ArcticWeb

User Manual

Content

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Background

ArcticWeb - an effort to improve safety of navigation in the Arctic.

ArcticWeb is combining:
- AIS data collected by national and commercial satellites and base stations along the coast of Greenland.
- Ice charts from Danish Meteorological Institute (DMI).
- Navigational warnings from Arctic Command and Danish Maritime Authority.
- GREENPOS reporting.
- Coordinated Voyage through the sharing of routes and schedules.
- Sharing of routes and schedules with Arctic Command.
- Future functionality: Weather data from DMI, including weather forecasts for the given planned route.

The platform is intended for use by:
- Ships
- Shipping companies operating vessels in the area.
- Arctic Command
- Other shore authorities

System Requirements

Operating system
Any

Browsers:
Recommended browsers are Firefox (latest), Safari (latest) or Internet Explorer 10 (or 11). Google Chrome may be used, but some users have encountered some chart problems when using Chrome.

Other working browsers: Internet Explorer 8 and 9. The amount of data transferred over the internet connection will however be higher than with recommended browsers.

Firewalls:
All communication between the ArcticWeb web application and the DMA e-Navigation servers are performed using HTTPS protocol on port 80.

JavaScript
JavaScript must be enabled in the used browser. See if you have JavaScript enabled and how to enable it at this internet site: http://enable-javascript.com/

Cookies
Cookies must be allowed, at least for the domain arcticweb.e-navigation.net, core ArcticWeb functionality will otherwise not work.

See more at:
Internet Explorer: http://windows.microsoft.com/en-us/windows-vista/block-or-allow-cookies
Firefox: http://support.mozilla.org/en-US/kb/enable-and-disable-cookies-website-preferences
Chrome: https://support.google.com/accounts/answer/61416?hl=en
Safari: http://support.apple.com/kb/ph5042

Internet usage

The browser cache is utilized for caching web resources (HTML, CSS and JS files) as well as all ice chart data and other data fetched from DMA e-Navigation servers. This will lower the amount of data transferred over the internet connection. To make best use of the browser cache it is therefore recommended to:
-   always use the same computer and browser for ArcticWeb.
-   Not to clear the browser cache.
-   Not to clear hosted application data/offline web application data in the browser.

At first login an initial download of approximately 1 MB is made (basic chart and other data). A low cost connection may be preferred for this.

After first login and provided the cache is not cleared, ArcticWeb data volumes will be approximately 100 kb per hour when logged in (primarily from the regular update of AIS targets).

Ice chart file sizes are given under the Ice Charts tab. They will typically be between 50 and 500 kb each. Please note that an ice chart is cached once downloaded by the browser and thus not fetched from the server again on next download click, unless the browser cache has been cleared

Description of functionalities

Front page

On the front page Ice Charts in pdf format, weather information and information on Safety of Navigation is available. In the future more information will be added.
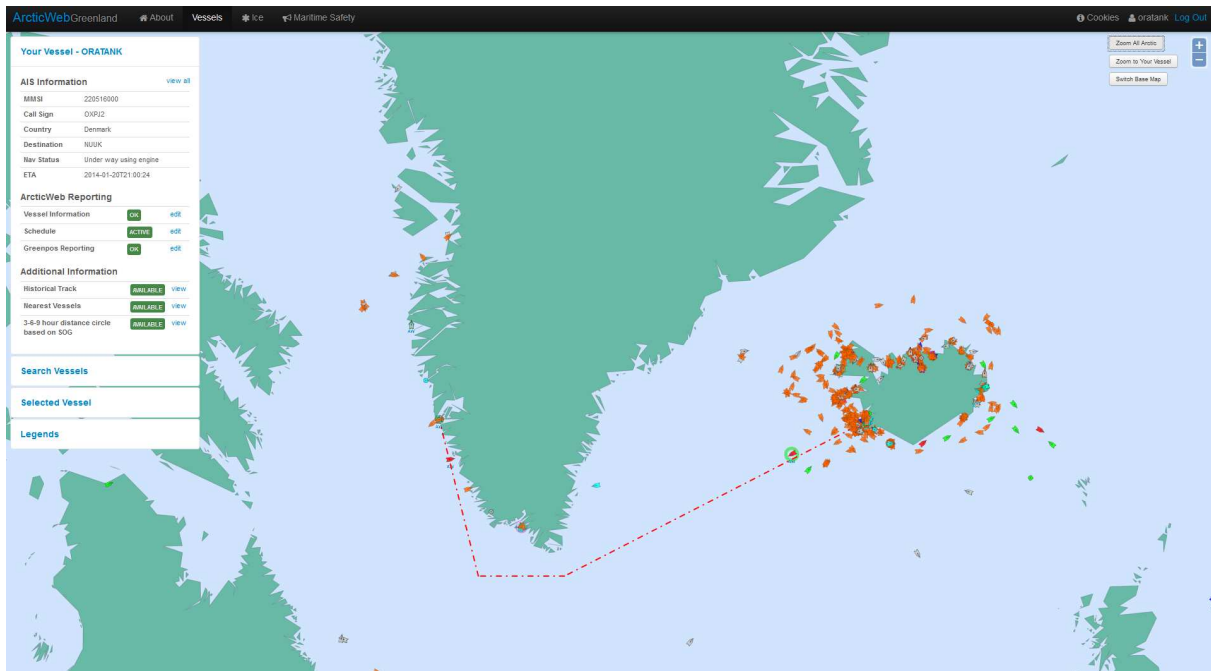
Click on *Vessel* or *Log in* as user.

