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## Large drainage rearrangement in South America: the capture of the high São Francisco catchment by the Grande (Paraná) River

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This work research fluvial piracy processes between two of the fifty largest catchments in the world: the Paraná and São Francisco ones, in South America. The study area comprises the Furnas Lake of the Furnas Hydroelectric Plant, in the south-west portion of Minas Gerais State, Brazil. In this region, the Paraná River is called Grande River and its catchment forms a large "amphitheater" facing north, towards the São Francisco catchment. The research method was based on: remote sensing, in order to identify drainage anomalies; the use of the Seppômen computational tool, to reconstruct paleotopographic evolution; and by field work, to confirm/improve remote sensing interpretations and to also obtain sedimentary and geomorphic data. Nowadays, the drainage divider between the two catchments is characterized by a series of mountain ranges and plateaus. However, in the region of Furnas Lake, near the village of Pimenta, there is an anomalous low divider between the two catchments. This anomalous low divider is located 25 km north of a 90° elbow that changes the direction of the Grande River from north (towards the São Francisco catchment) to west (towards the Paraná Sedimentary Basin) and corresponds to an expressive morphological record of paleo-valley that seems to have connected the two hydrographic basins currently separated. In the region of the low divider, on the top of a hill located in the paleo-valley on the São Francisco catchment side, next to the current headwaters of its tributaries, a pebbly fluvial Pleistocene unit (deposit of ancestral river before the beginning of the incision stage or being an old terrace) indicates that a major river flowed by the actual divide, in the past. In addition, the elbow that changes the direction of the Grande River makes it cross a quartzite mountain range through a series of river gorges, before entering in the Paraná Sedimentary Basin. The obtained Seppômen maps demonstrate that near the drainage elbow point the relief was about 400 m higher than it is now, configuring an old drainage divider along the quartzite mountain range. Furthermore, in the northern portion of the elbow, the topographical reconstruction maintained the valley morphology indicating that the Grande catchment had a connection with the actual São Francisco catchment. These evidences indicate that a major drainage rearrangement occurred between the two catchments, where a paleo-Grande (Paraná) River captured the ancestral upper São Francisco River catchment. This fluvial piracy was responsible for a capture of more than 50000 km<sup>2</sup> and by the fact that the former source of the São Francisco River is now the current source of the Paraná River.