



Coastal monitoring through video systems: best practices and architectural design of a new video monitoring station in Jesolo (Veneto, Italy)

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Measuring the location of the shoreline and monitoring foreshore changes through time represent a fundamental task for correct coastal management at many sites around the world. Several authors demonstrated video systems to be an essential tool for increasing the amount of data available for coastline management. These systems typically sample at least once per hour and can provide long-term datasets showing variations over days, events, months, seasons and years. In the past few years, due to the wide diffusion of video cameras at relatively low price, the use of video cameras and of video images analysis for environmental control has increased significantly. Even if video monitoring systems were often used in the research field they are most often applied with practical purposes including: i) identification and quantification of shoreline erosion, ii) assessment of coastal protection structure and/or beach nourishment performance, and iii) basic input to engineering design in the coastal zone iv) support for integrated numerical model validation

Here we present the guidelines for the creation of a new video monitoring network in the proximity of the Jesolo beach (NW of the Adriatic Sea, Italy), Within this 10 km-long tourist district several engineering structures have been built in recent years, with the aim of solving urgent local erosion problems; as a result, almost all types of protection structures are present at this site: groynes, detached breakwaters. The area investigated experienced severe problems of coastal erosion in the past decades, including a major one in the last November 2012.

The activity is planned within the framework of the RITMARE project, that is also including other monitoring and scientific activities (bathymetry survey, waves and currents measurements, hydrodynamics and morphodynamic modeling).

This contribution focuses on best practices to be adopted in the creation of the video monitoring system, and briefly describes the architectural design of the network, the creation of a database of images, the information extracted by the videomonitoring and its integration with other data.