

EQUIPMENT FOR ASTROCLIMATE STUDIES IN LARSEMANN HILLS, EAST ANTARCTICA

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The Romanian equipment will be used to study the atmosphere characteristics in Larsemann Hills, such as: the physical and chemical structure, radiation absorption, atmospheric emissions, atmospheric refraction, diffraction and scattering, turbulence, transparency and the image quality.

The meteorological conditions to consider in the calculation formulae of the equipment are related to the temperature variations, wind direction, humidity, nebulosity (frequency of clear days) and the other meteorological parameters measured in the existing stations in Larsemann Hills, data collected by us in the last three years.

Our observations can be performed at short zenith distances and during a long time, that is long term observation. The construction of the astronomic module considers all these aspects by using some highly sensitive detectors.

The meteorological observations at the soil level in Larsemann Hills will be also correlated with the space ones.

During the Romanian Expedition at Law-Racovita Base (31.12. 2005-14.03.2006) the Romanian equipment location site on the top a hill, and the GPS coordinates were established in cooperation with the Chinese party specialists. There have been studied the connecting solutions to the Zhong Shan Station, the electric power supply, the location of a computer inside the station for the satellite data transmission. There have been considered the direct visibility to the station, the possible radio link and the selection of a location that should avoid the influence of the parasite light sources at the station during the polar night. The local access and services solutions were identified, as well as the parameters and the clearance gauges for local, terrestrial and sea transport.

This equipment is the object of a project financed by the Romanian Ministry of Education and Research and will be commissioned in 2008.