



WP 8b  
Agenda Item: 4.1.3

Person Responsible: WB Lyons

**XXXIV SCAR Delegates Meeting  
Kuala Lumpur, Malaysia, 29-30 August 2016**

# **Geosciences Action and Expert Group Reports**

## **Action Groups:**

- Antarctic Near-shore and Terrestrial Observing System\* (ANTOS)
- Connecting Geophysics with Geology (CGG)
- Geological Heritage and Geoconservation
- Geological Mapping Update of Antarctica (GeoMap)

## **Expert Groups:**

- Antarctic Digital Magnetic Anomaly Map Project (ADMAP)
- Antarctic Permafrost, Soils and Periglacial Environments (ANTPAS)
- Antarctic Volcanism (ANTVOLC)
- Geodetic Infrastructure of Antarctica (GIANT)
- GNSS (Global Navigation Satellite System) Research and Application for Polar Environment\*\* (GRAPE)
- International Bathymetric Chart of the Southern Ocean (IBCSO)

\* Sponsored by SSG-GS, SSG-LS and SSG-PS

\*\* Co-sponsored by SSG-GS and SSG-PS



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## **Antarctic Near shore and Terrestrial Observation System (ANTOS)**

### **Contacts: (name and email)**

Craig Cary - [caryc@udel.edu](mailto:caryc@udel.edu)

Vonda Cummings - [Vonda.Cummings@niwa.co.nz](mailto:Vonda.Cummings@niwa.co.nz)

### **Activities from 2014-2016**

August 2014: A committee was elected at a workshop held at the SCAR OSC (Auckland); this was attended by 43 people from 10 nations. Following this meeting we proposed and were granted permission to establish an SCAR Action Group to further develop the idea of ANTOS.

ANTOS sits primarily within the SOG-LS, but is a cross-disciplinary project involving SOG-PS and SOG-GS. The Chairs are Craig Cary, New Zealand (primary) and Vonda Cummings, New Zealand (co-chair). Committee members include Dana Bergstrom, Australia; Megumu Tsujimoto, Japan (Secretary); Emmanuelle Sultan, France; Soon-Gyu Hong, Korea (Data management advisor); Charles Lee, NZ (Technical); and Elie Verleyen, Belgium.

August 2015: A workshop was held to develop an implementation plan for ANTOS. The workshop was attended by 25 researchers from 12 countries (Australia, Belgium, Chile, France, Germany, Italy, Japan, Korea, NZ, Sweden, UK, USA) and was supported through funds from the New Zealand Antarctic Research Institute (NZARI), AntEco, and the University of Waikato, New Zealand where the meeting was hosted.

A full report summarising the activities and outcomes of the meeting was produced, and is available on the ANTOS website (<http://www.scar.org/antos/antos-publications>).

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



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We recommend that in order to become established ANTOS becomes a Task Group with an extended life span ( $\geq 4$  years). This was a recommendation from the August 2015 workshop. We assume that this will require both a vote and approval.

**Date/Year Group Approved:** August 2014

**Date/Year Group is to End:** December 2016

**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

Y

**Further Details:**

**Major Activities and Significant Progress from past 2 years**

August 2015 workshop:

Key characteristics of locations, parameters to measure, frequencies, scales and gradients of measurement, and the technical requirements of the system were discussed (i.e., what do we need to measure and monitor in order to detect change, where do we need to do this, and how?). The strong consensus was for locations that share basic characteristics of (a) representative biodiversity for the region concerned, (b) environmental features likely to be informative in a context of change studies, and (c) the practicality of access and working conditions. A 3-tiered approach both to platform complexity and cost was recommended, to enable wide national programme involvement and achievement of the scientific goals. At all tiers, biologically relevant attributes of change need to be assessed within six broad criteria (physical environment, colonisation, diversity, distribution, functional and genetic).

KOPRI (Soon-Gyu Hong) agreed to develop the database and data management and access plan for ANTOS. A data base sub-committee was



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established, comprised of Stefano Schiaparelli/Drew Lohrer (Italy/NZ; marine), Craig Cary/Charlie Lee (both NZ; terrestrial), Fraser Morgan (NZ; database design), and Adrian McDonald (NZ; statistics). We anticipate that the ANTOS database will be designed and established to allow easy access to the real-time data that is intimately linked to existing databases and follows internationally accepted protocols. This is huge step forward for ANTOS and will certainly enable the way forward for the programme.

Pilot deployments:

Two pilot Tier 1 terrestrial installations were deployed at Cape Adare in Northern Victoria Land in summer 2015/16. One of these units is fully telemetered and has been providing a continuous data stream since deployment. In conjunction with these installations a comprehensive biodiversity survey of the immediate area has been carried out as suggested in the ANTOS protocols. Also in summer 2015/16, pilot coastal marine ANTOS Tier 1 and 2 installations were deployed in Terra Nova Bay (Korean, Italy, NZ).

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

We request that ANTOS advances to a Task Group, to allow sufficient time and resources for its implementation. The strength of ANTOS is its (i) unification of researchers over the necessity for, and the extreme value of, a long-term vision for observation systems to understand biological systems in a changing environment, and (ii) the continent-wide approach. With KOPRI agreeing to develop and house the database we are now in a very good position to see this happen.

Actions include:

- A workshop at the Kuala Lumpur OSC, August 2016, to set tasks and timelines for final development and implementation.
- An international survey of scientists to scope areas they think are the best for long-term monitoring of environmental change. This will provide information on datasets currently in existence, what is being measured, length of records, etc. The aim of this will be get input on the most scientifically and biologically appropriate areas to target for ANTOS around the continent.



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**Timeline:**

We have two immediate tasks – to establish the Task Group (August 2016), and to conduct the scientific survey (August to December 2016). While we anticipate annual workshops will occur over the Task Groups' duration, other milestones will be determined in consultation with the wider ANTOS community (e.g., at the 2016 KL SCAR OSC).

**Proposed Budget for 2017 and 2018**

This will be decided on at the OSC ANTOS workshop in KL – this is just a projection.

Month/Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
July 2017	Technical Workshop	10,000	Craig Cary	caryc@waikato.ac.nz
June 2018	Database development	10,000	Craig Cary	caryc@waikato.ac.nz

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

The location of the technical workshop has not been determined yet as we will likely host the event central to those wishing to attend. Most if not all of the support will go to those needing support to attend including early career and countries with small Antarctic Programmes. If you look at our 2015 workshop – 80% of the funds went to these participants.

**External Linkages – Support and Coordination beyond SCAR:**

The New Zealand Antarctic Research Institute was the major sponsor of the August 2015 workshop, through an NZARI Type C grant.

Recognition of its importance and approval by national programmes will be key to the success of ANTOS. Therefore, one important goal as a new Task Group would be to connect more formally with COMNAP. The strength of ANTOS is its (i) unification of researchers over the necessity for and the extreme value of a long-term vision for observation systems to understand biological systems in a changing environment, and (ii) the continent-wide approach. Given the value of the information generated by ANTOS in



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informing policy and management of the region at national and international levels, we consider that COMNAP should be integrally involved in the development of ANTOS, to help ensure its long term viability. At the KL SCAR OSC meeting we will make every effort to have COMNAP representatives at the meeting.

**Please describe your outreach, communication and capacity building activities:**

At this point in with the ANTOS Action Group we have relied on our website and a SCAR sponsored list server to communicate with our members. We have also prioritized support of early career researchers with our limited funding (e.g. via travel grants).

Should we morph into an Task Group, we anticipate the website will be developed more extensively. We would also encourage further participation of young scientists and nations, as well as an equal gender balance, within ANTOS.

**Publications of your group to date:**

*Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.*

August 2015 Workshop Report (<http://www.scar.org/antos/antos-publications>).

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.

**Please list one or more people from your group who would be willing to serve as fellowship reviewers for the next few years.**

S. Craig Cary, University of Waikato, New Zealand  
Vonda Cummings, NIWA, New Zealand  
Charles Lee, University of Waikato, New Zealand



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**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

Please include any updates for your website below:

On the 'membership' page, please include this text:

*"If you are interested in joining ANTOS, sign up to the list server circulation list HERE ([antos-owner@lists.scar.org](mailto:antos-owner@lists.scar.org))."*

Also include a list of the chairs and committee members.

Always the last thing to be addressed. We have a person who has agreed to do the web development. We will make sure that this has been done by the OSC.

**Members:**

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Craig	Cary	Uni. Of Waikato	NZ	<a href="mailto:caryc@waikato.ac.nz">caryc@waikato.ac.nz</a>	8/14	8/16
Vonda	Cummings	NIWA	New Zealand	Vonda.Cummings@niwa.co.nz	8/14	8/16

**S. Craig Cary -**





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**Bio:** His research interests lie in the comparative physiology, biochemistry and ecology of marine and terrestrial microbial communities, with a focus on deep ocean geothermal and Antarctic terrestrial systems. Most recently his lab has focused on the use of high through-put genomic and metagenomic approaches to resolve biochemical adaptations for life in these extreme geochemical environments. In addition to the extremophile work he also is involved in the development of advanced genetic probing technologies for detect and enumerate bacteria and toxic harmful algal bloom species in the environment. A primary focus of both programs is the interfacing of new bioinformatic capabilities with genomic technologies specifically in metagenome analysis of complex microbial communities. The local environmental work has an emphasis in the development biometrics to assess ecosystem health. He currently leads a large laboratory at the University of Waikato in New Zealand, with a continued joint position at the University of Delaware, USA.

**Web:** <http://sci.waikato.ac.nz/about-us/people/caryc>



**Other members**

**Committee:**

Dana	Bergstrom	AAD	Aus	<a href="mailto:dana.bergstrom@aad.gov.au">dana.bergstrom@aad.gov.au</a>	8/14	8/16
Megumu	Tsujimoto	Japan	Japan	<a href="mailto:megumutsujimoto@gmail.com">megumutsujimoto@gmail.com</a>	8/14	8/16
Soon Gyu	Hong	KOPRI	Korea	<a href="mailto:polypore@gmail.com">polypore@gmail.com</a>	8/14	8/16
Charles	Lee	Uni. Of Waikato	NZ	<a href="mailto:cklee@waikato.ac.nz">cklee@waikato.ac.nz</a>	8/14	8/16
Emmanuelle	Sultan	National	France		8/14	8/16





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		History Museum				
Elie	Verleyen	Uni. of Ghent	Belgium	Elie.Verleyen@UGent.be	8/14	8/16
Byron	Adams	Bringham Young Uni.	USA	byron_adams@byu.edu	8/14	8/16

Also see the ANTOS list server for a more extensive list of interested researchers.



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**CGG  
(Connecting geophysics with geology)**

**Contacts: (name and email)**

*Joachim Jacobs, joachim.jacobs@uib.no*

*Detlef Damaske, d.damaske@t-online.de*

*Fausto Ferraccioli, ffe@bas.ac.uk*

**1-2 paragraph summary of activities from 2014-2016**

The CGG action group organized a splinter meeting at EGU 2014 and at the SCAR 2014 in New Zealand. The action group contributed to various sessions at the ISAES meeting in Goa 2015, including one on *The structure and evolution of the Antarctic continent in light of recent geophysical and geological investigations*, as well as on *Geodynamic evolution of the Dronning Maud Land Mountains*. During the SCAR 2016 meeting the action group will be closely linked to the ADMAP-2 side meeting.

One key area for unravelling the geodynamic evolution of East Antarctica has been identified in central Dronning Maud Land, where the major Forster Magnetic Anomaly, a possible suture zone, appears to dissect the Dronning Maud Land mountains. At present, the aero-geophysics of this key region is being improved as a joint AWI-BGR effort. Central Dronning Maud Land requires focused field work with ground-truthing of the new geophysical data in search of the significance of the major Forster Magnetic Anomaly and the Ulvetanna Lineament. The action group has strong links to IGCP 648: Supercontinent Cycles & Global Geodynamics.

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

The group should be continued at least until 2020, in order to help feed into IGCP 648 project, Supercontinent Cycles & Global Geodynamics (2015-2020). As the airborne geophysical surveys improve and survey holes are filled, new key areas become apparent. The action group should identify potential sub-ice drill sites. In addition, geochronological information of glacial till from the backside of mountain ranges as well as in the marine record should more extensively be used to better reveal Antarctica's sub-ice geology.

