University of Washington update

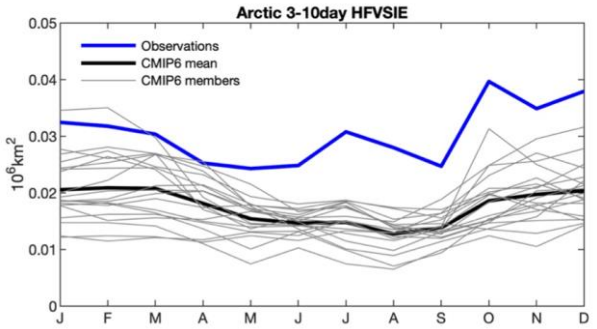
Arctic research

Arctic research spans many disciplines (oceanography, sea ice, atmosphere, ecology, climate, land ice, social sciences, +++) and several UW units:
Dept of Atmospheric Sciences within College of Environment
School of Oceanography
Polar Science Center – Applied Physics Lab

High-Frequency Sea Ice Variability in Observations and Models

Edward Blanchard-Wrigglesworth[1], Aaron Donohoe[2], Lettie A. Roach[1], Alice DuVivier[3], and Cecilia M. Bitz[1]

- Model variability < observed variability
- Waves & ice/ocean interactions?

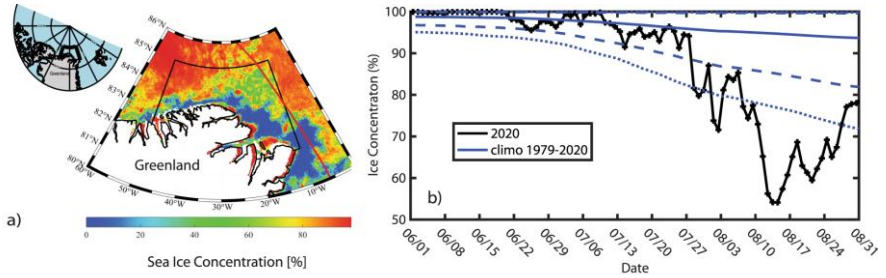


communications earth & environment

Article | Open Access | Published: 01 July 2021

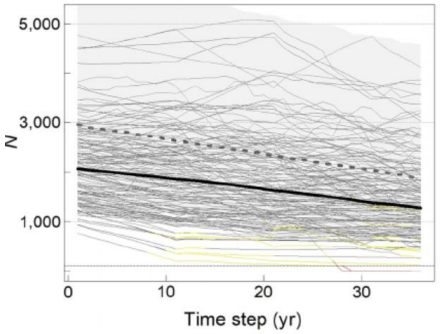
Accelerated sea ice loss in the Wandel Sea points to a change in the Arctic's Last Ice Area

Axel J. Schweiger, Michael Steele, Jinlun Zhang, G. W. K. Moore & Kristin L. Laidre



Demographic risk assessment for a harvested species threatened by climate change: polar bears in the Chukchi Sea

Eric V. Regehr[1,9], Michael C. Runge,[2] Andrew Von Duyke,[3] Ryan R. Wilson[4], Lori Polasek,[5] Karyn D. Rode,[6] Nathan J. Hostetter[7], and Sarah J. Converse[8]

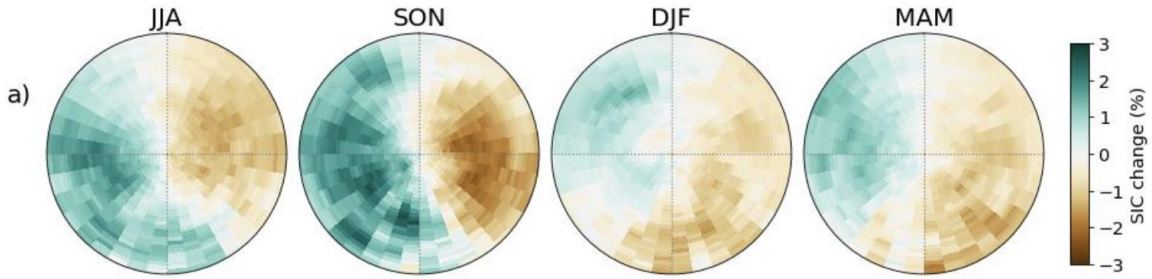


A cyclone-centered perspective on the drivers of asymmetric patterns in the atmosphere and sea ice during Arctic cyclones

