

**AAPG International Conference
Barcelona, Spain
September 21-24, 2003**

C. Garcia-Mojonero¹, R. Bortz², L. Cortes¹, G. Abeger¹, W. Schwarzhans², W. Martinez del Olmo¹ (1) RepsolYpf, Madrid, Spain (2) RWE Dea, Hamburg, Germany

A new exploration play in the Gulf of Cadiz gas basin: Messinian ponded hyperpycnal flows and Tortonian deltas

The Gulf of Cadiz Miocene marine foreland basin created between the Iberian Shield and the fold belt of the Betic Ranges is a long basin differentiated in two NE-SW parallel geological segments: (1) A northern sector, without olistostromes. (2) A southern segment with the presence of a very thick and overpressured olistostromic mass.

The past exploration activity was concentrated in the northern area where the Messinian sea level fall provided a continuous sandy turbiditic system in a conventional Lowstand Systems Tract model. In the southern area, where the Olistostrome is present the exploration activity was reduced to only four wells, drilled in the eighties and located in structural traps provided by either growth faults or shale olistostrome diapiric domes. These dry wells show an open and deep marine Tortonian-Messinian record without sandy reservoirs.

The aim of this paper is to describe the new stratigraphic trap model in this area and results of the initial three exploratory wells, that will be drilled in February 2003 by RepsolYpf and its partner RWE-Dea. The 3D seismic show an area with multiple interdiapiric minibasins that began their differentiation during the Middle Tortonian. The infill of these minibasins provides two new exploratory concepts: (i) Tortonian mini-deltas growing on the slope and connected with the rivers' paleomouths. (ii) Isolated and complex channel-canyon features generated by multiple turbiditic flows in the Messinian LST sedimentary record. These seismic features are interpreted as ponded hyperpycnal flows distributed from a paleo-river captured by the Guadalquivir River during the Pleistocene.