ESTUARINE AND COASTAL SYSTEMS

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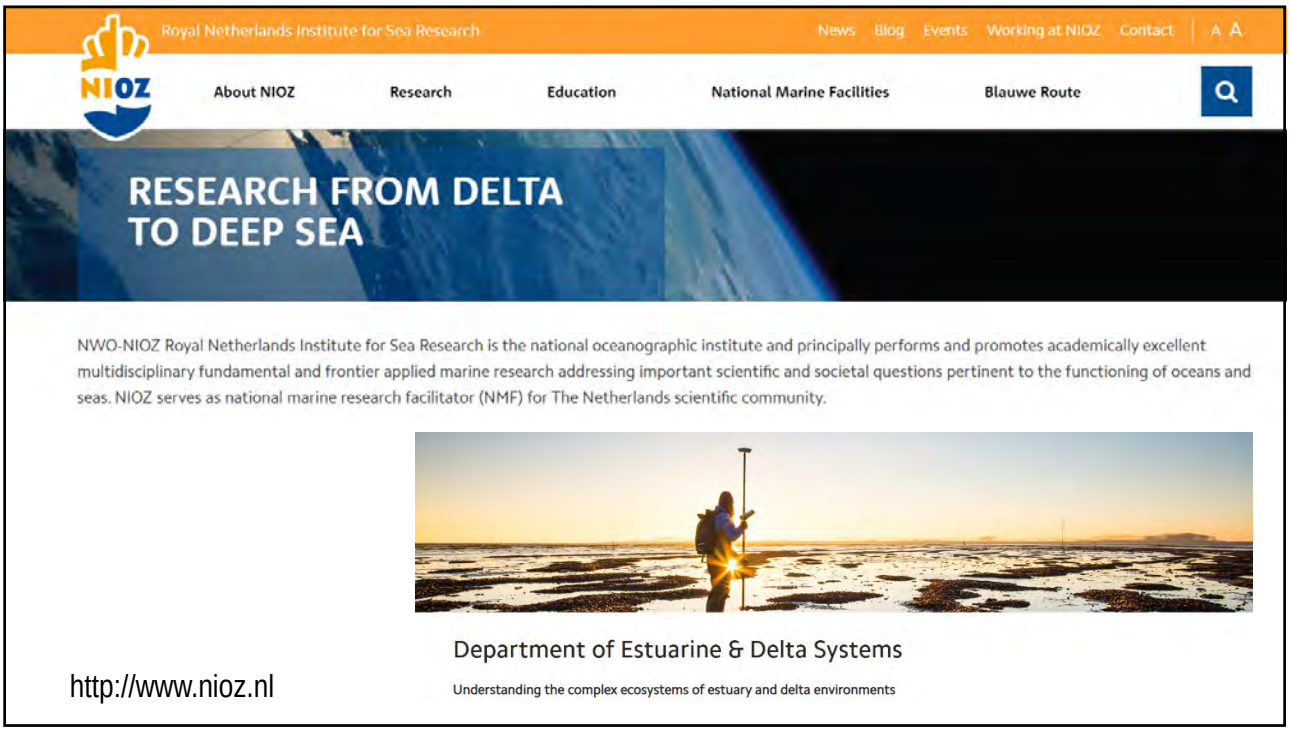
NIOZ Royal Netherlands Institute for Sea Research, Dept of Estuarine and Delta Systems
University of Twente, Faculty of Geo-Information and Earth Observation (ITC), Dept of Water Resources

30 March 2021



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ITC IS RECOGNIZED WORLDWIDE FOR ACHIEVEMENTS IN TEACHING, RESEARCH AND CAPACITY DEVELOPMENT IN THE FIELD OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION.

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UNIVERSITY OF TWENTE. | ITC

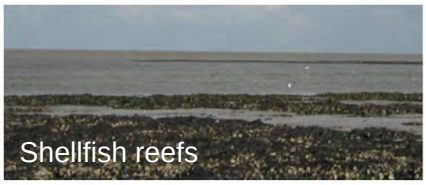
The department of Water Resources is a multidisciplinary scientific department specialising in scientific research and education in earth observation and geo-information sciences for the understanding, monitoring, predicting and sustainable use and management of water resources.