If you are not a registered user, you may request access by clicking *Request Access* (only first visit on page). You will be prompted for required informations to create an ArcticWeb user. When a user has been created, you will receive an email with your new user credentials.
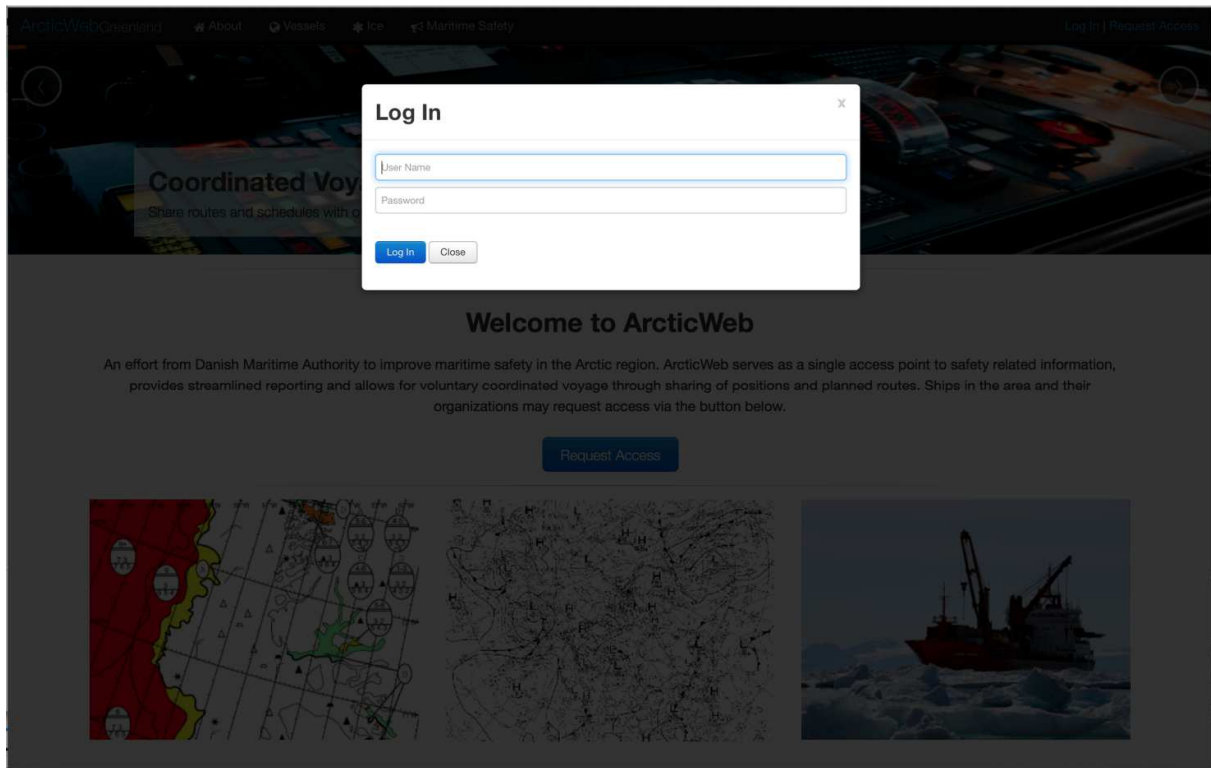
Log In Dialog

Log in with user name and password.
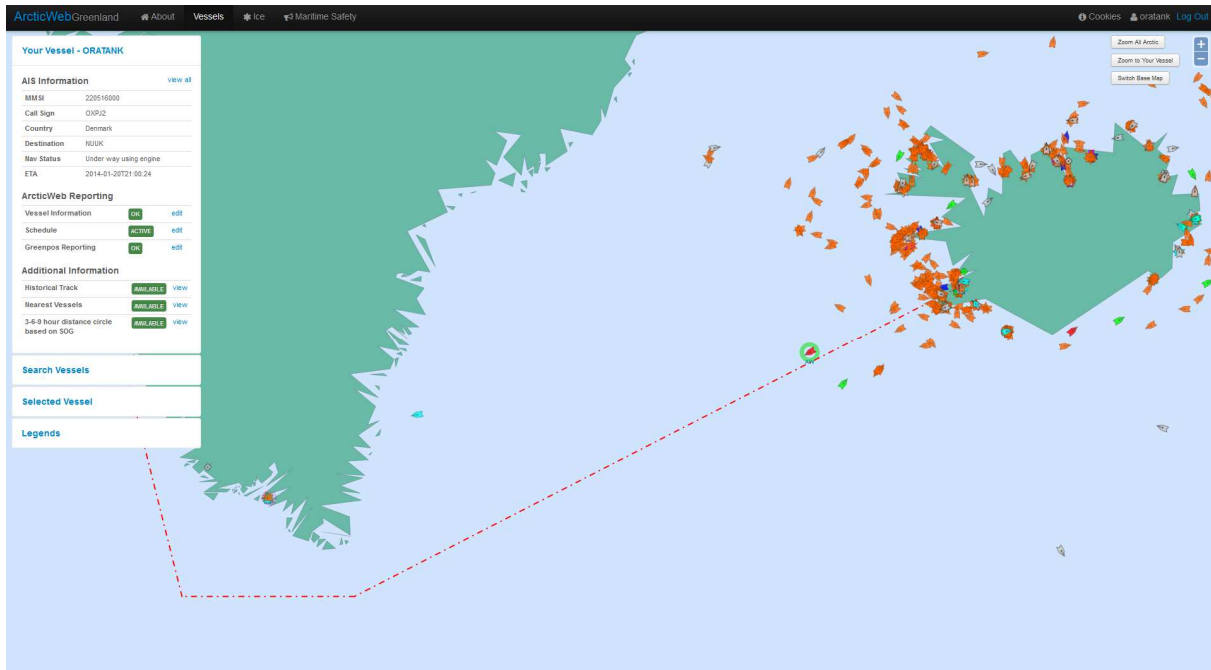
Vessels page

Main chart page

1. When logging in, user is linked to own vessels AIS target (marked by green ring). Vessel positions are updated every 15 minutes. Vessel positions obtained from satellite may however be older due to the time between satellite passings (recent analysis have shown that in 95% of the time, positions are updated at intervals less than 2 hours, in 99% of the time less than 6 hours.
2. It is possible to see positions of all other vessels in the Arctic Region equipped with an AIS transponder.
3. Click *Zoom all Arctic* to return to overview
4. Click *Zoom to Your Vessel* to zoom to own vessel

