SEA Observations ICE

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GETTING STARTED

The sea ice observations are used to characterise the synoptic pack ice conditions as thoroughly as possible. Follow through this tutorial to learn how to correctly conduct sea ice observations, and use these “handy hints” to pick up useful tips on getting it right!

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SHORTCUTS

You can use the “tutorial shortcuts” on the “menu” page to quickly access specific points of the tutorial.

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GET A FEEL FOR IT

Observe the ice for a few minutes to get a 'feel' for ice conditions before committing the details to paper. Keep a record of any biases that may affect your observations. For example, if the ship preferentially follows leads or areas of thin ice cover, this will cause a bias in your data.

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TIME, DATE & POSITION

You can usually get the date, time, latitude and longitude from the navigation equipment on the bridge.

The latitude and longitude can be recorded as either degrees and minutes, or as decimal degrees, but this must be consistent for all observations.

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TOTAL CONCENTRATION (c)

In regions of very high ice concentration (95-99%) where only very small cracks are present, the concentration should be recorded as 10 and the open water classification should be 1 (small cracks). Regions of complete ice cover (100%) will be distinguished by recording an open water classification of 0 (no openings).

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CATEGORIES & CONCENTRATIONS

You must ensure that the ice concentration values for each ice type, when added together, equal the total ice concentration. For example:

Primary	**4/10**
Secondary	**3/10**
Tertiary	**2/10**

TOTAL ice concentration 9/10

Not every observation will have three distinct ice thickness categories. Some may have only one or two distinct ice categories.

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TYPE (ty)

Ice categories are defined by either their morphology or their thickness. Ice categories defined by their thickness are classified by the 'undeformed' or 'level' thickness of the floes. The thickness of ice in ridged areas is determined from observations of the surface topography as described later in this tutorial.

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THICKNESS (z)

Record only the thickness of level ice, since the thickness of ridges cannot accurately be estimated from the ship. If floes are ridged, estimate the thickness of the level ice between ridges, and record this value.

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FLOE SIZE (f)

Use the length of the ship as a guide for estimating floe size. The ship's radar may be useful for determining the size of large floes. It is not always clear how the boundary of a floe is defined. Where smaller floes have been cemented together to form large floes, record the larger dimension, but with a comment to indicate that the smaller floes were visible. Where two floes have converged and ridged, take the floe size as the combined size of the two.

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TOPOGRAPHY (t)

Due to the vertical perspective from the ship's bridge, it is easy to under-estimate ridge heights. Check your values by occasionally making observations from a lower level on the ship or when you are working on the ice.

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TOPOGRAPHY

AREAL COVERAGE (X)

It is easy to over-estimate the areal coverage of ridges by looking too far from the ship, when you will only see the ridge peaks and not the level ice in between them. Confine you observations to ridging in the immediate vicinity of the ship.

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TOPOGRAPHY

AVERAGE SAIL HEIGHT (Y)

Since it is impossible to differentiate ridge sails from adjoining snow drifts, your estimate of the areal extent of ridging will necessarily include the region covered by snow. This error is accounted for in the data analysis.

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TYPE (s)

Snow cover is accumulated over time so the total snow thickness may comprise numerous different snow types. In this case, record the snow type for the surface snow, but record the total snow thickness including all snow types.

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THICKNESS (sz)

Estimate snow thickness in the same way as ice thickness, when floes turn sideways along the ship's hull.

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OPEN WATER (O/W)

The open water code is not a value in tenths. It is a code that specifically relates to the distribution of open water in the pack.

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