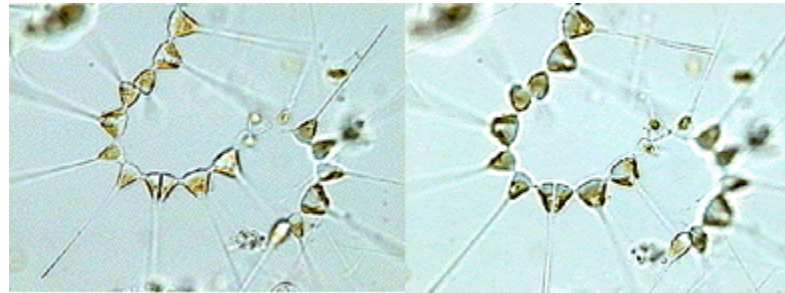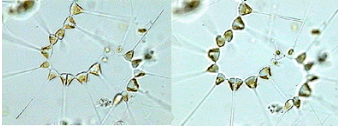# Monitoring of Phytoplankton

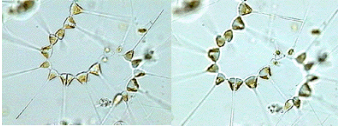## In the German Wadden Sea

F. Engel, Purdue University, Fall 2004
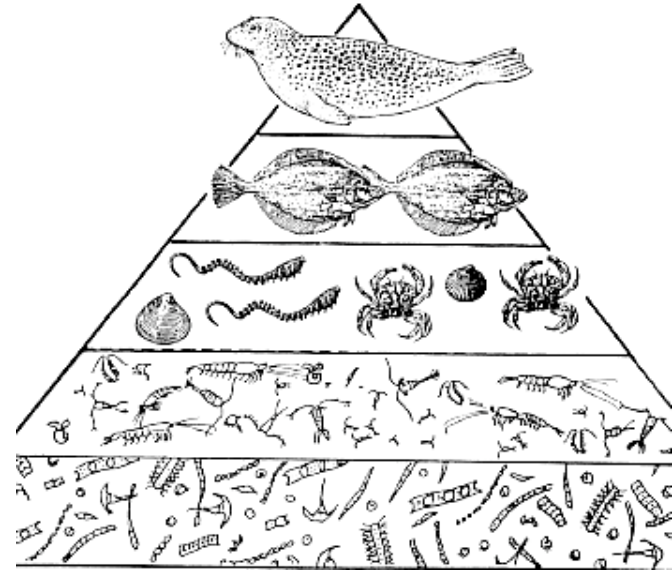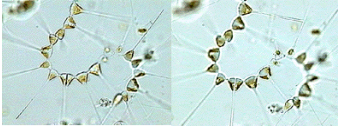
The Ecosystem Waddensea

- One of very few wadden seas worldwide
- Very special living conditions (inter-tidal character → salinity, air)
- Rich in species
- National park
- Of economical interest

Phytoplankton / Algae

- Foundation of marine food chain

- Produce over 1 kg carbon / m^2 / year
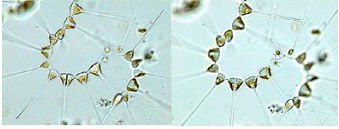
- Harmful Algal Bloom (HAB)

RS Monitoring of CHL - Concentration

Problem

Dissolved organic matter (case 2 waters) makes use of classical ratio bands impossible
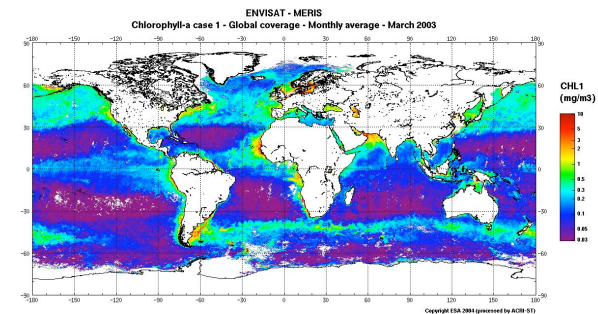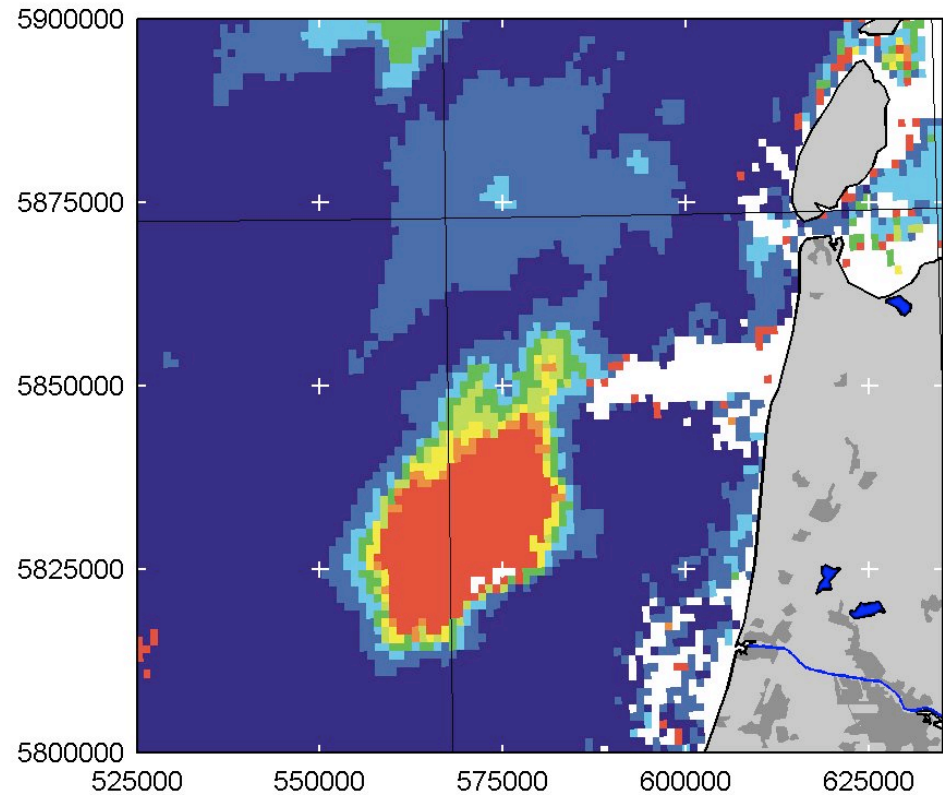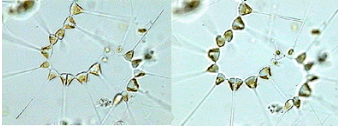
Approach

- ENVISAT / MERIS Data

- High quality in-situ data of CHL concentration and optical properties

- Algorithm development for ENVISAT/MERIS data

Products

- Regional CHL Maps

- Annual CHL Atlases

- Backscattering and absorption parameters (MERIS algorithm)

- Extending database of old data (SeaWiFS)

ENVISAT - MERIS
Chlorophyll-a case 1 - Global coverage - Monthly average - March 2003

CHL1 (mg/m3)

Sources of Information

Envisat
http://envisat.esa.int/instruments/meris/

Project "Revamp"
http://ivm5.ivm.vu.nl/revamp/

Coastal Research Institute GKSS
http://w3k.gkss.de/kof/

NASA on Phytoplankton
http://earthobservatory.nasa.gov/Library/Phytoplankton/

Harmful Algal Bloom
http://www.whoi.edu/redtide/