

Little Dome C

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

Situation Report 58, 13. January 2025

Personnel @LDC:

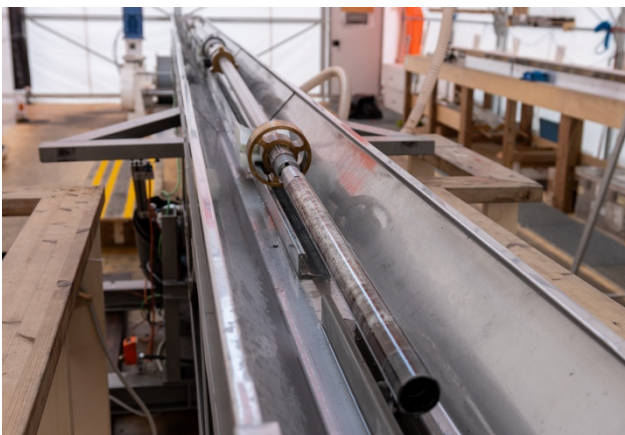
Lisa Ardoin (ULB), Marie Bouchet (CNRS), Ailsa Chung (CNRS), Danilo Collino (ENEA, Camp Leader), Inès Gay (IPEV), Matthias Hüther (AWI, Chief Driller), Manuela Krebs (AWI), Gunther Lawer (AWI), Johannes Lemburg (AWI), Martin Leonhardt (AWI), Michele Scalet (ENEA), Federico Scoto (CNR), Barbara Seth (UNIBE), Lison Soussaintjean (UNIBE), Julien Westhoff (UCPH, Chief Scientist), Frank Wilhelms (AWI, PI in the field)

Weather at LDC 5 pm: sunny

Weather at DC 5 pm: temperature: -28.5°C, wind 4 knts

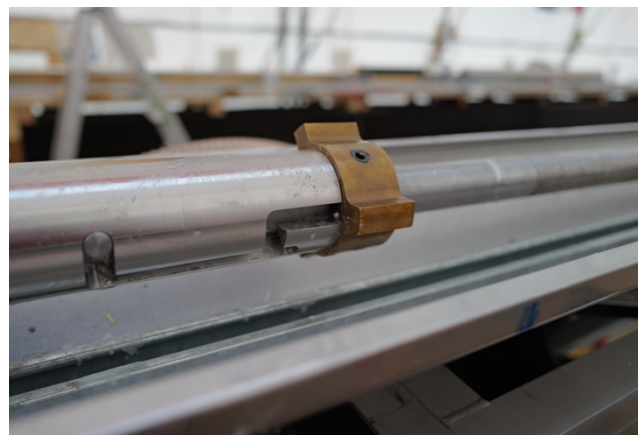


We finished the run with the rock drill and did 4 fishing runs between 19:30 yesterday and 19:30 today. To great surprise, the rock drill came up to the surface without the three lowermost parts, the outer barrel, the reamer, and the drill bit. The lowermost connection to the tubing was also partly unscrewed. To date we have not found an explanation for why this happened. The electronics were not working properly, but in the log files there is no backward turning documented. Backward turning would be necessary to unscrew the threads and release the mentioned parts. For an immediate recovery attempt we manufactured a tool with 7 small magnets, which was not successful. It seemed 3 magnets had crapped the piece, but lost it again on the way up. The next morning, we did another run with the same tool and the centering ring of the rock drill, while we manufactured a fishing tool with a conical guide and locking core catchers from the ice core drill. The rock drill has a safety joint, so-called super-banger, that can exert additional hammering action and be completely disengaged when the drill is blocked in the hole. The super-banger disengaged and during this run the entire rock drill remained in the hole. After one unsuccessful attempt, we could engage the coupling in the next run and the drill string was back on the surface during the afternoon. All ice cores have been processed for this season. The PICARRO team continued processing samples at the maximum pace. On the surface, the reference bamboo poles of the 50 m trench were prepared and later during the day sampling started.