**Date/Year Group Approved:**

**Date/Year Group is to End:** continuation needed until 2020



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**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

Yes

**Further Details:**

List of activities

EGU 2014 Vienna- CGG splinter meeting; several CGG-related papers were presented

SCAR 2014 Auckland (NZ) - CGG side meeting; several contributions to a session on Antarctic Geology and Geophysics

ISAES 2015 Goa (India) – contributions to the following sessions:

*S10 - The structure and evolution of the Antarctic continent in light of recent geophysical and geological investigations*

Ferraccioli, F., Jacobs, J., Damaske, D., Wiens, D.

Abstracts, XII International Symposium on Antarctic Earth Sciences, 13.-17. July 2015, Goa, India, p. 222-277.

*S02 - Geodynamic evolution of the Dronning Maud Land Mountains*

Jacobs, J., Läufer, A., Elvevold, S., Satish-Kumar, M., Elburg, M., Pant, N.C., 2015.

Abstracts, XII International Symposium on Antarctic Earth Sciences, 13.-17. July 2015, Goa, India, p. 32-52.

Presentation at IGCP 648: Supercontinent Cycles & Global Geodynamics, Field Symposium Kailua-Kona, Hawaii, 9. -13. December 2015.

Preparations for CGG workshop in Kuala Lumpur and contributions to session on Antarctic subglacial geology

Other activities:

New aerogeophysical survey over the Forster Magnetic Anomaly and Ulvetanna Lineament: AWI-BGR

Planning of new geological expedition to a key area in central Dronning Maud Land

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

2016/17: Finalizing densification of FMA survey (AWI-BGR)

2016/17: Geological expedition to central Dronning Maud Land, FMA (depending of successful funding)

2016/17: Meeting at AGU, EGU



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2017/18: Geological expedition to central Dronning Maud Land, Ulvetanna Lineament  
(depending of successful funding)

2018: SCAR OSC 2018

**Proposed Budget for 2017 and 2018**

Month/Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2017	EGU	2500		
2018	SCAR OSC	2500		

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

Ca. 30% for early career scientist

**External Linkages – Support and Coordination beyond SCAR:**

The action group has strong links to IGCP 648: Supercontinent Cycles & Global Geodynamics to which it actively contributes.

**Please describe your outreach, communication and capacity building activities:**

Outreach activities planned with specific projects, such as geological expeditions to key areas. We are trying to recruit young scientist by participating in planned field-work and involving them in SCAR and outreach activities.



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**Publications of your group to date:**

*Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.*

**2016**

Aitken, A., Betts, P., Young, D., Blankenship, D., Roberts, J., & Siegert, M. (2016). The Australo-Antarctic Columbia to Gondwana transition. *Gondwana Research*, 29(1), 136-152. doi:10.1016/j.gr.2014.10.019

Bauer, W., Siemes, H., Spaeth, G., & Jacobs, J. (2016). Transpression and tectonic exhumation in the Heimefrontfjella, western orogenic front of the East African/Antarctic Orogen, revealed by quartz textures of high strain domains. *Polar Research*, 35(0). doi:10.3402/polar.v35.25420

Davey, F. J., Granot, R., Cande, S. C., Stock, J. M., Selvans, M., & Ferraccioli, F. (2016). Synchronous oceanic spreading and continental rifting in West Antarctica. *Geophys. Res. Lett. Geophysical Research Letters*, 43(12), 6162-6169. doi:10.1002/2016gl069087

Elburg, M. A., Andersen, T., Jacobs, J., Läufer, A., Ruppel, A., Krohne, N., & Damaske, D. (2016). One Hundred Fifty Million Years of Intrusive Activity in the Sør Rondane Mountains (East Antarctica): Implications for Gondwana Assembly. *The Journal of Geology*, 124(1), 1-26. doi:10.1086/684052

Frederick, B. C., Young, D. A., Blankenship, D. D., Richter, T. G., Kempf, S. D., Ferraccioli, F., & Siegert, M. J. (2016). Distribution of subglacial sediments across the Wilkes Subglacial Basin, East Antarctica. *Journal of Geophysical Research: Earth Surface J. Geophys. Res. Earth Surf.*, 121(4), 790-813. doi:10.1002/2015jf003760

**2015**

Elburg, M., Jacobs, J., Andersen, T., Clark, C., Läufer, A., Ruppel, A., . . . Damaske, D. (2015). Early Neoproterozoic metagabbro-tonalite-trondhjemite of Sør Rondane (East Antarctica): Implications for supercontinent assembly. *Precambrian Research*, 259, 189-206. doi:10.1016/j.precamres.2014.10.014

Ferraccioli, F. (2015). Antarctic frontiers as revealed from a decade of aerogeophysical exploration. *EAGE/DGG Workshop on Airborne Geophysics 2015*. doi:10.3997/2214-4609.201411994

Jacobs, J., Elburg, M., Läufer, A., Kleinhanns, I. C., Henjes-Kunst, F., Estrada, S., . . . Bea, F. (2015). Two distinct Late Mesoproterozoic/Early Neoproterozoic basement provinces in central/eastern Dronning Maud Land, East Antarctica: The missing link, 15–21°E. *Precambrian Research*, 265, 249-272. doi:10.1016/j.precamres.2015.05.003

Ksienzyk, A. K., & Jacobs, J. (2015). Western Australia-Kalahari (WAlahari) connection in Rodinia: Not supported by U/Pb detrital zircon data from the Maud Belt (East Antarctica) and the Northampton Complex (Western Australia). *Precambrian Research*, 259, 207-221. doi:10.1016/j.precamres.2014.11.020

Ruppel, A. S., Läufer, A., Jacobs, J., Elburg, M., Krohne, N., Damaske, D., & Lisker, F. (2015). The Main Shear Zone in Sør Rondane, East Antarctica: Implications for the late-Pan-African tectonic evolution of Dronning Maud Land. *Tectonics*, 34(6), 1290-1305. doi:10.1002/2014tc003763



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**2014**

Mieth, M., Jacobs, J., Ruppel, A., Damaske, D., Läufer, A., & Jokat, W. (2014). New detailed aeromagnetic and geological data of eastern Dronning Maud Land: Implications for refining the tectonic and structural framework of Sør Rondane, East Antarctica. *Precambrian Research*, 245, 174-185. doi:10.1016/j.precamres.2014.02.009

Mieth, M., & Jokat, W. (2014). New aeromagnetic view of the geological fabric of southern Dronning Maud Land and Coats Land, East Antarctica. *Gondwana Research*, 25(1), 358-367. doi:10.1016/j.gr.2013.04.003

Aitken, A. R., Young, D. A., Ferraccioli, F., Betts, P. G., Greenbaum, J. S., Richter, T. G., . . . Siegert, M. J. (2014). The subglacial geology of Wilkes Land, East Antarctica. *Geophys. Res. Lett. Geophysical Research Letters*, 41(7), 2390-2400. doi:10.1002/2014gl059405

**2013**

Riedel, S., Jacobs, J., & Jokat, W. (2013). Interpretation of new regional aeromagnetic data over Dronning Maud Land (East Antarctica). *Tectonophysics*, 585, 161-171. doi:10.1016/j.tecto.2012.10.011

Golynsky, A., Bell, R., Blankenship, D., Damaske, D., Ferraccioli, F., Finn, C., . . . Young, D. (2013). Air and shipborne magnetic surveys of the Antarctic into the 21st century. *Tectonophysics*, 585, 3-12. doi:10.1016/j.tecto.2012.02.017

Jordan, T., Ferraccioli, F., Armadillo, E., & Bozzo, E. (2013). Crustal architecture of the Wilkes Subglacial Basin in East Antarctica, as revealed from airborne gravity data. *Tectonophysics*, 585, 196-206. doi:10.1016/j.tecto.2012.06.041



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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. **Please list one or more people from your group who would be willing to serve as fellowship reviewers for the next few years.**

Dr. Fausto Ferraccioli BAS, UK, [ffe@bas.ac.uk](mailto:ffe@bas.ac.uk)

Prof. Joachim Jacobs, University of Bergen, Norway, [Joachim.jacobs@uib.no](mailto:Joachim.jacobs@uib.no)

**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

Please include any updates for your website below:

We are aware that our page needs improvement and we are dealing with it

If you have suggestions on how to improve the structure of your group's webpages, please provide them below:

**Members:**

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Joachim	Jacobs	Univ. of Bergen & Norwegian Polar Inst.	Norway	<a href="mailto:joachim.jacobs@uib.no">joachim.jacobs@uib.no</a>	Sept 2014	August 2016
Detlef	Damaske		Germany	<a href="mailto:d.damaske@t-online.de">d.damaske@t-online.de</a>	Sept 2014	August 2016
Fausto	Ferraccioli	BAS	UK	<a href="mailto:ffe@ba.ac.uk">ffe@ba.ac.uk</a>	Sept 2014	August 2016

Please also include a short bio and photo of your chairs/officers and a link to their website as well as a few keywords on their research interests and area(s) of expertise. This will be used for a new database of SCAR experts.

**Other members**

Full member lists as in CGG reports





SCAR Group                      xxx  
SSG                      PS/LS/GS  
Person                      xxx  
Responsible:

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## **ACTION GROUP on Geological heritage and Geo-conservation**

### **Contacts: (name and email)**

Chris Carson, Australia, [chris.carson@ga.gov.au](mailto:chris.carson@ga.gov.au) (Chair)

Marcelo Reguero, Argentina, [regui@fcnym.unlp.edu.ar](mailto:regui@fcnym.unlp.edu.ar) (co-Chair)

Kevin A. Hughes, UK, [kehu@bas.ac.uk](mailto:kehu@bas.ac.uk) (Secretary)

### **1-2 paragraph summary of activities from 2014-2016**

The Terms of Reference for an Action Group on *Geological heritage and Geo-conservation* was approved by SCAR EXCOM in September 2015 following a number of preliminary discussions at XXXIII SCAR (2014) and ISAES XII (2015).

The Action Group, which is to hold its first formal meeting at XXXIV SCAR in Kuala Lumpur, will address the emerging issue of geological heritage and geo-conservation in Antarctica, and in considering the diversity of geological, paleontological and geomorphological features of the Antarctic, developing a set of principles and criteria for identifying, classifying, protecting, managing and promoting geo-heritage sites in the Antarctic.

The Action Group submitted an Information paper, entitled '*Antarctic geoconservation: a review of current systems and practices*' to SCATS which was presented at the XXXIX ATCM in Santiago in June 2016 (ATCM XXXIX IP31).

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

**Date/Year Group Approved:**

**Date/Year Group is to End:**

**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**



**SCAR Group**                      **xxx**

SSG       PS/LS/GS

Person                      xxx

Responsible:

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Yes

### Further Details:

### Major Activities and Significant Progress from past 2 years

The Action Group was formally ratified in Sept 2015. An inaugural meeting of the AG will be held at XXXIV SCAR OSC and will begin to formally address the Terms of Reference ratified by SCAR EXCOM.

The AG has a number of interested parties, both formal AG members list but also a wider ‘community of interest’ in geo-heritage and geo-conservation encapsulating a diverse range of the geological and life sciences. We hope we will capture an equally diverse range of perspectives and opinions on the issues and concerns of geo-heritage and conservation.

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

The major initiative to be achieved by the AG is to prepare, by early 2018, a document addressing conservation of Antarctic geological and geomorphological values (including fossils) to be used for SCAR's advice on this matter to the Committee of Environmental Protection of the Antarctic Treaty.

## Proposed Budget for 2017 and 2018

[illegible]



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

**External Linkages – Support and Coordination beyond SCAR:**

**Please describe your outreach, communication and capacity building activities:**

**Publications of your group to date:**

*Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.*

SCAR. *Antarctic geoconservation: a review of current systems and practices.* Information Paper 31. ATCM XXXIX, 23 May- 01 June, 2016, Santiago, Chile.

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 from your group who would be willing to serve as fellowship reviewers for the next few years.**

**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

Please include any updates for your website below:

The *Geological Heritage and Geoconservation* web site is quite new and is up-to-date



<b>SCAR Group</b>	xxx
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Person Responsible:	xxx

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If you have suggestions on how to improve the structure of your group's webpages, please provide them below:

NA

**Members:**

**Chair(s) Duration of Term**

Chris Carson, Australia, [chris.carson@ga.gov.au](mailto:chris.carson@ga.gov.au) (Chair)

Marcelo A. Reguero, Argentina, [regui@fcnym.unlp.edu.ar](mailto:regui@fcnym.unlp.edu.ar) (co-Chair)

Kevin A. Hughes, UK, [kehu@bas.ac.uk](mailto:kehu@bas.ac.uk) (Secretary)

Please also include a short bio and photo of your chairs/officers and a link to their website as well as a few keywords on their research interests and area(s) of expertise. This will be used for a new database of SCAR experts.

