



## **Multitemporal remote-sensing observations of intertidal vegetation spatial distribution**

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Salt-marshes are transition zones between marine and terrestrial ecosystems playing an important role in the geomorphological and biological dynamics of intertidal areas. They are characterized by extremely high primary productivity and high biological diversity, and the spatially-distributed study of their biological features is interesting both scientifically and operationally. As intertidal environmental properties are distributed over a large interval of spatial scales, from centimetres to kilometres, not simultaneously accessible through field observations, remote sensing becomes a necessary observation tool. We investigate here the spatial patterns of salt-marsh vegetation and their temporal variability using satellite data acquired in the northern Venice Lagoon (Italy) over the period 2001-2006. We show that multispectral satellite remote sensing, if accompanied by suitable concurrent ground truth field observations, provides reliable, repeatable and accurate observations of intertidal vegetation patterns. A space-time characterization of the vegetation maps obtained through remote-sensing is also performed to study (alfa-) biodiversity and its spatial distribution (beta- and gamma- diversity), together with possibly controlling morphological factors, such as LiDar-derived soil elevations.