TideSed: Intertidal Sediment Characterization using HyMAP Imagery

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PRESENTATION ABSTRACT

With one of the largest wading bird populations in western Europe, and several rare habitat types such as freshwater tidal marshes, the Scheldt estuary is internationally known for its nature. On the other hand, the estuary is also a site of heavy industry, and is an important commercial shipping transport route. These two contrasting worlds make it difficult for coastal zone managers to make planning decisions that affect the whole ecosystem. Decision making can be facilitated if better knowledge of the ecological processes is available. Many of the most important biogeochemical processes occur on the large areas of soft sediments, like the Molenplaat which is exposed at low tide. Obtaining accurate data on the basic biological, chemical and physical processes in intertidal sediments is expensive and difficult: the accessability of the site is limited, and estuaries are characterized by a wide spatial heterogeneity. Remote sensing methods can produce detailed information on ecological function in a cost-effective manner.

Hyperspectral HyMAP imagery is combined with intensive ground truthing, to quantify the most important biological and physical parameters such as pigment content, sediment grain size and water content. In addition, value-added products with relevance for coastal zone management are produced, including a high-resolution map of primary production, an ecotope classification (functional groups of benthic algae and macrofauna) and a map of sediment stability.

To achieve these goals a consortium consisting of five research institutes with complementary skills in remote sensing, marine (and coastal zone) ecology and sediment mechanics joined forces in the TIDESED project financed by the Belgian Science Policy Office in the framework of the STEREO research program.