Kevin Hughes: <https://www.bas.ac.uk/profile/kehu/#about>



Dr. Kevin A. Hughes is the Environmental Research and Monitoring Manager at the British Antarctic Survey (BAS). He is part of the UK Delegation to the Antarctic Treaty Consultative Meeting (ATCM) Committee for Environmental Protection (CEP) and also Deputy Chief Officer of the Scientific Committee on Antarctic Research (SCAR) Standing Committee on the Antarctic Treaty System (SCATS). Within the context of the Antarctic, he has broad science and policy interests including conservation, area protection, non-native species, environmental impact assessment, bioprospecting, environmental monitoring and the expansion of human footprint. He has visited Antarctica ten times, including one Antarctic winter.



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Chris Carson



Dr Christopher J. Carson is a geologist and has worked in Antarctica, the Canadian Arctic, Alaska, New Caledonia and northern and central Australia, specialising in metamorphic petrology and structural geology. On joining Geoscience Australia (GA, Australia's federal geoscience agency) in 2006 he dabbled in the dark art of SHRIMP geochronology (nothing to do with shrimps) until joining the Antarctic Geoscience program at GA in 2010. Chris has managed the program since February 2011. Since his first trip south in 1991, Chris has been to the Antarctic eight times with the Australian Antarctic Program and once with the Japanese Antarctic program to the remote Napier Mountains in Enderby Land.

Marcelo A. Reguero



Dr. Marcelo A. Reguero is a vertebrate paleontologist, senior researcher of the Instituto Antártico Argentino and Universidad Nacional de La Plata, and Curator of the PV Collection of the Museo de La Plata. He has worked in Antarctica, Chile, Bolivia, Brazil, Morocco and USA. Marcelo research covers a relatively broad approach to systematics, phylogeny, palaeobiology, and palaeobiogeography in fossil mammals from South America and Antarctica. Since 2010 is the Director of the Antarctic Project of Paleontology of the Dirección Nacional del Antártico – Instituto Antártico Argentino. Since his first trip to Antarctica in 1984, Marcelo has visited Antarctica thirty four times (Austral Summer Expeditions of the Argentine Antarctic Program), including two NSF (National Science Foundation. U.S. Antarctic Research Program) expeditions to the West of the Antarctic



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Peninsula. He received in 2006 the Antarctic Service Medal of the United States of America.

**Other members**

**ACTION GROUP members list**

Anne Grunow, US, [grunow.1@osu.edu](mailto:grunow.1@osu.edu)

Berry Lyons, US, [lyons.142@osu.edu](mailto:lyons.142@osu.edu)

Carlo Baroni, Italy, [carlo.baroni@unipi.it](mailto:carlo.baroni@unipi.it)

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Marco Taviani, Italy, [marco.taviana@bo.ismar.cnr.it](mailto:marco.taviana@bo.ismar.cnr.it)

Phil O'Brien, Australia, [phil.obrien.ant@gmail.com](mailto:phil.obrien.ant@gmail.com)

**ACTION GROUP community of interest**

Evgeny Milhalsky, Russia, [emikhalsky@vniio.nw.ru](mailto:emikhalsky@vniio.nw.ru)

Gary Wilson, NZ, [gary.wilson@otago.ac.nz](mailto:gary.wilson@otago.ac.nz)

Massimo Gasparon, Australia, [m.gasparon@uq.edu.au](mailto:m.gasparon@uq.edu.au)

Rosaria Palmeri, Italy, [rosaria.palmeri@unisi.it](mailto:rosaria.palmeri@unisi.it)

Jesus Galindo-Zaldivar, Spain, [jgalindo@ugr.es](mailto:jgalindo@ugr.es)

Marc Oliva, Portugal, [olive\\_marc@yahoo.com](mailto:olive_marc@yahoo.com)

Simon Cox, NZ [s.cox@gns.cri.nz](mailto:s.cox@gns.cri.nz)



SCAR Group	xxx
SOG	PS/LS/GS
Person Responsible:	xxx

**XXXIV SCAR Delegates Meeting  
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## **GeoMAP Action Group**

**Contacts:**

**Simon Cox, GNS Science, New Zealand** [s.cox@gns.cri.nz](mailto:s.cox@gns.cri.nz)  
**Paul Morin, PGC, University of Minnesota** [lpaul@umn.edu](mailto:lpaul@umn.edu)

The SCAR GeoMap (Geological Mapping Update of Antarctica) action group aims to capture existing geological map data, update its spatial reliability, improve representation of glacial sequences and geomorphology, and enable data delivery via web-feature services. In the first instance the GeoMap focus is to provide a dataset describing the exposed geosphere aimed at cross-discipline use, or for continent-wide perspectives, using a mixed chronostratigraphic- and lithostratigraphic-based classification.

The action group was first proposed in late 2014, held its first meeting in 2015 at the ISAES conference, and has had some staff visits and virtual meetings during 2015-2016. There has been significant progress in the capture of digital geology covering western Marie Byrd Land, Dronning Maud Land, northern and southern Victoria Land and the Antarctic Peninsula. About 20% of Antarctic rock outcrops now have some form of geological representation assigned to them suitable for use at 1:250,000 (or more-regional) scale. Work continues to translate data attributes into a standard format. In addition, a high-resolution DEM of the continent is expected to be produced and delivered in the next 2 years. The GeoMap group welcomes anyone interested in capturing their geological and geomorphological data, or historic data from a particular region.

**Recommendations that Delegates and Chief Officers should consider:**

Please note our significant progress to date. We request funds for student GIS training and to help capture of digital datasets.

**Date/Year Group Approved:** 2014  
**Date/Year Group is to End:** c.2018

**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

GeoMAP will be producing a poster (Responsibility: S Cox)





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Person Responsible:	xxx

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**Further Details:**

**Major Activities and Significant Progress from past 2 years**

GeoMAP's challenge is to collaboratively build a modern geological dataset that classifies and describes the bedrock and surficial geology of Antarctica's rock exposures – in practice this means classifying and describing around 72,000 distinct polygons that cover 51,000 km<sup>2</sup>. We aim to use the international GeoSciML data format standard to turning available hard-copy maps into an easily accessible dataset that describes the exposed geosphere.

Progress during our first period includes capture of:

- Western Marie Byrd Land captured and glacial geology updated
- Northern Victoria Land bedrock captured, glacial geology WIP
- Southern Victoria Land converted to GeoSciML
- First Antarctic Peninsula dataset created
- Dronning Maud Land mapping progresses
- Australian maps of east Antarctica scanned & georeferenced
- Funding, stereo imagery and computer time required to produce a DEM production of all geologic outcrops has been secured
- Meeting held at Goa. 2 x newsletters produced. Website updated.

**In conclusion:** Around 20% of the continent's rock outcrops have now been classified with some form of digital representation of geology, much of it converted into GeoSciML format, during the first 12 months of 'Action'. A fantastic start, but perhaps including some of the more easily completed regions where surficial geology is relatively straightforward. There are still many issues to decide with regard to precision of polygons and final data format, let alone how to present and share these data.



SCAR Group xxx

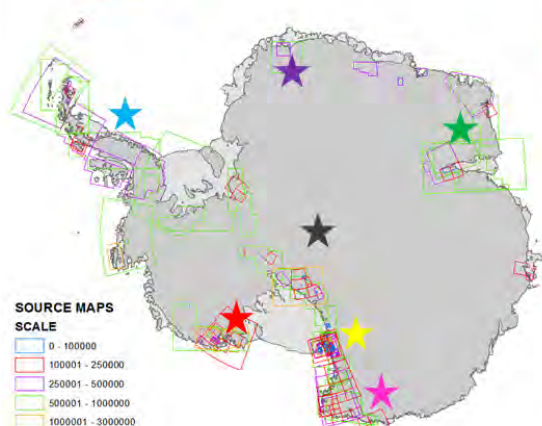
Ssg PS/LS/GS

Person xxx  
Responsible:

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### GeoMAP Progress to mid-2016



- ★ Western Marie Byrd Land captured and glacial geology updated.
- ★ Northern Victoria Land bedrock captured, glacial geology progressing.
- ★ Southern Victoria Land complete and converted to GeoSciML.
- ★ Antarctic Peninsula - first dataset created.
- ★ Dronning Maud Land – Norwegian mapping & capture progresses.
- ★ Australian maps of east Antarctica scanned & georeferenced.
- ★ Stereo imagery DEM production of all geologic outcrops now underway.
- Meeting held at Goa;  
2 x newsletters produced;  
Website updated.

### Activities in greater detail:

**Marie Byrd Land:** A team led by Christine Siddoway Smith from Colorado College have converted their geological mapping and shapefile datasets of western Marie Byrd Land (wMBL) geology into GeoSciML format. During a 4 week visit to GNS Science in New Zealand, Sam Elkind reshaped and relocated polygons in the GIS against LIMA datasets, classified the geology, checked against hires satellite imagery. Together Christine and Sam developed data attributes for the bedrock geology. Belinda Smith Lyttle and Simon Cox (GNS Science) helped capture some of the glacial geology and areas of seasonal ice/water. The result is a complete GIS dataset (985 polygons, 250km<sup>2</sup>) and geological legend that covers wMBL! 24 maps used as source information have been included in a bibliographic dataset. Colorado College attention is now directed towards eastern MBL.

**Northern Victoria Land:** In comparison with many regions in Antarctica, Northern Victoria Land (NVL) has been relatively well mapped by the GIGAMAP project (1:250,000 scale), but the information has remained as a series of (beautiful) hard-copy map sheets. While passing through New Zealand in December, Giovanni Caponni and Laura Crispini (PNRA) visited GNS Science in Dunedin to get progress underway to capture NVL mapping for GeoMAP. By translating all the mapping classifications and geological legends into data attributes for GeoSciML, and helping build a composite geological legend, they enabled Simon Cox to easily translate the hard-copy maps and classify digital polygons.

The dataset of 8000 polygons (4530km<sup>2</sup>) presently covers all the areas of the published GIGAMAPs and an earlier US mapsheet (Stump 1989). Each rock classification is linked to its published source reference so that it is easy to find the original hard-copy dataset (colours in the adjacent figure represent different source maps – dark grey are yet to be completed areas, where older 1:500,000 mapping will be used), but with a series of GeoSciML attributes.



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A notable feature of North Victoria Land is the relatively few areas of exposed moraine or glacial geology to map compared with MBL and SVL.

**South Victoria Land:** The geological map sheet published in 2012 by GNS Science, has now been converted into GeoSciML. It may need some simplification to make it consistent with some of the other data available. Coverage 7300 km<sup>2</sup> with 1900 polygons.

**Antarctic Peninsula:** Alex Burton-Johnson (BAS) classified the LIMA dataset then derived a set of rock polygons for the entire continent by automated outcrop delineation. This generated a massive 137,114 polygons (!) on the Peninsula alone which he classified against the earlier BAS geological mapping units using a first-order classification. A fantastic effort resulting in a dataset that has a tendency to slow your computer down! Some simplification and rationalisation is now being carried out to transfer information onto polygon dataset.

**Dronning Maud Land:** The Norwegian Polar Institute (S. Elvevold and T. Abu-Alam) is compiling existing geological maps from Dronning Maud Land into a new seamless, digital GIS database. A total of approximately 80 hard-copy, source maps have been scanned, georeferenced and digitized, (without modification) in ArcMap. The original maps all have their own way of presenting the geology; they are at different scale, contain different level of details and geological knowledge, and they have different standards and norms for classification. A major task of the compilation project is thus geological harmonization of existing map data, and building a new uniform and descriptive legend for the area. The new overview map of Dronning Maud Land is compiled at the scale 1:250 000 and will be presented in 13 map sheets. The GIS database and the map sheets will be available online early 2017.

**East Antarctica:** Geoscience Australia (Chris Carson) have scanned all the maps produced by the Australian Antarctic Programme and have supplied them to GNS Science who aim to use training opportunities and/or employ student help to capture these data as GIS layers.

**Antarctic Elevation:** NSF's Polar geospatial Center is supporting the Ohio State University in the production of a high-resolution elevation model (2-8m posting) of the entire continent. Delivery is expected within 2 years.



