



# User Guide

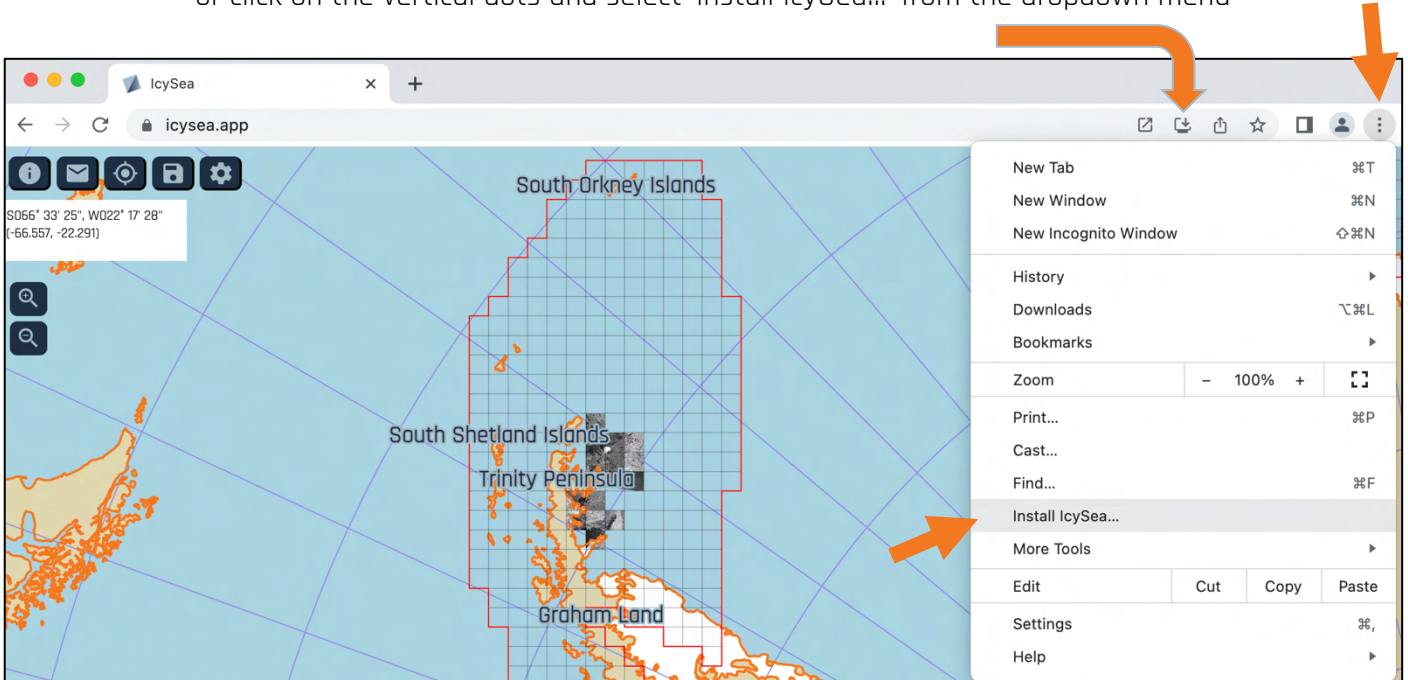
May 2026

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




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## Installation

- Access IcySea via <https://icysea.app> in your preferred browser (we recommend CHROME or EDGE)
- After registration install IcySea as a 'Standalone App' on your device (see image below)
  - either click the 'Install' symbol in the browser bar
  - or click on the vertical dots and select 'Install IcySea...'



## Buttons

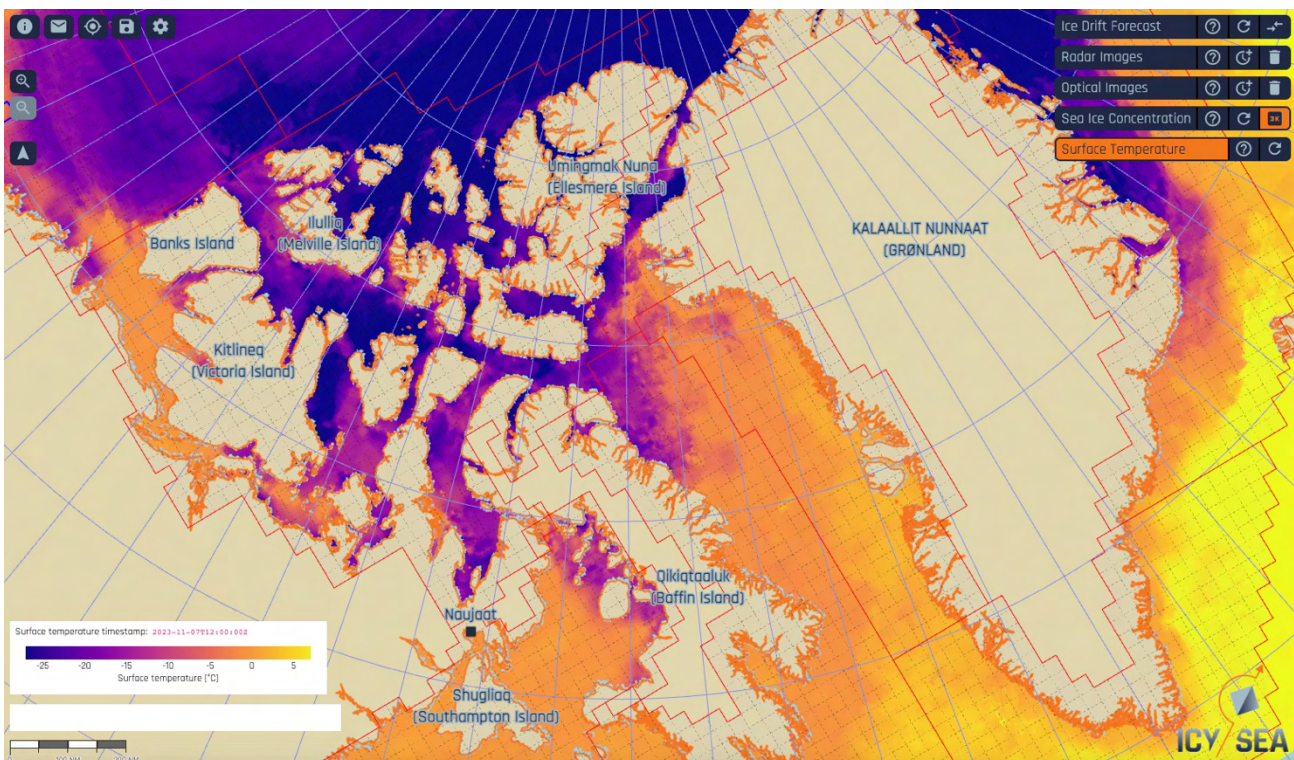
-  Get more information about IcySea, **check for Updates** and **logout**
-  Get in **contact** with the Drift+Noise team for feedback or support
-  Show your current **GPS position** in IcySea
-  **Export** your data from IcySea
-  Open '**Settings**' menu:
  - *Switch between Arctic and Antarctic*
  - *Manage your subscription*
  - *Select source for GPS position*
  - *Set vessel ice class*
  - *Dark mode*
-  Open **User Map Data** menu
-  Rotate the map to **North**
-  Data layer **guidelines** and **interpretation help**
-  **Refresh** data layer (get latest updates)
-  Check **age of satellite image** tiles (Radar and Optical images)
-  **Delete** outdate image tiles (Radar and Optical images)
-  Select **sea ice concentration** layer with **3.125 km resolution**

