

THE ARGENTINE PASSIVE CONTINENTAL MARGIN- BASIN MODELING USING NEW SEISMIC DATA

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The study area of the BGR98-cruise is located offshore Argentina and comprises the outermost shelf, the slope, the rise and even the abyssal plain, and includes the seaward extension of the Colorado Basin. Approximately 12,000 km of multichannel seismic lines, mostly traversing across the Argentine continental margin, were acquired by the BGR. In the Late Jurassic / Early Cretaceous times, continental break up of Gondwana led to the opening and northward propagating of the South Atlantic. Since 135 Ma, the Paraná-Etendeka continental flood basalt provinces were emplaced, associated with the seaward-dipping reflectors (SDRS), possibly caused by the Tristan da Cunha hot spot. After breakup, thermal subsidence affected predominantly the development of the volcanic continental margins, especially the elongated SDRS zone. A thick sedimentary column (up to 6000 m) was deposited onto the transition zone between the continental and the marine crust during the period of thermal sag. Based on the seismic interpretation, IFP software was used to model the subsidence of the transition zone in order to establish the thermal history, the tectonic evolution, the sedimentary distribution as well as an estimation of the compaction and erosion processes. Further modelling was applied using lithological concepts derived from seismic facies analysis and available well data. Modelling the thermal history of the sedimentary pile led to a model of the maturity of the potential source rocks in the deep domain of the South Atlantic region (mainly black shales correlated to Cretaceous anoxic events). To model the migration paths a 2-D approach was attempted.