Manuela Krebs mjkrabbe@gmail.com

Ice Core Handling

Oral presentation

The BELDC ice core processing work flow

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| Manuela Krebs1,2, Maria Hörhold1, Johannes Freitag1, Denise Diekstall1, Elisa Conrad1, Julien Westhoff3, Iben Koldtoft3, Gianluca Bianchi Fasani4, Riccardo Scipinotti4, Pierre Goicoetchea5, Gregory Tran5, Coline Marciau5, Gregory Teste7, Franco Coren8, Hubertus Fischer6, Amaelle Landais9, Dorthe Dahl Jensen3, Frank Wilhelms1,2 | 1Alfred-Wegener-Institut Helmholtz Zentrum für Polar.- und Meeresforschung, Bremerhaven, GermanyGeorg-August-Universität, Geowissenschaftliches Zentrum, Geochemie und Isotopengeologie, Göttingen, Germany3Section for the Physics of Ice, Climate and Earth, Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark4ENEA-National Agency for New Technologies, Energy and Sustainable Economic Development, Casaccia, RM, Italy5Institut polaire français Paul-Emile Victor, Technopôle Brest-Iroise, Plouzané, France6Climate and Environmental Physics, Physics Institute, Oeschger Centre for Climate Change Research, University of Bern, Bern, Switzerland7Université Grenoble Alpes, CNRS, IRD, Grenoble INP, IGE, et UGA, Institut des Géosciences de l'Environnement, Grenoble, France8National Institute of Oceanography and Applied Geophysics – OGS, Sgonico, TS, Italy9Laboratoire des Sciences du Climat et de l'Environnement, LSCE/IPSL, CEA-CNRS-UVSQ, Université Paris-Saclay, Gif-sur-Yvette, France |

This presentation provides an overview of the ice core workflow – from logging and processing in the field, (long-term) storage at Concordia station, transport to the Antarctic coast, shipping at temperatures below –50°C, storage and handling in the curational ice core stores in Europe to running a dedicated processing in the ice laboratories at AWI. We will focus on the infrastructure and procedures involved in the processing.

Once the ice core has been drilled at Little Dome C, it is embarked on a long journey until it is analysed in the participating laboratories. In the remote field sites, the ice cores are logged, i.e. measured and cut. Then, they go through initial processing steps and measurements, before being securely packed in special insulated boxes and shipped.

We addressed the cold chain carefully, starting from re-designed custom ice core boxes, bespoke reefer containers to cross the equator on board RV Laura bassi, and navigating from New Zealand to Italy around Cape Horn, to avoid the Suez Canal for safety.

An archive piece is partly stored at Concordia station, while the aliquots are moved by Basler BT-67 and traverse to the coast.

Once the samples arrive at the Alfred-Wegener-Institut (AWI) the main processing begins. There are multiple cold rooms available at AWI for different purposes of ice core handling. The large ice laboratory is set up for the processing with different kinds of saws for cutting the ice into the required sub-samples.