

**AAPG Annual Meeting
March 10-13, 2002
Houston, Texas**

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Seismic Stratigraphy and Deep Water Bright Spot Reflections of the Cape Verde Flexural Moat

Multichannel seismic reflection profile data have been used to determine the stratigraphy of the Cape Verde flexural moat. The reflection data have been processed through to a final migrated stack. The two-way travel time to prominent reflectors has been determined and converted to depth using interval velocities from semblance and existing sonobuoy data. Four units have been recognised on the basis of their reflective character. The lower two of these units are separated from the upper two by an angular unconformity. The lower two units thicken towards the east while the upper two units thicken concentrically around the islands. Well ties to DSDP site 368 suggest that the lower two units are Mesozoic in age while the upper two units are early Miocene and younger. We interpret the unconformity as the consequence of flexural loading of pre-existing Mesozoic crust by the Cape Verde islands.

The data exhibit a number of prominent bright spot reflections with high acoustic impedance contrasts, reverse polarity with respect to the seabed reflections and clear lateral terminations embedded well stratified sedimentary sequence of low reflectivity. We interpreted the bright spot reflections as the consequence of methane or other fluids such as carbon dioxide trapped in the sediments.