5. Click *Switch Base Map* to change from basic chart (Single Vector Map) to full OpenStreetMap. Data volumes are increased quite a bit from basic chart to the full OpenStreetMap and it may be slower to use the OpenStreetMap
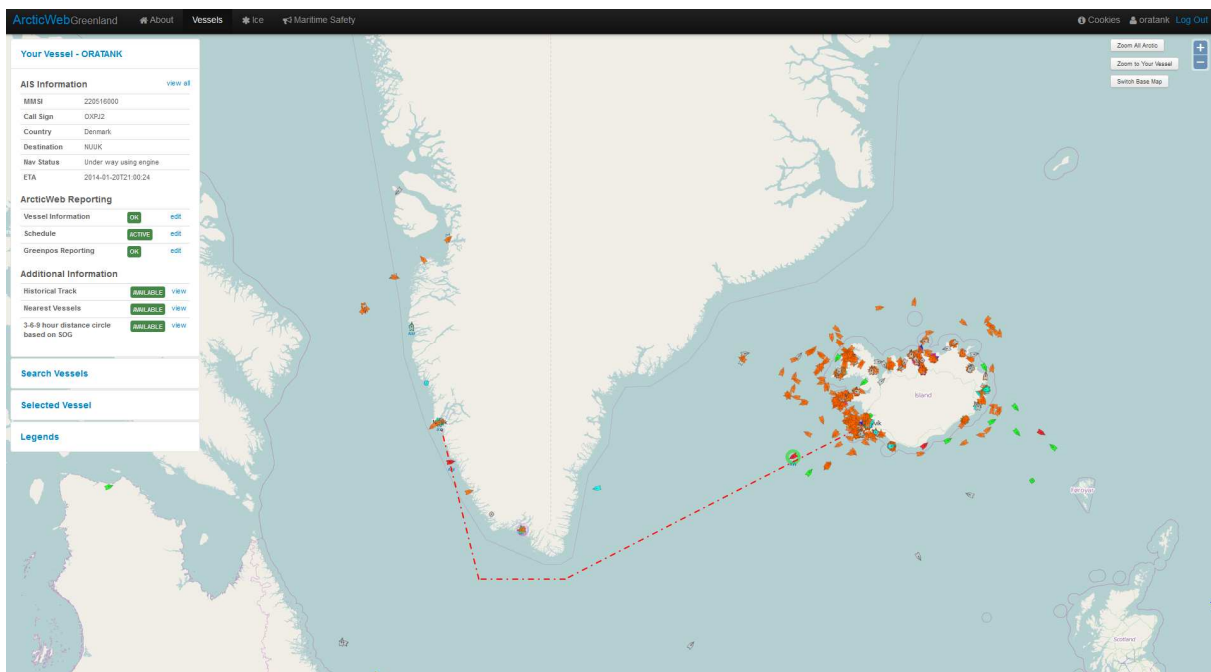
Example of OpenStreetMap

Own vessel functionalities

Own vessel is marked by green ring when logged in.

The vessels page shows primarily AIS data, i.e. other vessels in the area. On the left are a number of possibilities:

Your Vessel:
- AIS Information: Basic information obtained from AIS.
- ArcticWeb Reporting:
  - Vessel Information: extra information expanding on AIS information.
  - Schedule: sharing of schedule and routes with other vessels and authorities.
  - Greenpos Reporting: send Greenpos reports to Arctic Command.
- Additional information:
  - Historical Track.
  - Nearest Vessels – the distance in nm and time from the 5 vessels nearest to own vessel. "Nearest" is based on the time to reach your vessel and is calculated by using the maximum recorded SOGs from other vessels in the area.
  - 3-6-9 hour distance circle based on SOG – portrayal of the distance own vessel can reach in 3-6-9 hours based on present SOG.

Search Vessels: search other vessels by name or MMSI.
Selected Vessel: Information on selected vessel.

Legends: Explanation of symbols and coloring (vessels, ice, etc.).

Legends

▶	Passenger
▶	Cargo
▶	Tanker
▶	High speed craft and WIG
▶	Fishing
▶	Sailing and pleasure
▶	Pilot, tug and others
▷	Undefined / unknown
▷	Sailing
◇	Anchored/Moored
AW	Vessel participating in ArcticWeb
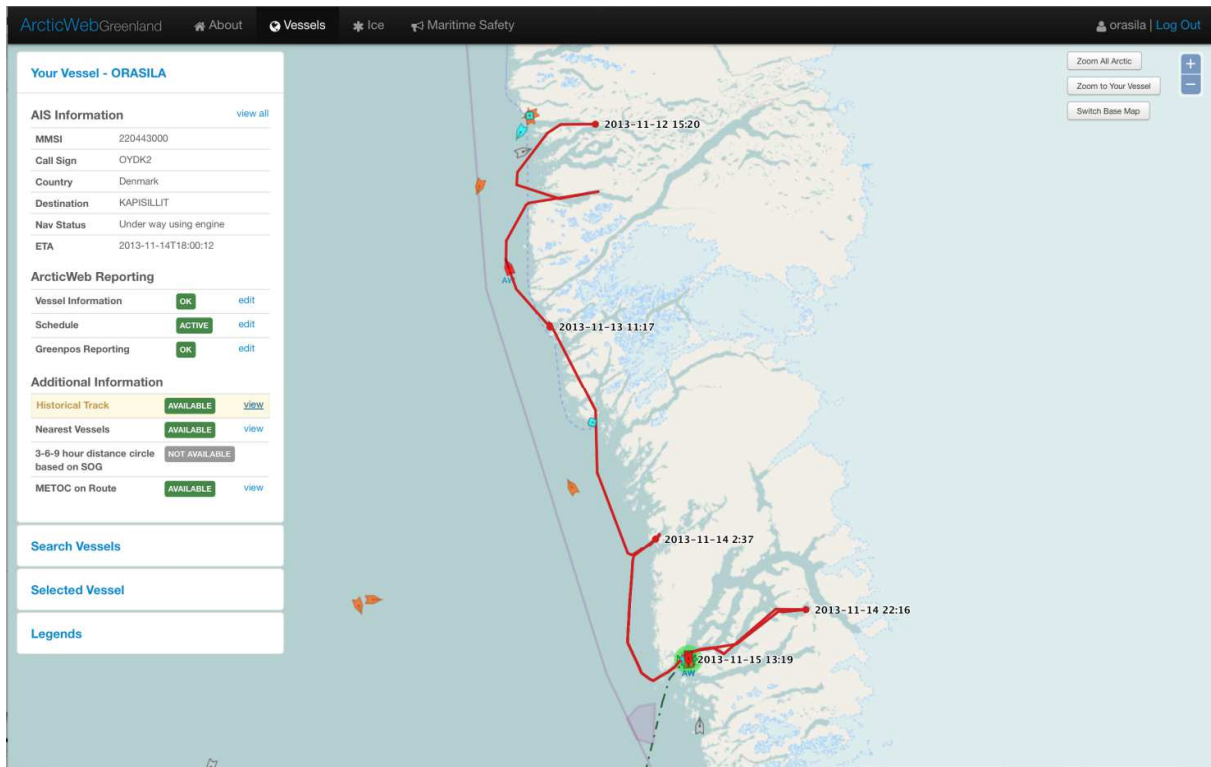
Historical Track – own vessel

