



WP 14a

Agenda Item: 4.2.6

Person Responsible: T Naish/
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**XXXIV SCAR Delegates Meeting
Kuala Lumpur, Malaysia, 29-30 August 2016**

PAIS short report on activities of January-June 2016

Executive Summary

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Important Issues or Factors:

This report covers activities and issues since the PAIS SRP External Performance Review. In the last few months, major highlights for the PAIS SRP include:

- The international Ocean Discovery Program (IODP) scheduled 2 new Antarctic margin drilling expeditions, P751 – West Antarctic Ice sheet and Climate History, led by Rob McKay (NZ) to be drilled in the Ross Sea in 2018 summer, and P839 Amundsen Sea West Antarctic Ice Sheet history, led by Karsten Gohl (Germany) to be drilling in 2019 summer. These are in addition to Expedition 373 – Antarctic Cenozoic Paleoclimate led by Trevor Williams (USA) to be drilled using a mission specific platform in 2018 summer. The carefully planned transect of expeditions around Antarctica has been nurtured and developed by PAIS, and the IODP were very impressed with the way in which the community had worked together strategically to come up with a strong scientific case to bring the drillship back to Antarctica for three legs in two consecutive seasons.
- Antarctic Drilling workshop held in College Station on May 9-11th 2016 with USSSP, MagellanPlus, ANZIC and PAIS funds. The aim was to review the science objectives of drilling proposals currently in the IODP review system. Identify geographic areas and age windows that can best provide insight into Antarctic ice sheets under warm climates. This was put in context of IODP science plan and the broader context (SCAR, IPCC). The workshop was attended by 84 participants (65 from USA, 15 from Europe, 4 from the rest of the world) among which there were 24 students and 8 early-career scientists. The workshop was influential in getting the above expeditions scheduled and is developing the case to bring the drillship back to Antarctica in 2020-2021 to achieve also proposal 732 that is now at the facility board and got the approval also from the safety panel.
- PAIS members, Rob DeConto has been awarded of the 2016 Tinker Muse Prize in Antarctic Science and Policy, and Rob Dunbar has been awarded the 2016 SCAR Medal for Excellence in Antarctic Research.
- Tim Naish and Rob DeConto were successfully nominated by SCAR and ICSU to attend a scoping meeting, in Geneva, 15th July, for the IPCC special report of limiting warming to 1.5°C, requested by the Paris Climate Accord. Of 17 nominations by ICSU, only SCAR's nominations were successful.
- A PAIS conference has been announced for September 10th-16th in Trieste, Italy with the aim to present recent results that address still open questions in understanding the sensitivity of the Antarctic Ice Sheet and its contribution to past and future sea level and climate change.

- While a number of scientific highlights were reported in the Review, since then of note is a paper in Nature by DeConto and Pollard. This paper presents new projections of the Antarctic ice sheet contribution to future sea-level rise that elevate the IPCC projections for all Representative Concentration Pathways except RCP 2.6. The modelling was based on paleo data-model evaluation on past warm periods (e.g. Pliocene and Last Interglacial). This contribution from paleoclimate science has received an unprecedented level of media, public and scientific attention.

Recommendations/Actions and Justification:

The drilling ship the Joides Resolution, used by the IODP, is not an ice breaker and will need support from an ice breaker to secure its entrance and exit from the Ross Sea polynya in January-March 2018 and may need support in the Amundsen Sea continental shelf in January-March 2019. In the case of the Ross Sea and the Amundsen Sea, the ice breaker would not necessarily need to be close by the Joides Resolution for the entire length of the two drilling legs, but it will be needed for opening the passage and on standby for potential extraction. IODP have indicated that they would appreciate any ice breaker support SCAR COMNAP could provide. They have some budget for purchasing ice breaker support, but would also be looking for partnership with in kind support from another party.

SCAR EXCOM have endorsed a request to COMNAP to provide, in partnership with IODP, ice breaker support for the two scheduled PAIS-IODP expeditions to be drilled by the Joides Resolution in 2018 and 2019. Jeronimo Lopez will brief COMNAP at Goa meeting in August, 2016.

The long-term schedule indicates that the IODP drill ship will be back in the South Atlantic in 2020 with the potential to drill 732 on the peninsula and any other proposals that might be at the Facility Board for scheduling. It takes a minimum of 3 years to get a proposal to scheduling stage and there are a number of potential proposals in the Weddell and Scotia seas in the pipeline. This presents an unprecedented opportunity for the Antarctic community to have another 1 or 2 legs of scientific drilling in 2020-2021.

Research being conducted and co-ordinated under the PAIS umbrella is having a major impact on policy relevant climate change science through IPCC, and is gaining major support from the IODP. Especially as the Antarctic contribution to future sea-level rise is considered a number one research priority (e.g. as articulated in a recent NRC/NSF study for setting research priorities for NSF Antarctic program).

The purpose of the PAIS Trieste meeting is to identify future priorities for Antarctic paleoclimate research within the context of the SCAR Horizon Scan and the anticipated needs of the IPCC AR6 process, which is now getting underway. PAIS researchers are well placed to make a major contribution to both the publication of relevant science but also as co-authors. An important requirement is that the SCAR SRPs and non-SCAR communities develop closer linkages as climate change is a unifying theme that will have consequences for both biological and physical systems. PAIS is attempting to do this through its scientific programme and invitations to the Trieste meeting. AntClim21 is also doing this through a workshop being held in Kuala Lumpur after the SCAR OSC.

We recommend that SCAR continue to promote an interdisciplinary approach with how its research contributes to Antarctic and global climate change research and issues, ensuring SCAR umbrella research is well integrated into science that supports the ATS (e.g. CEP CAMMLR) and science that supports IPCC.

Budget Implications:

PAIS funds to support the following in the rest 2016:

- Support for scientists students to attend SCAR OSC
- Sponsorship of International Conference on Paleoceanography (Utrecht University)

PAIS requires funds to support the following in 2017:

- Trieste conference, September
- Participation of PAIS members in IPCC scoping meetings and AR6
- Support for PAIS members and students to attend PAIS Trieste meeting
- Support for students and early career scientists to attend workshops and summer schools (e.g. Urbino SS in Paleoclimatology)
- Support for PAIS steering committee meetings at EGU and/or AGU.

PAIS is attempting to carry forward ~\$15K of funds into 2017 for the Trieste meeting, and is looking at other sources of sponsorship.

Nevertheless, the range of activities planned for 2017 is going to put pressure on our budget and we request any additional increase to the 2017 PAIS budget that SCAR can afford.