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

GeoMAP will hold its second meeting at the SCAR conference 2016. As a first priority we need to clarify and finalise an agreed data structure and finalise issues around which base datasets we will work to in the first instance and the degree to which their locational position can/should be corrected. In the meantime we are also looking for others to attribute and collect data. Students provide a win-win way this can be achieved where they learn from working with GIS datasets, and the Antarctic community will benefit from their work. GNS Science is still able to provide some tuition and support, and can potentially host visits to work on datasets. Anyone interested in capturing their geological and geomorphological data, or historic data from a particular region, can contact Simon Cox (s.cox@gns.cri.nz)

During the next six months: expectations are that we will finalise North and South Victoria Land and Marie Byrd Land; capture the Central Transantarctic Mountains.

During the next 12 months: we aim to capture all Australian mapping, begin capture of East Marie Byrd Land, integrate work from the Antarctic Peninsula and Dronning Maud Land. To aid capture of East Antarctic we aim to use supervised student help.

During the next 2 years: we will need to hold a workshop to iron out issues around geological legends and how to depict the geosphere at a continent-scale.

**Proposed Budget for 2017 and 2018**

Month/Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
1/2017	Student wage, training and work expenses	\$4000	Christine Smith Siddoway	CSiddoway@ColoradoCollege.edu
05/2017	Workshop GeoMAP Action Group	\$2000	Simon Cox	s.cox@gns.cri.nz
1/2018	Expenses for student worker	\$4000	Gianni Capponi	capponi@dipteris.unige.it



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SSG                      PS/LS/GS  
Person                      xxx  
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**Budget Justification** (please indicate % of budget to support early career scientists and scientists from countries with small Antarctic programmes):

The GeoMAP action group proposal was formulated during the 2014 conference, but was too late to be included in the 2014-2016 budget round. We have relied entirely on the enthusiasm of members and minor seed funding from the New Zealand Antarctic Research Institute (NZARI) to date.

We now request funds to take the next leap forward. **80% of requested budget will be spent directly for capability development and training of students in GeoSciML, using their labour to help collate datasets for the project.** GNS Science have recently been granted 4-star accreditation for their digital geological map web services (on OneGeology), and will provide supervision, host visits and/or work virtually on datasets. Requested funds would be used towards student's travel, accommodation and other minor expenses. At this stage there is no plan for specific involvement - so we would welcome supporting any early career scientists and scientists from countries with small Antarctic programmes.

**External Linkages – Support and Coordination beyond SCAR:**

NZARI has contributed ~US\$7,000 (NZ\$10k) to the project during 2014-2016.

**Please describe your outreach, communication and capacity building activities:**

At this stage we are focused towards compiling and creating the data, rather than external outreach. A number of papers were presented at ISAES 2015 conference in Goa, and there will be at least 3 papers and 4 GeoMAP-related posters at SCAR 2017 conference. GeoMAP activities and newsletters have been provided on the scar website and newslinks.

**Publications of your group to date:**

*Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.*

GeoMAP datasets will eventually become a SCAR product, or products, but they are very much a work in progress at this stage.



SCAR Group xxx  
SSG PS/LS/GS  
Person xxx  
Responsible:

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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. **Please list one or more people from your group who would be willing to serve as fellowship reviewers for the next few years.**

Simon Cox

**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

Please include any updates for your website below:

GeoMAP is not guilty!

We have updates and reports from July 2015 and Feb 2016 at <http://www.scar.org/ssg/geosciences/geomap>

A GeoMAP action group meeting will be held the evening before the SCAR OSC conference, at 17:00 on 21 August, University of Malaya in the IPS Building Seminar B room. This will be the second main meeting of our group. We intend to provide an update of progress, key issues and approaches, and plans for the next stage for the website following this meeting.

If you have suggestions on how to improve the structure of your group's webpages, please provide them below:

**Members:**

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Simon	Cox	GNS Science	NZ	s.cox@gns.cri.nz	08/2015	2018
Paul	Morin	PGC	USA	lpaul@umn.edu	08/2015	2018



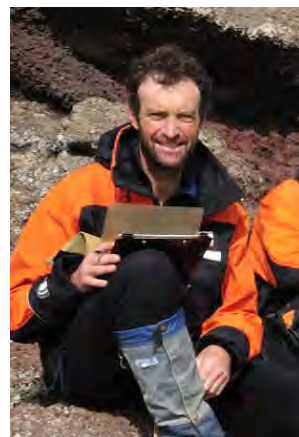


SCAR Group                      xxx  
SSG                      PS/LS/GS  
Person                      xxx  
Responsible:

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Please also include a short bio and photo of your chairs/officers and a link to their website as well as a few keywords on their research interests and area(s) of expertise. This will be used for a new database of SCAR experts.

**Dr Simon Cox** is a Principal Scientist at GNS Science in New Zealand, with professional expertise in the fields of geological mapping, tectonics, GIS modelling, fluid-flow and mineralisation, but known more-widely as the ultimate 'non-specialist' geoscientist. In 2012 he was awarded the New Zealand Geophysics prize for a paper on the hydrological effects of the Canterbury earthquakes, which followed award of New Zealand's premier geoscience prize in 2010, the MacKay Hammer, for geological mapping in the Southern Alps. Simon's interest in Antarctica began in 1986 as an MSc student in Geology at Otago University, and he returned as field leader of expeditions in 1989 and 1993. This led to the publication of fourteen works describing basement rocks in South Victoria Land. He undertook further Antarctic fieldwork in 2008, as part of the International Polar Year celebrations, and completed the 'QMAP Geology of South Victoria Land' 1:250,000 map and accompanying GIS dataset in 2012. He presently is co-convenor of the SCAR GeoMAP Action Group and is providing his geological expertise for a New Zealand team undertaking an Environmental Domains Analysis of the Ross Sea Region.



**Paul Morin** is the director of the Polar Geospatial Centre (PGC), which manages the support of geospatial services for NSF's Office of Polar Programs. PGC's goal is providing remote sensing, mapping and GIS services for the United States Antarctic Program (USAP), NSF and NASA Cryosphere, and has established itself as a go-to for mapping and GIS expertise. Paul was appointed by the National Academy in 2012 to represent the US in geospatial matters to the Scientific Committee on Antarctic Research. He also has experience as National Science Foundation liaison to the National Geospatial-Intelligence Agency for the purposes of polar tasking of sub-meter imagery. Paul is a co-convenor of the SCAR GeoMAP Action Group.







SCAR Group                      xxx  
Ssg                      PS/LS/GS  
Person                      xxx  
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**Other members\***

First Name	Last Name	Affiliation	County	Email
Chris	Carson	Geoscience Australia	Australia	chris.carson@ga.gov.au
Laura	Crispini	University of Genova	Italy	crispini@dipteris.unige.it
Gianni	Capponi	University of Genova	Italy	capponi@dipteris.unige.it
Christine	Smith Siddoway	Colorado College	USA	CSiddoway@ColoradoCollege.edu
Burton-Johnson	Alex	British Antarctic Survey	UK	alerto@bas.ac.uk
Elliot	David	Ohio State University	USA	elliot.1@osu.edu
Synnøve	Elvevold	Norwegian Polar Institute	Norway	elvevold@npolar.no
Tamer	Abu-Alam	Norwegian Polar Institute	Norway	Tamer.Abu-Alam@npolar.no
Mark	Rattenbury	GNS Science	NZ	m.rattenbury@gns.cri.nz
Adam	Martin	GNS Science	NZ	a.martin@gns.cri.nz
Mark	Salvatore	University of Michigan	USA	msalva@umich.edu

\* GeoMAP held its first formal meeting on 12 July 2015 at the ISAES XII conference Goa. Over 35 people, representing 11 different nations, participated at a pre-symposium workshop. The people listed above are a selection of those who have been more extensively involved in consultation and/or the first phases of work.



SCAR Group                      xxx  
SSG                      PS/LS/GS  
Person                      xxx  
Responsible:

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**ADMAP  
(Antarctic Digital Magnetic Anomaly Project)**

**Contacts: (name and email)**

*Detlef Damaske  
d.damaske@t-online.de*

**1-2 paragraph summary of activities from 2014-2016**

The ADMAP-2 group organized splinter meetings at international conferences (e.g. EGU 2014), held 2 workshops (SCAR 2014 & ISAES 2015) and prepared presentations for sessions at international conferences (e.g. AGU 2015). An ADMAP-2 workshop at the SCAR 2016 meeting has been organized and contributions for a session on subglacial geology will be presented.

Major progress has been made in both new regional and continental scale magnetic anomaly compilations and in preparing relevant databases. There have also been several publications about Antarctic magnetic anomaly interpretation in international journals (e.g. Aitken et al., 2014 GRL).

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

The group needs to be continued firstly to produce the final ADMAP-2 magnetic anomaly map for Antarctica including the relevant digital databases. Also a much improved web-based data release portal and an international geomagnetic-community-based paper summarizing the new compilation needs to be prepared.

A variety of new aeromagnetic surveys have been flown in 2015 and 2016 and others are already planned for the next 2 Antarctic field seasons (e.g. over Princess Elizabeth Land, South Pole, Ross Ice Shelf and interior East Antarctica). These efforts will need to be included into updates to the ADMAP-2 compilation.

**Date/Year Group Approved:**  
**Date/Year Group is to End:**

**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

Yes



SCAR Group                   xxx  
SSG                   PS/LS/GS  
Person                   xxx  
Responsible:

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**Further Details:**

List of activities

EGU 2014 Vienna- ADMAP splinter meeting. Several ADMAP-related papers were also contributed to a session on Antarctic geodynamics

SCAR 2014 Auckland (NZ) - ADMAP workshop and contributed to session on Antarctic Geology and Geophysics

ISAES 2015 Goa (India) - ADMAP2 workshop in Goa

Presented ADMAP-2 related presentations at AGU Fall meeting 2015 & UNESCO/IGCP meeting in Hawaii (USA) - 2015

Preparations for ADMAP-2 workshop in Kuala Lumpur and contributions to session on Antarctic subglacial geology

Other activities:

New regional compilations of aeromagnetic data (e.g. Ross Sea Rift & Adare Basin and Wilkes/Aurora basin)

Significant progress in the ADMAP-2 continental scale magnetic anomaly compilation (to be presented by Golynsky et al., in Kuala Lumpur). We highlight the financial support for this activity on behalf of KOPRI.

Papers for international journals

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

Dec. 2016: Completion of ADMAP-2 magnetic anomaly compilation  
Feb 2017: Finalize submission of related ADMAP-2 synthesis paper (e.g GRL)  
Apr. 2017: Printing of ADMAP-2 magnetic anomaly map and distribution at EGU  
May 2017: Finalize ADMAP-2 web-based data release portal  
Summer 2017: Proposed Special Issue on regional and continental scale magnetic studies in Antarctica  
June-Sept 2017: Start soliciting post-ADMAP2 survey data holdings  
Dec. 2017: Presentations of ADMAP-2 and special issue papers at AGU  
Jan-June 2018: Assemble new data contributions (ADMAP 2.1 & Special Issue will be presented at SCAR 2018)

**Proposed Budget for 2017 and 2018**

Month/Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
Jan/Feb 2017	Visit BAS/VNIIO	1500		
Apr 2017	EGU 2017 attendance	1800		
Mar 2017	Printing of ADMAP-2 map	2500		
May 2017	Publication	2000		



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	costs			
Dec 2017	AGU 2017	2000		
Jan 2018	Web-based costs- & staff time	2000		
Apr 2018	EGU 2018	1800		
June 2018	Early career visit VNIIO or BAS	1500		
Aug 2018	SCAR 2018	2000		
Sept 2018	Special Issue costs	2500		

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

ca 15% for early career scientist

**External Linkages – Support and Coordination beyond SCAR:**

100 K USD KOPRI direct Support for ADMAP geophysical data base manager since 2013 (Golynsky + 2 others for 2 years)  
European Space Agency (funding for new magnetic surveying over South Pole-)  
CHINARE surveys (new magnetic data collection over Princess Elizabeth Land)  
EGU & AGU  
IUGG and IAGA  
National funding agencies (e.g. NERC and NSF-OPP)

**Please describe your outreach, communication and capacity building activities:**

Outreach activities will be performed with the help of the British Antarctic Survey in particular following the publication of the new magnetic anomaly map for Antarctica and also the synthesis community-based publication.

An example of our capacity building includes support to Chinese geophysicists who will collect extensive new magnetic datasets after the completion of ADMAP 2.0 and training and mentoring activities for early career scientist involved in ADMAP.

