

Little Dome C

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

Situation Report #17; Sunday 19 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 Hüther (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: sunny, 4-6 knots

Meteo at DC 5 pm: T = -35°C, Wind = W, 10 knots, Wind Chill T = -49°C



This is the first of a more explanatory daily SitRep (Situation Report) brought to you from the BE-OIC drilling camp at Little Dome C, Antarctica. Up until this point in the season, lack of good satellite communications has meant that we could only report by WhatsApp, so the reports have been a little terse, aimed as they were at passing on the main engineering news from the camp. But we had an upgrade to the satellite system during Sunday (thanks to the team from Concordia Station), and we are now able to send email reports.

Following the failure of the older motor section at the weekend, Matthias and the AWI engineers worked long hours to bring the new AWI motor section alive. Fitted to the drill on Monday morning, the first run with the motor section, driving the Danish barrels and backed up by the AWI anti-torque section, worked as expected, and we brought up a short core on the first test run. For the remainder of the day, we successfully drilled several beautiful cores of around 2.5m in length.



Matthias and Frank with the first core drilled with the new AWI motor system, with Copenhagen outer and core barrels and AWI anti-torque system. (Photo: Mulvaney, Leica SL2, 34mm, 1/60, f11, ISO250)



We had visitors to our camp from Concordia Station (Vito, Armand, Luca and Remy), who arrived mid-morning via the Arctic Truck. Normal transport between Little Dome C and Concordia is either by Pisten Bully and Challenger tractor (pulling a cargo sledge), which takes about three hours. However, for this season, there is also a flat-bed truck with passenger space for four, riding on six balloon tyres that can make the journey in about 40 minutes. Our visitors arrived just in time to see the drill return to the surface with a perfect 2.5m core. Their primary purpose for the visit was to install the new satellite system, which came online and gave us the higher bandwidth communications that allows limited access to email and the internet.

Our visitors stayed for lunch (smoked salmon, pasta, parmigiana, a selection of vegetables).



Lunchtime with the visitors from Concordia Station. (Photo: Mulvaney, Leica SL2S, 24mm, 1/50, f5.0, ISO200)





The Arctic truck about to depart from Little Dome C camp to Concordia Station. (Photo: Mulvaney, Leica SL2S, 59mm, 1/640, f5.6, ISO100)

End of day statistics:

Drillers' depth:	198.42 m;	daily total 17.08 m
Loggers' depth:	204.21 m;	daily total 17.24 m
Processors' depth:	80.0 m;	daily total 24.0 m

An explanation of the daily statistics. The daily totals are the difference in depth logged by either the drillers in the borehole, or the loggers measuring the cores recovered. These can differ slightly if the core breaks at the bottom of the hole, or sometimes just above. The drillers' depth and loggers' depth differ due to the zero point on the drill being the drill head, which hangs about 6m below the snow surface in the inclined trench, while the loggers' depth is measured as the total length of core logged from the surface. Cores are transported to Concordia Station where Florian and Markus carry out the first instrumental physical measurements and cut some of the cores lengthways to transport on to Europe, while leaving the bulk of the ice stored below the surface at around -50°C at Concordia Station.

RM and FW, 20.12.2022

