

Metadata

Title	Arctic open-water periods are projected to lengthen dramatically by 2100
	Abstract
Publication general type	journal article
Project Name	[eddc5af7-8854-4204-ac03-d1f1b4c6d6d7', '5b2d8203-4b89-4b28-9701-eb31bdfb2e95']
Keyword Vocabulary	
Keyword Vocabulary URL	
Theme	
Version	1.0
Publisher	Springer Nature
Date Published	2021
DOI	10.1038/s43247-021-00183-x
Authors	
Authors 1	
Author 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/
Authors 2	
Author Name	Stroeve, Julienne
Type of Name	Personal
Email	julienne.stroeve@umanitoba.ca
Affiliation	Centre for Earth Observation Science - University of Manitoba
ORCID ID	0000-0001-7316-8320
	ORCID

<http://orcid.org/>

Authors 3

Author Name Smith, Abigail
Type of Name Personal
Email
Affiliation
ORCID ID

Authors 4

Author Name Jahn, Alexandra
Type of Name Personal
Email
Affiliation
ORCID ID

License Name	Creative Commons Attribution 4.0 International
---------------------	--

Licence Type	Open
---------------------	------

	CC-BY-4.0
--	-----------

Licence Schema Name	SPDX
----------------------------	------

Licence URL	https://spdx.org/licenses
--------------------	---

Awards

Awards 1

Funded by
Website
Funder Name
Funder Identifier Code
Funder Identifier Type
Funder Identifier Scheme
Grant Number

Related Resources

Related Resources 1

Related Resource Name

Identifier Code

Identifier Type

Relationship to this publication

Online Resource

Type

Series Name

Language

Data and Resources

URL <https://canwin-datahub.ad.umanitoba.ca/data/dataset/5ebc7aff-4761-4a39-a922-7dd2bc309c31/resource/2df697ab-2611-49de-a071-e3d66a7d0455/download/crawford-arctic-open-water-periods-are-projected-to-lengthen-dramatically-by-2100-2021-communicaca.pdf>

Name Arctic open-water periods are projected to lengthen dramatically by 2100

Description The shrinking of Arctic-wide September sea ice extent is often cited as an indicator of modern climate change; however, the timing of seasonal sea ice retreat/advance and the length of the open-water period are often more relevant to stakeholders working at regional and local scales. Here we highlight changes in regional open-water periods at multiple warming thresholds. We show that, in the latest generation of models from the Coupled Model Intercomparison Project (CMIP6), the open-water period lengthens by 63 days on average with 2 °C of global warming above the 1850-1900 average, and by over 90 days in several Arctic seas. Nearly the entire Arctic, including the Transpolar Sea Route, has at least 3 months of open water per year with 3.5 °C warming, and at least 6 months with 5 °C warming. Model bias compared to satellite data suggests that even such dramatic projections may be conservative. In several of the Arctic ocean basins, the period of open water without sea-ice cover will lengthen by more than 90 days under 2 oC of global warming, suggest analyses of the latest (CMIP6) climate model simulations.

Format PDF

Resource Category documents

Related Datasets

Title Arctic Sea Ice Phenology in CMIP6

URL <https://canwin-datahub.ad.umanitoba.ca/data/en/dataset/sea-ice-cmip6>