



## May 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, please email us on [bolin@su.se](mailto:bolin@su.se)**

We ask all scientists for recent news about:

- Publications
- Funding
- Outreach
- Anything else you think we should know about

### Director's corner

- The Directorate has been busy contributing to the organization of the Climate Festival. We extend a special welcome to Dr. Thomas Cronin from USGS who will participate in the Festival as well as holding the annual Bert Bolin Climate Lecture.
- In order to facilitate the streaming of lectures, both during the Climate Festival and at other times, we have bought some technical equipment, so that two complete sets are now available (one at ACES, owned by ACES, and one at NG, owned by the Bolin Centre) for this purpose.
- We are presently investigating forms of cooperation with the Human Science Academic Area at Stockholm University and have scheduled a meeting with the Chair of their Board, Karin Helander.
- Finally, we have been made aware that there are technical issues with the system used to join the Bolin Centre. We are working on these issues and hope to have a new system up-and-running in June.

### Research Area 1: Oceans-Atmosphere Dynamics and Climate

- RA1 is having a workshop on Atmospheric extreme events on 5-6 October.

### Research Area 2: Clouds, Aerosols, Turbulence and Climate

- Through our continuous evaluation of applications from the research area we have funded a number of projects/trips. One of which was a project being conducted at Svalbard by an intern at ACES, Sarah Albertin. She visited the Zeppelin station for 10 days and is now back in Stockholm looking at the chemical composition of cloud condensation nuclei and ice forming particles collected in clouds (see details of the project and some nice photos in the attached).
- We held a research area-wide workshop that brought together 30+ scientists from SU, SMHI and KTH to discuss their science. Overall we think the day was a great success!
- Lars Ahlm has stepped down as research area co-leader and Frida and I would like to thank him for his contribution to the leadership.

### Research Area 3: Hydrosphere, Cryosphere and Climate

- Jerker Jarsjö and Magnus Mörth have stepped down as co-leaders for RA3. We hope to be able to announce new RA co-leaders to accompany Margareta Hansson at the end of May.

### Research Area 4: Biogeochemical Cycles and Climate

- In Research Area 4, we have start a new seminar series "**Biogeochemical Cycles and Climate**". This will be a new platform for exchange of **latest results and new ideas** for Bolin Centre biogeochemists and climate scientists. We aim for one seminar (30-45 min) per month on a Tuesday at 10:00 or 13:00 except July and August. The idea is to present each other our latest research in order to provide a basis for more collaboration

The Bolin Centre newsletter is issued after each Science Advisory Group meeting  
Please contribute your news by email to [bolin@su.se](mailto:bolin@su.se)

**Bolin Centre for Climate Research**

A collaboration between Stockholm University, KTH and the Swedish Meteorological and Hydrological Institute  
[www.bolin.su.se](http://www.bolin.su.se)



**Stockholm  
University**



between different research groups in the research area. Researchers and Ph.D. students at all levels of experience are welcome to contribute. In addition, guests will have the chance to present their latest research. For any comments or if you are interested to present your topic, please contact [christian.beer@aces.su.se](mailto:christian.beer@aces.su.se).

- The first seminar was held at **28/3, 10:00-10:45 in the Geo-Building room Y21**.  
Speaker: Dr. Martin Thurner, ACES  
Title: "**Large-scale investigations of forest carbon fluxes based on Remote Sensing biomass products**".

## Research Area 5: Historical to Millennial Climate Variability

- With the support from RA5, Fredrik Ljungqvist attended EGU and PAGEs and gave talks at each. Gabriele Messori was on a RA5 funded research visit to LSCE CNRS laboratory near Paris.
- RA5 modelling group will attend EC-Earth meeting 29-31 May in Helsinki to discuss the preparation for CMIP6, Bolin Centre/SU group is responsible for the PMIP4 runs.
- With the funding from STINT, a summer course 'Climate model simulations' organised by Qiong Zhang will be held in Lanzhou University in China, 19-30 June. Five PhD students from Bolin Centre will join the course.
- PMIP 2017 conference will be in Stockholm 25-29 September ([www.pmip2017.se](http://www.pmip2017.se)), deadline for abstract submission is 7 June.
- IPA-IAL Joint Meeting is in preparation now: <http://ipa-ial.geo.su.se>
- RA5 'Green Sahara' collaboration recently had two new exciting publications:
  - Francesco S. R. Pausata, Kerry A. Emanuel, Marc Chiacchio, Gulilat T. Diro, Qiong Zhang, Laxmi Sushama, J. Curt Stager, and Jeffrey P. Donnelly, 2017: Tropical cyclone activity enhanced by Sahara greening and reduced dust emissions during the African Humid Period, PNAS (will be released at online early edition on 29 May).
  - Pausata S.R.P., Q. Zhang, F. Muschitiello, Z. Lu, L. Chafik, E. M. Niedermeyer, J. C. Stager, K. M. Cobb and Z. Liu, 2017: Greening of the Sahara suppressed ENSO activity during the mid-Holocene (accepted by Nature communications).
- On 11 May, RA5 member Gustav Strandberg defended his PhD thesis "Modelling regional climate vegetation inter-actions in Europe - A palaeo perspective".
- On 22 May, RA5 held the Bolin Centre Seminar series and invited Ben Smith from Lund University had a talk "Do we need to account for ecology to model climate change?"

