



Seasonal variations of snow chemistry and mineral dust in the snow pit at GV7, Antarctica

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We conducted the scientific ice coring project led by PNRA and KOPRI during the 2013/2014 Italian-Korean Antarctic Expedition in the framework of International Partnerships in Ice Core Science (IPICS) to understand the climatic variability in the last 2000 years. In the part of project, we collected a 3.0 m-depth snow pit at the site of GV7 (S 70°41'17.1", E 158°51'48.9", 1950 m a.s.l.), Antarctica. Here, we present the results obtained from the analysis of the water isotope compositions, the major ion concentrations, and the mineral dust concentrations from the snow pit. Snow densities and temperatures also measured in the field. At KOPRI, the samples were melted, then the stable water isotopes, major ions, and particle size distribution were analyzed with the cavity ring-down spectrometers (L1102-*i*, Piccaro), ion chromatography (ICS-2100, Thermo), and coulter counter (Multisizer 3, Beckman Coulter), respectively. The $\delta^{18}\text{O}$ varies between -38.3 and -24.1‰ with a mean value of -31.0‰. The δD ranges between -331 and -186‰ with a mean value of -243‰. Among the ion concentrations (Na^+ , Ca^{2+} , Mg^{2+} , Cl^- , SO_4^{2-} , CH_3SO_3^- (MSA)) from the snow pit, MSA concentrations show a clear seasonal variation. The mineral dust in the pit characterized with the differences of the concentration and the particle size distribution by the seasonality. These data allow us to assume about 4.5 years of snow deposition covered from 2009 to 2013 by these oscillations of the isotopes and geochemical characteristics.