



## Two cosmic events in EPICA-Dome C deep ice core

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Two extraterrestrial dust layers were recently discovered in the EPICA-Dome C deep ice core (75°06'S, 123°21'E, East Antarctic Plateau) [1]. They correspond to an increase in the incoming extraterrestrial flux of up to  $10^4$  times the sporadic cosmic dust flux measured at Dome C [2]. These two extraterrestrial dust layers, located at 2788 m (L1) and 2833 m (L2) in the core, correspond to distinct meteoritic events accurately dated through glaciological models at  $434 \pm 6$  ka and  $481 \pm 6$  ka, respectively [3]. These cosmic events form valuable marker beds for independent link and dating of long climatic stratigraphies of the South polar region. L1 sample is dominated by angular fragments with a maximum size of  $\sim 100 \mu\text{m}$ . The L2 sample is dominated by spherules with sizes up to  $\sim 30 \mu\text{m}$  and contains only a few angular fragments.

Preliminary studies suggest that the impactors responsible for these two cosmic dust layers had different natures and compositions, yielding different morphologies and particle mineralogical compositions. They are not comparable to the dominant C2-type dust accreted by the Earth today. The probability of occurrence of two such events in a time frame of 50 ka is an unsolved crucial issue. Still, at the present state, we have no compositional evidence for a possible return at the time of L1 of a fragment of the body that previously generated the L2 event.

More work is required to precisely determine the flux and size distribution of the samples. We are also planning on determining the oxygen isotopic composition of these samples in order to get a better insight on the nature of the impactors.

References: [1] Narcisi B., et al. (2007) GRL 34, L15502; [2] Duprat J., et al. (2006)

MAPS 41 Suppl., A48; [3] Parrenin F., et al. (2007) *Clim. Past* 3, 485-497.