:00:00

6: Logs 9: Run Info 7: Forecaster notes

ir. Gerben Boot Current system time: 11-10-2012 18:00 GMT 20:00:10 GMT 21:00:10 CET Last refresh time: never refreshed Stand alone -140.011, 50.106

8: Forecaster help 3: Plot Overview

# Historical Analysis – Special plot



CHPS - Bonneville Power Administration (Stand alone)

Altova XML Spy - [DisplayGroups.xml]

Project

- Examples
  - Org-Chart
  - Expense Report
  - International
  - Purchase Order
  - MapForce
  - IndustryStandards
  - XBRLExamples
  - XML-based Website
  - XQuery
  - XSLT2

Info

Messages

6 : Lo XML Spy v2009 sp1 Registered to ICT (Stichting Deltares) ©1998-2009 Altova GmbH

Ln 27809, Col 13 CAP NUM SCRL

Current system time: 11-14-2012 12:00 GMT 14:36:38 GMT 15:36:38 CET Last refresh time: never refreshed Stand alone -120.404 , 50.159

```
27799 </display>
27800 <display name="TRYM8 - Yaak R nr Troy - RAIN-SNOW">
27801   <locationId>TRYM8</locationId>
27802   <plotId>RAIN-SNOW</plotId>
27803 </display>
27804 <display name="TRYM8 - Yaak R nr Troy - SWE">
27805   <startForwardLookingPeriod>--10-01</startForwardLookingPeriod>
27806   <season>
27807     <startMonthDay>--10-01</startMonthDay>
27808     <endMonthDay>--09-30</endMonthDay>
27809   </season>
27810   <locationId>TRYM8L</locationId>
27811   <locationId>TRYM8U</locationId>
27812   <plotId>SWE</plotId>
27813 </display>
27814 <display name="TRYM8 - Yaak R nr Troy - Upper Soil Zones">
27815   <locationId>TRYM8</locationId>
27816   <locationId>TRYM8U</locationId>
27817   <locationId>TRYM8L</locationId>
27818   <plotId>SACSMA - Upper Soil Zones</plotId>
```

Annotations:

- Blue box highlights the `<startForwardLookingPeriod>--10-01</startForwardLookingPeriod>` and `<season>` elements.
- Blue box highlights the `<startMonthDay>--10-01</startMonthDay>` and `<endMonthDay>--09-30</endMonthDay>` elements.
- Blue arrows point from the highlighted boxes to a circular icon containing a weather forecast graphic.

Elements

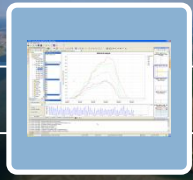
Attributes

Entities

Log

- 11-14-: File D:\yews\tests\_201202\tpa\_gp\Config\SystemConfigFiles\DisplayGroups.xml could not be validated because of an error in XML Schema DTD (see below)
- 11-14-: Unable to load a schema with target namespace 'http://www.widelft.nl/yews/' from 'http://yews.widelft.nl/schemas/version1.0/displayGroups.xsd'.
- 11-14-: Error location: displayGroups
- 11-14-: Details

# Historical Analysis – Zoom out (all series)



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

Forecasts

1: Data Viewer

5: Forecaster help

3: Plot Overview

TRYM8 - Yaak R nr Troy - SWE

SWE max TRYMBU  
SWE min TRYMBU  
SWE TRYMBU  
SWE pca TRYMBU  
SWE mean TRYMBU

SWE max TRYMBL  
SWE min TRYMBL  
SWE TRYMBL  
SWE pca TRYMBL  
SWE mean TRYMBL

TRYM8 - Yaak R nr Troy - RAIN-SNOW (TRYMB - Yaak R nr Troy)

TRYM8 - Yaak R nr Troy - SWE

TRYM8 - Yaak R nr Troy - Upper Soil Zones

TRYM8 - Yaak R nr Troy - Lower Soil Zones

TRYM8 - Yaak R nr Troy - MAP, SWE Climatology

Run options

Warm state selection

Time zero  
11-14-2012 12:00:00

Forecast length

Run options

Map Topology Modifiers Forecaster help viewer Plots

Logs

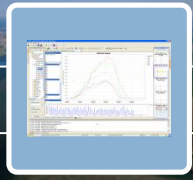
11-14-2012 14:04:20 INFO - Retrieving configuration from system resources.  
11-14-2012 14:04:19 INFO - Application.Startup.Finished: The application finished starting up. (31s)  
11-14-2012 14:04:19 INFO - Gui.Initialized: Graphical user interface initialized.  
11-14-2012 14:04:12 INFO - Build new task run cache files finished  
11-14-2012 14:04:10 INFO - Building new task run cache files  
11-14-2012 14:04:09 INFO - Session.Created: Stand-alone system  
11-14-2012 14:04:08 INFO - Configuration.Check.Finished: Check of configuration finished.  
11-14-2012 14:04:08 INFO - Configuration.Available: Configuration available in local filesystem.

6: Logs 9: Run Info 7: Forecaster notes

ir. Gerben Boot Current system time:11-14-2012 12:00 GMT 14:11:50 GMT 15:11:50 CET Last refresh time: never refreshed Stand alone -121.100 , 50.868



# Historical Analysis – Select Statistics



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help Altova XML Spy - [TimeSeriesDisplayConfig.xml]

Forecasts Project

```
520 <description>nrcs</description>
521 </moduleInstanceIdMapping>
522 </moduleInstanceIdMappings>
523 <sampleFunctions>
524 <dayMonthSampleFunction/>
525 </sampleFunctions>
526 <statisticalFunctions>
527 <statisticalFunction function="principalcomponentanalysis">
528 <observedParameterId>SNWE</observedParameterId>
529 <simulatedParameterId>SWE</simulatedParameterId>
530 <dateFormat>MM-dd-yyyy</dateFormat>
531 </statisticalFunction>
532 <statisticalFunction function="principalcomponentanalysisJackKnife">
533 <observedParameterId>SNWE</observedParameterId>
534 <simulatedParameterId>SWE</simulatedParameterId>
535 </statisticalFunction>
536 <statisticalFunction function="historicalAnalysis">
537 <historicalPeriods>
538 <historicalPeriod>
539 <startForwardLookingPeriod>--10-01</startForwardLookingPeriod>
540 <season startMonthDay="--10-01" endMonthDay="--09-30" label="wateryear"/>
541 </historicalPeriod>
542 </historicalPeriods>
543 </statisticalFunction>
544 <statisticalFunction function="ensemblePercentileExceedence">
545 </statisticalFunctions>
546 <descriptiveFunctionGroups>
547 <descriptiveFunctionGroup name="Statistics">
548 <descriptiveFunction function="mean" ignoreMissings="true"/>
549 <descriptiveFunction function="min"/>

