

### **The Pre- and Post-salt Structure of the Angolan Salt Province - A 3-D Seismic Study**

Jones, William <sup>1</sup>; Hawkins, Lisa <sup>1</sup>; Joaquim, Lourenco <sup>2</sup>; Guevara, Mary <sup>1</sup> (1) PGS Reservoir, Maidenhead, United Kingdom. (2) Sonangol, Luanda, Angola.

The salt province consisting of the Lower Congo and Kwanza Basins of Angola is a major hydrocarbon producing area with production coming from Oligocene and Miocene deep water turbidite sands. The recent discovery of large hydrocarbon fields below the salt in the contiguous Campos and Santos basins in Brazil bodes well for similar discoveries in the pre-salt section in Angola.

This study is based on the interpretation of 23,000 km<sup>2</sup> of merged 3D seismic survey data covering much of Blocks 15-18 and 33-34 of offshore Angola. Interpreted horizons include the base sag-phase unconformity, a shallow pre-salt horizon, the base and top salt, top Cretaceous, top Oligocene and three Miocene horizons.

The base sag-phase shows as a prominent onlap horizon in the southeast of the study area, disappearing below the bottom of the seismic data towards the northwest. Traces of synrift faults can be seen below the unconformity. Flattening on the base salt shows some broad structures on the shallow pre-salt horizon.

The structures above the salt layer are almost completely detached from those below by downslope movement along a detachment in the salt layer. The area studied covers several structural domains that trend northwest-southeast and are characterised by variations in the style of salt tectonics. The easternmost zone consists of grabens and half grabens formed by listric faults which are filled by Miocene sediments. The salt has largely been removed from this area. In the central zone of the survey area, salt forms pedestals at the foot of listric faults and separate pods at higher structural levels associated with the faults. The southwestern zone shows salt domes which are continuous from the pedestal at the level of the original salt layer up to shallow levels, still showing signs of control by faults. This variation in structural style reflects a change from extension in the east to the beginning of compression in the west. The fault movement and salt structuring took place largely in two episodes during the middle Cretaceous and Neogene.