



SCAR Group

PSG

SG

PS

Person
Responsible:

D. Bromwich

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Physical Sciences Group 2016-2017 Report

Report Author(s): David H Bromwich

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

GRAPE is preparing a Scientific Research Programme proposal to be presented in Hobart in 2020 called RESOURCE (Radio Sciences Research on Antarctic Atmosphere).

PSG, OpMet, SORP, and SOOS are collaborating with the WMO's Polar Prediction Project to establish the Year of Polar Prediction in the Southern Hemisphere (YOPP-SH).

ASPECT and FRISP organized major international meetings.

IPICS and ISMASS had/have major publishing efforts.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

None

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

Key Highlights

GRAPE is preparing a Scientific Research Programme proposal to be presented in Hobart in 2020 called RESOURCE (Radio Sciences Research on AntarctiC AtmospherE)

PSG, OpMet, SORP, and SOOS are collaborating with the WMO's Polar Prediction Project to establish the Year of Polar Prediction in the Southern Hemisphere (YOPP-SH). There was a major planning meeting held at the National Center for Atmospheric Research in Boulder, Colorado, USA in June 2017, and was targeted at entraining the oceanographic community into YOPP-SH.

ASPeCt scientists organized and participated in the IGS International Symposium on The Cryosphere in a Changing Climate, held in February 2017 in New Zealand.

FRISP: Organized two international workshops in Sweden and Norway.

IPICS: Publication of joint special issue in *Climate of the Past and Cryosphere* resulting from the Second IPICS Open Science Conference (7-11 March, 2016, Hobart) that had significant funding from PSG in previous budgets.

ISMALSS is preparing a review paper on the contributions of the Antarctic and Greenland ice sheets to future sea level under a 1.5°C warmer world for consideration by IPCC.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

GRAPE is preparing a Scientific Research Program proposal to be presented in Hobart in 2020 called RESOURCE (Radio Sciences Research on AntarctiC AtmospherE)

YOPP-SH special observing period will be held November 15, 2018- February 15, 2019.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

See EG-AG reports

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

See EG-AG reports.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
06-17	YOPP-SH Planning	\$4500 Discretionary	D. Bromwich	bromwich.1@osu.edu
06-18	Polar2018 Participation by EG-AG	\$3500 Discretionary	D. Bromwich	bromwich.1@osu.edu

Briefly describe what the funds will be used for and what the desired results are:

2017: Get YOPP-SH planning for the special observing period well advanced. Entrain the oceanographic community into YOPP-SH.

2018: Promote participation in Polar2018.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: 70%

2018: 100%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017:33%

2018: 50%?

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

YOPP-SH Planning Meeting: From the Polar Prediction Project via the World Meteorological Organization. US CLIVAR funded the joint meeting between YOPP-SH and SORP.

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

See EG-AG reports.

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

See EG-AG reports.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

David H Bromwich

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Terminated
CO	David	Bromwich	PSG	USA	bromwich.1@osu.edu	2012	2020
D-CO	Adriana	Gulisano	PSG	Argentina	adrianagulisano@gmail.com	2016	2020

Secretary	Steve	Colwell	PSG	UK	src@bas.ac.uk	2012	2020

* Please include any APECS representative / Junior Officers

Other members

First Name	Last Name	Affiliation	County	Email

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:

I'll send the EG-AG reports separately and would like to get them posted online for the Brno meeting.



SCAR Group

SG

Person
Responsible:

ACA

PS

T. Lachlan-
Cope

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Name of SCAR Expert/Action Group **2016-2017 Report**

Report Author(s):

Tom Lachlan-Cope

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

The group arranged for a cloud session to be held at the EGU general assembly in Vienna. At the same meeting we held the annual general meeting of the group.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

The group has a long term plan to produce a database of polar cloud and aerosol data and as a start we have a plan to produce a limited data set of the metadata associated with ceilometer observations. Many Antarctic station have ceilometers that are used for operation observations and forecasting and this data could be used for cloud research. The plan would be to collect information on the data stored, what instrumentation is used and how it processed. The processing of this data is important as several different algorithms are used. This was first proposed last year but was put on hold after the postdoctoral scientist who was working on the project found a new job. We have now found a new person to carry on the work and to start with the data base will be hosted at BAS

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

Developing a database of Antarctic Cloud observations – extending the ceilometer database to other ground based and aircraft measurements.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
April-17	Early career scientists	\$1000	Tom Lachlan-Cope	tlc@bas.ac.uk

Briefly describe what the funds will be used for and what the desired results are:

Bringing early career scientists to EGU to take part in ACA meeting

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017:
2018:100

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017:
2018:100

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

We have close ties with International Commission on Polar Meteorology.

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Head	Tom	Lachlan-Cope	BAS	UK	tlc@bas.ac.uk		
Secretary	Irina	Gorodetskaya	Centre for Environmental and Marine Sciences	Portugal	irina.gorodetskaya@ua.pt		

* Please include any APECS representative / Junior Officers

Other members

First Name	Last Name	Affiliation	Country	Email
Nicole	VanLipzig	Leuven	Belgium	nicole.vanlipzig@kuleuven.be
Annick	Terpstra			
Andrew	Orr	BAS	UK	anmcr@bas.ac.uk
Greg	McFarquhar	Illinois	USA	mcfarq@illinois.edu
Svitlana	Krakovska		Ukraine	krasvit@ua.fm
Seb	O'Shea	U of Manchester	UK	sebastian.oshea@manchester.ac.uk
Penny	Rowe	U of Santiago	Chile	prowe@harboret.com

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

SG

Person
Responsible:

ACCE

PS

J. Turner

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Antarctic Climate Change and the Environment Expert Group 2016-2017 Report

Report Author(s): John Turner

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

The main activity of this group was the preparation of the 2016-17 ACCE report for the ATCM in China (attached). The paper summarized the recent advances in our understanding of Antarctic climate change and the impact on the terrestrial and marine biota. The report was well received.

We have also been collecting material for the online version of the ACCE book and its updates, which we plan to revise before the 2018 Open Science Conference.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

All SCAR groups are requested to send material to the ACCE EG chair that they think might be relevant to our annual treaty paper. This is a good opportunity to highlight SCAR science.

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

Our major activity was the preparation of the 2016-17 ACCE report for the ATCM.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

We believe that the online ACCE wiki is a great resource for those interested in Antarctic climate change and we plan to upgrade it over the coming year.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

The 2016-17 ACCE report to the ATCM.

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

The ACCE wiki can be found at [http://acce.scar.org/wiki/Antarctic Climate Change and the Environment](http://acce.scar.org/wiki/Antarctic_Climate_Change_and_the_Environment).

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
		\$0		

Briefly describe what the funds will be used for and what the desired results are:

All our work is carried out my email for we don't require any funds.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: n/a

2018: n/a

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017: n/a

2018:

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

n/a

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

We follow developments of the IPCC process to see opportunities where we can contribute on Antarctic science.

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

The ACCE wiki at

http://acce.scar.org/wiki/Antarctic_Climate_Change_and_the_Environment

has been viewed over 25,000 times.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

John Turner (jtu@bas.ac.uk)

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Chair	John	Turner	BAS	UK	jtu@bas.ac.uk	2009	?

* Please include any APECS representative / Junior Officers

Other members

[SCAR Group Name]: 2016-2017 Annual Report, cont.

John Turner (chair)	UK
Colin Summerhayes	UK
Jenny Baeseman	SCAR
Paul Mayewski	USA
Pete Convey	UK
Guido di Prisco	Italy
Julian Gutt	Germany
Dominic Hodgson	UK
Sabrina Speich	France
Tony Worby	Australia
Sun Bo	China
Alexander Klepikov	Russia
Tom Bracegirdle	UK
Zhaomin Wang	China
Andrew Klekociuk	Australia
Daniela Liggett	New Zealand

First Name	Last Name	Affiliation	County	Email

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:

None.



SCAR Group

ANTOS

SG

PS/LS/GS

Person Responsible: Craig Cary and
Vonda Cummings

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Antarctic Near-shore and Terrestrial Observing System (ANTOS) 2016-2017 Report

Report Author(s):

Craig Cary – University of Waikato, New Zealand
Vonda Cummings – NIWA, New Zealand

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

The ANTOS Action Group hosted a workshop at the 2016 SCAR Open Science Conference (OSC) in Kuala Lumpur, Malaysia on 21 August, 2016 that was attended by 50 researchers representing 16 countries (Argentina, Australia, Belgium, Brazil, Canada, Chile, Czech Republic, France, Germany, Italy, Japan, Korea, New Zealand, Sweden, United Kingdom, and USA). The report of this workshop is available on the website, and contains an update of ANTOS achievements during its 2 years as an action group. ANTOS was approved as an Expert group in August 2016. For more details, and to sign up to the mailing list, please visit <http://www.scar.org/antos>. The ANTOS committee has been developing various action items discussed at the workshop including developing and implementing an international survey to identify long term datasets, continuing the database development, and developing a technical manual to describe the needed technology to enable National Programs to establish ANTOS installations.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

None

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

The ANTOS Action Group hosted a workshop at the 2016 SCAR Open Science Conference (OSC) in Kuala Lumpur, Malaysia on 21 August, 2016. Major activities include:

- (1) ANTOS became an Expert Group at the KL meeting in 2016.
- (2) **The ANTOS tiered measurement system:** Preliminary guidelines for a 3-tiered system (i.e., recommendations for three possible levels of resource investment at an observation site) were developed at a previous workshop (August 2015), for the measurement of physical habitat properties, biological colonization processes, biodiversity, spatial distribution of biota, ecosystem function, and genetic/genomic diversity in both terrestrial and marine habitats. These were discussed and critiqued at the KL meeting. Each site would consist of a hardware installation coupled with a local and/or regional biological and environmental assessment, mapping, and monitoring schedule, depending on the tier (investment) level. Multiple tiers allow for different levels of investment across national program. This flexibility is anticipated to encourage greater participation from national programs that may be resource-limited. Detailed guidelines can be found in the ANTOS: Report on 2015 International Workshop: http://www.scar.org/scar_media/documents/science/antos/2015-ANTOS-Workshop-Report.pdf
- (3) **Database management:** KOPRI has led the design of a database management schema and web-portal to manage data that will be collected across the ANTOS network. The database is being designed with the anticipation that raw data will be relayed from data loggers at field installations via satellite to a database server, but also with the acknowledgement that data will likely need to be physically retrieved from some data loggers. Both original data and derived data products will be backed up at multiple physical locations. A web-based user interface (UI) is being designed, by which researchers will be able to manage data streams, and which will also provide a platform for data sharing. KOPRI and the ANTOS community will make use of current, widely used metadata standards (such as EML) as they develop the database. The database is now nearing completion and will need testing using our 2 installations in Northern Victoria Land
- (4) **Survey launch:** The ANTOS committee, led by Byron Adams and Emmanuelle Sultan, designed a web-based survey that will be used to poll the international research community about where infrastructure currently exists to collect long-term ecological and environmental data, where long term data are already being collected, and where investment is most needed to collect such data. The ANTOS action group will solicit participation in the survey from across the international

Antarctic research community. This will be made live after the SCAR Biology meeting.

- (5) **Atlas of Ice Free Areas of Antarctica (AIFAA)**. The British Antarctic Survey (BAS) hosted a small workshop in Cambridge, UK with the goal of gathering and curating summary information about named, ice-free, terrestrial features in Antarctica. The anticipated product (expected in 12-18 months), which will be an open access document, will provide insight about terrestrial areas that should be prioritized as prospective ANTOS sites. In a similar effort, Aleks Terrauds will soon be publishing a similar product describing the attributes of Antarctic Conservation Bio-Regions (ACBRs).

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

As an expert group, ANTOS will seek to expand membership and produce the deliverables that were designed under the action group. The proposed duration of the expert group will be 6-8 years, beginning in 2017. Expanded membership will include increasing the involvement of early and mid-career researchers and under-represented countries. The budget requested will be \$10,000/yr for the duration of the expert group. Deliverables and **terms of reference** will include:

- (1) The active solicitation of membership from developing countries.
- (2) Conducting a survey to identify potential high priority ANTOS sites. The survey has already been designed by the action group (questions presented and discussed at this workshop).
- (3) Developing a formal paper of site recommendations based on data collected from the survey described above.
- (4) Developing a proposal with endorsement from COMNAP.
- (5) Developing a document of proposal guidelines for researchers seeking support from their national programs to install an ANTOS site.
- (6) Developing a website that implements the database management program that is being designed by KPRI.
- (7) Scheduling a workshop for the SCAR Biology meeting in Belgium 2017 to promote cross-discipline collaboration.
- (8) Ensuring the expert group has representatives from other relevant SCAR groups (e.g. ANTPAS, Arctic network, remote sensing, APECS).