Robin Clancy[1], Cecilia M. Bitz[1], Edward Blanchard-Wrigglesworth[1], Marie C. McGraw[1], and Steven M. Cavallo[2]

[1 a] University of Washington, Seattle, WA | [2 b] University of Oklahoma, Norman, OK

Published-online: 04 Oct 2021



Sea ice concentration changes associated with Arctic cyclones in each season, shown as the anomaly in change from 5 days before to 5 days after a cyclone passage over a point. Cyclones re-distribute rather than impact overall sea ice.

Probabilistic forecasting of the Arctic sea ice edge with contour modeling

Hannah M. Director, Adrian E. Raftery, Cecilia M. Bitz

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Ann. Appl. Stat. 15(2): 711-726 (June 2021). DOI: 10.1214/20-AOAS1405

New sea ice forecast that combines ensemble output with observed recent distribution shows enhanced skill

Earth's Future

Research Article | Open Access

Arctic Sea Ice Response to Flooding of the Snow Layer in Future Warming Scenarios

Andrew G. Pauling, Cecilia M. Bitz

First published: 02 September 2021 | https://doi.org/10.1029/2021EF002136

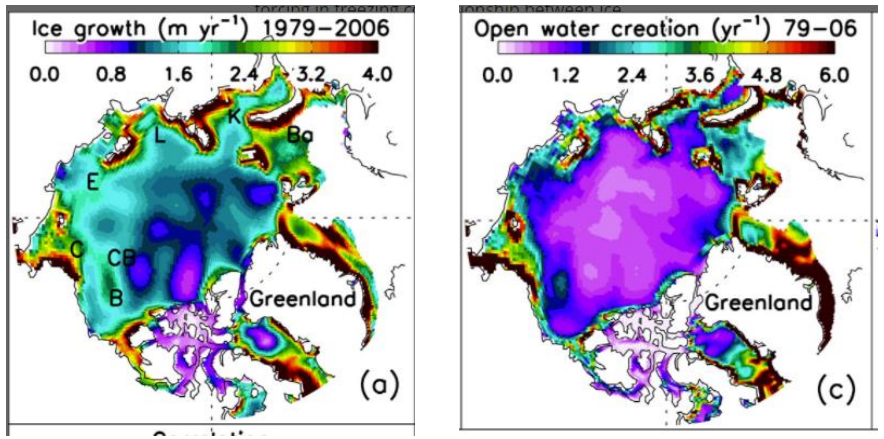
Study of geoengineering proposal shows that neither natural nor artificial flooding of snow on Arctic sea ice is sufficient to offset projected declines of Arctic sea ice

Geophysical Research Letters

Research Letter | Open Access

Recent Slowdown in the Decline of Arctic Sea Ice Volume Under Increasingly Warm Atmospheric and Oceanic Conditions

Jinlun Zhang



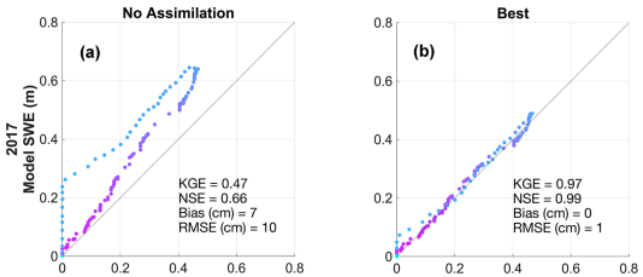
Hydrol. Earth Syst. Sci., 25, 4651–4680, 2021
https://doi.org/10.5194/hess-25-4651-2021