By clicking *Historical Track view* the past track of the vessel is displayed. Positions are obtained from satellite and are updated every 1-6 hours, so the track may look a little bumpy and may cross over land.
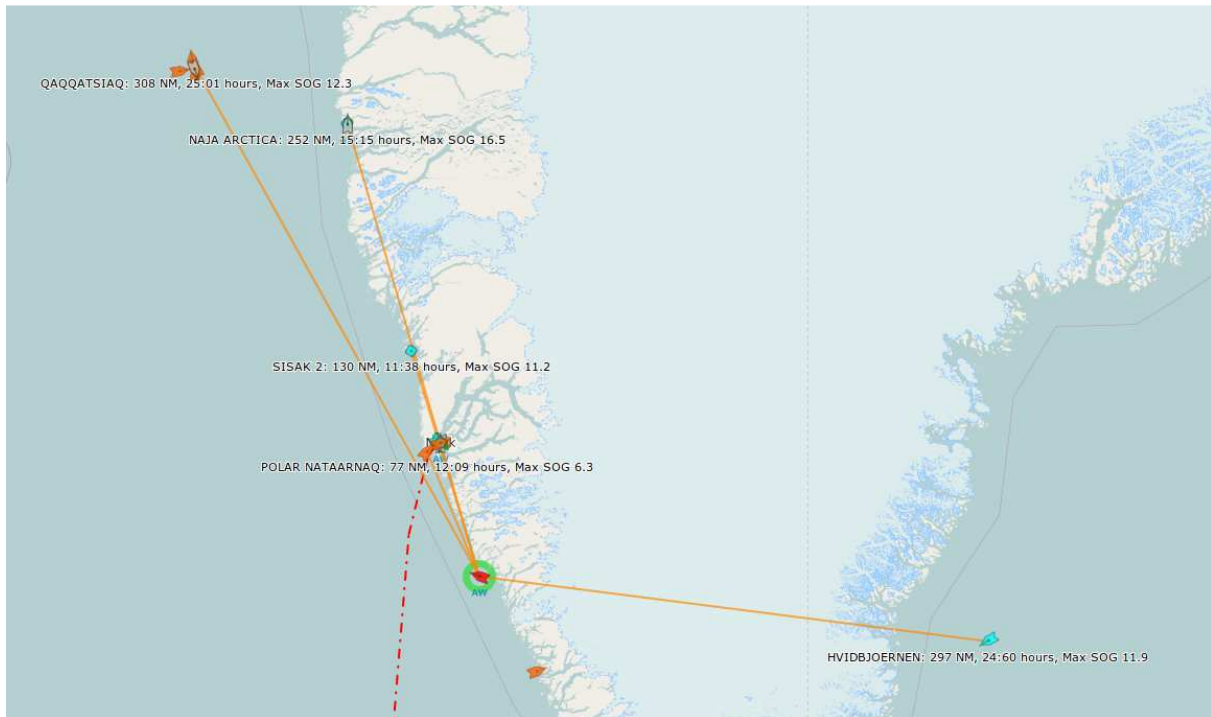
Nearest Vessels

By clicking *Nearest Vessels view* the distance in nm and time from the 5 vessels nearest to your own vessel are displayed. "Nearest" is based on the time to reach your vessel and calculated by using the maximum recorded SOGs from other vessels in the area.

In later versions it will be possible to see distance to nearest vessel with medical personnel on board, distance to hospitals, helicopters, etc.
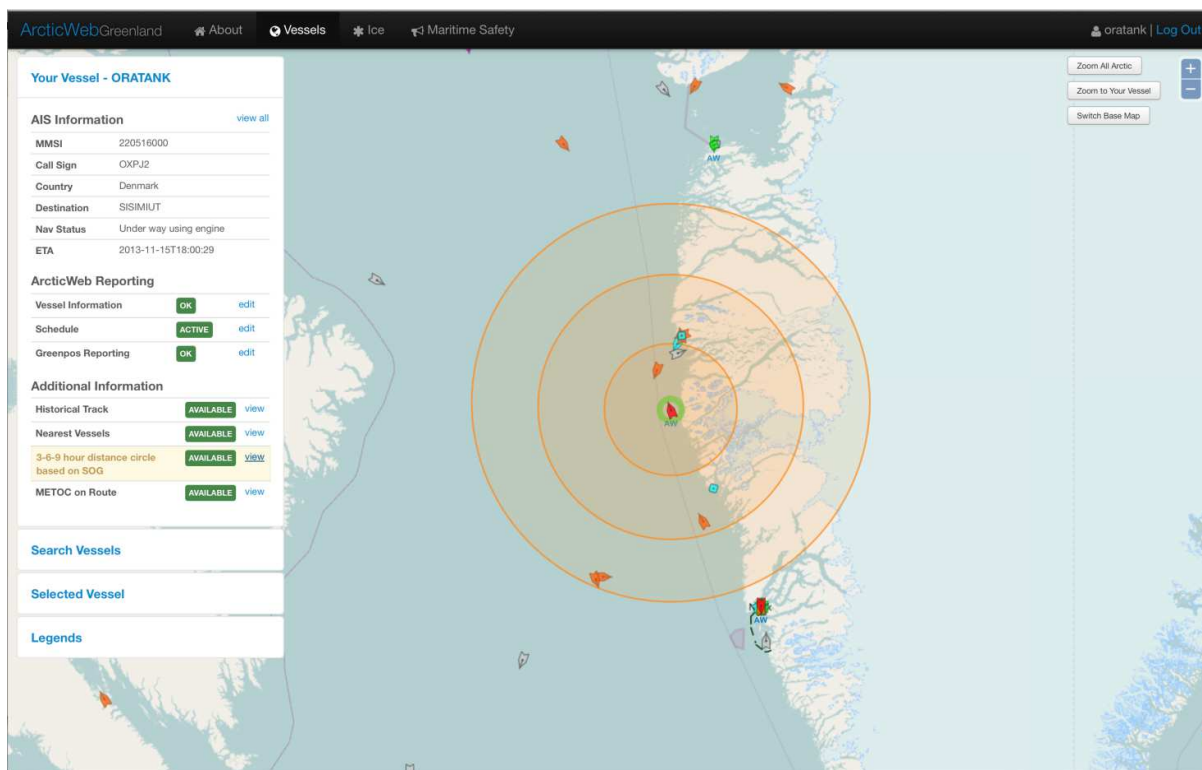
3-6-9 hour distance circle based on SOG

