



SCAR Sub-Group

SG / SC

Person Responsible: Tas van Ommen

IPICS

PS

## XXXVII SCAR Delegates Meeting

India, September 2022

# International Partnership in Ice Core Sciences (IPICS)

## 2020-22 Report

### Summary

#### Report Author(s)

Tas van Ommen (Australia); Hubertus Fischer (Switzerland)

#### Summary of activities from 2020-22

**Implementing and developing the IPICS science plan:** Further progress has been made in the implementation of Oldest Ice core drillings in Antarctica with the goal to retrieve an ice core reaching back in time 1.5 Myr, i.e., across the Mid Pleistocene Transition. Several national projects have now been started and the US-NSF granted approved the Centre for Oldest Ice Explorations (COLDEX), which will enable targeted large-scale oldest ice activities. The oldest ice core drilling already started within the European Beyond EPICA - Oldest Ice project at Little Dome C. Australia's Oldest Ice project has selected a site at little Dome C approximately 5 km from the Beyond EPICA site, although planned pilot work onsite was not achieved due to logistical challenges and COVID. Delays in all national projects are to be expected, given the COVID situation. A new IPICS White paper has been added in March 2021 on the PAGES webpage laying out the role of ice-core sciences in the understanding of past and present ice flow.

**Capacity Building:** In 2021 the first term of the two IPICS chairs came to an end. Both chairs were elected for another 4-year term using an online process. Changes were made to the IPICS Steering Committee composition in 2021 with Kathleen Wendt elected as the new ICYS (the ice core early career research network) representative on the IPICS SC and Francisco Fernandoy replacing Fabrice Lambert as national representative of Chile.

Due to the COVID-19 pandemic the IPICS Open Science Conference and the ICYS Early Career Researcher (ECR) workshop in Crans Montana, Switzerland, was postponed again to October 2022. The conference will definitely take place in 2022 and abstract submission has closed with more than 280 abstracts received. All funders and partners (including PAGES) kindly agreed to extend their commitment into 2022. The conference will be also followed by joint special issue in *The Cryosphere* and *Climate of the Past*. The scientific exchange gap that opened up by this COVID-19 delay was filled most successfully by an online seminar organized by ICYS, the IPICS young scientist organization. The model of this seminar series utilizes the concept of back-on-back presentations of a senior scientist (outlining the history and larger picture) and an early-stage researchers (showing latest results); a

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format that was extremely well received by the audience and regularly draws an audience of 30-50 persons world-wide.

**Summary Budget 2021 to 2024**

	2021	2022	<b>2023</b>	<b>2024</b>
	Spent	Allocated	Request	Request
(US\$)	0	0	0	0
<i>Note a total \$7300 allocated over 2019-20 was deferred and held on a/c at PSI to support the delayed OSC in 2022. COVID delays have pushed the IPICS OSC schedule late by 2 years and we will seek to come back on the usual schedule for support in 2025-26 ahead of a 2026 OSC.</i>				

## Progress to date

### Sub-group Outcomes Summary

Sub-group	Activity/Outcome/Benefit/Achievement
IPICS	A new IPICS White paper has been added in March 2021 on the PAGES webpage laying out the role of ice-core sciences in the understanding of past and present ice flow.
IPICS	Communication and exchange initiative during COVID: Established a seminar series with the ICYS ECR group and IPICS which paired an ECR and senior researcher in virtual seminars.
IPICS	Significant developments in <i>implementing</i> IPICS science plans with major field activity resumed at Dome C with the Beyond EPICA Oldest Ice project, a partial deployment of Australian drilling and traverse capabilities toward oldest ice drilling, and the establishment of the US-NSF Centre for Oldest Ice Exploration (COLDEX).

### Sub-group Cash Flow

(Since previous report to Delegates in 2020)

Sub-group	Allocation	Amount spent		
		2020	2021	2022

## Future plans

### Planned activities in 2022 to 2024

Sub-group	Planned activity
IPICS	Open Science Conference, Crans Montana, Switzerland, October 2022 with associated workshops including Oldest Ice and ICYS.

### Planned use of funds for 2022 to 2024

Year (YYYY)	Purpose/Activity	Amount (in USD)	Contact Name	Contact Email
<b>Total</b>				

**Any additional detail on funds usage and desired results/outcomes**

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

2022:

2023:

2024:

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

2022:

2023:

2024:

## Membership

[Please note that IPICS does not hold demographic information on primary language]

### Leadership

Role	First Name	Last Name	Affiliation	Country	Primary Language	Email	Date Started
Co-chair	Hubertus	Fischer	Uni. Bern	Switzerland		Hubertus.Fischer@climae.unibe.ch	2017; 2021 renewed
Co-chair	Tas	van Ommen	Australian Antarctic Division	Australia	English	Tas.van.Ommen@aad.gov.au	2017; 2021 renewed