Specific action items currently being worked on from the KL ANTOS workshop are as follows:

1. Developing sub-groups within the framework of the ANTOS Expert Group to assist in quicker development of database and technical aspects of ANTOS installations. These sub-groups are being developed to include enthusiastic members of the international Antarctic community interested in these topic areas with a strong emphasis on early career researchers and those scientists from countries with developing Antarctic programmes.

2. The existing long term database survey will be launched following the SCAR Biology meeting in July. The data will assist ANTOS in deciding where ANTOS installations around the continent are critical. Our hope is that the data will be presented for discussion and decision at the Open Science Conference in Davos next year.
3. Database design and management plan will be finalized and presented at the Davos meeting next year. Our hope is that the database will be functional and receiving data from our two current ANTOS installations in Northern Victoria Land.
4. The ANTOS committee sees engage with COMNAP to be critical to our success. Over the next few months we will endeavor to establish a working group within ANTOS specifically to begin to forge this relationship though direct contact with key COMNAP members and committees.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

Report on the 2016 Antarctic Near-shore and Terrestrial Observing System (ANTOS) Action Group Workshop. http://www.scar.org/scar_media/documents/science/antos/2015-ANTOS-Workshop-Report.pdf)

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

Budget

Planned use of funds for 2017 and 2018

We will discuss this at the SCAR Biology meeting in July 2017 as to how these funds will be distributed. It is likely that some funds will be used to support the sub-groups interacting or to support facilitating attendance of early career and scientists from countries with developing Antarctic programmes to attend the scheduled ANTOS workshop at the Open Science Conference in Davos.

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email

Briefly describe what the funds will be used for and what the desired results are:

Attendance by key individuals representing national programs to the Davos workshop is critical. Since ANTOS represents a significant long term investment from the National Programmes it is essential that we have significant buy-in from both researchers and COMNAP.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: 0%

2018: To be advised after Scar Biology. It is anticipated that at least 25% of available funds will be spent on early career researchers and scientists from countries with developing Antarctic programmes.

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017: 0%

2018: To be advised after Scar Biology and consultation with committee. It is anticipated that at least 25% will be spent on early career

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. *Funds from another organization for a workshop*):

NZARI – supported both co-chairs to attend the KL meeting. All committee members attending the past workshops have been supported by their respective national programmes or other national agencies. In addition, the workshop at the University of Waikato was supported directly by the University by providing the venue and food service.

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (*coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved*) (<250 words):

- We funded Eric Sokol (Early Career, Univ. of Colorado) to attend the KL meeting using SCAR ANTOS support.
- 2 of the ANTOS committee members are considered early career
- Charles Lee, Univ. of Waikato, Early Career brought on the lead technical effort within ANTOS
- NZ Antarctic conference poster on ANTOS – June 2017
- NZ CEP representatives have been briefed at regular intervals on ANTOS development.
- Co-chairs have been invited to attend the SOOS Ross Sea Working Group Workshop in China in Sept 2017.
- ANTOS meeting scheduled for the SCAR Biology meeting in Belgium on July 9th, 2017. This will consist of a closed committee meeting in the morning and an open meeting for the entire community in the afternoon. Several committee members unable to attend the meeting will connect through video conferencing.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one**

or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.

S. Craig Cary – caryc@waikato.ac.nz

Vonda Cummings - vonda.Cummings@niwa.co.nz

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Co-Chair	Craig	Cary	U. of Waikato	NZ	Caryc@waikato.ac.nz	8/2014	8/2018
Co Chair	Vonda	Cummings	NIWA	NZ	Vonda.Cummings@niwa.co.nz	8/2014	8/2018

** Please include any APECS representative / Junior Officers*

Other committee members

First Name	Last Name	Affiliation	County	Email
Byron	Adams	BYU	USA	byron_adams@byu.edu
Charles	Lee	Waikato		cklee@waikato.ac.nz
Dana	Bergstrom	AAD	Australia	dana.bergstrom@aad.gov.au
Eli	Verleyen		Begium	Elie.Verleyen@UGent.be
Emmanuelle	Sultan	Museum National d' Historie Meleuelle	France	esulod@locean-ipsl.upmc.fr
Marcela	Libertelli	Instituto Antártico Argentino	Argentina	mibertelli5@yahoo.com.ar
Megumu	Tsujimot	MPR	Japan	megumutsujimoto@gmail.com
Pete	Convey	BAS	UK	pcon@bas.ac.uk
Sharon	Robinson	Woolingong University	Australia	sharonr@uow.edu.au
Soon Gyu	Hong	KOPRI	Korea	
Stefano	Schiaparelli	Unige of MNA	Italy	stefano.schiaparelli@unige.it

In addition we have over 75 members currently listed to receive ANTOS updates through our listserver representing over 16 countries.

Possible APECs and SCAR Geo and Physical science program reps will be discussed and invited to be on the committee following the SCAR Biology meeting in July.

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:

Help with establishing connections with COMNAP!



SCAR Group

xxx

SG

PS/LS/GS

Person

xxx

Responsible:

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Antarctic Sea ice and Climate (ASPeCt) 2016-2017 Report

Report Author(s): Marilyn Raphael, Stephen Ackley

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

ASPeCt held two group meetings, one at the SCAR-OC in Kuala Lumpur, Malaysia, the other at the IGS meeting in Wellington, New Zealand. Input from these meetings as well as online discussion with the larger group resulted in a modified its leadership structure (that is now encoded in the group's Terms of Reference) as well as new questions for the group to pursue.

ASPeCt scientists completed part of one ASPeCt project - two month (mid-April to mid June 2017) cruise into the Ross Sea on the US Icebreaker NB Palmer.

ASPeCt co-Chair presented in the Webinar on Antarctic Sea ice Variability, an outcome of the Workshop on the same in 2016.

ASPeCt scientists organized and participated in the IGS International *Symposium* on The Cryosphere in a Changing Climate, held in February 2017 in New Zealand.

ASPeCt established and renewed links with Antarctic focused groups within and external to SCAR.

[SCAR Group Name]: 2016-2017 Annual Report, cont.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

N/A

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

ASPeCt scientists have just completed a two month (mid April – mid June 2017) cruise into the Ross Sea on the US Icebreaker NB Palmer where they conducted an atmosphere-ice-ocean interaction experiment in the polynyas and sea ice regions of the western Ross Sea. This is a major part of the ASPeCt project to look at Terra Nova Bay and the Ross Ice Shelf Polynyas.

ASPeCt is restructuring its leadership to consist of a Vice-Chair, Chair, Immediate past Chair, Early Career Scientist (ECS). The Vice- Chair serves for at least two years. The Chair serves for at least four years. The Immediate Past Chair Serves for at least two years. Each post is renewable/extendable in two-year increments. The addition of the ECS as a Junior Officer is new as well as the specification of terms of service.

ASPeCt scientists convened a session Antarctic sea ice processes and ice shelves status at the SCAR OSC in Kuala Lumpur (August 2016) and formed part of the organizing committee for the IGS' International *Symposium* on The Cryosphere in a Changing Climate, held in February 2017 in New Zealand. ASPeCt group meetings were also held at these conferences. At these meetings updates of activities of the different national groups were given and the leadership structure as well a new ideas for ASPeCt to focus on were discussed.

ASPeCt supported Trond Robertsen an ice analyst with the Norwegian Ice Service to carry out ice observer training on a South African Antarctic cruise in June 2016. Trond trained students to do ice observations and interpret what they see, using ASPeCt protocols and WMO Nomenclature. This activity expands use of the ASPeCt observation protocol and supports the growing interest in Antarctic sea ice observation in South African institutions.

ASPeCt completed its work with the Workshop on Antarctic Sea ice variability held in January 2016. ASPeCt was instrumental in reviewing the Workshop report, published in April 2017 and along with other organizers ASPeCt's co-Chair presented the outcomes of the Workshop in a Webinar on Antarctic Sea ice Variability, in May, 2017.

ASPeCt is developing and cementing links with a number of other groups (see Linkages below) and has plans to work more closely with them in upcoming years.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

Leadership: Within the next year (2017-2018) the new ASPeCt leadership structure will be fully implemented. Current Co-Chair Stephen Ackley will become Immediate past Chair, current Co-Chair Marilyn Raphael will become Chair and a new Vice-Chair, will be chosen from the group. The ECS Junior Officer, Stefanie Arndt, is already in place.

Research: ASPeCt has finalized its Terms of Reference. At meetings held in Kuala Lumpur (2016) and Wellington New Zealand (2017), and online discussion, ideas on ways to meet these terms were discussed. ASPeCt expects to continue this discussion and finalize a plan of action in 2017-2018.

Research Dissemination: ASPeCt will convene a session on Antarctic sea ice processes and ice shelves status at POLAR18 in Davos, Switzerland (June 2018) and will also hold a workshop at that meeting. ASPeCt is also one of the conveners of a session on Antarctic sea ice at the AGU 2017 Fall Meeting in New Orleans.

Continuing work: ASPeCt data collection and testing of software prototype by the AAD, AWI and CHINARE continues. Additions to the ship observations database (ASPeCt observations) are also being made on a continuing basis. Continued development of the ASPeCt ship-based observation system and database for sea ice measurements taken by remote vessels (airborne and under ice), ship-based instruments and surface-based instruments and sampling is ongoing.

Continuing work: ASPeCt's Junior Officer Stefanie Arndt and Communications and Data Executive Petra Heil are working to update and improve the ASPeCt website.

Links: ASPeCt plans to work more closely with the groups identified in the Linkages section of this report. We expect the work with these groups to develop and be maintained over a longer period than 2017 to 2019.

Please list any new outputs and deliverables (including publications* and products that your group feels are part of your achievements):

*** The publications listed below are a small sample from the more comprehensive publication list that ASPeCt has begun to compile.**

Arndt, S., S. Willmes, W. Dierking, and M. Nicolaus (2016), Timing and regional patterns of snowmelt on Antarctic sea ice from passive microwave satellite observations, *J. Geophys. Res. Oceans*, 121, doi:10.1002/2015JC011504.

Hobbs, W., R. Massom, S. Stammerjohn, P. Reid, G. D. Williams, and W. N. Meier, 2016: A Review of Recent Changes in Southern Ocean Sea Ice, their Drivers and Forcings. *Global and Planetary Change*, 143, 228-250, 10.1016/j.gloplacha.2016.06.008.

Toyota, T., R. Massom, O. Lecomte, D. Nomura, P. Heil, T. Tamura, and A.D. Fraser: On the extraordinary snow on the sea ice off East Antarctica in late winter, 2012. *Deep-Sea Research II*, doi:10.1016/j.dsr2.2016.02.003.

Toyota, T., A.L. Kohout, and A.D. Fraser: Formation processes of sea ice floe size distribution in the interior pack and its relationship to the marginal ice zone off East Antarctica. *Deep-Sea Research II*, doi:10.1016/j.dsr2.2015.10.003.

Wang, X.W., F. Guan, J. Liu, H. Xie, and S. Ackley, 2016. An improved approach of total freeboard retrieval with IceBridge Airborne Topographic Mapper (ATM) elevation and Digital Mapping System (DMS) images. *Remote Sensing of Environment* 184: 582-594, doi:10.1016/j.rse.2016.08.002

Yang Y, Z Li, M Leppäranta, B Cheng, L Shi & R Lei (2016) Modelling the thickness of landfast sea ice in Prydz Bay, East Antarctica. *Antarctic Science* 28(1): 59–70. doi:10.1017/S0954102015000449.

Yang Q, J Liu, M Leppäranta, Q Sun, R Li, L Zhang, T Jung, R Lei, Z Zhang, M Li, J Zhao & J Cheng (2016) Albedo of coastal landfast sea ice in the Prydz Bay, Antarctica: Observations and parameterization. *Advances in Atmospheric Science* 33(5): 535–543, doi: 10.1007/s00376-015-5114-7.

****Deep Sea Research Part II: Topical Studies in Oceanography [Volume 131](#)**, September 2016.

**This is a Special volume on the Australian-led SIPEX-2 voyage. Many of the papers within this volume are ASPeCt related.

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

ASPeCt Sea ice observations database are held at the Australian Antarctic Division and administered by Petra Heil (aspect.antarctica.gov.au/), ASPeCt's Communication and Data Executive Officer.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2017	See Below	\$2000	Marilyn Raphael Steve Ackley	Raphael@geog.ucla.edu Steve.Ackley@utsa.edu
2018	See Below	\$6000		

Briefly describe what the funds will be used for and what the desired results are:

2017- \$2K for travel for ASPeCt ECS Junior Officer to attend participate in meeting planned for during the Fall AGU meeting in December 2017.