```

Messages

File D:\Views\tests\_201202\bpa\_gc\Config\SystemConfigFiles\TimeSeriesDisplayConfig.xml could not be validated because of an error in XML Schema/DTD (see below)

Unable to load a schema with target namespace 'http://www.wildelit.nl/tevs/' from 'chps/share/schemas/TimeSeriesDisplay.xsd':

Error location: timeSeriesDisplay

Details

Ln 541, Col 24 CAP NUM

6: Logs 9: Run Info 7: Forecaster notes

Current system time: 11-14-2012 12:00 GMT 14:13:32 GMT 15:13:32 CET Last refresh time: never refreshed Stand alone -121.100 , 50.868

# Historical Analysis - Result

CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

Forecasts

Sample <Select a sample function> Functions Historical analysis

**Select multiple years using <CTRL>**

1982  
1983  
1984  
1985  
1986  
1987  
1988  
1989  
1990  
1991  
1992  
1993  
1994  
1995  
1996  
1997  
1998  
1999  
2000  
2001  
2002  
2003  
2004  
2005

wateryear

Run options

Warm state selection

Time zero  
11-14-2012 12:00:00

Forecast length

Run options

Map Topology Modifiers Forecaster help viewer Plots

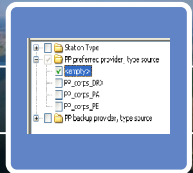
Logs

- 11-14-2012 14:04:20 INFO - Retrieving configuration from system resources.
- 11-14-2012 14:04:19 INFO - Application.Startup.Finished: The application finished starting up. (31s)
- 11-14-2012 14:04:19 INFO - Gui.Initialized: Graphical user interface initialized.
- 11-14-2012 14:04:12 INFO - Build new task-run cache files finished
- 11-14-2012 14:04:10 INFO - Building new task-run cache files
- 11-14-2012 14:04:09 INFO - Session.Created: Stand-alone system
- 11-14-2012 14:04:08 INFO - Configuration.Check.Finished: Check of configuration finished.
- 11-14-2012 14:04:08 INFO - Configuration.Available: Configuration available in local filesystem.

6 : Logs 9 : Run Info 7 : Forecaster notes

14:15:31 GMT 15:15:31 CET Last refresh time: never refreshed Stand alone -121.100 , 50.868

# Location Attributes – Filter options



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

11-02-2012 00:00:00

5 : Data Viewer

- Data feed and QC
  - FZL - Freezing elevation
  - SNWE - Snow water equivalent
  - PP - Precipitation
    - Raw Import PP (all feeds)
    - Raw Import PC (all feeds)
    - Merge Data sources PP (6h)
    - Merge Data sources PC (1h)
    - PP converted from PC (6h)
    - Merge Precip from PP/PC/SNWE (6h)
    - Spatial Interpolation
    - Catchment Average
    - Difference with SHEF
  - TAIN - Temperature
  - Hydro
    - Grids - Observed and Forecast
    - PRISM grids
    - Mean Areal Forcings
    - Snow
    - Soil Moisture
    - Forecast vs Observed Trend
    - Volumes

Zero

0 to 0.01

0.01 to 0.1

0.1 to 0.2

0.2 to 0.3

0.3 to 0.4

0.4 to 0.5

0.5 to 0.75

0.75 to 1

1 to 1.25

1.25 to 1.5

1.5 to 1.75

1.75 to 2

2 to 3

Above 3 Inches

0.01594 IN at KERM8 - Kerr Dam

Map Plots Topology Modifiers Forecaster help viewer Spatial Data

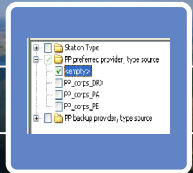
Logs

- 11-15-2012 12:06:04 INFO - Retrieving configuration from system resources.
- 11-15-2012 12:06:03 INFO - Application.Startup.Finished: The application finished starting up. (35s)
- 11-15-2012 12:06:03 INFO - Gui.Initialized: Graphical user interface initialized.
- 11-15-2012 12:05:53 INFO - Session.Created: Stand-alone system
- 11-15-2012 12:05:53 INFO - Configuration.Check.Finished: Check of configuration finished.
- 11-15-2012 12:05:53 INFO - Configuration.Available: Configuration available in local filesystem.
- 11-15-2012 12:05:53 INFO - Configuration.Check.Started: Check of configuration started.
- 11-15-2012 12:05:47 INFO - Application.Initialization.Finished: The application finished initialization.

6 : Logs 9 : Run Info 7 : Forecaster notes

ir. Gerben Boot Current system time:11-15-2012 12:00 GMT 12:18:26 GMT 13:18:26 CET Last refresh time: never refreshed Stand alone -135.327 , 46.463

# Location Attributes – Filter options



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

11-02-2012 00:00:00

5 : Data Viewer

- Data feed and QC
  - FZL - Freezing elevation
  - SNWE - Snow water equivalent
  - PP - Precipitation
    - Raw Import PP (all feeds)
    - Raw Import PC (all feeds)
    - Merge Data sources PP (6h)
    - Merge Data sources PC (1h)
    - PP converted from PC (6h)
    - Merge Precip from PP/PC/SNWE (6h)
    - Spatial Interpolation
    - Catchment Average
    - Difference with SHEF
  - TAIN - Temperature
  - Hydro
    - Grids - Observed and Forecast
    - PRISM grids
    - Mean Areal Forcings
    - Snow
- Station Type
  - PP preferred provider, type source
  - PP backup provider, type source

Location Attributes Filter

A map of the Pacific Northwest region of the United States, showing precipitation data points and catchment boundaries. The map is color-coded according to a legend on the left, ranging from zero to above 3 inches. The data points are represented by colored circles of varying sizes and colors (cyan, green, yellow, orange, red, purple). The catchment boundaries are shown as black lines on a light yellow background. A blue arrow points to the 'Station Type' section of the left-hand menu.