By clicking *3-6-9 hour distance circle based on SOG view* the distances own vessel can reach in 3-6-9 hours based on the maximum recorded SOG are displayed.
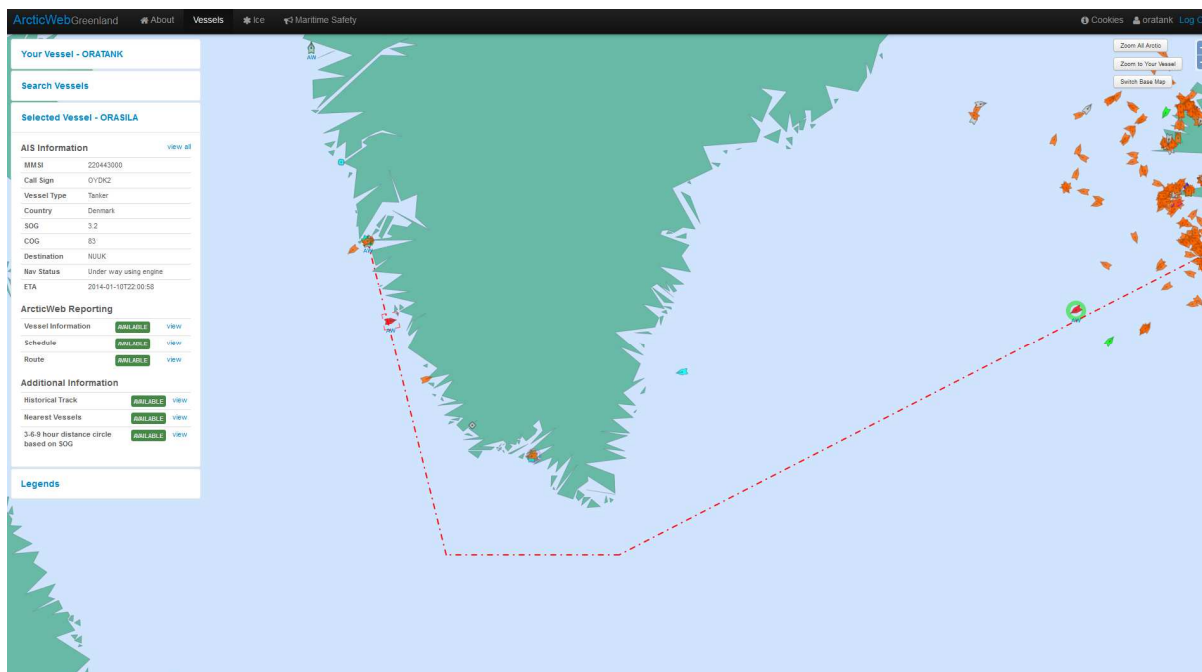
Selected Vessel

By clicking *Selected Vessel*, information on selected vessel is shown.

Vessel is selected by click on target in chart area or searching vessel by name or MMSI in Search Vessels menu.

AIS Information – view all information

By clicking *view all* in Your Vessel or Selected Vessel menu it is possible to see all available information on your/selected vessel.

Integration with MarineTraffic.com

In the bottom of the View All window it is possible to search vessel in question at MarineTraffic.com, see pictures and other available data.
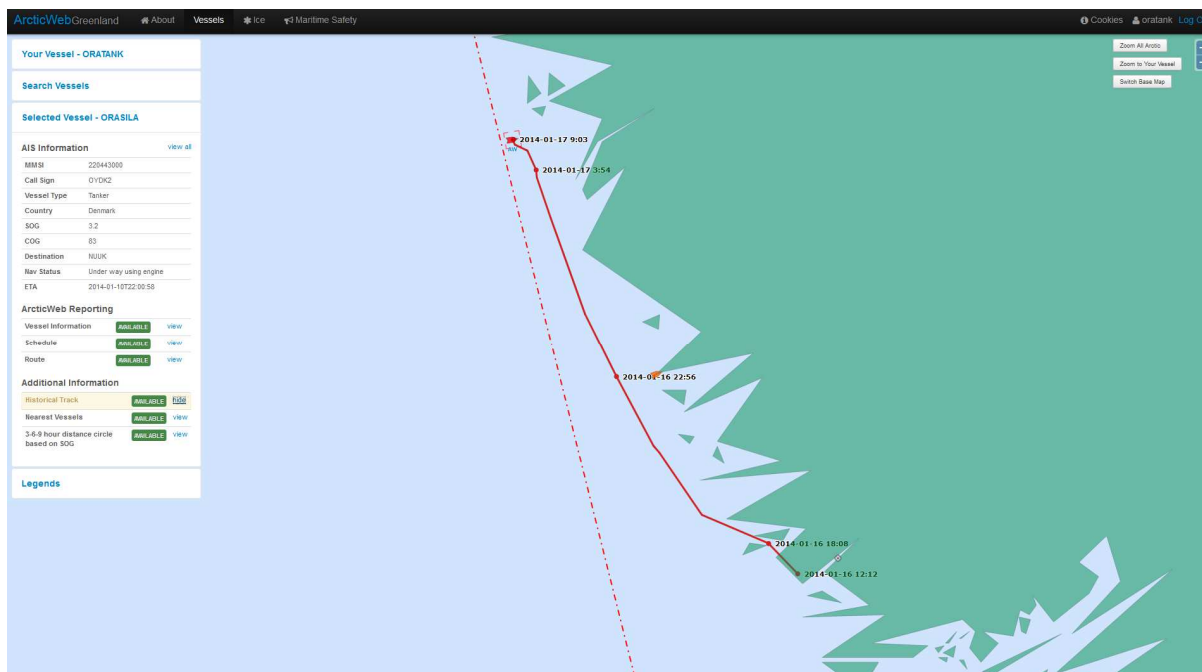
Historical Track – other vessels

