Australian Antarctic Program Million Year Ice Core Project (MYIC):

Call for Expressions of Interest in joining MYIC Working Groups

This is a first call for expressions of interest to join a diverse community of researchers interested in contributing to and collaborating on the Australian Antarctic Program's Million Year Ice Core Project.

MYIC Information Webinar

Accompanying this call is a Webinar that will provide background on the MYIC Project and on opportunities for researchers to become involved in MYIC Science Working Groups. The webinar will include a Q&A session with the MYIC Science Team. You must register to attend the Webinar.

Webinar time: Tue Jul 20, 2021 11:00–12:00 AM Hobart

Webinar registration: https://utas.zoom.us/webinar/register/WN_sfr1CAtlRoi1-42CHNqgyQ

After you register you will receive a confirmation email with a link to the Webinar.

Expressions of Interest to join MYIC Working Groups

To express your interest in joining a MYIC Working Group email joel.pedro@aad.gov.au<mailto:joel.pedro@aad.gov.au>, before 30 July 2021*, with the following details.

- Your name and institution.
- A short summary (sentences) of your scientific interest in the MYIC Project and your ability to contribute.
- The Working Group(s) you wish to participate in, including the sub-category in the case of WP3 and WP4 (e.g. '4.2 Science on Core: water isotopes'). See details of working groups further below.

We encourage EOIs from the full diversity of researchers in the climate, Antarctic and related science communities and from all career stages, including Masters and PhD students. This first call targets researchers working in Australia. Participation of researchers based at overseas institutions will be by invitation. If you are an overseas-based researcher, please get in touch via the above email address to discuss opportunities.

*This is a first call, further opportunities to join Work Packages will be made available in course.

Background

The Million Year Ice Core Project aims to recover a continuous Antarctic ice core reaching at least 1.2 million years into the past. The current oldest continuous ice core is the 800,000 year record from EPICA Dome C. The MYIC aims to extend beyond this period and across the Mid Pleistocene Transition (MPT), during which the pacing of the glacial cycles changed from a periodicity of 41,000 to 100,000 years. The main objective of the project is to test competing hypotheses on the cause of this non-linear shift in the Earth's climate state.

Resolving the cause of the MPT has implications that extend across timescales: the physical processes involved—feedbacks between radiative forcing, ice volume, sea level, atmospheric dynamics and ocean circulation—are the same physical processes that will determine the response of Earth’s climate to rising greenhouse gases. The ice core will offer new opportunities for research into these climate

feedbacks and couplings across the entire 1.2 million year plus record, and into their implications for Australian climate variability. The detailed greenhouse gas and climate records from the core will place current anthropogenic influence on the carbon cycle and climate system into a much longer term context.

The MYIC project is led by the Australian Antarctic Division (AAD), with contributions through the Australian Antarctic Program Partnership (AAPP) of the Commonwealth Science and Industrial Research Organisation (CSIRO) and the University of Tasmania (UTAS). The MYIC project is collaborating with the European Beyond EPICA Oldest Ice Core (BE-OIC) project on site selection and science and with the US Ice Drilling Program (USIDP) on drilling technology. Development of other national and international collaborations is ongoing. The MYIC is a major deliverable of the Australian Antarctic Strategy and 20 year Action Plan (2016) and the Australian Antarctic Science Strategic Plan (2020).

The drilling site for MYIC will be in the Little Dome C region, ca. 30 km south of Dome Concordia Station. Measurements on the ice core will include the primary greenhouse gases and their isotopes, climate and biogeochemical proxies, radionuclides and volcanic markers. Drilling is expected to begin *at the earliest* in 2021/22 and will take place over multiple summer seasons with the aim of reaching the oldest ice in 2025/26. The duration of the project means that there is time to develop novel ideas, and to find ways to collaborate in the science, e.g. through measurements on the ice core, meteorological observations in the field, modelling related to ice, climate and carbon cycle dynamics and innovative outreach ideas.

Purpose of this EOI call

With this first call, our purpose is to begin building a diverse and inclusive community of researchers interested in contributing to and collaborating on MYIC science. The call recognises the AAD's commitments, through the Australian Antarctic Science Strategy, to support collaboration with recent and new Antarctic science participants and to support integrated and cross-disciplinary work. Specifically, we are calling for EOIs to participate in Working Groups dedicated to specific Work Packages (WPs) of the project. These are:

- *WP2: Site Selection: geophysics, ice flow and age modelling*.
- *WP3: Field Science:*
    - *3.1 drilling,*
    - *3.2 core handling, field measurements, ice core logging, cutting and transport.*
- *WP4: Science on Core:*
    - *4.1: impurities,*
    - *4.2: water isotopes,*
    - *4.3: gases,*
    - *4.4: dating,*
    - *4.5: physical properties.*
- *WP5: Science Linkages (e.g. climatology, paleoceanography, paleolimnology, geology, geophysical measurements and modelling of ice, climate and carbon cycle evolution, social sciences, history).*
- *WP6: Outreach.*

Obligations of Working Group members

- Meaningfully contribute to MYIC science and or MYIC science linkages (e.g. through measurements, modelling, interpretation, communication).
- Participate in Working Group meetings (frequency will vary as required), virtual attendance options provided.
- Participate in annual MYIC Science meetings, virtual attendance options provided.

- Help to define and deliver Work Package objectives.
- Adhere to FAIR data principles and the principles of the Australian Antarctic Program Data Policy in handling of MYIC data. Responsible and respectful interaction with media on MYIC and MYIC-linked science (A MYIC communications and media plan is in development).
- Accept that participation in Working Groups will always remain at the discretion of the Science Steering Committee of the MYIC project.

Opportunities for Working Group members

- Ability to contribute to and influence MYIC science and MYIC science linkages.
- Potential to develop and participate in linked research projects e.g. through support of the Australian Research Council and other research grant schemes.
- Potential access to ice samples or data streams from the MYIC.
- Participation in a major cross-disciplinary Antarctic science project; networking, collaboration building and co-authorship opportunities.