

Time 22 August 2018, 13:30–15:30
Place Swedish Meteorological and Hydrological Institute (SMHI), Norrköping

Attending board members *Cynthia de Wit, Chair*
Magnus Breitholtz, Dep. of Env. Sci. and Anal. Chemistry, St. U., via skype
Ove Eriksson, Dep. of Ecology, Environment and Plant Sciences, Stockholm Uni.
Caroline Greiser, Student representative, Stockholm University
Arne V. Johansson, KTH Royal Institute of Technology
Bengt Karlsson, Dep. of Zoology, Stockholm University
Erik Kjellström, Rosaby Centre, Swedish Meteorological and Hydrological Inst
Regina Lindborg, Dep. of Physical Geography, Stockholm University
Carl-Magnus Mörth, Dep. of Geological Sciences, Stockholm University
Rodrigo Caballero, Dep. of Meteorology, Stockholm University

Other participants *Alasdair Skelton, Co-Director of the Bolin Centre*
Annika Burström, Coordinator & Communicator of the Bolin Centre
Karin Jonsell, Bolin Centre Coordinator & Communicator

Absent *Pelle Boberg, Swedish Environmental Protection Agency*
Nina Kirchner, Co-Director of the Bolin Centre

Secretary *Karin Jonsell*

§ 1	Meeting opens The Chair welcomed everyone.
§ 2	Appointment of protocol writer Karin Jonsell was appointed as protocol writer.
§ 3	Appointment of protocol checker Erik Kjellström was appointed as attester.
§ 4	Approval of the agenda The agenda for this meeting was approved with three additions under item 9: 9 d) Date for the Bolin Days set to 21–22 November 2018 9 e) CORDEX conference's request for funding from the Bolin Centre 9 f) SMS conference 10 October 2018 at the Bolin Centre
§ 5	Protocol from the previous meeting (Appendix 1) The protocol from the previous meeting was approved.
§ 6	Discussion of the ESAG report from the Bolin Days 2017 (Appendix 2) The report from the External Science Advisory Group (ESAG) in Appendix 2 was discussed. Members of the ESAG had different opinions regarding the inclusion of former EkoKlim science

	<p>in the Bolin Centre. Camille Parmesan had a dissenting view on some aspects of the report. Concerns were raised that the funding for the research in RA1–RA6 will diminish in the future when EkoKlim funding ceases and that RA7 and 8 need better integration into the work of the other RA groups in order to not spread the funding too thinly. The ESAG recommend that strategic planning be initiated to deal with this. The board discussed this and concluded that the merger of EkoKlim and the Bolin Centre has been successful and that the way forward is to aim for further funding.</p> <p>The ESAG is also concerned about the standard of the research presented by Research Area 3 (Hydrosphere, Cryosphere and Climate, RA3) at the Bolin Days. They suggested transferring some aspects of the science topic to other research areas. The Directors and co-leaders of RA3 have begun discussing this feedback from the ESAG. These discussions will continue this autumn.</p> <ul style="list-style-type: none"> • The ESAG also suggested that the Bolin Centre introduce focus regions and/or focus themes. This has been discussed in the Bolin Centre before and the Board suggests that one day of the Bolin Days be dedicated to a special focus area, e.g. the Arctic. • The ESAG proposed that they be consulted in the process of choosing new directors for the Bolin Centre. The board declined this proposition as the ESAG is an external advisory group and not directly involved in the running of the centre.
<p>§ 7</p>	<p>Recommendation of future leadership of the Bolin Centre to the dean of the Faculty of Science (Appendix 3)</p> <p>Alasdair Skelton and Nina Kirchner are both willing to continue as directors of the Bolin Centre, but to allow for the possibility that there may be others interested and suitable for the role, Cynthia de Wit asked the Science Advisory Group and the Bolin Centre board to send suggestions of potential candidates to her.</p> <p>Cynthia de Wit received three other nominations for the directorship: Erland Källén, Martin Jakobsson and Sara Cousins. All three were contacted and asked whether they were interested in taking on this task starting in January 2019. All three declined but expressed that they were honoured to have been nominated.</p> <ul style="list-style-type: none"> • The board therefore recommends that the Dean of the Natural Science Faculty recommend to the Vice Chancellor that Nina Kirchner be appointed <i>föreståndare</i> (Co-Director) and Alasdair Skelton <i>biträdande föreståndare</i> (Co-Director) for the Bolin Centre for the period 1 January 2019–31 December 2021. • The chair will contact Nina Kirchner and confirm the shift in the directorship. If Nina Kirchner wishes to continue as <i>biträdande föreståndare</i>, Alasdair Skelton will be recommended as <i>föreståndare</i>.
<p>§ 8</p>	<p>Proposal that the Bolin Centre offers to take over administrative responsibility for the annual Bolin Lecture from the Faculty</p> <p>The Bolin Centre is heavily involved in the selection process and planning of the Bert Bolin Climate Lecturer every year. The Faculty of Science officially administrates, funds and hosts the event, but the organisation of the Lecturer’s visit is in practice a co-arrangement with the Bolin Centre. The Directors of the Bolin Centre therefore proposed that the administration of the Bert Bolin Climate Lecture is transferred to the Bolin Centre from the Faculty.</p> <ul style="list-style-type: none"> • The chair will contact the Faculty and make a suggestion that the Bolin Centre take responsibility for the organisation and administration of the Bert Bolin Climate Lecture. Thus, the division of labour is suggested to be as follows:

	<ul style="list-style-type: none"> ○ Bolin Centre: <ul style="list-style-type: none"> ▪ Pre-selection process ending in a short list of candidates for the Bert Bolin Climate Lecture ▪ New: Administration of the lecturer's visit ▪ Organisation of the science seminar in connection to the visit ▪ Organisation of the science lunch with the Bolin Centre board ▪ New: Organisation of the Bert Bolin Climate Lecture with invitation to schools ▪ New: Organisation of the Bert Bolin Climate Lecture dinner with invitation to selected scientists ○ Faculty: <ul style="list-style-type: none"> ▪ Dean selects the Bert Bolin Climate Lecturer from a short list ▪ Provide funding for the travel and accommodation of the Lecturer, rent for location with fika and the costs for the following dinner for the Lecturer.
§ 9	<p>Information</p> <p>a) <i>Final adjusted strategic funds from the government (Appendix 4)</i> The final budget figures for the strategic funding (SFO) can be seen in Appendix 4. The budget has been increased by 1.84 % for the Bolin Centre including the EkoKlim funding.</p> <p>b) <i>Bibliometric analysis for the Bolin Centre during 2017 (Appendix 5)</i> As part of the Bolin Centre Report 2017, the Stockholm University Library did a bibliometric analysis of the Bolin Centre. The analysis shows among other things, the Bolin Centre's large international collaboration.</p> <p>c) <i>Bolin Centre report for 2017 (Appendix 6)</i> Karin Jonsell presented the newly developed Bolin Centre Report 2017. This is the first time such a report has been produced and it is a presentation both of what the centre is and what it has achieved during 2017. The report will be available in digital form from the Bolin Centre web page and printed in 100 ex.</p> <p>d) <i>Date for the Bolin Days</i> Date for the Bolin Days is set to 21–22 November 2018 and a board meeting will be held 23 November 13–16.</p> <p>e) <i>CORDEX conference request for funding from the Bolin Centre</i> The CORDEX conference was held at Stockholm University 2016 and has approached the Bolin Centre with a request for funding their next conference in Beijing. The Bolin Centre will reply that unfortunately neither manpower nor extra funding is available at the moment.</p> <p>f) <i>Svenska Meteorologiska Sällskapet, SMS, conference at the Bolin Centre</i> The Bolin Centre will co-sponsor the conference organized by Svenska Meteorologiska Sällskapet about the IPCC 1.5 degree report. The seminars will be held at Stockholm University 10 October 13–16.</p>
§ 11	<p>Next meetings</p> <p>The next board meetings will be determined by a Doodle, but there will be one meeting in October, one on 23 November 13–16, and one in December.</p>

Time	May 28 2018, 09:00–12:00
Place	Tarfal room T433, Geoscience building, Stockholm University
Attending board Members	<p><i>Arne V. Johansson, KTH Royal Institute of Technology</i> <i>Bengt Karlsson, Dep. of Zoology, Stockholm University</i> <i>Carl-Magnus Mörth, Dep. of Geological Sciences, Stockholm University</i> <i>Caroline Greiser, Student representative, Stockholm University</i> <i>Clare Bradshaw, Dep. of Ecology, Environment and Plant Sciences, Stockholm University</i> <i>Cynthia de Wit, Chair</i> <i>Gia Destouni, Dep. of Physical Geography, Stockholm University (present from Item 6)</i> <i>Jonas Nycander, Dep. of Meteorology, Stockholm University</i> <i>Pelle Boberg, Swedish Environmental Protection Agency</i></p>
Other participants	<p><i>Alasdair Skelton, Co-Director of the Bolin Centre</i> <i>Annika Burström, Coordinator & Communicator of the Bolin Centre</i> <i>Nina Kirchner, Co-Director of the Bolin Centre</i></p>
Absent	<p><i>Erik Kjellström, Rossby Centre, Swedish Meteorological and Hydrological Inst</i> <i>Karin Jonsell, Bolin Centre Coordinator & Communicator</i></p>
Secretary	<i>Annika Burström</i>

§ 1	<p>Meeting opens</p> <p>The Chair welcomed everyone.</p>
§ 2	<p>Appointment of protocol writer</p> <p>Annika Burström was appointed as protocol writer.</p>
§ 3	<p>Appointment of protocol checker</p> <p>Caroline Greiser was appointed as attester.</p>
§ 4	<p>Approval of the agenda</p> <p>The agenda for this meeting was approved with three additions under Item 10:</p> <p>10 d) Report from the Climate Festival 10 e) Climate solutions 10 f) Carbon footprints</p>
§ 5	<p>Protocol from the previous meeting (Appendix 01)</p> <p>The protocol from the previous meeting was approved.</p>
§ 6	<p>Discussion and decision on percentage time to be funded by the Bolin Centre for 2019 for the two Bolin Centre directors (Appendices 2a-b)</p>

