



Week 8, 2021

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The Bolin Centre is a multi-disciplinary consortium of over 400 scientists in Sweden that conducts research and graduate education related to the Earth's climate.



#### **A new warming phase in the Subpolar North Atlantic**

The waters in the Subpolar North Atlantic – the area between Greenland, Iceland and Scotland – are an important part of the Atlantic overturning circulation (popularly known as the Gulf stream) that keeps it running.

The area is known for its temperature variations, and data available from the 1950s show that some decades are warmer, other cooler. 2005–2015 has been a cool period, but since 2016 and onwards, scientists now can see the first signs of a new warming period. The results are presented in a new article published today in Communications Earth & Environment, by Damien Desbruyères, Léon Chafik, and Guillaume Maze.

[Read the article on the Bolin website »](#)



#### **A better understanding of how soil carbon is distributed in the Arctic**

Two scientific articles bring a better understanding of the spatial variability of soil organic carbon in the Arctic permafrost region. One article published in Global Biogeochemical Cycles led by Umeå researcher Matthias Siewert, and with Gustaf Hugelius as co-author, is describing how permafrost and periglacial landforms cause a unique variability in Arctic soils. A second article in Science Advances provides a new map for the soil organic carbon stored in the circumpolar permafrost region.

[Read the article on the Bolin website »](#)



## Expedition will reveal how the climate has changed over 50 million years

In 2022, the European Consortium for Ocean Research Drilling (ECORD), the Swedish Polar Research Secretariat (SPRS) and Arctic Marine Solutions (AMS) will jointly conduct an expedition of the International Ocean Discovery Program (IODP), focused on the Arctic Ocean – a key location in global climate change.

[Read more on Swedish Polar Research Secretariat's website »](#)

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### Publications

#### Recent Bolin Centre publications

On [bolin.su.se/publications](https://bolin.su.se/publications) you'll find a list of scientific journal publications by Bolin Centre scientists. Here are the most recent ones we have published on the website.

- Caserini, S., Coyaud, S., Persico, G., & Messori, G., 2021. Evaluating the scientific credentials of the supporters of public petitions denying anthropogenic climate change, *Tellus A: Dynamic Meteorology and Oceanography*: 73, 1, 1–4. DOI:10.1080/16000870.2021.1875727. <https://www.tandfonline.com/doi/full/10.1080/16000870.2021.1875727>
- Bulatovic, I., Igel, A.L., Leck, C., Heintzenberg, J., Riipinen, I., and Ekman, A.M.L., 2021. The importance of Aitken mode aerosol particles for cloud sustenance in the summertime high Arctic: A simulation study supported by observational data. *Atmos. Chem. Phys.* <https://doi.org/10.5194/acp-2020-665>
- Prytherch, J., & Yelland, M.J., 2021. Wind, convection and fetch dependence of gas transfer velocity in an Arctic sea-ice lead determined from eddy covariance CO<sub>2</sub> flux measurements. *Global Biogeochemical Cycles*: 35, e2020GB006633. <https://doi.org/10.1029/2020GB006633>
- Hannachi, A. & Hansson, H.-C., 2021. Scientific methods, media coverage, public awareness and climate change. *Tellus A: Dynamic Meteorology and Oceanography*: 73, 1, 1–2. <https://doi.org/10.1080/16000870.2021.1883231>
- Mangini, F., Chafik, L., Madonna, E., Li, C., Bertino, L., & Nilsen, J.E.Ø., 2021. The relationship between the eddy-driven jet stream and northern European sea level variability. *Tellus A: Dynamic Meteorology and Oceanography*: 73, 1, 1–15, <https://doi.org/10.1080/16000870.2021.1886419>
- Nilsson, J., Ferreira, D., Schneider, T., & Wills, R. C. J. (2021). Is the Surface Salinity Difference between the Atlantic and Indo-Pacific a Signature of the Atlantic Meridional Overturning Circulation?, *Journal of Physical Oceanography*, 51(3), 769–787. <https://journals.ametsoc.org/view/journals/phoc/51/3/JPO-D-20-0126.1.xml>
- Scaini, A., Scaini, C., Frentress, J., Destouni, G., Manzoni, S., 2021. Linking the 2030 Agenda for Sustainable Development to research, newspapers, and governance: the case of the last free-flowing alpine river. *Frontiers in Environmental Sciences*: 9, 1–15. <https://doi.org/10.3389/fenvs.2021.553822>
- Mas e Braga, M., Bernales, J., Prange, M., Stroeven, A. P., and Rogozhina, I., 2021. Sensitivity of the Antarctic ice sheets to the warming of marine isotope substage 11c. *The Cryosphere*: 15, 459–478. <https://doi.org/10.5194/tc-15-459-2021>

Please send your newly published publication to [bolin@su.se](mailto:bolin@su.se) »

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## New datasets in the Bolin Centre Database