By clicking *Historical Track view* in Selected Vessel menu it is possible to see other vessels past track.

Ice charts

Ice Charts

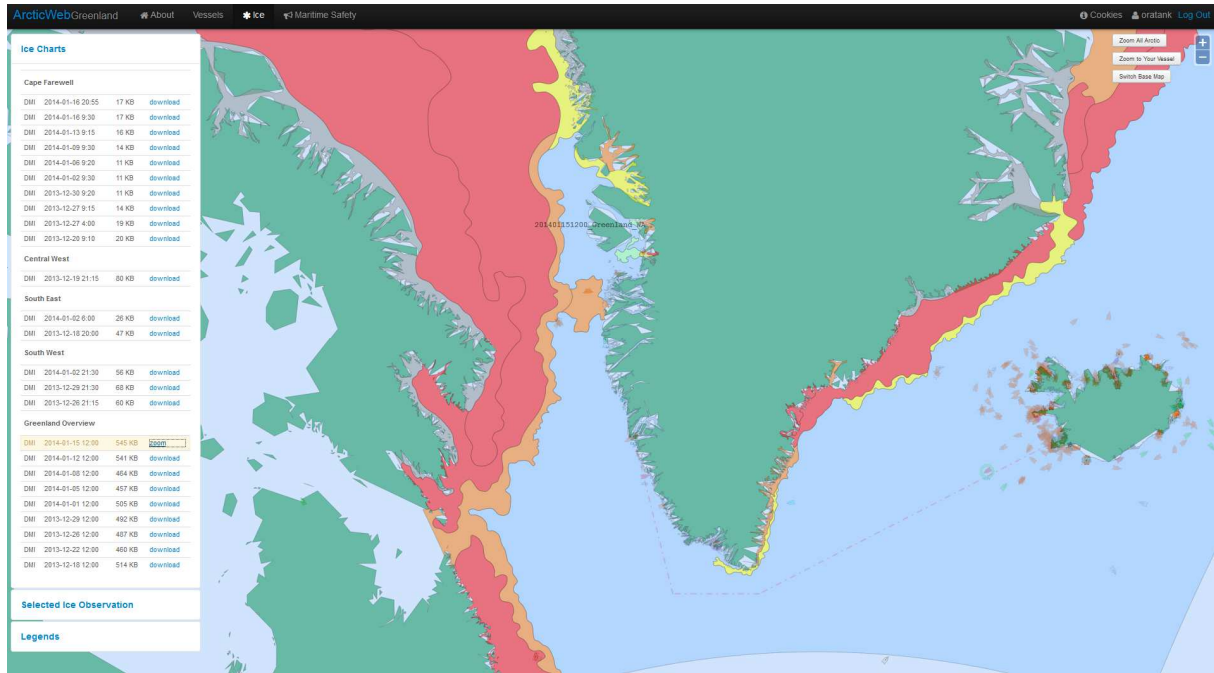By clicking the *Ice* tab in the top menu, the Ice charts window is opened on the left. Here all available Ice Charts are listed, sorted by area; most recent Ice Chart first.

Ice chart legends are shown in the legends menu.

Legends

Color	Ice Concentration	Definition
(grey)	10/10	Fast Ice
(red)	9/10-9+/10	Very Close Drift Ice
(orange)	7/10-8/10	Close Drift Ice
(yellow)	4/10-6/10	Open Drift Ice
(green)	1/10-3/10	Very Open Drift Ice
(blue)	<1/10	Open Water

Ice charts – display

Ice Charts are downloaded by clicking *download*. File sizes are indicated to make it possible for the user to choose whether or not to download Ice chart and thereby minimize vessels data usage. Once downloaded an ice chart is cached by the browser and thus not fetched from the server again on next download click, unless the browser cache has been cleared. When Ice chart has been downloaded, the *download* button changes to *zoom*. Click *zoom* to zoom to Ice area.
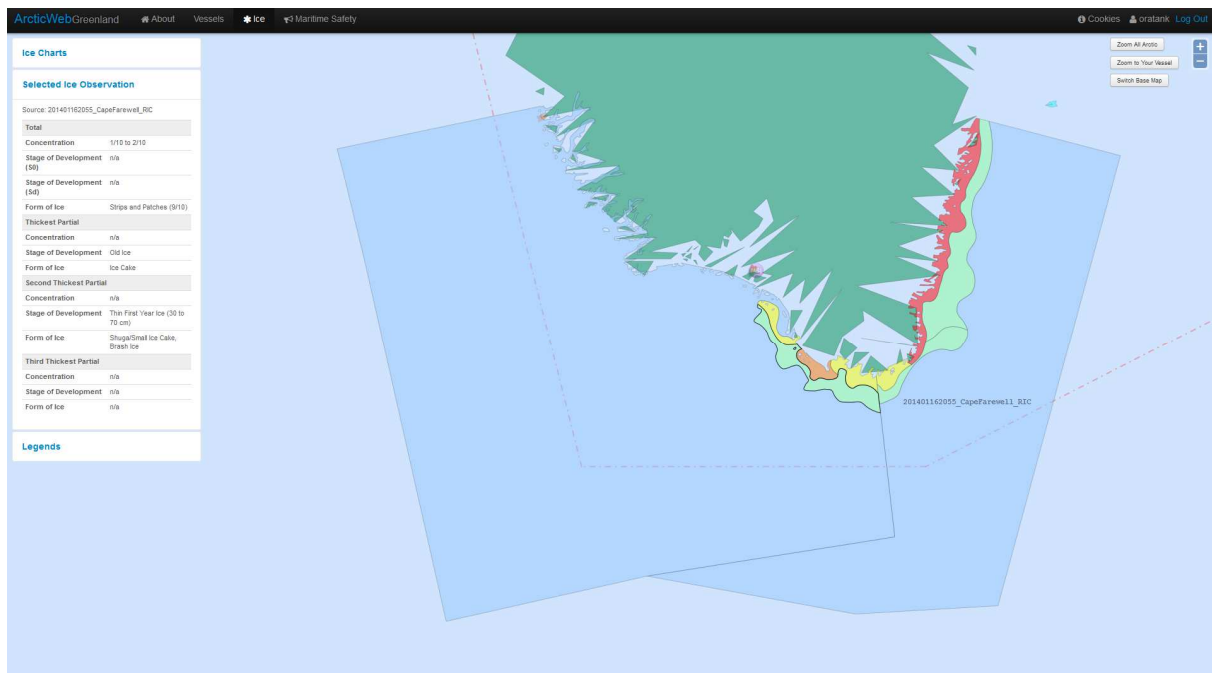
Ice charts – details

