



Scientific Committee on Antarctic Research

Proposal for a New SCAR Expert or Action Group

(Version 4/8/2022 to be submitted to the SCAR Delegates by the Geosciences Group)

Name of the Proposed Group:

Expert Group on Geological Heritage and Geoconservation (EG-GEOCON)

Name(s) of the lead proponent(s)

Jeronimo Lopez-Martinez, Universidad Autonoma de Madrid, Spain,
jeronimo.lopez@uam.es

Marcelo A. Reguero, Museo de La Plata, Argentina, regui@fcnym.unlp.edu.ar

Kevin Hughes, British Antarctic Survey, UK, kehu@bas.ac.uk

Ann Grunow, Ohio State University, USA, grunow.1@osu.edu

Cliff Atkins, Victoria University of Wellington, New Zealand, cliff.atkins@vuw.ac.nz

Sponsoring Science Group(s) or Standing Committee(s):

Group on Geosciences

Summary of Group:

The main purpose of this Expert Group is to advance the identification of Antarctic geological sites of exceptional value to be designated geological heritage of international relevance, and to contribute to SCAR advice to the CEP and the ATCM on matters related to conservation of geological heritage.



Proposal for the Creation of Expert Group on Geological Heritage and Geoconservation (EG-GEOCON)

Introduction and Background

Given the on-going increase in Antarctic tourism and mankind's scientific footprint, it is likely that high-quality geological features shall become increasingly vulnerable to human impact, with damage caused by, for example, the construction of logistical facilities, increased foot and vehicular traffic, and the unregulated collection of geological specimens or oversampling for scientific purposes. At sites where high-quality mineralogical or palaeontological specimens exist in limited quantities, considerations of how best to prevent oversampling and manage access to remaining material may be supported by assessment of cumulative impacts. Examination of the level of specimen loans from a selection of national Antarctic geological collections suggests that existing publicly accessible geological collections could be better utilized, which could reduce the environmental impact and oversampling at vulnerable Antarctic sites (Hughes et al., 2016).

The Antarctic Treaty System's Committee for Environmental Protection already recognises the threats that increasing human activities present to Antarctic geological heritage and the need for protection of outstanding geological values. The CEP has placed the Action to 'consider further mechanisms for protection of outstanding geological values' on its Five-Year Work Plan, and one of the functions of the proposed Expert Group will be to provide scientific advice and expertise to inform decision-makers within CEP on this issue.

Specifically, the establishment of this Expert Group will allow SCAR to advance the identification and assessment of new Geosites representing the Antarctic geological heritage. This work is a natural evolution of the former Action Group on Geological Heritage and Geoconservation, which has completed the task for which it was established.

A success of the former SCAR Action Group on Geological Heritage and Geoconservation was the development of a practical methodology for the identification of the most valuable geological sites in Antarctica, including criteria for the identification of Antarctic Geological Heritage, as a means of enhancing Antarctic geoconservation. The methodology was tested on a single important Geosite (the Cretaceous/Paleogene transition) which had been identified within one of the nine Geological Frameworks (or geological themes) erected for Antarctica (Fig. 1).

A major aim of the new Expert Group is to apply this methodology more widely across all of the Geological Frameworks identified for the continent by the previous Action Group, which will enable the systematic identification of individual Geosites across the entire region. The intent is to enable SCAR to more widely implement the methodology, thus ensuring 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 geological sites with outstanding heritage values within Antarctica, i.e. Antarctic Geosites, requires the participation of experts from across the geosciences community who have a comprehensive, ideally first-hand knowledge of the geology of the region. The SCAR Group on Geosciences is the most appropriate source of international expert knowledge and is capable of identifying Antarctic sites with outstanding geological relevance.

The Expert Group will contribute to the advisory role of SCAR to the Antarctic Treaty System. The Group will also maintain close contact with the SCAR Standing Committee on the Antarctic Treaty System (SCATS) and with the SCAR Research Programme "Integrated

Science to Inform Antarctic and Southern Ocean Conservation” (Ant-ICON), providing relevant input on geological heritage and geoconservation matters.

The Expert Group will also seek out information on new locations worldwide where publicly accessible Antarctic geological and palaeontological specimens are stored, and continuously update and promote the list of national repositories (museums, universities, institutes, etc.).

