

## Little Dome C

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

Situation Report 15, 11. 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

Meteo at DC 5 pm: temp.: -15.3 C ; wind: 4 knts



Today we continued processing the core drilled last year – and we have now finished processing 600m to 800m, i.e. the upper part of the brittle zone. We transported 26 boxes containing the ice we had just processed to Concordia for storage in the balloon cave. Half of the boxes are awaiting shipment to Europe, while the other half will stay in Antarctica for future use. We also took the opportunity to transport equipment to LDC that had just been delivered by the traverse from DDU.

About drilling, we are still trying to recover lost plastic pieces and screws from the bottom of the bore hole. After using Arnold yesterday, we tried to drill a core with the classic head (with step cutters), without much success. We then set up a head with conventional cutters, and noticed that the head started to "engage", but after a few seconds we lost contact again. So we decided to set up the motor section of the Danish drill, hoping to get a little more power or torque. Lemmi just finished to machine a modified bearing section, allowing us to connect this Danish motor section to the AWI three meters drill.

What we did today at LDC:

- We finished machining a piece which will allow us to attached the Danish drill motor section to the AWI drill;
- We transported 26 ice core boxes to the Concordia balloon trench and brought back some equipment from the traverse to LDC;
- We are still trying to fish the pieces (some part of plastic spiral from the core barrel, and some screws) out of the borehole;
- We set up the Danish drill motor section on the 3 meters AWI drill;
- We continued processing the last year`s core and finished another 37 m in shifts. We will now continue with processing the ice from 222m to 608m, which is left unprocessed from last year;





Figure 1: The modified bearing section: photo : O. Alemany



Figure 2: Iben and Matthias setting up the Danish motor section: photo O. Alemany

### End of day statistics at 20h

Driller's depth: 806.5 m

Logger's depth: 809.99 m

Current processing depth: 806 m, daily total: 37 m, season total: 198 m.

OA, MH, JW, and SP, 10.12.2023