	<p>The board first discussed how the percentage time should be divided between the two directors and if the current 50/50 split is best or if it should be left to the directors to decide how to split the time. The board decided to continue with the 50/50 split, but if the two directors wish to split the percentage time in a different way in the future, they are welcome to approach the board regarding this for a decision.</p> <p>After discussion, the board decided that in order for the Bolin Centre to keep developing, 100 % in total is needed for the two directors for the period 2019-2021.</p>
<p>§ 7</p>	<p>Update on the process for recommending future leadership of the Bolin Centre to the dean of the Faculty of Science</p> <p>AS and NK are both willing to continue as directors of the Bolin Centre, but to allow for the possibility that there may be others interested and suitable for the role, CW has asked the SAG to send suggestions of potential candidates to her.</p> <p>Board members are also asked to go out to their respective organisations and ask for nominations. These should be sent to CW by June 8, kl 17.00. Please include a short motivation for your nomination (just a few lines). A general criteria that was discussed by the SAG is that whoever takes on these roles needs to be enthusiastic about doing the job.</p> <p>Once CW has names of potential candidates, she will contact them to see if they are interested in taking on this role. Depending on the outcome, CW will suggest that a small group from the board carry out interviews of all candidates who are interested in the role as director after the summer.</p> <p>CW will send an email about the possibility to nominate candidates to the board. The board is free to circulate this email to whomever they feel is concerned.</p>
<p>§ 8</p>	<p>Swedish Museum of Natural History, NRM as special partner to the Bolin Centre (Appendices 3 a-b)</p> <p>SU has written an agreement for cooperation with the Swedish Museum of Natural History, NRM see Appendix 3a. The SAG has thus recommended that the NRM should be invited to be a special partner to the Bolin Centre, next to KTH and SMHI. If this is accepted the NRM should also be invited as a board member, with subsequent change in statutes for the Bolin Centre.</p> <p>The board decided that this request was best handled by adding to the existing agreement between SU and NRM. It states that permanently employed professors and researchers at NRM are affiliated to SU. The proposed addition would be that specifically for the Bolin Centre this would extent to researchers without permanent employment and to PhD students. Thereby all professors/researchers/research students at NRM would be eligible as members of the Bolin Centre to apply for funding on the same terms as SU/KTH/SMHI employees.</p>
<p>§ 9</p>	<p>New statutes for the Bolin Centre (Appendix 4)</p> <p>The changes in the statues, Appendix 4, are based on inclusion of the NRM as special partner. Since the board considered it better to add to the existing agreement between SU and NRM, the proposed additional changes are not needed. The board did not consider NRM representation on the board as necessary because NRM (in contrast to the SU Departments) are not financially dependent on decisions made by the board.</p> <p>The board decided that the following passage in Appendix 4, therefore be deleted:</p> <p style="background-color: yellow;">Den 5 december 2017 undertecknades en överenskommelse mellan Stockholms universitet och Naturhistoriska riksmuseet (NRM) om samarbete inom forskning och utbildning. Av denna anledning ingår även NRM i Bolincentret.</p>

The following passage in Appendix 4, is to be changed from:

Bolincentret leds av en styrelse och en föreståndare. Styrelsen består av en ordförande och **11** övriga ledamöter, vilka utses för en period om tre år av rektor vid Stockholms universitet på förslag av vicerektor efter yttrande av områdesnämnden för naturvetenskap. Ledamot från SMHI, KTH och **NRM** utses efter samråd med respektive organisation. Ledamot kan omförordnas.

to:

Bolincentret leds av en styrelse och en föreståndare. Styrelsen består av en ordförande och **10** övriga ledamöter, vilka utses för en period om tre år av rektor vid Stockholms universitet på förslag av vicerektor efter yttrande av områdesnämnden för naturvetenskap. Ledamot från **SMHI och KTH** utses efter samråd med respektive organisation. Ledamot kan omförordnas.

The following passage in Appendix 4, is to be changed from:

en representant vardera från **SMHI, KTH och NRM** med var sin suppleant,

to:

en representant vardera från **SMHI och KTH** med var sin suppleant

The board also recommended that the directors, who appoint RA-co-leaders, consider the time span for how long RA-co-leaders may serve. The recommendation from the board is that co-leaders can be re-elected for a second 3 year period, but preferably not for a third period.

Information

a) AGU/GPI Summit, March 2019 (Appendix 5)

The Bolin Centre will co-host the AGU/GPI Summit, March 18 to March 21, 2019. The Bolin Centre will sponsor the summit by paying the cost of DeGeersalen and Nordenskiöldsalen in the Geoscience building, total of 34 560 SEK. CW mentioned that SU has a new agreement with Stockholms Stad. Stockholm Stad might be interested in participating in the summit. AB will keep contact with CW regarding this.

b) MUSA project (Appendix 6)

The Bolin Centre is starting a new project together with the External Relations Department at SU. The working name for the project is the Bolin Centre Climate Arena. The aim is to learn how to cooperate with actors outside the academia.

c) Per capsulam decision (Appendix 7a-b)

Information was given about the per capsulam decision for a post-doctoral position in RA 8. The per capsulam decision is put to the archives.

d) Report from the Climate Festival

Over 1200 persons visited the Climate Festival and the overall response from them has been very positive. A TV-team from UR Samtiden filmed all the popular science talks, and this will be made into a TV-program which will probably be aired in the fall. UR Samtiden's programming can be viewed on Kunskapskanalen, on www.urplay.se, on www.urskola.se and in UR's closed network (UR access), which can be accessed for instance by students and teachers.