2018- \$2K also for providing an ice observor trainer on new cruises as we have done successfully with the South African Program. We hope to expand ice observations on vessels of other countries and being able to quickly respond, with some supporting funds will help a lot in promoting this expansion. There is potential for 100% of these funds to be directed at an early career scientist.

2018- \$4K Travel to meetings and other planning/coordination activities as they arise. For example, travel to Polar18 meetings for co-chairs and Junior Officer, and travel to ASPeCt workshops in 2018. Here we expect at least 50% of the funds to go towards early career scientists.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: Potentially 100%

2018: Potentially 60%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017: 0%

2018: Potentially 50%

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

ASPeCt normally receives funds from CliC each year. These funds are used mainly to support attendance of early career scientist to ASPeCt workshops. They are sometimes used to support the attendance of one of the coChairs at a CliC sponsored meeting. For example in February they were used to support travel for Stefanie Arndt, ASPeCt's new EC Junior Officer at the ASPeCt Workshop held during the IGS meeting in New Zealand in February 2017. CliC also organized the meeting Room. However due to budgetary issues, ASPeCt is not directly funded by CliC in 2017-2018.

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

SCAR: ASPeCt co-chair Marilyn Raphael is a member of the AntClim21 SSG and is slated to lead the sea ice component of the Great Antarctic Climate Hack Workshop sponsored by AntClim21 in October 2017.

SCAR: ASPeCt Junior Office Stefanie Arndt is a member of SCAR's Snow on Antarctic Action Group. She will work to coordinate activities of common interest to both groups.

OTHER: ASPeCt was an important planner and participant in the USA's **National Academy of Science's Antarctic sea ice variability and trends workshop** held in January 2016. ASPeCt scientists joined with a number of other US and international Antarctic scientists in this effort.

OTHER: Continued representation on the World Climate Research Programme (WCRP) Climate & Cryosphere (CliC) project, via membership of the Scientific Steering Group (Rob Massom).

OTHER: Continued representation on the World Climate Research Programme (WCRP) and SPARC's Polar Climate Predictability Initiative (PCPI) via membership on the leadership (Marilyn Raphael).

OTHER: Inga Smith a member of ASPeCt, is also Co-Chair of the CLIVAR/CliC/SCAR Southern Ocean Region Panel (SORP). She coordinates activities of interest to both groups for example ASPeCt interest in working more closely with SORP on Ocean Observations Panel for Climate (OOPC). Two other ASPeCt members serve on the Panel.

OTHER: Year of Polar Prediction Southern Hemisphere (YOPP-SH) - Francois Massonnet was supported by ASPeCt to attend the most recent joint meeting in June, in Boulder, CO. There he presented the project SIPN South.

SIPN South aims at collecting and analysing seasonal sea ice forecasts in the Southern Ocean for the next two years (2017-2019).

OTHER: Southern Ocean Observing System (SOOS) – Steve Ackley, co Chair of ASPeCt also served on the SOOS SSG. He is to be replaced by another ASPeCt member who will serve either on the SOOS SSG or as an ex officio member.

** Numerous ASPeCt scientists are also individually involved with (i.e leading) their national programs focused on the Antarctic and sea ice observation. For example ASPeCt scientist Dr. Burcu Orszoy-Bicek leads the fledgling Turkish Antarctic project.

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

ASPeCt supported Trond Robertsen an ice analyst with the Norwegian Ice Service to carry out ice observer training on a South African Antarctic cruise in June 2016. Trond trained students to do ice observations and interpret what they see, using ASPeCt protocols and WMO Nomenclature. This effort is the first in support of the “clear [and] open interest from the South African Department of Science and Technology as well as the other major institutes” to measure and collect sea ice data during their Antarctic cruises.

ASPeCt has a mailing list of more than 50 members. This mailing list is housed at the Los Alamos Lab and administered by Elizabeth Hunke as well as the ASPeCt leadership. The mailing list is used frequently to inform the group, to foster discussion about ASPeCt activities and to collect information about the results of ASPeCt-related activities. The mailing list is quite diverse in terms of gender and nationality.

As part of SCAR’s Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a ‘review panel’ so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Rob Massom (Australia)

Sharon Stammerjohn (USA)

Membership

Leadership**

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
coChair	Stephen	Ackley	UTSA	USA	Stephen.Ackley@utsa.edu	2010	??
coChair	Marilyn	Raphael	UCLA	USA	raphael@geog.ucla.edu	2010	??
*EC Junior Officer	Stefanie	Arndt	AWI	GER	Stefanie.Arndt@awi.de	2016	??
Communication and Data Executive	Petra	Heil	AAD	AUS	petra.heil@utas.edu.au	2010	??

* *Junior Officer*

**ASPeCt is in the process of modifying its leadership structure. At the moment the old structure is in place but we will soon be changing to one consisting of a Vice-Chair, Chair, Immediate past Chair, Early Career Scientist (ECS). The Vice-Chair serves for at least two years. The Chair serves for at least four years. The Immediate Past Chair Serves for at least two years. Each post is renewable/extendable in two-year increments. The Vice-Chair does not automatically become Chair and there is the opportunity for the leadership to be renewed every two years.

Original Group Membership

S.F.Ackley (Co-Chair, USA)	Marilyn Raphael (Co-Chair, USA)
Kay Ohshima (Japan)	Elizabeth Hunke (USA)
Martin Vancoppenolle (Fr)	Marcel Nicolaus (Ger)
Petra Heil (Australia)	Klaus Meiners (Australia)
Rob Massom (Australia)	Sharon Stammerjohn (USA)
Ted Maksym (USA)	Ron Kwok (USA)
Thorsten Markus (USA)	Timo Vihma (Finland)
Pat Langhorne (NZ)	Jean Louis Tison (Be)
Hyoung Chul Shin (Ko)	

Our mailing list numbers more than 50. We can send that list in other email if necessary.

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

xxx

SG

PS/LS/GS

Person

xxx

Responsible:

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Forum for Research into Ice Shelf Processes (FRISP) 2016-2017 Report

Report Author(s):

Adrian Jenkins, Elin Darelus, Tore Hattermann, Céline Heuzé.

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

During the reporting year FRISP organized two workshops (Kristineberg, Sweden, October 2016; Sotra, Norway, June 2017) and co-sponsored a major International Glaciological Society Symposium on the “Interaction of Ice Sheets and Glaciers with the Ocean” (La Jolla, California, July 2016).

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

No specific recommendations.

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

1) Co-sponsorship of International Glaciological Symposium on “Interaction of Ice Sheets and Glaciers with the Ocean”.

Location: Scripps Institution of Oceanography, La Jolla, California, USA.

Dates: 10th – 15th July 2016.

Participants: 152 from 14 nations.

Oral presentations: 87

Poster presentations: 59

Nature of support: Promotion and publicity.

2) 30th International FRISP Workshop

Location: Kristineberg Research Station, University of Gothenburg, Gullmarn Fjord, Sweden.

Dates: 3rd – 6th October 2016.

Participants: 70 from 12 nations

Oral presentations: 49

Poster presentations: 15

Side meetings: SOOS Necklace Workshop, APECS Panel Discussion

Nature of support: Organisation.

3) 31st International FRISP Workshop

Location: Panorama Hotell, Sotra, Bergen, Norway.

Dates: 19th – 22nd June 2017.

Participants: 100 from 12 nations

Oral presentations: 32

Poster presentations: 61

Side meetings: Filchner Ice Shelf Project meeting

Nature of support: Organisation.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

32nd International FRISP Workshop, June 2018, France

33rd International FRISP Workshop, June 2019, location to be decided.

[SCAR Group Name]: 2016-2017 Annual Report, cont.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

An overview of the workshops, including participants, presentations and abstracts can be found at <http://folk.uib.no/ngfso/FRISP/>.

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

Not applicable.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
June 2017	Travel support	\$2000		
June 2018	Travel support	\$2000		

Briefly describe what the funds will be used for and what the desired results are:

Travel bursaries to provide partial support to participants in the annual International FRISP workshops, especially for early careers scientists and scientists from nations with developing Antarctica programmes.

As of the present (21/07/2017) finances for the 2017 workshop have not been finally settled. It is possible that additional sponsorship (see linkages) sufficient fund to cover ECS travel costs. In that case the entire 2017/2018 budget will be used to support ECS travel to the 2018 workshop in France.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: 100%
2018: 100%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017:
2018:

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

The 31st international workshop received additional financial support from Aanderaa (<http://www.aanderaa.com/>) and Nortek (http://www.nortek-as.com/en?set_language=en), two major manufacturers of oceanographic instrumentation based in Norway, as well as from the Bjerknes Centre for Climate Research (<http://www.bjerknes.uib.no/>).

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

Southern Ocean Observing System (SOOS): Necklace workshop organized in conjunction with 30th International FRISP Workshop, held in Kristineberg, Sweden.

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

A report on the 30th International FRISP workshop was posted on the European Geosciences Union Cryosphere Division Blog (<http://blogs.egu.eu/divisions/cr/tag/frisp/>).

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

SG

Person
Responsible:

GRAPE

PS/GS

xxx

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

SCAR EG “GRAPE”
GNSS RESEARCH AND APPLICATION
TO POLAR ENVIRONMENT
2016-2017 Report

Report Author(s): Giorgiana De Franceschi, Nicolas Bergeot

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

GRAPE is a joint Physical Sciences and Geosciences EG aiming to intensify the international efforts to build and coordinate a robust network of collaborations in order to answer a variety of weather and space weather related needs at high latitudes and polar regions (Arctic and Antarctica), through ad hoc data sharing and models development. The main outcome from the activities carried out relies on the increasing interest and participation of the international community to the scientific and business sessions organized within the International Beacon Satellite Symposium 2016 (26 June-1 July, Trieste, IT), the SCAR OSC 2016 (22-26 August, Kuala Lumpur) and the forthcoming URSI GASS 2017 (19-26 August, Montreal, CA) and IAGA 2017 (27 August- 1 September, Cape Town, SA) where a GRAPE mini symposium is planned to attract IAGA community and early stage researchers in South Africa.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

Progress and Plans:

Major Activities and Significant Progress from the past year

The observing infrastructures (mainly based on GNSS receivers able to monitor ionospheric TEC and scintillations), managed and upgraded by National Projects, is growing above all over Antarctica however not yet filling the existing gap between the Northern and Southern Hemispheres. New solutions for data exchange and management in a CLOUD environment addressed to Space Weather products development assisting communications, navigation and positioning are also in progress and tested in two Antarctic infrastructures (EACF, Brazil, SANAIV, South Africa), as well as the development of a novel GNSS software defined radio (SDR) receiver for ionospheric monitoring. URSI AT RASC in 2015 (16-24 May, Gran Canaria, Spain), where a GRAPE scientific session and business meeting were attended by a wide radio science community, has been crucial for the establishment of an international task force devoted to the implementation of a new Scientific Program proposal submitted in May 2017 to SCAR. The proposal, titled RESOURCE (Radio Sciences Research on AntarctiC AtmospherE) aims to improve the current monitoring and knowledge of the Antarctic atmosphere in relation to the Arctic environment in a bipolar framework, achieved using radio sensors and supported by complementary instrumentation. The main goal of the proposal, i.e. to isolate the atmospheric contribution and use it in the study of the near-earth space environment, will pursue the following open questions:

- The understanding of the coupling between the ionosphere and the neutral atmosphere in relation to the inter-hemispheric symmetries and asymmetries;
- The assessment of the impact of the polar atmosphere on the technology and on the humans at ground level or in the geospace environment;
- The investigation of the atmospheric waves and their role in the vertical coupling between the upper and lower atmosphere.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years:

Efforts will be addressed to the activities proposed within RESOURCE, builded upon the important GRAPE legacy, firstly by enhancing interactions between the scientists who measure and utilise the entire radio spectrum, either as an auxiliary or principal observation, to study the atmosphere. Another important goal of the GRAPE-RESOURCE community will be the establishment of a closer link with the SAR community in respect to the past, contributing in mitigating the ionospheric effects on SAR images. Among conferences, a scientific session has been planned within SCAR OSC 2018 titled: The Polar Atmosphere and Geospace (Conveners: G. De Franceschi, Yasunobu Ogawa, Emilia Correia, Nicolas Bergeot) as well the GRAPE-

RESOURCE (hopefully) satellite meeting. Efforts of GRAPE participants will focus on a training course organized within the International School of Space Science (ISSS <http://www.cifs-iss.org/>) directed by U. Villante (University of L'Aquila). The course titled "The Polar Upper Atmosphere: from science to operational issues" is scheduled in September 2018 at L'Aquila (IT). The course, directed by G. De Franceschi (INGV), M. Mendillo (Boston University, USA), C. Mitchell (University of Bath, UK) aims to foster excitement and encourage involvement of the next generation of space researchers in studies of the geospace environment of Polar Regions.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

GRAPE WEB www.grape.scar.org (updating is in progress and a new version will be soon available).