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

### Other members

First Name	Last Name	Affiliation	Country	Primary Language	Email
Nerilie	Abram	Australian National University	Australia		<a href="mailto:nerilie.abram@anu.edu.au">nerilie.abram@anu.edu.au</a>
Carlo	Barbante	IDPA-CNR, University Ca' Foscari, Venice	Italy		<a href="mailto:barbante@unive.it">barbante@unive.it</a>
Thomas	Bauska	British Antarctic Survey	UK		<a href="mailto:thausk@bas.ac.uk">thausk@bas.ac.uk</a>
Nancy	Bertler	Victoria University of Wellington	New Zealand		<a href="mailto:nancy.bertler@vuw.ac.nz">nancy.bertler@vuw.ac.nz</a>
Ed	Brook	Oregon State University	USA		<a href="mailto:brooke@geo.oregonstate.edu">brooke@geo.oregonstate.edu</a>
Alison	Criscitello	University of Alberta	Canada		<a href="mailto:crisciti@ualberta.ca">crisciti@ualberta.ca</a>
Dorthe	Dahl-Jensen	University of Copenhagen	Denmark		<a href="mailto:ddi@qfy.ku.dk">ddi@qfy.ku.dk</a>
Francisco	Fernandoy	Universidad Andrés Bello	Chile		<a href="mailto:Francisco.Fernandoy@unab.cl">Francisco.Fernandoy@unab.cl</a>
François	Fripiat	Université Libre de Bruxelles	Belgium		<a href="mailto:francois.fripiat@ulb.be">francois.fripiat@ulb.be</a>
Kumiko	Goto-Azuma	NIPR	Japan		<a href="mailto:kumiko@nipr.ac.jp">kumiko@nipr.ac.jp</a>
Margareta	Hansson	University of Stockholm	Sweden		<a href="mailto:margareta.hansson@natgeo.su.se">margareta.hansson@natgeo.su.se</a>
John	Higgins	Princeton University	USA		<a href="mailto:jahiqqin@princeton.edu">jahiqqin@princeton.edu</a>
Soon	Do Hur	Korea Polar Research Institute	Korea		<a href="mailto:sdhur@kopri.re.kr">sdhur@kopri.re.kr</a>
Elizabeth	Isaksson	Norsk Polarinstitut	Norway		<a href="mailto:elli@npolar.no">elli@npolar.no</a>
Jay	Johnson	Ice Coring and Drilling Services	USA		<a href="mailto:jay.johnson@ssec.wisc.edu">jay.johnson@ssec.wisc.edu</a>

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Kenji	Kawamura	NIPR	Japan	<a href="mailto:kawamura@nipr.ac.jp">kawamura@nipr.ac.jp</a>
Amaelle	Landais	LSCE, Saclay	France	<a href="mailto:amaelle.landais@lsce.ipsl.fr">amaelle.landais@lsce.ipsl.fr</a>
Vladimir	Lipenkov	Arctic and Antarctic Research Institute	Russia	<a href="mailto:lipenkov@aari.nw.ru">lipenkov@aari.nw.ru</a>
Thamban	Meloth	NCAOR	India	<a href="mailto:meloth@ncaor.gov.in">meloth@ncaor.gov.in</a>
Heinz	Miller	Alfred Wegener Institute	Germany	<a href="mailto:Heinz.Miller@awi.de">Heinz.Miller@awi.de</a>
Rob	Mulvaney	British Antarctic Survey	UK	<a href="mailto:RMU@bas.ac.uk">RMU@bas.ac.uk</a>
Joel	Savarino	Université Grenoble Alpes	France	<a href="mailto:joel.savarino@univ-grenoble-alpes.fr">joel.savarino@univ-grenoble-alpes.fr</a>
Elisabeth	Schlosser	University of Innsbruck	Austria	<a href="mailto:Elisabeth.Schlosser@uibk.ac.at">Elisabeth.Schlosser@uibk.ac.at</a>
Margit	Schwikowski	Paul Scherrer Institut	Switzerland	<a href="mailto:margit.schwikowski@psi.ch">margit.schwikowski@psi.ch</a>
Jeff	Severinghaus	Scripps Institute of Oceanography	USA	<a href="mailto:jseveringhaus@ucsd.edu">jseveringhaus@ucsd.edu</a>
Hou	Shugui	Nanjing University	China	<a href="mailto:shuqui@nju.edu.cn">shuqui@nju.edu.cn</a>
Jefferson	Simoes	Universidade Federal do Rio Grande do Sul - UFRGS	Brazil	<a href="mailto:jefferson.simoes@ufrgs.br">jefferson.simoes@ufrgs.br</a>
Barbara	Stenni	University of Venice	Italy	<a href="mailto:barbara.stenni@unive.it">barbara.stenni@unive.it</a>
Thomas	Stocker	University of Bern	Switzerland	<a href="mailto:stocker@climate.unibe.ch">stocker@climate.unibe.ch</a>
Bo	Sun	Polar Research Institute of China	China	<a href="mailto:sunbo@pric.org.cn">sunbo@pric.org.cn</a>
Elizabeth	Thomas	British Antarctic Survey	UK	<a href="mailto:lith@bas.ac.uk">lith@bas.ac.uk</a>
Thorsteinn	Thorsteinsson	Icelandic Met Office	Iceland	<a href="mailto:thor@vedur.is">thor@vedur.is</a>
Rein	Vaikmäe	Tallinn University of Technology	Estonia	<a href="mailto:Rein.Vaikmae@ttu.ee">Rein.Vaikmae@ttu.ee</a>
R.	Van de Wal	University of Utrecht	Netherlands	<a href="mailto:r.s.w.vandewal@phys.uu.nl">r.s.w.vandewal@phys.uu.nl</a>
Frank	Wilhelms	Alfred Wegener Institute	Germany	<a href="mailto:Frank.Wilhelms@awi.de">Frank.Wilhelms@awi.de</a>
*Kathleen	Wendt	Oregon State University	USA	<a href="mailto:kathleen.wendt@oregonstate.edu">kathleen.wendt@oregonstate.edu</a>
Eric	Wolff	University of Cambridge	UK	<a href="mailto:ew428@cam.ac.uk">ew428@cam.ac.uk</a>
Li	Yuansheng	Polar Research Institute of China	China	<a href="mailto:liyuansheng@pric.org.cn">liyuansheng@pric.org.cn</a>

