Imaging spectroscopy and Integrated Coastal Zone Management, a promising marriage

Bart Deronde, Sindy Sterckx, Luc Bertels, Els Knaeps and Walter Debruyn
Remote Sensing and Earth Observation Processes,
Flemish Institute of Technological Research (VITO),
Boeretang 200, 2400-Mol, Belgium

Overview of the coastal and marine hyperspectral projects executed by VITO and it’s partners

- Monitoring of sand transport processes along the Belgian coast
  Erosion mapping, monitoring of sand transport processes
  (AWZ-Coastal div.)

- Coral reef monitoring in Fordate (Indonesia)
  Mapping of endangered reef ecosystems in Tanimbar
  (Belspo)

- Mapping of sediment habitat types on the Molenplaat (Westerschelde)
  Mapping of grain size, chl-a, org. mat., water content
  Ecotope map
  (Belspo)

- Water quality monitoring (North Sea and Schelde)
  Monitoring of chl-a, SPM, CDOM
  (Belspo)

- Atmospheric correction above water bodies
  Adaptation of terrestrial atm. corr. for aquatic env.
  (Belspo)

An overview of these projects is published in:
Deronde B., Sterckx S., Bertels L., and W. Debruyn, 2005,
Imaging spectroscopy and integrated coastal zone management, a promising marriage, Proceedings EARSeL Coastal workshop, Porto, Portugal, submitted.
An operational method for vegetation mapping based on airborne imaging spectroscopy, applied to the Belgian dunes

Bart Deronde, Pieter Kempeneers, Luc Bertels, Rik Houthuys - VITO
Sam Provoost - Institute for Nature Conservation
Evy Tortelboom, Ouns Kissiyar - OC GIS-Vlaanderen

Objective
Development of an operational method for supervised vegetation classification, applied to the Belgian dunes. We served two users with two objectives:

- the type of vegetation influences the dune stability (AWZ-coastal division)
- the species composition is important with respect to nature conservation (IN)

>> 2 levels of classifications: detailed (22 classes), general (11 classes)

Classification methodology
Supervised approach based on extensive field work; classification performed with LDA.

Data
AISA-Eagle, VNIR, 32 bands, 1m spatial resolution

Partners
This project was financed by the Belgian Science Policy under the national remote sensing program STEREO I and by the Flemish Government (Administratie Waterwezen en Zeewegen, Afdeling Kust).

Three partners were actively involved in the project:
- OC GIS-Vlaanderen
- Flemish Institute for Technological Research (VITO)
- Institute for Nature Conservation (IN).
An operational method for vegetation mapping based on airborne imaging spectroscopy, applied to the Belgian dunes

Bart Deronde, Pieter Kempeneers, Luc Bertels, Rik Houthuys - VITO
Sam Provoost - Institute for Nature Conservation
Evy Tortelboom, Ouns Kissiyar - OC GIS-Vlaanderen

Map of the dune vegetation in the Westhoek nature reserve.

For each of the nine nature reserves along the Belgian coast, similar maps were made.