	<p>The total cost for the Climate Festival was approximately 250 000 SEK, of which the Faculty provided 150 000 SEK. This is a reduction to approximately 50% of the level for 2017.</p> <p>e) <i>Climate solutions</i> The Bolin Centre will work together with the University of California to establish “Climate solutions” – a flipped classroom course for first year university students and potentially final year high school students which aims to convey solutions to climate change.</p> <p>f) <i>Carbon footprints</i> The Bolin Centre together with the Swedish Environmental Protection Agency (Naturvårdsverket) are presently discussing how to encourage transparency with regards to consumer related carbon footprints, so that consumers are made aware of the carbon footprint of purchased items and services.</p>
§ 11	<p>Next meetings</p> <p>August 22, entire day at SMHI in Norrköping</p>

Annika Burström
Secretary

Caroline Greiser
Attester

Cynthia de Wit
Chair of the Board

February 10, 2018

2017 Report of the Bolin Centre External Science Advisory Group

R. T. Pierrehumbert (Chair), D. Chen, E. Jansen, K. Kohfeld,
A. Lindroth, C. Parmesan, A. Rinaldo

1. Overview

The External Science Advisory Group (ESAG) attended the Bolin Days presentations on 22-23 November, 2017, and presented some of their own work in a series of brief lectures on 23 November. Two important novel features of the Bolin Days this year were presentations covering selected research by the former Ekoklim group after its first year of operation as part of the Bolin Centre, and presentations by representatives of the Human Sciences Academic Areas. The ESAG met on 24 November to discuss findings and recommendations; Prof. Nina Kirchner was present ex-officio for a portion of these discussions. All members of ESAG were present at the Bolin Days and at the ESAG meeting. Findings and recommendations were conveyed verbally by the ESAG Chair to the Bolin Centre Directorate and representatives of the Science Advisory Group. A summary of findings and recommendations is provided below. One member of the ESAG (C. Parmesan) dissented from some of these findings and recommendations; her comments are provided in Appendix A.

2. Core Bolin Centre areas of strength

To a large extent, the core areas of strength in the Bolin Centre mirror the research interests of Bert Bolin, which includes all crucial aspects of the terrestrial and marine carbon cycle. This enterprise is greatly enriched by the historical and continuing strength of MISU in cloud and aerosol physics. The common feature of these research areas is that they all engage processes with a global impact. The research presentations in these areas (RA 1,2,4 5 and 6) were uniformly impressive. It is essential to preserve these core areas of strength, and nurture their future development.

Hydrology is an extremely important subject, particularly from the standpoint of human impacts of climate change. However, the presentations on hydrology appeared to us to be less scientifically impressive than the state of the art could support. This remark does not apply to the presentation on the cryosphere, which was very much of the same high calibre as the RA 1,2,4 5 and 6 presentations. Cryospheric work (with the possible exception of work on snow cover) does not sit naturally in RA3. The presentations on hydrology suggested to us that opportunities for integration and cross-fertilization of research ideas are being missed because of the isolation of hydrology in its unique section. It is our understanding, however, that the leadership of RA3 has only recently changed, and that the new practices they have established have not yet had time to show their impact; it is to be hoped that under the guidance of the new leadership, the quality of the work in hydrology in the Bolin Centre will come up to the standard of the best the field has to offer.

Recommendation: We recommend that cryospheric research be moved to RA1 and that the name of RA1 be changed to refer to “ocean-atmosphere-cryosphere.” It would also be possible to group cryospheric research with Deep Time (RA 6), but insofar as cryospheric research is pertinent to present and future climate, as well as deep time, it sits more appropriately in RA1.

3. Challenges: Integration of Ekoklim research

Ekoklim originated as a separate research centre, with goals of its own distinct from the Bolin Centre, but was merged into the Bolin Centre approximately one year ago, where it functions as research streams RA 8 (Biodiversity and Climate) and RA 7 (Landscape Processes and Climate). It is the understanding of ESAG that this was done in response to a cut in government funding for the two centers together by an amount approximately equal to the funding of Ekoklim, though some of the original Ekoklim funding is maintained during a transitional period. This will eventually put the Bolin Centre in the position of attempting to do the work of the original Bolin Centre plus the work of Ekoklim, under the same funding level of the original Bolin Centre alone. This is not a sustainable situation, and barring the identification of additional sources of funds, some type of adjustment will need to be made in the next few years.

The impact of climate change on ecosystems, and the way changing ecosystems in turn feed back on the climate system, is an important and challenging part of understanding the human imprint on our future environment. A general strong suit of the Ekoklim presentations

is that the presenters were very successful in communicating their research to a non-specialist audience. Some aspects of Ekoklim research have the potential to fit very naturally into the generally global focus of the problems treated by the original Bolin Centre. The presentation in RA 7 on “blue carbon” is an example of work with such potential, and the work on effect of land use change on tree growth (RA 8), while less sweeping in its implications, can usefully inform the sort of dendroclimatology studies traditionally done in RA5, though in both cases work needs to be done to scale beyond the present regional focus and improve the quantitative characterization of the results. Other work done as part of Ekoklim, however, particularly the remaining RA7 presentations, tend to focus on climate effects on the microcosm. This makes for fascinating and even important science, but it is difficult to scale from these individual narratives to the bigger picture of how climate affects global ecosystems. To be sure, there is the chance that by putting together enough narratives of the microcosm, it may be possible to build up to a more global picture, but it is not clear that the Ekoklim researchers are headed in that direction, or that it is one of their priorities.

The challenge going forward is to determine how Ekoklim research can evolve in a direction where it can profit more from the synergy of being embedded in the Bolin Centre, and where it can have more productive interactions with RA 1-6. We make no specific recommendations at this point as to how the desired evolution is to be fostered, except to caution that dividing up funding so as to maintain all existing research themes in RA 1-8 is not a recipe for success, and some decisions about how to best deploy resources across all the disciplines involved will need to be made.

Recommendation: There needs to be a common strategic planning initiative in which the above-mentioned issues of integration are discussed. The Centre's recent effort to promote this integration through integrated funding calls is a step in the right direction. This type of effort helps to identify which researchers are genuinely interested in working towards the common goals of the Bolin Centre.

