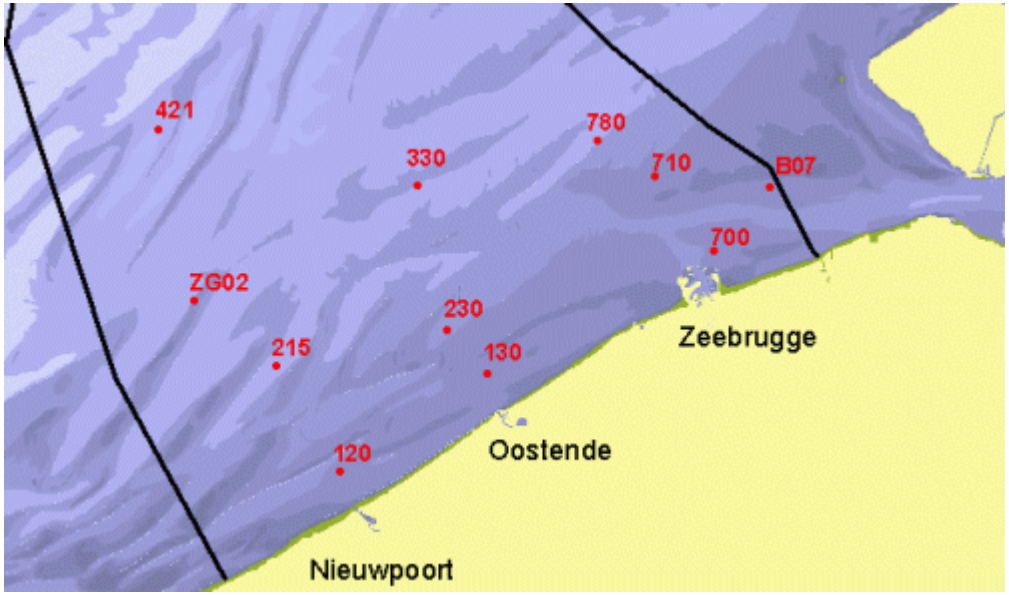
Data management course

Part III collecting data

Overview

- A monthly cruise
- Activities at station
- Sample handling
- Data recording
- Metadata recording
- Underway data

- 1 day 10 stations



Plan summary

- measuring temperature & salinity profiles and surface data underway, chlorophyl ,nutrients in water and sediment, suspended matter, sediment fractions, living plankton, fixated plankton..
- Ship is equipped with underway data system
- Samples are sent to different labs & results come back in batches after upto 1 year later
- Campaign is repeated every month

Activities at station

- Arrive at station
- Take ctd
- Take secchi disk
- Take niskin bottle 5-10l
- Take 2-3 bucket samples & filter, keep sample at seawater temperature
- Take sediment core with reineck
- Up to next station

Sample handling

- Water
  - Filter 0.5-1l for chlorophyl
  - Filter 0.5-1l for total suspended matter over weighed filter
  - Filter 100ml for nutrients
  - Fix 100ml with lugol for plankton composition
- Sediment
  - 5cm core in freezer for nutrients
  - rest in bags for grain size analysis
- Sample identification
  - Ship, station, date,(volume)
  - packaging

Data recorded

- Station : position and time at arrival & departure
- CTD cast : position, start, stop time
- Water sample(s): position, depth, time, volume
- Sediment sample: position, time
- Trawling : start&stop position, time, speed

Metadata recorded

- Cruise
  - Ship, work area, scientists on board, stations planned
- Station
  - Planned position, station name or code
- CTD
  - Instrument used, serial number
- Water samples
  - sampling method, filter method, fixation method..
- Sediment samples
  - Instrument used

Underway data available

- GPS: position, course, speed, UTC time
- Echo sounder: bottom depth
- Gyro: heading
- Meteo system: atm.pressure, rel.humidity, wind speed & direction, air temperature
- SBE21 thermosalinograph : seawater temperature, conducitvity, salinity
- Fluorimeter : chlorophylA

Underway data relevance

- Scientific background information
- Correct position & time (GPS)
- Quality control on recorded data
  - Position of sample vs ship speed
  - CTD max depth vs bottom depth
  - CTD temp&sal vs UW temp&sal
  - Trawling operations vs ship speed