Zero  
0 to 0.01  
0.01 to 0.1  
0.1 to 0.2  
0.2 to 0.3  
0.3 to 0.4  
0.4 to 0.5  
0.5 to 0.75  
0.75 to 1  
1 to 1.25  
1.25 to 1.5  
1.5 to 1.75  
1.75 to 2  
2 to 3  
Above 3 Inches

Map Plots Topology Modifiers Forecaster help viewer Spatial Data

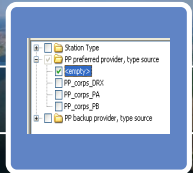
Logs

- 11-15-2012 12:06:04 INFO - Retrieving configuration from system resources.
- 11-15-2012 12:06:03 INFO - Application.Startup.Finished: The application finished starting up. (35s)
- 11-15-2012 12:06:03 INFO - Gui.Initialized: Graphical user interface initialized.
- 11-15-2012 12:05:53 INFO - Session.Created: Stand-alone system
- 11-15-2012 12:05:53 INFO - Configuration.Check.Finished: Check of configuration finished.
- 11-15-2012 12:05:53 INFO - Configuration.Available: Configuration available in local filesystem.
- 11-15-2012 12:05:53 INFO - Configuration.Check.Started: Check of configuration started.
- 11-15-2012 12:05:47 INFO - Application.Initialization.Finished: The application finished initialization.

6 : Logs 9 : Run Info 7 : Forecaster notes

ir. Gerben Boot Current system time:11-15-2012 12:00 GMT 12:19:11 GMT 13:19:11 CET Last refresh time: never refreshed Stand alone -135,327 , 46,463

# Location Attributes – Filter options



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

11-09-2012 12:00:00

5 : Data Viewer

- Data feed and QC
  - FZL - Freezing elevation
  - SNWE - Snow water equivalent
  - PP - Precipitation
    - Raw Import PP (all feeds)
    - Raw Import PC (all feeds)
    - Merge Data sources PP (6h)
    - Merge Data sources PC (1h)
    - PP converted from PC (6h)
    - Merge Precip from PP/PC/SNWE (6h)
    - Spatial Interpolation
    - Catchment Average
    - Difference with SHEF
  - TA - Air Temperature
  - Hydro
  - Grids - Observed and Forecast
  - PRISM grids
  - Mean Areal Forcings
  - Snow
- Station Type
  - dtp
  - gage
  - ratedgage
  - snotel
  - PP preferred provider, type source
  - PP backup provider, type source

Zero  
0 to 0.01  
0.01 to 0.1  
0.1 to 0.2  
0.2 to 0.3  
0.3 to 0.4  
0.4 to 0.5  
0.5 to 0.75  
0.75 to 1  
1 to 1.25  
1.25 to 1.5  
1.5 to 1.75  
1.75 to 2  
2 to 3  
Above 3 Inches

Map Plots Topology Modifiers Forecaster help viewer Spatial Data

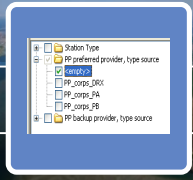
Logs

- 11-21-2012 09:32:29 INFO - Retrieving configuration from system resources.
- 11-21-2012 09:32:27 INFO - Application.Startup.Finished: The application finished starting up. (41s)
- 11-21-2012 09:32:27 INFO - Gui.Initialized: Graphical user interface initialized.
- 11-21-2012 09:32:19 INFO - Build new task run cache files finished
- 11-21-2012 09:32:14 INFO - Building new task run cache files
- 11-21-2012 09:32:13 INFO - Session.Created: Stand-alone system
- 11-21-2012 09:32:12 INFO - Configuration.Check.Finished: Check of configuration finished.
- 11-21-2012 09:32:12 INFO - Configuration.Available: Configuration available in local filesystem.

6 : Logs 9 : Run Info 7 : Forecaster notes

Current system time: 11-10-2012 06:00 GMT 09:36:49 GMT 10:36:49 CET Last refresh time: never refreshed Stand alone -131.658, 52.815

# Location Attributes – Filter options



CHPS - Bonneville Power Administration (Stand alone)

File Tools Options Help

11-02-2012 00:00:00

5 : Data Viewer

- Data feed and QC
  - FZL - Freezing elevation
  - SNWE - Snow water equivalent
  - PP - Precipitation
    - Raw Import PP (all feeds)
    - Raw Import PC (all feeds)
    - Merge Data sources PP (6h)
    - Merge Data sources PC (1h)
    - PP converted from PC (6h)
    - Merge Precip from PP/PC/SNWE (6h)
    - Spatial Interpolation
    - Catchment Average
    - Difference with SHEF
  - TAIN - Temperature
  - Hydro
  - Grids - Observed and Forecast
  - PRISM grids
  - Mean Areal Forcings
  - Snow
- Station Type
  - PP preferred provider, type source
    - empty
    - PP\_corps\_D
    - PP\_corps\_PA
    - PP\_corps\_PB
  - PP backup provider, type source

Zero  
0 to 0.01  
0.01 to 0.1  
0.1 to 0.2  
0.2 to 0.3  
0.3 to 0.4  
0.4 to 0.5  
0.5 to 0.75  
0.75 to 1  
1 to 1.25  
1.25 to 1.5  
1.5 to 1.75  
1.75 to 2  
2 to 3  
Above 3 Inches

0.01594 IN at KERMB - Kerr Dam

Map Plots Topology Modifiers Forecaster help viewer Spatial Data

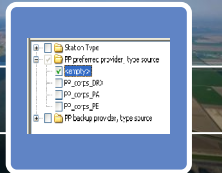
Logs

- 11-15-2012 12:06:04 INFO - Retrieving configuration from system resources.
- 11-15-2012 12:06:03 INFO - Application.Startup.Finished: The application finished starting up. (35s)
- 11-15-2012 12:06:03 INFO - Gui.Initialized: Graphical user interface initialized.
- 11-15-2012 12:05:53 INFO - Session.Created: Stand-alone system
- 11-15-2012 12:05:53 INFO - Configuration.Check.Finished: Check of configuration finished.
- 11-15-2012 12:05:53 INFO - Configuration.Available: Configuration available in local filesystem.
- 11-15-2012 12:05:53 INFO - Configuration.Check.Started: Check of configuration started.
- 11-15-2012 12:05:47 INFO - Application.Initialization.Finished: The application finished initialization.

