

Little Dome C

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

Situation Report #47, 17. January 2022

Personnel @LDC:

Saverio Panichi (ENEA, Camp Leader), Carlo Barbante (ISP-CNR, PI), Calogero Monaco (ENEA), Michele Scalet (ENEA), Jakob Schwander (unibe), Thomas Stocker (unibe), Remo Walther (unibe)

Weather at LDC: sunny, low wind

Meteo at DC 6 pm: T = -30°C, Wind = 5 knt, Wind Chill T = -38°C



With the cargo, also Matthias left for Dome C, today. We have taken in all the flags and lined them up in due order in the drilling tent. Next year, a new set of flags will mark the entry to Little Dome C camp. Several activities towards camp closure were continued.



Matthias bidding farewell until the season 2022/2023. Photo: C. Barbante (Leica SL2, 31 mm, f 4, 1/400 s, ISO-100).





BEOIC drilling tent ready for hibernation until December 2022. Photo: C. Barbante (Leica SL2-S, 16 mm, f 22, 1/50 s, ISO-400).

At RADIX, we made the last attempts to drill further. At 322 m we had to stop as the drill would no longer attack the ice, or the flow gauge was clogged which prevented enough fluid to reach the motor. In the afternoon we carried out a final logging run of the RADIX borehole.

Although we have not reached the ultimate goal, we remember a few important achievements, such as efficient firn drilling to 107 m and placement of a fluid-tight casing, much improved Moineau pump design which delivered enough torque to cut cold ice at  $-55^{\circ}\text{C}$ , a new tungsten-based RADIX drill tube which was much stiffer and provided more weight, first ever deviation drilling of RADIX when an unacceptable curvature of borehole occurred, and reliable borehole logging with our custom-built sensor registering 3D acceleration, 3D magnetic field, and temperature. Naturally, some important challenges remain that need to be addressed in the future.

RADIX drilling depth: 322.0 m.

TS & CB, 17.1.2022