Publications, Reports, Conferences Proceeding 2016-2017

- 2016

Alfonsi, L., Cilliers, P. J., Romano, V., Hunstad, I., Correia, E., Linty, N., ... & Riley, P. (2016). First observations of GNSS ionospheric scintillations from DemoGRAPE project. *Space Weather*, 14(10), 704-709, doi:10.1002/2016SW001488.

Correia, E., Quevedo, M.T. , Paz, A. J. . ANTARCTIC ATMOSPHERE RESPONSE TO THE SUN-EARTH INTERACTIONS. Annual Activity Report - INCT-APA, v. x, p. 15-22, 2016.

Linty, N., Romero, R., Cristodaro, C., DAVIS, F., Bavaro, M., Curran, J. T., ... & Cilliers, P. (2016, May). Ionospheric scintillation threats to GNSS in polar regions: the DemoGRAPE case study in Antarctica. In *Navigation Conference (ENC), 2016 European* (pp. 1-7). IEEE. doi: [10.1109/EURONAV.2016.7530546](https://doi.org/10.1109/EURONAV.2016.7530546)

Linty, N., I. Hunstad, " Installation and configuration of an Ionospheric Scintillation Monitoring Station based on GNSS receivers in Antarctica. *RAPPORTI TECNICI INGV*, 2016, 354: 1-28. N

M. Negusini, B. H. Petkov, P. Sarti and C. Tomasi, (May 2016) "Ground-Based Water Vapor Retrieval in Antarctica: An Assessment," in *IEEE Transactions on Geoscience and Remote Sensing*, vol. 54, no. 5, pp. 2935-2948,. doi: 10.1109/TGRS.2015.2509059.

Pignalberi, A ; Pezzopane, M ; Tozzi, R ; De Michelis, P; Coco, I: Comparison between IRI and preliminary Swarm Langmuir probe measurements during the St. Patrick storm period, *Earth, Planets and Space*, 68, 93, doi: 10.1186/s40623-016-0466-5, 2016.

Prikryl, P., Ghoddousi-Fard, R., Ruohoniemi, J. M., Thomas, E. G.: GPS phase scintillation at high latitudes during two geomagnetic storms, Auroral dynamics and space weather, Geophysical Monograph Series Vol. 215, Zhang, Y. and Paxton, L.J. (Editors), American Geophysical Union and John Wiley & Sons, Inc., ISBN 978-1-118-97870-2, 2016.

SCAR EG GRAPE: 2016-2017 Annual Report, cont.

Prikryl, P., et al. (2016), GPS phase scintillation at high latitudes during the geomagnetic storm of 17–18 March 2015, *J. Geophys. Res. Space Physics*, 121, doi:10.1002/2016JA023171.

V. Sreeja (2016), Impact and mitigation of space weather effects on GNSS receiver performance, *Geoscience Letters*, doi: 10.1186/s40562-016-0057-0.

- 2017

Cilliers, P., L. Alfonsi, L. Spogli, G. De Franceschi, V. Romano, I. Hunstad, N. Linty, O. Terzo, F. DAVIS, J. Ward, C. Cesaroni and J.A.E. Stephenson (2017), Analysis of the ionospheric scintillations during 20-21 January 2015 from SANAE by means of the DemoGRAPE scintillation receivers, Proceedings of URSI GASS, Montreal 19-26 August 2017, in publications on IEEE Xplore Summary Papers.

Correia, E., L. Spogli, L. Alfonsi, C. Cesaroni, A. Gulisano, E. Thomas, R. Ramirez, and Alexandre Rodel. Ionospheric Response to the 26 September 2011 Geomagnetic Storm In Antarctica. *Annales Geophysicae*. 2017 Submitted

Drews R., Pattyn F., Hewitt I. J., Matsuoka K., Helm V., Berger S., Bergeot N., Favier L., Actively evolving subglacial conduits and eskers initiate ice shelf channels at an Antarctic grounding line, *Nature Communications*, 8, 10.1038/ncomms15228, 2017.

G. Giordanengo, L. Pilosu, L. Mossucca, F. Renga, S. Ciccina, O. Terzo, G. Vecchi, V. Romano, and I. Hunstad, "Energy Efficient System for Environment Observation", the 11th International Conference on Complex, Intelligent, and Software Intensive Systems - CISIS, 07/2017, accepted for publication.

L. Mossucca, L. Pilosu, P. Ruiu, G. Giordanengo, S. Ciccina, G. Vecchi, O. Terzo, V. Romano, L. Spogli, C. Cesaroni, I. Hunstad, and A. Serratore, "Greenlab: autonomous low power system extending multi-constellation GNSS acquisition in Antarctica", Proceedings of URSI GASS, Montreal 19-26 August 2017, in publications on IEEE Xplore Summary Papers.

Pattyn F., Bruyninx C., Tison J.-L., Bergeot N., Favier L., van Dam T., Drews R., Callens D., Philippe M., Matsuoka K. and Hubbard B., Constraining ice mass changes in coastal draining Maud Land, Antarctica (ICECON), final report Brussels : Belgian Science Policy 2009, 2017.

R. Romero, N. Linty, C. Calogero, F. DAVIS and L. Alfonsi (2017, January), "On the Use and Performance of new Galileo signals for Ionospheric Scintillation Monitoring over Antarctica", Proceedings of ION ITM 2017, Monterey (CA), January 2017, pp.989-997, <https://www.ion.org/publications/abstract.cfm?articleID=14942>.

Presentations

Bergeot N., Darrouzet F., Rasson J., Tzagouri I., Lichtenberger J., Marqué C., Chevalier J.-M., Martinez A., Katsiyannis T., Bruyninx C., Ranvier S., Lamy H., Tétard C., de Keyser J., Bracke S., Gonsette A. and Belehaki A., GNSS and Space Weather in East Antarctica around the Princess Elisabeth Belgian base, SCAR 2016 Conference, Kuala Lumpur, Malaysia, 20-30 August, 2016.

SCAR EG GRAPE: 2016-2017 Annual Report, cont.

Bruyninx C., Bergeot N., Van Dam T., Camelbeeck T., Francis O. and Tabibi S., High precision GNSS infrastructure around the Princess Elisabeth Base, BNCCGG - BNCAR symposium, Brussels, Belgium, April 29, 2016.

Capra A., A. Zanutta, M. Negusini, S. Gandolfi, F. Salvini, P. Sterzai, L. Vittuari, P. Cianfarra, M. Dubbini, A. Galeandro and F. Mancini, "VLNDEF: An integrated geodetic project and its latest results", poster presentation SCAR Open Science Conference, Kuala Lumpur, Malaysia, 22-26 August 2016.

Chevalier J.-M., Bergeot N., Marqué C., Bruyninx C., Near-real time detection of solar radio burst impacting the GNSS signal reception, ESWW13, Oostende, Belgium, 14-18 November, 2016

Drews R., Matsuoka K., Martin C., Callens D., Bergeot N. and Pattyn F., Evolution of Derwael Ice Rise in Dronning Maud Land, Antarctica, over the last millennia, BNCCGG - BNCAR symposium, Brussels, Belgium, April 29, 2016.

Drews R., Pattyn F., Berger S., Favier L., Matsuoka K. and Bergeot N., Ice-shelf channels: where they originate and how they evolve, BNCCGG - BNCAR symposium, Brussels, Belgium, April 29, 2016

Fernandez, José Henrique ; Correia, E. . Relationship between LEPE events in the lower ionosphere and the associated geospace conditions. In: VI Simpósio Brasileiro de Geofísica Espacial e Aeronomia, 2016, Jataí. Anais do VI Simpósio Brasileiro de Geofísica Espacial e Aeronomia, 2016

Francis O., Van Dam T., Bruyninx C., Bergeot N. and T. Camelbeeck, The GIANT project: why gravity is increasing at the PE station?, BNCCGG - BNCAR symposium, Brussels, Belgium, April 29, 2016.

García-Rigo A., Roma-Dollase D., Hernández-Pajares M., Li Z., Terkildsen M., Olivares G., Ghoddousi-Fard R., Dettmering D., Erdogan E., Haralambous H., Béniguel Y., Berdermann J., Kriegel M., Krypiak-Gregorczyk A., Gulyaeva T., Komjathy A., Vergados P., Feltens J., Zandbergen R., Fuller-Rowell T., Altadill D., Bergeot N., Krankowski A., Agrotis L., Galkin I., Orus-Perez R., St. Patrick's Day 2015 geomagnetic storm analysis based on Real Time Ionosphere Monitoring, EGU General Assembly 2017, April 23-28, Vienna, Austria, 2017

G. Heygster, C. Melsheimer, A. Gomes, G. Spreen, M. Negusini, B. H. Petkov and C. Tomasi, "Precipitable Water retrieval over Antarctica from Satellite Microwave Humidity sounders", XXXIInd URSI General Assembly and Scientific Symposium, 19 - 26 of August 2017, Montreal, Canada.

L. Mossucca, L. Pilosu, P. Ruiu, G. Giordanengo, S. Ciccina, G. Vecchi, O. Terzo, V. Romano, L. Spogli, C. Cesaroni, I. Hunstad, and A. Serratore, "GreenLab: autonomous low power system extending multi-constellation GNSS acquisition in Antarctica", XXXIInd URSI General Assembly and Scientific Symposium, 19 - 26 of August 2017, Montreal, Canada.

L. Pilosu, L. Mossucca, A. Scionti, G. Giordanengo, F. Renga, P. Ruiu, O. Terzo, S. Ciccina, and G. Vecchi, "Low Power Computing and Communication System for Critical Environments", 11-th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing - 3PGCIC 2016, Asan, Korea, 11/2016.

SCAR EG GRAPE: 2016-2017 Annual Report, cont.

L. Pilosu, P. Ruiu, A. Scionti, L. Alfonsi, L. Spogli, V. Romano, F. Dosis, N. Linty, P. Cilliers, P. Riley, J. Ward, E. Correia, J. Henrique, M. Bavaro, J. T. Curran, and J. Fortuny, "DemoGRAPE: A demonstrator of e-science potential in Antarctica", SCAR 2016, Kuala Lumpur, Malaysia, 08/2016.

L. Pilosu, P. Ruiu, A. Scionti, L. Alfonsi, V. Romano, R. Romero, P. Cilliers, H. Theron, E. Correia, and W. Sarjob, "Cloud computing infrastructure for polar GNSS e-science applications", SCAR 2016, Kuala Lumpur, Malaysia, 08/2016.

Prikryl, P., et al., GPS phase scintillation during the geomagnetic storm of March 17, 2015: The relation to auroral electrojet currents, Japan Geoscience Union Meeting, Makuhari Messe, Chiba-city, Japan, May 22-26, 2016.

Prikryl, P., et al. (presented by Pierre Cilliers), GPS phase scintillation during the geomagnetic storm of March 17, 2015: Interhemispheric comparison and the relation to auroral electrojet currents, SCAR Open Science Conference, Kuala Lumpur, Malaysia, 22-26 August 2016.

Prikryl, P., et al., Geomagnetic storms of March 17, 2013 and 2015: GPS phase scintillation and auroral electrojet currents, JpGU-AGU Joint Meeting 2017, Tokyo, Japan, 20–25 May 2017.

Prikryl, P., et al., Comparison of March 2013 and 2015 storms : GPS phase scintillation and auroral electrojet currents, European Geosciences Union General Assembly 2017 Vienna, Austria, 23–28 April 2017.

Prikryl, P., et al., GPS phase scintillation and auroral electrojet currents during geomagnetic storms of March 17, 2013 and 2015, XXXIInd URSI General Assembly and Scientific Symposium, 19 - 26 of August 2017, Montreal, Canada.

Rodel, A. ; Correia, E. . Caracterização do comportamento da ionosfera durante eventos SFE 'Solar Flare Effect'. In: VI Simpósio Brasileiro de Geofísica Espacial e Aeronomia, 2016, Jatai. Anais do VI Simpósio Brasileiro de Geofísica Espacial e Aeronomia, 2016.

C. Scarchilli, P. Grigioni, M. Maahn, M. Negusini, S. Argentini, G. Pace, M. Frezzotti, L. De Silvestri, V. Ciardini, A. Galeandro, A. Iaccarino, S. Dolci, M. Proposito, and G. Camporeale, "Solid precipitation estimation during summer snowfall events at a coastal site of the Terra Nova bay area, Antarctica", poster presented at European Geosciences Union General Assembly 2017 Vienna, Austria, 23–28 April 2017.