6 : Logs 9 : Run Info 7 : Forecaster notes

Current system time: 11-15-2012 12:00 GMT 12:26:08 GMT 13:26:08 CET Last refresh time: never refreshed Stand alone -135.327, 46.463

# LocationAttributes – Filter (Configuration)



A	BC	BD	BE	BF
LOCID	PP_PREF	PP_BAK	PP_SRC1	PP_SRC2
LGSW1				
LMNW1				
LOPO3	PP_fromSwitchPP			
LOSO3	PP_fromSwitchPP			
MCDW1	PP_fromSwitchPP			
PRWW1				
RISW1				
RRHW1				
TDAO3				
WANW1				
WELW1				
KERM8				
CLUW1	PP_frc			
KADW1	PP_frc			
KEDW1	PP_frc			
MLKD3	PP_frc			

```
<description>Data source for STG</description>
<text>%STG_BAK%</text>
</attribute>
<attribute id="QIN_preferred">
  <description>Data source for QIN</description>
  <text>%QIN_PREF%</text>
</attribute>
<attribute id="QIN_backup">
  <description>Data source for QIN</description>
  <text>%QIN_BAK%</text>
</attribute>
<attribute id="PP_preferred" name="PP merge preferred data source">
  <description>Data source (PP,PC, SNWE) for final merge PP</description>
  <text>%PP_PREF%</text>
</attribute>
<attribute id="PP_backup" name="PP merge backup data source">
  <description>Data source (PP,PC, SNWE) for final merge PP</description>
  <text>%PP_BAK%</text>
</attribute>
<attribute id="PP_source1" name="PP preferred provider, type source">
  <description>Data source (provider, type source) for PP</description>
  <text>%PP_SRC1%</text>
</attribute>
<attribute id="PP_source2" name="PP backup provider, type source">
  <description>Data source (provider, type source) for PP</description>
  <text>%PP_SRC2%</text>
</attribute>
<attribute id="PC_source1" name="PC preferred provider, type source">
  <description>Data source for PC (provider, type source) </description>
  <text>%PC_SRC1%</text>
</attribute>
```

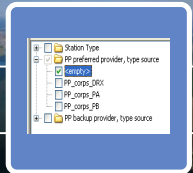
Messages

- File D:\Views\Tests\_201202\Bpa\_gc\Config\Region\ConfigFiles\LocationSets.xml could not be validated because of an error in XML Schema/DTD (see below)
- Unable to load a schema with target namespace 'http://www.wildelf.nl/news/' from 'http://www.wildelf.nl/schemas/version1.0/locationSets.xsd':
- Error location: locationSets

Messages

- File D:\Views\Tests\_201202\Bpa\_gc\Config\Display\ConfigFiles\SpatialDisplay.xml could not be validated because of an error in XML Schema/DTD (see below)
- Unable to load a schema with target namespace 'http://www.wildelf.nl/news/' from 'http://www.wildelf.nl/schemas/version1.0/gridDisplay.xsd':
- Error location: gridDisplay

# LocationAttributes - Modifiers



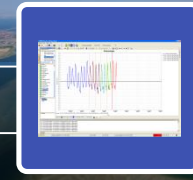
attribute	Hoeker- en Garstempolder	
	modified value	original value
ID van het aanafvoergebied	6480	6480
naam van aanafvoergebied	Hoeker- en Garstempolder	Hoeker- en Garstempolder
oppervlak openwater [m2]	280715.0	280715.0
Waterbodemoogte [mNAP]	-3	-2.75
Maximum inlaat capaciteit [m3/dag]	99999.0	99999.0
Maximum uitlaat capaciteit [m3/dag]	115200.0	115200.0
Locatie ID van de kwel tijdreeks	AAA001	AAA001
kwel is opgegeven als tijdserie (actief) of kwel is vaste waarde (inactief)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
vaste kwel waarde [mm/dag]	4.0	4.0
Locatie ID van de Wegzijing tijdreeks	AAA001	AAA001
wegzijing is opgegeven als tijdserie (actief) of wegzijing is vaste waarde (inactief)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
vaste wegzijing waarde [mm/dag]	0.0	0.0
Locatie ID van de Waterstand tijdreeks	62062_polder_1_meting_1	62062_polder_1_meting_1
Locatie ID van de Chloride tijdreeks	HGP006	HGP006
Peil volgt streefpeil (actief) of waterstand tijdreeks (inactief)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Winterpeil [mNAP]	0.0	0.0
Lentpeil [mNAP]	0.0	0.0
Zomerpeil [mNAP]	0.0	0.0
Herfstpeil [mNAP]	0.0	0.0
Peilmarge ondergrens [m] t.o.v. streefpeil of gemeten peil	0.05	0.02
Peilmarge bovengrens [m] t.o.v. streefpeil of gemeten peil	0.02	0.02
nutrical: minimale belasting kwartaal 1 [mg/dag]	0.0	0.0
nutrical: incrementele belasting kwartaal 1 [mg/dag]	0.0	0.0
nutrical: minimale belasting kwartaal 2 [mg/dag]	0.0	0.0
Peilmarge ondergrens [m] t.o.v. streefpeil of gemeten peil		







# Multiple Forecasts – Simple (dropdown)



RW:OS Noordzee (Operator Client)