**Publications of your group to date:**

*Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.*

The international ADMAP Expert group has been VERY productive since its initiation in 1995.  
Ca 200 publications have been published. In two decades this means that we average almost 10 publications per year and our members have several publications in top tier journals including e.g. Nature, GRL, JGR, EPSL,



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SCAR Group                   xxx  
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Responsible:

## XXXIV SCAR Delegates Meeting Kuala Lumpur, Malaysia, 29-30 August 2016

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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. **Please list one or more people from your group who would be willing to serve as fellowship reviewers for the next few years.**



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Dr Fausto Ferraccioli BAS, UK, [ffe@bas.ac.uk](mailto:ffe@bas.ac.uk)

**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

Please include any updates for your website below:

The support for the old ADMAP website has expired. We will develop an entirely new and re-vamped state of the art website for ADMAP-2 (see below)

If you have suggestions on how to improve the structure of your group's webpages, please provide them below:

The new website will include all compiled digital magnetic databases and data grids, metadata, information on the geophysical surveys and links to relevant publications and institutions. We will also include more general materials for the public.

**Members:**

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Detlef	Damaske		Germany	d.damaske@t-online.de	Sept 2014	August 2016

Please also include a short bio and photo of your chairs/officers and a link to their website as well as a few keywords on their research interests and area(s) of expertise. This will be used for a new database of SCAR experts.

**Other members**

*The list includes current ADMAP Steering Committee members only. A full list of international contributors to ADMAP can be provided on request.*

First Name	Last Name	Affiliation	Country	Email
Fausto	Ferraccioli	BAS	UK	<a href="mailto:ffe@bas.ac.uk">ffe@bas.ac.uk</a>
Alexander	Golynsky	VNIIO	Russia	<a href="mailto:sasha@vniio.nw.ru">sasha@vniio.nw.ru</a>



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Person xxx  
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Graeme	Eagles	AWI	Germany	graeme.eagles@awi.de
Hyung Rae	Kim	KongjuUni	Korea	kimhr@kongju.ac.kr
Marta	Ghidella		Argentina	mghidella@gmail.com
Ralph	von Frese	OSU	USA	von-frese.3@osu.edu





<b>SCAR Group</b>	<b>ANTVOLC</b>
SOG	GS
Person	Massimo
Responsible:	Pompilio

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## **ANTVOLC**

**Contacts:**

**Massimo Pompilio** ([massimo.pompilio@ingv.it](mailto:massimo.pompilio@ingv.it))

ANTVOLC started his activities at the end of 2014 and registering the interest of more than 70 persons from more than dozen countries.

Two meetings have taken place (July 2015 in Catania, Italy and in Goa (India) during the XII ISAES) and a session on “Antarctic volcanism in space & time – magmatic, tectonic and palaeoenvironmental aspects & linkages” has been organised at the next XXXIV Scar Meeting of Kula Lumpur.

These meetings were dedicated establish the current state of the art of knowledge of Antarctic volcanism and to identify overarching key topics for future Antarctic volcanology. Common activities, possible deliverables and interactions with other communities or institutions (e.g. National Programs, SCAR-SOG, IAATO etc) has been discussed in detail. The organizational structure (e.g. group membership, steering committee) was also briefly discussed. Selection and voting of the new steering committee, including the Deputy Chair are ongoing.

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

N/A

**Date/Year Group Approved: September 2014**

**Date/Year Group is to End: August 2018**

**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

Y



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**Further Details:**

**Major Activities and Significant Progress from past 2 years**

ANTVOLC started its activities in 2015. Two meetings have been convened:

- a kickstart meeting at Catania (Italy);
- a short ad hoc meeting at Goa (India) during the XII ISAES.

Both meetings were successful as the first important steps to widen knowledge of the EG existence and to begin rebuilding an Antarctic volcanic community. As a result of the two meetings, the group is now active, with more than 75 persons from more than dozen countries registering their interest. At Catania, the first part of the meeting was dedicated to comprehensive reviews by selected experts to establish the current state of the art of knowledge of Antarctic volcanism. These presentations will be available to the whole scientific community, once we reconcile issues of confidentiality (images & information in several talks were unpublished and require protection). A dozen posters resulting from key volcanic research during recent years were also presented. The second part of the meeting involved ad hoc brainstorming in which all participants contributed ideas in order to (1) identify overarching key topics for future Antarctic volcanology; and (2) define and agree on common activities and possible deliverables, and identify necessary or advantageous interactions we might/should develop with other communities or institutions (e.g. National Programs, SCAR-SSG, IAATO etc). The organizational structure (e.g. group membership, steering committee, regional/national/discipline coordinators) was also briefly discussed. At Goa about 20 people attended a short introductory meeting. The intention was to announce the formation of the group to the SCAR community in general. In addition to describing who we are and what the rationale is for our existence, a short report was also presented on the outcomes of the Catania meeting. A discussion followed in which we were encouraged to continue developing the group activity and to pursue interactions and links with other SCAR Expert/Action groups, Scientific Programs and with other institutions, such as IAVCEI.

A new general meeting and a scientific session on “Antarctic volcanism in space & time – magmatic, tectonic and palaeoenvironmental aspects & linkages” has been scheduled for the XXXIV Scar Open Science Meeting of Kula Lumpur (August 2016). The scientific session received 11 contributions.

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

- Completion of selection (by vote) of new Deputy Chair & Steering Committee members.
- Setting up an AntVolc website and a data/information repository (2016-2017).



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- Proposing AntVolc sessions at upcoming international and national scientific meetings (e.g. EGU-AGU-ISAES; 2016-2018).
- Explore the feasibility of a Joint group with IAVCEI (2017).
- Define & agree on deliverables, such as a successor to the AGU volume on Cenozoic Antarctic volcanism, and an Antarctic tephra database (2018).
- Begin work on a 'white paper', to be completed & proposed to SCAR, in which overarching and discipline-specific key topics for future Antarctic volcanology are discussed (2018).
- Develop outreach activities.

**Proposed Budget for 2017 and 2018**

Month/Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2017	Meeting organization, Commence planning for a data repository, Travel support to early career scientist(s). Establish link with IAVCEI.	3000	John Smellie	jls55@le.ac.uk
2018	Meeting organization, Organization of a web repository, Travel support to early career scientist(s).	3000	John Smellie	jls55@le.ac.uk

At least 50 % of budget will support early career scientists and other scientists during group meeting and scientific sessions from countries with small Antarctic programmes.

**External Linkages – Support and Coordination beyond SCAR:**



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International Association of Volcanology and Chemistry of the Earth's Interior.  
<http://www.iavcei.org/>

**Please describe your outreach, communication and capacity building activities:**

Not yet organized.

**Publications of your group to date:**

Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.

*This is a list of the main ANTVOLC publications in the last decade (2006-2016)*

**BOOKS**

Smellie, J. L. and Edwards, B.E. (2016). Glaciovolcanism on Earth and Mars. Products, processes and palaeoenvironmental significance. Cambridge University Press, UK, 483 pp.

**SCIENTIFIC PAPERS**

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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.

**Please list one or more people from your group who would be willing to serve as fellowship reviewers for the next few years.**

Massimo	Pompilio	INGV-Pisa	Italy	Massimo.pompilio@ingv.it
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John	Smellie	Leicester Univ	UK	jls55@le.ac.uk
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**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

We employed the SCAR web (<http://www.scar.org/ssg/geosciences/antvolc>) and a local INGV-Pisa web (<http://antvolc.pi.ingv.it/index.html>) only for the organization of the kickstart meeting

If you have suggestions on how to improve the structure of your group's webpages, please provide them below.

**Members:**

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Massimo	Pompilio	INGV-Pisa	Italy	Massimo.pompilio@ingv.it	8/2014	7/2016
John	Smellie	Leicester Univ	UK	jls55@le.ac.uk	7/2016	8/2018

**Steering committee** [NB. This initial committee is about to be replaced by a permanent committee, by vote of all members of AntVolc]

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Paola	Del Carlo	INGV-Pisa	Italy	paola.delcarlo@ingv.it	8/2014	7/2016
Nelia	Dunbar	NMT	USA	nelia@nmt.edu	8/2014	7/2016



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Sergio	Rocchi	Univ. of Pisa	Italy	rocchi@dst.unipi.it	8/2014	7/2016
Kurt	Panter	BGSU	USA	kpanter@bgsu.edu	8/2014	7/2016

Please also include a short bio and photo of your chairs/officers and a link to their website as well as a few keywords on their research interests and area(s) of expertise. This will be used for a new database of SCAR experts.

Massimo Pompilio – webpage with CV: <http://personale.pi.ingv.it/massimo-pompilio/>

John Smellie - webpage with CV:  
<http://www2.le.ac.uk/departments/geology/people/smellie-jl>

[Note: webpages & cvs for the new Steering Committee will be provided in our 2017 AntVolc report]

**Other members**

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**Expert Group on “Geospatial Information – Geodesy (Geodetic Infrastructure in Antarctica)” (GIANT)**

**Contacts:**

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Mirko Scheinert, [Mirko.Scheinert@tu-dresden.de](mailto:Mirko.Scheinert@tu-dresden.de)

**Summary of activities from 2014-2016**

- Continuation of geodetic measurements in Antarctica, especially of geodetic GNSS to determine vertical and horizontal deformations of the Earth's crust;
- Relaunch of "SCAR GNSS Database" website and incorporation of new data through coordination with all participating national programs;
- Publication of gridded dataset of gravity anomalies for Antarctica (Scheinert et al., Geophysical Research Letters, 2016);
- Realization of first "SCAR Summer School on Polar Geodesy" in March 2014, this kind of schools should be continued.

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

Voting or approval is not necessary.

The document provides material just for information.

**Date/Year Group Approved:** 2004 (?)

**Date/Year Group is to End:**

This expert group is to be continued.

**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

Yes.





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**Further Details:**

**Major Activities and Significant Progress from past 2 years**

It is a main task of the EG to foster the realization of geodetic measurements in Antarctica, especially of geodetic GNSS observations on bedrock. These GNSS measurements are needed to determine vertical and horizontal deformations of the Earth's crust in order to provide in-situ information especially for the study of glacial-isostatic adjustment (GIA) and plate tectonics.

All new data – especially campaign-style GNSS data – are incorporated into the “SCAR GNSS Database” being relaunched and maintained at TU Dresden. This is being coordinated in close contact with the representatives of the national programs.

In terms of the regional gravity field, a gridded dataset of free-air gravity anomalies and Bouguer anomalies in Antarctica was published in the beginning of 2016 (Scheinert et al., Geophysical Research Letters, 2016). This publication based on long-term activities of many participating national programs that worked together in different international multidisciplinary projects to gain gravity measurements in Antarctica.

In March 2014 a first “SCAR Summer School on Polar Geodesy” could be realized, that aimed to provide expert knowledge on a variety of geodetic, geophysical and glaciological aspects to the younger generation.

Also, GIANT supported strongly the initiative to gain a UN resolution on Global Geodetic Reference Frame (GGRF).

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

The continuation of geodetic GNSS observations on bedrock is a major ongoing activity. It aids the observation of the changing dynamics of the Antarctic ice sheet, especially the study of glacial-isostatic adjustment. In terms of the changing ice sheet there is a strong monitoring aspect.

*Timeline: Ongoing*

M. King (University of Tasmania, Australia) and M. Scheinert (TU Dresden, Germany) will advertise an initiative called “**Geodynamics In ANTarctica based on REprocessing GNSS dAta Initiative**” (**GIANT-REGAIN**) with calls and deadline for data provision on 2016 and major processing activity in 2017. Within this initiative we aim to offer research stay(s) in Hobart or in Dresden for early career scientists (PhD and Postdocs).

*Timeline: 08/2016 – 12/2017*



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It is planned to continue the activity of “SCAR Summer School on Polar Geodesy”. After such a first summer school was held in Patagonia, Chile, in 2014, a second summer school should be organized in Russia or in Germany.

*Timeline: 2017 or 2018*

**Proposed Budget for 2017 and 2018**

Month / Year	Purpose/Activity	Amount (US\$)	Contact Name	Contact Email
04/2017	International Workshop “Airborne Geodesy and Geophysics with Focus on Polar Applications”	1000	M. Scheinert	Mirko.Scheinert@tu-dresden.de
2017 or 2018	2 <sup>nd</sup> International Summer School on Polar Geodesy	5000	M. Scheinert	Mirko.Scheinert@tu-dresden.de
2017-2018	Travel Support (e.g. for research stay of PhD / Postdoc)	2000	A. Capra, M. Scheinert, M. King	Alessandro.Capra@unimore.it

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

Budget is requested with the main focus to support early career scientists (at least 75%) to participate in the International Summer School and for (short) research stays.

