

INSTANT²⁰²³

Instabilities
and thresholds
in Antarctica



OGS
Istituto Nazionale
di Oceanografia
e di Geofisica
Sperimentale

CONFERENCE

11-14 Settembre 2023 / Trieste, Italy



www.instant2023.org

2nd circular
February 2023

About the conference

The INSTabilities & Thresholds in ANTArctica (INSTANT) Scientific Research Programme aims to quantify the Antarctic ice sheet contribution to **past and future sea-level change**, from improved understanding of interactions and feedbacks with **atmosphere, ocean and solid Earth**.

This will enable decision-makers to better **anticipate and assess the risk** in order to **manage and adapt** to sea-level rise and evaluate mitigation pathways.

INSTANT provides a co-ordinating framework aiming at augmenting other important ongoing international research initiatives and consortia.

This international conference is the **first major conference** of this SCAR Scientific Research Programme.

It aims to bring together researchers from across the **geological, geophysical, biological and social sciences** interested in bridging their fields, and to facilitate filling of present knowledge gaps surrounding the interactions between the **ocean, atmosphere, solid Earth and the Antarctic Ice Sheet (AIS) and their global consequences**.

The priority focus of the meeting will be on improving knowledge of the key rate-determining processes, instabilities and potential irreversibilities that affect the mass change of the Antarctic Ice Sheet and its contribution to past, present and future global sea-level.

We invite leading and emerging experts, as well as early career researchers (ECRs), from modellers to observationalists, to present and discuss the state of the science and critical knowledge gaps.

We also invite perspectives from the stakeholder and practitioner communities, and will discuss best practices in communication and engagement.



Conference format

MONDAY 11 – WEDNESDAY 13

Morning plenaries with invited keynotes and short talks

Afternoons with workshops and poster discussion

THURSDAY 14

Mini Symposium with plenary talks and panel discussions

Plenary sessions and topics

MONDAY 11

Advances and knowledge gaps in Atmosphere–Ocean–Antarctic Ice Sheet interactions

Topics:

- Processes driving surface mass balance (SMB) from paleo to present.
- Drivers of oceanic heat exchange across continental shelves up to ice shelf cavities from paleo to present.
- Present-day observations, glacial and geological records of Antarctic Circumpolar Current and Southern Hemisphere Westerly Wind, and interactions with Antarctica.
- Paleo to present sea ice and meltwater control on heat, carbon and salinity fluxes between the ocean and the atmosphere.
- Impact of freshwater fluxes on the interactions between the paleo to present evolution of Antarctica and global climate system.
- Paleo Antarctic ice sheet sensitivity to paleoclimatic fluctuations.
- Impact of Antarctic ice sheet instability, and atmosphere–ocean–sea ice interactions, on human activities in Antarctica and the Southern Ocean.

TUESDAY 12

Advances and knowledge gaps in Solid Earth–Antarctic Ice Sheet interactions

Topics:

- Sub-glacial properties and processes relevant for paleo to present Antarctic ice sheet dynamics
- Relative strength of the feedbacks between processes associated with glacial isostatic adjustment and ice dynamics
- Role of geological controls, erosion and sedimentation on ice sheet dynamics
- How do glaciological, geological and geophysical records inform us about the Antarctic ice sheets and regional to global landscape evolution?
- Recent advances in simulating the solid Earth's response to the growth and decay of the Antarctic ice sheets
- Solid Earth insights into Antarctica's contribution to past sea-level changes
- Deep time, dynamic earth, and unstable ice sheets: the challenges of communicating scientific complexity, risk, and uncertainty.

WEDNESDAY 13

Integrating knowledge for improved understanding of Antarctic Ice Sheet contribution to sea-level projections

Topics:

- Thresholds and tipping points in the stability of ice shelves and grounding line migration.
- Reducing uncertainty and 'shift' low confidence projections to medium confidence on the long-term high-end sea level projections out to 2300
- Feedbacks on the future evolution of the ice sheet and global climate system due to changes in freshwater flux
- The impact of carbon emissions scenarios on long-term response of the Antarctic Ice Sheets (i.e. beyond 2300).
- Influence of future regional Antarctica's ice sheet evolution on sea level fingerprints in the near and far field
- Changes in hazards along the Antarctic coastline due to near field changes in sea level (rise or fall), sea ice coverage, and wave climate.
- Public, media and political engagement with Antarctic ice melt and sea level rise.

THURSDAY 14

Mini Symposium – Melting ice and rising seas: telling stories, engaging audiences, and planning for the future

Topics:

- Application of sea level data and projections, challenges and improvements: How scientists, planners, engineers, and communities use sea level data and projections to plan for and adapt to the range of possible futures.
- Public understanding of, engagement with, and concerns about, melting Antarctic ice sheets and sea level rise.
- Effective science communication: methods and approaches people (including researchers, policymakers, journalists, storytellers) are using to incorporate and translate Antarctic ice sheet science, data, and projections (including low confidence high impact storylines) to ensure they are better understood and used.
- Indigenous perspectives on climate change, sea level rise, and associated impacts. How can Indigenous knowledge systems help us understand and adapt to change driven from Antarctica?
- Solid Earth insights into Antarctica's contribution to past sea-level changes.
- Public, media and political engagement with Antarctic ice melt and sea level rise.