Bestand Extra Opties Help

Configuratie handleiding RWsOS WIKI FEWS5 documentatie

**Data Viewer**

Gegevens bronnen

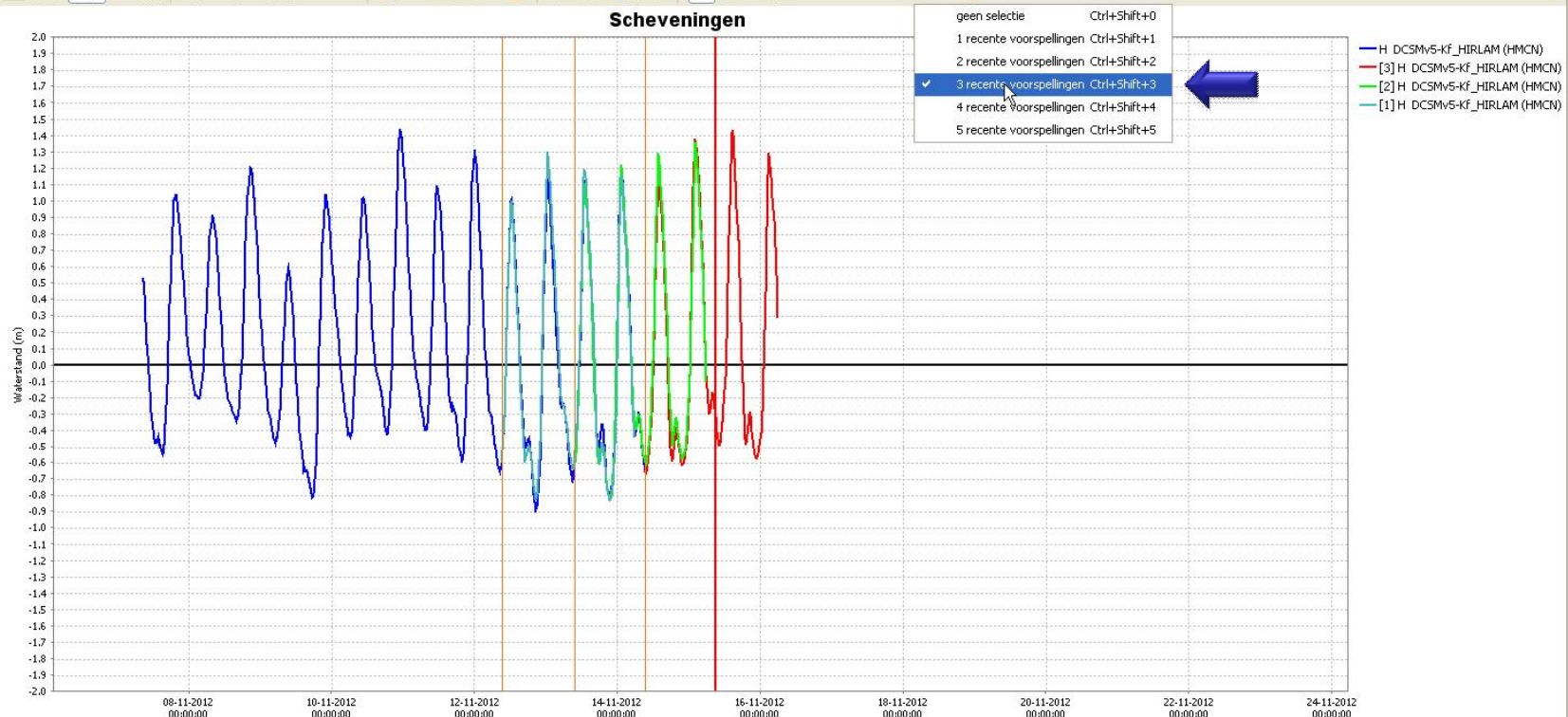
- Model extern (HMC,KNM)
- Eindverwachting RWS
- DCSMv5 HIRLAM (KNM)
- BMA
- DCSMv5-Kf HIRLAM (H)
- DCSMv5-Kf HIRLAM (Kf)
- DCSMv5 UKMO (HMCN)

Locaties

- Den helder
- Dover
- Europlatform
- Haringvliet 10
- Harlingen
- Hoekvanholland
- Hulbertgat
- Ijmuiden
- Leith
- Lichteiland goeree 1
- Lowestoft
- Noordwijk meetpost
- Northshields
- Oosterschelde-11
- Platform k13a
- Roonput, buiten
- Scheveningen
- Sheerness
- Vlakte vd raan
- Vlissingen
- Wick

Parameters

- Waterstand
- Opzet



Simulaties

Kaart Grafiek 2D data Voorspellingen beheer Aanpassingen Grafiek 1

Logs

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission TRI will be allowed

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

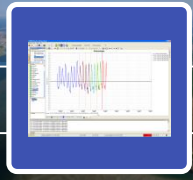
15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

15-11-2012 09:05:56 WARN - User permissions not initialized! Permission FC will be allowed

6 : Logs

Ir. Gerben Boot Huidige systeemtijd:15-11-2012 09:00 GMT 09:07:40 GMT 10:07:40 CET Laatste actualisatie:15-11-2012 09:05 GMT Uitgeleid -17.226 , 52.155

# Multiple Forecasts – Advanced (Search)



RWS Noordzee (Operator Client)

Bestand Extra Opties Help

Configuratie handleiding RWS WIKI FEWS documentatie ?

### Scheveningen

zoek en selecteer voorspellingen

— H DCSMv5-KF\_HIRLAM (HMCN)  
— [1]H DCSMv5-KF\_HIRLAM (HMCN)

