



Marine Navigation and Data Interoperability

The Unknown

**Marine Spatial Data Infrastructures Working Group –
Workshop and Open Forum
25-26th January, Tokyo, Japan**

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Overview

- 🌐 **S-100 and Data Interoperability**
- 🌐 **Vector and Gridded Bathymetry
integration with ENCs**
- 🌐 **AIS over IP**
- 🌐 **METOC and Tidal data integration**
- 🌐 **Satellite EO data**



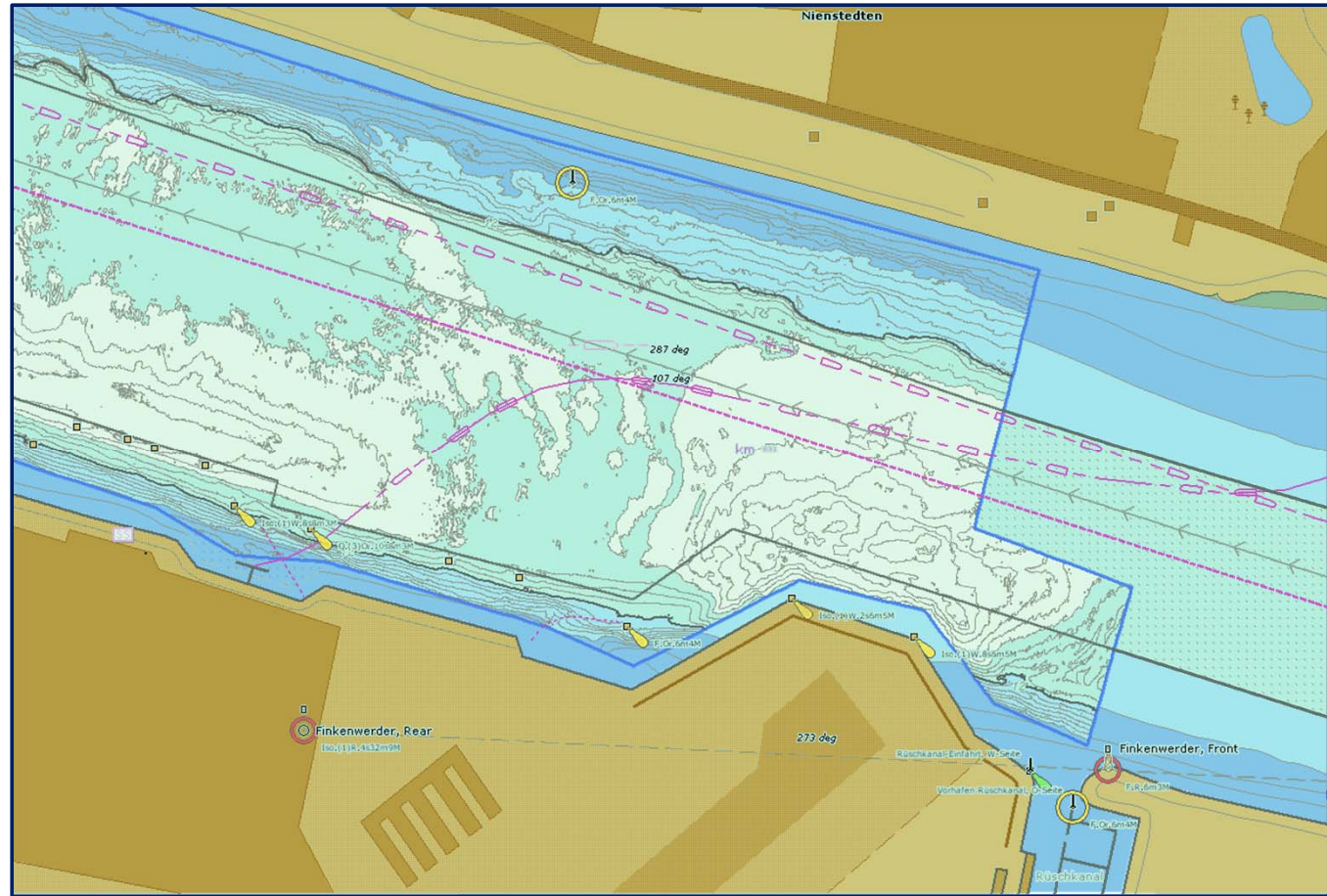
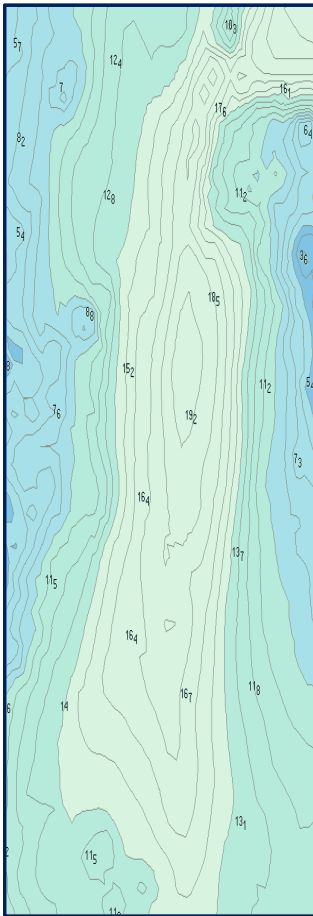
S-100 and Data Interoperability

