



Paper No: 08    Agenda item: 2.2  
SCAR SRP    AntClimNow  
Person    Tom Bracegirdle  
Responsible:

## SCAR Executive Committee Meeting 2023

Trieste, Italy, 15-16 September 2023

# Near-term Prediction and Variability of the Antarctic Climate System (AntClimNow) 2022-23 Report



### Report Authors

Tom Bracegirdle, British Antarctic Survey, UK  
Ilana Wainer, University of São Paulo, Brazil

### Summary

The Antarctic climate system exhibits large variability on annual to multi-decadal timescales, which makes predicting near-term (1-30 years) conditions particularly challenging. The AntClimNow SRP is focussed on quantifying and understanding the recent, current and future near-term state of the Antarctic climate system and impacts and interactions across physical and biological components.

Over the last year since the SCAR Delegates Meeting in 2022, AntClimNow has been supporting a range of activities. These include:

- Continuation of the AntClimNow monthly science talk series.
- Scientific workshops.
- Support of an Antarctic-focussed session at an international conference.
- Organised a session of talks at the 2023 General Assembly of the International Union of Geodesy and Geophysics (IUGG) in Berlin.
- Support for the 2022 SURFEIT kick-off meeting.
- Supported an Antarctic-focussed session at a major international meeting on atmospheric rivers.
- Continued supporting projects as part of the AntClimNow Antarctic data stewardship and development scheme.
- Formulation and initial drafting of core ongoing AntClimNow products/activities, for example the annual science update and Antarctic Climate Indicators. Details of which are provided in this report.

Spending was low during 2021 both due to Covid-19 impacts and lead time for event planning. Spending since then has been approximately on budget every year, therefore much of the surplus from 2021 is still available going forward.

Some key challenges have been identified.

- Long-distance travel to meetings and conferences is not always possible for a number of reasons including: efforts to reduce greenhouse gas emissions, economic disadvantage and family circumstances such as childcare commitments. The possibility of a regional hub approach to some meetings is therefore increasingly raised. However, to our knowledge guidance on this is not well established. Could this be developed? For example, there is uncertainty over whether/how regional hubs could be set up to support remote participation at workshops/conferences.

The AntClimNow Steering Committee would like to thank SCAR for the excellent support provided and the opportunity to develop and implement such an exciting international research programme.

## SRP updates since 2022 Delegates Meeting

### What has been achieved?

Date	Activity
<b>28-30 September 2022</b>	workshop on Connecting Models and Observations of the Antarctic Climate System Across Timescales. This achieved: 1. Refinement of the Antarctic Climate Indicators priority variables 2. Discussion of developing a standardised community-approved set of metrics for testing/evaluating climate models 3. Travel awards allowed ECRs to attend in person and network with each other and more senior scientists
<b>10-14 October 2022</b>	Special session on Atmospheric Rivers (ARs) and Polar meteorology and climate at the International Atmospheric Rivers Conference 2022 By supporting in-person attendance of ECRs and established researchers
<b>March 2023</b>	Call for submissions to the third round of the AntClimNow Dataset Development and Stewardship Scheme
<b>June 2023</b>	Workshop entitled 'Toward an Antarctic Radiation Regional Network (ARRN)'
<b>July 2023</b>	AntClimNow science session at the 2023 General Assembly of the International Union of Geodesy and Geophysics (IUGG)
<b>July 2023</b>	Kick-off meeting of the SURFEIT project (Cambridge)
<b>Ongoing</b>	Monthly science talks

### What lies ahead?

Date	Activity
<b>August 2023</b>	AntClimNow contribution to a panel discussion at the SOOS Symposium
<b>September 2023</b>	Presentation and discussions at a CCAMLR Climate Change Workshop in Cambridge
<b>September 2023</b>	12-week internship to develop Antarctic Climate Indicators (NERC/BAS funded)
<b>Autumn 2023</b>	Link with the WMO Regional Climate Centre and their activities in particular in relation to Antarctic Climate Indicators