Results

- 9 CTD casts
  - Hex file & calibration file
- Lab notebook or report
  - 9 station positions, date & time
  - Deployments & samples position, date &time
- 1 excel spreadsheet
  - Overview of samples, volumes filtered
- Underway data in ship database
- Demo : Midas trip 872

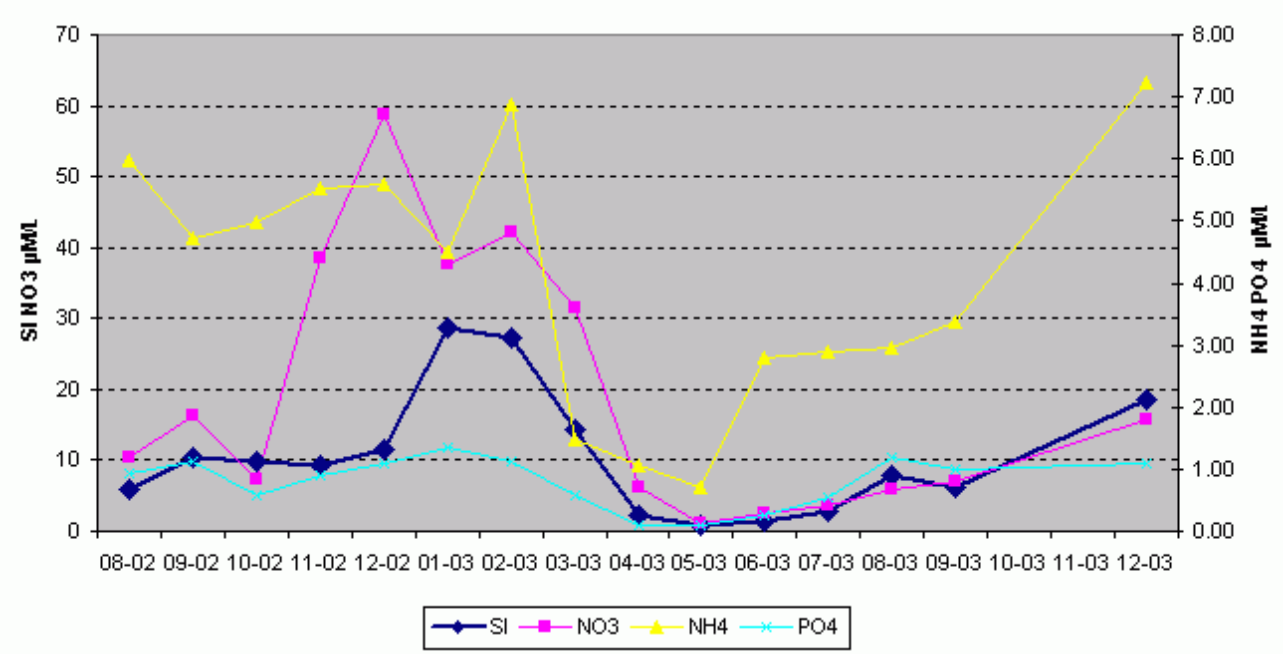
Processing

- Process CTD casts
- Download underway data
- Process the samples
  - Water
    - nutrients NO3, NO2, NH4, Si, PO4
    - ChlorophylA
    - SPM
  - Sediment
    - Nutrients
    - Grainsize composition