zoek periode starttijd 21-10-2012 09:00:00 eindtijd 15-11-2012 09:00:00

aantal recente voorspellingen 6

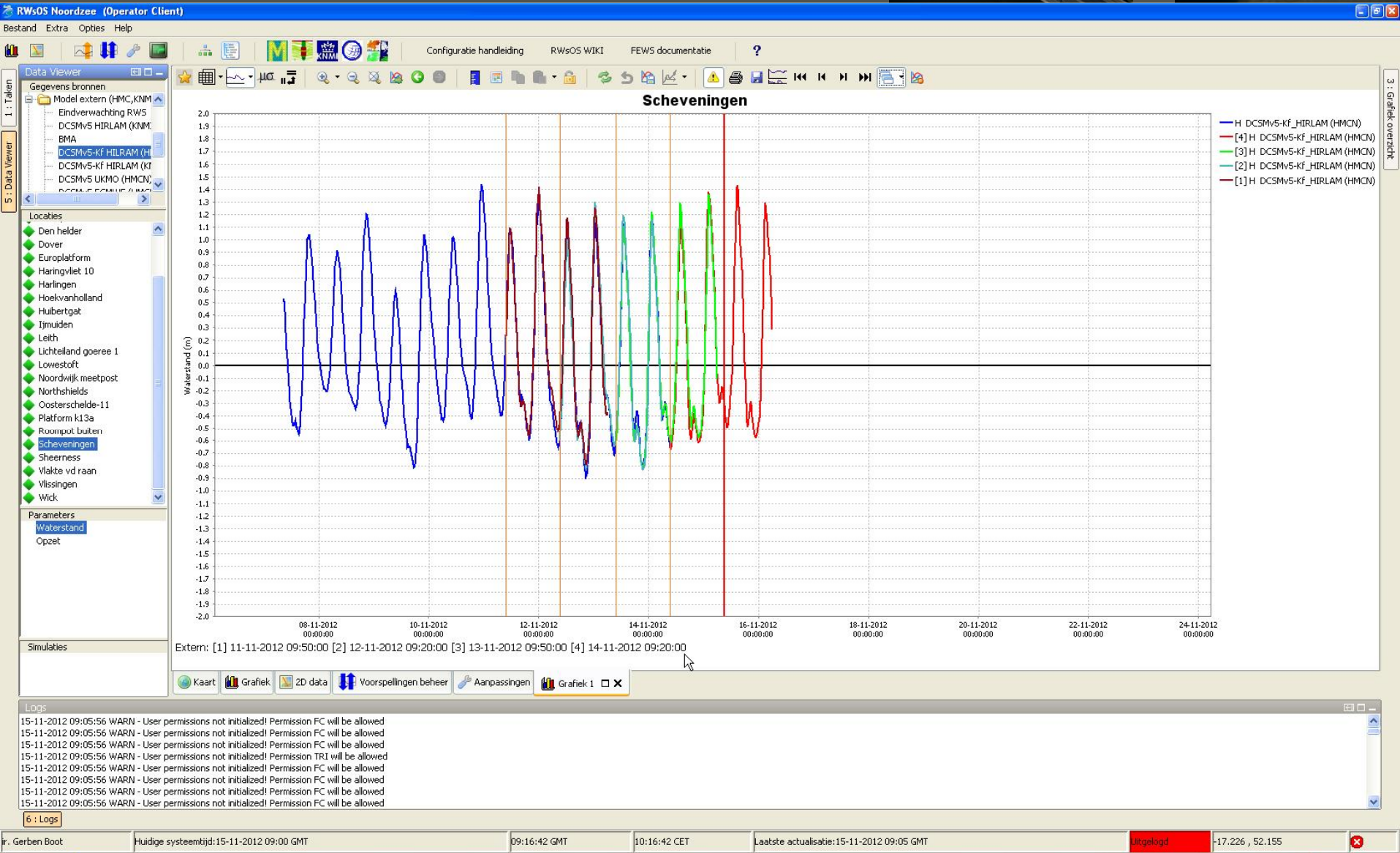
pas zoekcriteria op andere grafieken

zoek

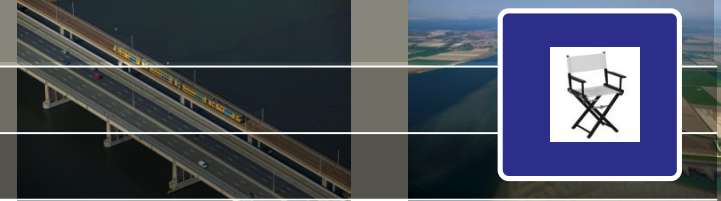
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<input checked="" type="checkbox"/>	Extern	14-11-2012 09:20:00	-	-
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<input checked="" type="checkbox"/>	Extern	11-11-2012 09:50:00	-	-
<input type="checkbox"/>	Extern	10-11-2012 10:20:00	-	-
<input type="checkbox"/>	Extern	09-11-2012 09:20:00	-	-

OK Afsluiten Toepassen

# Multiple Forecasts – Result



# Behind the Scenes



- Availability of information:
  - Updated WIKI – Documentation of (new) features
  - Launched the Community Portal
- Release notes (Documentation WIKI)
  - Handouts
  - Presentations about the Releases
- FYI: Migrate to new FTP service for exchanging files within projects

# Behind the Scenes – Community Portal



- External request for platform
- Promised by us...
- Deltares Software Strategy
- Open Software (≠ open source)
- [www.delft-fews.nl](http://www.delft-fews.nl) (.eu / .com)
- Downloadable package
  - License (non-commercial, non-operational)
  - Introduction course
- Discussion Forums
- Papers, Posters, Showcases
- Background reading about FEWS



  
**Delft-FEWS community portal  
now live at  
[www.delft-fews.nl](http://www.delft-fews.nl)**

With an increase in end-users, implementations and fields of application, the need for a more structural and easy accessible way of sharing knowledge and experience became evident. This new portal provides the user community, intermediaries and future clients practical information about - and a means for sharing knowledge on - Delft-FEWS.

The portal contains a downloadable version of Delft-FEWS, along with course material and test data. There is also a large collection of posters, papers and showcases for those who want to explore the broad range of applications of Delft-FEWS. On the Discussion Forum questions to the user community can be posted and experiences shared.

We invite you to join us on the Delft-FEWS Community Portal.

