



Erosion in the Beaches of Crete

CE SYNOLAKIS (1,2), S FOTEINIS (1,2), V VOUKOUVALAS (1,3), N KALLIGERIS (1,2)

(1) Technical University of Crete, Department of Environmental Engineering, Crete, 73100 Greece (costas@usc.edu), (2) Institute of Applied and Computational Mathematics, Foundation of Research and Technology (FORTH), Heraklion, CA 71110, Greece, (3) Delft Institute of Technology, Delft, Netherlands. (vvoukouvalas@gmail.com)

In the past decade, erosion rates for the coastlines of Greece are rapidly increasing. Many beaches on the northern coast of the island have substantially retreated, while others have disappeared or will disappear within the present or the following decade if no action is taken. For the better understanding and visualization of the current situation, specific examples of rapid erosion are described and afterwards we speculate as to the causes. We infer that, as in other parts of the Mediterranean, the causes are anthropogenic and include removal of sand dunes to build roads, sand mining from beaches and rivers, permanent building construction within the active coastal zone, on or too close to shoreline, and poor design of coastal structures. The reason behind the rapid erosion of Greece coastlines is the complete lack of any semblance of coastal zone management and antiquated legislation. We conclude that unless urgent measures for the protection and even salvation of the beaches are taken and if the sand mining and dune removal does not stop, then several beaches will disappear within the present and the following decade.