



Satellite images survey for identification the coastal sedimentary system changes and associated vulnerability along the western bay of the Gulf of Tunis (northern Africa)

Hzami Abderraouf (1), Oula Amrouni (2), Gheorghe Romanescu (3), Cristian Constantin Stoleriu (3), Alin Mihai Pintilie (3), and Abdeljaouad Saadi (1)

(1) University of Tunis El-Manar, faculty of science, laboratory of mineral resource and environment, Tunisia (abderraoufhzami@gmail.com), (2) Laboratory of marine environment, national institute of marine science and technology, Tunisia (oulabz@yahoo.fr), (3) University alexandru ioan cuza iasi, faculty of geography and geology, department of geology, Romania (romanescugheorghe@gmail.com)

Abstract. The aim of this study is to test the effectiveness of satellite data in order to monitoring shoreline and sedimentary features changes, especially the rapidly changing of the Gulf of Tunis. The study area is located in the western bay of the Gulf of Tunis (Southern Mediterranean Sea) that is characterized by sandy beaches of Ghar Melah and Raoued (Medjerda Delta area). The aerial photographs and satellite imageries were used to map the shoreline evolution. Diachronic data (1974 and 2000; scales 1/25,000) were completed in order to monitor and to quantify, the evolution of the coastal areas. These thematic data were digitally overlain and vectorised for highlighting the shoreline changes between 1974– 2016, in order to map the erosion and accretion areas. In the study area occur both accretion and degradation, depending on location, sediment supply and man-made barriers. It was found that the general trend of the coastal geomorphic processes can be monitored with satellite imagery (Sentinel and Spot), due to its time repetitive coverage and their good spectral contrast of land and sea. Improved satellite imagery with higher resolution should be a valuable tool for complementing traditional sedimentary structures (shoreline, delta, marine bars) monitoring especially in lowlands areas (easily eroded), such as the Gulf of Tunis. These coastal changes can be very closely related to the changes in the hydrology of the Medjerda River basin, due to the construction of dams and to the deviation of its original stream course.