4. Challenges: Collaboration with Human Science Academic Area

The ESAG had concerns about the quality of the engagement of the representatives of the Human Science Academic Area with the work going on in the Bolin Centre. The talks drew almost not at all on any scientific insights from Bolin Centre research, and indeed showed very little awareness of basic climate physics. It was symptomatic that the speakers

in the Human Science Academic Area came in just for the presentations of their own group, and were not in evidence for the rest of the Bolin Days presentations. A great deal more will need to be done to create a collaboration that produces meaningful interdisciplinary research at the intersection between human and climate science.

There are deep opportunities for cross-fertilization between hard-science aspects of the climate problem and areas of the humanities and social sciences such as moral philosophy, ethics, literature, political science and economics. Engaging with the visual arts as a means to communicate the meaning of scientific results is also a potentially fruitful avenue to pursue. We found it strange that the presentations did not include any representation of Economics, as this provides one of the most fruitful and proven avenues for collaboration; the Stockholm Universitet Economics Department has a small but world-leading program in climate economics, with a proven track-record of fruitful collaborations with Bolin Centre scientists, and indeed is a world leader among economics departments in taking physical science seriously in economic modeling. There are good opportunities for constructive engagement with political science, in that political scientists in principle, provide the bridge between what scientists know needs to be done and what policies could cause that to happen, and conversely provide the expertise to analyze the physical consequences of various proposed policies (e.g. on how to price methane vs carbon dioxide emissions). The talk by Andreas Duit on The Environmental State seemed promising to us, as it contained quantitative analysis of what kinds of policies are actually enacted, which in turn provides Bolin Centre scientists with some indication of what message is getting through to policymakers.

Moving to a related matter, the ESAG is well aware of some of the controversy surrounding some of the efforts of the Stockholm Resilience Centre, but this centre does have a track record in constructive engagement between physical and ecological sciences and the social sciences. The ESAG is of the opinion that it would be worthwhile exploring the possibility that the activities of the Resilience Centre could be leveraged to contribute to ideas for productive collaborations involving Bolin Centre researchers and the social sciences.

5. General recommendations

The ESAG makes the following general recommendations:

- It is important to have a plan for leadership succession, and appointment of an interim co-leader would smooth the transition to the new leadership. The Science Advisory Group should have a role (at least consultative) in the designation of the new leader, as should the ESAG.

- The focus of the Bolin Centre should be kept on fundamental scientific research having a bearing on climate, and it is important to avoid diluting the efforts of the Centre by attempting to pursue research in too many areas. This may require some difficult decisions regarding the most promising areas to support in the future. Strategic merging of RA's , rather than creating new ones, may be a way to avoid fragmentation of Bolin Centre core research.

- Leveraging of Bolin Centre funding by external grants, including ERC grants, should be vigorously pursued. In particular, efforts to improve the success rate of ERC proposals need to be put in place. Foundation support, e.g. through the Wallenberg Foundation, is also a promising source of additional funds. To improve success rates, it is likely that Bolin Centre researchers will need to be given release time from teaching and administrative duties when writing large proposals. More generally, the ESAG is concerned that the reversion of the teaching load of Bolin Centre faculty to the very taxing Stockholms Universitet norms will make it hard to maintain the historically high research excellence and productivity of the Bolin Centre. Given financial realities, it is likely that the only way to address this threat is to increase the amount of grant funding available for teaching buy-outs.

- Core funding of the Bolin Centre from Swedish government sources is assured through 2020, but a plan needs to be made for sustaining the Centre thereafter. It is to be hoped that continued excellence of the Centre will be recognized and will merit extension of the present funding regime, but beyond that, there is much Bolin Centre research that could be Funded through the EU's Horizon 2020 program. This applies particularly to the Horizon 2020 themes on building a low carbon sustainable future. The Bolin Centre is also well positioned to take advantage of funding calls on impacts of climate change (including cryospheric effects); with improvements in collaborations with the Human Sciences area could potentially be positioned to win funding in areas that engage sociology, political science and economics.

- The targeted workshops funded by the Bolin Centre have been highly successful. They have led to prominent publications, fruitful collaborations with other institutions, and have generally helped to increase the international reputation of the Bolin Centre.

- More could be done to exploit the advantages of developing and deploying a shared modeling infrastructure that could serve the needs of multiple RA streams within the Centre, and foster deeper collaborations amongst them. For global climate modeling EC-

Earth is beginning to become a very valuable tool. The database infrastructure is a good start, but should be expanded to include archives of significant climate model simulations. A similar support infrastructure is needed to assist users with shared models (or modeling toolkits) that could advance their research goals. New climate simulations, or downscaling of existing simulations, could potentially assist Ekoklim research themes RA 7 and RA 8, and deepen collaborations between these researchers and the rest of the Bolin Centre.

- Some ESAG members have suggested that it is worth considering the establishment of special “focus regions” (e.g. the Arctic) or “focus themes” (e.g. Carbon and Climate), singled out for more intensive study and funding. These could be changed on a 3 or 5 year rotation. Alternatively, a few “Flagship Projects” could be designated from time to time.

6. Desiderata for 2018 Bolin Days

While attendance at the Bolin Days was generally good, there was a general tendency of participants to drop in just for the portion of the presentations engaging their particular interests, rather than staying for all presentations. This is no doubt due, in part, to the normal demands of an academic life (teaching, committee meetings, grant deadlines), but it would be highly desirable to find a way to encourage more of the Bolin Center members to attend the Bolin Days in their entirety. This may involve rescheduling competing demands on participants’ time. The suggestion was floated on having the Bolin Days “away” at a conference venue, but such a move would not only be expensive, it would likely reduce participation from those who are not in a position to be away from home overnight.

