



October 2017

The Bolin Centre is a multi-disciplinary consortium that conducts research, graduate education and outreach related to the Earth's climate. If you have news for the Bolin Centre Newsletter, please email us at bolin@su.se.

Director's Corner

- Birgitta Tullberg, Professor of Evolutionary Ecology, Head of Department at Zootis and one of our Board members has tragically and suddenly passed away. We will miss Birgitta's warmth, kindness and wisdom at future Board meetings and we extend our sympathy to everyone at Zootis, Birgitta's many friends and family.
- The Director's announce monthly informal RA co-leader "fika" meetings on the first Thursday of every month. We also remind all of our members about the Bolin Days on November 22 and 23. This is our celebration of climate science at which we share our findings with each other over the past year. We look forward to exciting talks, inspiring posters and lively discussions. We encourage all of our members to attend not only their own RA's session but the entire Bolin Days. In doing so, you will find new avenues of collaboration.
- The Bolin Centre, the Resilience Centre and the Department of Political Sciences at Stockholm University are partners on a proposal lead by Karin Bäckstrand, Professor in Environmental Social Science at SU. The proposal seeks funding for establishing a Research School on Environment, Climate and Sustainability and has been submitted in response to a call from the Human Science Area at Stockholm University, aiming to foster cross-faculty co-operation

Research Area 1: Oceans-Atmosphere Dynamics and Climate

- The Southern Ocean Workshop, which took place in October 9-10 2017, was funded for a large part by RA1. 20 different speakers from six different countries presented ground breaking research on processes in the Southern Ocean. The workshop resulted in new ideas and collaborations between Bolin Centre scientists and others.



Photo: Participant at the workshop.

Research Area 2: Clouds, Aerosols, Turbulence and Climate

- We continuously accept applications from our RA members for research activities. Funded projects the last month include a workshop on chemical ionisation mass spectrometry, organised by Claudia Mohr at ACES.

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Research Area 3: Hydrosphere, Cryosphere and Climate

- Gabrielle Stockman has received support from RA3 and RA4 in September for a new ikait project: "The role of bacterial biofilm (EPS) on ikaite column formation".

Research Area 4: Biogeochemical Cycles and Climate

- We welcome Gustaf Hugelius as new co-leader for RA4!
- As mentioned above, Gabrielle Stockman received support from RA3 and RA4 in September for a new ikait project: "The role of bacterial biofilm (EPS) on ikaite column formation"
- Gabrielle Messori received support from RA4 in October for the project "Atmospheric pathways to improve seasonal predictability of the terrestrial carbon cycle".

Research Area 5: Historical to Millennial Climate Variability

- RA5 has supported a workshop on Climate change and other pressures on Northern Sweden landscapes conducted at Tarfala Research Station, September 1-4 2017. During the workshop ongoing research on climate change, monitoring of mountain climate, effects on ecosystem and wildlife was presented and potentials for future new projects across disciplines were discussed. Funding from Bolin Centre was used for local transport with helicopter and housing at Tarfala research station. 13 participants from Stockholm University, SLU, KTH, University of Oulu, University of Copenhagen and Högskolan Dalarna attended the workshop.
- RA5 has funded five projects:
 - GPR Methods for Determining Carbon Stocks and Bottom Topography of Peatlands, Benedict Reinardy, Richard Gyllencreutz, Jenny Sjöström
 - Tree-rings as an indicator of climatic and anthropogenic influences in urban environments – The case study of Stockholm, Eva Rocha
 - Tephrochronology of São Miguel, Azores Islands and potential links with Scandinavian peat records, Stefan Wastegård, Hans Johansson, Mats Rundgren, Zilda Franca
 - Biomarker isotope analysis on the 9m long Eemian Interglacial lake sequence from Sokli (N Finland), Karin Helmens, Elin Norström
 - Soil organic matter (SOM) burial and preservation under solifluction lobes on Varanger Peninsula (N Norway), Peter Kurhy, Malin Kylander
- RA5 has also issued three meeting/travel supports:
 - Bench fee for six-month visiting scientist stay at the Department of Geography, University of Cambridge, UK, Fredrik Charpentier Ljungqvist
 - Funding to attend the "Paleochronology building workshop II" 8-12th of January 2018, Campeche, Mexico, Jenny Sjöström
 - Comparing paleo-lake modelling with lake proxies to study the impact of extreme seasonality on late glacial lake systems, Frederik Schenk

Research Area 6: Deep Time Climate Variability

RA6 has - among other things:

- Awarded 50 000 SEK to a project investigating Deep Time environmental conditions - including climate - through microbial communities in an Early Earth analogue environment in the Azores, led by RA6 members Anna Neubeck (IGV) and Callac Nolwenn (NRM).



