Nature and Structures of the Filling of the Paleo-Channels of the Straits of Gibraltar in the Threshold of Camarinal New Data of Drillings (1997/2005) Fixed Link Europe-Africa Project

Fouad Salhi[1], Ali Bahmad[2], Khalil El Kadiri[3], Ahmad Chalouan[4], and Abdel Aziz El Mrihi[5]
[1] Faculte des Sciences El Jadida

First studies of subsurface undertaken jointly by the Societe Nationale d'Etudes du Detroit (S.N.E.D) and Sociedad Espacola de Estudios para Comunicaciyn fija del Esterecho of Gibraltar (S.E.C.E.G), in the Straits of Gibraltar and more precisely in the threshold Camarinal (short borehole surveys, seismic reflexion, side scan sonar, bathymetry, surface sampling....) allowed to conclude that this threshold corresponded to a high bottom made up of flyschs which would have resisted to marine erosion, at most covered by corals constructions.

The campaigns of long boreholes offshore carried out in the sector reached penetrations going until 325m. Currently it is well established that it is acted in fact of a false threshold then that it is crossed by two paleo-channels of general directions E-W, filled by recent deposits and separated by a relief made up of grounds of the flyschs type (Tartesos Mount). The formation of those paleo-channels are contemporary opening of the Straits of Gibraltar by collapse during lower pliocene, shown by an intense marine erosion.

The filling of those paleo-channels was carried out in several stages which include: (1) a deposit of argillaceous breaches by gravity, coming from the still unstable slopes of paleo-channels, but also of the close areas; (2) one period tectonically calms, with a biolithoclastic sand brought back by marine currents; the absence of these sands in the Northern paleo-channel can be explained either by a non deposit or by their erosion or then were not cross-pieces by the surveys; (3) a deposit of lithic and bioclastic conglomerate limited in the space which would be due to a fall of the marine level and finally (4) the unit is crowned by a bioclastic limestone lithohermes cover supported by an important biological productivity and a water resource of weak energy.

The absolute age of the various layers remains are unknown, except for the calcareous cover dated on corals by the method U-Th of 150-180 thousand years. The lithological column has a higher thickness to 325m, penetration reached by the major survey carried out in the paleo-channels ones without touching the substratum flysch.