

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
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License Name Creative Commons Attribution 4.0 International

Licence Type Open

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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-communicata.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/dataset/sea-ice-cmip6>