

THE STABLEDC FIELD EXPERIMENT AND RMO MEASUREMENTS AT CONCORDIA, DOME C – ANTARCTICA

S. Argentini¹, G. Dargaud², U. Bonafé¹, A. Conidi¹, G. Didonfrancesco⁵, G. Mastrantonio¹, M. M. Nardino³, A. A. Pellegrini², I. Pietroni⁴, A. Viola¹, M. Frezzotti⁵

¹ISAC-CNR, Roma, Italy, ²PNRA SCrl., C.R. Casaccia, Roma, Italy, ³IBIMET-CNR, Bologna, Italy, ⁴Università di Siena, Siena, Italy, ⁵ENEA, C.R. Casaccia, Roma, Italy

The ice sheets in Antarctica provide extremely uniform surfaces over which point surface measurements are representative of a wide area. A large atmospheric field experiment STABLEDC (Study of the STABLE boundary layer at Dome C) was held at the French-Italian station of Concordia located on the Antarctic plateau at Dome C (Lat 75° 06.06 S, Long 123° 20.74 E, 3250 m a.s.l.) during 2004-2005. The RMO (Routine Meteorological Observation) programme was started during the same period. This was the first overwintering at Concordia. The aim of the field experiment is to study the processes occurring in the long-lived stable, and the weak convective atmospheric boundary layers, observed during winter and summer respectively, and to collect the relevant parameters for the atmospheric models. We used both in situ (temperature, humidity, wind) and ground based remote sensing instruments (temperature, wind, and aerosol profiles) to monitor the meteorological parameters. RMO provided standard surface and upper-air (radiosounding) data. The energy and radiative balance measurements, were also part of the experimental activity. Datasets from both STABLEDC and RMO were analysed jointly. A brief illustration of the field experiment, the instrumentation utilised and the problems encountered during the campaign due to the very severe temperature conditions, are presented. Some preliminary results regarding the wind and temperature statistics and the time behaviour of the meteorological parameters, are also shown.