Metadata

Field	Value
Dataset Name	Sea-ice edge phytoplankton bloom
Dataset General Type	Phytoplankton bloom
Dataset Type	Dataset
Dataset Level	1.2
Program Website	https://umanitoba.ca/earth-observation-science/research/hudson-bay-system-study-baysys
Keyword Vocabulary	Polar Data Catalogue
Keyword Vocabulary URL	https://www.polardata.ca/pdcinput/public/keywordlibrary
Theme	
Title	Cryosphere
URL	https://canwin-datahub.ad.umanitoba.ca/data/group/cryosphere
Title	Marine
URL	https://canwin-datahub.ad.umanitoba.ca/data/group/marine
Title	Marine Habitats
URL	https://canwin-datahub.ad.umanitoba.ca/data/group/marine-habitats
Title	Microbe biomass and diversity

Field	Value
URL	https://canwin-datahub.ad.umanitoba.ca/data/group/microbe-biomass-and-diversity
Title	Sea Ice
URL	https://canwin-datahub.ad.umanitoba.ca/data/group/sea-ice
Dataset Status	Complete
Maintenance and Update Frequency	As needed
Dataset Last Revision Date	2021-02-04
Dataset DOI	10.34992/1e0k-4m16
Metadata Creation Date	2026
Publisher	CanWIN
Dataset Authors	
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	http://orcid.org/
Contributors 2	
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Role	Researcher

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Project Data Curator Affiliation	Université du Québec à Rimouski
Dataset Collection Start Date	1998-01-01
Dataset Collection End Date	2021-11-11
Sample Collection	
Activity Collection Type	
Preferred citation	
Analytical Instrument	
Analytical Instrument 1	
Analytical Instrument Name	

Field	Value
Standardized Analytical Instrument Name **Analytical Instrument Identifier Id** **Analytical Instrument Title Type**	Alternative Title
Analytical Instrument Identifier Type	
Analytical Method	
Licence Name or Copyright Statement	Creative Commons Attribution 4.0 International
Copyright Statement	
Licence Type	Open
Embargo Date	
Licence URL	https://spdx.org/licenses
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Field	Value
Terms of Use	This project is governed by CanWIN's Terms of Use. You can view the full terms here (https://lwbin.cc.umanitoba.ca/wp-content/uploads/2019/10/CanWIN_DataPolicy_Nov2019.pdf). 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.
Awards	
Related Resources	
Related Resources 1	
Related Resource Name	
Resource Code	
Identifier Type	
Relationship To This Dataset	
Resource Type	Online Resource
Type	
Series Name	
Publications	

Field	Value
Publications 1	
Publication Name	
Identifier Code	
Identifier Type	
Relationship to this dataset	
Resource Type	Online Resource
Publication Type	
Spatial regions	hudson-bay
Spatial extent West Bound Longitude	
Spatial extent East Bound Longitude	
Spatial extent South Bound Latitude	
Spatial extent North Bound Latitude	
Dataset alternative geospatial point	

Data and Resources

Field	Value
URL	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
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 Multi-channel 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 clorophyll-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 spa- tial 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 (Be´langer 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
Format	mat
Automatically generate Data Dictionary	
Resource Category	data
URL	https://canwin-datahub.ad.umanitoba.ca/data/dataset/49695e4c-2b6d-4144-8939-fe680eebf4c7/resource/423691a6-cf14-448e-8373-c409151b66ed/download/supplementary_info_barbedos.pdf
Name	Supplementary metadata
Description	Supplementary information related to the Sea-Ice Edge Phytoplankton Bloom Dataset
Format	PDF
Automatically generate Data Dictionary	
Resource Category	documents