## Research Area 6: Deep Time Climate Variability

- **Visit to Max IV institute, Lund.** On Thursday 11th May a number of Stockholm University scientists, including several from the Bolin Centre (representing RAs, 4, 5, 6, 7 and 8, and including Helen Coxall, Volker Bruchert, Zahra Kalantari, Sören Nylin, Richard Gyllencreutz) visited the Synchrotron Radiation Research facility in Lund (<http://www.sljus.lu.se>). The goal was to get a sense of the power of this new nationally funded tool with a view to realizing the applications for our own research. With regards to climate related applications, at least some of us felt that we could make use of the super high-resolution chemical an imaging spectroscopic techniques available in some way, e.g. for improved characterization of preservation in palaeoclimate archives, and in understanding chemical reaction pathways or processes within modern or ancient biogeochemical systems.
- **RA6 announce a new Masters course which could be of interest to Bolin Centre PhD students:** The course "Paleontology" which will be given in collaboration with the Swedish Museum of Natural History will include a strong focus on paleoclimate and Earth system science.



## Research Area 7: Landscape Processes and Climate.

- We have got 15 applications for PhD/postdoc projects. We now send out them to external reviewers and will take a decision in the end of August.
- We funded 8 smaller projects with the seed money.
- We will have a workshop with a focus on research in Africa in the fall (December 7)
- The first RA7-funded PhD-student position will be announced on September 1 by the Department of Ecology, Environment and Plant Science. It has been approved by the board of DEEP. The preliminary title is “Managing the microclimate for climate-tracking forest species” with Kristoffer Hylander as main supervisor.

## Research Area 8: Biodiversity and Climate

April 19-20, RA8 had a workshop at Tovetorp field station where we discussed preliminary proposals for PhD or post-doc positions. About 15 RA8 members and one external speaker attended the workshop. May 10 was the deadline for submissions of final applications. We received six applications for PhD and post-doc positions. These applications have now been sent out to external reviewers and we aim to decide on which projects to support before the summer.

## Coordination & Communication

- **Bolincentrums Klimafestival:** Was held May 15-May 17. We had 1324 registered participants, mostly children at comprehensive school and high school students. Activities during the week include hands-on activities based on research conducted at the Bolin Centre, exhibitions by organizations working on climate-related topics, film screenings, workshops and 14 lectures by Bolin Centre scientists. Astrid Söderbergh Widding, vice-Chancellor of Stockholm University, visited the festival and participated in one of the activities for younger children. We also received media cover by SVT, SVD Junior, Lilla Aktuellt and KTH:s magazine CAMPI. The festival was a success and we have received great feedback from the visitors!
- **Bolin Centre Seminars:** The RA3 and the RA4 seminars in the new seminar series were both very interesting and a link to the recorded films can be found on the Bolin Centre website.
- **Coming events:**
  - **Bolin Days:** This years Bolin Days are scheduled to 21-23 November.
  - **ESAG visit:** The External Science Advisory group, see [www.bolin.su.se/index.php/external-science-advisory-group](http://www.bolin.su.se/index.php/external-science-advisory-group) will visit during the Bolin Days 21-23 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](http://www.bolin.su.se) for more events

## Bolin Centre Database

- Seven new datasets have been published since January 2017. Ingmar Borgström (NG) contributed with Geomorphology and exposure datings in west-central Sweden. Barbara Wollfarth (IGV) contributed with five lateglacial and Holocene paleoenvironmental change datasets from Russia, Romania and Sweden. Christoph Pearce (IGV) contributed with The 3.6 ka Aniakchak tephra in marine sediments from the Chukchi Sea, Arctic Ocean.
- The Database Advisory Group (DAG) will meet on 13 June 2017. This is the first meeting of the DAG in its current form, i.e. including representants from all six SU departments, the KTH and SMHI. Joakim Philipson from the SU Library is an invited meeting guest, to strengthen collaboration between the library and the Bolin Centre Database.