## Data Layer: Surface Temperature

- Low resolution data layer for strategic planning purposes
- Shows temperature of the ice or ocean surface and complements other layers

- **Resolution:** 0.05 x 0.05°
- **Coverage:** Arctic
- **Updates:** daily - **manually**
- **Limitations:**
  - only available in the Arctic
  - > **use sea ice concentration data for reference**

Data layer details, limitations, interpretation help      Update data



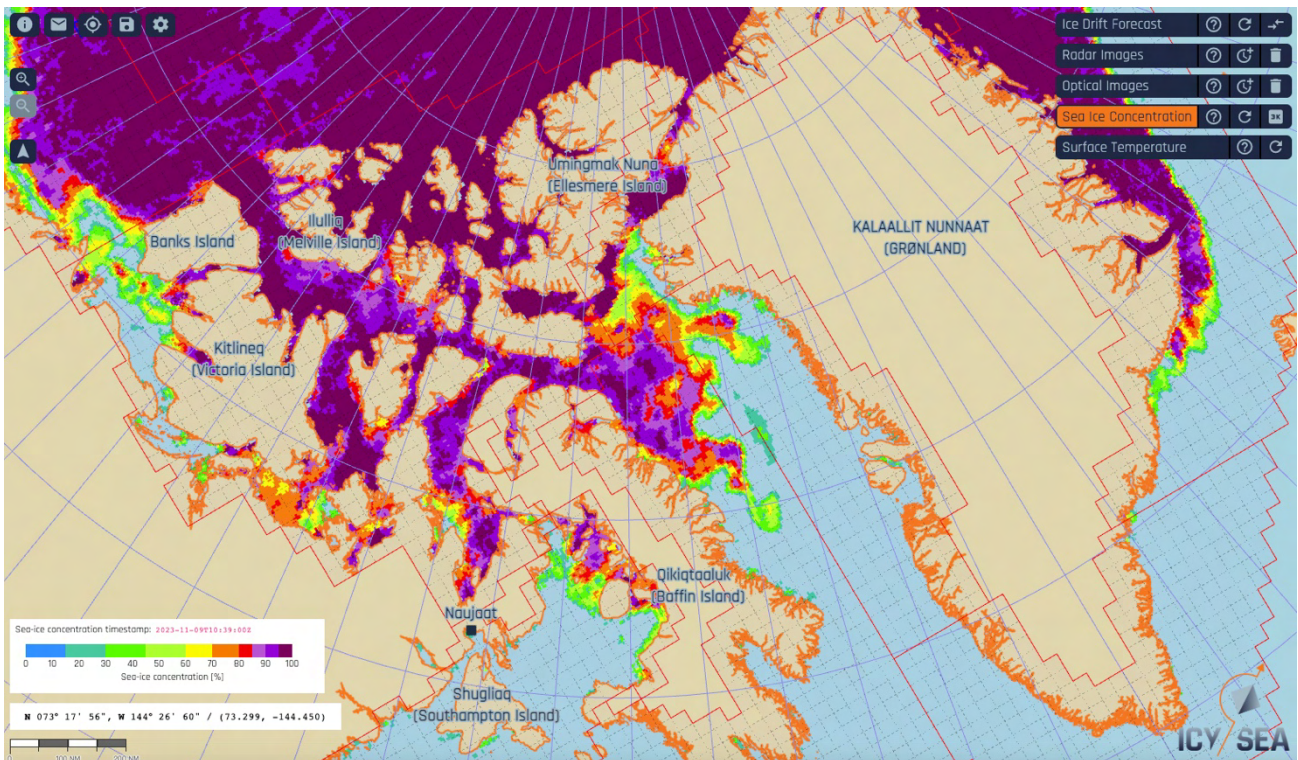
## Data Layer: Sea Ice Concentration

- Low resolution data layer for strategic planning purposes
- Shows how much of an area is covered with ice (%)
  - **Resolution:** available with 6.25 (default) and 3.125 km resolution
  - **Coverage:** Arctic and Antarctic
  - **Updates:** up to 8 times per day - **manually**
  - **Limitations:**
    - *Coastal Bias:* Ice is indicated close to land, even if there is no ice
    - *10% Rule:* Areas covered with 10% or less sea ice are shown as 'no-ice' areas
- > **use satellite data for reference**

Data layer details, limitations, interpretation help

Update data

3.125 km resolution product



## Data Layer: Official Ice Charts

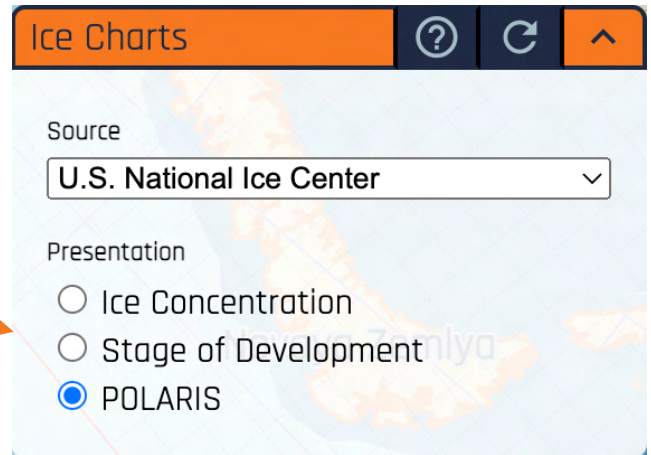
- Ice charts provide official sea ice information following WMO and IMO Polar Code protocols.
- They are analysed and quality controlled by sea ice experts from the national ice services
- Data layers available via the ice charts: sea ice concentration, stage of development, POLARIS risk index
- Current data sources:

- **US National Ice Center (USNIC):** Arctic-wide, Ross Sea (Antarctica), weekly
- **Danish Meteorological Institute (DMI):** Greenland, every 1-3 days
- **US National Weather Service (NWS):** Alaska, daily
- **Canadian Ice Service (CIS):** Canadian Waters, daily and weekly
- **Argentinian Naval Hydrographic Service (SHN):** Western Antarctic, weekly
- **Norwegian Meteorological Institute (MetNo):**
  - Arctic Atlantic sector, week days
  - Western Antarctic, weekly

Data layer details, interpretation help  
Update data

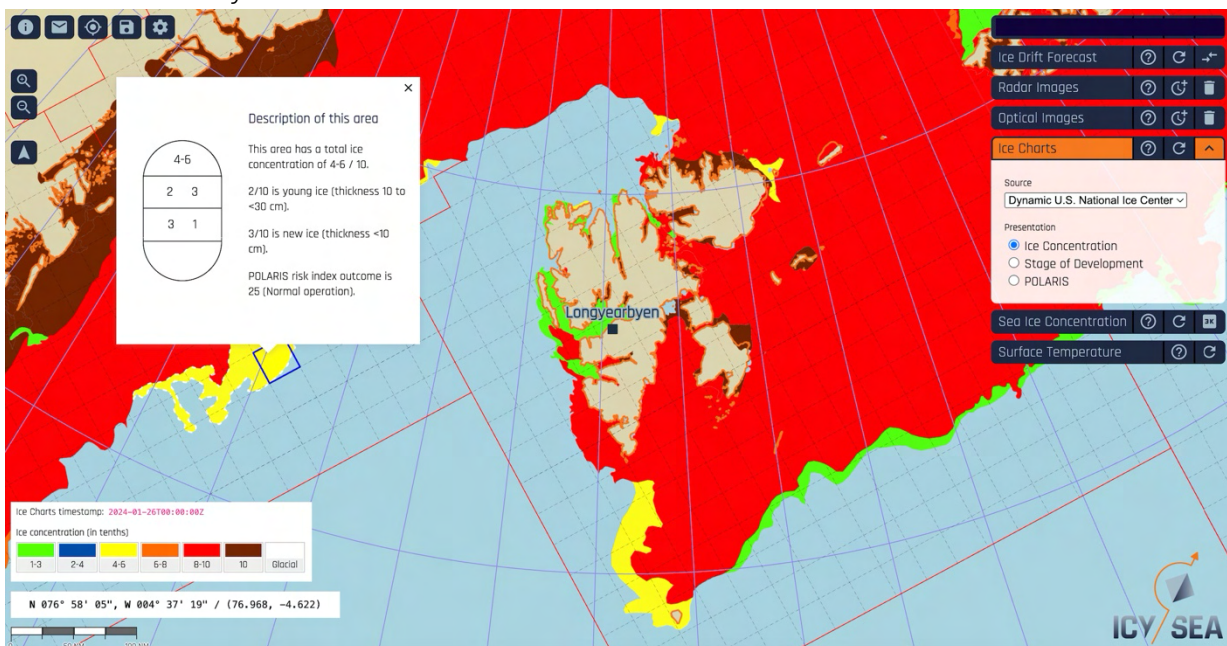
Select preferred data source

Select relevant data layer

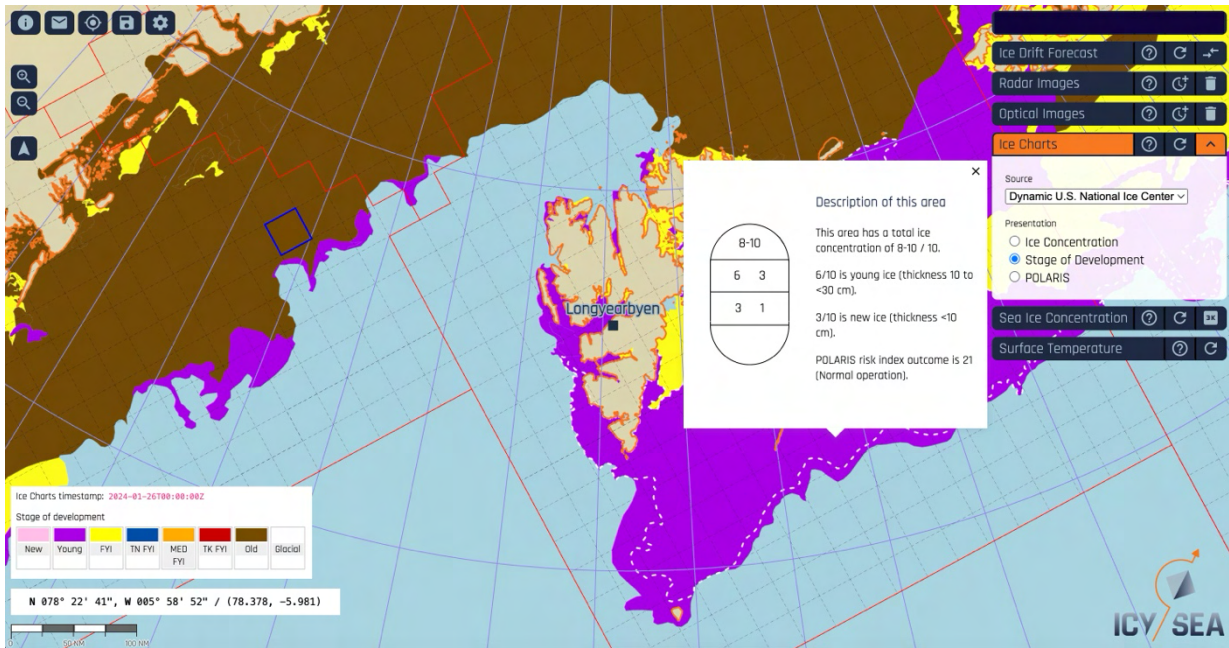


- '**LEFT CLICK**' on a polygon to receive additional information via the official **Egg Code**

Sea ice concentration layer:



Stage of development layer:



## POLARIS Risk Index Outcome (RIO)

- Customize the POLARIS risk index layer by providing the characteristic ice class for your ship via the 'Settings/Ship Properties' menu:



### Ship properties

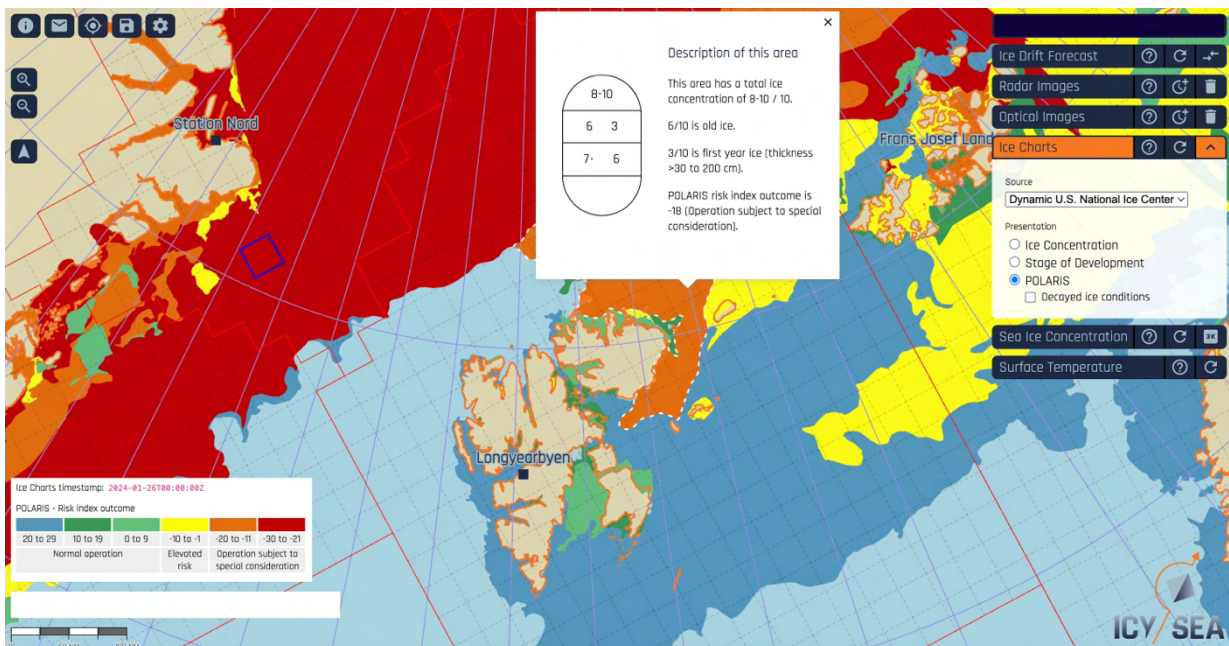
#### Ice class

Please select the ice class of your vessel to automatically calculate POLARIS risk index outcome in the ice charts layer.

PC3: Year-round operation in second-year ice, which may include multi-year ice inclusions.



Select your ship's ice class

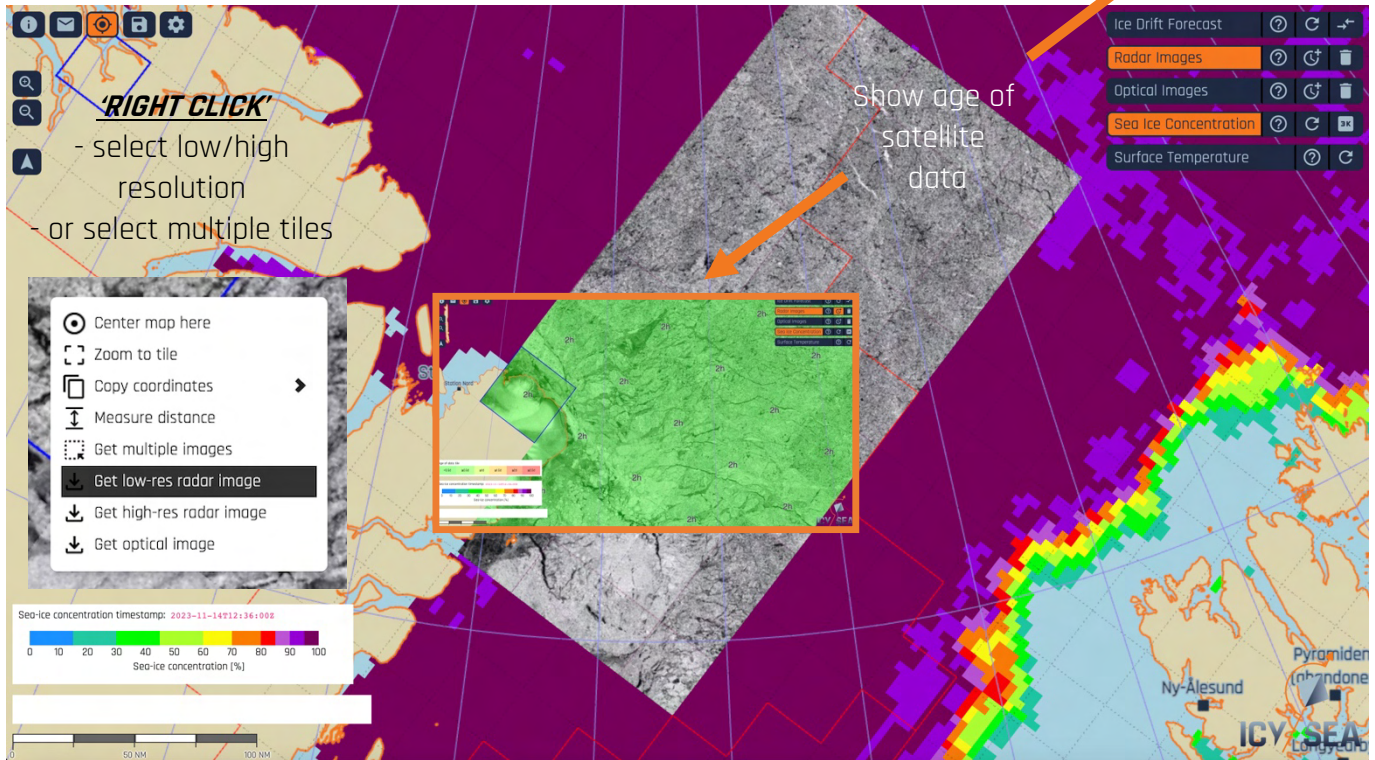


## Data Layer: Satellite Radar Images

- Radar satellite images are able to show individual ice feature, floes and open water areas
  - Radar images in IcySea are a merged product using Sentinel-1 (ESA) and RCM (CSA) imagery
  - Radar images are available 1-2 hours after satellite recording
  - Images **NEVER SHOW CLOUDS**
    - **Resolution:** high (30 meter), low (300 meter)
    - **Coverage:** Arctic and Antarctic
    - **Updates:** every 1 - 5 days - **manually**
    - **Limitations:**
      - *Interpretation:* different grey scales can be confusing
      - *Data coverage:* depending on where you are images are taken every 1 to 5 days, RCM covers the Arctic every day
- > **use optical satellite data for reference**