DATA AND INFORMATION

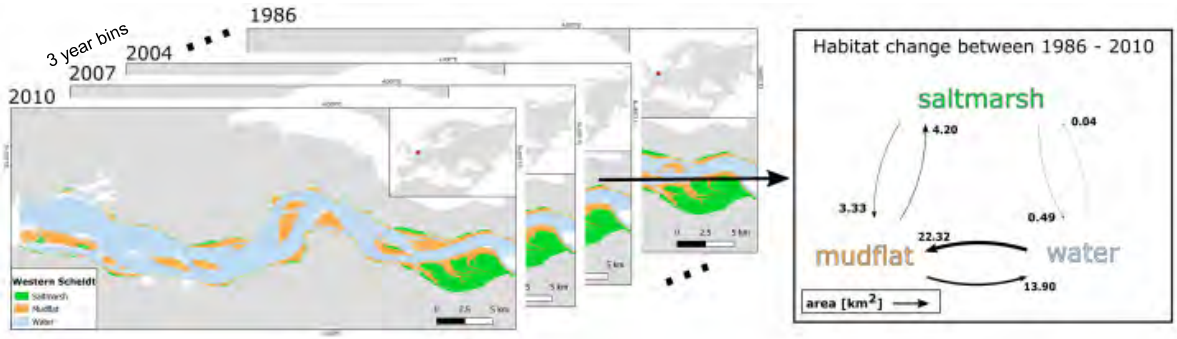
FOR ESTUARINE AND COASTAL RESEARCH

-Copernicus Sentinel data
-other data sources (e.g., for longer time-series)
- CLMS (land) and CMEMS (marine) products/services
- in situ data (cal/val and complementary field data) and models

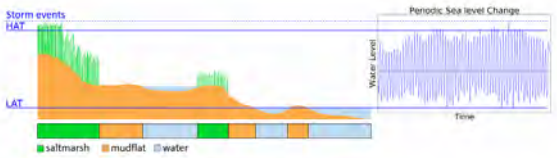
ESTUARINE AND COASTAL SYSTEMS



SALTMARSH HABITAT CHANGES



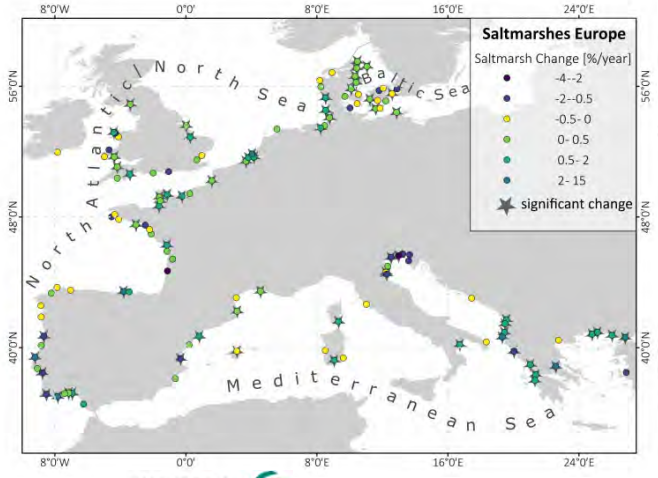
Based on Landsat (GEE)

