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

Elisabet Playa[1], Mateu Esteban[2], Arve Lonoy[3] (1) Universitat de Barcelona, Barcelona, Spain (2) Carbonates International S.L, Caimari, Balears, Spain (3) Norsk Hydro a.s, Bergen, Norway

Late Porosity Development Under Unconformity, Jurassic Dolomites, Garraf Mountains, Catalan Coastal Chain (Northeast Spain)

The Jurassic dolomites of the Eastern Garraf Mountains have two depositional units separated by a discontinuity (sequence boundary). The lower unit (Les Agulles Dolomites Formation) is massive dolosparites with ghosts of ooids and skeletal molds, commonly with dark gray and black colors and fetid. The upper unit (Upper Garraf Dolomites Formation) is made up of well-bedded and laminated dolomicrites and dolomicrosparites lighter gray in color.

Abundant vug porosity (up to 10 cm in diameter) occurs along fractures (and bedding planes) within a 25-75 m-thick porous zone under the sequence boundary unconformity within the Jurassic dolomites. This porous zone is also very dark gray or black in color and extremely fetid when freshly broken. Solid or liquid hydrocarbons have not been detected. Important intercrystalline microcorrosion porosity is also present in dolosparite around vugs and/or fractures, but has a wider distribution along fractures above and below the unconformity.

There is no evidence of early porosity generated by subaerial exposure related to the sequence boundary unconformity. Observed vugs and fractures, cemented by a first generation of dolomite cement and a late poikilotopic calcite cement, developed probably during a late diagenetic stage.

In the Jurassic dolomites of the Eastern Garraf Mountains, the porosity is attributed to ascending corrosive fluids along the fractures, which were preferentially trapped under the permeability barrier represented by the unconformity.