BalticWeb

SERVICE PROTOTYPE DEMONSTRATION INTERFACE

The BalticWeb is an open source demonstration interface for some of the prototype services available on the Maritime Connectivity Platform (MCP), created as part of the EfficienSea2 project. The source code is available on GitHub: *github.com/maritime-web/BalticWeb*

This pamphlet describes some of the services implemented, their basic usage, the vision and how the different services can interact. Please note that the BalticWeb is not designed to be an actual navigational aid system, it cannot interact with vessels currently at sea, nor can it send actual SRS reports or in any way influence real life sea traffic.

BalticWeb is simply a demonstration interface.

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Maritime Connectivity Platform

"MCP" – formerly "MC" (MaritimeCloud)

MCP is a novel communication framework that enables efficient, secure and reliable information exchange in and around the maritime sector, which has been developed jointly by the three projects, EfficienSea2, SMART Navigation Project and STM Validation Project.

To access the MCP during the current test phase, an organization has to be member of CIRM, BIMCO or IALA, which are registered in the MCP Identity Registry as identity providers, or apply for access as a project test user. Once access has been granted, it is possible for organizations to browse the service

registry and register services themselves, which in turn, can be accessed by others in the same manner.

The services and the descriptions made discoverable to organizations through the MCP can be anything from a coffee machine cup counter service, to a weather service or a search and rescue route planning and sharing service.

More information can be found at http://maritimeconnectivity.net

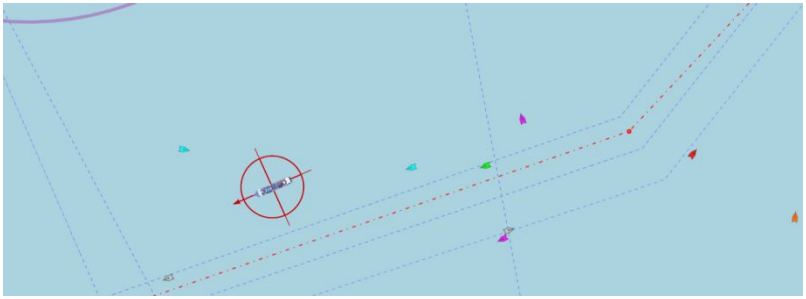
RTZ

Route plan Exchange format

Although the RTZ was created during the “MONALISA 2.0” project, it is used heavily during EfficienSea2, and is well deserving of a place here.

The RTZ is a standardized route sharing format built to be scalable and flexible enough to accommodate custom data without compromising its core functionality. The standard is available and maintained by CIRM.

In BalticWeb, a sample route file can be loaded by selecting the "Traffic" pane in the top menu, then select the "Load route file (RTZ)". Choose a route from the dropdown menu, then finalize the selection by clicking the "Use my route" button in the route preview interface. For the Final Conference, the route *"Final Conference - Travemünde to Helsinki"*, has been plotted to demonstrate the various services available in BalticWeb.

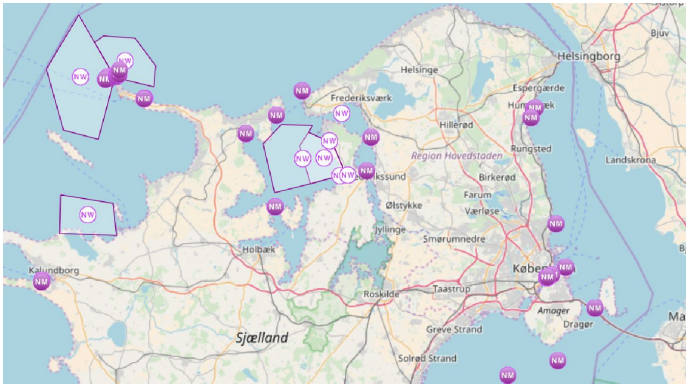


The RTZ is used in “Weather On Route” and “VTS Reporting” and all maps.

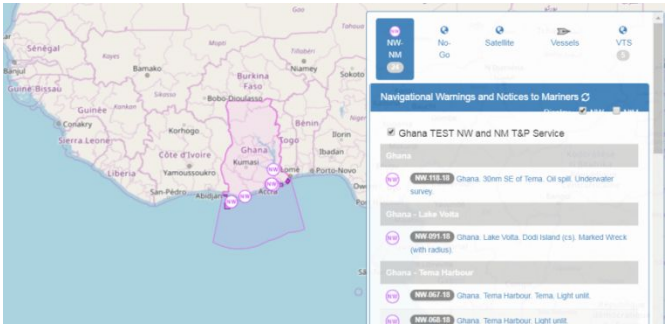
NW-NM

Nautical Warning & Notice to Mariners

The originally named "Niord" project, by the Danish Maritime Authority, is a modern interface to display warnings at sea, meant to be the next generation of NavTex. It is open-source and available on github under "NiordOrg". (Details can be found at "docs.niord.org")



In BalticWeb, enable the NW-NM interface by viewing Denmark on the map, then click the "NW-NM" pane in the right side menu, and finally, enable the interface by selecting the checkbox *"Danish NW and NM T&P Service"*.



