

30th Nov 2021 – Press Release for the starting of the first ice core drilling campaign of Beyond EPICA-Oldest Ice

Antarctica: Beyond EPICA exploring the climate of the past

The first ice core drilling campaign of Beyond EPICA-Oldest Ice is starting at Little Dome C, in Antarctica. This international research project is funded by the European Commission with 11 million euros and it is coordinated by the Institute of Polar Sciences of the CNR (National Research Council of Italy). The project aims to obtain information on the evolution of the temperatures and on the composition of the atmosphere 1.5 million years ago, by analysing the ice cores that will be extracted from the deep ice in Antarctica. These data will be invaluable for predicting future climate trends and for implementing mitigation strategies

The first ice core drilling campaign of Beyond EPICA-Oldest Ice is starting in Antarctica at the Little Dome C site. The aim of the project is to go back to 1.5 million years in time, by sampling and analysing the deep ice, which will reveal invaluable information on temperature and on the concentration of greenhouse gases in the past atmosphere. This project represents an unprecedented effort in paleoclimatology.

The project, which started in 2019, will last seven years and is funded by the European Commission with 11 million euros. It is coordinated by Carlo Barbante, director of the [Institute of Polar Sciences](#) of the National Research Council of Italy (CNR-ISP) and professor at Ca' Foscari University of Venice. The project involves twelve European and non-European international research institutes and will benefit from synergies with the French Polar Institute and the Italian National Antarctic Programme activities at the Italian-French Concordia Station.

This campaign, which will last until January 2022, will be conducted at Little Dome C, an area of 10 km² located 40 km from the Italian-French Concordia Station, on the east Antarctic plateau — one of the most extreme places on the Earth.

Glaciologists, engineers and technicians of the international team will work at an altitude of 3,233 metres above sea level, over 1,000 km away from the coast, and will experience average Antarctic summer temperatures of -35°C.

Once field camp installation is completed at Little Dome C, making the drilling site fully operational, the drilling system will be tested. While doing this, the team will also complete the construction of a temporary storage cave in the snow that will protect the first ice samples. The success of this campaign is crucial to the outcome of the entire project. There will be two decisive moments for the history of climate science: the first, will be drilling the pilot hole from which the ice core will be extracted; the second, will be the extraction of the first layers of ice by the end of this campaign. The team hopes to achieve an average coring rate of 170 m per week.

“During our previous EPICA (European Project for Ice Coring in Antarctica) project, which ended in 2008, we managed to extract and analyse an 800,000-year-old ice core. Now we are trying to travel back further in time: because if we are to gain a correct perspective on what the world is currently experiencing with climate change, and adopt suitable mitigating strategies, we must look back even further — which is what we are trying to do in Antarctica with Beyond EPICA,” says Carlo Barbante, who is involved on site in the campaign.

The climate and the environmental history of our planet is archived in the ice: it can reveal information from centuries and even hundreds of millennia ago on the evolution of temperature and on the composition of the atmosphere.

Researchers will therefore be able to assess the content of greenhouse gases, such as methane and carbon dioxide, in the atmosphere of the past. Then, they will be able to link these findings with the evolution of temperature.

“We believe this ice core will give us information on the climate of the past and on the greenhouse gases that were in the atmosphere during the Mid-Pleistocene Transition (MPT), which happened between 900,000 and 1.2 million years ago,” concludes Barbante. “During this transition, climate periodicity between ice ages changed from 41,000 to 100,000 years: the reason why this happened is the mystery we hope to solve.”

The other scientists on site will be Thomas Stocker, Remo Walther, and Jakob Schwander from the University of Bern. The drillers will be Philippe Possenti, Gregory Teste, Olivier Alemany, and Romain Duphil of the University of Grenoble-Alpes, and Matthias Hüther of the Alfred Wegener Institute. Logistics and telecommunications will be managed by Michele Scalet, Saverio Panichi, Giacomo Bonanno of Enea and Calogero Monaco of the Genio Guastatori regiment.

To learn more about Beyond EPICA Oldest Ice Core: https://linktr.ee/BeyondEpica_OldestIce.

Photos

<https://www.beyondepica.eu/en/gallery/>

Video

https://www.youtube.com/watch?v=ls_inIwtAZI

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In brief

What: Start of an ice core drilling campaign for the European project Beyond EPICA-Oldest Ice

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