

Research activities at Dome C

Technical and logistic aspects

This document gives information concerning technical and logistical aspects that can be adequately considered in the preparation of the research proposal for activities in the Dome C area.

1. Preliminary conditions

The Antarctic plateau where the Concordia Station is located is characterised by a particularly hostile environment and total isolation.

The research teams must constantly bear in mind the need for keeping to a minimum the weight and volume of transported equipment, the length of stay on the site, the consumption of water and energy for the experiment, as well as the production of waste.

2. Site access

Dome C can be reached by plane from the Italian coastal station (Mario Zucchelli) after a 5 hours flight, or by ground transportation from the French coastal station (Dumont d'Urville) necessitating a two weeks long oversnow traverse.

3. Equipment transportation

The equipment must also be compatible with the climatic conditions at Dome C. Should the research activity call for the development, or special tuning, of equipment, preliminary tests should be performed in the home lab and/or at the Antarctic coastal bases, and their results evaluated, prior to transporting the apparatus out to the plateau. The transportation of the equipment can also be an issue, as only a few small and fragile pieces of equipment will be airlifted. For the ground transportation, it will be necessary to pack the equipment so as to protect it from jolts, vibration, thermal shocks and low temperature. The equipment should also be able to resist the climatic conditions when in operation as well as during storage.

If the equipment cannot be serviced by a well-trained technician, each piece of equipment should be accompanied by assembly instructions, all the relative technical diagrams as well as instruction manuals. A sufficient number of spare parts must be included in the shipment.

4. Preliminary checks

Among the many issues requiring careful consideration, special attention should be paid to the following:

- method of setting up of instruments on the plateau;
- technical and human resources required;
- necessary fluids;
- electrical connections and power requirements.

These and other issues related to the progress of the campaigns will be preliminarily discussed and agreed with the Concordia technical and logistic group. Based on the duration of the experiment, the availability of accommodation and the constraints of transporting equipment and personnel, the *Directoire* will consult with the scientific leader and thereupon propose a time schedule for carrying out the activity.

5. Computer and Telecommunication Hook ups

A common computer facility for general use is not envisaged at Concordia Station with the result that the necessary data acquisition and processing equipment must be included in the scientific package of a preliminary campaign. A satellite link will be set in place and will initially permit only fax and voice telephone connections. Access conditions for these facilities will be the object of a specific note.

6. Campaign report and publications

Within three months of completing the Antarctic activities the project leader must produce a campaign report illustrating the operational plans actually adopted on site, the data collected and their initial quality, any significant problems encountered, and offering possible proposals and suggestions for future activities.