

MEDIUM-TERM SURVEY OF MORPHODYNAMIC EVOLUTION OF THE SILLON DE TALBERT GRAVEL BARRIER SPIT (BRITTANY, FRANCE)

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Abstract

The Sillon de Talbert is a large swash-aligned gravel barrier spit. It began to form around 6,000 cal BP when relative sea-level rise began to slow. The spit's sediment volume is estimated to be $1.23 \times 10^6 \text{ m}^3$ that stretch over 3.5 km. Over the last decades, the spit experienced landward migration by rollover reaching 1.1 m/yr at least since 1930, with maximum retreat rates of 1.35 m/yr affecting the proximal section. This evolution has led to the construction of jetties and ripraps during the 70's and 80's in order to stabilize the spit. In 2001, management of the Sillon de Talbert was transferred to a public office (*Conservatoire du Littoral*), which adopted a different coastal erosion management strategy. This involved the restoration of the site and small scale occasional sediment recharge and barrier reprofiling. At the same time, a topographic yearly survey was undertaken to characterize and better understand the processes of landward displacement of the spit. This monitoring began in 2002 and is still ongoing. It is based on DGPS field measurements and/or aerial drone stereoscopic photography. The results show that the spit displacement occurs when a high tide level coincides with storm waves as it was the case during the storm event on the 10th of March, 2008 and during the 2013-2014 winter storms. In that context, sluicing overwash and/or inundation regime affects the whole upper part of the spit profile, inducing retreat reaching between 20 to 30 m. Following such episodes of overwash and landward migration, the crest spit may be reformed rapidly during fair meteorological periods.