- Nina Kirchner (2021). Warming stripes — visualisations of annual temperature series from the Nordic countries. Dataset version 3.0. Bolin Centre Database. <https://doi.org/10.17043/kirchner-2019-warming-stripes-3>
- Anders Moberg (2021). Stockholm Historical Weather Observations — Air temperature. Dataset version 2.0. Bolin Centre Database. <https://doi.org/10.17043/stockholm-historical-temperature-2>
- Julia Steinbach, Henry Holmstrand, Örjan Gustafsson (2021). Isotope data ( $\Delta^{14}\text{C}$ ,  $\delta^{13}\text{C}$  and  $\delta\text{D}$ ) for dissolved methane at the Outer Eurasian Arctic Shelf. Dataset version 1.0. Bolin Centre Database. <https://doi.org/10.17043/swerus-2014-methane-isotopes>
- Malin E. Kylander (2021). Multiproxy geochemical and pollen data from a Late Glacial sedimentary sequence, high Drakensberg, Lesotho. Dataset version 1.0. Bolin Centre Database. <https://doi.org/10.17043/kylander-2021>
- John Prytherch (2021). Micrometeorological data from an ice-floe adjacent to an open lead during the Arctic Ocean 2018 expedition . Dataset version 6.0. Bolin Centre Database. <https://doi.org/10.17043/ao2018-micromet-icefloe-6>
- Felicity Holmes, Nina Kirchner, Abhay Prakash (2021). Time lapse imagery of the calving front of Ryder Glacier, Northern Greenland, August 2019. Dataset version 1.0. Bolin Centre Database. <https://doi.org/10.17043/ryder-2019-glacier-front-imagery>
- Adam Ulfso (2021). Underway measurements of seawater pH and total alkalinity from the Ryder 2019 expedition. Dataset version 1.0. Bolin Centre Database. <https://doi.org/10.17043/ryder-2019-surface-seawater-ph-alkalinity>
- Adam Ulfso, Christian Stranne, Johan Nilsson (2021). Seawater carbonate chemistry from CTD bottle samples during the Ryder 2019 expedition. Dataset version 1.0. Bolin Centre Database. <https://doi.org/10.17043/ryder-2019-ctd-bottle-ph-alkalinity>

## New course: Geocomputation and machine learning for environmental application, 7,5 hp

In this course, students will be introduced to an array of powerful open-source geocomputation tools and machine learning methodologies under Linux environment. Students who have never been exposed to programming under linux are expected to reach the stage where they feel confident in using very advanced open source data processing routines.

Students with a precedent programming background will find the course beneficial in enhancing their programming skills for better modelling and coding proficiency. Our dual teaching aim is to equip attendees with powerful tools as well as rendering their abilities of continuing independent development afterwards. The acquired skills will be beneficial, not only for GIS related application, but also for general data processing and applied statistical computing in a number of fields. These essentially lay the foundation for career development as a data scientist.

**Application deadline: March 7**



## Online training on Data Analytics on March 8-9, 2021

How to skip high-volume data transfer and access free computing resources for your CMIP analyses.

Organised jointly by the H2020 projects [IS-ENES3](#) and [EOOSC-Hub](#), this online training event is open to everyone interested in processing multidimensional data, mainly targeting Earth system science and data science.

Join our online training and find out how to exploit ECAS (the ENES Climate Analytics Service) to load, filter, concatenate, perform spatial and time averages, plot CMIP data for multi-model comparisons and use CMIP models to calculate climate indices for any location and period.

No package installation required, you just need a web browser to use the server-side near-data compute service.

### Key topics:

Challenges and technical issues in scientific data management and analytics  
Multidimensional (big) data analysis  
Basic open source tools for data science in the field of climate sciences (e.g., Ophidia, Xarray, Intake, Jupyter Notebook, ...)

### Event agenda:

March 8

General introduction (3:00 pm - 5:00 pm)

March 9

DKRZ demos and hands-on session (10:00 am - 12:30 am)

CMCC demos and hands-on session (3:00 pm - 5:30 pm)

[Register here »](#) before March 5th.

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## Welcome to review IPCC:s report Mitigation of Climate Change

“Mitigation of Climate Change” is one of three final reports within the IPCC Sixth Assessment Report, AR6. The second draft of this report will be available for expert review until 14 March.

This second review of the report and SPM (Summary for Policy Makers) is conducted by experts and governments and **runs from 18 January to 14 March 2021**. Experts need to register, which will be possible until 7 March.

It is not necessary to comment on the entire report. As an expert, you are welcome to focus on the parts in which you have the deepest scientific knowledge.

Please find more information here:

English: <https://www.ipcc.ch/2021/01/04/pr-working-group-iii-ar6-sod/> »

Swedish: <https://www.smhi.se/nyhetsarkiv/var-med-och-expertgranska-ipcc-s-delrapport-om-att-begransa-klimatforandringarna-1.167802> »

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## Send in external grants awarded during 2020

For the annual report 2020, we would like Bolin members to email us information concerning the external grants that you have been awarded during 2020. Please indicate funding agency, amount, name of applicant, and name of research project. We would like to summarize the grants from the following funding agencies:

- Swedish Research Council (VR)
- Swedish Research Council for Sustainable Development (FORMAS)
- European Research Council (ERC)
- EU H2020
- Swedish Innovation Agency (VINNOVA)
- Swedish Foundation for International Cooperation in Research and Higher Education (STINT)

- Grant from other funding agencies you find relevant

Mail your information to [bolin@su.se](mailto:bolin@su.se) no later than March 1st.