Silva, G. A. ; Correia, E. ; A. Rodel . Variabilidade da espessura da ionosfera no setor equatorial americano. In: VI Simpósio Brasileiro de Geofísica Espacial e Aeronomia, 2016, Jatai. Anais do VI Simpósio Brasileiro de Geofísica Espacial e Aeronomia, 2016

Tabibi S., Van Dam T., Francis O., Bruyninx C., Bergeot N. and Camelbeeck T., Snow accumulation retrieval in East Antarctica using GNSS-MR, BNCGG - BNCAR symposium, Brussels, Belgium, April 29, 2016.

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

- GNSS-based (GPS+GLONASS) Total Electron Content data from POLENET, IGS networks, and Belgian stations from 1999 to 2016. The data were processed using the ROB-IONO software (Bergeot et al. 2014). Contact person Nicola Bergeot nicolas.bergeot@oma.be
- Data from Ionosonde, GPS-TEC JAVAD, GNSS for TEC and scintillation, riometers, VLF for ionosphere monitoring at Brazilian Antarctic Station Comandante Ferraz (EACF 62.8S, 58.4W). GNSS for TEC and Scintillation, riometers and VLF at Radio Observatory of Itapetinga (ROI, 23.2S, 46.6W), GNSS for TEC and Scintillation and riometer at Cawame (Roraima-Brazil, 2.82N, 60.76W). Contact person: Emilia Correia ecorreia@craam.mackenzie.br
- Eswua www.eswua.ingv.it (work in progress to upgrade the data base)
- DemoGRAPE, GNSS data during DemoGRAPE campaigns, Contact person Lucilla Alfonsi lucilla.alfonsi@ingv.it

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
12-17	ionospheric monitoring meeting at the Royal Observatory of Belgium	1986 (Funds allocated in 2017)	Nicolas Bergeot	Nicola.bergeot@oma.be
3-18	SCAR 2018 registration fees for GRAPE attending people and support to early stage researchers	2000	G. De Franceschi	Giorgiana.defranceschi@ingv.it

Briefly describe what the funds will be used for and what the desired results are:

Organization of a workshop on ionospheric monitoring and predictions at the Royal Observatory of Belgium. Registration fees and travel support for early stage researchers presenting a paper related to GRAPE.

All these initiatives aspire to disseminate the polar atmosphere and space weather, to coordinate international actions and efforts, and finally to attract as much as possible early stage researchers on these topics.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: 30%

2018: 30%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

We cannot provide an estimation today; it will depend on the adhesion of scientists from countries with developing Antarctic programmes, which are more than welcome.

2017:

2018:

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

Italian National Program for Antarctic Researches (PNRA)

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

EU PROJECTS and initiatives focusing on GNSS services and Space Weather, URSI COMMISSIONS G and F, IAGA.

Outreach and Capacity Building

Bergeot N., Why do we need to continue scientific research in Antarctica? Cognac Rotary Club, France, March 2, 2016 Presentation on Antarctica research at the Cognac Rotary Club.

Bergeot N., A little detour through Antarctica ? Berkendael prison, Belgium, May 26, 2017 Presentation in the frame of the "Clés pour l'Univers" association to give scientific presentation in closed institutions (here, prison for women).

Spogli Luca, "Space climate and space weather from the Arctic" lecture within the "Master in sustainable development, geopolitics of resources and arctic studies" organized by the Società Italiana per l'Organizzazione Internazionale (The Italian Society for International Organization), Rome July 2016.

ACTIONS

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Nicolas Bergeot
nicolas.bergeot@oma.be

Lucilla Alfonsi
lucilla.alfonsi@ingv.it

Membership

The complete list of membership is available at www.grape.scar.org
Leadership

SCAR EG GRAPE: 2016-2017 Annual Report, cont.

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Chief officer	Giorgiana	De Franceschi	INGV	Italy	Giorgiana.defranceschi@ingv.it	August 2012	
Deputy chief officer	Nicolas	Bergeot	OMA	Belgium	nicolas.bergeot@oma.be	August 2016	

** Please include any APECS representative / Junior Officers*

Other members

First Name	Last Name	Affiliation	County	Email

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

SG

Person

Responsible:

IPICS

PS

Ed Brook,

Eric Wolff

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

IPICS 2016-2017 Report

Report Author(s): Edward Brook, Oregon State University; Eric Wolff, University of Cambridge

Summary of activities from 2016-17 and any other important issues or factors (<150 words): Publication of joint special issue in *Climate of the Past and Cryosphere* resulting from the Second IPICS Open Science Conference (7-11 March, 2016, Hobart). Election of new IPICS co-chairs: Hubertus Fischer (University of Bern) and Tas van Ommen (Australian Antarctic Division). Adoption of a new white paper describing IPICS science priorities related to past abrupt climate changes: "Terminations and seesaws."

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words): IPICS continues to be a strong and efficient organization. The two major activities of the past year were the publication of a series of papers resulting from the 2016 Open Science conference (http://www.thecryosphere.net/special_issue12_653.html) and the adoption of the “Terminations and Seesaws” white paper.

In addition, the international ice core community is taking up the IPICS oldest ice challenge, with several nations and groups of nations actively engaged in technology development and site selection activity associated with this effort to collect a 1.5 Ma old ice core.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

New IPICS co-chairs (Hubertus Fischer and Tas van Ommen) take over in August 2017.

New initiative and white paper in ice coring for studying ice dynamics (next 6 months).

Bids for hosting the 2020 IPICS Open Science conference accepted in 2018.

IPICS Oldest Ice meeting during the Polar 2018 meeting in Davos.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

IPICS Special Issue: http://www.thecryosphere.net/special_issue12_653.html

Terminations and seesaws white paper:

http://pastglobalchanges.org/download/docs/pdf/IPICS_termsandseesaws_final.pdf

[SCAR Group Name]: 2016-2017 Annual Report, cont.

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
06-2018	IPICS	3000	Tas van Ommen	Tas.Van.ommen@aad.gov.au

Briefly describe what the funds will be used for and what the desired results are: Support travel and meeting costs for an IPICS project meeting to discuss international progress on the oldest ice project. A brief IPICS Steering Committee meeting will also be held if attendance is sufficient.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017:
2018: 10%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017:
2018: 10%

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop): PAGES supports the IPICS web site and in the past has provided limited support for IPICS meetings.

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

IPICS helped originate the Ice Core Young Scientists Network (ICYS) and the IPICS chairs provide input and guidance to ICYS when needed. Furthermore, an overall goal of IPICS is to develop international collaborations in ice core science.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Ed Brook, Oregon State University

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Co-chair	Eric	Wolff	University of Cambridge	UK	ew428@cam.ac.uk	2001	8/2017
Co-chair	Edward	Brook	Oregon State	USA	brooke@geo.oregonstate.edu	2001	8.2017

			Univer sity				

** Please include any APECS representative / Junior Officers*

Other members

The IPICS steering committee is comprised of 37 members, with full listing here: <http://pastglobalchanges.org/ini/end-aff/ipics/steering-committee>. The committee includes national representatives from 24 nations and experts representing specific scientific or technical topics.

First Name	Last Name	Affiliation	County	Email

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

ISMASS

SG

PS/LS/GS

Person
Responsible:

Catherine Ritz

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

ISMASS SCAR Expert Group 2016-2017 Report

Report Author(s): Catherine Ritz (catherine.ritz@univ-grenoble-alpes.fr), Frank Pattyn (fpattyn@ulb.ac.be), Francisco Navarro (francisco.navarro@upm.es)

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

ISMASS is a joint SCAR-IASC-CliC Expert Group. Catherine Ritz is the chair of ISMASS. Representatives from member organizations are Frank Pattyn (SCAR), Francisco Navarro (IASC) and Edward Hanna (CliC).

ISMASS activities for the period 2016-2017 cover:

- An ISMASS workshop was organized in Brussels from 11-13 January 2017 with the purpose of preparing a review paper on the contribution of Greenland and Antarctic ice sheets to future sea level under a 1.5 degree warmer climate (in line with the Paris agreement). The paper should be in time for the IPCC Special Report on 1.5 degrees.
- During the Kala Lumpur SCAR open conference, ISMASS organized a mini symposium "The Antarctic Ice sheet from Past 2 future" with three major SCAR programs: SERCE, PAIS and Antclim21. ISMASS also organized a session "Glaciers and ice sheet mass balance".

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

ISMASS bridges scientific groups and communities involved in better understanding of and improving projections of sea level change (past, present and future). ISMASS is not solely a SCAR initiative, but is also linked to IASC and CliC. The main website of ISMASS is hosted by CliC.

The activity happens under the form of meetings and targeted initiatives.

In this framework, ISMASS organized a plenary session at the SCAR OSC meeting in Malaysia involving SRP AntClim21, PAIS and SERCE and focusing on the interactions between the different groups. All SRP representatives have been involved in this process.

More recently, ISMASS major activity aims at producing a review paper concerning the contribution of Greenland and Antarctic ice sheets to future sea level under a 1.5 degree warmer climate. A workshop (partly funded by SCAR) was organized in January 2017 to bring together experts of the various disciplines involved in this topic. A first canvas of the paper was defined and the writing is now well advanced. The first outcomes of this work was presented in various international conferences and the article should be submitted in time for the IPCC deadline.

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

An ISMASS workshop was organized in Brussels from 11-13 January 2017 with the purpose of preparing a review paper on the contribution of ice sheets to future sea level under a 1.5 degree warmer climate. This workshop was funded by SCAR and CliC.

Participants to the meeting were Frank Pattyn (organizer), Lionel Favier, Gael Durand, Catherine Ritz (co-organizer and chair of ISMASS), Xavier Fettweis, Edward Hanna, Michiel van den Broeke, Heiko Goelzer, Xylar Asay-Davis, Alexander Robinson, Tony Payne, Helene Seroussi and Sophie Nowicki. Rob DeConto joined by Skype. The meeting discussions led to a canvas of such a paper that would cover the following: Forcing (non-linearities, SMB, circulation changes, feedbacks, ...), Advances in understanding processes - uncertainties since AR5 (calving, GIA, basal processes, ...), Expected centennial response for Greenland and Antarctica, and Expected long-term response (including commitment).

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

- There will be an ISMASS related session during next Open Conference in DAVOS in 2018. CR5: "Interactions between ice mass balance, the solid Earth, and sea-level changes" (C. Ritz convener)
- ISMASS will organize a one day workshop as a side meeting of the Open Conference. Title: "Update on mass balance of Greenland and Antarctica (linkages between data and models)". A review article should be an outcome of this workshop (Contact Ed. Hanna)
- The review article on "Contribution of Greenland and Antarctic ice sheets to future sea level under a 1.5 degree warmer climate" will be finalized. Submission is planned before the autumn 2017, in time with the IPCC deadline (contact F. Pattyn, C. Ritz)
- ISMASS will continue to endorse the ice-sheet-ocean model intercomparisons by helping organizing workshops related to this issue (e.g., MISOMIP).
- We plan to renew the steering committee composition and chair during the SC in 2018 (at the Davos SCAR open conference)

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

The publication output of ISMASS is rather limited as ISMASS facilitates science and is not a science actor or science program. The publications are thus limited to review papers. The next one will concern the "Contribution of Greenland and Antarctic ice sheets to future sea level under a 1.5 degree warmer climate". The first step was the workshop held in Brussel in January 2017 and the outcomes were presented at the IGS/CliC/IACS International Symposium « The Cryosphere in a Changing Climate » in February 2017, at the EGU-2017 conference in April 2017 and at the WCRP/IOC conference "Regional Sea Level Changes and Coastal Impacts" in July 2017.

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
11/2017	SC	1500	C. Ritz	
06/2018	ISMASS workshop side event at Davos	2500	E. Hanna	
06/2018	SC	1000	C. Ritz	

Briefly describe what the funds will be used for and what the desired results are:

The funds will be used to invite speakers to sessions or workshops organized by ISMASS and to provide fellowships for Early Career Researchers for the same events. Given that one of the steering committee member is an ECR, funding is also used for her/his attendance to the SC

Note that the 2017 Steering Committee might be organized as a visio conference because it would be better to shift these funds to 2018 and be able to invite more people at the workshop.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: 50%
2018: 50%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017:
2018:

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

ISMASS is also supported by Clic and IASC.

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

ISMASS organized a join mini symposium in Kuala Lumpur with SERCE, PAIS, Antclim21.

