



Antarctica continent on the new Gondwana Geological Map (1:5M)

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Abstract

Aiming to represent thirty years of knowledge advancement on the geology of Gondwana, the IGCP-628 main product will be delivered in 2018 with a major compilation of heterogeneous sources, from GIS database, maps and scientific papers. This new geological 1:5M scale map will contain information about rock units, structures and tectonic events of Gondwana. In this scenario, Antarctica, one of the big five Gondwanan fragments, has the disadvantage of being mostly covered today. The compilation started with the continental scale map from Tingey (1991). Due to the lack of rock exposure on these frozen lands, the level of research is high at outcrop scale along or nearby the coast. Detailed geological maps undergone through a main stratigraphic simplification. Some information had to be extrapolated in size to represent data that suggest the nature of the covered regional areas. Some Antarctica regions are good examples that show the contrast between the cratonic blocks, not affected by the Gondwana amalgamation orogenic events (e.g. Napier Complex on Kemp Land and Queen Mary and Wilkes Land areas), and the reworked terranes and Neoproterozoic-Cambrian orogens (e.g. the Ediacaran-Cambrian - 560-520 Ma - East Dronning Maud Land and the Cambrian - 505-490Ma - Ross Orogen at the Pensacola Mountains). On the other hand, due to more than one reworking event (Tonian and Ediacaran orogenies), Antarctica presented to be a major test for the Gondwana legend. Regarding the reconstruction of Gondwana, the actual Antarctica continent is segmented into five fragments: Antarctica Peninsula, Thurston Island Block, Mary Bird Land, Ellsworth Mountains and East Antarctica, each one with a distinct rotation pole and position in relation to Gondwana. The Patagonia block, with an Antarctica origin, was already attached to southern South America continent in the reconstruction of Jurassic Gondwana.

The solution to the white cover is still a debated issue. The subsurface geology is largely unknown and any colored polygon added to this great portion will be a tectonic interpretation that would be in discrepancy with the rest of the Gondwana fragments. Following suggestion of the last SCAR meeting at EGU (2017) the BEDMAP2_{bed} data, which represents the sub-glacial topography, was added to the great white area of the East Antarctica fragment. This attribute is represented in gray-scale. It would be interesting to add major inferred tectonic lines representing probable contacts between Neoproterozoic cratons and belts. This data would be a compilation and interpretation mostly from geophysical data.

Keywords: *Gondwana Map; Antarctica; continental geology; sub-glacial topography*