Metadata

Dataset Name	Northern Hemisphere Extratropical Cyclone Tracks from ERA-5
Dataset General Type	cyclone tracks
Dataset Type	Dataset
Dataset Level	1.1
Program Website	
Keyword Vocabulary	Polar Data Catalogue
Keyword Vocabulary URL	https://www.polardata.ca/pdcinput/public/keywordlibrary
Theme	
Dataset Status	Complete
Maintenance and Update Frequency	As needed
Dataset Last Revision Date	2020-10-13
Dataset DOI	10.34992/ebnw-s681
Metadata Creation Date	2024
Publisher	CanWIN
Dataset Authors	
Dataset Authors 1	
Name	Crawford, Alex
Type of Name	Personal

Email	alex.crawford@umanitoba.ca
Affiliation	Centre for Earth Observation Science - University of Manitoba
ORCID ID	0000-0003-1561-290X
	ORCID
	http://orcid.org/

Contributors

Contributors 1

Name	Barber, David
Role	Supervisor
Email	Barber.David@umaniotba.ca
Affiliation	Centre for Earth Observation Science - University of Manitoba
ORCID ID	0000-0001-9466-3291
	ORCID
	http://orcid.org/

Contributors 2

Name	Dahl-Jensen, Dorthe
Role	Supervisor
Email	
Affiliation	Centre for Earth Observation Science - University of Manitoba
ORCID ID	0000-0002-1474-1948
	ORCID
	http://orcid.org/

Contributors 3

Name	Stroeve, Julienne C
Role	Supervisor
Email	
Affiliation	Centre for Earth Observation Science - University of Manitoba
ORCID ID	0000-0001-7316-8320
	ORCID
	http://orcid.org/

Contributors 4

Name	Serreze, Mark C
Role	ProjectMember
Email	

Affiliation	National Snow and Ice Data Center, Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder
ORCID ID	0000-0002-3699-302X
	ORCID
	http://orcid.org/

Contributors 5

Name	Sommer, Nathan
Role	ProjectMember
Email	nsommer@wooster.edu
Affiliation	College of Wooster
ORCID ID	ORCID
	ORCID
	http://orcid.org/

Project Data Curator	Alex D Crawford
Project Data Curator email	alex.crawford@umanitoba.ca
Project Data Curator Affiliation	Centre for Earth Observation Science - University of Manitoba
Dataset Collection Start Date	1979-01-01
Dataset Collection End Date	2020-10-13
Sample Collection	
Activity Collection Type	
Preferred citation	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). https://cds.climate.copernicus.eu/cdsapp#!/home
Analytical Instrument	

Analytical Method	
License Name	Creative Commons Attribution 4.0 International
Licence Type	Open
Embargo Date	
Licence URL	https://spdx.org/licenses
Terms of Access	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.
Terms of Use	By accessing this data you agree to [CanWIN's Terms of Use](https://dev.uni-manitoba.links.com.au/data/publication/canwin-data-statement/resource/5b942a87-ef4e-466e-8319-f588844e89c0).
Awards	
Related Resources	

Related Resources 1

Related Resource Name	Mean Pressure at Sea-level from ERA-5
Resource Code	https://cds.climate.copernicus.eu/cdsapp#!/home
Identifier Type	URL
Relationship To This Dataset	IsRequiredBy
Resource Type	Online Resource
Type	Model
Series Name	

Related Resources 2

Related Resource Name	ETOPO1 Ice Surface
Resource Code	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

Publication Type	JournalArticle

Publications 7

Publication Name	Sensitivity of Northern Hemisphere Cyclone Detection and Tracking Results to Fine Spatial and Temporal Resolution Using ERA5
Identifier Code	https://journals.ametsoc.org/view/journals/mwre/149/8/MWR-D-20-0417.1.xml
Identifier Type	URL
Relationship to this dataset	IsCitedBy
Resource Type	Online Resource
Publication Type	JournalArticle

Publications 8

Publication Name	The Influence of the Arctic Frontal Zone on Summer Cyclone Activity Today and in the Future (Doctoral Dissertation)
Identifier Code	https://scholar.colorado.edu/concern/graduate_thesis_or_dissertations/6395w720f
Identifier Type	URL
Relationship to this dataset	IsContinuedBy
Resource Type	Online Resource
Publication Type	Dissertation

Spatial regions	northern-hemisphere
Spatial extent West Bound Longitude	-180.0
Spatial extent East Bound Longitude	180.0
Spatial extent South Bound Latitude	0.0
Spatial extent North Bound Latitude	90.0

Data and Resources

URL	https://zenodo.org/record/5553339#.YZ1WWL3MJhG
Name	CEOS/NSIDC Extratropical Cyclone Tracking (CNECT) Algorithm
Description	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.
Format	
Resource Category	scripts

URL	https://canwin-datahub.ad.umanitoba.ca/data/dataset/4be4d01a-a14b-483f-a1a6-6ead0974fa57/resource/69811381-b58c-4621-b73d-baf1758706f0/download/supplemental-metadata.pdf
Name	Supplemental Metadata
Description	Additional metadata, which includes variable headers, units, and descriptions, as well as an overview of the script applied.
Format	PDF
Resource Category	documents

URL	https://canwinerddap.ad.umanitoba.ca/erddap/files/Alex_Crawford_NH_cyclone_data_3e70_09c6_75db/
Name	Northern Hemisphere Extratropical Cyclone Tracks from ERA-5
Description	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.
Format	ZIP
Resource Category	data

URL	https://canwin-datahub.ad.umanitoba.ca/data/dataset/4be4d01a-a14b-483f-a1a6-6ead0974fa57/resource/a7ed8d55-63d1-4d7f-aa6f-63fc106e2176/download/cycloneparams.pkl
Name	Cyclone Parameters File
Description	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 pandas.read_pickle($FILEPATH$), where $FILEPATH$ is the path to where this file is stored on your computer.
Format	pkl
Resource Category	supplemental