**External Linkages – Support and Coordination beyond SCAR:**

Close linkages exist to respective groups of the International Association of Geodesy (IAG), namely:

IAG Subcommission 1.3f: Regional reference frame in Antarctica

IAG Subcommission 2.4: Gravity and Geoid in Antarctica

**Please describe your outreach, communication and capacity building activities:**

Communication is being maintained through the SCAR GIANT website as well as through a GIANT mailing list that is open to all interested persons. There is a strong component for capacity building in supporting (master and PhD) students as well as PostDocs to participate in the planned summer school as well as in possible exchange at expert institutions.

Also, we support capacity building when acting as a host for SCAR / COMNAP Fellowships.



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### Publications of your group to date:

Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.

- Andrews, S.B., P. Moore and M.A. King (2015): Mass change from GRACE: a simulated comparison of Level-1B analysis techniques. *Geophysical Journal International*, 200(1): 503-518, doi:10.1093/gji/ggu402.
- Aoyama, Y., K. Doi, H. Ikeda, H. Hayakawa and K. Shibuya (2016): Five years' gravity observation with the superconducting gravimeter OSG#058 at Syowa Station, East Antarctica: gravitational effects of accumulated snow mass, *Geophys. J. Int.*, 205, 1290–1304.
- Aoyama, Y., T.-H. Kim, K. Doi, H. Hayakawa, T. Higashi, S. Ohsono, K. Shibuya (2016): Observations of vertical tidal motions of a floating iceberg in front of Shirase Glacier, East Antarctica, using a geodetic-mode GPS buoy, *Polar Science*, 10, 2, 132–139.
- Aoyama, Y., H. Ikeda, H. Hayakawa, K. Doi, Y. Fukuda, K. Shibuya (2015): Observation and Data Archiving System of a Superconducting Gravimeter at Syowa Station, Antarctica, *International Journal of Geosciences*, 6, 1116-1126.
- Beem, L.H., S.M. Tulaczyk, M.A. King, M. Bougamont, H.A. Fricker and P. Christoffersen (2014): Variable deceleration of Whillans Ice Stream, West Antarctica. *Journal of Geophysical Research: Earth Surface*, 119(2): 212-224, doi:10.1002/2013jfr002958.
- Bouman, J.; Fuchs, M.; Ivins, E.; van der Wal, W.; Schrama, E.; Visser, P.N.A.M.; Horwath, M. (2014): Antarctic outlet glacier mass change resolved at basin scale from satellite gravity gradiometry. *Geophysical Research Letters*, doi: 10.1002/2014GL060637
- Bradley, S.L., R.C.A. Hindmarsh, P.L. Whitehouse, M.J. Bentley and M.A. King (2015): Low post-glacial rebound rates in the Weddell Sea due to Late Holocene ice-sheet readvance. *Earth and Planetary Science Letters*, 413(0): 79-89, doi:10.1016/j.epsl.2014.12.039.
- Ekeykin, A.; Eberlein, L.; Lipenkov, V.; Popov, S.; Scheinert, M.; Schröder, L.; Turkeev, A. (2016): Non-climatic signal in ice core records: lessons from Antarctic megadunes. *The Cryosphere*, 10, 1217–1227, 2016, doi:10.5194/tc-10-1217-2016.
- Gunter, B.C., O. Didova, R.E.M. Riva, S.R.M. Ligtenberg, J.T.M. Lanaerts, M. King, M.R. van den Broeke and T. Urban (2014): Empirical estimation of present-day Antarctic glacial isostatic adjustment and ice mass change. *The Cryosphere*, 8(2): 743-760, doi:10.5194/tc-8-743-2014.
- Hirt, C.; Rexer, M.; Scheinert, M.; Pail, R.; Claessens, S.; Holmes, S. (2016): A new degree-2190 (10 km resolution) gravity field model for Antarctica developed from GRACE, GOCE and Bedmap2 data. *Journal of Geodesy*, 90:105-127, doi: 10.1007/s00190-015-0857-6.
- Jentzsch, G., R. Ricker, A. Weise, A. Capra, M. Dubbini, and A. Zanutta (2014): Micro-Gravity Measurements in Northern Victoria Land, Antarctica: A Feasibility Study. In: C. Rizos and P. Willis (eds.), *Earth on the Edge: Science for a Sustainable Planet*, *International Association of Geodesy Symposia* 139, Springer-Verlag Berlin Heidelberg, pp. 429–434, doi: 10.1007/978-3-642-37222-3\_57.
- King, M.A. and A. Santamaría-Gómez (2016): Ongoing deformation of Antarctica following recent Great Earthquakes. *Geophysical Res. Lett.*, 43(5): 1918-1927, doi:10.1002/2016gl067773.
- King, M.A. and C.S. Watson (2014): Geodetic vertical velocities affected by recent rapid changes in polar motion. *Geophysical Journal International*, 199(2): 1161-1165, doi:10.1093/gji/ggu325.
- King, M.A., P.L. Whitehouse and W. van der Wal (2016): Incomplete separability of Antarctic plate rotation from glacial isostatic adjustment deformation within geodetic observations. *Geophysical Journal International*, 204(1): 324-330, doi:10.1093/gji/ggv461.
- Martín-Español, A., A. Zammit-Mangion, P.J. Clarke, T. Flament, V. Helm, M.A. King, S.B. Luthcke, E. Petrie, F. Rémy, N. Schön, B. Wouters and J.L. Bamber (2016): Spatial and



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- temporal Antarctic Ice Sheet mass trends, glacio-isostatic adjustment and surface processes from a joint inversion of satellite altimeter, gravity and GPS data. *Journal of Geophysical Research: Earth Surface*, doi:10.1002/2015jf003550.
- Negusini, M., B. H. Petkov, P. Sarti and C. Tomasi (2016): Ground-Based Water Vapor Retrieval in Antarctica: An Assessment, *IEEE Transactions on Geoscience and Remote Sensing*, vol. 54, no. 5, pp. 2935-2948, doi: 10.1109/TGRS.2015.2509059
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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. **Please list one or more people from your group who would be willing to serve as fellowship reviewers for the next few years.**

Matt King (University of Tasmania, Hobart, Australia)  
Mirko Scheinert (Dresden University of Technology, Germany)  
René Forsberg (DTU Space, Copenhagen)

**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

*Please include any updates for your website below:*

Updates for the group's website are being included regularly.

*If you have suggestions on how to improve the structure of your group's webpages, please provide them below:*

**Members:**

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Alessandro	Capra	Universita di Modena e Reggio Emilia	Italy	Alessandro.Capra@unimore.it	2014	
Mirko	Scheinert	Technische Universität Dresden	Germany	Mirko.Scheinert@tu-dresden.de	2014	

*Please also include a short bio and photo of your chairs/officers and a link to their website as well as a few keywords on their research interests and area(s) of expertise. This will be used for a new database of SCAR experts.*

Will be sent separately.





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**Other members**

<b>First name</b>	<b>Last name</b>	<b>Affiliation</b>	<b>Country</b>	<b>Email</b>
Manuel	Berrocoso	Universidad de Cadiz	Spain	manuel.berrocoso@uca.es
Graeme	Blick	LINZ	New Zealand	gblick@linz.govt.nz
Jan	Cisak	IGIK	Poland	jcisak@igik.edu.pl
Beata	Csatho	University of Buffalo	USA	bcsatho@buffalo.edu
John	Dawson	Geoscience Australia	Australia	john.dawson@ga.gov.au
Koishiro	Doi	National Institute of Polar Research	Japan	doi@nipr.ac.jp
Rene	Forsberg	DTU Space	Denmark	rf@space.dtu.dk
Brendan	Hodge	UNAVCO	USA	hodge@unavco.org
Larry	Hothem	USGS	USA	ldhothem@gmail.com
Asparuh	Kamburov	University of Mining and Geology Sofia	Bulgaria	asparuh.kamburov@mgu.bg
Matt	King	University of Tasmania	Australia	Matt.King@utas.edu.au
Christoph	Knöfel	TU Dresden	Germany	Christoph.Knoefel@tu-dresden.de
Jeronimo	Lopez	Universidad Autonoma de Madrid	Spain	jeronimo.lopez@uam.es
Jaakko	Mäkinen	Finnish Geodetic Institute	Finland	jaakko.makinen@fgi.fi
Alexey	Matveev	Aerogeodeziya	Russia	matveev@agspb.ru
Gennadi	Milinevsky	University of Kyiv	Ukraine	gennadim@gmail.com
Markku	Poutanen	Finnish Geodetic Institute	Finland	Markku.Poutanen@fgi.fi
Goncalo	Prates	Univ. Algarve	Portugal	gprates@ualg.pt
Yves	Rogister	Univ. Strasbourg	France	Yves.Rogister@unistra.fr
Lars	Sjöberg	KTH Royal Institute of Technology	Sweden	lars.sjoberg@abe.kth.se
Norbertino	Suarez	Servicio Geografico Militar	Uruguay	norbertinosuarez@gmail.com
Andrés	Zakrajsek	Instituto Antartico Argentina	Argentina	afz@dna.gov.ar



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## **GRAPE-GNSS Research and Application for Polar Environment (cross-link between SSG PS and GS)**

**Contact: Giorgia De Franceschi- [giorgiana.defranceschi@ingv.it](mailto:giorgiana.defranceschi@ingv.it)**

### **1-2 paragraph summary of activities from 2014-2016**

After the SCAR OSC 2014 (Auckland, NZ, August 2014) GRAPE ([www.grape.scar.org](http://www.grape.scar.org)) meetings and scientific sessions have been organized within both URSI AT RASC (Gran Canaria, Spain, 18-22 May 2015) and Beacon Satellite Symposium (Trieste, 27 June -1 July 2016) aiming to disseminate the GRAPE results on the bi-polar neutral and upper atmosphere monitoring, investigations, and data management as well to attract new groups and institutions. A scientific session has been organized within the SCAR OSC 2016 in Kuala Lumpur (Session 16, 10 oral contributions and 6 posters contribution. New groups from Malaysia, not yet involved in GRAPE, submitted papers).

The GRAPE web site ([www.grape.scar.org](http://www.grape.scar.org)) has been maintained at INGV and updated regularly as well the SCAR web pages ([www.scar.org](http://www.scar.org)) devoted to GRAPE.

A GRAPE task force has been established during URSI AT RASC to draft a possible new SRP to be discussed with all the communities interested during the SCAR OSC 2016 in Kuala Lumpur.

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

**Date/Year Group Approved: August 2012 SCAR OSC 212-PORTLAND  
Date/Year Group is to End:**





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**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

Y



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**Further Details:**

**GRAPE Meetings and scientific sessions:**

- The GRAPE meeting within URSI AT RASC ([www.at-rasc.org](http://www.at-rasc.org)) was attended by more than 30 colleagues from different URSI Commissions (mainly from Commission G-Ionospheric Radio and Propagation). During the meeting SCAR Horizon Scan and scientific priorities were presented and discussed focusing on the GRAPE future contribution to this. A task force has been established to start a process toward a possible proposal leading to a SRP based on GRAPE and enlarged to other interested polar communities. The GRAPE scientific session was also quite interesting and more than 10 papers were submitted as oral presentations.
- A scientific session on the polar (high latitude) effects on GNSS has been organized in the frame of the Beacon Satellite Symposium 2016 (June 27- July 1, 2016 Trieste, Italy) (<http://t-ict4d.ictp.it/beacon2016/sessions>). The session received a good number of contributions as oral and posters (12 selected as oral and 6 as posters). Authors from USA, UK, IT, RU, NO, CA.

GRAPE participants from Italy, South Africa and Brazil supported the DemoGRAPE project 2014-2016 ([www.demogrape.net](http://www.demogrape.net)) to build up a prototype of a new service based on local data and ad hoc processors, capable to demonstrate a significant improvement of the precise positioning over Antarctica. Antarctic facilities from these countries have been shared and thanks to the Cloud technology, the prototype will be accessible to a plethora of different stakeholders, from academic to private, interested in the high precision applications (e.g. geodetic prospections, land and glaciers monitoring,...), that need to be assisted by services capable to mitigate the ionospheric corruption on GNSS signals. The DemoGRAPE follow on has been recently submitted to PNRA (Italian National Program for Antarctic Research) in view to update the prototype and share this with other Antarctic Bases.

