

## **Observations of sea ice and snow by local experts at coastal locations in Alaska**

### How should the observations be made?

Because we are interested in what is important about ice and snow for the people in the village, the observations should include anything that the local observer considers important or noteworthy. This can include just general observations about weather and ice conditions but should also include mention of activities that happen on the ice or for which the ice is important (for example, when people are out hunting on the ice, or fishing under the ice). We are interested in the different ice types as well and if it's not clear what the correct English term for a type of ice is, then it's important to have an accurate Iñupiaq term given instead of the English name (or in addition to the English name).

### How often should observations be made?

Having an accurate date for the different observations is very important. Because of that, it is best to write down the observation on the same day that it was made, rather than wait for the end of the week to write a summary. While not every day may have an event that is noteworthy, the notes need not be very long and it is good to have regular daily observations, even if on some days the notes are very brief. For example, on a day in which no noteworthy events or changes take place, one might simply write something like “today no changes in the ice or weather were observed – the wind remains out of the South.”

## What should be observed?

The observations should include anything that relates to the sea ice or snow and is considered important or noteworthy by the observer from the perspective of hunting, dangerous ice situations, the yearly cycle, under ice ocean currents, animals associated with the ice, environmental indicators of change or coming events (ex. migratory birds) and other things important to the people in the village. Based on these observations we would like to see whether we can learn more from satellite images or other measurements that we make using radar or instruments on the ice that can help people travel on the ice or use the ice safely. Because of that, it is important to note down if certain activities that rely on the ice cover for transportation or that are affected by the ice take place.

Observations on some of the following events are of particular interest to us:

### Snow

- first snow fall (does it stay on the ground?)
- when are there big snow fall or snow drift events? Does the ice flood in some areas during such events?
- any events such as freezing rain that cover the ice or strong storms
- when does the snow first start to melt?
- when is the snow gone on the land and on the sea ice?

### Freeze-up

- start of ice freeze-up on lakes and lagoons
- first new ice forming on the ocean (what type, is it just sheets or is it grease ice or pancakes?)
- appearance of old ice
- when does the first landfast ice appear?
- when is the landfast ice stable to travel on?

### Events during the winter

- what conditions are favorable for activities on the ice?
- when does part of the landfast ice break-out during the winter?  
how close to the beach and over what distance along the shore does it break out?
- when and where do big ridges form in the landfast ice?
- is there any old, fresh ice that is part of the landfast ice?
- occurrence of ice push events (ivu); how big and over what distance?

### Events in spring and summer

- what conditions are favorable for activities on the ice?
- when does the ice start to melt?
- when do melt ponds appear on the ice surface?
- when is the snow on the ice gone?
- when does the first open water appear along the shore?
- when does the landfast ice go out and how does this happen (all in one piece, grounded ice left behind)?
- when does ice come back in close to shore after break-up

### Other events

- weather associated with changes in the ice or ice events
- animals associated with the ice
- activities on the ice (for example, fishing, hunting seals and other activities)
- indicators of changes that will soon take place with the ice or weather