Details for Ice areas are shown by clicking colored Ice areas on chart.

Maritime Safety Information

Maritime Safety Information – main page

By clicking the *Maritime Safety* tab in the top menu, the Maritime Safety Information window is opened on the left.
Here all active Navigational Warnings are listed, sorted by number.

All Maritime Safety Information for the area is displayed by purple MSI symbols.

Maritime Safety Information - details
By clicking MSI symbol in the chart area or on the Active Warnings in left menu details are shown.

Reporting

The GREENPOS system applies to all ships on voyages to and from Greenlandic Waters and inside the Greenlandic Continental Shelf or EEZ. The ships are to report weather information and their position, course and speed and every 6 hours. Additional information may be required depending on the report type send. See 'Mandatory Ship Reporting Systems' document found on front page for report types and when to send them.

Greenpos reporting

Click *Greenpos reporting edit* in the left menu.

Here it is possible to enter and send reports to Arctic Command by a few clicks. First choose which report to send; Sailing Plan, Position Report, Final Report or Deviation Report. Fill in the blank fields. Other required information is filled in automatically based on information from AIS (Remember to keep AIS data up to date). Click *Send*.

Acknowledgement of successful transmission is indicated. An acknowledgement mail is also sent from ArcticCommand mail server upon report reception to the mail address supplied when requesting access to ArcticWeb.

Note: In the event a transmission acknowledgement is <u>not</u> received from ArcticCommand you must use other means of communication in accordance with the relevant rules.

We hope to include the Coastal Control reporting in a later version.

Vessel Information

All information available via AIS is collected automatically in the AIS Information window.
Additional information relevant in the Arctic area, for Search and Rescue and assistance is given in
the Vessel Information window, e.g. Ice class, Maximum Rescue capacity, vessel equipped with
Helipad, communication capabilities, etc.

Schedule

Vessels schedule is entered and kept up to date in the Schedule menu.
Enter location, position (filled in automatically for ports in Greenland), arrival and departure times, crew and passengers on board at departure and if doctor or medical personnel is onboard.

Detailed routes between a location and the following location may be either uploaded by clicking *Upload route* or created manually in the system by clicking *Create route*.

Schedules and routes are shared with other vessels and authorities enabling coordinated passage and for resource planning, e.g. rescue resources.
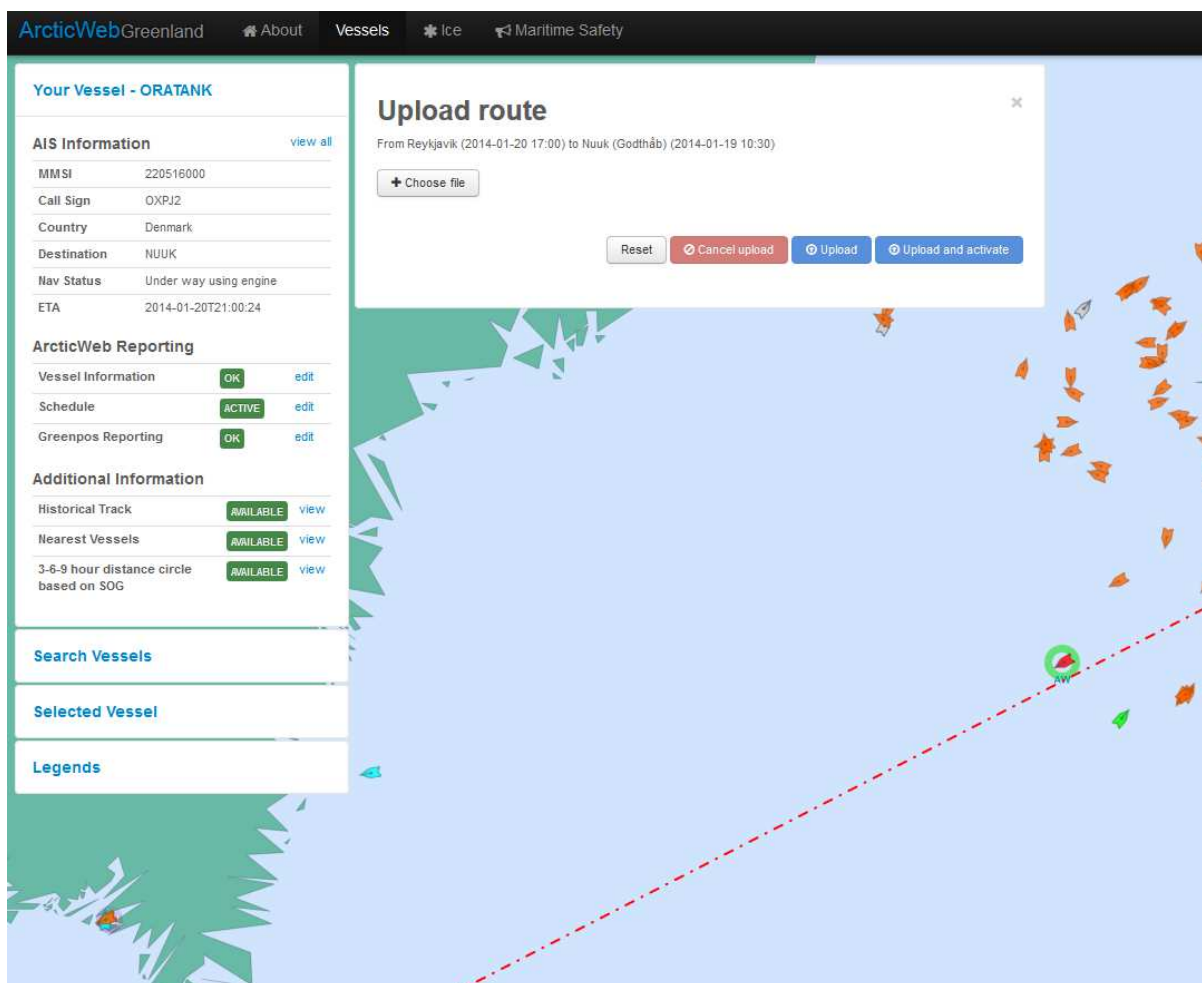
Upload Route