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

Outreach and communication is mainly organized in collaboration with CliC that enables a wide coverage.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Chair	Catherine	Ritz	Université Grenoble Alpes	France	Catherine.ritz@univ-grenoble-alpes.fr	2012	2018
SC	Frank	Pattyn	Université Libre de Bruxelles	Belgium	fpattyn@ulb.ac.be	2012	2018
SC	Edward	Hanna	University of Lincoln	UK	EHanna@lincoln.ac.uk	2012	2016
SC	Francisco	Navarro	Universidad Politécnica de Madrid	Spain	francisco.navarro@upm.es	2012	2016
APECS SC member	Ellyn	Enderlin		US	ellyn.enderlin@gmail.com	2015	
APECS SC member	Bertie	Miles	Durham University	UK	a.w.j.miles@durham.ac.uk	2016	

* Please include any APECS representative / Junior Officers

Other members

First Name	Last Name	Affiliation	County	Email
Pippa	Whitehouse	Durham University	UK	pippa.whitehouse@durham.ac.uk
Xavier	Fettweis	Université de Liege	Blegium	xavier.fettweis@ulg.ac.be

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

OpMet

SG

PS

Person Responsible: Steven Colwell

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Operational Meteorology in the Antarctic (OpMet) Expert Group 2016-2017 Report

Report Author(s): Steven Colwell src@bas.ac.uk

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

The group continues to maintain webpages that are updated on a weekly basis with news, information and data monitoring at https://legacy.bas.ac.uk/met/jds/met/SCAR_oma.htm

With the SSG-PS we part funded the 11th Antarctic Meteorological Observation, Modeling & Forecasting Workshop (June 6-8, 2016) in Columbus Ohio.

With the SSG-PS we are part funding the 12th Antarctic Meteorological and Climate Workshop (June 26-28, 2017) in Boulder Colorado

In conjunction with the WMO Antarctic Task Team (ATT) we have put together an information update paper that went to the Antarctic Treaty Consultative Meeting (ATCM) on the state of operational meteorology in Antarctica.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any):

None

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

With the SSG-PS part funded the 11th Antarctic Meteorological Observation, Modeling & Forecasting Workshop (June 6-8, 2016) in Columbus Ohio see http://polarmet.osu.edu/AMOMFW_2016/

In conjunction with the WMO Antarctic Task Team (ATT) we have put together an information update paper that went to the Antarctic Treaty Consultative Meeting (ATCM) on the state of operational meteorology in Antarctica see http://www.ats.aq/documents/ATCM40/ip/ATCM40_ip117_e.doc

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

With the SSG-PS are part funding the 12th Antarctic Meteorological and Climate Workshop (June 26-28, 2017) in Boulder Colorado, this will also include a meeting of the Year Of Polar Prediction (YOPP) southern hemisphere group see <https://www.mmm.ucar.edu/workshop-antarctic-meteorology-climateyopp-sh-meetingsorp-meeting>

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

The SCAR READER database gets update don a monthly basis as new data becomes available see <https://legacy.bas.ac.uk/met/READER/>

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2017-06	Attending AMC meetings	2000	Steve Colwell	src@bas.ac.uk
2018	Attending AMC meetings	2000	Steve Colwell	src@bas.ac.uk

Briefly describe what the funds will be used for and what the desired results are:

T&S for people to attend the AMC meeting who are coming from countries that are developing Antarctic programs or are early career scientists, this allows them to present their work and also establish links with representatives from other national Antarctic operators.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: 50%
2018: 50%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programs (as listed here: <http://www.scar.org/finances/contributions>):

2017: 50%
2018: 50%

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

None

Please list any major collaborations your group has with other SCAR groups and with organization's/groups beyond SCAR:

WMO EC-PHORS https://www.wmo.int/pages/prog/www/polar/index_en.html
WMO GCW <http://globalcryospherewatch.org/>

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (*coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved*) (<250 words):

Members of the group publishing scientific papers and carrying out outreach but not specifically as OpMet.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Steve Colwell src@bas.ac.uk

Pablo Clemente-Colon Pablo.Clemente-Colon@noaa.gov

Jordan Powers powers@ucar.edu

Membership

Membership list can be found at:

<https://legacy.bas.ac.uk/met/jds/met/members.htm>

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Chair	Steve	Colwell	BAS	UK	src@bas.ac.uk	2010	NA

* Please include any APECS representative / Junior Officers

Other members

First Name	Last Name	Affiliation	County	Email

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

xxx

SG

PS/LS/GS

Person

xxx

Responsible:

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

PACT (Polar Atmospheric Chemistry at the Tropopause) 2016-2017 Report

Report Author(s):

Dr Andrew Klekociuk and Dr Gennadi Milinevsky

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

Work continues on preparation of a manuscript for publication on outcomes of the PACT Action Group. One PhD student is engaged in this work.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

Nil

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

Further work on finalization of data base.
Analysis of data by PhD student.

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

By end June 2018: Submission of publication and completion of activities.
It is intended to end the activities of the group when the publication is submitted.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

Greenslade, J. W., Alexander, S. P., Schofield, R., Fisher, J. A., and Klekociuk, A. K.: Stratospheric ozone intrusion events and their impacts on tropospheric ozone, Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2016-1124>, in review, 2017.
This paper uses some preliminary data from the project.

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

No new links. Some information on the projects is at <http://www.scar.org/pact>

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email

Briefly describe what the funds will be used for and what the desired results are:

No budget request – publication costs will be covered by Klekociuk’s host organization.

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: n/a

2018: n/a

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017: n/a

2018: n/a

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

Nil

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

No significant collaborations

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

Web site <http://www.scar.org/pact>

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Nil

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Co-chair	Andrew	Klekociuk	Australian Antarctic Division	Australia	Andrew.Klekociuk@aad.gov.au		2018
Co-chair	Gennadi	Milinevsky	Taras Shevchenko National University of Kyiv	Ukraine	genmilinevsky@gmail.com		2018

* Please include any APECS representative / Junior Officers

Other members

First Name	Last Name	Affiliation	County	Email

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:

Nil



SCAR Group

AG Remote

Sensing

SG

PS/LS

Person

Hans-Ulrich

Responsible:

Peter

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

SCAR Action Group **“Development of a satellite-based,** **Antarctic-wide, remote sensing** **approach to monitor bird and animal** **populations”** **2016-2017 Report**

Report Author(s): Osama Mustafa & Hans-Ulrich Peter

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

- Organizing session during SCAR Open Science Conference 2016
- Organizing Action group-meeting during SCAR Open Science Conference 2016
- Initiation and preparation of an official request of SCAR to Copernicus Program/European Space Agency (ESA) concerning coverage of satellites
- Presentation of first results of the coverage extension at the Annual Forum for Remote Sensing and Copernicus 2017
- Organizing a workshop during SCAR Biology Symposium 2017

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

no

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

- Organizing session during the SCAR Open Science Conference 2016

August 22 and 23, 2016: Session 21: Remote sensing of the Antarctic environment: Multidisciplinary Advances: Convener : Hong Tat Ewe, Shridhar Jawak, Rob Massom, Oscar Schofield & Hans-Ulrich Peter
20 talks and 16 poster presentations. One young scientist got financial support from the Action Group

- Organizing Action group-meeting during SCAR Open Science Conference 2016

August 20, 2016: Joint meeting of the SCAR Action Group on remote sensing of animals and the new SOOS working Group Censusing Animal Populations from Space (CAPS). Half of the day was devoted to SCAR Action Group business, and half to discussing the CAPS pack-ice seal census project.

- Initiation and preparation of an official request of SCAR to European Space Agency (ESA) concerning coverage of satellites

Following a discussion at the workshop during SCAR OSC 2016 members of the Action Group initiated and prepared an official request of SCAR as representative of the Antarctic scientific community to the European Space Agency (ESA) on expanding the coverage of Sentinel-2 mission satellites. In November 2016 this request was positively answered and fully supported by ESA. The image acquisition of Sentinel-2 was extended from its former limitation to 56°S to the Antarctic continent for selected periods of the season 2016/17 and with regular coverage from 2017/18 season on. With this, Antarctic researchers from various fields have the opportunity to use the free available and high quality imagery of this new platform.

- Presentation of first results of the coverage extension at the Annual Forum for Remote Sensing and Copernicus 2017

At the Annual Forum for Remote Sensing and Copernicus 2017 first results in consequence of the extension of Sentinel-2 coverage could be presented. The analysis outlines the potential of Sentinel-2 images for monitoring bird populations in the Antarctic.

- Organizing workshop during SCAR Biology Symposium 2017

July 9, 2017: Workshop “Drones in Polar Biology” will be held: Organized by H.-U. Peter, O. Mustafa & M.-C. Rümmler

Drones (UAVs) are used more and more in different fields of Antarctic science. This technology is used for groundtruthing of satellite imagery and as a standalone remote sensing survey method. To discuss the opportunities and challenges of this promising technology the AG wants to use the occasion of the SCAR Biology Symposium 2017 for a side event workshop.

Topics of the workshop will be:

- Monitoring of Antarctic wildlife, esp. penguins and seals
- Botanical and physiological research
- Avoidance of disturbance of birds and seals: recommendations for guidelines for CEP

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

The AG will follow the future developments: Recent technology in geospatial science over the last decade have motivated major advances in our understanding of the Antarctic continent and surrounding oceans. These developments have (and will) included the use of new satellite remote sensing platforms (e.g. WorldView, Sentinel and Landsat series of satellites) and methods to obtain geospatial information, such as, automatic/ semi-automatic extraction of information from remote sensing images, new mapping techniques for ice sheet properties (roughness, thickness and velocity) usage of remotely sensed data for Antarctic glaciological and mass balance studies and ice sheet flow and geodynamics over short temporal scales. Other important points are remote sensing of the marine cryosphere (including sea ice and its snow cover) and its interactions with ocean and atmosphere and generation of digital elevation models (DEMs) of Antarctic regions.

The fast developments in monitoring bird and seal populations and habitats with remote sensing applications used unmanned aerial vehicle (UAV) including disturbance capability and environmental impacts of UAVs on bird and seal populations.

Another development is the use of Autonomous Underwater Vehicle (AUV) technology to investigate small-scale characteristics and changes. Much of this research is cross-disciplinary in its nature and this has led to noteworthy advances across a range of Antarctic scientific disciplines.

The Action Group will focus in the future on such multi-disciplinary research and includes new and emerging research frontiers in Antarctic science. The AG will merge snow and ice studies with climate research, ice-ocean interaction, and animal monitoring via remote sensing. The next meeting will be during SCAR Biology in Belgium (2017) and SCAR/IASC Conference in Davos (Switzerland) 2018.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

Ancel, A., Cristofari, R., Trathan, P.N., Gilbert, C., Fretwell, P.T., Beaulieu, M., 2017. Looking for new emperor penguin colonies? Filling the gaps. *Glob. Ecol. Conserv.* 9, 171–179. doi:10.1016/j.gecco.2017.01.003