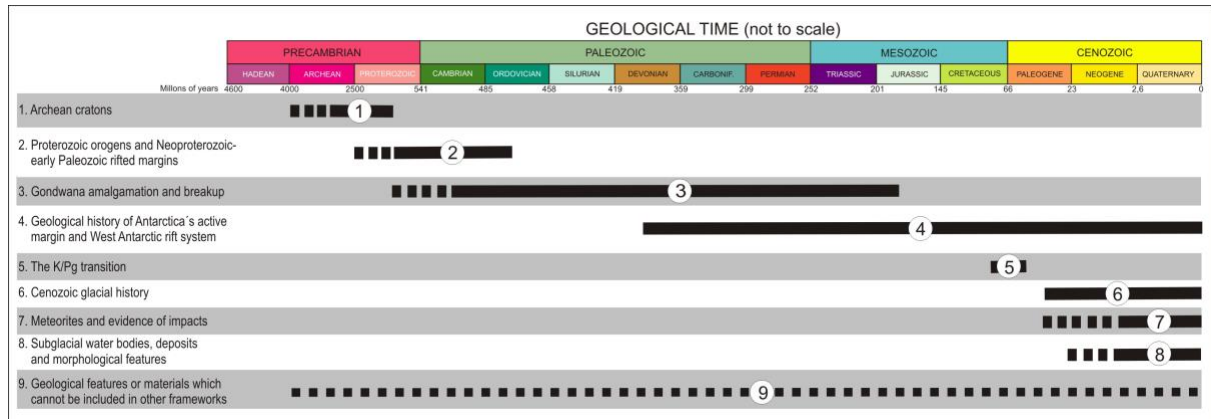


Fig. 1. List of the nine Geological Frameworks identified by the Action Group on Geological Heritage and Geoconservation

CITED REFERENCE:

Hughes, KA, López-Martínez, J, Francis, JE, Crame, JA, Carcavilla, L, Shiraishi, K, Hokada, T, Yamaguchi, A. 2016. Antarctic geoconservation: a review of current systems and practices. *Environmental Conservation*, 43 (2), 97-108.

Aims, Goals and Objectives

The Expert Group:

- Will complete the formal identification of Geosites within the different Geological Frameworks begun by the previous Action Group (Fig. 1).
- Will advise SCAR on Antarctic geological sites or elements of exceptional interest and about conservation needs in proposals presented to the CEP and the ATCM.
- Will maintain an updated list of repositories of geological specimens and will promote their use by the geosciences community. It would be helpful to our purpose if the repositories provided approximate numbers and types of samples or other broad information for each Geosite along with a hyperlink.

Proposed Milestone Activities with Timeline

- Advance the identification of Geosites representing the different Antarctic Geological Frameworks that have been defined. At least one, preferably two Geological Frameworks per year will be considered.
- Update the list and information on repositories of geological specimens, at least once a year and ad hoc when new repositories emerge. Publicise the information and promote

the use of the existing repositories to avoid duplication and thus over-collecting. The list shall be updated continuously on a dedicated website.

- Maintain contacts with SCATS and with the SCAR Scientific Research Programme Ant-ICON for inputs related to geoconservation. At least once a year.

Capacity Building, Education and Outreach Plans

The Expert Group will provide funding for early career researchers to attend Expert Group meetings and sessions related to geological heritage and geoconservation convened at the principal SCAR meetings, such as the ISAES and the SCAR Open Science Conferences.

Details of the Expert Group activities will be disseminated via dedicated web pages, to keep the geoscience community apprised, to enable it to understand the need to properly identify and manage the locations selected as Geosites, and for it to understand the methodology used, as well as to invite contributions from those with the necessary expertise.

Data Management Plans

The information generated by the Expert Group will be shared by utilising various appropriate outlets, including: publications in suitable journals; an Expert Group website; and presentations at congresses, including organising sessions and webinars.

Presenting the results of the Expert Group more widely, e.g. at conferences unrelated to Antarctica, will enhance the profile of the Expert Group, and Antarctic geological heritage in particular, beyond the geographical confines of the Antarctic community.

The Expert Group will try to acquire metrics for use of repository samples collected, specially at Geosites, to demonstrate reduction in sampling and human impact.

Terms of Reference

We propose that the Expert Group should last for eight years initially. The objectives and activities shall be guided by a Chair, a Deputy Chair and a Secretary, with the support of a Steering Committee and a person dedicated to running informational campaigns on social media, such as Twitter and Facebook, to promote the interests and activities of the group. At least one member of the steering committee should be an early career researcher. After four years the Group will undergo an internal SCAR review. As part of this review the leadership of the group shall be assessed to decide whether a change in appointees would be beneficial.

Terms of Reference for the Expert Group:

- Consider geological heritage and geoconservation and extend it across all of Antarctica,
- Apply the methodology developed by the previous Action Group to identify further Geosites representative of the different Geological Frameworks already identified by that Action Group for Antarctica;
- Develop a register of Geosites that best represent the geological evolution of Antarctica; this will facilitate the management and conservation of the sites;

- Deliver criteria for the identification of Antarctic geological heritage and to enhance Antarctic geoconservation;
- Prepare products to facilitate SCAR's role advising the Committee for Environmental Protection on geoconservation and geological heritage issues;
- Promote the dissemination of information and use of the existing repositories of geological specimens to reduce duplication and over-collecting of samples, and
- Actively project Antarctic geological heritage and its conservation through appropriate international fora.

