



SCAR Sub-Group

ADMAP

SG

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Person

Responsible: Graeme Eagles

SCAR Delegates Report 2020

Antarctic Digital Magnetic Anomaly Project (ADMAP) 2018-2020 Report

Summary

Report Author(s)

Graeme Eagles (Germany)
Fausto Ferraccioli (UK)
Detlef Damaske (Germany)

Summary of activities from 2018-20

Meetings:

The ADMAP group met in a short side-meeting at the ISAES in Incheon. The goal of the meeting was to review the initial impact of the ADMAP2 publication and data release of 2018, and to agree a road-map towards further updates and versions as new magnetic anomaly data continue to be returned from Antarctica on a season-by-season basis:

1. The data release has been a success. The ADMAP2 data have been widely downloaded and used in a variety of new geophysical, geological and cryospheric studies. At the time of writing, the accompanying release paper (Golynsky et al., 2018; DOI:10.1029/2018GL078153) has been cited 22 times.
2. Complementary approaches to ADMAP2's existing levelling procedures (see [this preprint](#)), and approaches to fast pre-levelling for achieving compatibility of new data sets to the ADMAP2 field (Timm Clausen [MSc thesis, University of Bremen](#) (in German)) were discussed. At the time of writing, over 500,000 line-kilometres of new magnetic data exist that are not incorporated into the ADMAP2 compilation.
3. A preliminary update to ADMAP2 showing new data that were not included in the 2018 release was briefly presented. Significantly, our colleagues from China committed in principle to sharing Chinese aeromagnetic data as part of ADMAP - just as soon as their national data portal goes online.

Fieldwork:

1. New helicopter-based magnetic acquisition by BGR (Germany) in Victoria Land in 2018/19.
2. New magnetic acquisition by AWI over the Falkland Plateau Basin in 2017/18 and 2018/19 for conjugate-margin based Antarctic studies.

ADMAP: 2018-2020 Report, cont.

3. New Chinese magnetic acquisition in Princess Elizabeth Land in 2017-20.
4. New magnetic acquisition by BAS in the Thwaites glacier region in 2018/19.
5. New Russian magnetic acquisition offshore Antarctica and in Queen Mary Land in 2017-20.
6. Continuation of international collaborative EAGLE acquisition in East Antarctica in 2017-20.

Publications:

There have been no new ADMAP compilations since the data release paper in 2018. Instead, members of ADMAP as well as external groups have published a range of papers that use and exploit the ADMAP2 compilation for a variety of geophysical, geodynamic, and glaciological studies.

Summary Budget 2019 to 2022

	2019	2020	2021	2022
	Spent	Allocated	Request	Request
(US\$)	754.55	3250	3250	3250

Progress to date

Sub-group Outcomes Summary

Sub-group	Activity/Outcome/Benefit/Achievement
ADMAP	ISAES side meeting
ADMAP	Ongoing data acquisition in Antarctica
ADMAP	Diverse publications using and/or building on ADMAP2 data compilation

Sub-group Cash Flow

(From previous Delegates meeting to date)

Sub-group	Allocation	Amount spent		
		2018	2019	2020
ADMAP	3250	0	755	0

Future plans

Planned activities in 2020 to 2022

Sub-group	Planned activity
ADMAP	EGU splinter meeting 2021
ADMAP	EGU splinter meeting 2022
ADMAP	SCAR-OSC 2022 business meeting

Planned use of funds for 2020 to 2022

Year (YYYY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2021	EGU splinter meeting travel/attendance support	1625	NN	
2022	SCAR OSC group meeting	1625	NN	
Total		3250		

Any additional detail on funds usage and desired results/outcomes

Percentage of the budget to be used for support of early-career researchers

2020: no planned use - Coronavirus

2021: 50%

2022: 50%

Percentage of the budget to be used for support of scientists from countries with developing Antarctic programmes

2020: no planned use - Coronavirus

2021:

2022:

Membership

Leadership

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Co-chair	Graeme	Eagles	Alfred Wegener Institute	Germany	Graeme.Eagles@awi.de	2016	Not decided
Co-chair	Fausto	Ferraccioli	British Antarctic Survey	UK	ffe@bas.ac.uk	2016	Not decided
Co-chair	Detlef	Damaske		Germany	d.damaske@t-online.de	2014	Not decided

Please identify early-career researchers with * in first column

Other members

First Name	Last Name	Affiliation	Country	Email
Golynksy	Alexander	VNIO	Russia	sasha@vniio.nw.ru
Young	Duncan	UTIG	USA	smudog@gmail.com
Kim	Hyung Rae	KOPRI	Korea	kimhr@kongju.ac.kr
Ghidella	Marta		Argentina	mghidella@gmail.com
Ruppel*	Antonia	BGR	Germany	Antonia.Ruppel@bgr.de
Golynsky*	Dmitry	VNIO	Russia	dmitry.a.golynsky@gmail.com

Please identify early-career researchers with * in first column

Additional information (optional)

Please add any more detail here that you wish, on your subgroup activities, papers published, etc.

Notable Papers

(Five to ten most notable papers – see the example below, which includes a brief statement (shaded) indicating the link to the group)

[Jordan et al., 2020. Nature Reviews Earth and Environment.](#)

A comprehensive review of geoscientific understanding of West Antarctica, relying heavily on the ADMAP2 compilation for context and some new interpretations.

[Paxman et al., 2019. Geochemistry, Geophysics, Geosystems.](#)

A new study of the Pensacola-Pole subglacial basin, previously known from just a handful of vintage aerogeophysical profiles. New magnetic anomaly data were compiled and interpreted within the context of the ADMAP2 compilation for quantitative modelling and interpretation of the basin's Jurassic origin, magmatic and sedimentary fill, and extensional architecture.

[Eagles, 2019. Tectonophysics.](#)

A study presenting a provocative new interpretation of Australian-Antarctic continental breakup, using ADMAP2 data to propose two discrete phases of extension in late Jurassic and then in Paleocene times.

[Ebbing et al., 2018. Scientific Reports.](#)

A pioneering study introducing the use of satellite gravity gradient data for interpretations of global tectonics, with a discussion on its particular utility for remote regions like Antarctica when combined with the ADMAP2 compilation.

[Eisermann et al., 2020. Geophysical Research Letters.](#)

Gravity-based modelling of bathymetric variations underneath the ice shelves of Dronning Maud Land. The procedure was strongly constrained by ADMAP2-led interpretation of geological signals unrelated or weakly related to bathymetry.

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. Connecting Geology and Geophysics
2. Geodetic Infrastructure of Antarctica

Outside SCAR

1. [IGCP-628: Geological map of Gondwana](#)
2. [ESA & 3D Earth](#)
3. [4D Antarctica](#)
4. [International Lithosphere Programme](#) (upcoming focus on East Antarctica)
5. [Antarctic Resolution](#)

Outreach, communication and capacity-building activities

Brief highlights of any activities undertaken since the SCAR Delegates meeting in 2018.

SCAR fellowship reviewers

Please list one or more people (name and email address) from your group who would be willing to serve as reviewers for the next few years, along with 1-3 keywords on their principal expertise.

<i>First Name</i>	<i>Last Name</i>	<i>Email</i>	<i>Principal Expertise</i>
Graeme	Eagles	Graeme.Eagles@awi.de	Plate Kinematics
Detlef	Damaske	d.damaske@t-online.de	Aeromagnetism