

Paper Number: 2390

## **Sedimentary processes associated to a late Miocene large-scale submarine landslide (Sierra de Gádor, Almería, SE Spain)**

Sola, F.<sup>1</sup>, [Puga-Bernabéu, Á.](#)<sup>2</sup>, Braga, J.C.<sup>2</sup> and Aguirre, J.<sup>2</sup>

<sup>1</sup> Departamento de Biología y Geología, Universidad de Almería, 04120, Almería, Spain, [fesola@ual.es](mailto:fesola@ual.es)

<sup>2</sup> Departamento de Estratigrafía y Paleontología, Universidad de Granada, Campus Fuentenueva, 18002, Granada, Spain

---

An ancient, large-scale submarine landslide can be recognised in the vicinity of Alhama de Almería in SE Spain. The collapsed rocks crop out in an area 5.6 km long and 5.2 km in maximum width with an estimated headwall height of the landslide of 250 m. The landslide occurred under water in the Tortonian (late Miocene) at the northern slope of the precursor relief of the present-day Sierra de Gádor mountain range. This is a large antiform trending E–W to ENE–WSW, which is uplifting since the late Miocene due to NNW–SSE compression caused by convergence of African and Eurasian plates (Marín-Lechado et al., 2007). During the Tortonian, this relief was an island separated from the Iberian Peninsula mainland by the Alpujarra corridor, a small and narrow intermontane basin of the Betic Cordillera in the western Mediterranean Sea (Braga et al., 2003).

The involved rocks comprise Triassic dolostones and phyllites from the metamorphic Alpujarride Complex, one of the Betic nappes, and Tortonian shallow-water marine sandstones and conglomerates. Coherent large masses of metamorphic rocks and shallow-water Miocene deposits at the toe of the headwall distally change to chaotic deposits of metre- to hectometre-sized blocks of different lithologies embedded in Miocene marine marls, and debrites. Rotation of collapsed rocks along the slip surface created a canyon-shaped depression at the southeastern margin of the landslide. This depression funnelled sediment gravity flows generated upslope promoting local thick accumulations of remobilised sediments during the late Tortonian and early Messinian.

This work allows comparison between ancient submarine landslides in outcrops and modern examples and expand the understanding of ancient mass-transport deposits in convergent tectonic margins, which are often difficult to recognize because of their low preservation potential.

### *References:*

[1] Marín-Lechado C et al. (2007) Pure Appl Geophys 166:1-21.

[2] Braga JC et al. (2003) Geomorphology 50:3-26

