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PANDA analytical setup, towards a new paradigm in the understanding past atmospheric aerosols from ice cores

Content

The PANDA ice core analytical platform is composed of 5 modules installed at IGE and LSCE (panda.osug.fr). The Chemistry module at IGE, based on a CFA system connected to online instruments and discrete analyses, has undergone unprecedented developments in recent years to identify and quantify the past composition of aerosols and their sources. About 400m of cores from Antarctica (EAIIST project) and mountain glaciers (Col du Dôme - Ice Memory) have been analyzed now. We will present in particular the progress of 3 analytical techniques that have been put into routine use and their preliminary results. An IC-MS coupling allows the quantification of 60 major cations and anions compounds, organic acids and amines with LODs compatible with ice cores. An LC-MS/MS allows targeting 30 Sugars / Sugar Alcohols / Anhydrous Sugars and is applied to Col du Dôme ice core where organics are more abundant than Antarctic ice. ICPMS-TQ Online (14 elements with Q2-O2) /Offline (51 elements) completes the analytic platform and can be used on any ice due to its extremely high sensitivity.

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Track Classification: Progress in proxy development and interpretation