**Sedimentary and Tectonic Evolution and Their Possible Controls on HC Migration in the Colorado Basin, Offshore Argentina, South America**

Loegering, Markus J.[1]; Autin, Julia [1]; Anka, Zahie [1]; Rodriguez, Jorge F.[2]; Marchal, Denis [2]; di Primio, Rolando [1]; Vallejo, Eduardo L.[2]; Scheck-Wenderoth, Magdalena [1]; Kohler, Guillermina [2]; Pangaro, Francisco [2] (1) GFZ, Potsdam, Germany. (2) Petrobras Energia S.A., Buenos Aires, Argentina.

Using a dense 2D seismic reflection dataset and 12 exploration wells, we reconstructed the geological evolution of the Colorado Basin, offshore Argentina. The Colorado Basin records the development of the Lower Cretaceous to present-day volcanic-rifted passive margin of Argentina. After a Permian Pre-rift period, the formation of the Colorado Basin is related to the breakup of the Gondwana, starting with the rift systems from Triassic/Jurassic to Early Cretaceous, followed by a generalised thermal subsidence period along the Cretaceous and ultimately reaching the present-day passive margin configuration of the basin. The Colorado Basin is located on the Continental shelf and slope region with water depths ranging from 50 to 1800 m. The sediment thickness, including the Syn-rift sediments, can be up to 12000 m, from which the Cretaceous depocentre varies from less than 1500 m to more than 5000 m. The Cretaceous succession has been subdivided into four seismic units: the Syn-rift sedimentation, the Sag and Intra-Sag units, and the Colorado Formation (considered as possible reservoir within the upper Cretaceous). Three Tertiary units have been distinguished: the Pedro Luro Fm (Palaeocene), the Elvira Fm (Eocene), and the Caotica informal unit (Miocene). This study also aims to characterise the evolution of potential petroleum systems in this basin, where Permian, Jurassic and Early Cretaceous potential source rocks are present and may be active. In this sense, the identification, mapping, and analysis of evidences of active petroleum systems (i.e. gas chimneys, shallow gas, gas pockets, mud volcanoes, and seabed pockmarks) is a key task of our investigation. The distribution of such leakage features in relation to the observed sedimentary and tectonic structures developed in the Syn-rift and Post-rift successions should allow the definition of potential migration pathways.