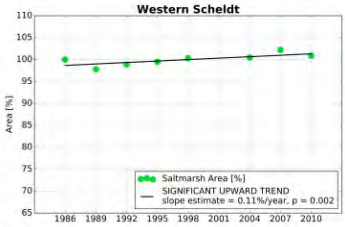


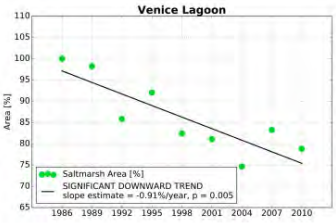
Project funded by NWO USP

Laengner et al., 2019, Remote Sensing

SALTMARSH HABITAT CHANGES







Project funded by NWO USP

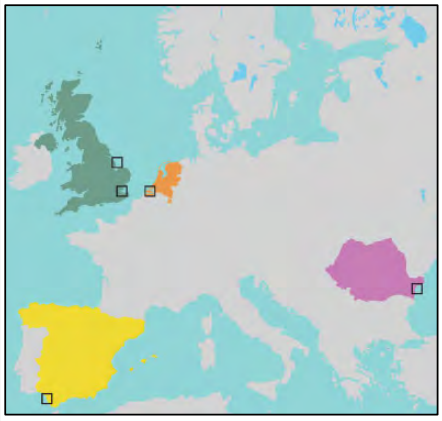
Laengner et al., 2019, Remote Sensing

SALTMARSH AS COASTAL DEFENCE

Photo Jeroen van Dalen, NIOZ

FORESHORE ASSESSMENT USING SPACE TECHNOLOGY

EU FP7 SPACE FAST (2014-2018)



De Vries et al. (2018) Synergy report EU FAST
Source satellite images: Copernicus Sentinel 2 MSI

FORESHORE ASSESSMENT USING SPACE TECHNOLOGY

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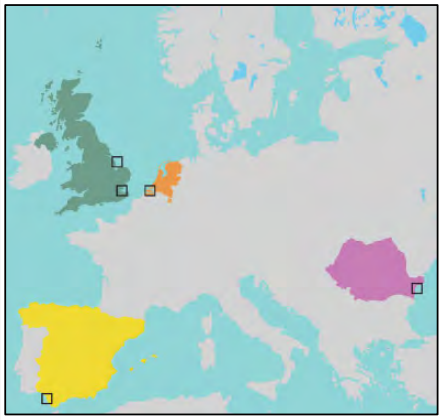
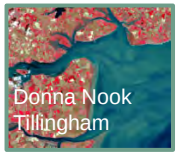
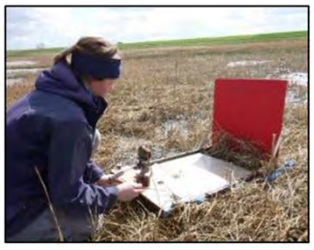






De Vries et al. (2018) Synergy report EU FAST
Source satellite images: Copernicus Sentinel 2 MSI

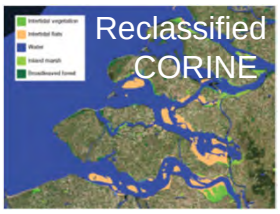
FORESHORE ASSESSMENT USING SPACE TECHNOLOGY

EU FP7 SPACE FAST – INTERTIDAL ELEVATION AND VEGETATION

Intertidal elevation (GEE)

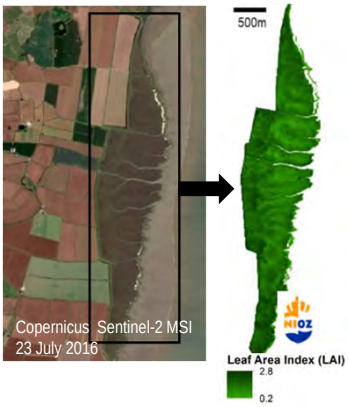
Vegetation presence (GEE)

Vegetation type (based on land cover maps)



Reclassification of http://land.copernicus.eu/pan-european/corine-land-cover/clc-2012

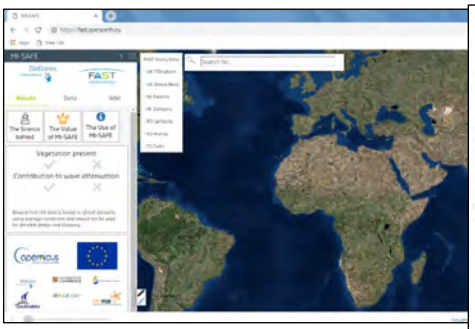
Vegetation structure



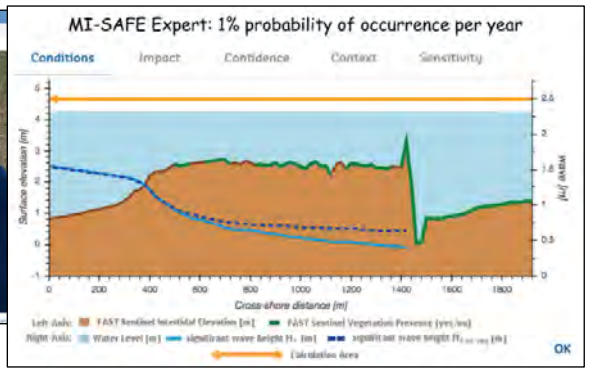
Deltares | UNIVERSITY OF CAMBRIDGE | GeoEcoMar | NIOZ | UCA Universidad de Cádiz | cbi mar | FAST FORESHORE ASSESSMENT USING SPACE TECHNOLOGY