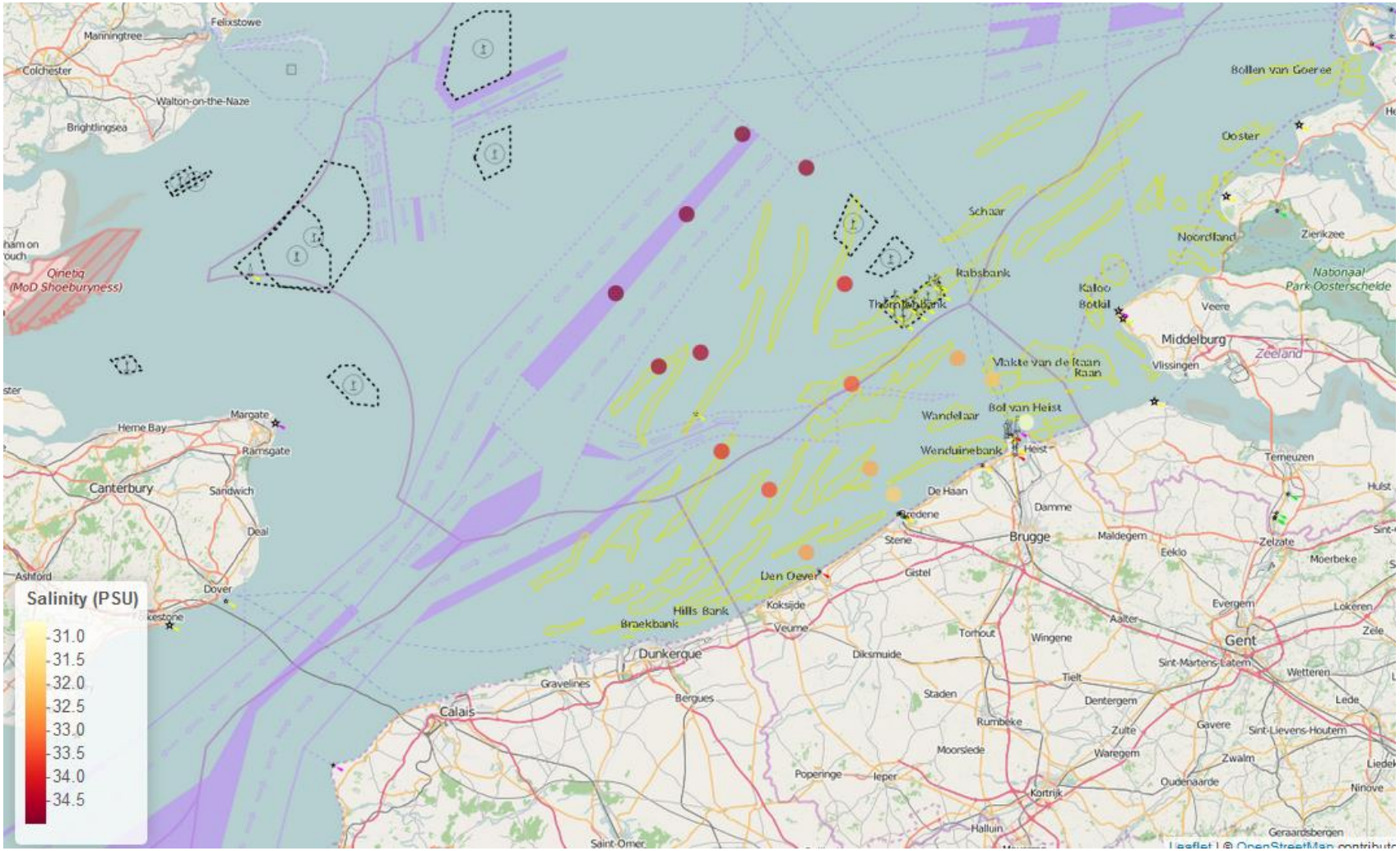
Data processing

- After trip : raw data & metadata files
  - Hex&Con CTD files, trip report, UW data
  - Filenames ~ trip (ship, date) or station (ship, date, station)
  - QC the data & metadata
  - Organize in 1 folder, 1 readme file
- After processing : processed data files
  - reports from lab(s), CTD files
  - observation data in excell (or access)
  - QC the data
  - annotate: metadata tab
- After research : archive & share with datacentre

Some results



Some results



Example file formats

- Trip report: VLIZ050329.xls
- Midas trip: Midas trip actions
- CTD raw hex files: 4126_050329_330.hex
- CTD processed file: 4126_050329_330_CFALBD.cnv
- Processed CTD: Midas CTD
- Integrated CTDs:CTD Midas.xls
- Integrated campaign file:Monitoringdata.xls

Archiving & sharing

- Document the data
- Make archive copy & store safely
  - mda.vliz.be
- Send data to data centre, NODC
- Share with colleagues
  - IMERS , SEADATANET, WOD
- Data publication, DOI