

# Metadata

<b>Dataset Name</b>	Northern Hemisphere Extratropical Cyclone Tracks from ERA-5
<b>Dataset General Type</b>	cyclone tracks
<b>Dataset Type</b>	Dataset
<b>Dataset Level</b>	1.1
<b>Program Website</b>	
<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>	2020-10-13
<b>Dataset DOI</b>	10.34992/ebnw-s681
<b>Metadata Creation Date</b>	2024
<b>Publisher</b>	CanWIN
<b>Dataset Authors</b>	
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<b>Type of Name</b>	Personal

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<b>Project Data Curator Affiliation</b>	Centre for Earth Observation Science - University of Manitoba
<b>Dataset Collection Start Date</b>	1979-01-01
<b>Dataset Collection End Date</b>	2020-10-13
<b>Sample Collection</b>	
<b>Activity Collection Type</b>	
<b>Preferred citation</b>	Copernicus Climate Change Service (C3S). (2017). ERA5: Fifth generation of ECMWF atmospheric reanalyses of the global climate. Copernicus Climate Change Service Climate Data Store (CDS). <a href="https://cds.climate.copernicus.eu/cdsapp#!/home">https://cds.climate.copernicus.eu/cdsapp#!/home</a>
<b>Analytical Instrument</b>	

<b>Analytical Method</b>	
<b>License Name</b>	Creative Commons Attribution 4.0 International
<b>Licence Type</b>	Open
<b>Embargo Date</b>	
<b>Licence URL</b>	<a href="https://spdx.org/licenses">https://spdx.org/licenses</a>
<b>Terms of Access</b>	CanWIN datasets are licensed individually, however most are licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0) Public License. Details for the licence applied can be found using the Licence URL link provided with each dataset. By using data and information provided on this site you accept the terms and conditions of the License. Unless otherwise specified, the license grants the rights to the public to use and share the data and results derived therefrom as long as the proper acknowledgment is given to the data licensor (citation), that any alteration to the data is clearly indicated, and that a link to the original data and the license is made available.
<b>Terms of Use</b>	By accessing this data you agree to [CanWIN's Terms of Use]( <a href="https://dev.uni-manitoba.links.com.au/data/publication/canwin-data-statement/resource/5b942a87-ef4e-466e-8319-f588844e89c0">https://dev.uni-manitoba.links.com.au/data/publication/canwin-data-statement/resource/5b942a87-ef4e-466e-8319-f588844e89c0</a> ).
<b>Awards</b>	
<b>Related Resources</b>	
<b>Related Resources 1</b>	
<b>Related Resource Name</b>	Mean Pressure at Sea-level from ERA-5
<b>Resource Code</b>	<a href="https://cds.climate.copernicus.eu/cdsapp#!/home">https://cds.climate.copernicus.eu/cdsapp#!/home</a>
<b>Identifier Type</b>	URL
<b>Relationship To This Dataset</b>	IsRequiredBy
<b>Resource Type</b>	Online Resource
<b>Type</b>	Model
<b>Series Name</b>	
<b>Related Resources 2</b>	
<b>Related Resource Name</b>	ETOP01 Ice Surface
<b>Resource Code</b>	10.7289/V5C8276M

**Identifier Type** DOI  
**Relationship To This Dataset** IsReferencedBy  
**Resource Type** Online Resource  
**Type** Dataset  
**Series Name**

### Related Resources 3

**Related Resource Name** CEOS/NSIDC Cyclone Detection and Tracking Algorithm  
**Resource Code** 10.5281/zenodo.4356161  
**Identifier Type** DOI  
**Relationship To This Dataset** IsRequiredBy  
**Resource Type** Online Resource  
**Type** Software  
**Series Name**

## Publications

### Publications 1

**Publication Name** Does the summer Arctic Frontal Zone influence Arctic Ocean cyclone activity?  
**Identifier Code** <https://doi.org/10.1175/JCLI-D-15-0755.1>  
**Identifier Type** DOI  
**Relationship to this dataset** IsSupplementedBy  
**Resource Type** Online Resource  
**Publication Type** JournalArticle

### Publications 2

**Publication Name** Projected Changes in the Arctic Frontal Zone and Summer Arctic Cyclone Activity in the CESM Large Ensemble  
**Identifier Code** <https://doi.org/10.1175/JCLI-D-17-0296.1>  
**Identifier Type** DOI  
**Relationship to this dataset** IsSupplementedBy  
**Resource Type** Online Resource