FORESHORE ASSESSMENT USING SPACE TECHNOLOGY

EU FP7 SPACE FAST: MI-SAFE DOWNSTREAM SERVICE



Data available at: https://fast.openearth.eu/geoserver/web/



De Vries et al., 2018, https://zenodo.org/record/1158437

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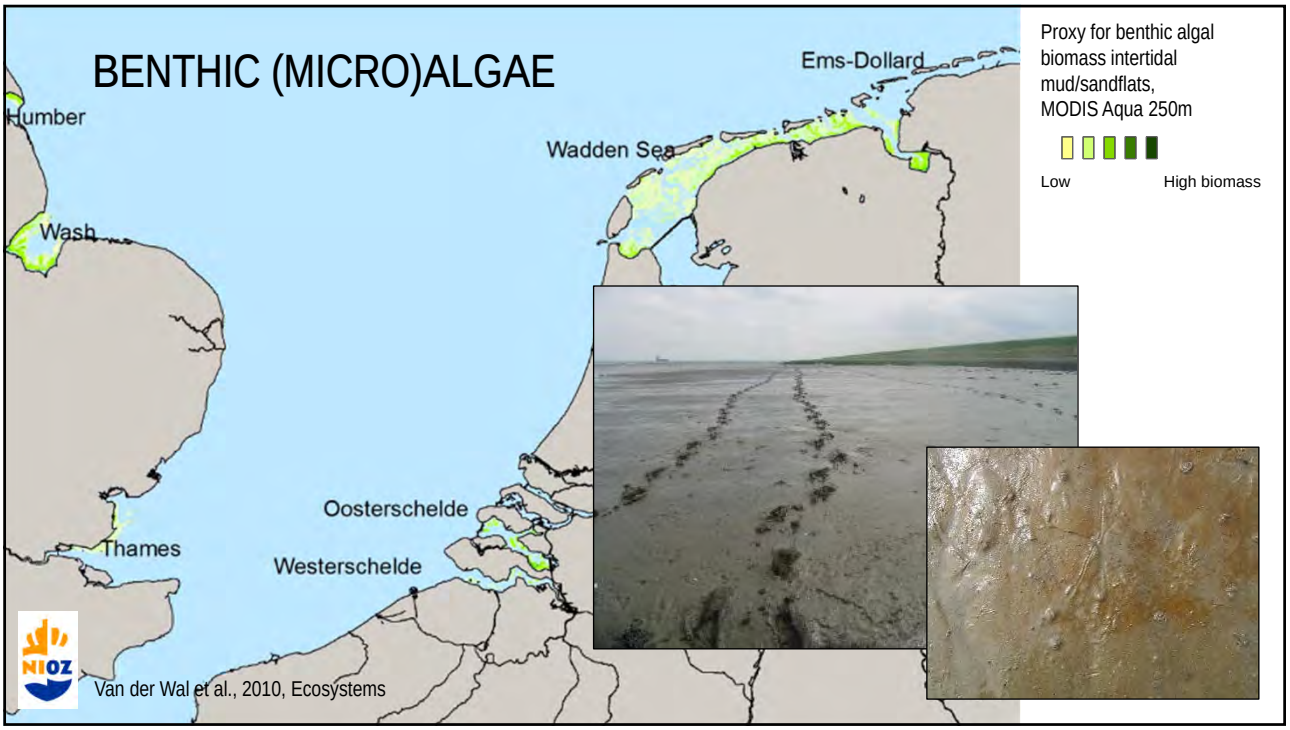
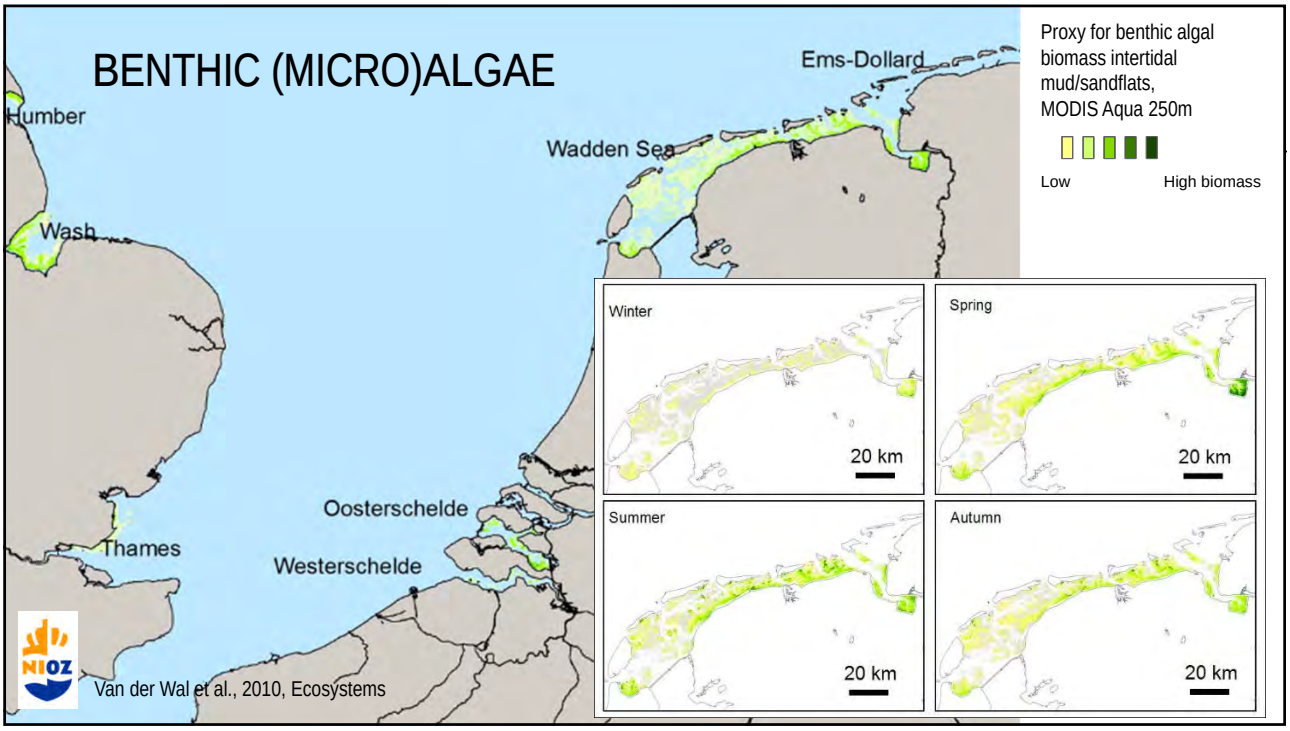