The service can be found through the MCP, and is currently being adopted by the Ghanaian Maritime Authority, assisted by the Danish Maritime Authority. To

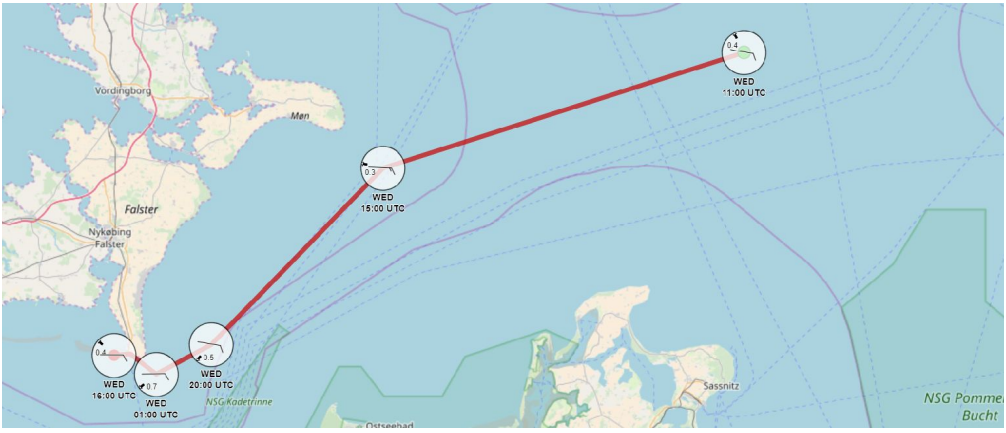
view the Ghanaian prototype, simply move the map over Ghana, then enable the checkbox to see the Ghanaian NW-NM interface.

Weather On Route

Weather On Route (WOR) is a collaborative information schema designed to give mariners a quick overview of weather information pertinent to navigation along a defined route, requiring a minimal volume of data transfer and a simple method of visualization using the "Weather On Route Marker". (WOR Marker)

A route (RTZ) is segmented into separate legs, which are sequentially sent to a route weather service, including a start and end timestamp of the waypoints in UTC, which returns weather data split into positions along the leg, forwards in the time axis as given. The time dimension is limited to ca. 5 days ahead of realtime. Zooming in and out on the map clears overlapping markers to reduce clutter.

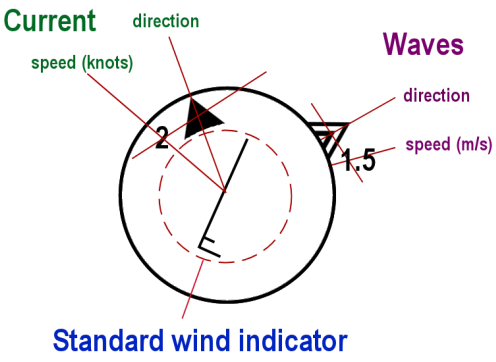
The BalticWeb Weather On Route interface uses data provided by the Danish Meteorological Institute (DMI), found on the MCP.



Using the WOR Marker on waypoints of a route, only a small volume of data is needed to deliver 6 metrics of essential weather data for navigation at sea. Future versions could incorporate bathymetric data in tandem with tide and forecasts of water depth influenced by weather, to create a route based UKCS/weather navigational guide.

