SCAR Executive Committee Meeting 2019

Plovdiv, Bulgaria, 29-31 July 2019

Solid Earth Response and influence on Cryospheric Evolution (SERCE)

2018-19 Report

Report Authors

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Summary

- Preparation well underway for a 5-day SERCE-funded Glacial Isostatic Adjustment (GIA) training school to be held in Gävle, Sweden in late August 2019. 40 participants have been selected from ~160 applicants, no limit on additional numbers that can join via a virtual participation platform. 12 lecturers from 9 countries. On-site participants nearly all ECRs, from 15 different countries, we have very close to 50:50 gender balance. Additional financial support from POLENET (NSF-funded), EGU, IACS (IUGG-funded), and DTU Space has made it possible for us to provide nearly 100% travel and subsistence funding to all participants and lecturers.
- Preparation also well underway for a GIA workshop in Ottawa in late September 2019. Exciting line-up of invited speakers, with even split of male/female and ECR/more established scientists. $10k SERCE funds assigned to provide travel support for ECRs, additional funds to cover local costs are provided by POLAR Knowledge Canada.
- SERCE Chief Officers have recently provided letters of support to 2 large grant applications (headed up by Joachim Jacobs and Florence Colleoni, respectively), and to Adam Martin in support of a book on 'The Antarctic Mantle' to be co-edited with Wouter van der Wal.
- SERCE-facing sessions will take place at IUGG 2019, ISAES 2019, and AGU 2019. Joint Chief Office Pippa Whitehouse is also on the International Science Organising Committee for SCAR OSC 2020.
- We have formed a sub-committee on Antarctic Geothermal Heat Flux, headed up by Jacqui Halpin, Alex Burton-Johnson and Ricarda Dziadek, a dedicated session and a side meeting will take place at ISAES 2019.
- Publication (co-authored by SERCE Chief Officers) of an article on the current state of knowledge on Antarctic Ice Sheet-solid Earth feedbacks, and identification of future research priorities

SRP updates since 2018 Delegates Meeting

Please list any information that has changed since the SCAR 2018 Delegates Meeting, following the headings below.

What has been achieved?

Date	Activity
	Main activity has been planning for the upcoming training school and workshop in mid-2019. No formal activities have taken place since SCAR 2018.

What lies ahead?

Date	Activity
22-26th July 2019	SERCE-facing sessions at ISEAS 2019 - one on Geothermal Heat Flux (GHF) and one co-hosted with PAIS - plus a GHF Side Meeting
26-30th August 2019	GIA Training School, Gävle, Sweden: 40 on-site participants, almost all ECRs, from 15 different countries, 12 international lecturers, ~$27k SERCE funding (~$21k travel funds, ~$6k local costs), additional travel funding from POLENET (NSF), EGU, IACS, and DTU Space, virtual participation available, recordings will be archived for future viewing
24-26th September 2019	GIA Workshop, Ottawa, Canada: ~50 abstracts submitted, ~70 participants registered, $10k SERCE funds to be awarded as travel support for ECRs
August 2020	Workshop in association with SCAR OSC 2020. We also propose to fund five $1000 scholarships for ECRs to attend OSC 2020
Fall 2020	Co-hosted workshop with the PALSEA group. Lead organiser: Jacky Austermann (Columbia). Subject: Solid Earth deformation and ice sheet evolution

SRP planned final products (including related to OSC2020)

Date	Output/product
	Discussions ongoing – we regard a major output of SERCE to be the capacity building achieved through the 4 training schools that we have supported since 2015

Budget

Changes to planned use of funds for 2019 and 2020

We have ~$17,700 carried over from 2018; this will be spent in 2019.

Year (YYYY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2019	GIA training school	27,700	Pippa Whitehouse	pippa.whitehouse@durham.ac.uk
2019	GIA Workshop	10,000	Tom James	thomas.james@canada.ca
2020	Final SERCE Workshop + ECR Scholarships to attend OSC	7,500	Matt King	Matt.King@utas.edu.au
2020	Joint Workshop with PALSEA	12,500	Pippa Whitehouse	pippa.whitehouse@durham.ac.uk
Total		**57,700**		

Membership

Changes to SRP Leadership

No major changes, details listed here for info:

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Joint Chief Officer	Matt	King	University of Tasmania	Australia	matt.king@utas.edu.au	2016	2020
Joint Chief Officer	Pippa	Whitehouse	Durham University	UK	pippa.whitehouse@durham.ac.uk	2016	2020
***ECR Rep**	Nadya	Yanakieva	Bulgarian Antarctic Institute	Bulgaria	nadya.yanakieva@gmail.com	2017	2020