- 🌐 **Loading of different data products simultaneously**
- 🌐 **Access to web-based services**
- 🌐 **Real-time information**

? Should this be allowed?

? Do we need rules?

Integration of bathymetric ENC data in PPU Display



SOG 11.4 kn
XTD 9 >> m

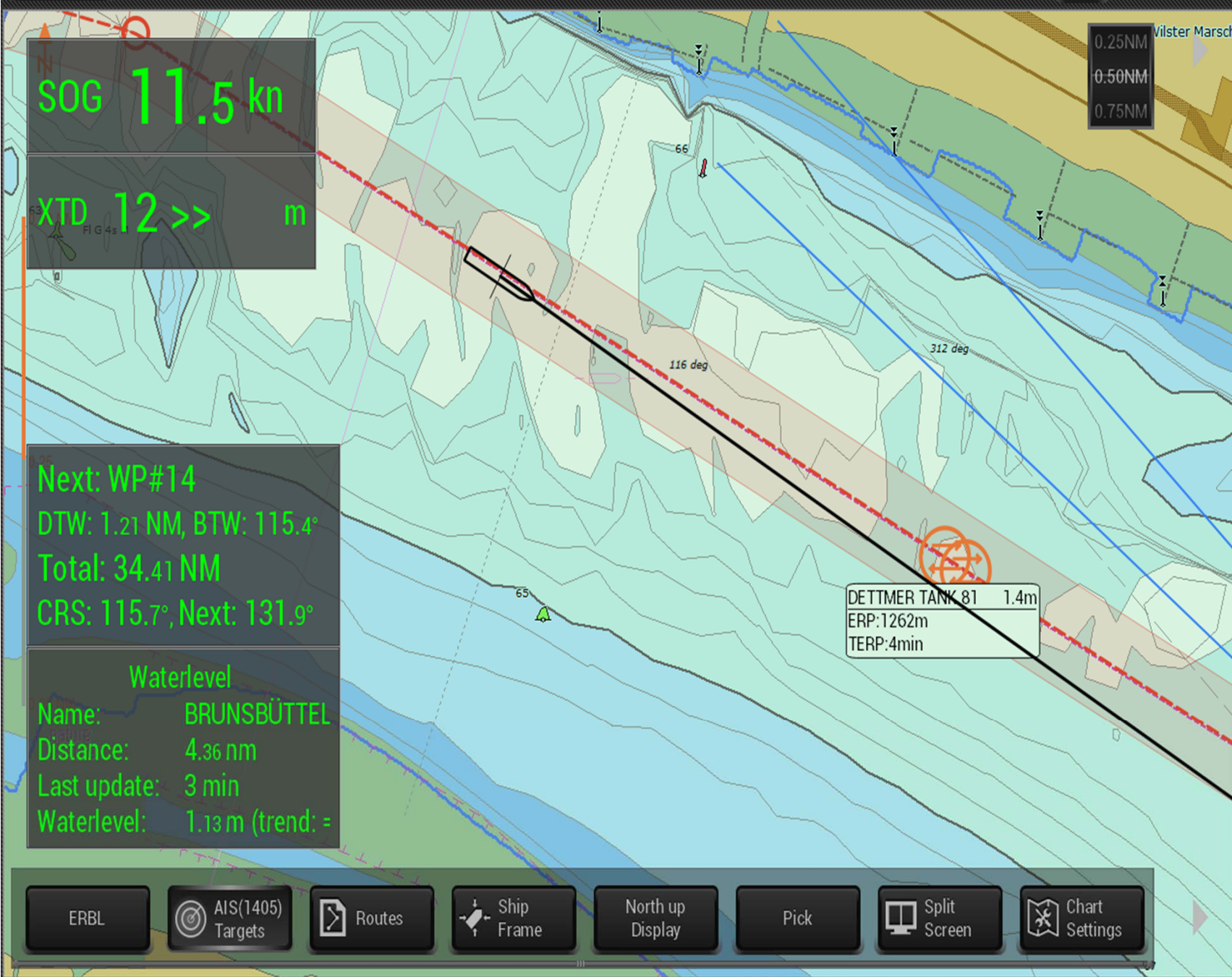
Next: WP#14
DTW: 1.29 NM, BTW: 115.5°
Total: 34.49 NM
CRS: 115.7°, Next: 131.9°

