

# BACKGROUND INFORMATION

This project with primarily a social finality is part of the Strategic Basic Research (SBO) programme of the Flanders Innovation & Entrepreneurship (previously lead by IWT).

**Duration:** 1 November 2015 – 31 October 2019

**Budget:** 1.897.466 EUR

The consortium exists of experts from the Universities of Leuven, Ghent and Brussels, Flanders Hydraulics Research, Coastal Division and Maritime Access of the Flemish Government, RBINS-OD Nature and Flanders Marine Institute complemented with valorisation partners (IMDC and Fides Engineering). They all have a research background in physical aspects of coastal processes (waves, currents, sediment dynamics).

In addition, interim feedback is organised with a Guidance Committee and technical experts from Belgium and abroad.

**Project coordinator** is Jaak Monbaliu, professor at the University of Leuven.

In cooperation with



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## WAVE ACTION IN A CHANGING CLIMATE

Effects on the dynamics of the coast and implications for future safety strategies





## OBJECTIVES

To ensure coastal safety, the Flemish government invests in the implementation of the **Master Plan for Coastal Safety**. At the same time it challenges the combination of new spatial developments and coastal protection. The main protective measure consists in **beach and foreshore nourishment**.

*"The resilience of the coast, just as for human beings, determines the strength against future events. Quantifying coastal resilience is an essential first step."*

Despite the fact that sand nourishment is an old and widely used protection technique, the design and implementation of an **efficient and sustainable scheme** is still a big challenge. Local accretion and erosion of our beaches are indeed complex and the result of a combination of different processes like waves, tides, sediment transport, ...

Moreover **climate change scenarios** comprise large uncertainties related to rate and possible consequences. Further research is needed to improve current knowledge and to implement it in applications for our coastline.

With CREST we want to **respond** to international developments and **anticipate** the knowledge that will be needed to ensure a safe and enjoyable coast in the nearby future on the basis of these **five scientific objectives**:

<sup>(1)</sup> gain a better understanding of **nearshore and onshore physical processes**; <sup>(2)</sup> gain a better understanding of the **flood risks** along the coast and the impact of **wave overtopping** on **structures, buildings** and behavior of **people inside**; <sup>(3)</sup> determine the **resilience** of the natural coastal system (dunes and beaches) in relation to storms and wind; <sup>(4)</sup> **validate model calculations** with laboratory and field measurements in selected pilot areas; <sup>(5)</sup> define **improved climate change scenarios** for the Belgian coast.

CREST also aims at improving access to existing data. Project outcomes are of immediate use to other researchers and professionals in their field of expertise.