- Burton-Johnson, A., Black, M., Fretwell, P.T., Kaluza-Gilbert, J., 2016. A fully automated methodology for differentiating rock from snow, clouds and sea in Antarctica from Landsat imagery: A new rock outcrop map and area estimation for the entire Antarctic continent. *Cryosphere Discuss.* 1–16. doi:10.5194/tc-2016-56
- Fretwell, P.T., Scofield, P., Phillips, R.A., 2017. Using super-high resolution satellite imagery to census threatened albatrosses. *Ibis* 159, 481–490. doi:10.1111/ibi.12482
- Hodgson, J.C., Baylis, S.M., Mott, R., Herrod, A., Clarke, R.H., 2016. Precision wildlife monitoring using unmanned aerial vehicles. *Sci. Rep.* 6, 22574. doi:10.1038/srep22574
- Humphries, G.R.W., Naveen, R., Schwaller, M., Che-Castaldo, C., McDowall, P., Schrimpf, M., Lynch, H.J., 2017. Mapping Application for Penguin Populations and Projected Dynamics (MAPPPD): data and tools for dynamic management and decision support. *Polar Rec.* 53, 160–166. doi:10.1017/S0032247417000055
- Korczak-Abshire, M., Kidawa, A., Zmarz, A., Storvold, R., Karlsen, S.R., Rodzewicz, M., Chwedorzewska, K., Znój, A., 2016. Preliminary study on nesting Adélie penguins disturbance by unmanned aerial vehicles. *CCAMLR Sci.* 23, 1–16.
- LaRue, M.A., Stapleton, S., Anderson, M., 2017. Feasibility of using high-resolution satellite imagery to assess vertebrate wildlife populations: Satellite Imagery for Wildlife Research. *Conserv. Biol.* 31, 213–220. doi:10.1111/cobi.12809
- Lynch, H.J., White, R., Naveen, R., Black, A., Meixler, M.S., Fagan, W.F., 2016. In stark contrast to widespread declines along the Scotia Arc, a survey of the South Sandwich Islands finds a robust seabird community. *Polar Biol.* doi:10.1007/s00300-015-1886-6
- McDowall, P., Lynch, H.J., 2017. Ultra-Fine Scale Spatially-Integrated Mapping of Habitat and Occupancy Using Structure-From-Motion. *PloS One* 12, e0166773.
- Mustafa, O., Esefeld, J., Grämer, H., Maercker, J., Rümmler, M.-C., Pfeifer, C., 2017. Monitoring penguin colonies in the Antarctic using remote sensing data. *Texte Texte.*
- Southwell, C., Emmerson, L., Takahashi, A., Barbraud, C., Delord, K., Weimerskirch, H., 2017a. Large-scale population assessment informs conservation management for seabirds in Antarctica and the Southern Ocean: A case study of Adélie penguins. *Glob. Ecol. Conserv.* 9, 104–115. doi:10.1016/j.gecco.2016.12.004
- Southwell, C., Emmerson, L., Takahashi, A., Kato, A., Barbraud, C., Delord, K., Weimerskirch, H., 2017b. Recent studies overestimate colonization and extinction events for Adélie Penguin breeding colonies. *The Auk* 134, 39–50. doi:10.1642/AUK-16-125.1
- Witharana, C., LaRue, M.A., Lynch, H.J., 2016. Benchmarking of data fusion algorithms in support of earth observation based Antarctic wildlife monitoring. *ISPRS J. Photogramm. Remote Sens.* 113, 124–143. doi:10.1016/j.isprsjprs.2015.12.009
- Witharana, C., Lynch, H., 2016. An Object-Based Image Analysis Approach for Detecting Penguin Guano in very High Spatial Resolution Satellite Images. *Remote Sens.* 8, 375. doi:10.3390/rs8050375

[SCAR Group Name]: 2016-2017 Annual Report, cont.

Youngflesh, C., Jenouvrier, S., Li, Y., Ji, R., Ainley, D.G., Ballard, G., Barbraud, C., Delord, K., Dugger, K.M., Emmerson, L.M., Fraser, W.R., Hinke, J.T., Lyver, P.O., Olmastroni, S., Southwell, C.J., Trivelpiece, S.G., Trivelpiece, W.Z., Lynch, H.J., 2017. Circumpolar analysis of the Adélie penguin reveals the importance of environmental variability in phenological mismatch. *Ecology* n/a-n/a. doi:10.1002/ecy.1749

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

no

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
06-18	SCAR/IASC - Meeting Davos: for young participants	2x1000 (from LS & PS)	H.-U. Peter	bpe@uni- jena.de

Briefly describe what the funds will be used for and what the desired results are:

Invitation of young participants for the SCAR Meeting: financial help

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: (will be used in 2018)

2018:100 %

Budget Justification (please indicate % of budget to support early career scientists and scientists from countries with small Antarctic programmes):

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017:

2018: ?

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. Funds from another organization for a workshop):

The AG is supported by LS and PS.

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

LS, PS, EGBAMM, CAPS

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

The results of several group members regarding the disturbance of wildlife by drones were the base for a number of conference papers submitted to ATCM/CEP giving an input for the discussion on guidelines for the use of drones near bird and seal concentrations.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to act form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Please ask me: Hans-Ulrich.Peter@uni-jena.de

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Chair	Hans-Ulrich	Peter	Polar and Bird Ecology Group Jena	Germany	bpe@uni-jena.de	2014	?
Co-Chair	Osama	Mustafa	ThINK	Germany	Osama.mustafa@think-jena.de		

* Please include any APECS representative / Junior Officers

Other members

First Name	Last Name	Affiliation	County	Email
Barbara	Bollard Breen	Auckland University of Technology	New Zealand	bbreen@aut.ac.nz
Horst	Bornemann	AWI	Germany	
Peter	Fretwell	BAS	UK	ptf@bas.ac.uk
Mike	Goebel	NOAA	USA	mike.goebel@noaa.gov
Mark	Hindell	University of Tasmania	Australia	mark.hindell@utas.edu.au
Ewe	Hong Tat	Universiti Tunku Rahman	Malaysia	eweht@utar.edu.my
Shridhar	Jawak	Nat. Centre for Antarctic & Ocean Research	India	shridhar.jawak@gmail.com
Malgorzata	Korczak-Abshire	Polish Academy of Sciences	Poland	mka@ibb.waw.pl
Douglas	Krause	NOAA	USA	douglas.krause@noaa.gov
Erik	Kusch		Germany	erik@i-solution.de
Michelle	La Rue	University of Minnesota	USA	larue010@gmail.com
Heather	Lynch	Stony Brook University	USA	heather.lynch@stonybrook.edu
Rob	Massom	Australian Antarctic Division	Australia	Rob.Massom@aad.gov.au
Paul	Morin	Polar Geospatial Center	USA	lpaul@umn.edu
Osama	Mustafa	ThINK	Germany	osama.mustafa@think-jena.de
Dominik	Nachtsh	TiHo	Germany	Dominik.Nachtsheim@tih

	eim	Hannover		o-hannover.de
Christian	Pfeifer	THINK	Germany	christian.pfeifer@think-jena.de
Sharon	Robinson	University of Wollongong	Australia	sharonr@uowmail.edu.au
Marie-Charlott	Rümmler	Jena University	Germany	marie-charlott.ruemmler@uni-jena.de
Oscar	Schofield	Rutgers University	USA	oscar@marine.rutgers.edu
Mathew	Schwaller	NASA Goddard Space Flight Center	USA	mathew.r.schwaller@nasa.gov
Colin	Southwell	Australian Antarctic Division	Australia	Colin.Southwell@aad.gov.au
Phil	Trathan	BAS	UK	pnt@bas.ac.uk
Goncalo	Vieira	Universidade de Lisboa	Portugal	vieira@campus.ul.pt
Henry	Weimerskirch	CEBC CNRS	France	henriw@cebc.cnrs.fr

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:



SCAR Group

SG

Person

Responsible:

SORP

PS

I.

Smith

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Southern Ocean Regional Panel 2016-2017 Report

Report Author(s):

Inga Smith (Co-Chair), John Fyfe (Co-Chair), Lei Han (CLIVAR ICPO)

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

Panel meetings in September 2016 and June 2017, improving linkages with Southern Ocean Observing System (SOOS), the Ocean Observations Panel for Climate (OOCp), the Year of Polar Prediction Southern Hemisphere (YOPP-SH) and the CLIVAR/CliC Northern Oceans Region Panel (currently under formation). The panel has two new members (Robin Robertson and David Bromwich). SORP was represented at several international conferences/workshops. A series of national reports were solicited, and posted to the SORP website. SORP has reported to several sponsoring and related organizations such as SOOS, the Ocean Observations Panel for Climate, the Polar Prediction Project (PPP) Steering Group, the CLIVAR Scientific Steering Group and the CliC Scientific Steering Group.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

We would welcome SCAR promotion of the call for new SORP members later in the year (note for information).

We would welcome SCAR coordinating with CliC and CLIVAR about the format of required reports and their timing to ease the burden of producing reports such as this (note for information).

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

The SORP has been very active, with panel meetings in September 2016 alongside the CLIVAR Open Science Conference in Qingdao, China (access the meeting report here:

http://www.clivar.org/sites/default/files/documents/SORP_11_report_v1_Lei_finalized_17Feb15.pdf) and jointly with the Year of Polar Prediction Southern Hemisphere workshop in June 2017 (report pending). The 12th session of CLIVAR/CliC/SCAR Southern Ocean Region Panel (SORP) was held on 29-30 June 2017 at National Centre for Atmospheric Research (NCAR) Foothills campus in Boulder, Colorado, USA. SORP-12 took place alongside with the 12th Workshop on Antarctic Meteorology and Climate (26-28 June) and the 2nd planning meeting of Year of Polar Prediction in the Southern Hemisphere (YOPP-SH, <http://www.polarprediction.net/yopp.html>) (28-29 June). A joint YOPP-SH/SORP session was scheduled in the morning session of 29 June, discussing the collaborations of both groups. The rest of the one and a half days focused on the SORP business and interactions with Southern Ocean Observing System (SOOS, www.soos.aq). Extensive participation in international research coordination and collaboration has occurred with several relevant programmes, including the Southern Ocean Observing System (SOOS), the Ocean Observations Panel for Climate (OOCPI), the Year of Polar Prediction Southern Hemisphere (YOPP-SH) and the CLIVAR/CliC Northern Oceans Region Panel (currently under formation). The panel has two new members (Robin Robertson and David Bromwich).

The SORP has organized or proposed sessions at several international conferences including the CLIVAR Open Science Conference (Qingdao, China; September 2016) and Polar 2018. SORP co-sponsored a Townhall meeting on "Ocean-Cryosphere Interactions" at the CLIVAR Open Science Conference. The panel helped to organize a Polar Prediction Workshop in Bremerhaven, Germany (March 2017) co-sponsored by the Polar Climate Predictability Initiative (WCRP-PCPI), the Polar Prediction Project (WWRP-PPP), and the Sea Ice Prediction Network (ARCUS-SIPN). Over the past six months the panel was represented at several international conferences/workshops, including the SCAR Open Science Conference (Malaysia, August 2016), the IGS/CliC/IACS International Symposium on The Cryosphere (Wellington, New Zealand, February 2017), the SOOS SSC meeting, and the SOOS/POGO Observing and Understanding the Ocean below Antarctic Sea Ice and Ice Shelves workshop (Bremerhaven, Germany, June 2017). The SORP has developed a template to maximize input from national reports, has solicited and posted to the website a series of national reports, and has strengthened coordination of national representatives between SOOS and SORP (Inga Smith).

SORP has reported to several sponsoring and related organizations such as SOOS (Inga Smith and Jiuxin Shi ; Bremerhaven, Germany, June 2017), the

Ocean Observations Panel for Climate (OOCIP; Katsuro Katsumata; WoodsHole, USA, March, 2017), the Polar Prediction Project (PPP) Steering Group (François Massonnet), the CLIVAR Scientific Steering Group (John Fyfe and Inga Smith, Qingdao, China, September 2016, and the CliC Scientific Steering Group (Inga Smith, Wellington, New Zealand, February 2017).

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

SORP-13: two day meeting immediately prior to Polar 2018 14-15 June 2018, with half a day jointly held with the new CLIVAR/CliC Northern Oceans Region Panel (NORP).

SORP-14: Planned joint meeting in 2019 with SOOS, alongside a SOOS conference (topic to be determined: Mike Williams SOOS point of contact for that, Inga Smith SORP point of contact for that).

Task teams have been proposed and will be confirmed at the September 2017 SORP teleconference to deal with scientific issues and coordination.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements):

Creation of the CLIVAR/CliC Northern Oceans Region Panel

SORP-11 report:

http://www.clivar.org/sites/default/files/documents/SORP_11_report_v1_Lei_fi_nalized_17Feb15.pdf

National Reports to SORP for 2016, available on the SORP website:

<http://www.clivar.org/clivar-panels/southern/national-representatives>

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

SORP does not produce data.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
06-18	SORP-13	2000	Lei Han	lei.han@clivar.org
06-18	SOOS/SORP/ASPeCt/YOPP interactions (carried over funds from 2017 allocation – remnant of USD 3000)	?	Lei Han	lei.han@clivar.org
06-18	SORP-13 (carried over funds from 2017 allocation – remnant of USD 2000)	?	Lei Han	lei.han@clivar.org

Briefly describe what the funds will be used for and what the desired results are:

For SORP-13 line items, 2018 funds (and any remnant from 2017) will be used to get SORP members to SORP-13 immediately prior to Polar 2018 and to have a presence at Polar 2018. We anticipate these funds going to support François Massonnet (Belgium), who is an early career researcher.

For the SOOS/SORP/ASPeCt/YOPP interactions item, we anticipate these funds going to support the attendance of François Massonnet (Belgium) or another early career researcher, especially from a country with a developing Antarctic programme (probably someone to be recruited to SORP in the next call)

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017: (Jenny Baeseman replied to Lei Han on 3 July 2017 that SCAR could not give us a budget update for 2017 because they were “yet to receive the reimbursement requests from the participants we helped to fund”)

2018: 100% (François Massonnet)

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programmes (as listed here: <http://www.scar.org/finances/contributions>):

2017: (Jenny Baeseman replied to Lei Han on 3 July 2017 that SCAR could not give us a budget update for 2017 because they were “yet to receive the reimbursement requests from the participants we helped to fund”)

2018: 100% (Belgium and possibly other countries once new members confirmed)

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. *Funds from another organization for a workshop*):

In 2017, SORP received an allocation of CHF 2000 from CliC, CHF 0 (due to budget cuts) from CLIVAR, and USD 5000 from US CLIVAR to support attendance of SORP members at the SORP-12 two-day meeting which was held jointly with YOPP-SH for half a day.