GRAPE has recently established a task force to arrange a proposal for a new SRP titled RESOURCE (Radio Sciences Research on Antarctic Atmosphere). It aims to gather the communities that investigate the bi-polar atmosphere, with particular reference to Antarctica, by means of radio probes into a common shared initiative. The task force is composed by scientists affiliated in several countries, among the others: Belgium, South Africa, Canada, Brazil, USA, Italy.



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

- Efforts will be addressed to maintain, improve, update the GNSS network, data and tools to assist the mitigation of the ionosphere impact on a variety of applications. The sharing of infrastructures and facilities will be also pursued.
- Activities addressed to the harmonization of all contributions for drafting the new SRP proposal (RESOURCE) will be continued in order to be mature for submitting the proposal to SSG PS and GS.
- The GRAPE web site will be maintained and updated.
- A scientific session on the polar ionosphere will be organized within the URSI GAS 2017. This will be an occasion to discuss the advancement in the field within an enlarged community in particular those involved in ionosphere, space weather and remote sensing (Commissions G and F).

**Proposed Budget for 2017 and 2018**

Month/Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
01/2017	GRAPE web updating	2500	Giorgiana De Franceschi	Giorgiana.defranceschi@ingv.it
04/2017	URSI GAS registration fees for GRAPE participants of which 3 earlier career scientists presenting a paper.	5000	Giorgiana De Franceschi	Giorgiana.defranceschi@ingv.it
09/2017	SA,BE,BR scientific visits at INGV or viceversa	5000	Claudio Cesaroni, Pierre Cilliers Nicolas Benoit	Claudio.cesaroni@ingv.it
03/2018	SCAR OSC registration fees for GRAPE participants of which 3 earlier career scientists presenting a	5000	Giorgiana De Franceschi  Lucilla Alfonsi Pierre Cilliers Nicolas Benoit	Giorgiana.defranceschi@ingv.it



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	paper.			

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

The total budget requested of 17500USD should be shared between SSG PS and GS. 20% of the budget (as minimum depending on how many earlier career scientists and/or scientists from countries with small Antarctic programmes are involved in the field). GRAPE launched the earlier career scientists/scientists from developing countries call for papers submission during the last SCAR OSC 2014 with two earlier career scientists that received a travel grant.

**External Linkages – Support and Coordination beyond SCAR:**

URSI  
BSS

**Please describe your outreach, communication and capacity building activities:**

Several activities for outreach and communication to the general public have been carried out (see e.g. the DemoGRAPE web site [www.demogrape.net](http://www.demogrape.net)). This project gave an example of capacity building too through the national infrastructures and facilities sharing.

Moreover papers have been presented during public conferences such as:

Nicolas Bergeot, Why do we need to continue scientific research in Antarctica? Cognac Rotary Club, France, March 2 2016 <http://rotary-cognac.org/conference-antartique/>

**Publications of your group to date:**

*Note: Please use the APA style. <http://www.citationmachine.net/apa/cite-a-journal> can help you. We will only ask for a complete list this year, after this we will ask for new publications every 2 years.*



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**GRAPE-LIST OF PUBLICATIONS 2012-2016**

**2012**

- Deshpande, K. B., G. S. Bust, C. R. Clauer, H. Kim, J. E. Macon, T. E. Humphreys, J. A. Bhatti, S. B. Musko, G. Crowley, and A. T. Weatherwax (2012), Initial GPS scintillation results from CASES receiver at South Pole, Antarctica, *Radio Sci.*, 47, RS5009, doi:10.1029/2012RS005061.
- Moro, J., Denardini, C.M., Abdu, M.A., Correia, E., Schuch, N.J., MAKITA, K. Correlation between the cosmic noise absorption calculated from the SARINET data and the energetic particles measured by MEPED: Simultaneous observations over SAMA region. *Advances in Space Research.* , v.51, p.1692 - 1700, 2012.
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- Moro, J., C. M. Denardini, M. A. Abdu, E. Correia, N. J. Schuch, and K. Makita (2012), Latitudinal dependence of cosmic noise absorption in the ionosphere over the SAMA region during the September 2008 magnetic storm, *J. Geophys. Res.*, 117, A06311, doi:10.1029/2011JA017405.
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- Kinrade, J., C. N. Mitchell, P. Yin, N. Smith, M. J. Jarvis, D. J. Maxfield, M. C. Rose, G. S. Bust, and A. T. Weatherwax (2012), Ionospheric scintillation over Antarctica during the storm of 5–6 April 2010, *J. Geophys. Res.*, 117, A05304, doi:[10.1029/2011JA017073](https://doi.org/10.1029/2011JA017073).
- Prikryl, P., P. T. Jayachandran, S. C. Mushini, and I. G. Richardson (2012), Toward the probabilistic forecasting of high-latitude GPS phase scintillation, *Space Weather*, 10, S08005, doi:10.1029/2012SW000800.



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**2013**

- De Franceschi Giorgia and Candidi Maurizio, GRAPE, GNSS Research and Application for Polar Environment, Expert Group of SCAR. Annals of Geophysics, Special Issue, Vol. 56, No2 (2013), ISSN 2037-416X. <http://www.annalsofgeophysics.eu/index.php/annals/issue/view/488>.
- Prikryl, P., Ghoddousi-Fard, R., Kunduri, B. S. R., Thomas, E. G., Coster, A. J., Jayachandran, P. T., Spanswick, E., and Danskin, D. W.: GPS phase scintillation and proxy index at high latitudes during a moderate geomagnetic storm, Ann. Geophys., 31, 805-816, doi:10.5194/angeo-31-805-2013, 2013.
- Prikryl, P., Y. Zhang, Y. Ebihara, R. Ghoddousi-Fard, P. T. Jayachandran, J. Kinrade, C. N. Mitchell, A. T. Weatherwax, G. Bust, P. J. Cilliers, L. Spogli, L. Alfonsi, G. De Franceschi, V. Romano, B. Ning, G. Li, M. J. Jarvis, D. W. Danskin, E. Spanswick, E. Donovan and M. Terkildsen, An interhemispheric comparison of GPS phase scintillation with auroral emission observed at South Pole and from DMSP satellite, Special Issue of Annals of Geophysics, 56, 2, 2013, R0216; doi:10.4401/ag-6227.
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- Fernandez, José Henrique, Correia, E. Electron precipitation events in the lower ionosphere and the geospace conditions. Annals of Geophysics. , v.56, p.R0218-1 - R0218-10, 2013.
- Spogli, L., Alfonsi, L., Cilliers, P., Correia, E., De Franceschi, G., Mitchell, C.N., Romano, V., Kinrade, J., Cabrera, M. A. GPS scintillations and TEC climatology in the southern low, middle and high 2 latitude regions. Annals of Geophysics. , v.56, p.R0220-1 - R0220-12, 2013.



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- Correia, E., Raulin, J. P., Kaufmann, P., Bertoni, F. C., Quevedo, M.T. Inter-hemispheric analysis of daytime low ionosphere behavior from 2007 to 2011. *Journal of Atmospheric and Solar-Terrestrial Physics*. , v.92, p.51 - 58, 2013.
- Correia, E., Raulin, J. P., Kaufmann, P., Gavilán, H. R. Atmospheric changes observed in antarctica related to the sun-earth interactions. *Annual Activity Report - INCT-APA*. , v.3, p.20 - 25, 2013.
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**2014**

- Koustov, A. V., P. V. Ponomarenko, M. Ghezelbash, D. R. Themens, and P. T. Jayachandran (2014), Electron density and electric field over Resolute Bay and F region ionospheric echo detection with the Rankin Inlet and Inuvik SuperDARN radars, *Radio Sci.*, 49, doi:10.1002/2014RS005579.
- Prikryl P., Jayachandran P. T., Mushini S. C., Richardson I. G., High-latitude GPS phase scintillation and cycle slips during high speed solar wind streams and interplanetary coronal mass ejections: A superposed epoch analysis, *Earth, Planets and Space*, **66** :62, 2014.
- Raulin, Jean Pierre, Trottet, Gerard, Gimenez de Castro, C. G., Correia, E., Macotela, E. L. Nighttime Sensitivity of Ionospheric VLF Measurements to X-ray Bursts From a Remote Cosmic Source. *Journal of Geophysical Research: Space Physics*., 2014. DOI:10.1002/2013JA019670
- Ghezelbash, M., A. Koustov, D.R. Themens, and P.T. Jayachandran (2014). Seasonal and diurnal variations of PolarDARN F region echo occurrence in the polar cap and their causes, *J. Geophys. Res. Space Physics*, 119, 10,426–10,439, doi:10.1002/2014JA020726.
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**2015**

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- Prikryl, P., Ghoddousi-Fard, R., Spogli, L., Mitchell, C. N., Li, G., Ning, B., Cilliers, P. J., Sreeja, V., Aquino, M., Terkildsen, M., Jayachandran, P. T., Jiao, Y., Morton, Y. T., Ruohoniemi, J. M., Thomas, E. G., Zhang, Y., Weatherwax, A. T., Alfonsi, L., De Franceschi, G., and Romano, V.: GPS phase scintillation at high latitudes during geomagnetic storms of 7–17 March 2012 – Part 2: Interhemispheric comparison, *Ann. Geophys.*, 33, 657-670, doi:10.5194/angeo-33-657-2015, 2015.
- Linty, N., Romero, R., Dovis, F., & Alfonsi, L. (2015, May). Benefits of GNSS software receivers for ionospheric monitoring at high latitudes. In *Radio Science Conference (URSI AT-RASC), 2015 1st URSI Atlantic* (pp. 1-6). IEEE. doi: [10.1109/URSI-AT-RASC.2015.7303110](https://doi.org/10.1109/URSI-AT-RASC.2015.7303110)
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- Terzo, O., Ruiu, P., Alfonsi, L., Romano, V., & Spogli, L. (2015, May). International cloud infrastructure for space weather data management: The DemoGRAPE challenge. In *Radio Science Conference (URSI AT-RASC), 2015 1st URSI Atlantic* (pp. 1-1). IEEE. doi: 10.1109/URSI-AT-RASC.2015.7303109
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**2016**

- Linty, N., Dovis, F., Romero, R., Cristodaro, C., Alfonsi, L., Correia, E., "Monitoring Ionosphere Over Antarctica by Means of a GNSS Signal



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Acquisition System and a Software Radio Receiver," *Proceedings of the 2016 International Technical Meeting of The Institute of Navigation*, Monterey, California, January 2016, pp. 549-555.

- Themens, D.R., and P.T. Jayachandran (2016), Solar Activity Variability in the IRI at high latitudes: Comparisons with GPS Total Electron Content, *J. Geophys. Res. Space Physics*, 121, 3793–3807, doi:10.1002/2016JA022664.
- A. Favenza, N. Linty, F. Dosis, "Exploiting Standardized Metadata For GNSS SDR Remote Processing: a Case Study.", *Proceedings of the 29th International Technical Meeting of The Satellite Division of the Institute of Navigation (ION GNSS+ 2016)*, Portland (Oregon), September 12-16, 2016, (in publication).
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- Yamazaki, Y., M. J. Kosch, Y. Ogawa, and D. R. Themens (2016), High-latitude Ion Temperature Climatology during the International Polar Year 2007–2008, *Journal of Space Weather and Space Climate*. (Submitted March 4<sup>th</sup>, 2016)
- Bergeot N., Chevalier J.-M., Bruyninx C., Denis G., Camelbeeck T., Van Dam T. and Francis O., Study of space weather impact on Antarctica ionosphere from GNSS data, BNCGG - BNCAR symposium, Brussels, Belgium, April 29, 2016 (Presentation).
- Bruyninx C., Bergeot N., Van Dam T., Camelbeeck T., Francis O. and Tabibi S., High precision GNSS infrastructure around the Princess Elisabeth Base, BNCGG - BNCAR symposium, Brussels, Belgium, April 29, 2016 (Presentation)

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.



SCAR Group xxx  
SSG PS/LS/GS  
Person xxx  
Responsible:

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Kuala Lumpur, Malaysia, 29-30 August 2016**

**Please list one or more people from your group who would be willing to serve as fellowship reviewers for the next few years.**

**Webpages:**

*Many of the webpages for SCAR Groups have little information or are not updated regularly. Significant improvements are needed, and funding may be withheld until webpages are updated.*

Please include any updates for your website below:

**See info on GRAPE web above.**

If you have suggestions on how to improve the structure of your group's webpages, please provide them below:

**Members:**

The complete list of people that are involved in GRAPE and in the previous group (action group) GWSWF (GNSS Weather and Space Weather Forecasting) is available at [www.grape.scar.org](http://www.grape.scar.org).