Conference venue

Trieste Convention Center



TCC – Porto Vecchio

V.le Miramare, 24/2
34135 Trieste (TS)

Registration fee

Early bird (until June 1)	550 €
Regular	700 €
Late onsite	800 €
Master and Ph.D. students	300 €
Accompanying person**	200 €
<u>Conference Diner</u>	70 €

The registration fee includes:

- Registration to the conference
- & conference kit
- Lunch bags & coffee breaks
- Icebreaker (Sunday 10)

****Accompanying Person:** the fee includes lunch bags, coffee breaks and social diner

Travel grants

INSTANT Conference 2023 will offer a limited number of travel grants supported by **our sponsors** to participate in the conference in Trieste from 11-14 September.

Grants may cover **part or all** of the travel costs associated with participating in the conference. Applications will be considered only upon abstract submission.

Eligible categories:

- Master students & PhD candidates: Applicants should be currently enrolled in a Master or a PhD program
- ECR: Those who have obtained a PhD within 7 years of application. The 7-year period excludes career breaks due to parental leave, health issues, etc.
- Applicants from regions currently under-represented in INSTANT, e.g. South America, Asia, Africa

Abstract submission

The abstract submission deadline is **April 3**.

More info on the conference website

Accommodation

At this time of the year, Trieste is highly turistic. We **STRONGLY** recommend the participants to book their accommodation **as soon as possible**.

Beware that urban buses in Trieste stop quite early in the evening.

A list of accommodations is indicatively provided on the Conference website.

Other accommodations are available through usual booking website providers.

We are negotiating some low-rates accommodation with the University of Trieste for the **Ph.D. and Master students**.

News about those will be posted soon on the Conference website.

Social events

Costs not included in the Registration fee, except otherwise specified

Welcome Icebreaker (Sunday 10 September, free)

Conference diner (Wednesday 13 September)

Pre & Post-Conference Excursions in the Alps (glaciology and geomorphology) and in Croatia (past sea level changes).

In Trieste: visits to the local tide gauge and other Trieste Museums

Outdoor activities: snorkeling in the Miramare Marine Protected area; snorkeling over the Roman wharf remains in Muggia.

Scientific committee

Tim Naish – Antarctic Research Center – Victoria Univ. of Wellington NZ
Flo Colleoni – National Institute of Oceanography and Applied Geophysics ITA
Elisabeth Thomas – British Antarctic Survey UK
Alessandro Silvano – University of Southampton UK
Andrew Lloyd – Lamont-Doherty Earth Observatory USA
Alex Simms – University of California – Santa Barbara USA
Joanne Johnson – British Antarctic Survey UK
Richard Levy – GNS Science NZ
Sophie Crook-Nowiki – University of Buffalo USA
Rebecca Priestley – Centre for Science in Society – Victoria Univ. of Wellington NZ
Rob De Conto – University of Massachusetts Amherst USA
Volker Klemann – Helmholtz Centre Potsdam – GFZ DE
Roderik van de Wal – Utrecht University NL
Edward Gasson – University of Exeter UK
Stewart Jamieson – Durham University UK
Tobias Staal – University of Tasmania AU

Local organizing committee

Conference organization:

Flo Colleoni – OGS
Giulia Massolino – OGS
The Office
Divulgando Srl
Early Career Researcher Team
OGS Team

Excursions & Activities:

Renato R. Colucci – CNR ISP
Stefano Furlani – Univ. Trieste
Saul Ciriaco – Riserva Marina Protetta
Fabio Raicic – CNR ISMAR
Rino Lombardi – Museo della Bora
Circolo Sommozzatori Trieste

School laboratories

Immaginario Scientifico
Museo dell'Antartide



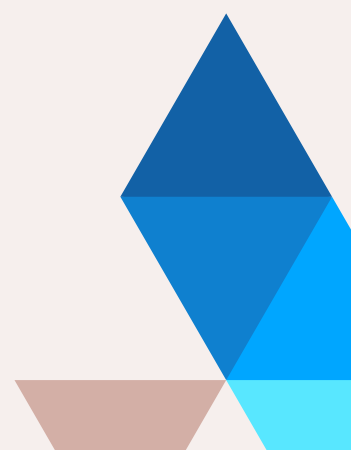
Conference road map

- Feb. 15** Registration & Abstract submission open
- Mar. 1** Travel Grants application opens
- April 1** Excursions registration opens
- April 3** Deadline for Abstract submission & Travel Grant application
- May 15** Notification of oral/poster acceptance & Travel Grants outcomes
- May 31** Last day for Early Bird registration fee

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- Sept. 09** Excursion and activities
 - Sept. 10** Excursions and activities
Side Meetings
Conference icebreaker

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- Sept. 11** Conference DAY 1
 - Sept. 13** Conference Diner
 - Sept. 14** Conference last day

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- Sept. 15-17** Post-conference excursion
 - Sept. 15-17** Side Meetings





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Contacts

About

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abstract submission,
accommodation and
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