## AntClimNow: 2022-23 Annual Report, cont.

<b>March 2024</b>	Annual call for AntClimNow Dataset Development and Stewardship Scheme
<b>August 2024</b>	Workshop on extreme weather and climate events in the Antarctic Climate System
<b>August 2024</b>	Workshop on AI and machine learning in Antarctic climate science
<b>Ongoing</b>	Monthly AntClimNow science talks
<b>2023/2024</b>	March 2023 round Dataset Development and Stewardship grant to develop a toolbox to describe the oceanic state around Antarctica; a contribution to Antarctic Climate Indicators
<b>2023/2024</b>	March 2023 round Dataset Development and Stewardship grant to make Antarctic meteorological observations more accessible for model evaluation to benefit weather and climate model developments. This will focus on YOPPsiteMIP supersite King Sejong station.

## Budget

### Changes to planned use of funds for 2023 and 2024.

Note that \$23k was carried over from 2022, therefore leaving \$83k (23+30+30) remaining over 2023 and 2024. For clarity all planned and completed uses of funds in 2023 and 2024 are summarised here.

Year	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
2023	Workshop entitled 'Toward an Antarctic Radiation Regional Network (ARRN)'	10k	Claudia Frangipani	claudia.frangipani@unich.it
2023	Travel support for ECRs and researchers from emerging economies to attend IUGG General Assembly 2023	8k	Clare Eayrs	clare.eayrs@kopri.re.kr
2023	Possible attendance at COP28	Up to approx.. 5k	Ilana Wainer / Tom Bracegirdle	wainer@usp.br tjbra@bas.ac.uk
2023	Possible joint activity with WMO Antarctic Regional Climate Center – under discussion		Ilana Wainer / Tom Bracegirdle	wainer@usp.br tjbra@bas.ac.uk
2023	Dataset Development and Stewardship	7k	Ilana Wainer / Tom Bracegirdle	wainer@usp.br tjbra@bas.ac.uk
2023	SURFEIT workshop	5k	Tom Bracegirdle	tjbra@bas.ac.uk
2024	Dataset Development and Stewardship	7k	Ilana Wainer / Tom Bracegirdle	wainer@usp.br tjbra@bas.ac.uk
2024	Workshop on Extreme events in the Antarctic Climate system	Provisional 25k	Irina Gorodetskaya	irinag@ciimar.up.pt
2024	Workshop on AI / machine learning in Antarctic climate science	Provisional 8k	Andrew McDonald	anddon76@bas.ac.uk

2024	Travel grant scheme for SCAR OSC 2024	Provisional 8k	Clare Eayrs	clare.eayrs@kopri.re.kr
<b>Total</b>		<b>76k</b>		

## Membership

### Changes to SRP Leadership

Below are the changes in leadership since 2022. The full current committee can be found at <https://scar.org/science/antclimnow/members/>.

Role	First Name	Last Name	Affiliation	Country	Email	Date Started	Date Term is to End
Early Career Researcher Representative	*Clare	Eayrs	KOPRI	Rep. of Korea	clare.eayrs@kopri.re.kr	2022	
Membership Officer	Ryan	Fogt	Ohio University	USA	fogtr@ohio.edu	2022	
Monthly talks co-organiser	*Caroline	Holmes	BAS	UK	<a href="mailto:calmes@bas.ac.uk">calmes@bas.ac.uk</a>	2023	
Monthly talks co-organiser	*Sibin	Simon	NCPOR	India	sibin@ncpor.res.in	2022	
Communications Officer	*Siobhan	Johnson	BAS	UK		2022	
Theme 2	*Jan	Lenaerts	University of Colorado	USA	<a href="mailto:Jan.Lenaerts@colorado.edu">Jan.Lenaerts@colorado.edu</a>	2021	Stepped down 2022

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

### SCAR Fellowship Reviewers

First Name	Last Name	E-mail	Principal Expertise
Tom	Bracegirdle	tjbra@bas.ac.uk	Antarctic meteorology, climate dynamics and change

