

Little Dome C

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

Situation Report #20; Friday 23 December 2022

Personnel @LDC:

Saverio Panichi (ENEA, Camp Leader), Frank Wilhelms (AWI, Chief Driller), Robert Mulvaney (BAS, Chief Scientist), Giuditta Celli (ENEA), Romily Harris Stuart (LSCE), Matthias Hühner (AWI), Gunther Lawer (AWI), Johannes Lemburg (AWI), Martin Leonhardt (AWI), Michele Scalet (ENEA), Julian Westhoff (NBI), Andrea de Vito (ENEA)

Personnel @DC:

Marcus Grimmer (UNIBE), Florian Krauss (UNIBE)

Weather at LDC 5 pm: cloudy, 7/8 Stratus, 4 knots

Meteo at DC 5 pm: T = -36°C, Wind = SW, 5 knots, Wind Chill T = -48°C



Drilling ran even better today, with 12 runs of the drill producing more than 2m of core on each drop, giving us a daily total of 30.84 m logged by the drillers. All cores were unbroken, which is always a bonus if you are the one logging them or, later still, processing and measuring them!



Robert measuring a newly drilled, unbroken, 2.93 m long core on the logging bench. 'Logging' records details of the ice cores drilled with any damage noted on a Danish-designed core logging program on the laptop in the left of the photo. The program prompts for the measurements that must be recorded, and catches any mistakes made! Cores must be matched at the core break from one run to the next, and marks made in pencil on the ice where the long lengths must be cut into 1.0 m long 'bag' sections for transport onwards. We also mark on the ice the direction of the top of the core, and the bag number. Above the core is a roll of paper used for drying off the drilling fluid from the surface of the ice. To the right of the photo are racks with two hollow shaft sections (top and bottom) and an outer barrel (middle rack). On the floor, with green spirals, is the Danish core barrel. (Photo: Harris Stuart, Leica SL2, 16mm, 1/200, f11, ISO400)





Romilly prepares to cut the core at the 1.0 m mark ready for bagging and onwards transport. A circular saw with a diamond tipped tungsten carbide blade readily cuts the ice. (Interesting fact – the blade cuts away 2.2 mm of the ice; by the time we have drilled to the full depth of the ice sheet here, nearly 6 m of ice will have been lost to the saw blade.) Marks on the core show the bag number (245 in this case), and an arrow pointing to the top of the core. After cutting, the core is packed into polythene sleeve, pre-printed with the bag number and the direction to the top (ice core scientists’ maxim – ‘never turn a core’). After adding a paper tag with the bag number in the sleeve with the ice, the end is folded over and stapled, and another tag with the bag number stapled to the fold. (Photo: Mulvaney, Leica SL2, 27mm, 1/200, f8, ISO400)

End of day statistics:

Individual runs of the drill were recorded as: 2.03, 2.61, 2.86, 2.93, 2.61, 2.46, 2.79, 2.60, 2.83, 2.35, 2.05, 2.39 m

Drillers’ depth: 291.47 m; daily total 30.84 m

Loggers’ depth: 296.88 m; daily total 31.01 m

Processors’ depth: 128.0 m; daily total 0.0 m (planned power down to processing laboratory)

RM and FW, 24.12.2022