We appreciate the attempts by the Bolin Centre executive to minimize the administrative burden on researchers. A more "top-down" administrative approach, e.g. reserving or dedicating some of the funds to promote specific strategic directions within or between groups (e.g. topic integration calls, focus groups, or targeted areas) - could be beneficial going forward.

The ESAG is of mixed opinion about the benefits of including overview material in the Bolin Days presentation, going over organizational matters, funding issues and so forth. Some of us found that material useful, while others found it an annoying distraction from the science, but it is generally agreed that such material, if presented, should not make up more than a minor part (10 minutes or so) of the RA group’s presentation. Several ESAG members also suggested the inclusion of an annual report for the ESAG to free up time to focus on scientific advances. There was also a general sentiment that some of the RA group

presentations could do better at highlighting just the few most important accomplishments of the year, as opposed to trying to give a comprehensive overview of everything that is going on.

As a parting word, the ESAG is unanimously of the opinion that the Ceilidh is a marvelous way to celebrate the year's accomplishments, and is a tradition that should be preserved going forward. At least one ESAG member believes the Ceilidh would be enriched by expanding its scope to include a bit of the Nordic repertoire (polska, schottish, jenka, and minor-key waltzes) .

Appendix A: Dissent by C. Parmesan

I wish to voice my dissent on the 2018 ESAG report to the Bolin Center. The overall tone of the original draft was very negative about the recent incorporation of Ekoklim into the Bolin Center.

In response to comments made by the ESAG, the final draft was somewhat modified, but I still found the tone applied to the Ekoklim research to be too negative and too strongly oriented towards ecosystem-level questions and too unappreciative of the presented ecological work conducted at the population or community levels. I voiced my concerns about the 2nd draft, but was unable to get further changes made, even though there was time for revision. I'm assuming the last draft I saw was indeed sent to you, and my comments below are based on what we were sent as the "final" draft.

First, I want to emphasize how impressed I was with the research presented by the former Ekoklim groups (RA7 and RA8). Much of the research was of a quality that would be publishable in top-ranked international journals (perhaps already is), and the presentations were well-developed and clear to a diverse, interdisciplinary audience. It is notable that the first place in the poster awards was from research out of these two groups.

The report as now worded misunderstands what the bulk of ecologists do. It emphasizes the need for ecosystem-level research, which is more the realm of biogeochemistry (*e.g.* carbon-cycling and carbon budgets) than of organismal biology (*e.g.* biodiversity). It is my impression that ecosystem research is outside the expertise of most (all?) biologists at Univ. of Stockholm. Conversely, the report was unappreciative of the powerhouse of ecological work being done out of Ekoklim, and now Bolin Center, and conducted at the population and community levels - levels at which most ecologists work. The report refers to such research in a derogatory manner, suggesting all such work is only at the "microcosm" scale. This is incorrect.

Working at the species level is fundamental to ecological work, even if the questions are about community level responses or watershed-scale responses. There are many ways of linking species-level work (a more correct term than "microcosm") to other scales (such as community-level processes, or regional processes). I agree that we should encourage better integration among disciplines, but saying that biologists should, then, not work at the species-level is inappropriate and unhelpful.

That being said, it is useful to note that there are some recent efforts to connect population and community processes with ecosystem processes (*e.g.* some of the recent papers by Michel Loreau and colleagues). But note that the fundamental unit in this growing body of research is still the individual species, and the fundamental questions are still centered on impacts at the species level - *e.g.* on biodiversity resilience and stability - and on how species resilience or turnover may connect to ecosystem process stability.

For future research, I agree with the report that the Bolin Center should encourage greater integration of species-level work into the understanding of other scales, such as community responses to climate change, landscape processes, ecosystem processes and resilience at all scales to global change (human) drivers. The specific recommendation that is in the report is to integrating diverse projects at the watershed scale. I agree that such coordinated research by different RAs will help to achieve these connections among organismal levels of study.

Appendix 3

Results of the process for recommending future leadership of the Bolin Centre to the dean of the faculty of science

The chair of the Bolin Centre, Cynthia de Wit, previously met with the SAG on 180516 and asked for nominations of potential candidates to take on the task of being co-directors of the centre. At the latest Bolin Centre board meeting on 180526, she invited the board to also nominate potential candidates. The current co-directors, Alasdair Skelton and Nina Kirchner, also made it clear that they are both willing to continue as directors for another 3-year period. The deadline for nominations was 180608.

The chair received an additional three nominations for the directorship: Erland Kallén, Martin Jakobsson and Sara Cousins. All three were contacted and asked whether they were interested in taking on this task starting in January 2019. All three declined but expressed that they were all very honored to have been nominated. Thus, Alasdair Skelton and Nina Kirchner remain as the only candidates willing to take on the task as co-directors for the next 3-year period.

The board will discuss this further at the meeting.

Cynthia de Wit

Strategiska forskningsområden				
				2018
				(tkr)
				POL 1,84%
1. BEAM Östersjöcentrum Havsmiljöforskning				
				10 527
2. Klimatmodeller				
				19 862
Uppdelning				
80% Bolin-centret				
				15 889
10% KTH				
				1 986
10% Rosbycentret SMHI				
				1 986
				19 862
3. Beslut enl. ON 160601 ställs de tidigare				
				17 365
Ekoklim-medlen till Bolincentrets förfogande.				
			Totalt	47 754

Analys av olika samarbete i publikationer från Bolincentret (2017)

(Gabor Schubert, Stockholms universitetsbibliotek, april 2018)

Denna analys försöker att visa olika samarbetsmönster i vetenskapliga publikationer publicerade av Bolincentret under 2017. Analysen baserade centrets egen publikationslista som hämtades från centrets hemsida i april 2018. (<https://bolin.su.se/index.php/publications-2017>)

Listan innehåller 221 unika publikationer. Där finns 226 publikationer publicerade på hemsidan, men en (nr. 103) är tom, och 4 st är dubletter: 218 är samma som 96, 198 är samma som 163, 197 är samma som 40, 199 är samma som 162.

