

# Metadata

| Field                                   | Value   |
|---|---|
| <b>Dataset Name</b>                     | Sea-ice edge phytoplankton bloom  |
| <b>Dataset General Type</b>             | Phytoplankton bloom   |
| <b>Dataset Type</b>                     | Dataset   |
| <b>Dataset Level</b>                    | 1.2   |
| <b>Program Website</b>                  | <a href="https://umanitoba.ca/earth-observation-science/research/hudson-bay-system-study-baysys">https://umanitoba.ca/earth-observation-science/research/hudson-bay-system-study-baysys</a> |
| <b>Keyword Vocabulary</b>               | Polar Data Catalogue  |
| <b>Keyword Vocabulary URL</b>           | <a href="https://www.polardata.ca/pdcinput/public/keywordlibrary">https://www.polardata.ca/pdcinput/public/keywordlibrary</a>   |
| <b>Theme</b>                            |   |
| <b>Dataset Status</b>                   | Complete  |
| <b>Maintenance and Update Frequency</b> | As needed   |
| <b>Dataset Last Revision Date</b>       | 2021-02-04  |
| <b>Dataset DOI</b>                      | 10.34992/1e0k-4m16  |
| <b>Metadata Creation Date</b>           | 2022  |

| Field                    | Value  |
|--------------------------|--|
| <b>Publisher</b>         | CanWIN   |
| <b>Dataset Authors</b>   |  |
| <b>Dataset Authors 1</b> |  |
| <b>Name</b>              | Barbedo, Lucas   |
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| <b>Affiliation</b>       | Université du Québec à Rimouski                                    |
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|                          | ORCID  |
|                          | <a href="http://orcid.org/">http://orcid.org/</a>                  |
| <b>Contributors</b>      |  |
| <b>Contributors 1</b>    |  |
| <b>Name</b>              | Belanger, Simon  |
| <b>Role</b>              | Researcher   |
| <b>Email</b>             |  |

| Field                             | Value  |
|-----------------------------------|--|
| <b>Affiliation</b>                | Université du Québec à Rimouski                                    |
| <b>ORCID ID</b>                   | ORCID  |
|                                   | ORCID  |
|                                   | <a href="http://orcid.org/">http://orcid.org/</a>                  |
| <b>Contributors 2</b>             |  |
| <b>Name</b>                       | Tremblay, Jean-Eric  |
| <b>Role</b>                       | Researcher   |
| <b>Email</b>                      |  |
| <b>Affiliation</b>                | Université Laval   |
| <b>ORCID ID</b>                   | ORCID  |
|                                   | ORCID  |
|                                   | <a href="http://orcid.org/">http://orcid.org/</a>                  |
| <b>Project Data Curator</b>       | Lucas Barbedo  |
| <b>Project Data Curator email</b> | <a href="mailto:lucasbarbedo@gmail.com">lucasbarbedo@gmail.com</a> |

| Field   | Value  |
|---|--|
| <b>Project Data Curator Affiliation</b>   | Université du Québec à Rimouski                |
| <b>Dataset Collection Start Date</b>  | 1998-01-01                                     |
| <b>Dataset Collection End Date</b>  | 2021-11-11                                     |
| <b>Sample Collection</b>  |  |
| <b>Activity Collection Type</b>   |  |
| <b>Preferred citation</b>   |  |
| <b>Analytical Instrument</b><br><br><b>Analytical Instrument 1</b><br><br><div> <b>Analytical Instrument Name</b><br/><br/> <b>Standardized Analytical Instrument Name</b><br/><br/> <b>Analytical Instrument Identifier Id</b><br/><br/> <b>Analytical Instrument Title Type</b> </div> <div> Alternative Title </div> <div> <b>Analytical Instrument Identifier Type</b> </div> |  |
| <b>Analytical Method</b>  |  |
| <b>Licence Name or Copyright Statement</b>  | Creative Commons Attribution 4.0 International |
| <b>Copyright Statement</b>  |  |
| <b>Licence Type</b>   | Open   |
| <b>Embargo Date</b>   |  |

