



Stratigraphic age, sedimentation rate and source rocks of the Amazon Fan

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The evolution of Amazon Fan, a large sedimentary structure at the Brazilian passive margin, is directly connected with the Andean mountains and the Amazon River development. Sr, Nd and Pb isotopes studies combined with palynological information have been conducted in Late Miocene to Pleistocene section of the Amazon submarine fan to constrain the sedimentary age, source rocks and sedimentation rate of main sedimentary sequences deposited during the period. Age of the sedimentary rocks were inferred from the palynological data and Sr isotope signature from foraminifers, integrated with seismic and drill holes data. The whole section had a very high sedimentation rate with significant increase in the last 3 Ma, from Late Pliocene to present, which it may be related to uplift of the continental margin as a result of isostatic compensation due to load of Amazon Fan sedimentary package deposited from Late Miocene to Early Pliocene and main uplift of the Northern Andes. Although the most foraminifera shells have $87\text{Sr}/86\text{Sr}$ ratio in the range of the expected value for the estimated age, there were samples with $87\text{Sr}/86\text{Sr}$ ratio lower and higher than those used for the Sr isotope curve. The increase of $87\text{Sr}/86\text{Sr}$ ratio is assigned to Amazon River strontium fluxes whereas lower ratios may be due to diagenetic processes or fluid percolation driven by thick sedimentary overload, as much as 10,000 m, in the Amazon submarine fan. Contribution of the Precambrian rocks of the Amazonian Craton versus Andean rocks as source of the sediments for Amazon Fan during its evolution was estimated by the Sm-Nd and Pb isotope data in the pelitic rocks. Nd and Pb isotopes in fine-grained sediments allowed to identify both signal, where contribution Precambrian basement rocks are recognized by Archean and Paleoproterozoic Nd model ages and higher radiogenic Pb signature.