Waterlevel
Name: BRUNSBÜTTEL
Distance: 4.28 nm
Last update: 2 min
Waterlevel: 1.13 m (trend: =

0.25NM
0.50NM
0.75NM

DETTMER TANK 81 1.4m
ERP:1399m
TERP:4min

- Ship Setup
- Sailing Mode
- MPX Mode
- Planning Mode
- Chart Loader
- View Alarms
- Profiles



SOG 11.5 kn
XTD 12 >> m

Next: WP#14
DTW: 1.21 NM, BTW: 115.4°
Total: 34.41 NM
CRS: 115.7°, Next: 131.9°

Waterlevel
Name: BRUNSBÜTTEL
Distance: 4.36 nm
Last update: 3 min
Waterlevel: 1.13 m (trend: =

0.25NM
0.50NM
0.75NM

- Ship Setup
- Sailing Mode
- MPX Mode
- Planning Mode
- Chart Loader
- View Alarms
- Profiles

Gridded bathymetry and ENC

Rotate Scene

Zoom = 1.000

Reset View

Level of Detail

Level of Detail 8 m

Apply

Scene

- Show CRM
- Show Bathymetry
- Enable Back Face
- Smooth Shading

Close



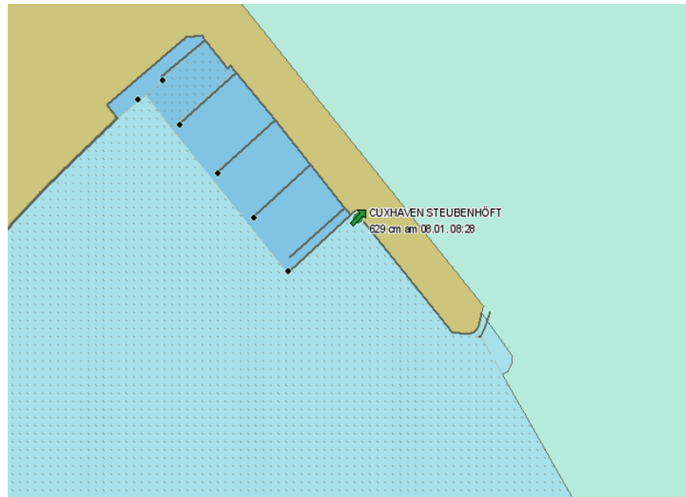
AIS over IP

- 🌐 Working with our partner Trenz AG in Germany to display AIS over IP on our PPU.
- 🌐 Sensor data interoperability