| Field                        | Value  |
|------------------------------|--|
| <b>Licence URL</b>           | <a href="https://spdx.org/licenses">https://spdx.org/licenses</a>  |
| <b>Terms of Access</b>       | <p>CanWIN datasets are licensed individually, details for each licence used can be found using the Licence URL link provided with each dataset. By accessing this Web site and Database, you are agreeing to be bound by CanWIN's Terms of Use, all applicable laws and regulations, and agree that you are responsible for compliance with any applicable local laws. If you do not agree with any of these terms, do not use this site. Any claim relating to this web site shall be governed by the laws of the Province of Manitoba without regard to its conflict of law provisions</p>   |
| <b>Terms of Use</b>          | <p>This project is governed by CanWIN's Terms of Use. You can view the full terms here (<a href="https://lwbin.cc.umanitoba.ca/wp-content/uploads/2019/10/CanWIN_DataPolicy_Nov2019.pdf">https://lwbin.cc.umanitoba.ca/wp-content/uploads/2019/10/CanWIN_DataPolicy_Nov2019.pdf</a>). Citation: The Data User should properly cite the Data Set in any publications or in the metadata of any derived data products that were produced using the Data Set. Acknowledgement: The Data User should acknowledge any institutional support or specific funding awards referenced in the metadata accompanying this dataset in any publications where the Data Set contributed significantly to its content. Acknowledgements should identify the supporting party, the party that received the support, and any identifying information such as grant numbers. Notification: The Data User should notify the Data Set Contact when any derivative work or publication based on or derived from the Data Set is distributed. Notification will include an explanation of how the Data Set was used to produce the derived work. Collaboration: The Data Set has been released in the spirit of open scientific collaboration. Data Users are thus strongly encouraged to consider consultation, collaboration and/or co-authorship with the Data Set Creator.</p> |
| <b>Awards</b>                |  |
| <b>Related Resources</b>     |  |
| <b>Related Resources 1</b>   |  |
| <b>Related Resource Name</b> |  |

| Field                                      | Value           |
|--|-----------------|
| <b>Resource Code</b>                       |                 |
| <b>Identifier Type</b>                     |                 |
| <b>Relationship To This Dataset</b>        |                 |
| <b>Resource Type</b>                       | Online Resource |
| <b>Type</b>                                |                 |
| <b>Series Name</b>                         |                 |
| <b>Publications</b>                        |                 |
| <b>Publications 1</b>                      |                 |
| <b>Publication Name</b>                    |                 |
| <b>Identifier Code</b>                     |                 |
| <b>Identifier Type</b>                     |                 |
| <b>Relationship to this dataset</b>        |                 |
| <b>Resource Type</b>                       | Online Resource |
| <b>Publication Type</b>                    |                 |
| <b>Spatial regions</b>                     | hudson-bay      |
| <b>Spatial extent West Bound Longitude</b> |                 |
| <b>Spatial extent East Bound Longitude</b> |                 |
| <b>Spatial extent South Bound Latitude</b> |                 |
| <b>Spatial extent North Bound Latitude</b> |                 |

# Data and Resources

| Field | Value   |
|-------|---|
| URL   | <a href="https://canwin-datahub.ad.umanitoba.ca/data/dataset/49695e4c-2b6d-4144-8939-fe680eebf4c7/resource/203338b2-dbc3-4a8c-b04e-ea94d0131ebc/download/elementa_barbedo_etal2020__chlaiez_tr_hudsonbay.mat">https://canwin-datahub.ad.umanitoba.ca/data/dataset/49695e4c-2b6d-4144-8939-fe680eebf4c7/resource/203338b2-dbc3-4a8c-b04e-ea94d0131ebc/download/elementa_barbedo_etal2020__chlaiez_tr_hudsonbay.mat</a> |
| Name  | Sea-ice edge phytoplankton bloom  |