Många publikationer har sin DOI identifikator publicerade i listan på hemsidan, och jag kompletterade publikationer som saknade detta med DOI identifikator från publikationens hemsidor. Jag matchade DOI identifikatorn till Web of Science databasen och kunde hämta författarnas adresser för 208 publikationer från Web of Science. Jag kompletterade dem kvarvarande publikationer med adressdata från publikationens hemsidor.

Sammanlagt 14 st publikationer har ingen författare från SU, varav 3 st (158, 159, 217) har ingen författare från Sverige.

115 publikationer hade Bolin Centret som adress för minst en författare angiven i artikeln enligt Web of Science data.

De flesta publikationer är från internationellt samarbete, dvs. de har författaradresser är från minst två olika länder. Tabell 1 visar antal deltagande samarbetsländer (inklusive Sverige) i publikationer.

Tabell 1. Antal deltagande länder i publikationer

Antal deltagande länder	Antal publikationer
1 (Sverige)	29
2	69
3	54
4	23
5	14
6 – 10	23
fler än 10	9

Som Tabell 1 visar fler än 85% av publikationer är ett resultat av internationella samarbete.

Sammanlagt 50 länder deltog i dessa samarbeten (inklusive Sverige). Tabell 2 visar vilka länder och hur ofta de förekommer som deltagare i publikationerna. För enkelhets skull använder jag ländernas engelska namn från Web of Science. Notera att Web of Science hanterar vissa autonoma område som separata länder (t.ex. Hong Kong, Greenland). England, Scotland, Northern Ireland, Wales också hanteras separat i Web of Science men dessa matchade jag alltihopa till UK.

Tabell. 2. Samarbetsländer

Land	Antal publikationer
USA	85
UK	63
Germany	43
Norway	36
France	32
Canada	27
Russia	25
Australia	25
Denmark	24
Finland	23
Netherlands	19
Switzerland	14
China	12
Austria	12
Japan	12
Spain	11
Italy	11
Greece	7
New Zealand	7
Ireland	6
Portugal	6
Belgium	6
Czech Republic	5
South Africa	5
Taiwan	5
South Korea	4
Brazil	4
India	3
Poland	3
Estonia	2
Mozambique	2
Iceland	2
Mexico	2
Indonesia	2
Romania	2
Övriga länder*	1

* Övriga länder som endast deltog i en publikation var: Hong Kong, Iran, Pakistan, Costa Rica, Thailand, Bolivia, Oman, Israel, Saudi Arabia, Greenland, Chile, Singapore, Colombia, Kenya

Som Tabell 2 visar USA, UK och Tyskland är de mest frekventa samarbetspartner i Bolincentrets publikationer, men Norge och Frankrike är också förkommer i minst 30 publikationer.

207 av 221 publikationer hade minst en författare från SU. Dessa var identifierade i SU:s publikationsdatabas DiVA. Jag hämtade institutionstillhörighet från DiVA. Sammanlagt 11 SU institutioners forskare deltog som författare: Tabell 3 visar institutionerna och antal publikationer dem deltog i.

Tabell 3. SU institutioner

SU institution	Förkortning	Antal publikationer
Institutionen för naturgeografi	NATGEO	63
Meteorologiska institutionen	MISU	60
Institutionen för geologiska vetenskaper	GEO	59
Institutionen för miljövetenskap och analytisk kemi	ACES	27
Zoologiska institutionen	ZOO	15
Institutionen för ekologi, miljö och botanik	DEEP	11
Stockholm Resilience Centre	SRC	7
Historiska institutionen	HIST	7
Stockholms universitets Östersjöcentrum	BALT	5
Juridiska institutionen	JUR	1
Matematiska institutionen	MAT	1

39, nästan 20% av 207 SU publikationer hade två eller flera medverkande SU institutioner. De mest frekventa interna samarbete mellan institutionerna är visas i Tabell 4.

Tabell 4. Internt samarbete mellan SU institutioner

INST1	INST2	Antal
GEO	NATGEO	9
GEO	MISU	8
ACES	MISU	5
NATGEO	MISU	5
NATGEO	SRC	4
BALT	GEO	4
BALT	ACES	4

Tabell 5 en så kallade "heat map" som visar vilka SU institutioner hade samarbete med vilka länder. Siffrorna betyder antal publikationer som hade minst en författare från SU institutionen i kolumnen och en från landet i raden. Tabell 5 visar endast länder som deltog i minst 10 publikationer.

