

# **A NEW ALPINE ICE CORE RECOVERED FOR LONG TERM CLIMATE RECONSTRUCTIONS**

After a series of substantial delays ALP-IMP was eventually successful in drilling a new ice core to bedrock of Colle Gnifetti (Monte Rosa summit range) as specifically dedicated to the reconstruction of long-term climate records. Extensive efforts were made prospecting in advance the particularly appropriate drill position for this purpose which were based on various GPR (ground penetrating radar) campaigns performed mostly by the Geographical Institute of University Zürich. We decided to drill in that part of Colle Gnifetti, which experiences a relatively low net snow accumulation at a reasonable surface and bedrock topography, but offering as well a useful up stream flow line. As illustrated by Figure 1, the Colle Gnifetti drill place, meeting more or less all these terms at the same time was found to be rather exposed to the south-east ice cliff. Thus the upper part of this particular site will certainly disappear not too far in the future in an ice-slide going down by 2500 m or so to the Italian Anza valley.

At the real drilling and supplementary sampling campaign, colleagues and friends from Physical Institute (University Berne), LGGE (CRNS-Grenoble), Geographical Institute (University Zürich), VAW (ETH Zürich) and from IUP (University Heidelberg) participated over one week in August/September 2005. For illustrations of the activities, see respective gallery. During that time a 62 m core down to bedrock as well as a supplementary 26 m one could be recovered. Thereby an excellent core quality was obtained throughout, using the drill of the Physical Institute in Berne, which has been updated to 4-inches core diameter.

First dating attempts revealed indeed a quite low annual surface accumulation not more than ca. 15 cm water, which would be comparable to the minimum values seen in Greenland. Hence for glaciological reasons, a much better time resolution as well as a less disturbed stratigraphy may be expected for the relatively old part of this core (i.e. the near bedrock section going back into medieval times and beyond).

In this context, continuous analyses of water isotopomers, which are currently on the way will specifically supplement the already accomplished array of isotope records, obtained from the Monte Rosa and Mt. Blanc drilling areas.

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Figure 1: Position of the 2005 drill camp close to ice cliff at top of the eastern rock face of the Monte Rosa massif

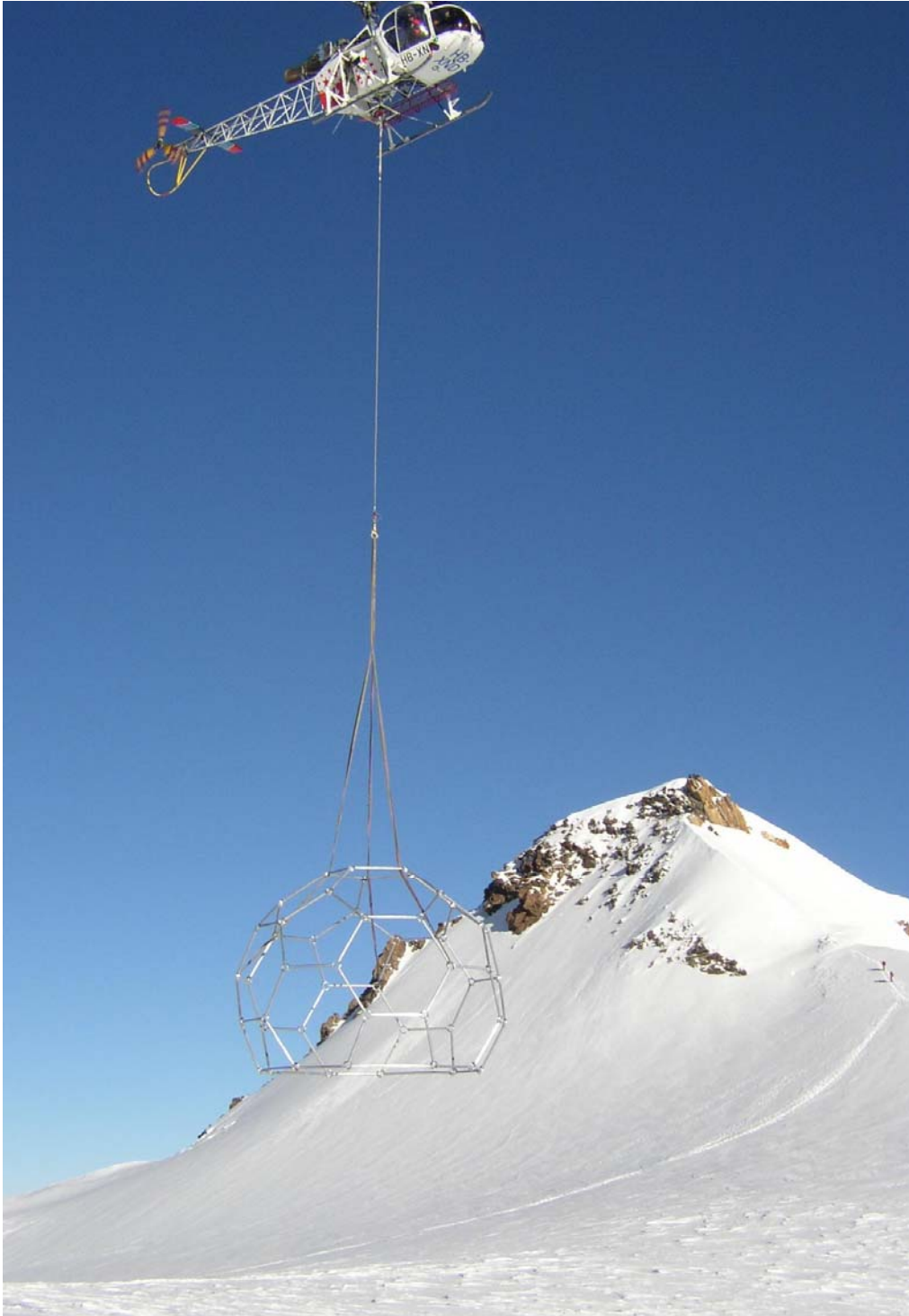


Figure 2: Dome of drill shelter approaching to land at drill site by helicopter



Figure 3: Panoramic view on drill dome, Zumstein (4563 m asl) and Dufour-Spitze (4634 m asl)



Figure 4: View on drill of the Physical Institute Berne placed within the drill dome



Figure 5: Core barrel still filled with drilled ice



Figure 6: Processing of a crumbly firn core from near the surface