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

## Additional information (optional)

### Notable Papers

1. Lilien, D. A., Steinhage, D., Taylor, D., Parrenin, F., Ritz, C., Mulvaney, R., Martín, C., Yan, J.-B., O'Neill, C., Frezzotti, M., Miller, H., Gogineni, P., Dahl-Jensen, D., and Eisen, O.: Brief communication: New radar constraints support presence of ice older than 1.5 Myr at Little Dome C, The Cryosphere, 15, 1881–1888, <https://doi.org/10.5194/tc-15-1881-2021>, 2021.

This work is part of the oldest ice special issue established by IPICS with The Cryosphere, Earth System Science Data and Climate of the Past. This particular paper provides underpinning of the age estimates for the Beyond EPICA Oldest Ice Project.

2. Sutter, J., Fischer, H., and Eisen, O.: Investigating the internal structure of the Antarctic ice sheet: the utility of isochrones for spatiotemporal ice-sheet model calibration, The Cryosphere, 15, 3839–3860, <https://doi.org/10.5194/tc-15-3839-2021>, 2021.

This work is part of the oldest ice special issue established by IPICS with The Cryosphere, Earth System Science Data and Climate of the Past. This particular paper presents a model observation intercomparison using ice sheet modelling, climate forcing from ice cores and observed isochrones for improved estimate of past ice-sheet changes.

3. Dahl-Jensen, D., Wilhelms, F., Weikusat, I., Eisen, O. and Pattyn, F. IPICS White Paper: Ice coring for ice dynamics. Online at [https://pastglobalchanges.org/sites/default/files/download/docs/working\\_groups/ipics/white-papers/IPICS\\_icedynamics.pdf](https://pastglobalchanges.org/sites/default/files/download/docs/working_groups/ipics/white-papers/IPICS_icedynamics.pdf)

This is the latest in a series of IPICS white papers summarizing IPICS' scientific objectives.

Other papers in the Oldest Ice special issue may be found at [https://tc.copernicus.org/articles/special\\_issue968.html](https://tc.copernicus.org/articles/special_issue968.html)

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

PAGES has supported travel grants (totalling CHF 10k) for early career scientists from developing programs/nations for the upcoming Open Science Conference. PAGES also supports IPICS with online hosting and external communications.

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

#### Within SCAR

1. INSTANT

#### Outside SCAR

1. PAGES

### **Outreach, communication and capacity-building activities**

Communication and exchange initiative during COVID: Established a seminar series with the ICYS ECR group and IPICS which paired an ECR and senior researcher in virtual seminars.

### **Contributions to equality, diversity, and inclusion (EDI)**

The SC national representatives of IPICS are conscious of the need to advance EDI actions and have recently supported broader representation into the SC through the mechanism of expert SC membership (i.e. members invited by virtue of subject matter expertise rather than national nominees).

## **SCAR fellowship reviewers**

<b>First Name</b>	<b>Last Name</b>	<b>Email</b>	<b>Principal Expertise</b>
<b>Tas</b>	van Ommen	As above	Ice core sciences, mass balance, glaciology
<b>Hubertus</b>	Fischer	As above	Ice core sciences, palaeoclimate generally

In addition, we suggest that other members of IPICS would be open to approaches by SCAR. Past co-chairs Eric Wolff and Ed Brook would be almost certain acceptances.