

What Is the Origin of Terrigenous Sediment Found in the Sub-Tropical South Atlantic Ocean?

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An analysis of the terrigenous sediment fine fraction, with a grain size of 5 μm , was conducted in Holes U1556, U1559, and U1557. Originating from the continents surrounding the South Atlantic Ocean, specifically South America and Africa. Sediment compositions in the Subtropical South Atlantic Ocean reflect climatic and oceanographic conditions in the surrounding continental areas. By analyzing the compositional variability of the selected terrigenous sediments, we were able to determine their source or provenance. Among our preliminary findings are the K/Ar provenance ages, as well as a description of the major elements. A total of eight samples were processed from U1556 and U1557, corresponding to terrigenous sediments deposited since 10 Ma (50 m CSF-A), and four samples related to terrigenous sediments deposited between 20 and 50 Ma (150-200 m CSF-A). It is estimated that the provenance ages of terrigenous sediments deposited since 10 Ma range from 80 Ma to 150 Ma. Between 160 and 200 Ma is the provenance age of sediments deposited in the last 20 to 50 million years. Three samples from U1559 were processed on sediments deposited between 15 and 30 m CSF-A with provenance ages ranging from 150 to 200 million years old. There is a consistent distribution of Fe, K, and Al values downcore, with the exception of sediment near the top of cores U1556 and U1559. Based on the results of the first analysis, the terrigenous may have been a mixture of African and South American sources, particularly during the last few million years. Compared to U1556, K/Ar provenance ages appear to be slightly older in U1559, presumably due to the slightly more easterly location of U1559, which places it closer to Africa. Further studies, together with additional analyses, are expected to provide a better understanding of the sources and dispersals of terrigenous sediments in the subtropical South Atlantic region, as well as changes associated with them.