**Share your experiences!**  
**Post your questions!**

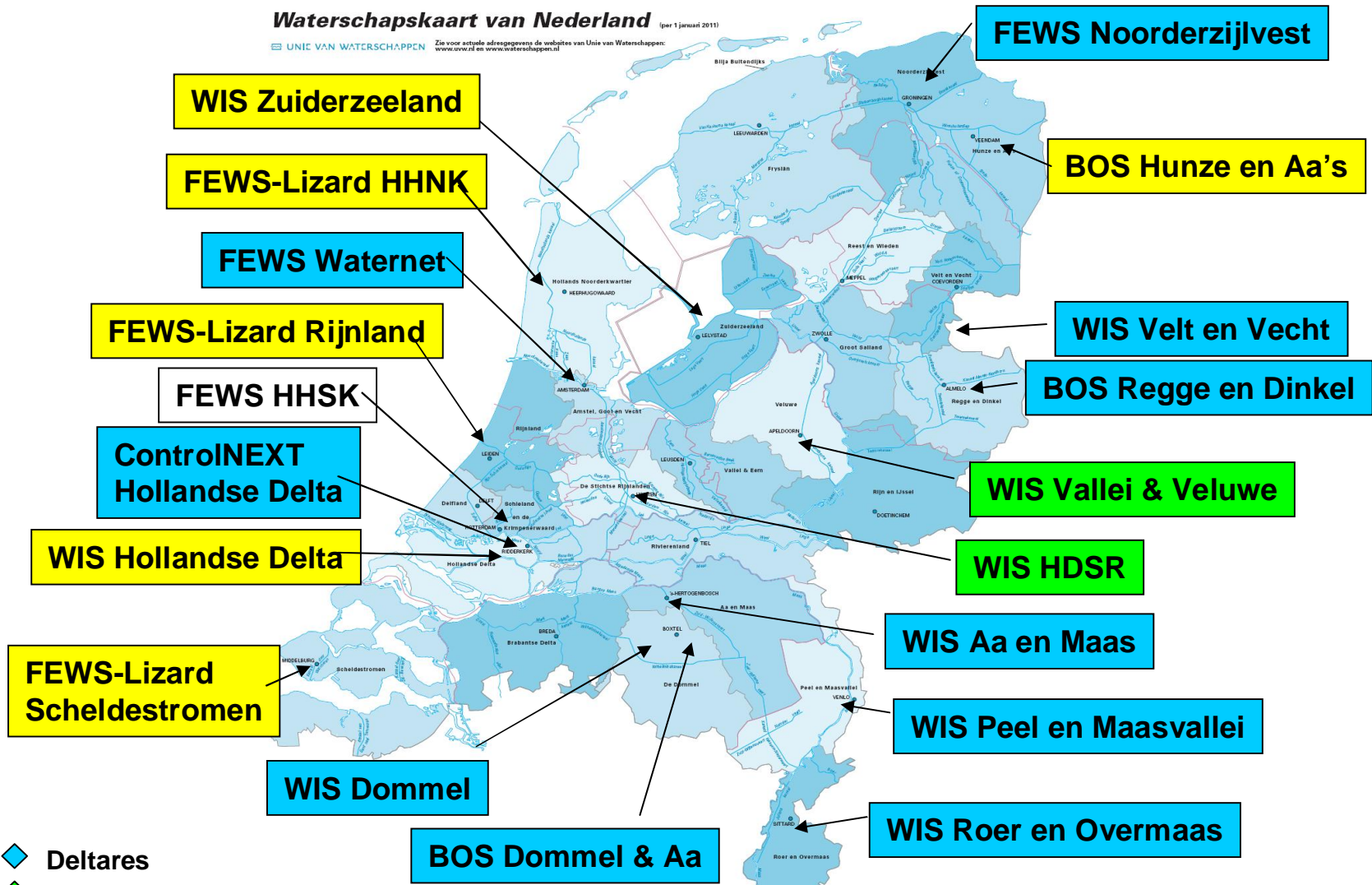
And be part of the Delft-FEWS community

# Delft-FEWS (regional) implementations - NL



**Waterschapskaart van Nederland** (per 1 januari 2011)

UNIE VAN WATERSCHAPPEN Zie voor actuele adresgegevens de websites van Unie van Waterschappen: www.uwv.nl en www.waterschappen.nl



- ◆ Deltares
- ◆ HKV
- ◆ Nelen & Schuurmans

Date: 1 Nov 2012

**Deltares**

# Delft-FEWS implementations Europe



1 Deltares

6 Consultants

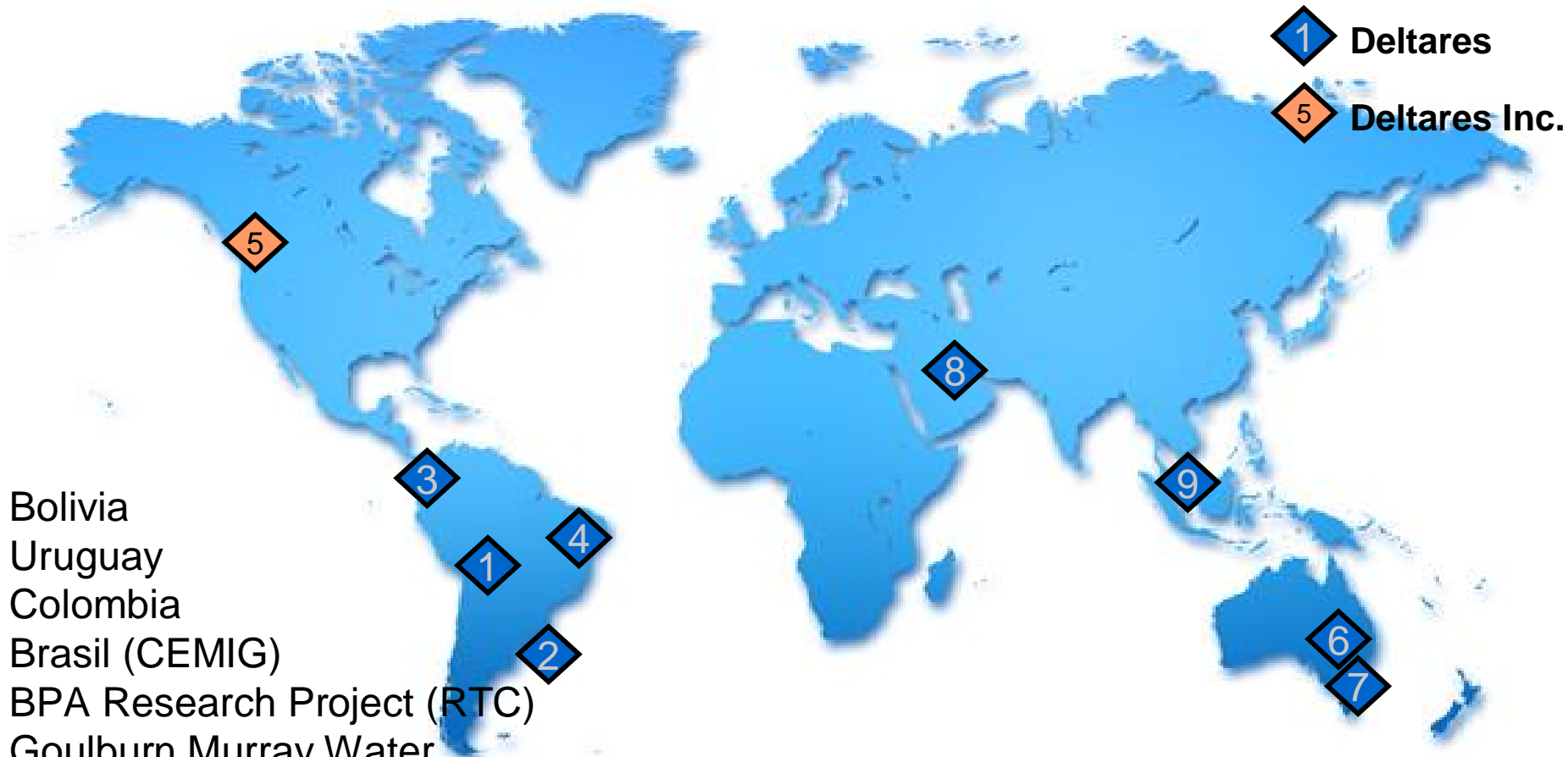
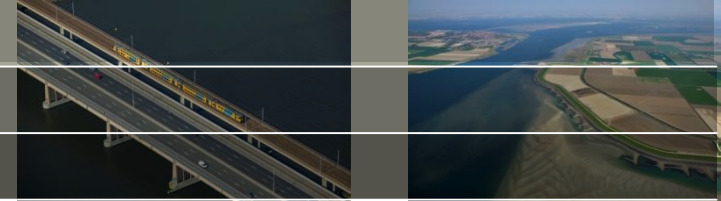
- FEWS-EGLV (Hydrotec)
- FEWS FFC
- FEWS-Verbund (Hydrotec)
- FEWS-Adriatico
- EU project DEWFORA
- FEWS-Mino Sil (KV Consultores)
- FEWS-Tajo (OFITECO)
- River Suir FFS (HKV)
- FEWS Basque Country (Sener)