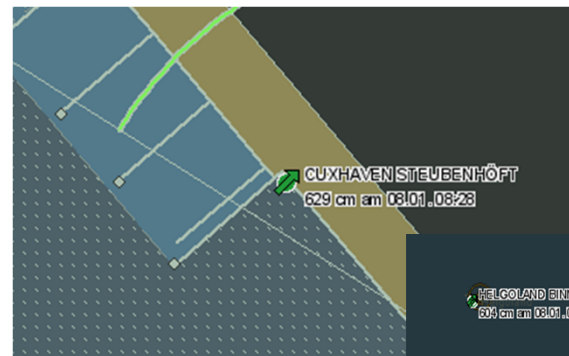
<https://www.youtube.com/watch?v=low24sj7DCI>



Tide Gauge and METOC data



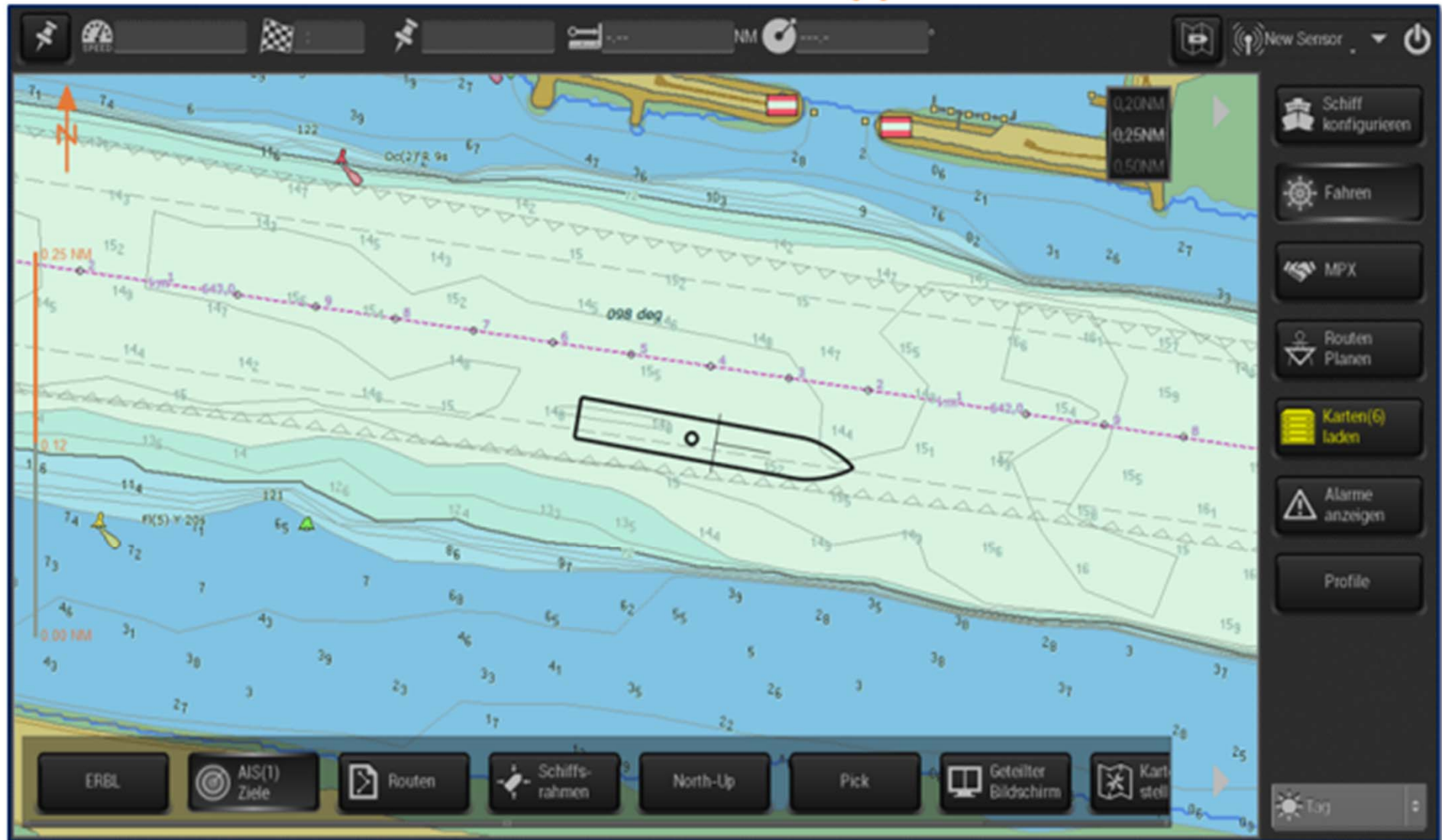
Integration of tide gauge data from a Web Map Service.



