

Morphobathymetric and sediment dynamics analysis on the Gulf of Valencia continental slope (NW Mediterranean)

Marta Ribó⁽¹⁾, Pere Puig⁽¹⁾, Juan Acosta⁽²⁾, Araceli Muñoz⁽³⁾, Hans van Haren⁽⁴⁾, Claudio Lo Iacono⁽¹⁾, María Gómez Ballesteros⁽²⁾

1. Institut de Ciències del Mar, ICM-CSIC, Pg. Marítim de la Barceloneta, 37-49, PO Box 08003, Barcelona, Spain, E-mail: mribo@icm.csic.es

2. Instituto Español de Oceanografía, IEO, Pg. Corazón de María, 8, PO Box 28002, Madrid, Spain

3. TRAGSATEC - Secretaria General de Pesca, C. José Ortega y Gasset, 57, PO Box 28006, Madrid, Spain

4. Royal Netherlands Institute for Sea Research, NIOZ Landsdiep 4, PO Box 1797 SZ, 't Horntje, Texel, The Netherlands

ABSTRACT

The Gulf of Valencia (GoV) continental margin is located in the north-western Mediterranean Sea between the Ebro margin and the promontory Cap La Nao. The morphology of this margin is mainly controlled by the deposition of post-Miocene prograding sequences (Díaz del Río *et al.*, 1986). Early studies described the morphological features and sedimentary processes observed on the inner and outer shelf of the GoV (Maldonado *et al.*, 1983; Rey and Díaz del Río, 1983; Díaz del Río *et al.*, 1986; Rey *et al.*, 1999). In the central part of the outer shelf and extending onto the continental slope, a series of sediment undulations aligning sub-parallel to the isobaths were observed (Rey and Díaz del Río, 1983). These features were described in the literature as a result of sliding (Díaz del Río *et al.*, 1986) and/or creep (Díaz del Río and Fernández Salas, 2005). These interpretations came from the seismic profiles where the sediment undulations appeared to be affected by the neotectonic fracture systems, which produced mass movements of material towards the continental slope along gliding planes subparallel to the seafloor (Díaz del Río *et al.*, 1986). Recently, new multibeam data sets and several seismic profiles were acquired on board of R/V García del Cid and R/V Vizconde de Eza, respectively. These data sets were analyzed to describe the seafloor morphology and the relevant

morphologic features of the study area. In addition, a mooring line, including a string of high frequency temperature sensors, and an ADCP and ten OBS, was deployed on the GoV continental slope. These time series showed the presence of internal waves and their role with the sediment transport. Results of this study provide a new point of view on the sediment dynamics on the GoV continental slope and the origin of the sediment undulations observed, suggesting a relation between the sediment dynamics and the observed morphological features.

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