- Awarded 57 000 SEK to retroactively cover unforeseen costs in connection with the recent PMIP4 conference to one of the organizers, Quing Zhang, RA5 co-leader.

Research Area 7: Landscape Processes and Climate

- Our RA7 seminar in the Bolin Centre Seminar series was a success! Prof. Kevin Bishop from SLU, Uppsala gave an interesting seminar with the title: *The forest cover-water yield debate: implications for land management in Ethiopia*. You can watch it [here](#).
- We invite interested to sign up for a one-day workshop with a focus on Africa. We are many researchers in our research area who study various aspects of ecology, hydrology, natural resource management, livelihood etc. with a climate focus/relevance in Africa. Therefore, we will organize a workshop to share scientific results, experiences and ideas for addressing new research challenges. The workshop is free and will include lunch and coffee.

Where and when? Villa Källhagen, 9:30-16:30, Tuesday December 5 2017

How? Register by sending an email to: Kristoffer.hylander@su.se. Only a few places left!

Research Area 8: Biodiversity and Climate

- Cecilia Kullberg contributed to the science festival ForskarFredag (researchers' Friday) for schoolchildren on the 29th of September, and presented research on bird migration and climate change, and the project Fågelkalendern (a citizen science program within the Swedish National Phenology Network).

Seminar co-hosted by Research Area 3 and 7

- On October 26 RA3 and RA7 co-hosted a seminar called *The value of multiple dataset calibration in hydrological modelling and its implication for hydropower production* with David C. Finger, Reykjavík University, Iceland. It was highly appreciated and approximately 15 persons attended from various organizations such as Vattenfall, SMHI and Stockholm University.



Photo: Speaker, organizers and attendees at the workshop.



Bolin Centre Database

- The number of datasets with metadata has now reached 100!
- Four new datasets have been released since the last Bolin Centre Newsletter:
 - Marine sediment core data from De Long Trough, Siberian margin and slope, Arctic Ocean (Matt O'Regan, et al.)
 - Biogenic and geochemical data covering the last 1700 years from a peat and sediment core from Mpumalanga Province, South Africa (Jenny Sjöström, et al.)
 - Bathymetry of Lake Tarfala, northern Sweden (Nina Kirchner, et al.)
 - Paleoenvironmental data from Lake Chilau, southern Mozambique, inferring savanna and lake level dynamics in the last 7700 years (Elin Norström, et al.) This is our 100th dataset!
- The previously published thematic presentation 'Swedish glaciers', containing a collection with photos, maps, videos and radar images (compiled by Per Holmlund), is now also included in our metadata catalogue.
- The proposed new national infrastructure "S-NICE" which was submitted to the VR call for "Infrastructure for the integration and accessibility of data for climate-related research" earlier this year was not funded.

Coordination & Communication

- **Coming events:**
 - **Bolin Centre Seminars:**
 - Research Area 8: December 4, 13h00–14h00, Ahlmannsalen
Titel: *Long-term biodiversity-climate disequilibria - a macroecological Perspective* by Prof. Jens-Christian Svenning, Aarhus University
 - **Bolin Days:** November 22-23. Read more and sign up here: <https://bolin.su.se/index.php/bolin-days>
 - **ESAG visit:** The External Science Advisory group, see www.bolin.su.se/index.php/external-science-advisory-group will visit during the Bolin Days 22-23 November.
 - **AGU conference:** The Bolin Centre will have a booth at the coming AGU in New Orleans, 11-15 December, see <https://fallmeeting.agu.org/2017>.
 - Please visit www.bolin.su.se for more events.

