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Variations in Atmospheric Trace Elements in Dome C during the last seven climatic cycles

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Dome C (75˚06'S; 123˚24'E; 3233 m a.s.l.) was the site chosen in the framework of the European Project for Ice Coring in Antarctica (EPICA) to obtain an ice core of more than 3000 m, which will yield paleoclimatic and paleoenvironmental information on about the last 900 kyr. The study of Heavy metals and other trace elements (Cd, Ba, Pb, U, Bi, Ag, Be, Rb, V, Cr, Mn, Fe, Co, Cu, Zn, As) in deep Antarctic ice core spanning successive climatic cycles has the potential to provide with very interesting information on past natural cycles of these elements for different climatic conditions. Trace elements were determined by Inductively Coupled Plasma Sector Field Mass Spectrometry (ICP-SFMS) in various sections of the new Dome C/EPICA Antarctic ice core, down to the depth of 3040 m. The analytical part of this work performs inside special clean laboratories to have an efficient control of contamination problems. During the $\sim$ 628 kyr period spanned by this record, a high variability in concentrations is observed for most elements, with low values during interglacial periods and warm interstadials and much higher values during the coldest periods of the last seven ice ages. We calculated crustal enrichment factors (EFc) for each element and depth and these values suggest various sources for the different elements.