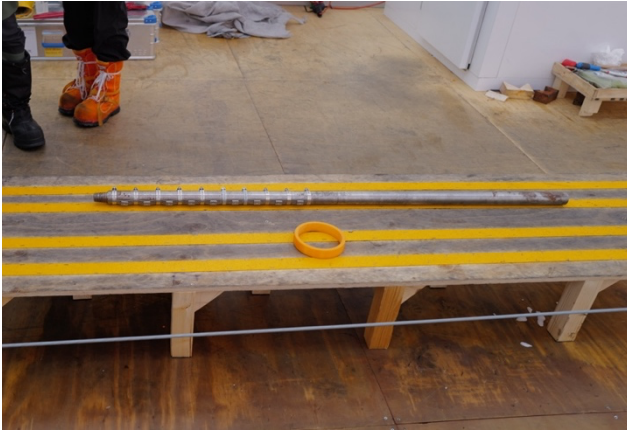
How the rockdrill came to the surface, just the inner core barrel, the outer barrel, reamer and drill head are lost.

Credit: G. Lawer ©PNRA/IPEV

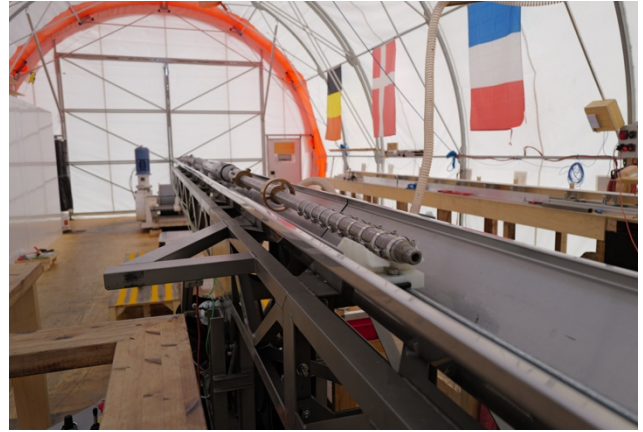


Partly iced super-banger coupling, which did not prevent from total disengagement. Credit: F. Wilhelms ©PNRA/IPEV

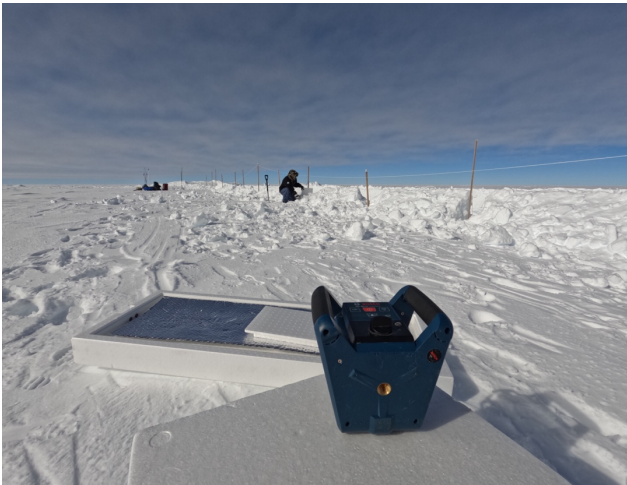




The fishing tool with the seven magnets.
Credit: F. Wilhelms ©PNRA/IPEV



The fishing tool with the seven magnets and the centering ring on the tower. Credit: F. Wilhelms ©PNRA/IPEV



Setting up, aligning, and levelling the bamboo poles for the surface reference of the 50m trench.
Credit: J. Westhoff ©PNRA/IPEV



Relabeling the bags to be used for sampling the 50m trench.
Credit: J. Westhoff ©PNRA/IPEV

End of day statistics at 19:30

- Driller's depth: 2804.69 m;
- we finished the rock drill run and did 4 fishing runs between 19:30 yesterday and 19h30 today. The outcome of these runs was: rock drill came up without outer barrel, reamer and drill head; no retrieval with a tool of 7 magnets; no retrieval with the same tool and centering ring, super-banger disengaged, drill-string in the hole; unsuccessfully tried to engage super-banger; successfully engaged super-banger and retrieved drill-string;
- Logger's depth: 2799.83 m (preliminary);
- Current processing depth: 2795 m; daily total: 0 m; season total: 1185 m.

FW, JW, MH, 13.01.2025