BENTHIC (MICRO)ALGAE
Ems-Dollard
Humber
Wadden Sea
Wash
Oosterschelde
Thames
Westerschelde
Proxy for benthic algal biomass intertidal mud/sandflats, MODIS Aqua 250m
Low
High biomass
Van der Wal et al., 2010, Ecosystems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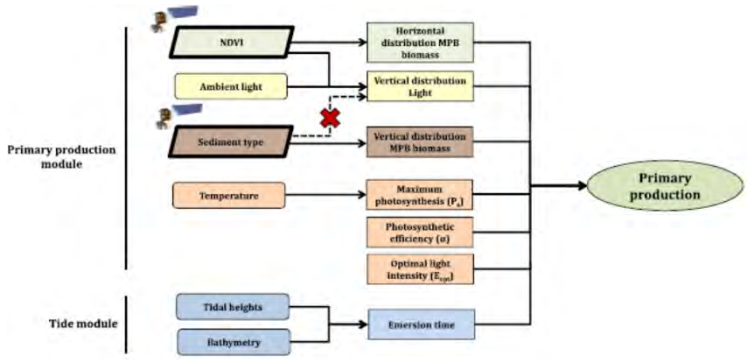
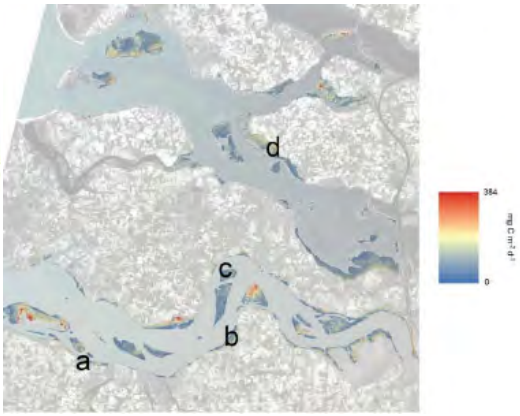
Low
High biomass
Winter
Spring
Summer
Autumn
20 km
Van der Wal et al., 2010, Ecosystems

