

Sr, Nd and Pb Isotopic Compositions in the Sediments of Admiralty Bay and Bransfield Basin, Antarctica

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Isotopic composition (Sr, Nd and Pb) of the core sediments from Admiralty Bay and Bransfield Basin, the South Shetland Islands were analysed with their Nd-model ages. Samples were taken at depth of 20 cm, 220 cm, and 420 cm from the sediment surface. The average isotopic compositions of the sediments are as follows: $^{87}\text{Sr}/^{86}\text{Sr} = 0.70540$, $\epsilon_{\text{Sr}}(0) = 12.8$, $^{143}\text{Nd}/^{144}\text{Nd} = 0.51280$, $\epsilon_{\text{Nd}}(0) = 3.1$, $^{206}\text{Pb}/^{204}\text{Pb} = 18.700$, $^{207}\text{Pb}/^{204}\text{Pb} = 15.612$ and $^{208}\text{Pb}/^{204}\text{Pb} = 38.531$. Based on these values, we suggest that the sediments represent the mixture of surrounding Cenozoic volcanics and the older continental crustal components, and the lead isotopic compositions of both are similar to each other. The isotopic compositions of the sediments are similar to those of sediments from back-arc basin not surrounded by old continental crust, which is the case of Celebes basin, Phillippine. The average Nd-depleted mantle model age (T_{DM}) of the sediments is 0.59 Ga. This value suggests that the sediments of Admiralty Bay and Bransfield Basin originated from rather young geologic realm.