

FIRST ORDER STRUCTURAL DOMAINS AND INFLUENCE OF PRE-EXISTING STRUCTURES DURING THE EARLY RIFTING STAGE IN THE ARGENTINEAN VOLCANIC PASSIVE MARGIN

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RESUMO: During the Middle to Late Jurassic rifting stage a series of half-grabens were generated in the central-northern Argentinean volcanic passive margin, north from the Malvinas transform. Most of them are related to sedimentary basins of the continental platform and are strongly influenced by pre-rifting structures. This paper presents some preliminary results of an integrated exploration regional study based on new and old seismic datasets, updated geologic data (wells and outcrops) and satellite gravimetric data. In the process of understanding the geometry and distribution of these half-grabens, five first order structural domains are interpreted through the study area. The "Atlantic Domain", located between the continental-oceanic boundary and the outermost part of the continental shelf is characterized by half-grabens oriented NNE-SSW to NE-SW, running parallel or sub parallel to the edge of the passive margin with minimal influence of pre-existing structures. This domain involves the most eastern parts of the Salado and Colorado basins and multiple half-grabens of variable sizes formally not recognized as part of any basin to the south. West to the "Atlantic Domain" and also extending into the onshore, at least four structural domains are recognized from north to south. These domains are interpreted based on the basement and pre-rift geology. In the area of interest the basement is made up of crystalline rocks of Proterozoic to Early Cambrian ages while the pre-rift sequences involve Paleozoic sedimentary rocks. Half-grabens in these western structural domains present a variable control on its location and development during the incipient rifting stage. This control is reflected in the structure of each basin on the continental platform. The Salado Basin is strongly controlled by a previous structure related to "Rio de la Plata Craton" oriented almost perpendicular to the "Atlantic" trend. The Colorado Basin on its west and central parts shows a complex pre-rift structure with at least two sub-domains with the pre-existing structure influence increasing to the west. To the south, the Rawson Basin displays half-grabens which are exclusively controlled by a neopaleozoic fabric. Characterizing the features and the distribution of the first order structural domains affecting the central-northern Argentinean continental platform will allow a better understanding of the geological history of the South American passive margin and, thus, will help in the search for hydrocarbons.

PALAVRAS-CHAVE: STRUCTURAL DOMAINS; PASSIVE MARGIN; ARGENTINA.