BENTHIC (MICRO)ALGAE

MICROPHYTOBENTHOS PRIMARY PRODUCTION – ROLE IN THE FOOD WEB





Daggers et al. (2018), Remote Sens. Environment
Daggers et al. (2020), Limnology & Oceanography

Project funded by NWO USP

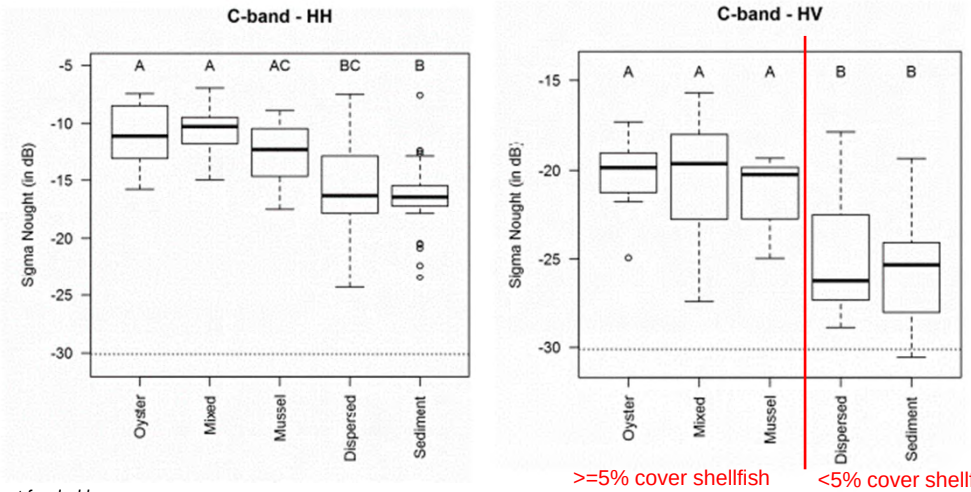
SHELLFISH REEFS (OYSTERS AND MUSSELS)

Photo: Sil Nieuwhof

Project funded by NWO USP

SHELLFISH REEFS (OYSTERS AND MUSSELS)

RADARSAT-2, C-BAND

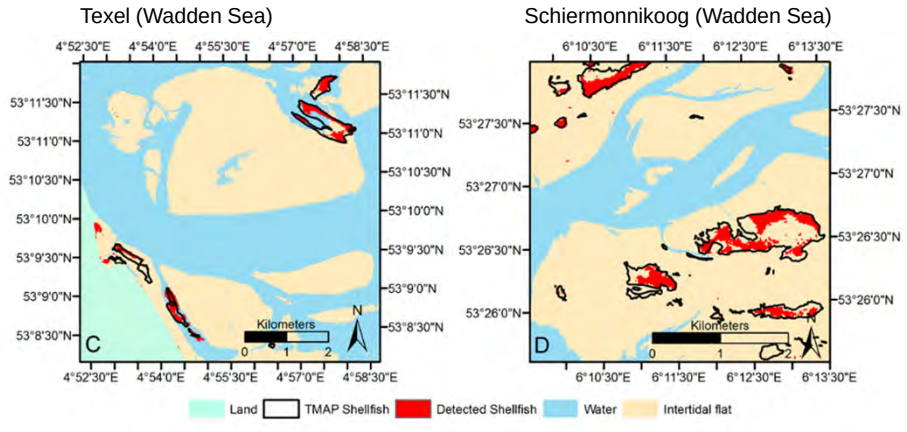


Project funded by NWO USP

Nieuwhof et al. (2015), Remote Sensing

SHELLFISH REEFS (OYSTERS AND MUSSELS)