## BOLIN CENTRE EVENTS

17 March	<p><b>Engineering Mechanics for Climate Research</b>  <b>Date:</b> March 17th  <b>Time:</b> Afternoon  <b>Venue:</b> Zoom            A workshop arranged by representatives from KTH and the Bolin Centre for Climate Research.  <i>How can engineering mechanics and climate research develop together?</i>  <i>What kind of exchange can be of mutual benefit in between the disciplines?</i>            This workshop aims to create a meeting point between climate and engineering scientists whilst nourishing a discussion of future developments. Information of future funding opportunities will be announced. For questions, contact <a href="mailto:eva.gylfe@su.se">eva.gylfe@su.se</a></p>
30 March	<p><b>Bolin Centre Seminar Series   Research Area 1</b>  <b>Time &amp; venue:</b> March 30 at 13h00, Zoom  <b>Title:</b> Mid-water hydroacoustics with oceanographic applications  <b>Speaker:</b> Christian Stranne, assistant professor, Dep. of Geological Sciences, Stockholm University</p>
31 March	<p><b>Bolin Centre Seminar Series   Research Area 2</b>  <b>Time &amp; venue:</b> March 31 at 14h00 (CET), Zoom  <b>Title:</b> Addressing the Arctic cloud problem in regional and global models  <b>Speaker:</b> Gillian Young, Institute for Climate and Atmospheric Science, School of Earth and Environment, University of Leeds, UK  <a href="#">Read more on the Bolin website »</a></p>
17 May	<p><b>Bert Bolin Science Seminar 2021</b>  <b>Time &amp; venue:</b> May 17 at 15h00, Zoom  <b>Speaker:</b> Bill Ruddiman, professor emeritus, Dep. of Environmental Sciences, University of Virginia.</p>
20 May	<p><b>Bert Bolin Climate Lecture 2021</b>  <b>Time &amp; venue:</b> May 20 at 15.00, Zoom  <b>Speaker:</b> Bill Ruddiman, professor emeritus, Dep. of Environmental Sciences, University of Virginia.</p>
19-21 May	<p><b>Climate festival 2021 - Save the date!</b>            The 4th annual Climate Festival will be held on 19-21 May.</p>
18-19 Nov	<p><b>Bolin Days 2021 - Save the date!</b>            The 12th annual Bolin Days will be held on 18-19 November.</p>

## OTHER EVENTS AND INFORMATION

2-30 March	<p><b>SMHI online workshop series: Learn how to utilize climate data to develop a climate adaptation service</b>  <b>Time:</b> 2-30 March, 2021. Five workshops  <b>Venue:</b> Virtual classroom</p> <p>Are you interested in learning how you can utilize climate data to develop a climate adaptation service? Then, this free online training should be of interest to you! The course is a cooperation between Sweden and Island, within EU:s Copernicus Programme.  <a href="#">Read more on the Bolin website »</a></p>
11, 16, 17 March	<p><b>NICEST2 hackathon on FAIR climate data</b>            From FAIR principles to FAIR in practices. This hackathon is a combination of training (March 11, 2021) and hands-on using real Climate data (16-17 March, 2021). The goal is to take a bottom up approach to explore how the current international standards and tools for managing climate model output can be reused in a Nordic context to help ensure the valuable climate model outputs are FAIR and open.  <a href="#">Read more about the hackathon and register »</a></p>

22

Apr

### Stockholm University Sustainability Forum 2021

The Sustainability Forum – Hållbarhetsforum – is a recurring event at Stockholm University where people can meet, build networks, and create collaborations for sustainable development. The third Sustainability Forum will be held on 22 April on the theme "From crisis to sustainability". [Read more on Stockholm University's website »](#)

17-19

Aug

### Geological Society of Sweden - 150 years anniversary meeting

In 2021 it is 150 years since the Geological Society of Sweden was founded. To commemorate this, a meeting will be held in Uppsala 17–19 August 2021.

The meeting is open to all geoscientist that are active in Sweden or have an interest in Swedish geoscience.

**Deadline for abstract submission:** April 30

**Deadline for registration:** July 30

**Venue:** Department of Earth Sciences, Uppsala University and the Geological Survey of Sweden, close to the city centre.

[Read more on Department of Geological Science's website »](#)

Due to COVID-19, the Bolin Centre Office will be irregularly staffed at the University. Like many of you, we work from home. Don't hesitate to get in touch with us via mobile or e-mail.

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- Eva: 076-650 03 08, [eva.gylfe@su.se](mailto:eva.gylfe@su.se) (Supports the office part-time during the spring).

The **Bolin Centre Weekly News** provides you with a selection of our current activities and latest news and is sent to all members of the Bolin Centre. If you have suggestions that you would like to include or **research that you would like to share** in coming Weekly News, please contact [bolin@su.se](mailto:bolin@su.se).

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