Activation of Night Display Mode does not adjust the colours of a WMS image.



Online Water Level Corrections – not applied



Online Water Level Corrections - applied

The screenshot displays a maritime navigation software interface. At the top, there are various navigation controls including a compass, speed indicator, and a 'New Sensor' dropdown. The main chart area shows a vessel's position and a route. A prominent green text box in the center-left provides the following information:

Waterlevel
Name: SCHULAU
Distanz: 0.71 nm
Letztes Update: 3 min
Wasserstand: 4.28 m (trend: +)

Red text above the vessel indicates: **Kartentiefe impliziert +1.7 m ansonsten Korrektur Korrektur für Watchdog Funktion: 4.28 m**

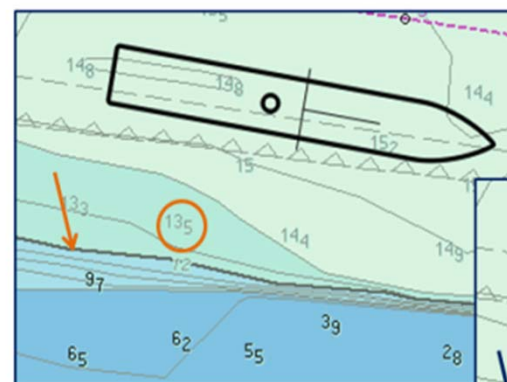
On the right side, there is a vertical menu with buttons for: 'Schiff konfigurieren', 'Fahren', 'MPX', 'Routen Planen', 'Karten(6) laden', 'Alarime anzeigen', and 'Profilie'. At the bottom, there is a toolbar with buttons for 'ERBL', 'AIS(1) Ziele', 'Routen', 'Schiffsrahmen', 'North-Up', 'Pick', 'Geteilter Bildschirm', and 'Kart stell'. A 'Tag' button is also visible at the bottom right.



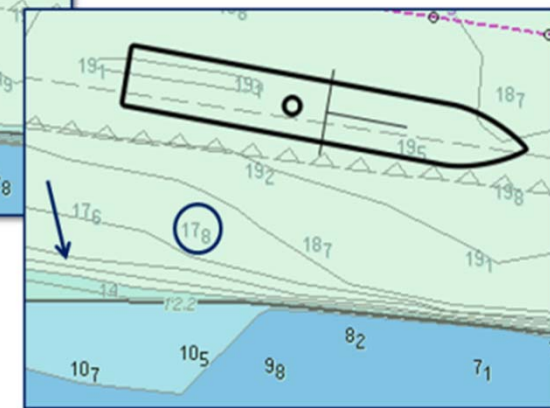
Tide Gauge and METOC data

Implementation of
online water level
corrections based on
WFS data.

