



SCAR SG **Geosciences**

Paper 12 Agenda item 7

Person Responsible: Jesús Galindo-Zaldívar

SCAR Executive Committee Meeting 2019

Plovdiv, Bulgaria, 29-31 July 2019

Geosciences Group (GSG)

2018-19 Report

Report Author(s)

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Contributions of Chief Officers of Expert Groups and Action Groups.

Summary paragraph

The Geosciences Group includes seven Expert Groups and four Action Groups, three of them cross-disciplinary. The EGs / AGs continue their scheduled activities and do not have any major issues. Progress reports submitted by EG/AG leaders have been uploaded in the Action and Expert Group folder.

The main activity in this period is to hold the XIII ISAES in Incheon, Republic of Korea, July 22-26, 2019, hosted by KOPRI, with 443 submitted abstracts, expecting about 300 international participants and 100 to 150 Korean attendees (<https://www.isaes2019.org:12090/home/>).

In the frame of GSG, the activities of the Action Group on Geological Heritage and Geoconservation should be underlined, in response to the request from the CEP to SCAR for advice on the protection of geological values. In addition to the documents already submitted to the CEP, the group intends to present to CEP XXXIII in 2020: a list of National Repositories, a Code of Conduct on Geosciences Field Research and a Methodology for the Identification of Antarctic Geological Heritage. These outputs will require the close interaction of the Geosciences Group and SC-ATS.

Sub-group updates

REPORTS of ANTOS, GRAPE AND ANTARCHITECTURE cross- disciplinary groups are already included in LSG and PSG. They are not duplicated in this GSG report.

Sub-group – what has been achieved?

Sub-group	Activity
ANTVOLC	Organisation of four scientific sessions: SCAR & IASC POLAR 2018: Davos Switzerland 19-23 June 2018 EGU2019: Vienna Austria 7–12 April 2019 IUGG2019: Montreal Canada 8-18 July 2019 XIII ISAES 2019: Incheon Republic of Korea 22-26 July 2019
GeoMAP	The first version (v.201907) of a geological dataset to classify and describe the bedrock and surficial geology of Antarctica.
Geological Heritage and Geoconservation	Draft SCAR Code of Conduct on Geosciences Field Research Activities in Antarctica.

Sub-group – what lies ahead?

Sub-group	Activity
ANTVOLC	Encourage completion of an online database of tephra analyses and a volume titled 'The Antarctic mantle'.
ANTVOLC	"White Paper" Workshop into 2020
ANTVOLC	Review volume titled ' <i>Volcanism in Antarctica: 200 million years of subduction, rifting & continental break-up</i> ' is well underway.
GeoMAP	A corrected and formal release in 2020 of a geological dataset to classify and describe the bedrock and surficial geology of Antarctica.
Geological Heritage and Geoconservation	1)The List of National Repositories Housing Antarctic Geological and Palaeontological Specimens 2)The SCAR Code of Conduct on Geosciences Field Research Activities in Antarctica 3) Finalised the Proposed Methodology for the Identification of Antarctic Geological Heritage

Budget

Changes to planned use of funds for 2019 and 2020

Year (YYYY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2019-2020	ANTVOLC (substitute contact name)	5000	Adelina Geyer	ageyer@ictja.csic.es
Total				

Membership

Changes to Sub Group Leadership since 2018 Delegates Meeting report

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
ANTVOLC CHAIR	Adelina	Geyer	ICTJA-CSIC	Spain	ageyer@ictja.csic.es		
GEOHERIT AGE Chair	Marcelo	Reguero	Instituto Antártico Argentino and Universidad Nacional de La Plata	Argentina	regui@fcnym.unlp.edu.ar		

Please identify early-career researchers with * in first column

SCAR Fellowship Reviewers

Please list any people (name and email address) volunteered by sub-groups who would be willing to serve as reviewers for the next few years, along with 1-3 keywords on their principal expertise.

First Name	Last Name	E-mail	Principal Expertise

Additional information (optional)

REPORTS of ANTOS, GRAPE AND ANTARCHITECTURE cross- disciplinary groups are already included in LSG and PSG. They are not duplicated in this GSG report.

ISAES XIII

Incheon, Republic of Korea, July 22-26, 2019.

Hosted by the KOPRI.

443 abstract including 240 oral wishes for the conference.

About 300 abstracts are submitted by international expecting more than 300 international participants and 100 ~ 150 Korean participants.

215 participants have registered until 10 June.

10 plenary speeches and 11 side meetings are arranged.

<https://www.isaes2019.org:12090/home/>

Outreach, communication and capacity-building activities

ANTVOLC:

Setting up active social media accounts for our group. These are now online and can be found on twitter and facebook by searching @antvolc (or here: <https://twitter.com/antvolc> ; <https://www.facebook.com/AntVolc>). The coordinator is an Early Career Scientist, Max Van Wyk de Vries (vanwy048@umn.edu).

GEOMAP:

Have trained three young researchers recently. In February-March 2019 GNS Science (New Zealand) hosted visits by two Italian students from University of Genoa (Nicola dal Seno and Luigi Lelli). They were taught how to use GeoSciML and supervised in checking of data attributes and capture of structural and fault-line data for the Antarctic Peninsula. Sam Elkind from Colorado College, USA) was tasked with capturing geology from southern Pensacola & Ellsworth Mntns area. The students will take these skills and use of the GeoMAP data back to the Italian Antarctic Programme and USARP, respectively.

Notable Papers

Notable papers and posters will be published in ISAES XIII Abstract book.

1. Carson, C. J., Atkins, C. B., Hughes, K. A., and Reguero, M. A. (2018). Protecting Antarctica's geological heritage. *Antarctic Science* 30: 1.
This paper analyses geoconservation in Antarctica.
2. Antoniadou, D., Giralt, S., Geyer, A., Álvarez-Valero, A.M., Pla-Rabes, S., Granados, I., Liu, E.J., Toro, M., Smellie, J.L. and Oliva, M. 2018. The timing and widespread effects of the largest Holocene volcanic eruption in Antarctica. *Nature Scientific Reports*, 8: 17279; doi:10.1038/s41598-018-35460-x

This paper provides, for the first time, a precise age for the Deception Island paroxysmal eruption, which enables its presence as tephra to be tracked right across Antarctica (> 4000 km) and raises the possibility that the event may have had pan-continental environmental effects.

3. Smellie, J.L., Rocchi, S., Johnson, J.S., Di Vincenzo, G. and Schaefer, J.M. 2018. A tuff cone erupted under frozen-bed ice (northern Victoria Land, Antarctica): linking glaciovolcanic and cosmogenic nuclide data for ice sheet reconstructions. *Bulletin of Volcanology*, 80:12; doi:10.1007/s00445-017-1185-x.

This paper describes the eruptive mechanisms and products of an explosive eruption beneath cold-based ice, the first description of such an eruption to be published, and shows how linked volcanological—cosmogenic studies can yield important new insights into past environmental reconstructions in Antarctica.

4. Peters, N.J., Oppenheimer, C., Brennan, P., Lok, L.B., Ash, M. and Kyle, P., 2018. Radar Altimetry as a Robust Tool for Monitoring the Active Lava Lake at Erebus Volcano, Antarctica. *Geophysical Research Letters*, doi:10.1029/2018GL079177

This paper describes how a new tool, radar altimetry, has been applied innovatively to monitor the elevation of an active lava lake (typically obscured by dense volcanic fumes) as a practical measure of quantifying the volcanic hazard associated with varying overpressures in an active volcanic conduit.

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

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

Within SCAR

1. X

Outside SCAR

1. X