For 2018, we will apply for funding from CliC and CLIVAR to support SORP member attendance at SORP-13 which is being held immediately before Polar 2018, and will have a half-day joint session with the new NORP (CLIVAR/CliC Northern Oceans Region Panel).

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

Southern Ocean Observing System (SOOS): Ex-officio member position to SORP from SOOS approved but not yet filled. Planned joint meeting in 2019 (Mike Williams SOOS point of contact for that, Inga Smith SORP point of contact for that). Joint sessions with SOOS/POGO OASIIS working group was proposed at Polar 2018, but was merged with other sessions.

ASPeCt: François Massonnet and Inga Smith are active participants in ASPeCt activities and discussions/meetings when possible. Joint session was proposed at Polar 2018, but was merged with other sessions.

AntClim21: Joellen Russell is a member of both SORP and AntClim21, and gives briefings/updates on their activities to SORP.

YOPP-SH: SORP held a half-day joint session with YOPP-SH in June 2017 and will contribute to reports from meetings.

CLIVAR/CliC Northern Oceans Region Panel (NORP): SORP was instrumental in advocating for the setting up of this panel, and will hold a joint half-day meeting with NORP at Polar 2018.

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved) (<250 words):

SORP was originally a CLIVAR only sponsored panel, so the SORP main website is hosted by CLIVAR:

<http://www.clivar.org/clivar-panels/southern>

CLIVAR provides an ICPO with staff who update the website, take minutes at meetings (ICPO liaison to SORP- currently Dr Lei Han), produce draft reports, and maintain the SORP email list. SORP's role is specified in the Terms of Reference given on the website above, and this largely requires coordination with organisations, panels, and agencies rather than individual scientists. We intend to put out our next membership call later this year to Cryolist and more proactively solicit nominations than has been done previously.

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Inga Smith (inga.smith@otago.ac.nz)

(Other SORP members may also volunteer, and those names will be passed to David Bromwich)

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Co-chair	Inga	Smith	University of Otago	New Zealand	inga.smith@otago.ac.nz	2015 (2016 as Co-chair)	2020
Co-Chair	John	Fyfe	Environment and Climate	Canada	john.fyfe@canada.ca	2015 (2015 as co-chair)	2017

			Change Canada				
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* Please include any APECS representative / Junior Officers

Other members

First Name	Last Name	Affiliation	County	Email
Isabelle	Ansorge (2014-2018)	University of Cape Town	South Africa	isabelle.ansorge@uct.ac.za
Katsuro	Katsumata (2014-2018)	JAMSTEC	Japan	k.katsumata@jamstec.go.jp
Joellen	Russell (2014-2018)	University of Arizona	USA	jrussell@email.arizona.edu
Jiuxin	Shi (2014-2018)	Ocean University of China	China	shijiuxin@ouc.edu.cn
Ben	Galton-Fenzi (2015-2017)	ACE-CRC	Australia	Ben.Galton-fenzi@aad.gov.au
Kenny	Matsuoka (2015-2017)	Norwegian Polar Institute	Norway	Kenichi.Matsuoka@npolar.no
Patrick	Heimbach (2015-2017: a two year extension will be recommended during the nominations round later this year)	University of Texas (Austin)	USA	heimbach@ices.utexas.edu
François	Massonnet (2015-2017: a two year extension will be recommended during the nominations round later this year)	Université Catholique de Louvain	Belgium	francois.massonnet@uclouvain.be

Alexander	Klepikov (2015-2017: a two year extension will be recommended during the nominations round later this year)	Arctic and Antarctic Research Institute	Russian Federation	klep@aari.ru
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Riccardo	Farneti (2016-2018)	ICTP	Italy	rfarneti@ictp.it
Robin	Robertson (2017-2019)	University of New South Wales Canberra	Australia	r.robertson.nomad@gmail.com
David	Bromwich (2017-2019)	Byrd Polar and Climate Research Center, Ohio State University	USA	bromwich@polarmet1.mps.ohio-state.edu

Requests to the Secretariat:

If there are specific administrative tasks you would like help with such as your webpages, mailing list, online meeting tools, etc., please include them below:

Please update the website as follows:

<http://www.scar.org/sorp/sorp-contact>: “The co-chairs of the CLIVAR/CLIC/SCAR Southern Ocean Region Panel are [Inga Smith](#) and [John Fyfe](#).”

(Please also update this in January 2018 when a new co-chair is confirmed, as John Fyfe will be rotating off).

<http://www.scar.org/sorp/sorp-news>:

“ News

CLIVAR/CLIC/SCAR Southern Ocean Region Panel activities (July 2016 to June 2017)

The SORP has been very active, with panel meetings in September 2016 alongside the CLIVAR Open Science Conference in Qingdao, China (access the

meeting report here:

http://www.clivar.org/sites/default/files/documents/SORP_11_report_v1_Lei_fi_nalized_17Feb15.pdf) and jointly with the Year of Polar Prediction Southern Hemisphere workshop in June 2017 (report pending). Extensive participation in international research coordination and collaboration has occurred with several relevant programmes, including the Southern Ocean Observing System (SOOS), the Ocean Observations Panel for Climate (OOCPI), the Year of Polar Prediction Southern Hemisphere (YOPP-SH) and the CLIVAR/CliC Northern Oceans Region Panel (currently under formation). The panel has two new members (Robin Robertson and David Bromwich).

The SORP has organized or proposed sessions at several international conferences including the CLIVAR Open Science Conference (Qingdao, China; September 2016) and Polar 2018. SORP co-sponsored a Townhall meeting on “Ocean-Cryosphere Interactions” at the CLIVAR Open Science Conference. The panel helped to organize a Polar Prediction Workshop in Bremerhaven, Germany (March 2017) co-sponsored by the Polar Climate Predictability Initiative (WCRP-PCPI), the Polar Prediction Project (WWRP-PPP), and the Sea Ice Prediction Network (ARCUS-SIPN). Over the past six months the panel was represented at several international conferences/workshops, including the SCAR Open Science Conference (Malaysia, August 2016), the IGS/CliC/IACS International Symposium on The Cryosphere (Wellington, New Zealand, February 2017), the SOOS SSC meeting, and the SOOS/POGO Observing and Understanding the Ocean below Antarctic Sea Ice and Ice Shelves workshop (Bremerhaven, Germany, June 2017). The SORP has developed a template to maximize input from national reports, has solicited and posted to the website a series of national reports, and has strengthened coordination of national representatives between SOOS and SORP (Inga Smith).

The SORP has reported to several sponsoring and related organizations such as SOOS (Inga Smith and Jiuxin Shi ; Bremerhaven, Germany, June 2017), the Ocean Observations Panel for Climate (OOCPI; Katsuro Katsumata; WoodsHole, USA, March, 2017), the Polar Prediction Project (PPP) Steering Group (François Massonnet), the CLIVAR Scientific Steering Group (John Fyfe and Inga Smith, Qingdao, China, September 2016, and the CliC Scientific Steering Group (Inga Smith, Wellington, New Zealand, February 2017).

http://www.clivar.org/sites/default/files/documents/SORP_11_report_v1_Lei_fi_nalized_17Feb15.pdf:

Please replace the text on this page with the latest list of members, listed under “Southern Panel Members” on this website:

<http://www.clivar.org/clivar-panels/southern>



SCAR Group

xxx

SG

PS/LS/GS

Person

xxx

Responsible:

SCAR Executive Committee Meeting 2017

Brno, Czech Republic, 31 July - 2 Aug 2017

Tropical Antarctic Teleconnections (TATE) Action Group 2016-2017 Report

Report Author(s): Jefferson Cardia Simões

Summary of activities from 2016-17 and any other important issues or factors (<150 words):

The TATE Action Group is still in a preliminary phase, it is expected to have its first full report just after the 2018 joint IASC / SCAR meeting, when there will be a joint section on Antarctic and Arctic teleconnections to the tropics. So far, a Malaysian group (led by Drs. Chenoli and Abu Samah) investigates the connection from Antarctic to Indian Ocean and also the role of the semi-permanent sub-tropical high in amplifying the polar-tropical and tropical-polar signal, hence modifying the monsoon in the Pacific and Indian Ocean. In Brazil, a group led by Dr. Aquino pays attention to the large-scale atmospheric environment that develops mesoscale convective systems over South America, particularly about the Antarctic influence on subtropical extreme events. New studies look at how the stable isotope composition in the Amazon and the South Atlantic precipitation were related with the Antarctic one (frontal systems, SACZ and MCCs) in neutral and ENSO years; and the variability of the South Atlantic subtropical anticyclone and the SACZ in events of retraction and expansion of Antarctic sea ice.

Recommendations that EXCOM and Scientific Group Chief Officers should consider (if any): *Please indicate if approval is necessary or if they are just asked to note information.*

Progress and Plans:

Major Activities and Significant Progress from the past year (<500 words):

- IACS/SCAR section on Poles to Tropics in June 2018

Major Future Initiatives and Actions, including rough timeline, for at least the next 2 years (<500 words):

In Brazil, a group led by Dr. Aquino will apply our seasonal climate forecast for a better understanding of the mechanisms that influence the climatic variability in Brazil, through the identification of teleconnection patterns between the Antarctic and subtropical South America regions; and study regional geoindicators and anomalous precipitation patterns associated with variations in the SAM and the ENSO.

Please list any new outputs and deliverables (including publications and products that your group feels are part of your achievements)

If your Expert/Action Group produces data, please report any new data generated and links to inclusions to the Antarctic Master Directory, etc.

Budget

Planned use of funds for 2017 and 2018

Month/Year (MM-YY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
June 2018	IASC/SCAR section on Polar-Poles teleconnections	U\$ 1.000, 00	Francisco E. Aquino	francisco.aquino@ufrgs.br

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Briefly describe what the funds will be used for and what the desired results are:

- Support scientists from countries with developing Antarctic programs to joint TATE and participate in the 2018 section on the theme

Provide an estimate on the % of the budget to be used for support of early career researchers:

2017:

2018: 50%

Provide an estimate on the % of the budget to be used for support of scientists from countries with developing Antarctic programs (as listed here: <http://www.scar.org/finances/contributions>):

2017:

2018: 80%

Linkages

Please describe any direct support you receive for your activities beyond SCAR (eg. *Funds from another organization for a workshop*):

Please list any major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR:

Outreach and Capacity Building

Please describe any outreach, communication and capacity building activities that your group participates in. Also provide information on activities that demonstrate effectiveness as a network. (*coordinating activity for your discipline/topic, i.e. mailing list and diversity of scientists involved*) (<250 words):

Mini-course: Antarctica and the South American climate: new perspectives
Francisco Eliseu Aquino e Venisse Schossler. XVII Simpósio Brasileiro de

Geografia Física e I Congresso Nacional de Geografia. Campinas, julho de 2017. (http://www.sbgfa.ggf.br/2017/mini_cursos.php).

As part of SCAR's Capacity Building efforts, such as the Fellowships and Visiting Professor Awards, we are looking for people from all the SCAR groups to form a 'review panel' so if applications in your field are submitted we have people to contact to help assess relevant applications. **Please list one or more people (name and email address) from your Group who would be willing to serve as reviewers for the next few years.**

Jefferson Cardia Simões

Membership

Leadership

Role	First Name	Last Name	Affiliation	County	Email	Date Started	Date Term is to End
Secretary	Francisco	Aquino	Federal Univ Rio Grande do Sul - UFRGS	Brazil	francisco.aquino@ufrgs.br	provisional	June 2018

** Please include any APECS representative / Junior Officers*

Other members

First Name	Last Name	Affiliation	County	Email
Jefferson	Simões	Federal Univ Rio Grande do Sul - UFRGS	Brazil	jefferson.simoese@ufrgs.br
Daoyi (invited)	Gong	Beijing Normal University	China	gdy@bnu.edu.cn
Kripalani (invited)	R.	Indian Institute of Tropical Meteorology	India	krip@tropmet.res.in

Sheeba	Chenoli	University of Malaya	Malaysia	sheeba@um.edu.my
Azizan	Abu Samah	University of Malaya	Malaysia	azizans@um.edu.my
Seong-Joong	Kim	Korean Polar Research Institute	South Korea	seongkim@kopri.re.kr

Requests to the Secretariat:

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