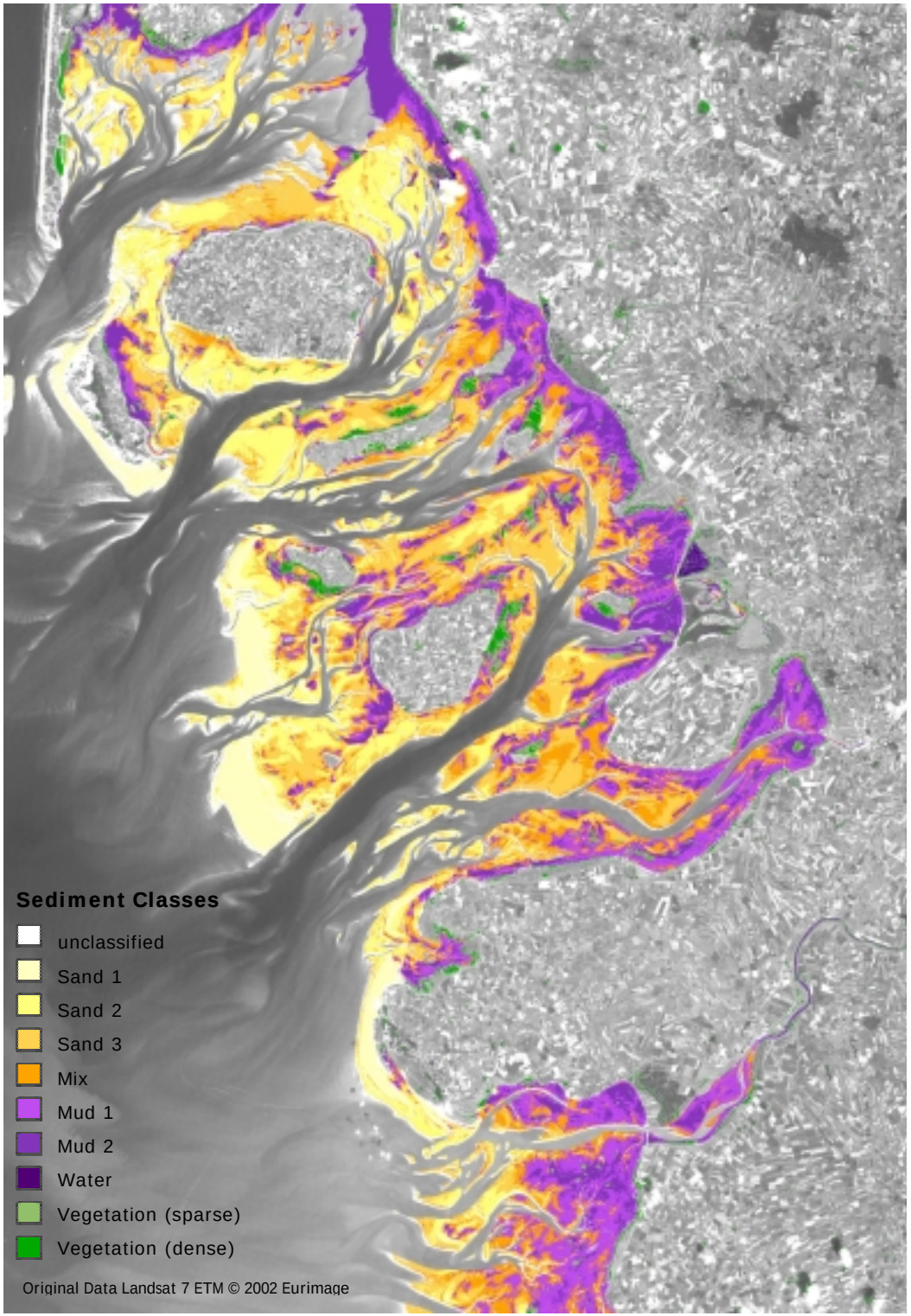
Classification of Intertidal Sediments

Objective

The morphology of intertidal flats underlies permanent changes caused by the tidal currents and different other natural anthropogenic influences.

Therefore, a monitoring of the morphological changes is necessary, which gives the opportunity to detect possible changes of the habitats caused by climate changes or anthropogenic impact like nourishment and dredging.

The sediment type is an important parameter from which the geomorphologic conditions can be derived. Typically, this parameter is classified as sandy, mixed or muddy sediment as well as transitions between these categories. Beside the sediment, areas with vegetation coverage in different densities can be detected very well.



Data material

The spatial resolution of 30 meters and the spectral characteristic of the Thematic Mapper onboard of Landsat 5 or the Enhanced Thematic Mapper onboard Landsat 7 give a very good basic for the classification of the intertidal flat sediments.

Methods

Different methods are used - partly in mutual completion - in order to retrieve a sediment classification. Mainly the linear spectral unmixing in combination with unsupervised and supervised classification algorithms is used.

Results

As results of the data processing, maps of the sediment type and an assessment of the vegetation coverage are produced. These maps can be integrated into geographical information systems which provide the tools for calculating the area of the different surface types and detecting changes between different acquisition dates.

Intertidal Sediments

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