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Giorgiana	De Franceschi	INGV	IT	Giorgiana.defranceschi@ingv.it	2008	



**SCAR Group**                      **xxx**

SSG       PS/LS/GS

Person                          xxx

Responsible:

[illegible]



SCAR Group

SOG

Person  
Responsible:

IBCSO

GS

Jan Erik  
Arndt

**XXXIV SCAR Delegates Meeting  
Kuala Lumpur, Malaysia, 29-30 August 2016**

## **International Bathymetric Chart of the Southern Ocean (IBCSO)**

### **Contacts:**

Boris Dorschel (Boris.Dorschel@awi.de)

Jan Erik Arndt (Jan.Erik.Arndt@awi.de)

### **1-2 paragraph summary of activities from 2014-2016**

After the release of the IBCSO Version 1.0 digital bathymetric model in 2013, we used conferences/meetings to make the community aware of this new product. The EG also discussed the further development of the project. The main result is that a next version should also incorporate the waters south of 50°S (Version 1.0 was up to 60°S).

**Recommendations that Delegates and Chief Officers should consider (if any):** Voting/approval is NOT necessary. Please note information.

At the moment there is no person funded to work on the IBCSO project. Based on our experience from IBCSO Version 1.0 funding for one person for at least 2 years is necessary to compile a bathymetric data for a project of this size. We work on acquiring designated funding but getting science funding for mapping/compiling bathymetry is difficult despite its unquestionable merit of the product for the scientific community. Funding options are assessed in cooperation with the International Hydrographic Office (IHO) and General Bathymetric Chart of the Ocean (GEBCO).

**Date/Year Group Approved:** 2004

**Date/Year Group is to End:** ongoing

**All SCAR Groups are asked to produce a poster to highlight activities for the SCAR Open Science Conference. Do you plan to produce a poster?**

Y



**SCAR Group**

SOG

Person  
Responsible:

**IBCSO**

GS

Jan Erik  
Arndt

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**Further Details:**

**Major Activities and Significant Progress from past 2 years**

At SCAR 2014, Auckland, NZ, an IBCSO side meeting was held to discuss the future plans of the IBCSO project and to keep updated on newly available as well as upcoming bathymetric surveys that could be contributed to a new version of the IBCSO digital bathymetric model. Since IBCSO Version 1.0 was limited to the area south of 60°S. At the meeting, it was agreed that we should envisage to increase the extent of the IBCSO digital bathymetric model to 50° south for a 2<sup>nd</sup> version. This will include the gateways of the Antarctic Circumpolar Current (ACC). The enlargement will more than double the size of the ocean area included in the model.

A poster on the project status was presented at the ISAES meeting, Goa, India, in 2015.

Additional dedicated IBCSO meetings of the community to further develop the project were the Arctic-Antarctic Mapping Meeting in Monaco (12-13<sup>th</sup> June 2016) and will be held at the 2016 SCAR Meeting in Kuala Lumpur.

In 2014/2015 the IBCSO V1.0 digital bathymetric model was incorporated in the GEBCO\_14 global bathymetric model (Weatherall et al., Earth and Space Science, 2015) of the General Bathymetric Chart of the Oceans (GEBCO).

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

Continuous exchange with the GEBCO community (GEBCO meetings) and further networking/presenting on Antarctic/Geoscience related conferences (i.e. AGU Fall meeting, EGU) to gather additional data sources and stay visible.

Side-meeting of EG members at XXXV SCAR Meetings 2018, Davos, Switzerland. We envisage that at this stage sufficient additional bathymetric data has been collected to start compiling the 2<sup>nd</sup> Version of IBCSO within 1-2 years (funding dependent).

**Proposed Budget for 2017 and 2018**

Month/Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2017	GEBCO/AGU/EGU	4500	Boris Dorsche	Boris.Dorschel@awi.de



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**IBCSO**

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Jan Erik  
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2018	SCAR	4500	Boris Dorsche 	Boris.Dorschel@awi.d e

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

The requested fund will be used to present IBCSO activities to SCAR and its community. Furthermore, IBCSO expert group initiatives will be presented at GEBCO and IHO meetings.

**External Linkages – Support and Coordination beyond SCAR:**

IBCSO as a Regional Mapping Project of the International Oceanographic Commission (IOC) is strongly linked to GEBCO, IOC and the IHO.

**Please describe your outreach, communication and capacity building activities:**

The Expert Group continuously presents its work on conferences and meetings. The release of IBCSO V1.0 digital bathymetric model was announced by a press release of AWI. A printable chart of the model was made available via the NGDC homepage. An electronic version can be downloaded from PANGAEA. In collaboration with the TU Dresden a specialized 3D Map of Antarctica and the Southern Ocean was created and published including a press release. An Arctic-Antarctic Map in German language with IBCSO as base for Antarctica is printed to be used in schools. The GEBCO community consists of an international group of experts in ocean mapping. GEBCO also broadens its network with the Nippon Foundation/GEBCO Training program that yearly welcomes ~6 scholars from various countries. This community is important for further capacity building.

**Publications of your group to date:**





**SCAR Group**

SOG

Person  
Responsible:

**IBCSO**

GS

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Arndt, J. E., Schenke, H.-W., Jakobsson, M., Nitsche, F. O., Buys, G., Goleby, B., Rebesco, M., Bohoyo, F., Hong, J., Black, J., Greku, R., Udintsev, G., Barrios, F., Reynoso-Peralta, W., Taisei, M., and Wigley, R. (2013). The International Bathymetric Chart of the Southern Ocean (IBCSO) Version 1.0 – A new bathymetric compilation covering circum-Antarctic waters. *Geophysical Research Letters*, 40(12), 3111–3117. doi:10.1002/grl.50413

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.

Boris Dorschel, [Boris.Dorschel@awi.de](mailto:Boris.Dorschel@awi.de)  
Jan Erik Arndt, [Jan.Erik.Arndt@awi.de](mailto:Jan.Erik.Arndt@awi.de)

**Webpages:**

Please include any updates for your website below:

Our website ([www.ibcs.org](http://www.ibcs.org)) is regularly updated with news on presentations, meetings and data products.

If you have suggestions on how to improve the structure of your group's webpages, please provide them below:

-

**Members:**

**Chair(s) Duration of Term**

First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Boris	Dorschel	AWI	Germany	<a href="mailto:Boris.Dorschel@awi.de">Boris.Dorschel@awi.de</a>	7/2014	-



SCAR Group

SSG

Person  
Responsible:

IBCSO

GS

Jan Erik  
Arndt

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Jan Erik	Arndt	AWI	Germany	<a href="mailto:Jan.Erik.Arndt@awi.de">Jan.Erik.Arndt@awi.de</a>	10/2011	-
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**Boris Dorschel:**

**Bio:**

Boris Dorschel is head of the Bathymetry working group at the Alfred Wegener Institute (AWI) Helmholtz Centre for Polar and Marine Research in Bremerhaven Germany. He joined AWI in 2012. His recent research focuses on ice sheet retreat histories in the west Weddell Sea and the Baffin Bay. Before his current employment, from 2005 to 2012, he was postdoc at the University College Cork in Ireland. There, he investigated the distribution patterns of cold-water coral carbonate mounds in the northeast Atlantic and the processes leading to mound formation. These bio-geological build-ups are considered biological hotspots and were a focus of several EU Projects including the EU framework programme project HERMES and HERMIONE. The time in Ireland was preceded by one and a half year of post doc in Bremen studying cold-water coral occurrences in the Gulf of Cadiz and the influence of the local hydrography on coral distributions on a cold-water coral carbonate mounds. This work was the continuation of his PhD studies entitled 'Quaternary Development of a deep-water Carbonate Mound in the northeast Atlantic'.

**Research interest and areas of expertise:**

High latitude bathymetry; ice sheet retreat history; marine habitat mapping; Weddell Sea; Baffin Bay

**Jan Erik Arndt:**

**Bio:**

2010            Diploma in Geodesy at TU Darmstadt  
Since 2011    Scientific Editor of IBCSO at AWI  
2016            PhD in Geosciences at University of Bremen/AWI

**Research interest and areas of expertise:**

- Global bathymetry with focus on polar regions
- Glacial morphology
- Past ice sheet extent and dynamics
- Ice stream bed conditions
- GIS

**Other members**

First	Last Name	Affiliation	Country	Email
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**SCAR Group**

SSG

Person  
Responsible:

**IBCSO**

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Jan Erik  
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Name				
Martin	Jakobsson	Uni Stockholm	Sweden	martin.jakobsson@geo.su.se
Frank O.	Nitsche	LDEO	USA	fnitsche@ldeo.columbia.edu
Alex	Tate	BAS	UK	ajtate@bas.ac.uk
Michele	Rebesco	OGS	Italy	mrebesco@ogs.trieste.it
Fernando	Bohoyo	IGME	Spain	f.bohoyo@igme.es
Jongkuk	Hong	KOPRI	Southkorea	jkhong@kopri.re.kr
Jenny	Black	GNS	NZ	J.Black@gns.cri.nz

## ANTPAS Expert Group on Antarctic Permafrost, Soils and Periglacial Environments (SCAR/IPA)

### Report of activities for the period 2015-16

Co-Chairs: Mauro Guglielmin (Italy) and Gonçalo Vieira (Portugal)

Secretary: Megan Balks (New Zealand)

Webmanagers: Felipe Simas (Brazil) and Fiona Shanahun (New Zealand)

Geomorphology: Jeronimo Lopez Martinez (Spain), Ecosystems: Joseph Levy (USA),

Permafrost: A. Abramov (Russia), Soils: Iain Meiklejohn (South Africa)

#### 1. Main activities 2015-2016

ANTPAS is going through a revision of its mission aiming at targeting at current needs from members and promoting new research topics. The new strategical plan will be defined following the ANTPAS workshop that will take place at SCAR OSC in Kuala Lumpur on the 27th August 2016. This meeting has been preceded by a preparatory workshop at the International Conference on Permafrost in Potsdam on the 18 June 2016. A survey aiming at characterizing the research groups involved in ANTPAS, their needs, as well as a SWOT analysis on ANTPAS is underway. Twelve research groups have already replied to the survey and the results will drive the design of the mission.

In the period of 2015-16 ANTPAS has organized scientific sessions in the following international conferences : SCAR ISAES Goa 2015, 11th ICOP 2016 Potsdam, SCAR OSC Kuala Lumpur 2016. These sessions have contributed for rooting Antarctic Permafrost, Soils and Periglacial Environments issues in the Antarctic science community and also to develop and consolidate international cooperation, as seen by numerous cooperative papers, especially focussing in the Antarctic Peninsula region. Several ANTPAS members have edited special issues on international journals.

As a way to promote the engagement of young scientists, ANTPAS has provided grants for young researchers to attend the SCAR conferences in Goa and Kuala Lumpur and has promoted the integration of young scientists as session co-chairs.

ANTPAS has been engaged in the Executive Committee of the Global Terrestrial Network for Permafrost of IPA/GCOS (Gonçalo Vieira) with the participation in several meetings. The activities culminated with the launch of the online GTN-P database which currently hosts numerous Antarctic permafrost boreholes. ANTPAS participation aims promoting GTN-P in the Antarctic permafrost community and also to make sure that the specificities of Antarctic research are well represented in the database structure and workflow.

Mauro Guglielmin represents SCAR at the IPA "Permafrost research priorities" project, aiming at a visioning process to identify the future directions of permafrost research.

ANTPAS has also provided letters of support to project applications to national funding calls which were contributing to the expert group's goals.

ANTPAS chairs contribute annually to the « State of the Climate » report published at the Bulletin of the American Meteorological Society, making sure that the Antarctic permafrost

status is regularly updated.

## 2. Main future activities

ANTPAS is going through a major revision of its objectives and 2016 is a key year for shaping the future of ANTPAS, targeting at serving Antarctic permafrost science and at fostering interdisciplinary science in the Antarctic ice-free environments. The survey analysis will be key and a new strategy is to be adopted in the ANTPAS meeting to take place at Kuala Lumpur. ANTPAS will continue its key objectives but will be structured in a way that will allow further participation of members and the involvement of young researchers.