*Please identify early-career researchers with * in first column*

SCAR Fellowship Reviewers

First Name	Last Name	E-mail	Principal Expertise
Pippa	Whitehouse	pippa.whitehouse@durham.ac.uk	Glacial isostatic adjustment modelling
Matt	King	Matt.King@utas.edu.au	Polar geodesy
Jacqui	Halpin	jacqueline.halpin@utas.edu.au	Geothermal heat flux
Doug	Wiens	doug@wustl.edu	Seismology

Significant Deviations from the Implementation Plan

N/A

Additional information (optional)

Outreach, communication and capacity-building activities
Brief highlights (no more than 200 words) of any activities undertaken since the SCAR Delegates meeting in 2018.

N/A

Notable Papers
(*Five to ten most notable papers, if applicable. One to three sentence summary for each.*)

1. **Whitehouse, P.L.,** Gomez, N., King, M.A., Wiens, D.A., 2019. Solid Earth processes and the evolution of the Antarctic Ice Sheet (invited review). *Nature Communications,* 10:503.

   This major invited review paper in Nature Communications summarises the current state-of-the-art in research associated with SERCE activities and interests, and provides a review of future research priorities that will feed into future Scientific Research Program activity.

Direct support from outside organisations received for your activities
(*Numbered list with values indicated if direct cash support. Please restrict in-kind support to substantive in-kind support only*)

1. POLENET (NSF-funded project) - ~$45k contribution to participant/lecturer travel costs for forthcoming GIA training school
2. EGU – 5000 Euros contribution to participant travel costs for forthcoming GIA training school
3. IACS (part of IUGG) – 1500 Euros contribution to participant travel costs for forthcoming GIA training school
4. DTU Space – 1000 Euros contribution to participant travel costs for forthcoming GIA training school
5. POLAR Knowledge Canada - $10k contribution to local costs for forthcoming GIA workshop in Ottawa

Major collaborations your group has with other SCAR groups and with organisations/groups beyond SCAR
(*Numbered list of substantive collaborations*)

Within SCAR

1. PAIS – hosting of joint session at forthcoming ISAES 2019 meeting, and contributions to the post-2020 SRP (AISSL) being led by current PAIS chief officer Tim Naish
2. GIANT – collaboration with respect to efforts to document and share geodetic data sets from across Antarctica

Outside SCAR

1. POLENET - joint-organisation of forthcoming GIA training school
2. Nationally-funded research projects (e.g. US, UK, Australia, Germany) – continued collaboration to share geodetic and seismic data sets documenting solid Earth deformation and Earth structure across Antarctica

Updates for your group's SCAR web page
If you do not update your SCAR web page yourself, please provide us with any additional information or changes that you would like us to make to it.

1. Please could you include an item on our 'News' page mentioning that we now have a Geothermal Heat Flux sub-group, which is headed up by Jacqui Halpin (University of Tasmania), Alex Burton-Johnson (British Antarctic Survey), and Ricarda Dziadek (Alfred Wegener Institut).

   Email addresses are below, please could they can be linked appropriately as the names of the group leaders are listed.

   - Jacqui Halpin: Jacqueline.Halpin@utas.edu.au
   - Alex Burton-Johnson: alerto@bas.ac.uk
   - Ricarda Dziadek: ricarda.dziadek@awi.de

   Get in touch with any of Jacqui, Alex, Ricarda, or me if you have any queries about the wording of this item.

2. Please could the following text be added to the SERCE 'About' webpage, in line with other text included on that page:

   Statements on data relating to geothermal heat flux:

   (i) SERCE recommend scientists **support the measurement of thermal gradients and conductivities in crystalline bedrock and sediments**. Direct measurements across Antarctica are required to determine the magnitude and spatial variability in heat supplied to the base of the ice sheet, enabling validation of geothermal heat flux models, and more accurate boundary conditions for ice sheet models.

(ii) SERCE recommend scientists **derive and make available radiogenic heat production rates for Antarctic archive rock samples and outcropping lithologies**. Radiogenic heating, which varies as a function of the geological evolution of a terrane, can dominate the total surface geothermal heat flux. Direct measurements are required to characterize the natural variability in heat production in Antarctic crust in order to derive more accurate geothermal heat flux models.

Other information for publicity purposes

Please add here details of, or links to any other information we may use for publicity purposes, such as photos, infographics, quotes and layperson's summaries of your research.