Routes may be uploaded to ArcticWeb and used by own vessel, e.g. when assessing Maritime Safety Information and when navigating in ice. At the same time routes in ArcticWeb are shared with other ships and authorities for planning and improved situation awareness.
Routes may be exported from ships ECDIS systems on a USB-stick.

The following ECDIS systems are currently known to be supported:
- Transas Navi-Sailor 4000
- Transas Navi-Sailor 4000 MDF
- Sperry Marine "VisionMaster FT"

Support for the following ECDIS systems are to be added in the near future:
- FURUNO FEA 2107
- SAM ChartPilot 1100

Note: If ECDIS system on board is not supported by ArcticWeb, then please let us know (Mads Bentzen Billesø, Danish Maritime Authority, mcb@dma.dk).

Route (edit or create)

When route is uploaded it is possible to edit Waypoints and other route details by clicking *Edit route*.

By clicking *Create route* it is possible to create and save a route in ArcticWeb. This functionality may be used if it is not possible to export route from ECDIS system and import into ArcticWeb.

Own and other vessels routes

The active route of own vessel is shown at all times on chart page (red route). Own vessels planned routes are orange. Other vessels active routes are viewed by clicking view Route in Selected Vessels menu (green routes).

Routes are only available from vessels participating in ArcticWeb. This is indicated by the letters AW below the target symbol.

It is also possible to view other vessels schedules (black lines connecting departure and arrival ports).

Future functionality
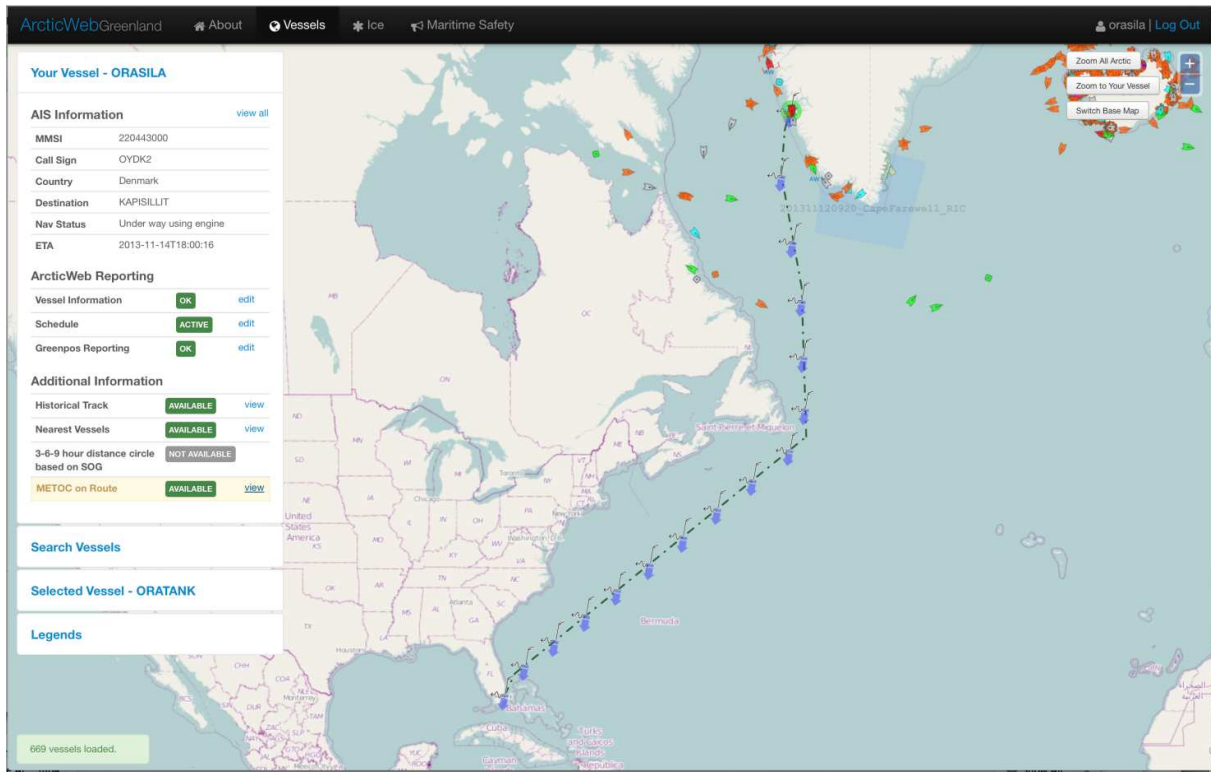
FUTURE FUNCTIONALITY - Weather forecast for planned route (METOC on route)

After uploading route it is possible to get METOC information/weather forecast on route.

Click *METOC on route*. Wind, waves, current and tidal level is shown along the route at planned arrival times.

FUTURE FUNCTIONALITY - Weather forecast - details

Details for specific weather points are shown when zooming in.