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AMOS submission to the Inquiry into Australian Antarctic Division funding

The Australian Meteorological and Oceanographic Society (AMOS, <http://www.amos.org.au>) is an independent society representing the atmospheric and oceanographic sciences in Australia. It has over 400 members drawn from the Bureau of Meteorology, CSIRO, the university sector, other State and Federal agencies, as well as the private sector. The Society covers both meteorology and oceanography, noting that:

- ‘meteorology’ in its broadest sense includes the sciences of weather, climate and atmospheric composition; and
- scientific study of ‘climate’ requires integrated study of atmosphere, ocean, land, cryosphere and biosphere.

AMOS contends that the cuts to the Australian Antarctic Division will have large and ongoing impacts on

- Australia’s ability to monitor, understand and predict Antarctic and Southern Ocean environmental systems,
- Australia’s standing as an international leader in Antarctic and Southern Ocean science, and
- The Antarctic Division’s staff morale, further reducing productivity.

Now is a critical time to be observing changes in the Antarctic and Southern Ocean climate system. A reduction of science capability in the Australian Antarctic region could be catastrophic for early detection and warning of key climate indicators, such as ice sheet stability and sea ice extent. This has implications for the understanding and prediction of climate risk for Australia, for example as per the AMOS expert statement on sea level rise (2018):

‘The largest scientific uncertainties in projecting future sea-level rise relate to the dynamic response of the Antarctic Ice Sheet to warming. These uncertainties mean that there could be a substantially larger rise than currently estimated if there is a rapid response of the ice sheet.’

These funding cuts are occurring at a time when Antarctic winter sea ice is at its lowest extent ever measured (<https://earthobservatory.nasa.gov/images/151692/exceptionally-low-antarctic-sea-ice>). This record low sea ice is unprecedented in the observational record. It was not predicted and it remains poorly understood, highlighting the ongoing gaps in knowledge of the Antarctic climate system. The extremely low sea ice coverage will influence ecosystems, ocean circulation and ice-shelf stability, and more work is urgently needed to better understand these impacts.

We also highlight the essential role the Australian Antarctic Division plays in collecting and maintaining data. Our Position Statement on International Cooperation and Data Sharing in Meteorology and Oceanography (2019) highlights some crucial points:

With growing national and international concern about climate change, it is especially important that Australia maintains and enhances its national climate observing networks and data archives as part of the comprehensive Global Climate Observing System needed to support the UN Framework Convention on Climate Change. Observations for climate monitoring need to be of the highest quality and consistency as they provide the baseline to which more numerous, but often less accurate, observations (such as those from lower quality, amateur and 'big-data' sources) can be anchored. Indeed, conventional baseline data are also needed to ensure the calibration of satellite and other observational data essential to the accuracy of numerical weather prediction systems, used for real-time operations, reanalysis and research.

Australia's international standing as leader in Antarctic science will be negatively impacted if its Antarctica and Southern Ocean science capabilities are reduced. The only gateway to Antarctica for Australian and many international scientists is through the Antarctic Division. Reducing field work capabilities over the near term will mean a shift away from Australia for these logistical capabilities. This is likely to limit future opportunities for collaboration and innovation.

Finally, staff at the Australian Antarctic Division are among the world's best. However, cuts to field operations and the cancellation of up to 40 new science positions has already had detrimental impacts on staff moral, which will further impact on the Antarctic Division's capabilities both with respect to productivity and staff turnover.

To this end, AMOS:

- 1. Calls for sustained and stable funding of Australia's Antarctic and Southern Ocean observing networks and associated staff and infrastructure;**
- 2. Calls for sustained and stable funding of Antarctic and Southern Ocean climate research, modelling and prediction programs to allow the best possible advice around the impact of climate change on the Australian environment.**

Yours sincerely,

A/Prof Roger Dargaville
AMOS President

References:

AMOS Position Statement on Sea Level Rise

<https://www.amos.org.au/about/statements/>

https://www.amos.org.au/wp-content/uploads/2018/12/AMOS_SeaLevelChange_Statement_FINAL-3.pdf

AMOS Position Statement on International Cooperation and Data Sharing in Meteorology and Oceanography

<https://drive.google.com/file/d/1R55aiF0GD99n0mR-kOwiZx04OEZfpB1W/view>