Data layer details, limitations, interpretation help

Delete data



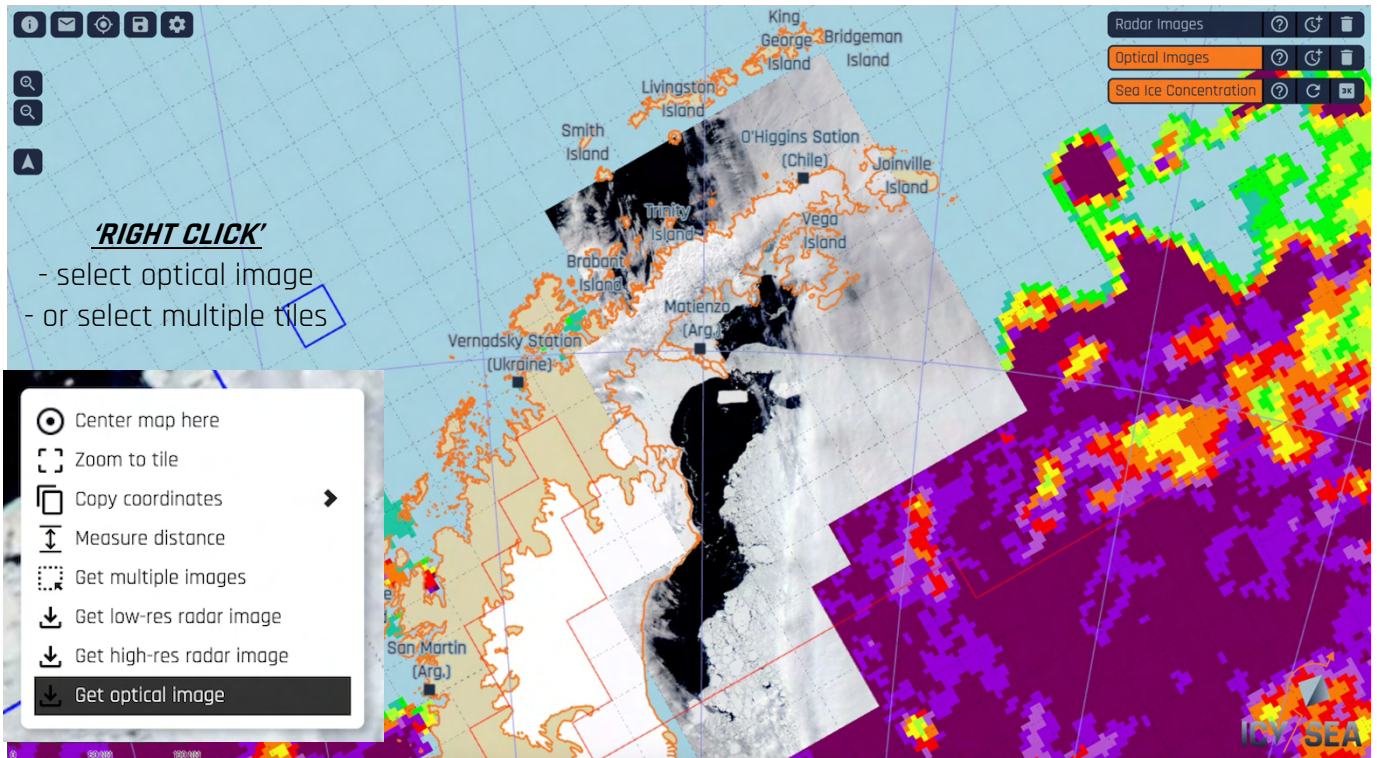
- Please contact us at [support@driftnoise.com](mailto:support@driftnoise.com) for radar image interpretation help

## Data Layer: Satellite Optical Images

- Low resolution optical satellite images (NASA) are able to show individual ice features, floes and open water in cloud-free conditions

- **Resolution:** 250 meter
  - **Coverage:** Arctic and Antarctic
  - **Updates:** daily - **manually**
  - **Limitations:**
    - *Clouds:* when your area of interest is covered by clouds, ice won't be visible
    - *Night:* in darkness (e.g. polar night) the surface is not visible
- > **use radar data for reference**

Data layer details, limitations, interpretation help      Show age of satellite data      Delete data

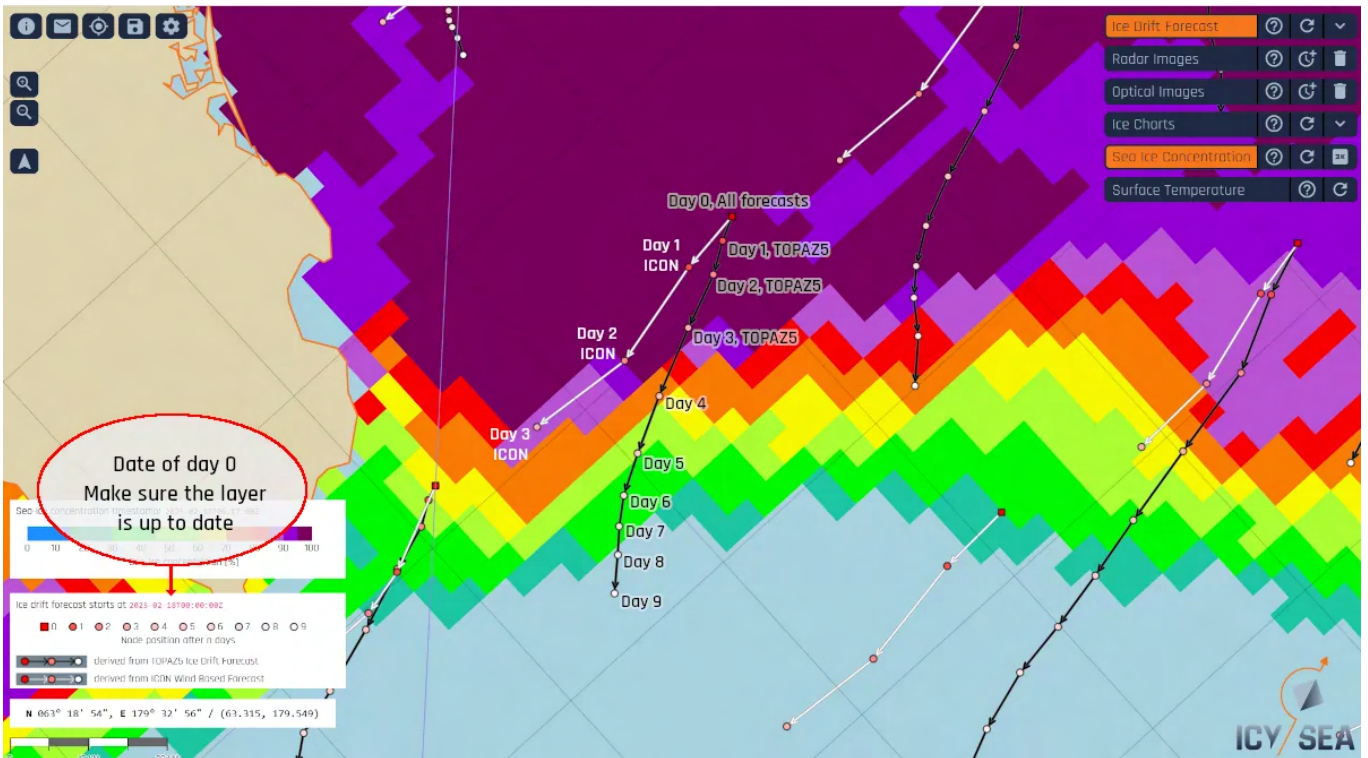
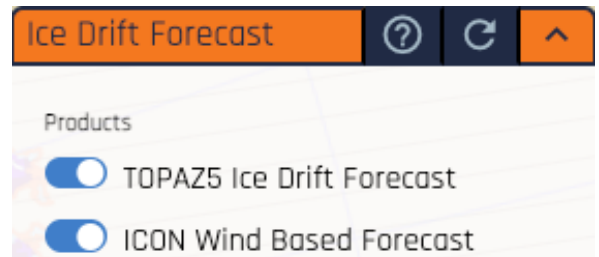