Hydrology and Earth System Sciences
Open Access
EGU

AGU ADVANCING EARTH AND SPACE SCIENCE

Assimilation of citizen science data in snowpack modeling using a new snow data set: Community Snow Observations

Ryan L. Crumley[1,2], David F. Hill[3], Katreen Wikstrom Jones[4], Gabriel J. Wolken[4,5], Anthony A. Arendt[6], Christina M. Aragon[1], Christopher Cosgrove[7], and Community Snow Observations Participants[+]



Geophysical Research Letters

RESEARCH LETTER
10.1029/2020GL090508

Not Just Sea Ice: Other Factors Important to Near-inertial Wave Generation in the Arctic Ocean

Key Points:
- In the Canada Basin, internal wave energy and mixing from shear measurements are similar despite the presence or absence of sea ice
- Model results show that low values

J. D. Guthrie[1] and J. H. Morison[1]

[1]Polar Science Center, Applied Physics Laboratory, University of Washington, Seattle, WA, USA

The Cyclonic Mode of Arctic Ocean Circulation

James Morison,[a] Ron Kwok,[a] Suzanne Dickinson,[a] Roger Andersen,[a] Cecilia Peralta-Ferriz,[a] David Morison,[b] Ignatius Rigor,[a] Sarah Dewey,[c] and John Guthrie[a]

[a] *Polar Science Center, University of Washington, Seattle, Washington*
[b] *University of Utah, Salt Lake, Utah*
[c] *Kennedy School, Harvard University, Cambridge, Massachusetts*

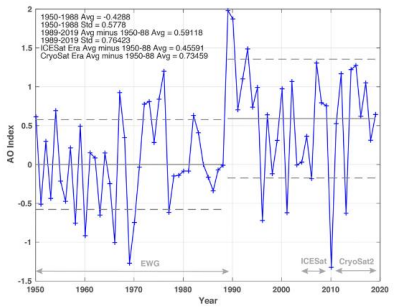


FIG. 9. The winter (NDJFMA) AO index, 1950–2019, minus the average winter AO index from 1950 to 1988.

Geophysical Research Letters

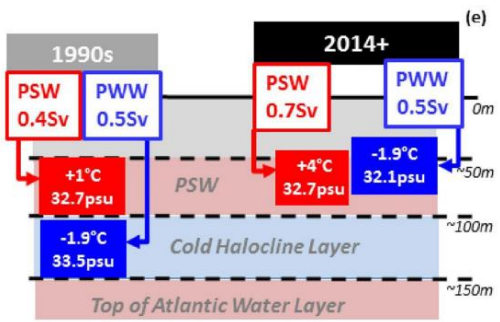
RESEARCH LETTER
10.1029/2021GL092528

Warming and Freshening of the Pacific Inflow to the Arctic From 1990-2019 Implying Dramatic Shoaling in Pacific Winter Water Ventilation of the Arctic Water Column

Key Points:
- *In situ* 1990–2019 data show Bering Strait flow increasing ~0.01 Sv/yr, cutting Chukchi residence times to ~5 months now, a drop of ~1.5 months
- Spring/fall warming, ~0.1 C/yr, yields monthly means 2 C–4 C above climatology and warm waters

Rebecca A. Woodgate[1] and Cecilia Peralta-Ferriz[1]

[1]Applied Physics Laboratory, University of Washington, Seattle, WA, USA



Biological Conservation 258 (2021) 109128

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journal homepage: www.elsevier.com/locate/biocon

ELSEVIER

Incorporating climate change in a harvest risk assessment for polar bears *Ursus maritimus* in Southern Hudson Bay

Eric V. Regehr[a,*], Markus Dyck[b,1], Samuel Iverson[c], David S. Lee[d], Nicholas J. Lunn[e], Joseph M. Northrup[f,j], Marie-Claude Richer[g], Guillaume Szor[h], Michael C. Runge[i]

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