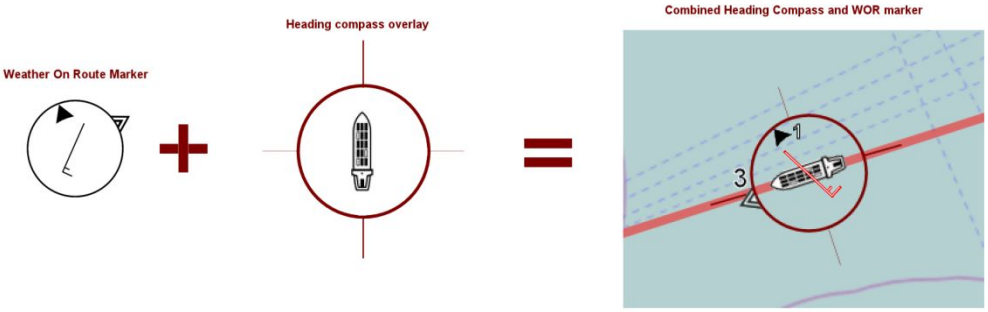
Weather On Route Marker

Prototype weather marker for route position

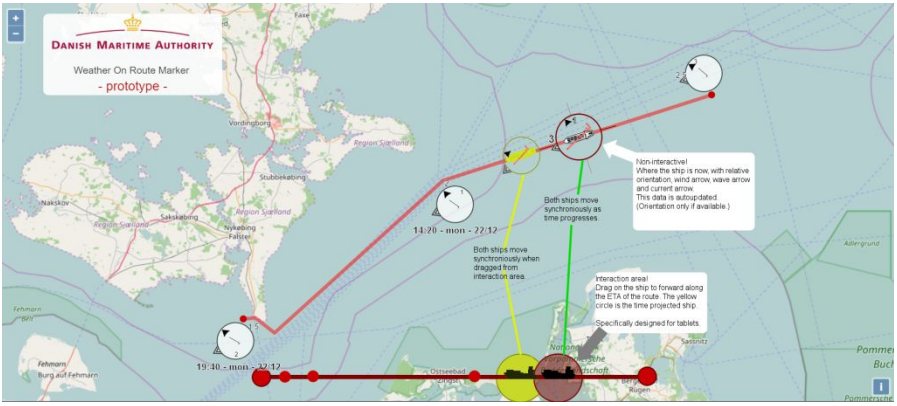


The WOR Marker was developed by DMA as a bid to incorporate 6 essential weather metrics into a single symbol which could be read quickly, in any light condition. The metrics are:

- Wind strength/direction
- Current speed/direction
- Wave height/direction



During navigation, the selected vessel is meant to have the WOR Marker on it.

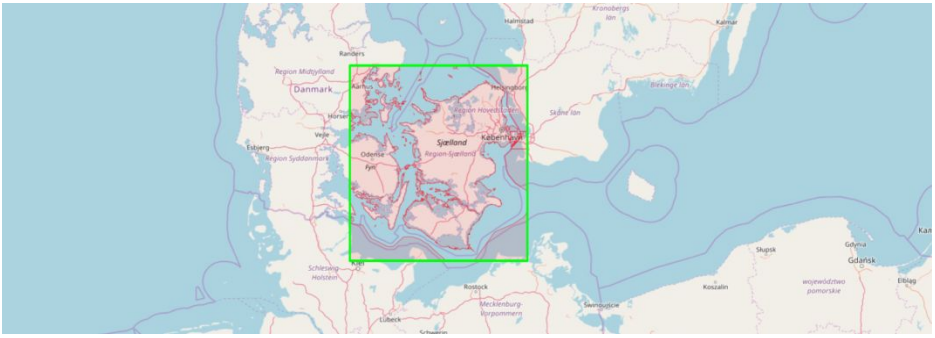


Map with interactive timeline in image above. (prototype concept)

No-Go

Under Keel Clearance Service

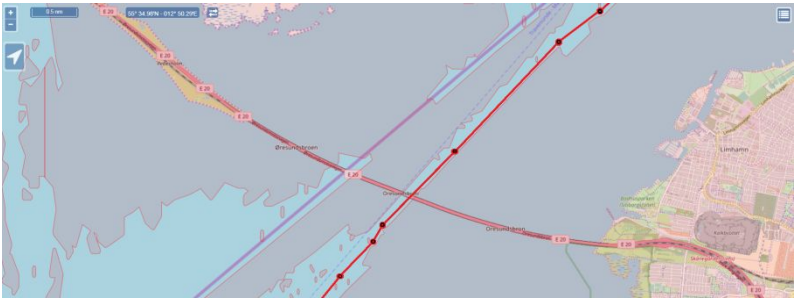
The No-Go or Under Keel Clearance Service (UKCS) covers the waters of Zealand, including the Sound. To view the No-Go service in action, click the right side menu, select No-Go, then enter a number of minimum desired depth in meters, click the "time animation" button and see how the animation plays.



The available bathymetric data varies in sampling distance and depth precision, so the nearest accurate values are used to display the no-go area, as red polygons on the map.

The service is created by a collaboration of services on the MCP and can be found on github. Please note that the bathymetric data (Danish GeoData) is not open source, and neither is the weather data. (DMI)

Managing a route by tide to make a safe passage through shallow waters, aided by UKCS.

