



Storm impact and recovery patterns in natural and urbanised beaches in Cadiz (SW Spain)

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A beach monitoring program was carried out in Cadiz Province (SW Spain), within the MICORE (FP7/2007-2013, grant n° 202798) and the RESISTE (CGL 2008-00458/BTE) projects. In detail, the present paper deals with morphological changes produced by a short-duration storm event and successive beach recovery in two different mesotidal, quartz-rich sandy beaches. By one hand, Cortadura beach, located in Cadiz town, is backed by a promenade and shows a smooth, dissipative beach profile composed by fine sands. On the other hand, Camposoto beach, located at Sancti Petri sandspit, is a natural beach backed by dune ridges and saltmarshes, and shows an intermediate-reflective beach profile composed by medium sands. Both beaches, which are about 5 km apart, are broadly exposed to the same offshore wave energy and have the same orientation.

In order to obtain morphological and volumetric beach changes, topographic surveys were carried out by the means of a DGPS. Furthermore, morphodynamic numerical models have been used in order to estimate topographical changes. At the end of summer period (14th October 2008), beaches presented an accretionary state characterised by a small (at Cortadura) and a well developed (at Camposoto) berm. At the beginning of November, the investigated beaches recorded the impact of a short duration storm approaching from the SW, characterized by significant wave height values of about 2.5 m. Field surveys evidenced maximum topographical changes of about 0.50 and 1.0 m respectively at Cortadura and Camposoto beaches, berm erosion and accretion at low foreshore areas (i.e. beach pivoting) and beach flattening being the patterns observed at both beaches. Beach recovery took place in following days, the surveys carried out on 19th November 2008 revealing a faster and more comprehensive recovery of the natural area: a small, flat bar was observed on the low foreshore at Cortadura, and a well developed berm at Camposoto beach.