



## AG on Geological Heritage & Geoconservation: 2018-2020 Report, cont.

- The activities and progress of the Action Group were presented in the XIII ISAES (Korea, 2019) through a Keynote and two posters.
- The preparation of the Action Group outputs included broad consultation with the AG members and the Geosciences community.
- The Action Group outputs have been submitted to the SCAR Standing Committee on the Antarctic Treaty System (SCATS) for review and presentation by SCAR to the ATCM.

### **Summary Budget 2018-2020**

2018	2019	2020
Spent	Spent	Spent
0	\$2800	\$3438

## Progress to date

### Outcomes/achievements summary table

Sub-group	Outcome/Achievement
SCAR AG Geological Heritage and Geoconservation	SCAR Working Paper for ATCM detailing a new methodology for the identification of Geological Heritage within Antarctica. (submission postponed to 2021)
SCAR AG Geological Heritage and Geoconservation	SCAR Environmental Code of Conduct (CoC) for Geosciences Field Research Activities in Antarctica (submission postponed to 2021). An advance draft of this CoC was presented by SCAR as an Information Paper to the ATCM XLII (Prague, 2019).
SCAR AG Geological Heritage and Geoconservation	List of national repositories (museums, universities, institutes, etc.) housing Antarctic geological and palaeontological specimens (submission postponed to 2021)
SCAR AG Geological Heritage and Geoconservation	Identification of 9 Geological Frameworks for Antarctica that allow the systematic identification of individual Geosites.
SCAR AG Geological Heritage and Geoconservation	First SCAR-led identification of a Geosite in Antarctica on Seymour (Marambio) Island for the Geological Framework 'K-Pg Transition'.

### Sub-group Cash Flow

(From previous Delegates meeting to date)

Sub-group	Allocation	Amount spent		
		2018	2019	2020
<b>Action Group on Geological Heritage and Geoconservation</b>	\$2000 per year	\$0	\$2800	\$3438

### Notable Papers

1. Reguero, MA. (2019). Antarctic Paleontological Heritage: Late Cretaceous–Paleogene vertebrates from Seymour (Marambio) Island, Antarctic Peninsula. In: C. Acosta Hospitaleche, J. Gelfo, J. Alistair Crame (Eds.), *Geology and paleontology of the James Ross Basin, Antarctic Peninsula*. *Advances in Polar Science*, **30**(3), 328-355. <https://doi:10.13679/j.advps.2019.0015>

This paper provides a review of the vertebrate fossil occurrences and outcrops on Seymour Island, Antarctic Peninsula and discusses the geological heritage value of these fossils and some threats to the fossil sites.

<https://www.scar.org/science/geoconservation/geological-heritage-and-geoconservation-news/>

2. Hughes, K.A., Carcavilla, L., Crame, A., Díaz-Martínez, E., Elliot, D., Francis, J., López-Martínez, J., Reguero, M. (2020). Seymour (Marambio) Island: an outstanding example of Antarctic geological heritage. *Antarctic Science* **32**, 167.

This editorial provides brief details of the new methodology for identification of Antarctic Geological Heritage developed by the Action Group. It describes the application of the methodology to identify the first Geosite in Antarctic using the methodology adopted by SCAR.

## Linkages

### **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)*

Provision of workshop facilities at:

1. the Instituto Geológico y Minero de España (Madrid, Nov 2018) and
2. the British Antarctic Survey (Cambridge, March 2019, March 2020).

Partial travel support to attend AG workshops provided by the British Antarctic Survey (UK) and the Universidad Autónoma de Madrid (Spain).

### **Major collaborations your sub-group has with other SCAR groups and with organisations/groups beyond SCAR**

#### **Within SCAR**

Standing Committee on the Antarctic Treaty System (SCATS):

- The Action Group worked with SCATS to produce Information Paper 50 'Draft SCAR Code of Conduct on Geosciences Field Research Activities in Antarctica' which was presented to ATCM XLII (Czech Republic, 2019).
- The Action Group worked on other policy papers for the ATCM that set out the methodology for the identification of Antarctic Geological Heritage. Unfortunately, these papers were not submitted due to the cancellation of ATCM XLIII (Helsinki, 2020). The papers may be submitted to ATCM XLIV (Paris) in 2021.