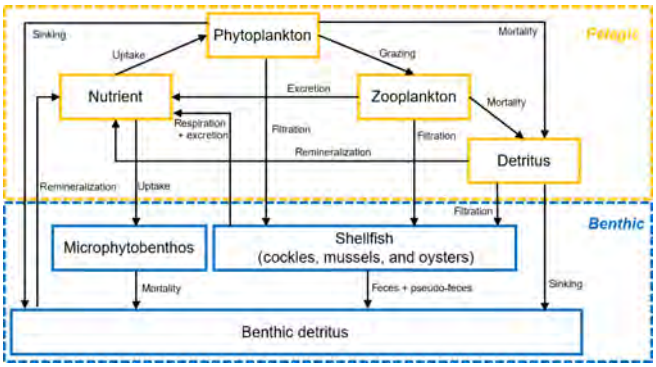
PRESENCE OF SHELLFISH REEFS BASED ON RADARSAT-2



Project funded by NWO USP

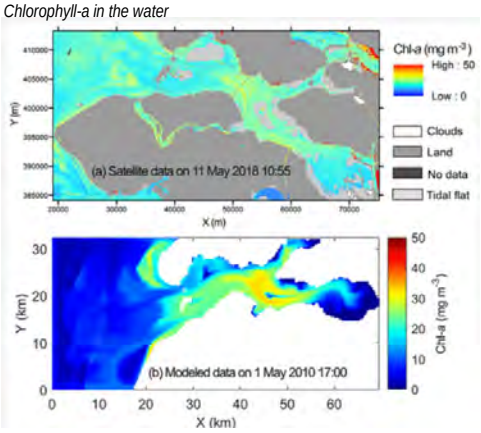
Nieuwhof et al. (2015), Remote Sensing

SHELLFISH AND PHYTOPLANKTON



Jiang et al. (2020), Biogeosciences

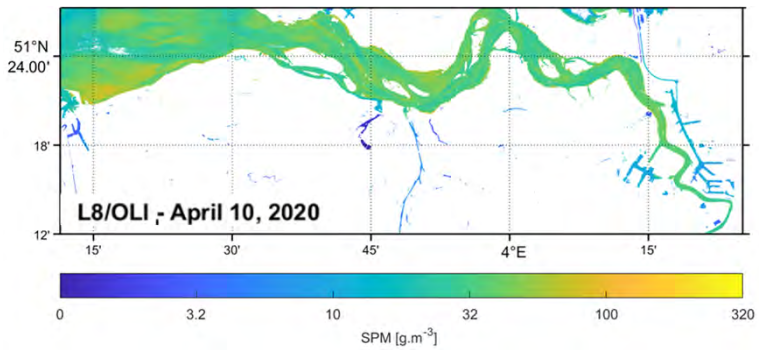
Chlorophyll-a in the water



Jiang et al. (2020), Biogeosciences

ESTUARINE SEDIMENT DYNAMICS

SUSPENDED PARTICULATE MATTER (SPM) IN RESPONSE TO EXTREME EVENTS

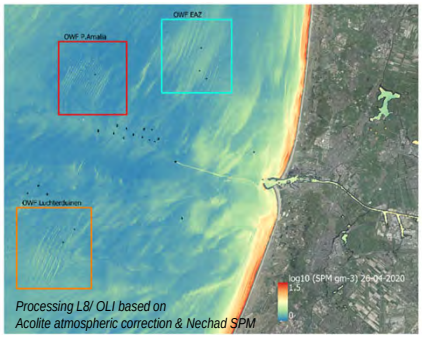


Tavora et al., in prep.

WORK IN PROGRESS

MARINE ECOSYSTEMS (NORTH SEA)

WHAT ARE THE EFFECTS OF OFFSHORE WIND PARKS ON SPM?



Brandao, van der Wal, van der Molen et al., in prep.
WORK IN PROGRESS

Project funded by
NWO NWA2 North Sea & Ecology

THANK YOU FOR YOUR ATTENTION!