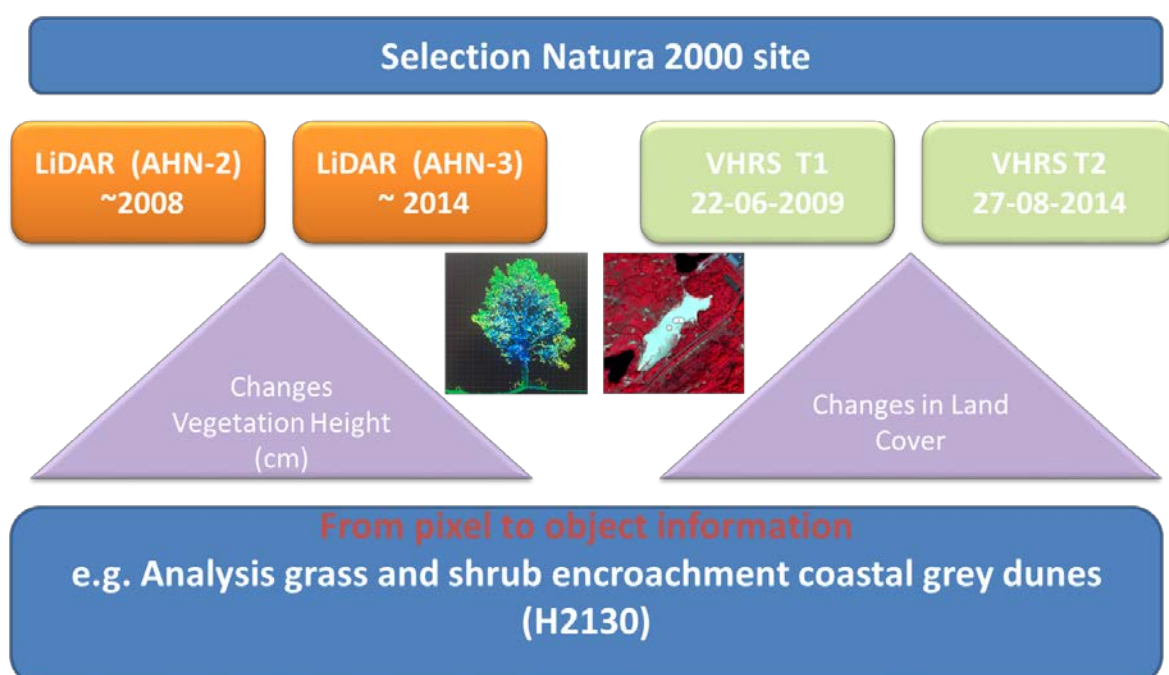


Monitoring vegetation dynamics in the Dutch coastal dunes of the Natura 2000 site Meijendel-Berkheide with LiDAR data and high resolution satellite imagery over a six years period

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Regular mapping of vegetation structure is of importance for biodiversity monitoring (van Beek, 2014). In the Netherlands, vegetation structure mapping is in most cases still done in a traditional way based on field surveys in combination with visual interpretation of aerial photographs (Mûcher et al, 2015). This procedure is time consuming and often limited in its consistency and efficiency to cover large areas. Meanwhile space and airborne imagery are increasingly becoming available at affordable costs. Therefore, the use of alternative and semi-automatic classification techniques was investigated that explores commonly shared Dutch data such as aerial photographs and LiDAR to support the mapping and monitoring of the vegetation structure for larger areas. A pilot project was carried out in 2016 in cooperation with land managers from the nature area Meijendel-Berkheide (Arcadis, 2015, Janssen, et al, 2017). In this pilot, high resolution imagery from 2009 and 2014 in combination with LiDAR data from 2008 and 2014 were used to create land cover maps and vegetation structure maps for the two time stamps with a 1 meter spatial resolution. These maps were used to detect changes in land cover and changes in vegetation structure for the whole area. An example of how this RS data analysis can be converted into information for land managers is the detection of specific changes for the habitat type H2130 (grey dunes, Ministerie EZ, 2016). The existing habitat map was used to develop a protocol to find grey dunes units that show significant changes in their composition of vegetation structure between 2008 and 2014. These units were labelled and selected for inspection in the field. The land manager then could decide if any maintenance actions needed to be taken. This kind of change detection is hard to carry out in the field because of the size of the area and the relatively small size of the habitat changes.

Remote Sensing Methodology



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