Tabell 5. "Heat map" mellan SU institutioner och länder

	NATGEO	MISU	GEO	ACES	ZOO	DEEP	HIST	SRC	BALT	JUR	MAT
USA	25	26	31	11	2	0	2	3	3	1	1
UK	18	19	20	8	3	1	4	1	1	0	0
Germany	12	8	9	6	2	0	5	0	0	0	0
Norway	13	10	11	8	3	0	0	0	1	0	0
France	6	15	5	5	1	1	0	0	0	0	0
Canada	12	8	9	2	2	0	1	2	0	0	0
Russia	9	2	12	5	2	0	1	1	3	0	0
Australia	5	6	9	1	1	0	0	2	0	0	0
Denmark	6	2	13	2	0	1	1	2	1	0	0
Finland	7	2	4	7	2	5	0	1	1	0	0
Netherlands	9	1	3	2	1	0	0	1	0	1	0
Switzerland	6	3	2	4	1	0	3	0	0	0	0
China	5	1	4	2	1	0	2	0	0	0	0
Austria	5	1	1	5	1	0	0	0	0	0	0
Japan	4	1	3	2	0	0	0	1	0	0	0
Spain	6	1	1	2	1	1	1	0	0	0	0
Italy	5	0	5	2	0	0	0	0	1	0	0

Där fanns fler än 500 olika lärosäte/forskningsinstitut som deltog som samarbetspartner i publikationerna, därför det är inte enkelt att visa alla. Nästa tabell (Tabell 6) visar dem mest frekventa lärosäte som deltog som samarbetspartner: dem som förekommer i minst 10 publikationer.

Tabell 6. Mest frekventa lärosäte/institut som samarbetspartner

Lärosäte/Forskningsinstitut	Land	Antal publikationer
CNRS	France	20
Russian Acad Sci	Russia	16
Univ Helsinki	Finland	15
Univ Leeds	England	13
Aarhus Univ	Denmark	13
Univ Gothenburg	Sweden	12
Columbia Univ	USA	11
Univ New Hampshire	USA	11
Lund Univ	Sweden	11
Swedish Museum Nat Hist	Sweden	11
Swedish Univ Agr Sci	Sweden	11
Uppsala Univ	Sweden	11
Univ Paris Saclay	France	11
UVSQ	France	10

Tabell 7 visar en "heat map" mellan SU institutioner och olika lärosäte/forskningsinstitut. Tabellen visar lärosäte som deltog i fler än 5 publikationer.

Tabell 7. Heat map mellan SU institutioner och olika lärosäte/forskningsinstitut

	NATGEO	MISU	GEO	ACES	ZOO	DEEP	HIST	SRC	BALT	JUR	MAT
CNRS (France)	4	10	4	2	1	1	0	0	0	0	0
Russian Acad Sci (Russia)	4	2	8	4	2	0	1	0	3	0	0
Univ Helsinki (Finland)	3	1	2	6	0	5	0	1	1	0	0
Univ Leeds (England)	7	3	4	2	0	0	0	0	1	0	0
Aarhus Univ (Denmark)	3	2	8	2	0	0	0	0	0	0	0
Univ Gothenburg (Sweden)	4	4	6	3	0	0	0	0	2	0	0
Columbia Univ (USA)	6	3	6	0	0	0	1	0	0	0	0
Univ New Hampshire (USA)	2	4	8	2	0	0	0	0	0	0	0
Lund Univ (Sweden)	4	0	3	2	0	1	0	2	1	0	0
Swedish Museum Nat Hist (Sweden)	0	0	6	0	3	0	0	0	0	0	0
Swedish Univ Agr Sci (Sweden)	8	1	1	1	0	3	0	4	1	0	0
Uppsala Univ (Sweden)	5	1	2	0	1	1	0	2	0	0	0
Univ Paris Saclay (France)	4	3	2	2	0	0	0	0	0	0	0
UVSQ (France)	5	3	1	3	0	0	0	0	0	0	0
Chinese Acad Sci (China)	3	0	3	1	1	0	2	0	0	0	0
Univ Utrecht (Netherlands)	3	1	2	0	0	0	0	0	0	0	0
Sorbonne Univ (France)	2	7	0	0	1	0	0	0	0	0	0
Univ Cambridge (England)	3	1	3	1	0	0	3	0	0	0	0
Univ Exeter (England)	3	3	2	3	0	0	0	0	0	0	0
Univ Copenhagen (Denmark)	3	0	4	1	0	0	0	1	0	0	0
Ctr Coastal & Ocean Mapping (USA)	1	4	7	0	0	0	0	0	0	0	0
US Geol Survey (USA)	4	2	5	0	0	0	0	0	0	0	0
Bjerknes Ctr Climate Res (Norway)	4	2	2	2	0	0	0	0	0	0	0
Alfred Wegener Inst (Germany)	4	2	1	1	0	0	0	0	0	0	0
Max Planck Inst Meteorol (Germany)	3	1	1	2	0	0	0	0	0	0	0
British Antarctic Survey (England)	1	2	4	0	0	0	0	0	0	0	0
Hadley Ctr (England)	2	2	1	3	0	0	0	0	0	0	0
NASA (USA)	3	2	1	0	0	0	0	0	0	0	0
Natl Ctr Atmospher Res (USA)	4	2	0	0	0	0	0	0	0	0	1
Texas A&M Univ (USA)	1	2	2	1	0	0	0	0	0	0	0
Univ Alaska Fairbanks (USA)	1	0	3	4	0	0	0	0	3	0	0
Univ Arizona (USA)	1	1	4	0	0	0	0	0	0	0	0
Univ Calif Santa Cruz (USA)	0	3	2	0	0	0	0	0	0	0	0
UiT Arctic Univ Norway (Norway)	2	0	3	1	1	0	0	0	0	0	0
Univ Oslo (Norway)	4	2	0	1	0	0	0	0	0	0	0
Univ Hamburg (Germany)	1	2	0	2	0	0	0	0	0	0	0
Univ Oxford (England)	2	2	3	0	1	0	0	1	0	0	0

Bolin Centre for Climate Research

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