Background and rationale

The knowledge on coastal processes is not only of basic and practical importance, for instance in engineering applications but also of socio-economic relevance. In a crenulated coastline with beaches and headlands, the balance between the incoming and the lost sediment determines the beach stability that ranges between dynamic equilibrium to unstable. Headlands are natural barriers to the alongshore drift and therefore reduce the amount of sediments incoming from the updrift adjacent beaches.
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
MOSES
PTDC/GEO-GEO/3981/2012

Project funded by the Portuguese Foundation for Science and Technology (FCT)

Team

Centro de Investigação Marinha e Ambiental CIMA
Delminda Moura (Investigadora Responsável)
Carlos Loureiro
Cristina Veiga-Pires
João Horta
Óscar Ferreira
Rita Carrasco
Selma Gabriel
Sónia Oliveira

Centro de Investigação Tecnológica da Universidade do Algarve (CINTAL)
António Silva
Danny Brito

Instituto Don Luís (IDL)
Cristina Lira
Mónica Ribeiro
Ivana Bosnic
Objective 1. To combine acoustic technique with marked sands and digital image processing in order to quantify the volume of sand moving alongshore.
Preparation of the 1st field campaign

Programing the equipment location in the nearshore (A), the sampling network (B) and the profiles for topographic survey (C). Credits: João Horta
Preparation of the 1st field campaign

22 March 2014

marking the sands with fluorescent dye

Sand collected in the study site

The marking sand team

Sand prior being marked
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
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Campaign implementation
25 March 2014

Carrying the equipment at the University and arrival at the piers in Portimão.
Credits: Delminda Moura
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
MOSES
PTDC/GEO-GEO/3981/2012

Campaign implementation

25 March 2014

Carrying the equipment at the University and arrival at the piers in Portimão.
Credits: Delminda Moura

Project funded by the Portuguese Foundation for Science and Technology (FCT)
Deployment of the Acoustic Backscatter Sensor and Current Profiler off Galé shore.
Credits: Delminda Moura
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
MOSES
PTDC/GEO-GEO/3981/2012

Campaign implementation
25 March- 03 April 2014

Programming the electromagnetic current meter and the pressure transducers to acquire current and wave data

Marked sand and equipment on the beach face

Marked sand being carried by the waves

Credits: Delminda Moura
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
MOSES
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Project funded by the Portuguese Foundation for Science and Technology (FCT)

Campaign implementation
25 March - 03 April 2014

Wave data acquisition (A), taking photos of the sand (B), Sampling the sand (C) and (D), topographic survey (E). Credits: Delminda Moura
Sónia Oliveira account the marked grains using black light
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
MOSES
PTDC/GEO-GEO/3981/2012

Post campaign
Data processing

Tracking the sand transport using the marked grains
Distribution of the grain size on the beach face

Credits: Sónia Oliveira
Credits: Sónia Oliveira

Project funded by the Portuguese Foundation for Science and Technology (FCT)
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
MOSES
PTDC/GEO-GEO/3981/2012

Project funded by the Portuguese Foundation for Science and Technology (FCT)

Post campaign
Data processing

Modelling waves approaching the coast. Credits: João Horta
Objective 2. The field data will be used to produce a GIS tool allowing to predict changes in the beaches equilibrium induced by several wave climate conditions.

The beach morphology after a strong wave attack. Credits: João Horta.
MOVING SANDS-EQUILIBRIUM STATE OF CRENULATED COASTS
MOSES
PTDC/GEO-GEO/3981/2012

Forthcoming campaign
03 – 10 November, 2014

Results dissemination until now

Book chapter

Journal of international circulation

Conference proceedings