**Publication Type** JournalArticle

### Publications 3

**Publication Name** Synoptic Climatology of Rain-on-Snow Events in Alaska

**Identifier Code** <https://doi.org/10.1175/MWR-D-19-0311.1>

**Identifier Type** DOI

**Relationship to this dataset** IsSupplementedBy

**Resource Type** Online Resource

**Publication Type** JournalArticle

### Publications 4

**Publication Name** Estimating Southern Ocean Storm Positions With Seismic Observations

**Identifier Code** <https://doi.org/10.1029/2019JC015898>

**Identifier Type** DOI

**Relationship to this dataset** IsSupplementedBy

**Resource Type** Online Resource

**Publication Type** JournalArticle

### Publications 5

**Publication Name** Sea ice loss and Arctic cyclone activity from 1979 to 2014

**Identifier Code** <https://doi.org/10.1175/JCLI-D-16-0542.1>

**Identifier Type** DOI

**Relationship to this dataset** IsSupplementedBy

**Resource Type** Online Resource

**Publication Type** JournalArticle

### Publications 6

**Publication Name** Impacts of synoptic-scale cyclones on Arctic sea-ice concentration: a systematic analysis

**Identifier Code** <https://doi.org/10.1017/aog.2020.23>

**Identifier Type** DOI

**Relationship to this dataset** IsSupplementedBy

**Resource Type** Online Resource

<b>Publication Type</b>	JournalArticle
<b>Publications 7</b>	
<b>Publication Name</b>	Sensitivity of Northern Hemisphere Cyclone Detection and Tracking Results to Fine Spatial and Temporal Resolution Using ERA5
<b>Identifier Code</b>	<a href="https://journals.ametsoc.org/view/journals/mwre/149/8/MWR-D-20-0417.1.xml">https://journals.ametsoc.org/view/journals/mwre/149/8/MWR-D-20-0417.1.xml</a>
<b>Identifier Type</b>	URL
<b>Relationship to this dataset</b>	IsCitedBy
<b>Resource Type</b>	Online Resource
<b>Publication Type</b>	JournalArticle
<b>Publications 8</b>	
<b>Publication Name</b>	The Influence of the Arctic Frontal Zone on Summer Cyclone Activity Today and in the Future (Doctoral Dissertation)
<b>Identifier Code</b>	<a href="https://scholar.colorado.edu/concern/graduate_thesis_or_dissertations/6395w720f">https://scholar.colorado.edu/concern/graduate_thesis_or_dissertations/6395w720f</a>
<b>Identifier Type</b>	URL
<b>Relationship to this dataset</b>	IsContinuedBy
<b>Resource Type</b>	Online Resource
<b>Publication Type</b>	Dissertation
<b>Spatial regions</b>	northern-hemisphere
<b>Spatial extent West Bound Longitude</b>	-180.0
<b>Spatial extent East Bound Longitude</b>	180.0
<b>Spatial extent South Bound Latitude</b>	0.0
<b>Spatial extent North Bound Latitude</b>	90.0

# Data and Resources

<b>URL</b>	<a href="https://zenodo.org/record/5553339#.YZ1WWL3MJhG">https://zenodo.org/record/5553339#.YZ1WWL3MJhG</a>
<b>Name</b>	CEOS/NSIDC Extratropical Cyclone Tracking (CNECT) Algorithm
<b>Description</b>	This algorithm has two steps: 1) detection of cyclone centers and areas and 2) tracking of those features. Center detection is based on local minima in sea-level pressure (within a 200 km radius) that have a pressure gradient of at least 7.5 hPa/1000 km. The area of storms and presence of single- and multi-center cyclones are determined using last-closed isobars. Tracking is based on the nearest neighbor to a predicted cyclone propagation location. Cyclone size, intensity, propagation, and interactions (e.g., splitting and merging with other storms) are tabulated at each observation time.
<b>Format</b>	
<b>Resource Category</b>	scripts
<b>URL</b>	<a href="https://canwin-datahub.ad.umanitoba.ca/data/dataset/4be4d01a-a14b-483f-a1a6-6ead0974fa57/resource/69811381-b58c-4621-b73d-baf1758706f0/download/supplemental-metadata.pdf">https://canwin-datahub.ad.umanitoba.ca/data/dataset/4be4d01a-a14b-483f-a1a6-6ead0974fa57/resource/69811381-b58c-4621-b73d-baf1758706f0/download/supplemental-metadata.pdf</a>
<b>Name</b>	Supplemental Metadata
<b>Description</b>	Additional metadata, which includes variable headers, units, and descriptions, as well as an overview of the script applied.
<b>Format</b>	PDF
<b>Resource Category</b>	documents
<b>URL</b>	<a href="https://canwinerddap.ad.umanitoba.ca/erddap/files/Alex_Crawford_NH_cyclone_data_3e70_09c6_75db/">https://canwinerddap.ad.umanitoba.ca/erddap/files/Alex_Crawford_NH_cyclone_data_3e70_09c6_75db/</a>
<b>Name</b>	Northern Hemisphere Extratropical Cyclone Tracks from ERA-5
<b>Description</b>	Individual cyclone tracks for the Northern Hemisphere. Detection and tracking are conducted using version 13.2 of the Lagrangian cyclone detection and tracking algorithm described by Crawford et al. (2021). Click on any file to download.
<b>Format</b>	ZIP
<b>Resource Category</b>	data
<b>URL</b>	<a href="https://canwin-datahub.ad.umanitoba.ca/data/dataset/4be4d01a-a14b-483f-a1a6-6ead0974fa57/resource/a7ed8d55-63d1-4d7f-aa6f-63fc106e2176/download/cycloneparams.pkl">https://canwin-datahub.ad.umanitoba.ca/data/dataset/4be4d01a-a14b-483f-a1a6-6ead0974fa57/resource/a7ed8d55-63d1-4d7f-aa6f-63fc106e2176/download/cycloneparams.pkl</a>
<b>Name</b>	Cyclone Parameters File
<b>Description</b>	This cyclone parameters file records the input parameters used for the cyclone detection and tracking code to produce the files in this database. It can be opened using pandas in Python via <code>pandas.read_pickle(\$FILEPATH\$)</code> , where <code>\$FILEPATH\$</code> is the path to where this file is stored on your computer.
<b>Format</b>	pkl
<b>Resource Category</b>	supplemental



# Related Publications

**Title** The Response of extratropical cyclone propagation in the Northern Hemisphere to global warming

**URL** <https://canwin-datahub.ad.umanitoba.ca/data/publication/the-response-of-extratropical-cyclone-propagation-in-the-northern-hemisphere-to-global-warming>