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Satellite image of Google Earth

# *Program and Abstracts*



## Eastern Paranapanema and Southern São Francisco orogenic margins: Records of enduring Neoproterozoic oceanic convergence and collision in the southern Brasília Orogen

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The Gondwana assembly processes are well preserved throughout Brazilian orogenic systems, where the Tocantins Province is the most extensive one and recorded diachronically convergent events. Located in the southern edge of the São Francisco Craton the Southern Brasília Orogen comprises a syn-metamorphic pile of nappes that recorded the closure of the Tonian-Cryogenian Goiás-Pharusian Ocean through the subduction-collision between São Francisco (passive margin) and Paranapanema (active margin) paleoplates.

The internal portion of the Southern Brasília Orogen suggests active margin- to syn-collisional type sedimentation recorded by the Andrelândia and Liberdade Nappes, among others, which were the subjects of this research.

The methods applied to constraint the tectonic evolution through provenance and metamorphic studies were zircon U-Pb geochronology and isotopic geochemistry on whole rock (Sm-Nd, Rb-Sr) and zircon (Lu-Hf), all performed at the Geochronological Research Center from the Institute of Geosciences of University of São Paulo.

The Liberdade Nappe metasedimentary rocks have a maximum depositional age of 760 Ma and suggest an evolved Tonian-Cryogenian continental magmatic arc as source area. The intermediate Santo Antônio Unit of the Andrelândia Nappe (maximum depositional age of 680 Ma) presents, for the same age interval, source in an island arc. The upper unit, Serra da Boa Vista, seems to record the beginning of continental collision because of the occurrence of Rhyacian ages, which are well known in the São Francisco Craton, coupled with the minor contribution of detritus from the arc. Grenville- and Rondonian-San Ignacio-type source areas, as well as Statherian ages, are observed in all units.

The Goiás-Pharusian Ocean closure and beginning of continental collision must have happened at approximately 670 Ma, which corresponds to the maximum depositional age of the syn-collisional Serra da Boa Vista Unit and to the age of eclogitic rocks from the Liberdade Nappe base. The Andrelândia Nappe System migration probably enhanced by channel-flow process was restricted to the 635-600 Ma interval.