## Data Layer: Sea Ice Drift Forecast


- Predicted pathways of an imaginary ice floe over the next days
  - Two data sources:
    - + 9-day forecast from TOPAZ model (Arctic only)
    - + 4-day forecast based on wind-forced ice drift (ICON wind model)
  - Each dot shows where ice is predicted to be in 1, 2, 3, 4,..., 9 days
    - **Resolution:** distance between two dots shows drift over one day
    - **Coverage:** Arctic-wide (both forecasts) and Antarctic-wide (ICON wind-based drift only)
    - **Updates:** daily - **manually**
    - **Limitations:**
      - *Model uncertainties:* model forecasts come with uncertainty, the longer into the future the ice drift prediction the larger the uncertainty
      - Wind-based forecast neglects ocean currents
- > **update daily to confirm predictions**

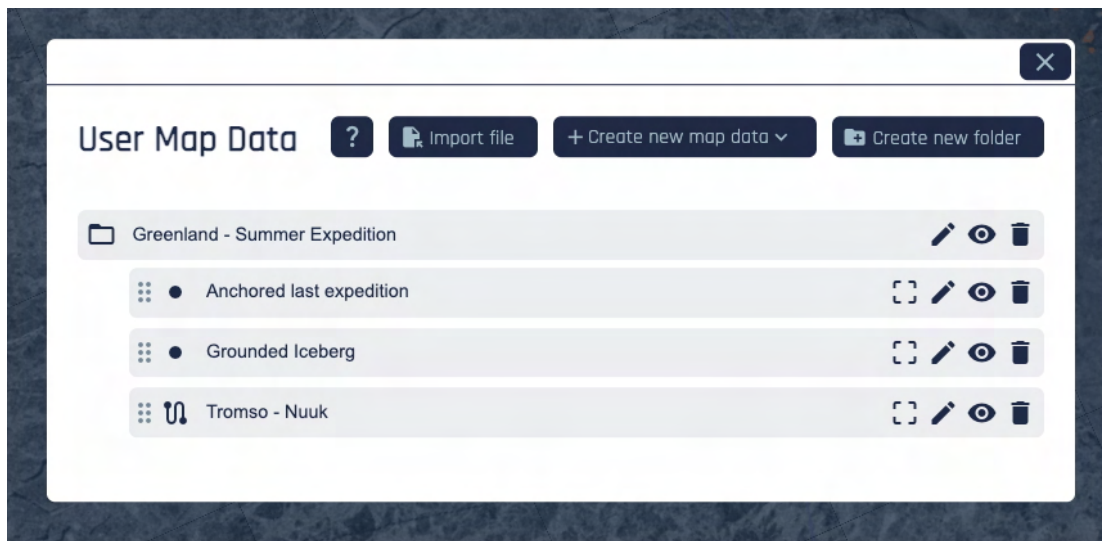
Data layer details, limitations, interpretation help

Update data



## Data Layer: User Map Data

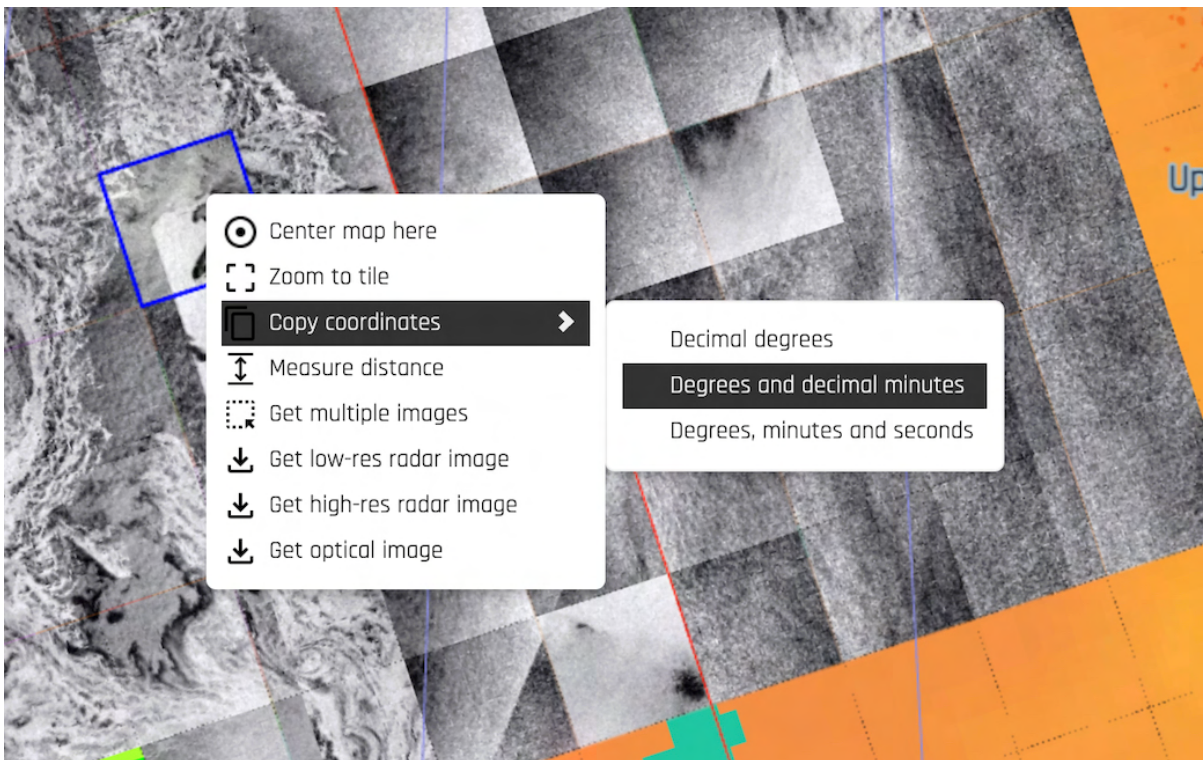
- User Map Data list is the central place to view and manage your personal data, such as:
  - Routes
  - Points of Interest (POI)
- User Map Data can be created and edited on the map or imported from your local device
  - Routes and POIs can be created
    - via the **'RIGHT CLICK'** dropdown menu, or 
    - from within the **User Map Data** menu accessible through



