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Microstructural Studies on Snow from Dome Concordia (Antarctica)

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Snow structure and its evolution as a function of depth is an important parameter in several fields of glaciology. In particular it influences the snow thermal properties, the dynamic of snow and firn densification as well as remote sensing signals.

We present here results from an intensive study of the snow properties down to 3 m depth at Dome Concordia (Antarctica), a site which experiences very cold conditions (-53.8°C) and very low accumulation rate (2.5 g/cm2.yr). Several methods (near IR photography, coaxial episcopy, snow micro pen, ...) have been used to get quantitative information on snow stratigraphy and snow structure.

Among the measured properties, we will discuss in particular the relationship between the Snow Specific Area, determined by coaxial episcopy, and near IR pit image. This later technique potentially allows to get continuous profile of the SSA an important snow parameter.

Another aspect of our study is linked to the interpretation of the temperature profile down to 20 m depth. We will discussed the evolution of this profile during the year in term of snow thermal conductivity.