

## **Snow-pit isotopic, chemical and dust stratigraphies from coastal East Antarctic ice-sheet (GV7 site - Eastern Wilkes Land)**

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Ice cores from coastal Antarctic areas are frequently used to produce highly resolved climate record records mainly due to the high snow precipitation. Obtaining high temporal resolution climate record is one of the main priority of the International Partnership for Ice Core Science within the Past Global Changes 2k project.

In this work we present the isotopic, chemical and dust stratigraphy of two snow pits sampled in coastal East Antarctica at GV7 (70°41' S - 158°51' E, 1950 m a.s.l.) during the 2013/14 field season and analysed in Italy and in Korea.

In particular snow pit samples were analysed for oxygen and hydrogen stable isotope, main inorganic ions (Na, NH<sub>4</sub>, K, Mg, Ca, Cl, NO<sub>3</sub>, SO<sub>4</sub>) and metanesulphonate (MSA), total and insoluble dust particles, bromine, iodine and black carbon.

The parameters measured in both snow-pits by Italian and Korean group show similar values and perfectly overlapping trends demonstrating an undisturbed accumulation rate at this site.

By comparing different chemical markers and  $\delta^{18}\text{O}$ , it was possible to identify seasonal oscillations. Non-sea salt sulfate (nssSO<sub>4</sub>), MSA, nitrate, dust and Br and I enrichment present maximum values in spring or summer, conversely sea spray components (Na, Cl and Mg) show higher values in winter. Such a seasonal trends are interpreted as function of different sources strength and/or by different efficiency of transport processes.

Nitrate and MSA, that are considered irreversibly deposited components, appear to be well preserved in this high accumulation site.

In spite of all the considered markers presenting a seasonal pattern, nssSO<sub>4</sub> and  $\delta^{18}\text{O}$  were chosen for dating purposes because of their similar seasonal behaviour. Dating of the snow layers allows calculating the annual accumulation rate. The average mean accumulation rate over the period 2007-2013 is 242 mm w.e..

The evidences given here suggest that at GV7 snow accumulation is not disturbed by local factors. In addition the preservation of all markers makes this site suitable for the study of climatic variations in the last millennium by the analysis of the 250 m ice core drilled at GV7 site.