## Description

Satellite-derived sea-ice retreat timing (tR) and maximum chlorophyll-a concentration in the ice edge zone between 1998 and 2018. Sea ice concentration (SIC) was obtained from the National Snow and Ice Data Center. It is based on daily passive microwave radiometry processed using the Bootstrap algorithm (Comiso, 2000) at 25 km resolution. The Bootstrap technique clusters the multichannel passive microwave sensors: Scanning Multichannel Microwave Radiometer on the Nimbus-7 satellite, Special Sensor Microwave/Imager and Special Sensor Microwave Imager/Sounder from the Defense Meteorological Satellite Program's satellites, and the Advanced Microwave Scanning Radiometer (Comiso et al., 1997). SIC was interpolated onto the same Chla grid using the nearest neighborhood scheme implemented in Matlab. Multi-sensor merged chlorophyll-a concentration (Chla) Level-3 (i.e., binned and mapped) 8-day composites from the Globcolour Project (<http://www.globcolour.info/>) were used as a proxy for phytoplankton biomass.

Globcolour products have a spatial resolution of 4.63 km and cover the 1998–2018 period. The merged product was selected to improve the spatial-temporal coverage diminishing gaps due to cloud cover and sea-ice coverage (Maritorena et al., 2010). The binning methodology combines the normalized water-leaving radiances from different ocean color sensors whenever they are available, which includes SeaWiFS (1998–2010), MODIS-Aqua (2002–2018), Medium-Resolution Imaging Spectrometer (MERIS: 2002–2011), and Visible Infrared Imaging Radiometer Suite (VIIRS: 2012–2018). [Chla] was estimated from normalized water-leaving radiances merged using the Garver-Siegel-Maritorena (GSM) semi-analytical model (Garver and Siegel, 1997; Maritorena et al., 2002). To assess the impacts of sea-ice retreat timing on marginal ice zone phytoplankton blooms (also refers to phytoplankton spring blooms or ice-edge blooms), we analyzed both Chla and SIC variability in parallel. The method is similar to that of Perrette et al. (2011), which was also adopted by Lowry et al. (2014) and Renaut et al. (2018). The sea-ice retreat, tR, is defined as the day at which SIC is below 10% for at least 24 days. This time interval is longer than the 20 days applied by Perrette et al. (2011) and Renaut et al. (2018) and the 14 days by Lowry et al. (2014) because we used 8-day composites instead of daily maps. However, to avoid sub-pixel contamination in ice-infested regions near the ice edge (Bélanger et al., 2013), we opted to be more conservative by applying a 10% threshold on SIC, as did Perrette et al. (2011) and Renaut et al. (2018) instead of 50% as applied by Lowry et al. (2014). The maximum Chla observed in the ice edge zone was extracted for each pixel for each year, yielding one map of MIZ Chla per year. \_\_Citation:\_\_ Barbedo L, Bélanger S, Tremblay J-É. 2020. Climate control



| Field                    | Value   |
|--------------------------|---|
|                          | of sea-ice edge phytoplankton blooms in the Hudson Bay system. Elem Sci Anthr 8(1). doi: 10.1525/elementa.039   |
| <b>Format</b>            | mat   |
| <b>Resource Category</b> | data  |
| <b>URL</b>               | <a href="https://canwin-datahub.ad.umanitoba.ca/data/dataset/49695e4c-2b6d-4144-8939-fe680eebf4c7/resource/423691a6-cf14-448e-8373-c409151b66ed/download/supplementary_info_barbedos.pdf">https://canwin-datahub.ad.umanitoba.ca/data/dataset/49695e4c-2b6d-4144-8939-fe680eebf4c7/resource/423691a6-cf14-448e-8373-c409151b66ed/download/supplementary_info_barbedos.pdf</a> |
| <b>Name</b>              | Supplementary metadata  |
| <b>Description</b>       | Supplementary information related to the Sea-Ice Edge Phytoplankton Bloom Dataset   |
| <b>Format</b>            | PDF   |
| <b>Resource Category</b> | documents   |