## Functions: Adjust Map and Positioning

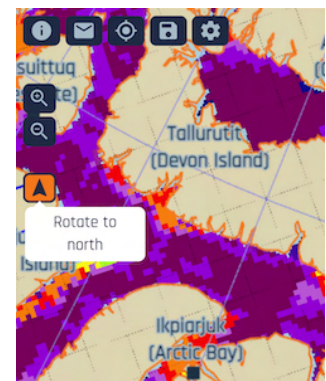
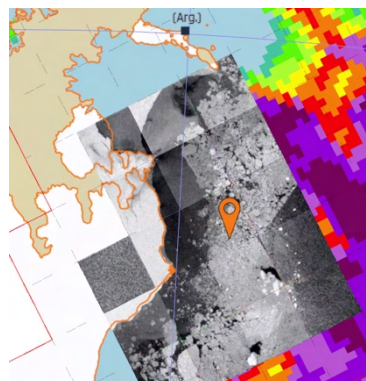
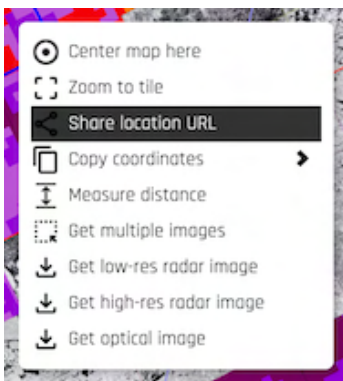
**'RIGHT CLICK'** to open the **'Dropdown Menu'**:

- **'Center Map'**: - centers map around point of the **'RIGHT CLICK'**
- **'Zoom to Tile'**: - zooms into the selected tile
- **'Copy Coordinates'**: - copy coordinates from the point of **'RIGHT CLICK'**  
- paste coordinates wherever you need them



Select **'Share location URL'** to share an exact location with another user:  
(more details below)

**'Rotate Map to North':**



**'User Position':** displays your current position in IcySea:

- open 'Settings' menu and select the source for your GPS Position
  - 'Location Services' for mobile devices (phones and tablets)
  - External GNSS sensor when using a plug-in GPS sensor or the ship's GPS:

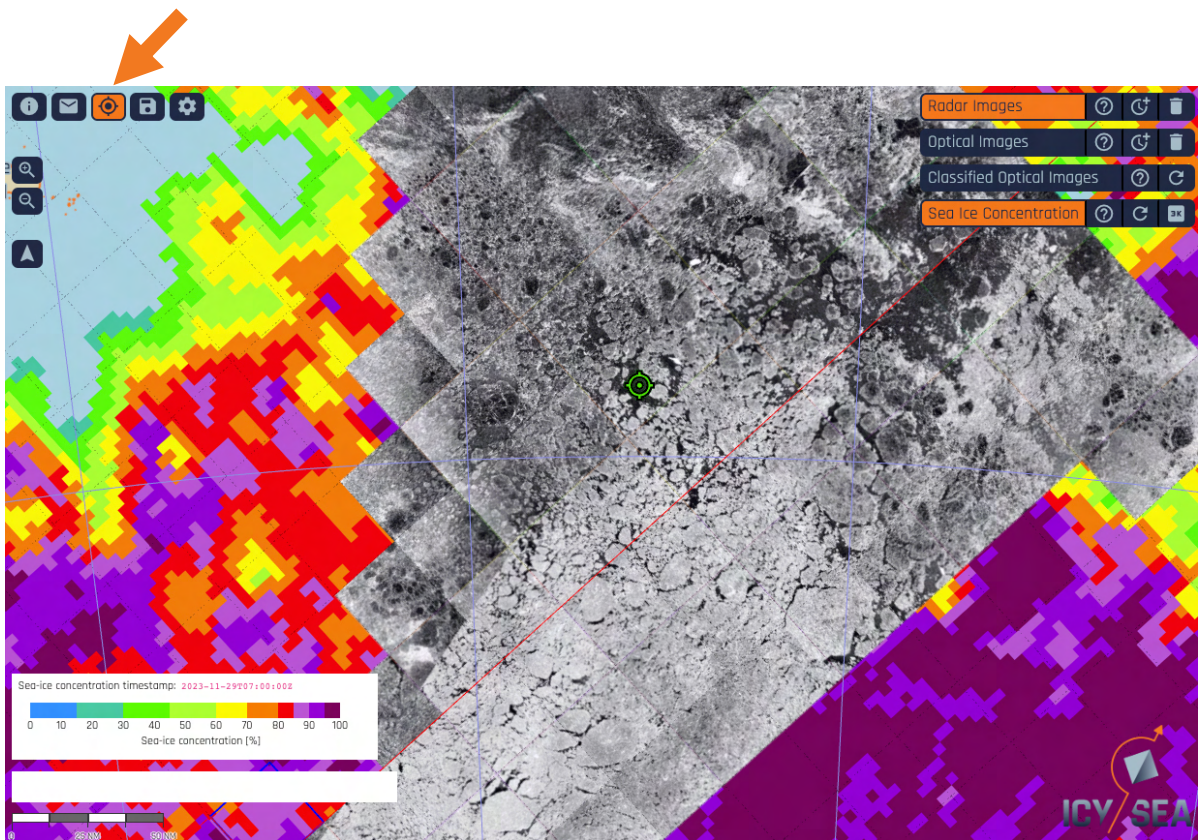


### User position

Please select a location provider which should be used for displaying the user position on the map:

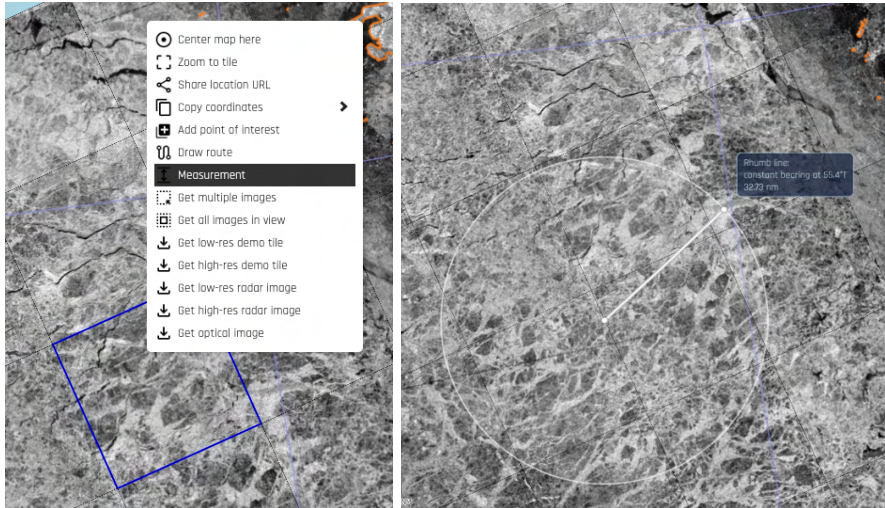
- Location services on your mobile device.
- Use external GNSS device via a (virtual) serial port. Baud rate:

After selecting the GPS data source click the **'User Position'** button to display the position on the map:



## Functions: Measure Distance Tool

Distance measurement starts at position of ***'RIGHT CLICK':***



## Functions: Data Export

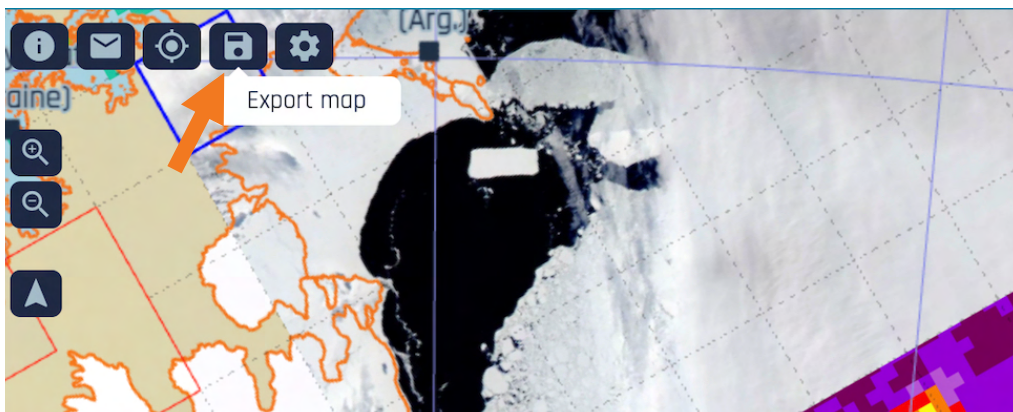
Most data you download via IcySea can also be exported and used in various GIS applications

- Data is exported in *png* format with an associated *aux* file that contains the georeference information
  - *png* and *aux* files are needed to easily '*drag and drop*' the *png* image into your GIS project
- All User Map Data is exported in *Geojson* format
- Routes are also exported in *gpx*, *kmz*, *rtz*, *rt3* format for quick integration into ship's navigation system
- Downloading / Exporting SAR imagery from IcySea is not possible due to licensing agreements and technical constraints. If you would like to obtain SAR imagery yourself you can register for accounts with the Canadian Space Agency for RCM imagery:

(<https://www.asc-csa.gc.ca/eng/satellites/radarsat/access-to-data/>),

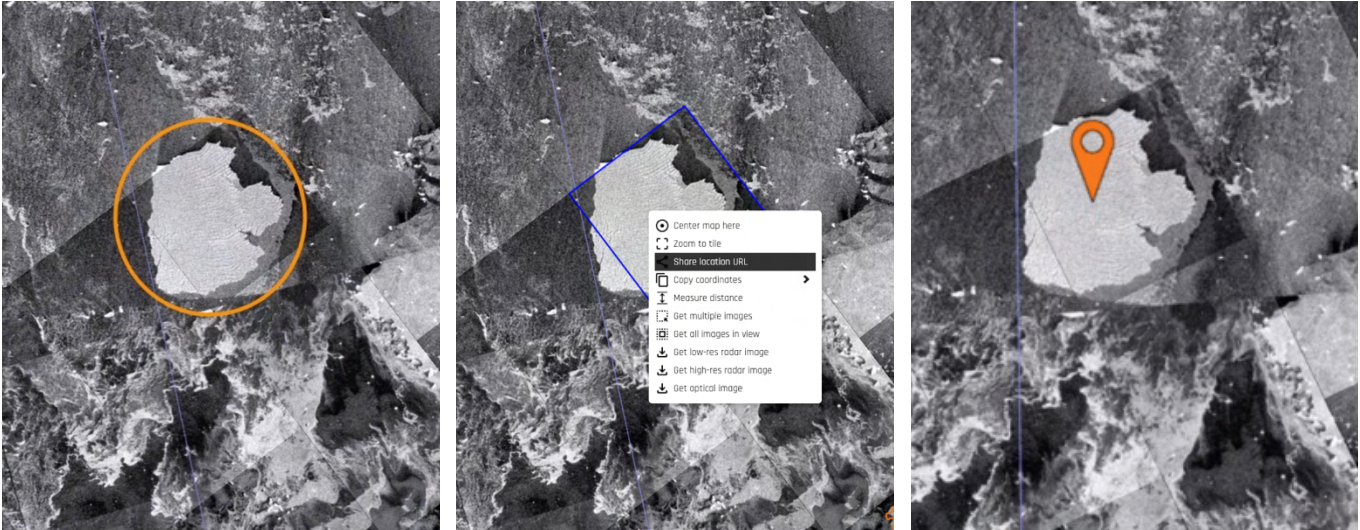
and with the Copernicus Dataspace to obtain Sentinel-1 imagery:

(<https://www.copernicus.eu/en/access-data>).



## Functions: Share location URL

- Mark ice features and share the location URL with colleagues or the IcySea support team for assistance
- Select feature, ***RIGHT CLICK*** and select '**Share location URL**', paste link into a messenger and share it
- Recipients can paste the link into their browser to see a pin at the position you marked in IcySea





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Polar Services

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Take Part in the Development!

Please share IcySea with your colleagues.

Test the app and

SEND US YOUR FEEDBACK!

[support@driftnoise.com](mailto:support@driftnoise.com)



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