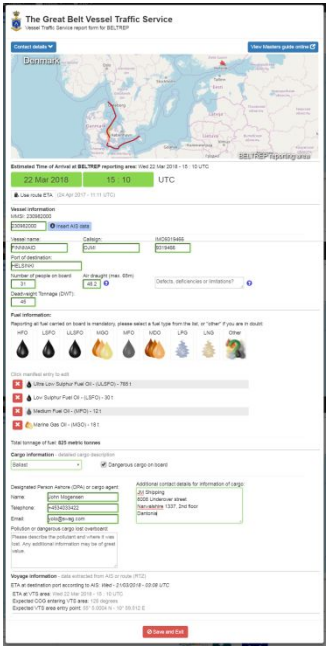


VTS / SRS reporting

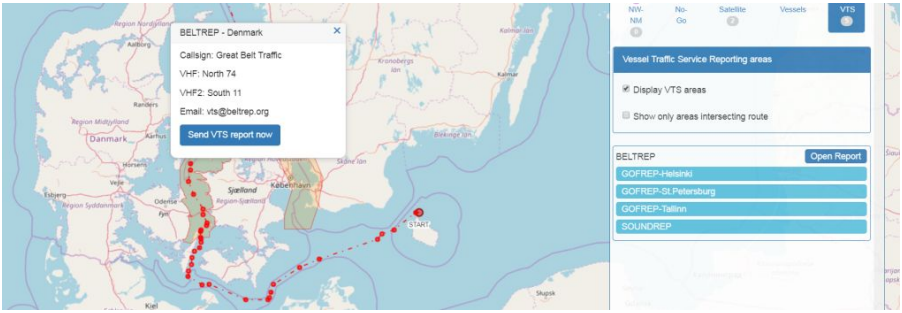
Vessel Traffic Service & Ship Reporting System

To make reporting easier, an interface based on the requirements of IMO, EMSA and SafeSeaNet has been created. Here at the Final Conference, a preview version is demonstrated and available at https://balticweb.e-navigation.net

The reporting interface can be accessed from the top menu, under “Traffic”, or in the right side menu under “VTS”. Enable the checkbox “Display VTS areas” to see the VTS areas displayed on the map. Click on any area to open the quick information menu, then click the “Open Report” button to view the reporting



interface.

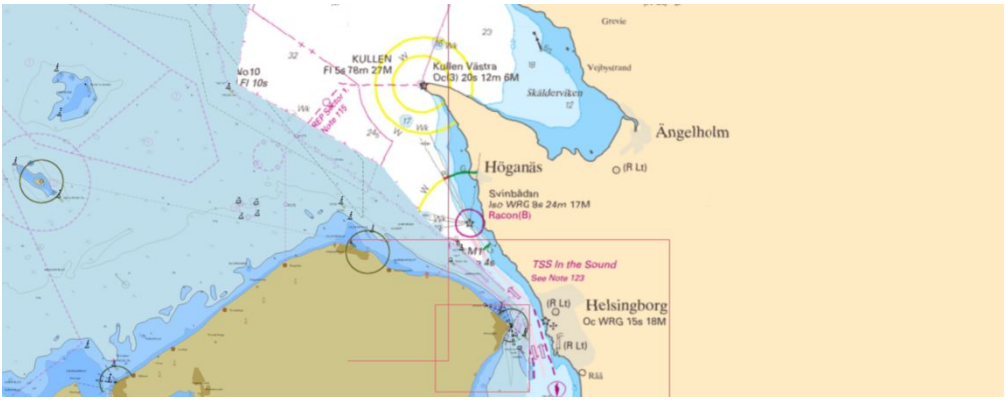


The reporting interface can gather information from multiple sources, as demonstrated in the BalticWeb. Currently it can use the RTZ route information and AIS information. Future versions could also retrieve cargo information from SafeSeaNet or port call information from other services on the MCP.

