



Paleogeographic constraints on continental-scale source-to-sink systems: Northern South America and its Atlantic margins

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Our work aims at setting the evolving boundary conditions of erosion and sediments transfer, transit, and onshore-offshore accumulations on northern South America and along its Atlantic margins. Since the Early Mesozoic, the source-to-sink system evolved under the interplay of four main processes, which are (i) volcanism and arc building along the proto-Andes, (ii) long-term dynamics of the Amazon intracratonic basin, (iii) rifting, relaxation and rejuvenation of the Atlantic margins and (iv) building of the Andes.

We compiled information available from geological maps and the literature regarding tectonics, plate kinematics, magmatism, stratigraphy, sedimentology (including paleoenvironments and currents) and thermochronology to produce a series of paleogeographic maps showing the tectonic and kinematic framework of continental areas under erosion (sources), by-pass and accumulation (sinks) over the Amazonian craton, its adjacent regions and along its Atlantic margins. The maps also allow assessing the relative impact of (i) ongoing Pacific subduction, (ii) Atlantic rifting and its aftermath, and (iii) Atlantic slab retreat from under the Caribbean domain on the distribution and activity of onshore/offshore sedimentary basins. Stratigraphic and thermochronology data are also used to assess denudation / vertical motions due to sediment transfers and lithosphere-asthenosphere interactions. This study ultimately aims at linking the sediment routing system to long-wavelength deformation of northern South America under the influence of mountain building, intracratonic geodynamics, divergent margin systems and mantle dynamics.