### Significant Deviations from the Implementation Plan

N/A

## Additional information

### Outreach, communication and capacity-building activities

1. Active and popular Instagram account with 398 posts and 548 followers at time of writing. See <https://www.instagram.com/antclimnow/>.
2. Active Twitter account. See [twitter.com/antclimnow](https://twitter.com/antclimnow).
3. Travel grants to support ECR and scientists from emerging economies to attend the IUGG General Assembly in Berlin. Four grants were awarded to ECRs who attended the conference in person and gave oral presentations.
4. AntClimNow Committee member Dr. Will Hobbs. Broadcast media interview, 2023 extreme low sea ice cover. <https://www.abc.net.au/radio/programs/worldtoday/antarctic-sea-ice-at-record-lows-again/102044704>.
5. AntClimNow Committee member Will Hobbs and member Ariaan Purich. Print media (Guardian Australia). <https://www.theguardian.com/world/2023/mar/04/everyone-should-be-concerned-antarctic-sea-ice-reaches-lowest-levels-ever-recorded>

6. AntClimNow member Guenther Heinemann. Public lecture on Polar Regions and Climate Change at the adult education center Trier, Germany.

### Notable Papers

1. Hughes, K., Cavanagh, R., & Convey, P. (2022). Advancing Antarctic climate change policy: Upcoming opportunities for scientists and policymakers to work together. *Antarctic Science*, 34(6), 403-407. doi:10.1017/S095410202200044X

This is an opinion piece in *Antarctic Science* about the importance of conveying the latest climate change scientific information to ATCM, CEP and CCAMLR, highlighting recent progress and upcoming plans, and encouraging the scientific community and policymakers to work together to facilitate necessary policy responses. It is relevant to, but independent of AntClimNow.

2. Siegert, M. J., Bentley, M. J., Atkinson, A., Bracegirdle, T. J., Convey, P., Davies, B., et al. (2023). Antarctic extreme events. *Frontiers in Environmental Science*, 11. doi:10.3389/fenvs.2023.1229283

This work is highly relevant to AntClimNow. Although not directly linked to specific AntClimNow activities, it involves two authors from AntClimNow.

3. Bracegirdle, T. J., H. Lu, G. J. Marshall, T. Caton Harrison, T. Phillips. (2023). Antarctic extreme seasons under climate change. In preparation.

This paper, in preparation, is motivated by AntClimNow science aims and draws from discussions during the launch meeting in early 2021.

4. Libera, S., Hobbs, W., Klocker, A., Meyer, A., & Matear, R. (2022). Ocean-sea ice processes and their role in multi-month predictability of Antarctic sea ice. *Geophysical Research Letters*, 49, e2021GL097047. <https://doi.org/10.1029/2021GL097047>

This work is highly relevant to AntClimNow. Although not directly linked to specific AntClimNow activities, it involves two authors from AntClimNow.

### Direct support from outside organisations received for your activities

1. The British Antarctic Survey and the UK Natural Environment Research Council (NERC) are thanked for their part in providing support for hosting the September 2022 AntClimNow workshop at BAS in Cambridge ('Connecting Models and Observations of the Antarctic Climate System Across Timescales').
2. NERC and the Innovation Team at BAS are thanked for providing funding for a 12-week intern (from September 2023) to develop the Antarctic Climate Indicators project.

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

#### Within SCAR

1. The SRPs Ant-ICON and INSTANT will be key focal points for collaboration within SCAR. Discussions are ongoing with both in terms of the use of near-

term climate information in helping to achieve their scientific aims. Mutual cross-SRP attendance at future workshops and meetings will help to facilitate progress.

2. The Southern Ocean Observing System (SOOS). Discussions with SOOS will be included at future workshops to identify opportunities for working together. An example from the recent period is the AntClimNow Dataset Development and Stewardship Scheme, which has included a link to SOOSmap.
3. Sea ice is a major focus of research in research into near-term climate change. Therefore, links with the Expert Group on Antarctic Sea-ice Processes and Climate (ASPeCt) will be maintained going forward. Chair of ASPeCt, Marilyn Raphael, is a member of AntClimNow.

### **Outside SCAR**

1. UK Natural Environment Research Council (NERC) and BAS due to their funding of a 12-week internship at BAS to develop Antarctic climate indicators.

### **Updates for your group's SCAR web page**

Discussions on website updates are ongoing.