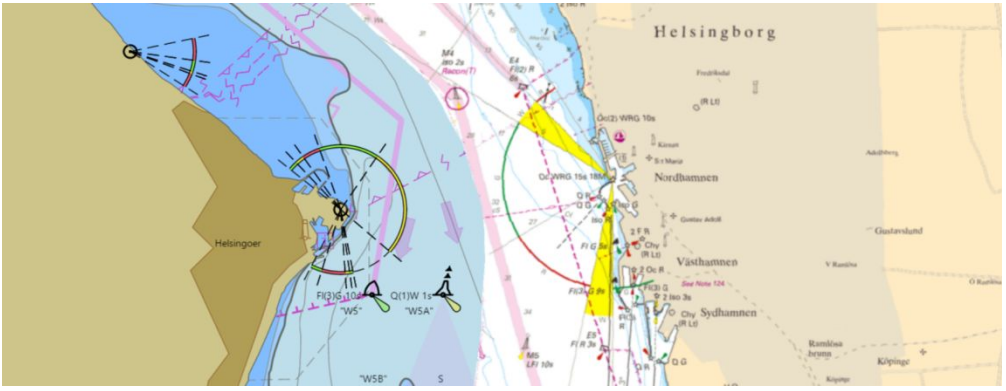
A study on usability by Force Technology has been a valuable aid to design a better user interface from an early stage of the reporting interface. This study is also being showcased at the Final Conference. Hopefully, any future version of the reporting interface will be scrutinized and tested in the same manner, to help create the best possible interface for reporting. The aim is to shift focus at sea to navigation and safety, and increase the accuracy of reporting at sea.

Nautical Charts

The BalticWeb features multiple charts and maps. They can be accessed in the top menu, under “Maps”. Noteworthy is the combined Danish-Swedish nautical chart which delivers a seamless unified chart to add to ease of readability.



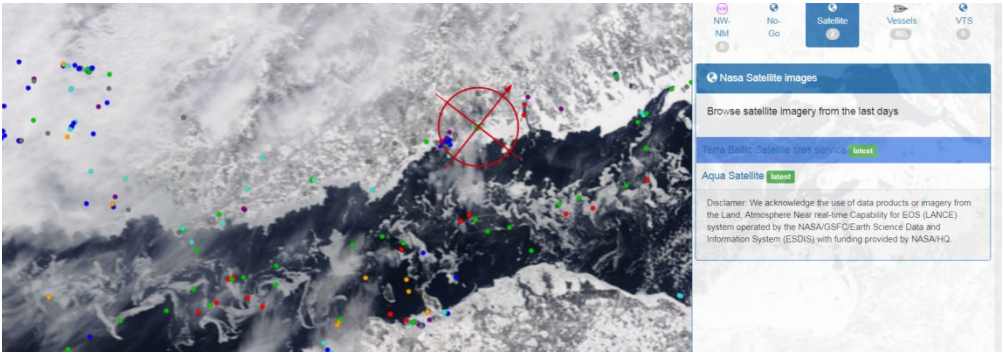
Using common mapping resolutions and a common service platform such as the MCP, a single unified navigational chart of the entire ocean could become possible. Individual providers could be interchanged and updated on demand, by the people who actually use the charts, when they need them.



In the top menu, under “Traffic”, the OpenSeaMap, open source navigation layer, “SeaMark” is also available. Please note that not all maps available in the BalticWeb are open source.

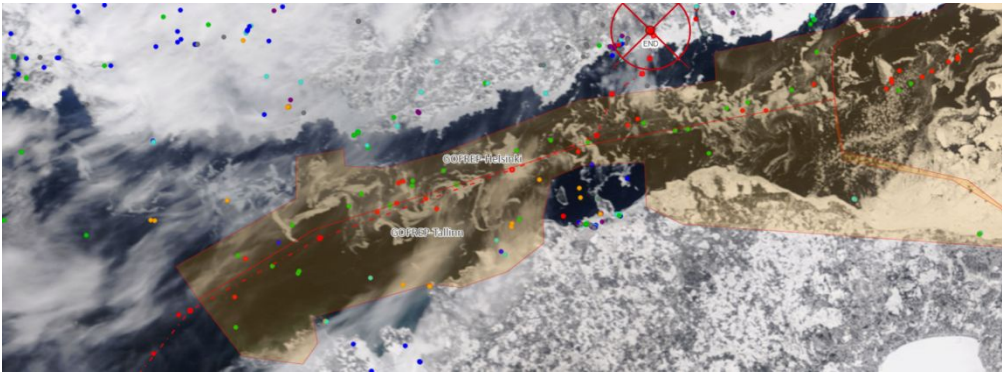
Satellite Imagery

Similar to the navigational charts, satellite imagery services could be adopted seamlessly to cover the entire planet in much the same way.



Through the MCP, satellite imagery providers could be interchanged to give mariners the choice of the best images available, in a healthy, competitive environemt.

Multiple datatypes can be layered to give mariners the most accurate information to navigate by, such as demonstrated in the BalticWeb, where AIS data and route data is displayed on top of the satellite image.



The map can have options to overlay other data types such as weather information, navigational warnings, SAR operations, VTS reporting areas, UKCS informations, anything that can give a better picture to aid to the safest possible navigation.

Danish Maritime Authority

wants to thank
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