Budget and Justification

An annual budget between 2000 and 3000 US\$ is estimated, which will be used to organise meetings of the Expert Group and promote participation of early career researchers.

It is also requested carry forward to this group the unexpended funds of the Action Group on Geological Heritage and Geoconservation. These extra funds would help to the launch and initial steps of the Expert Group, especially to support the participation of early career researchers.

Confirmed and/or Potential Members

Leadership

Chair: Anne Grunow, Ohio State University, USA, grunow.1@osu.edu

Deputy Chair: Cliff Atkins, Victoria University of Wellington, New Zealand, cliff.atkins@vuw.ac.nz

Secretary: Enrique Diaz-Martinez, Geological Survey of Spain, e.diaz@igme.es

Steering Committee:

(Initial list made up as follows: expertise in geological heritage inventory methods; Antarctic region expertise/specialist geological knowledge; diverse geographical representation (i.e. country of origin); gender representation; early career researchers ECR)

Luis Carcavilla, Geological Survey of Spain, l.carcavilla@igme.es

Alistair Crame, British Antarctic Survey, UK, jacr@bas.ac.uk

David Elliot, Ohio State University, USA, david.1@osu.edu

Ane Engvik, Geological Survey of Norway and Norwegian Polar Institute, Norway, ane.engvik@ngu.no

Tomokazu Hokada, National Institute of Polar Research, Japan, hokada@nipr.ac.jp

Kevin Hughes, British Antarctic Survey, UK, kehu@bas.ac.uk

Andreas Laufer, Federal Institute for Geosciences and Natural Resources (BGS), Germany, andreas.laeufer@bgr.de

Jeronimo Lopez-Martinez, Universidad Autónoma de Madrid, Spain, jeronimo.lopez@uam.es

Tamara Manograsso (ECR), Instituto Antártico Argentino, tamamc2903@gmail.com

Florencia Milanese (ECR), Instituto Antártico Argentino, fnmilanese@gmail.com

Naresh C. Pant, University of Delhi, India, pantnc@gmail.com

Marcelo Reguero, Museo de La Plata, La Plata, Argentina, regui@fcnym.unlp.edu.ar

John Smellie, University of Leicester, UK, jls55@leicester.ac.uk

Membership

*Non-confirmed Members indicated with * and Early-Career Members with **.*

Carolina Acosta Hospitaleche, Universidad de La Plata, Argentina,

acostacar@fcnym.unlp.edu.ar

Carlo Baroni *, University of Pisa, Italy, carlo.baroni@unipi.it

Simon Cox, GNS Science, New Zealand, s.cox@gns.cri.nz

Laura Crispini, Università degli Studi di Genova, Italia, laura.crispini@unige.it

Ian W.D. Dalziel, University of Texas, USA, ian@ig.utexas.edu

Gerson Fauth, OCEANEON-UNISINOS, Brazil, gersonf@unisinob.br

Jane Francis, British Antarctic Survey, UK, janefr@bas.ac.uk

Jesus Galindo, University of Granada, Spain, jgalindo@ugr.es

Javier N. Gelfo, Museo de La Plata, Argentina, jgelfo@fcnym.unlp.edu.ar

Soledad Gouric-Cavalli, Museo de La Plata, Argentina, sgouric@fcnym.unlp.edu.ar

Geoffrey Grantham, University of Johannesburg, South Africa, ghgrantham@uj.ac.za

Priscilla Grew, University of Nebraska State Museum, USA, pgrew1@unl.edu

German Leitchenkov, VNIIOkeangeologia, Antarctic Branch, Russia, german_l@mail.ru

Marcelo Leppe, Instituto Nacional Antártico Chileno, Chile, mleppe@inach.cl

Thomas Mörs, Naturhistoriska Riksmuseet, Sweden, thomas.mors@nrm.se

Terry Wilson, Ohio State University, USA, wilson.43osu@gmail.com

Membership is open to any participants of the Science Groups or, at the invitation of the Chair of the Expert Group, to selected persons with no affiliation to SCAR but who have specific expertise.

Webpages and Communication Plans

We ask SCAR if it would provide our group with a web page, for which we will send information upon approval. We would also like to have a mailing list set up and would like advice on communicating our activities via social media and other channels. The Expert Group will maintain the information updated in connection with the SCAR secretariat.

The website will contain key documents about geological heritage and geoconservation in Antarctica and activities of the Expert Group; also information about existing geological specimen repositories; and promotion of the use of those repositories by the community.

The Expert Group will disperse knowledge of Antarctic heritage and geoconservation across the geosciences community to promote and attract the necessary participation of experts in the identification of Geosites.