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Water isotope and chemical records in a recent snow pit from Hercules Neve, northern Victoria Land, Antarctica

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A snow pit samples contain information of atmospheric composition and weather condition for recent years. In this study, water isotope ratio and concentrations of major ions and rare earth elements (REE) were determined from a 2 m snow pit sampled at 5 cm intervals at Hercules Neve in northern Victoria Land, Antarctica (73° 03'S, 165° 25'E, 2900m). The water stable isotope ratios range from -45.10 to -29.51 ‰ for $\delta^{18}\text{O}$ and from 355.8 to -229.2 ‰ for δD . From their clear seasonality, the snow pit is expected to cover the period of 2012–2015. The REE patterns reveal that there exist at least two distinct sources of terrestrial aerosols; One that makes superior contribution when sea salt input is high is likely located closer than another.