A GLIMPSE AT THE ANDES MOUNTAINS: BUILDING BLOCKS AND TERRANE CONCEPTS

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Our studies have a multidisciplinary nature through the use of recently released data (satellite gravity, predicted seafloor topography, seafloor crustal ages, seismicity, volcanism, tectonic motions from geodesy, digital elevation models, seismology, stress field, tomography, crustal thickenesses) when integrated to coventional bibliography (field geology, stratigraphy, geochronology, paleomagnetism, petrology) provide powerfull and new insights on tectonic conceptions about the Cordillera. Desktop Publishing, Image Editing and Geographic Informations Systems softwares, handle, display and provide extremelly powerfull analytical metodologies which allow us to stablish the terranes framework of South America and will certainly add significant steps to the progress of understanding of the Cordillera as an accretionary orogen, identifing the building blocks/terranes architecture and synthesize an evolution which takes into account the paleoassembly of terranes and the crustal growth of the South America Platform. The growth of the South American Platform and the Andes itself shall be adequatelly interpreted as a collage of Proterozoic/Paleozoic continental suspect terranes during Neoproterozoic/Paleozoic along the southwestern border of the cratonic nuclei of South America. A following period of suspect terranes-continent collisions during Mesozoic to Recent times is represented by the docking of accretionary/exotic terranes. During this final stage the Northern and Central Andes have been built by noticeable processes of crustal collisions between island arcs and the cratonic foreland of South America creating well-developed associated foreland fold and thrust belts. In the Southern Andes the processes of mountain building were different. The southern margin of South America was composed by an en-echelon pattern of NW-SE oriented volcanic arcs separated by interarc/intra-arc basins which experienced a progressive clockwise rotation of the arc massifs through the Cretaceous time to virtually coallesce and form a single and continuous volcanic line during Cenozoic to Recente. Such a process did not give rise to a well developed associated foreland fold and thrust belt.