



Neogene-Quaternary evaporitic deposits from the Baza Basin (Betic Cordillera, SE Spain)

L. Gibert (1), F. Ortí (2) and L. Rosell (2)

(1) Dept. Enginyeria Minera i Recursos Naturals, UPC, Av Bases de Manresa s/n Manresa, Spain, gbeotas@hotmail.com (2) Dept. Departament de Petrologia, Geoquímica i Prospecció Geològica, Facultat de Geologia, Universitat de Barcelona, Martí i Franqués s/n, 08028 Barcelona, Spain

Neotectonic thrusting and uplift created and isolated from the sea the Baza Basin in the late Miocene (Estevéz and Sanz de Galdeano 1983, Sanz de Galdeano & Vera 1992). After this event, this Basin was infilled with at least 600 m of continental late Miocene to Quaternary deposits. The Baza paleo-lake was shallow with a large evaporitic area in the centre of the basin of about 800km² surrounded by a palustrine fringe. Small falls in the lake level would change the extensive marginal areas between palustrine and distal alluvial conditions as well as the concentration of salts in the lake water (mainly sulphates). These lake level oscillations were related to Plio-Pleistocene climate changes, but also to regional and local tectonic processes.

Sedimentary deposits in this basin can be divided in carbonate-rich (palustrine), clastic (clay to gravel) and evaporitic sediments (mainly gypsum). Carbonate-rich deposits occur in marginal areas isolated from significant fluvial input of paleo-drainage, an example is the vertebrate fossil quarries in the palustrine facies from the Orce-Venta Micena area (Gibert et al 1999). Different carbonatic deposits not showing palustrine features also occurs in more central areas of the basin where subaqueous conditions were more persistent. Clastic deposits vary from conglomerates sandstones or mudstones depending on its paleogeographical situation. Sediments located in the most marginal areas are generally coarse and become fine grained towards the centre of the basin. Sometimes sandstones and gravels are cemented with gypsum and mudstones could contain primary selenite crystals. Widespread clastic deposits occur within the shallow paleo-lake as prograding Gilbert deltas.

We studied the petrography and distribution of marginal and central evaporitic lithofacies. The facies map shows different areas with central evaporitic facies, marginal evaporitic facies, carbonatic palustrine fringe and alluvial belt.

1 References

Estévez, A., Sanz de Galdeano, C. (1983). Néotectonique du secteur central des Chaînes Bétiques (Basins de Guadix-Baza et de Grenade). *Rev. Géol. Dyn. Géogr. Phys.*, **24**, 23-24.

Gibert, Ll., Maestro, E., Gibert, J., Albaladejo, S. 1999. Plio-Pleistocene deposits of the Orce region (SE Spain): Geology and age. In (Gibert, J. Ribot, F., Sanchez, F, Gibert, Ll. eds), *The hominids and their environment in the middle and lower Pleistocene of Eurasia*. Museo de Prehistoria y Paleontología de Orce, 127-144.

Gibert, Ll., Ferrandez, C. Scott. G. 2001: Plio-Pleistocene lacustrine sedimentation in the Baza basin (SE Spain) and its relation with climatic shifts. *European Space Agency (ESA) Spec. Publ.* **463**, 171-175.

Sanz de Galdeano, C., Vera, J. A. 1992. Stratigraphic record and paleogeographical context of the Neogene basins in the Betic Cordillera, Spain. *Basin Research*, **4**, 21-26.