Online Water Level Corrections



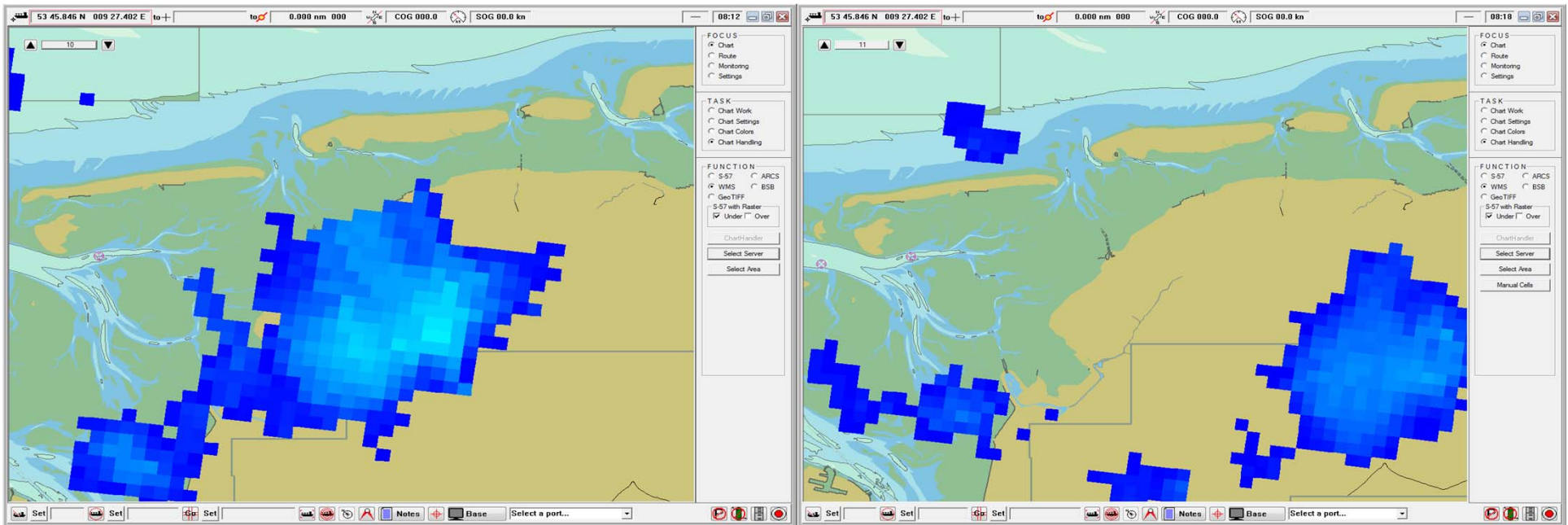
not applied



applied



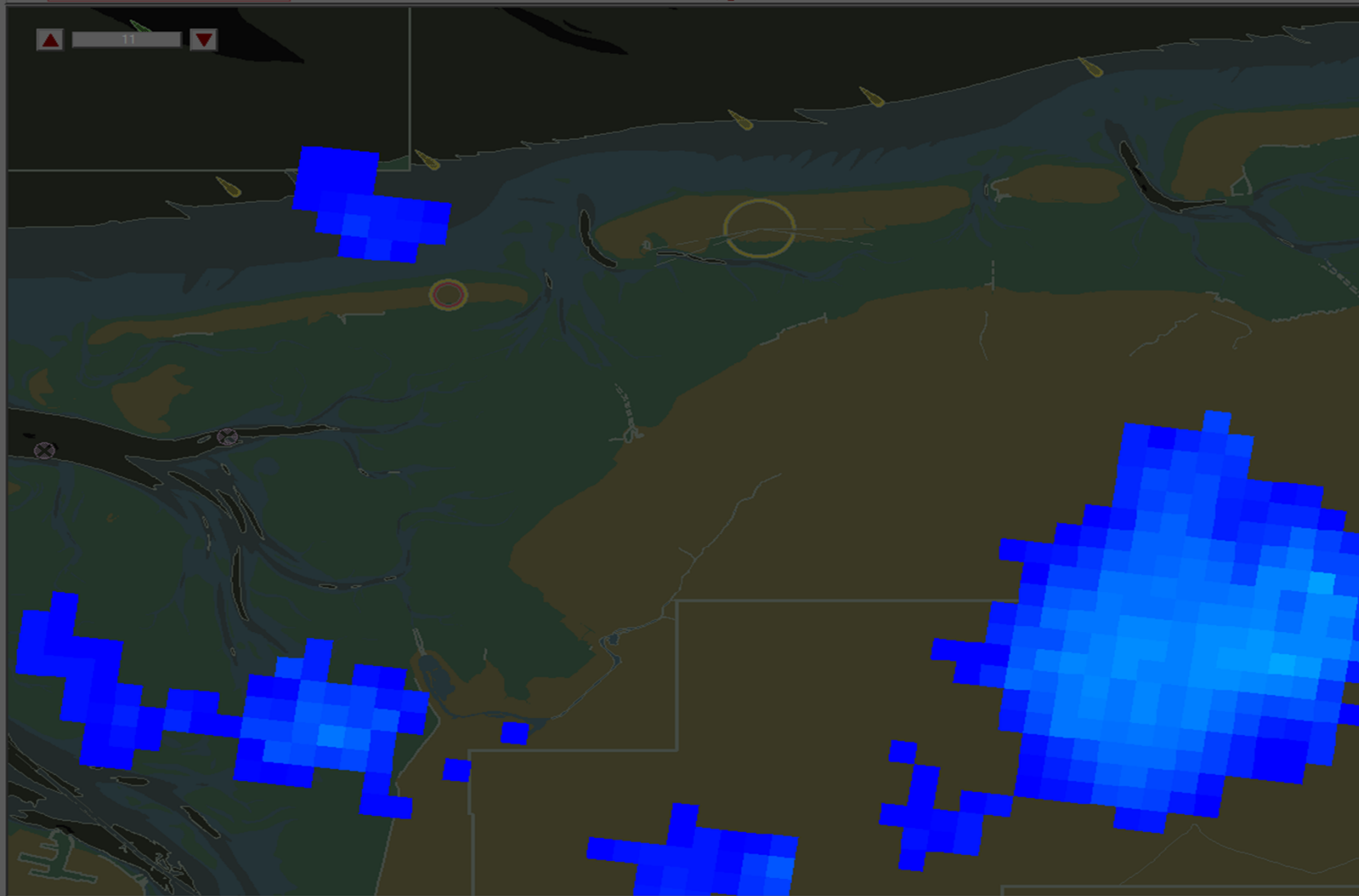
Tide Gauge and METOC data



How WMS can be used to track, monitor, and visualize the dynamics of Metoc information (e.g. precipitation).



53 45.846 N 009 27.402 E to+ 0.000 nm 000 COG 000.0 SOG 00.0 kn 08:19



- FOCUS
- Chart
 - Route
 - Monitoring
 - Settings

- TASK
- Chart Work
 - Chart Settings
 - Chart Colors
 - Chart Handling

- FUNCTION
- Day Bright
 - Day Whiteback
 - Day Blackback
 - Dusk
 - Night
 - Night Black
 - Gray Background

Set Set Set Notes Base Select a port...



Satellite EO Data

- 🌐 **Satellite based real-time service to improve the safety and efficiency of the maritime navigation industry**
- 🌐 **Use of Earth Observation (EO) technology in maritime applications (e.g. ECDIS)**
- 🌐 **Development of infrastructures**