



Welcome Dr Fausto Ferraccioli

Abstract Submission

The Open Science Conference theme is “Antarctic Science - Global Connections”. The draft program (<https://www.scarcomnap2020.org/program/>) and venue details (<https://www.scarcomnap2020.org/venues/>) are available to view on the SCAR COMNAP 2020 website (<http://www.scarcomnap2020.org/>).

General Information

- The **abstract submission deadline is 28 February 2020, 5pm AEST**
- You may submit as many abstracts as you like as presenting author, but if demand for oral presentation slots is high, you may subsequently be asked to limit the number of oral presentations you deliver
- Before uploading your abstract you will be asked to choose a session. Please read through the session descriptions (<https://www.scarcomnap2020.org/available-sessions/>) to find the best match
- Make sure to read the submission guidelines (<https://www.scarcomnap2020.org/call-for-abstracts/>) before starting the submission process

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Review Submission

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Below is a summary of your completed submission. Any sections that are still required to be completed are noted in red.

4D Antarctica: a new effort aims to help bridge the gap between Antarctic crust and lithosphere structure and geothermal heat flux

Seismology, satellite-magnetic and aeromagnetic data, and sparse MT provide the only available geophysical proxies for large parts of Antarctica’s Geothermal Heat Flux (GHF) due to the sparseness of direct measurements. However, these geophysical methods have yielded significantly different GHF estimates. This

restricts our knowledge of Antarctica's contrasting tectono-thermal provinces and their influence on subglacial hydrology and ice sheet dynamics.

For example, some models derived from aeromagnetic data predict remarkably high GHF in the interior of the West Antarctic Rift System (WARS), while other satellite magnetic and seismological models favour instead a significantly colder rift interior but higher GHF stretching from the Marie Byrd Land dome towards the Antarctic Peninsula, and beneath parts of the Transantarctic Mountains. Reconciling these differences in West Antarctica is imperative to better comprehend the degree to which the WARS influences the West Antarctic Ice Sheet, including thermal influences on GIA. Equally important, is quantifying geothermal heat flux variability in the generally colder but composite East Antarctic craton, especially beneath its giant marine-based basins.

Here we present a new ESA project- 4D Antarctica that aims to better connect international Antarctic crust and lithosphere studies with GHF, and assess its influence on subglacial hydrology by analysing and modelling recent satellite and airborne geophysical datasets. The state of the art, hypotheses to test, and methodological approaches for five key study areas, including the Amundsen Sea Embayment, the Wilkes Subglacial Basin and the Totten catchment, the Recovery and Pensacola-Pole Basins and the Gamburtsev Subglacial Mountains/East Antarctic Rift System are highlighted.

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