

BB-ASAP: BROADBAND SEISMIC EXPERIMENT IN THE AREA OF SERGIPE- ALAGOAS-PERNAMBUCO, BRAZIL

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Panel

RESUMO: Mountains building and their erosion and peneplanation, sediment and nutriment transfers trough river into continental plate-form and deep ocean, are deeply connected with the growth cycle of the earth, the birth and the evolution of the ocean, the palaeo-climate and the palaeo-oceanography variations, which are all linked with deep earth processes. Probing the strong correlation between deep and surface processes in order to understand the Earth's growing and to model forecasts, needs the multidisciplinary approach proposed in the holistic project "From Mountain to Deep Sea" of the White Paper « an holistic approach of international collaboration in Marine Sciences » (<http://marinebrazil.sciencesconf.org/>). Complete analysis of present land geomorphology in association with tectonic history of uplift and subsidence, and climate changes, must be integrated with studies of the basins history of sedimentation and erosion, defining the main episodes of changes in sedimentation rates and establishing stratigraphic and subsidence models for different sectors of the Brazilian continental margins, which present remarkably wide range of morphologies. Considering the complex history of the assemblage of the Brazilian Lithosphere, the understanding of the evolution of the topography and the role of inherited structures from past orogenic episodes need a 3D model of the crust and upper mantle. Seismology is the best tool to probe Earth's deep structure, allowing a 3D variable scale imaging. Over the last decades, increasingly sophisticated methods have been developed to look for the Earth structure, either by using active or passive sources, relying on different approaches but taking advantage of the seismic wave's properties. While active, high frequency waves can retrieve small-scale features they have the disadvantage of shallow penetration into the earth; passive sources, including earthquakes, have lower frequency and higher energy content, which have the capability of a deeper penetration albeit a lower resolution. Considering therefore that the spatial resolution depends on the type of method and data to be used, to obtain a 3D image of the Lithosphere at several scales with good precision, it is necessary to rely on multiple adaptive seismic networks covering a broad scope of the seismic spectrum. Recent wide-angle experiment (SALSA cruise) allows high resolution but discrete 2D images of the crust of the NE Brazil margin, but cannot offer a lateral coverage of the lithosphere. We propose a seismic BroadBand (BB) array of stations, deployed both on land and at sea along the coast.

The joint analysis of the BB data together with the previous seismic results will allow, by coupling active and passive seismic methods, the construction of a 3D seismic model of the Lithosphere with unsurpassable detail and the detailed and integrated study of the

interaction between onshore-offshore (Source to Sink) and surface/deep processes (Mud to Mantle).

PALAVRAS-CHAVE: SERGIPE-ALAGOAS-PERNAMBUCO MARGINS, BROADBAND SEISMIC, LITHOSPHERIC STRUCTURE