Member news

- Bolin Centre scientist Fredrik Charpentier Ljungqvist has recently published a popular science book about how the climate on Earth has varied since the end of the last Ice Age and how the climate changes have affected mankind throughout the course of history. The new book *Klimatet och människan under 12 000 år* (Stockholm, Dialogos, 2017: 456 pages), written in Swedish for a general audience, presents the latest research in climate history and highlights the relevance of climate history in our present time of anthropogenic global warming.
- Britta Sannel was an invited speaker at the conference *Globalizing polar issues: High altitudes meet high latitudes*, 11-12 September 2017 in Crans-Montana, Switzerland (arranged by the Swiss Polar Institute).
- Lindsey Higgins (RA5) successfully defended her doctoral thesis on 6 October 2017 at the Department of Physical Geography, Stockholm University. Her thesis was titled "Linking lake variability, climate, and human activity in Basotu, Tanzania."
- On October 4-6, Richard Gyllencreutz (RA4-6) supervised a group of 19 gymnasium students and 6 teachers from Blackebergs Gymnasium, Lundellska Skolan and Nynäshamns Gymnasium at Askö. They took 3-m long



sediment samples with a piston corer with the boat Limanda (Electra is in Estonia for maintenance), which archive the environmental history of the Baltic Sea back to almost 12 000 years ago. The students learned how to describe the sediment properties and to interpret stages of the Baltic Sea (like when Askö was close to the ice margin in an ice-dammed meltwater lake) and events of erosion or anoxic bottom water. They also subsampled the cores for organic carbon analysis using loss-on-ignition, which will be performed in their respective schools ceramic ovens. The results of the core descriptions and analyses will be used in the students' theses (Gymnasiearbete).

- Claudia Mohr (RA1-8) was awarded an Outstanding Early Career Scientist Award from the European Geosciences Union.

Upcoming conference and workshops outside the Bolin Centre

- **European Geosciences Union (EGU) 2018**

Together with his co-conveners Matthias Forkel (TU Vienna), Gitta Lasslop (Senckenberg Biodiversity and Climate Research Centre) and Thomas Pugh (University of Birmingham), Martin Thurner from RA4 and ACES is organizing a session in the European Geosciences Union (EGU) General Assembly: ***Constraining global vegetation carbon stocks and fluxes – support for a continuous land sink?***

Abstract submission is now open (deadline 10.01.2018). Read more here:

<http://meetingorganizer.copernicus.org/EGU2018/session/27279>

- **The Rossby Prize Ceremony in Nordic Geophysics 2017**

Welcome to the Rossby Prize Ceremony and Symposium on the theme Water and the Environment. The event is free of charge and open to the public but registration is required for all participants. Lectures by:

- Kevin Bishop, Rossby Laureate 2017, The Swedish University of Agricultural Sciences, Sweden
- Claudia Teutschbein, Uppsala University, Sweden,
- Andreas Aspö Pfaffhuber, The Norwegian Geotechnical Institute, NGI, Norway
- Niclas Hjerdt, SMHI, Norrköping, Sweden

Where and when? The Beijer Hall of the Royal Swedish Academy of Sciences, 8 Nov 2017, 9:00-12:15

Read more here: <http://www.kva.se/en/kalendarium/the-rossby-prize-in-nordic-geophysics-2017>

New publications related to Bolin Centre for Climate Research

Bonaglia, S., Brüchert, V., Callac, N., Vicenzi, A., Chi Fru, E., Nascimento, F. 2017: Methane fluxes from coastal sediments are enhanced by macrofauna. *Scientific Reports* **7**, 13145. DOI:[10.1038/s41598-017-13263-w](https://doi.org/10.1038/s41598-017-13263-w)

<https://www.nature.com/articles/s41598-017-13263-w>

Hartl-Meier, C. T. M., Büntgen, U., Smerdon J. E., Zorita, E., Krusic, P. J., Ljungqvist, F.C., Schneider, L., and Esper, J. 2017: Temperature covariance in tree-ring reconstructions and model simulations over the past millennium.

Geophysical Research Letters, **44**: 9458–9469

Muster, S., Roth, K., Langer, M., Lange, S., Aleina, F.C., Bartsch, A., Morgenstern, A., Grosse, G., Jones, B., Sannel, A.B.K., Sjöberg, Y., Günther, F., Andresen, C., Veremeeva, A., Lindgren, P.R., Bouchard, F., Lara, M.J., Fortier, D., Charbonneau, S., Virtanen, T.A., Hugelius, G., Palmtag, J., Siewert, M.B., Riley, W.J., Koven, C.D. & Boike, J. 2017: PeRL: a circum-Arctic Permafrost Region Pond and Lake database. *Earth System Science Data* **9**, 317–348.

<https://www.earth-syst-sci-data.net/9/317/2017/>

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Posledovich, D., Toftegaard, T. Wiklund, C. Ehrlén, J. Gotthard, K. (2017) Phenological synchrony between a butterfly and its host plants: experimental test of effects of spring temperature. *Journal of Animal Ecology*, In press.

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