And ... NFFS in UK, FOEN in Switzerland, BfG in Germany, SEPA in Scotland  
ARPA in Italy, several water boards in Spain



# New Delft-FEWS Projects

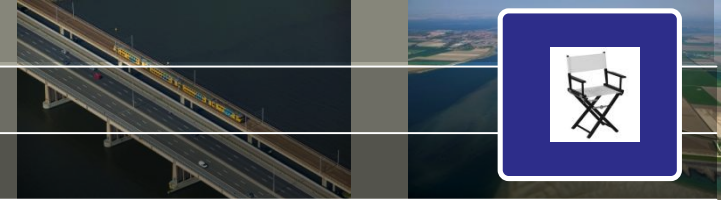


- 1 Deltares
- 5 Deltares Inc.

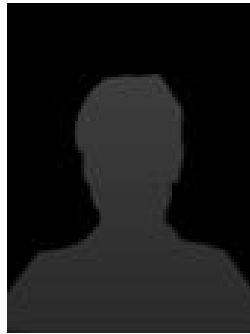
- 1. Bolivia
- 2. Uruguay
- 3. Colombia
- 4. Brasil (CEMIG)
- 5. BPA Research Project (RTC)
- 6. Goulburn Murray Water
- 7. FC2015 South Australia Water
- 8. ADOOS
- 9. Water Quality

Plus...new opportunities in US, Australia, Canada, Thailand ...

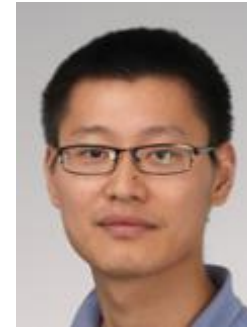
# Organisational Changes



**Femke:** New at OWB



**Tom:** New at HOS



**Min:** New in Support Team



**Andre:** New at ICT

## Deltares-USA



**Matthijs** and **Peter**  
replaced each other

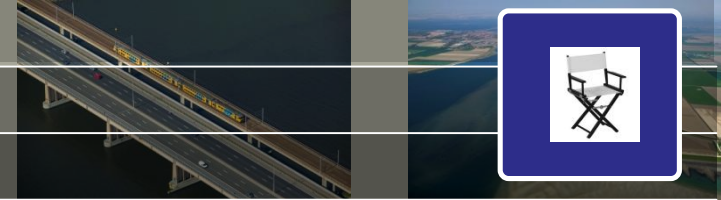


**Wiebe:** Working with FEWS from BGS



**martin**  
Left and returned

**Deltares**

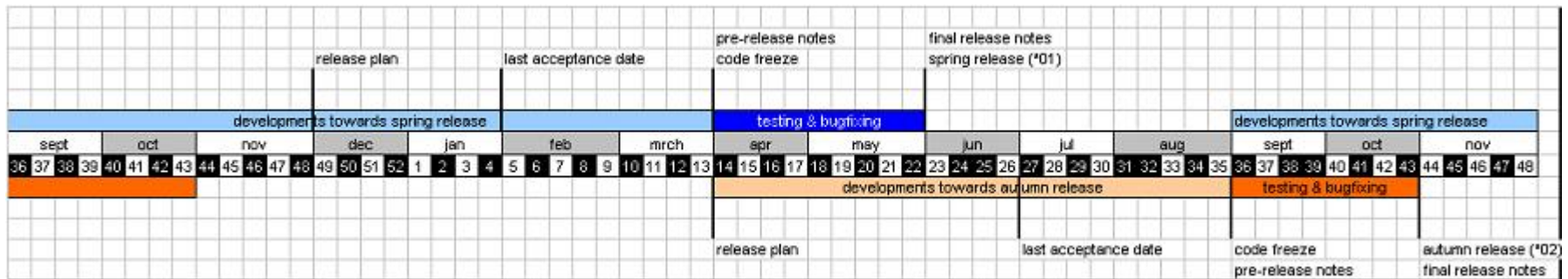


- New Data Archive
- Data Conversion Module (FEWS Service)
- Interactive Adapter (remote control in calculations)
- Coupling with sewer system models (WANDA)
- On-the-fly statistics in database viewer
- Reducing configuration by using templates & looping concepts
- Water Information Systems (joint investments of about 5 NL waterboards)
  - Geographic version management
  - Running workflows for a “period” or “selection” only
  - Conditional Aggregation rules
  - Memory management improvements
  - ...many more

# Towards 2013.01 - Planning



- Release date: 01/06/2013
- Code freeze: 01/04/2013
- Last acceptance of new features: 01/02/2013





**Thank you for attention!**  
**Questions?**

# voorraad

