Sea Ice variability is a key indicator of climate variability and change in the polar regions. The primary parameters that define the state of sea ice include: concentration, area and extent, ice type, motion, deformation, age, thickness, and volume. The presence of sea ice strongly modifies surface waves and air-sea exchanges of heat, momentum, moisture and gases. Sea ice has a significant impact on the Earth’s albedo and hence changes in Sea Ice impact the global energy budget. The properties of many water masses of the global ocean and strongly influenced determined freezing and melting processes in sea ice regions.

<table>
<thead>
<tr>
<th>ECV Product</th>
<th>DEFINITION</th>
<th>REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sea Ice Concentration</strong></td>
<td>Fraction of area covered with sea ice.</td>
<td>Weekly</td>
</tr>
<tr>
<td><strong>Sea Ice Extent</strong></td>
<td>Sea ice extent is the area of sea with a specified minimum fraction of ice-cover, usually 15%.</td>
<td>Weekly</td>
</tr>
<tr>
<td><strong>Sea Ice Thickness</strong></td>
<td>Average thickness from sea ice surface-to-underside in the ice-covered fraction of an area.</td>
<td>Monthly</td>
</tr>
<tr>
<td><strong>Sea Ice Drift</strong></td>
<td>Rate of movement of Sea Ice due to winds, currents or other forces.</td>
<td>Weekly</td>
</tr>
</tbody>
</table>

1 Current Products and Requirements as in the Implementation Plan 2016 (GCOS-200). GCOS is reviewing and will update the requirements until 2022. More information on: gcos.wmo.int and climedata.wmo.int.
This list provides sources for openly accessible data sets with worldwide coverage for which metadata is available. It is curated by the respective GCOS ECV Steward(s). The list does not claim to be complete. Anyone with a suitable dataset who would like it to be added to this list should contact GCOS.

- National Snow & Ice data Center (NSIDC)
  http://nsidc.org/data/seaice
- Met Office National Centre for Ocean Forecasting (NCOF) Operational Sea Surface Temperature and Sea Ice Analysis (OSTIA)
- Copernicus Marine Environment Monitoring Service
  http://marine.copernicus.eu/
- EUMETSAT Ocean and Sea Ice SAF
  http://www.osi-saf.org/?q=content/sea-ice-products
- ECV Inventory by the CEOS/CGMS Working Group on Climate (WGclimate)
  http://climatemonitoring.info/ecvinventory

Figure: Sea Ice Concentration for the a)Arctic and b) Antarctic in June 2018.
Source: http://nsidc.org/data/seaice_index

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