## Bolin Centre Climate Research School

- The CRS announce the following upcoming courses (contact [bjorn.gunnarson@natgeo.su.se](mailto:bjorn.gunnarson@natgeo.su.se) for more details):  
October – Historical perspectives on climate change science (7.5 HEC)  
November – Proposal Writing and presentation techniques (2HEC)  
November–December - Statistics for the Geoscience (7.5 HEC)

## Bolin Centre Linking Program

- The Bolin Centre Mentoring Program has now extended its program beyond only Bolin Centre Scientists to also include non-climate scientists from interested participation departments which are at the moment IGV, MISU, and ACES. In May the Bolin Mentoring program gave an extra opportunity to sign up outside its usual November call. This resulted in 9 more scientists being linked up to mentors. In addition to the 13 pairs from the November round the program now includes 22 active mentee-mentor pairs from all 8 Bolin Centre departments as well as the Stockholm Resilience Centre. A big thank you to all the mentors who signed up, those actually serving as well as those on reserve.

## Member news

- Patrick Crill is teaching and leading discussions on methane sources at the California Institute of Technology, Pasadena CA ([workshop.caltech.edu/methane/workshop.html](http://workshop.caltech.edu/methane/workshop.html)).
- Brett Thornton is an invited speaker about methane budgets at the the SEARCH (Study of Environmental Arctic Change) workshop in Seattle, WA.
- Patrick Crill announces 2017 publications: The role of microbial communities in peatland methane recycling (Deng et al. in *Adv. Modeling Earth Sys.* doi: 10.1002/2016MS000817); Direct determination of the air-sea CO<sub>2</sub> gas transfer velocity in Arctic sea-ice regions (Prytherch et al. in *Geophys. Res. Letts.* doi: 10.1002/2017GL073593) and Measurement of the <sup>13</sup>C isotopic signature of methane emissions from northern European wetlands (Skiba et al. in *Global Biogeochemical Cycles.* doi: 10.1002/2016GB005504).
- Frederik Schenk announces 2<sup>nd</sup> Baltic Earth Conference, Helsingfors 11-15 June 2018.
- Martin Thurner announces a 2017 publication: Evaluation of climate-related carbon turnover processes in global vegetation models for boreal and temperate forests (Beer et al. in *Global Change Biology*, doi:10.1111/gcb.13660).
- Fabien Roquet announces a 2017 publication: Southern Ocean [in “State of the Climate in 2016”] (Mazloff et al. in *Bull. Amer. Meteor. Soc.*, 98).

## Outreach by Bolin Centre scientists

- **‘Climate, life and global warming’**: Helen Coxall bringing the climate change message to 225 school children at Futuraskolan, Stockholm using world maps and 300 plastic animals! On Friday 19th April Helen Coxall and a team of 4 IGV undergraduate student helpers gave an interactive presentation on ‘Climate, life and global warming’ to 225 school children at Futuraskolan, Stockholm. The motivation was ‘Earth Day’, celebrated on the 22nd April 2017. The activity involved teams of children, 7-12 years old, working with world maps (sourced from Martin Jakobsson's global bathymetric mapping endeavors) and toy animals: either modern or dinosaurs (whichever packet they were given). The children were asked to consider where these creatures live or lived naturally around the globe. Once the fun play part was over we had a big group discussion. The message was ‘climate determines animal distributions past and present’. Helen explained how high atmospheric CO<sub>2</sub> during dinosaur times created a greenhouse climate, where even the north and south poles were warm enough for plants and animals to live on land, very unlike today where only cold adapted specialists survive. This showed that climate change has happened before. Helen then explained that the worrying thing about today’s increasing CO<sub>2</sub>



and accompanying global warming is that it is happening much, much faster than any other previous climate swing so that Earth's natural populations, human society (farmers, town's close to water or deserts) do not have time to get used to the changes as they have done before. We concluded with what we need to do to slow this warming trend; clean energy, electric cars, recycling ... caring about the planet in all decisions we make in the future.

- Gabrielle Stockholm has contributed to **Polarfronten** with a report on ice and climate research in Greenland in which, among others, Martin Jakobsson features see: [issuu.com/polarfronten/docs/polarfronten1\\_2107](http://issuu.com/polarfronten/docs/polarfronten1_2107).
- Thomas Andrén has been interviewed by **Natursidan** about Baltic drilling (IODP Exp 347) – see: [www.natursidan.se/nyheter/nordeuropas-klimathistoria-kartlaggs-i-internationellt-borrprojekt/](http://www.natursidan.se/nyheter/nordeuropas-klimathistoria-kartlaggs-i-internationellt-borrprojekt/)

