



## **A new method for geochemical characterization of atmospheric mineral dust from polar ice cores: preliminary results from Talos Dome ice core (East Antarctica, Pacific-Ross Sea sector)**

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Assessing the elemental composition of atmospheric dust entrapped in polar ice cores is important for the identification of the potential dust sources and thus for the reconstruction of past atmospheric circulation, at local, regional and global scale. Accurate determination of major and trace elements in the insoluble fraction of dust extracted from ice cores is also useful to better understand some geochemical and biogeochemical mechanisms which are linked with the climate system. The extremely reduced concentration of dust in polar ice (typical Antarctic concentrations during interglacials are in the range of 10 ppb), the limited availability of such samples and the high risk of contamination make these analyses a challenge. A new method based on low background Instrumental Neutron Activation Analysis (INAA) was specifically developed for this kind of samples. The method allows the determination of the concentration of up to 35 elements in extremely reduced dust samples (20-30  $\mu\text{g}$ ). These elements span from major to trace and ultra-trace elements.

Preliminary results from TALDICE (TALos Dome Ice CorE, East Antarctica, Pacific-Ross Sea Sector) ice core are presented along with results from potential source areas in Victoria Land. A set of 5 samples from Talos Dome, corresponding to the last termination, MIS3, MIS4 and MIS6 were prepared and analyzed by INAA.