## Outreach and Capacity Building

### **Outreach, communication and capacity building activities**

1. The Action Group provided funding for early career researcher Dr Stephanie McLennan to attend the XIII ISAES in 2019. She writes: *'At the XIII International Symposium on Antarctic Earth Sciences in South Korea I co-chaired a session on applied earth science, showcasing how the community is addressing key environmental management and policy questions in Antarctica. Lively discussion highlighted the strengths of the Action Group and how resources can be most effectively directed to address environmental concerns.'*
2. Prof. Jerónimo López-Martínez delivered a keynote presentation at XIII ISAES (Incheon, Korea, 2019) entitled *'Recent advances on Antarctic geoconservation'* (Abstract A478), which was a comprehensive update on the progress of the SCAR Geological Heritage and Geoconservation Action Group. The strong attendance at this keynote showed the interest of the Antarctic earth science community in conserving and protecting sites of geological significance.

3. Two posters were presented at XIII ISAES (Korea, 2019) by Jerónimo López-Martínez on behalf of the Action Group, entitled respectively '*Consideration of geological heritage in the Antarctic protection system: current situation and future perspectives*' (Abstract A477), and '*Steps for the SCAR advice to the Antarctic Treaty System about identification and conservation of Antarctic geological values*' (Abstract A479). Both posters allowed dissemination of information about the Action Group activities and interesting discussions with participants in the Symposium.

## Membership

### Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started
<b>Chair</b>	Marcelo	Reguero		Argentina	regui@fcnym.unlp.edu.ar	2018
<b>Vice-chair</b>	Luis	Carcavilla	IGME	Spain	l.carcavilla@igme.es	2018
<b>Secretary</b>	Kevin	Hughes	BAS	UK	kehu@bas.ac.uk	2016

### Other members

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

First Name	Last Name	Affiliation	County	Email
<b>Tamara*</b>	Czalbowski	Instituto Antártico Argentino	Arg	tamamc2903@gmail.com
<b>Stephanie*</b>	McLennan	Geoscience Australia	Aus	Stephanie.McLennan@ga.gov.au
<b>Anne</b>	Gruno	Polar Rock Repository	US	grunow.1@osu.edu
<b>Berry</b>	Lyons	Ohio State University	US	lyons.142@osu.edu
<b>Carlo</b>	Baroni	Università di Pisa	Italy	carlo.baroni@unipi.it
<b>Cliff</b>	Atkins	University of Wellington	NZ	cliff.atkins@vuw.ac.nz
<b>Jerónimo</b>	López-Martínez	Universidad Autónoma de Madrid	Spain	jeronimo.lopez@uam.es
<b>John</b>	Smellie	University of Leicester	UK	jls55@le.ac.uk
<b>Andreas</b>	Laufer	German Federal Institute for Geosciences and Natural Resources	Ger	Andreas.Laeufer@bgr.de
<b>Marco</b>	Taviani	Italian National Research Council	Italy	marco.taviana@bo.ismar.cnr.it
<b>Phil</b>	O'Brien	Macquarie University	Aust	phil.obrien.ant@gmail.com
<b>Simon</b>	Cox	GNS Science	New Zealand	S.Cox@gns.cri.nz

## Final recommendations to Delegates

### Final future research recommendations

*What should SCAR's priorities be for future research in this area? Note that this section should not be used to propose new groups, for which a separate process should be followed with advice from your Science Group leader(s)*

- The Action Group has delivered products for the identification of Antarctic Geological Heritage and to enhance Antarctic geoconservation. Subject to final review by SCATS, SCAR can now submit these outputs for approval at the next Antarctic Treaty Consultative Meeting.
- While the Action Group has developed and tested a methodology for the identification of Antarctic Geological Heritage, this methodology has not yet been implemented across all the Geological Frameworks (or themes) that exist within the continent (9 have been identified).
- Scope exists for SCAR to continue to implement the developed methodology to ensure that the geological heritage of Antarctica is adequately identified, internationally recognised and, if necessary, provided with further protection under the Antarctic Treaty System.
- The identification of outstanding geological values within Antarctica that could be considered Geosites requires the participation of different experts from the geosciences community.
- SCAR may also want to ensure the list of national repositories is kept up to date as details of further repositories emerge.

### Final procedural recommendations

*Please include here any operational insights that you would like to share with the Delegates, drawn from your experiences of running this sub-group.*

- The Action Group on Geological Heritage and Geoconservation has completed the task for which it was established. SCAR should consider the best way to advance, in the future, the identification of Antarctic Geological Heritage and proposals of Geosites.
- The SCAR Group on Geosciences seems the appropriate umbrella to provide the necessary expertise from the international scientific community to identify outstanding Antarctic geological values that can be considered of international relevance.
- The outputs of the Action Group have had a strong policy focus, which has led to close working relations with SCATS.
- Given the potentially increasing importance within SCAR of the provision of impartial scientific advice to policy makers, the Delegates may wish to confirm that the Group on Geosciences and SCATS have adequate connections and capacity, particularly in the build up to the ATCM.