

## Little Dome C

Beyond EPICA Oldest Ice Drilling Site (75.29917 °S, 122.44516 °E)

Situation Report 25, 21. December 2023

### Personnel @LDC:

Saverio Panichi (ENEA, Camp Leader), Olivier Alemany (CNRS), Philippe Possenti (CNRS), Matthias Hüther (AWI), Rémi Dallmayr (AWI), Gunther Lawer (AWI), Johannes Lemburg (AWI), Andrea Ceinini (ENEA), Federico Scoto (CNR), Tamara Gerber (UCPH), Iben Koldtoft (UCPH), Julien Westhoff (UCPH), James Veale (BAS), Michaela Mühl (UNIB), Fortunat Joos (UNIB), and Inès Gay (IPEV)

Weather at LDC 5 pm: sunny and nice; temp.: -21°C; wind: 1.9 m/s



Today we began processing this year's ice cores and we are back in the brittle zone. On the drilling side, we had a few difficult runs last night, with the pump full of chips, and quite high motor intensities. We therefore decided to carry out two filter runs and changed the drill head by fitting sharper cutting tools. After these filtering runs and changing cutters, we drilled more stable around 4.5 meters again.

In the same time, we send 45 core boxes to Concordia with processed cores.

What we did today at LDC:

- We made two filtration runs;
- We continued to drill in shifts;
- We started processing ice drilled this year. As this is the brittle zone\*, progress is slightly slower than before. Nevertheless, we processed 36m.
- We continued drilling with the IGE's dry shallow drill;

\* in the brittle zone ice tends to “explode” during cutting due to high internal bubble pressure. Processing is therefore much slower, as the ice core is treated more carefully.



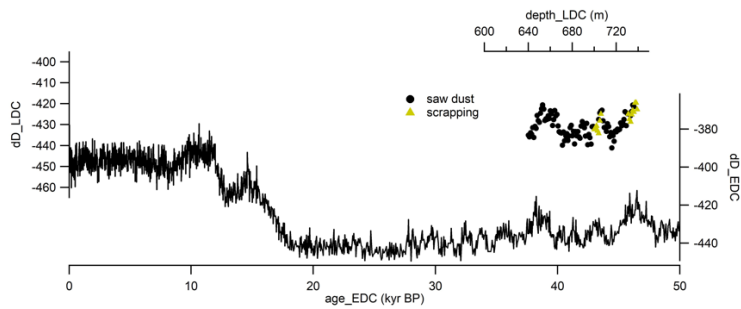


Figure 1: first water isotopes results : graph from A. Landais

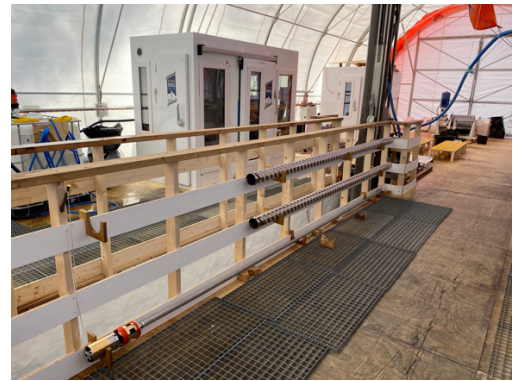


Figure 2: Our spare drill storage. Photo : O. Alemany

End of day statistics at 19h30

**Driller's depth:** 1114.38 m, in between 19h30 yesterday and today 19h30 we made 5 proper drilling runs (drillers delta depth: 3.32, 1;36, 3.73, 4.42, 4.47) for a total length of 17.3 meters (drillers delta depth);

**Logger's depth:** 1116.31 m

**Current processing depth:** 842 m, daily total: 36 m, season total: 622 m.

OA, MH, JW, and SP, 21.12.2023

