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Data and Resources

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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/fr/dataset/sea-ice-cmip6>