

Training course 2 – Ostende – 20-22 May 2014



SeaDataNet

*PAN-EUROPEAN INFRASTRUCTURE
FOR OCEAN & MARINE DATA
MANAGEMENT*

***Practical work on
NetCDF - CFPOINT***

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Material

- Software
 - NEMO
 - OdvSDN2CFPOINT + user manual
 - MedSDN2CFPOINT + user manual
 - ncdump
 - Check that you have ncdump available
 - Open a cmd tool,
 - Type ncdump,
 - Check the message
- ODV or MEDATLAS files to convert
 - Your own files
 - or files created on the 1st day
 - or files in **Practical work/NETCDF/input***

Using NEMO (1)

- Take your own ASCII files
- Or choose the files in **Practical work/NETCDF/input_ASCII**
 - 28 CTDs of one cruise (CSR_9450090.xml)
 - Measurements of Depth, temperature, salinity, fluorescence and light attenuation coefficient
 - File description in ctd_stations_desc.txt
- Open the files (Cruise directory) and create the NEMO model for NetCDF conversion
 - Choose NetCDF ‘One file per station’ or ‘One unique file for all stations’ at your convenience
- Input file description in the 4 tabs of NEMO

Using NEMO (2)

- Tab “Files”
 - There is one file per station with one header line. End of station is end of file.
 - File description is in *ctd_stations_desc.txt*
- Tab “Cruise”
 - You can upload the information from the ISO-19139 CSR description (*CSR_9450090.xml*)
- Tab “Station”
 - Use *ctd_stations_desc.txt* to describe the station information
- Tab “Data”
 - Use *ctd_stations_desc.txt* to describe the station measurements
 - Input Long name (mandatory) and Standard name when available

Using NEMO (3)

- Save your model
- Run the conversion (output directory = *Practical work\NetCDF*)
- Run ncdump on the output file (if multi-station conversion) or on one of the output file (if single station conversion)
- Work on the NetCDF files (see slides 10 and 12)

Converter installation

- Open the `install_OdvSDN2CFPoint_1.0.3_windows.zip` file or the `install_MedSDN2CFPoint_1.0.4`
- Unzip it
- Double click on `launcher_nemo.bat`
- Follow the installation procedure
- Don't forget to add the converter shortcut on your desktop

Conversion of files using *OdvSDN2CFPOINT* or *MedSDN2CFPOINT*

- Convert files in the directories
 - input_*_bad and input_*_good
 - For the files in the input_*_bad, try to find the errors and fulfill the following table (details on errors are given in the user manuals §3.2.2.3)

File name	Error
ODV_timeseries_error1.txt	Deprecated PSSTZZ01 P01 parameter
ODV_vertprofile_error2.txt	Missing TEMPPR01 in the SDN parameter mapping
ODV_vertprof_error3.txt	Extra line in SDN mapping
ODV_vertprof_error4.txt	False unit code
ODV_vertprof_error5.txt	Missing // on first line

MEDATLAS files

File name	Error
med_ctd_warning1.txt	BODC V1 vocab in stead of V2
med_timeseries_error_sdnmap.txt	SDN lines missing
med_trajectory_error_sensor_depth.txt	Sensor depth missing
med_vertprof_error_several_datatypes.txt	Different data types
med_vertprof_sup_line_project.txt	Missing cruise header line project

Work on the NetCDF files

- Use `ncdump` to see the files
`ncdump` tool generate a ASCII representation of a NetCDF binary file



- Run `ncdump` in a command windows
`ncdump NetCDF_file.nc > output_ASCII_file`
The `output_ASCII_file` will be created by `ncdump`

Work on the NetCDF files (1)

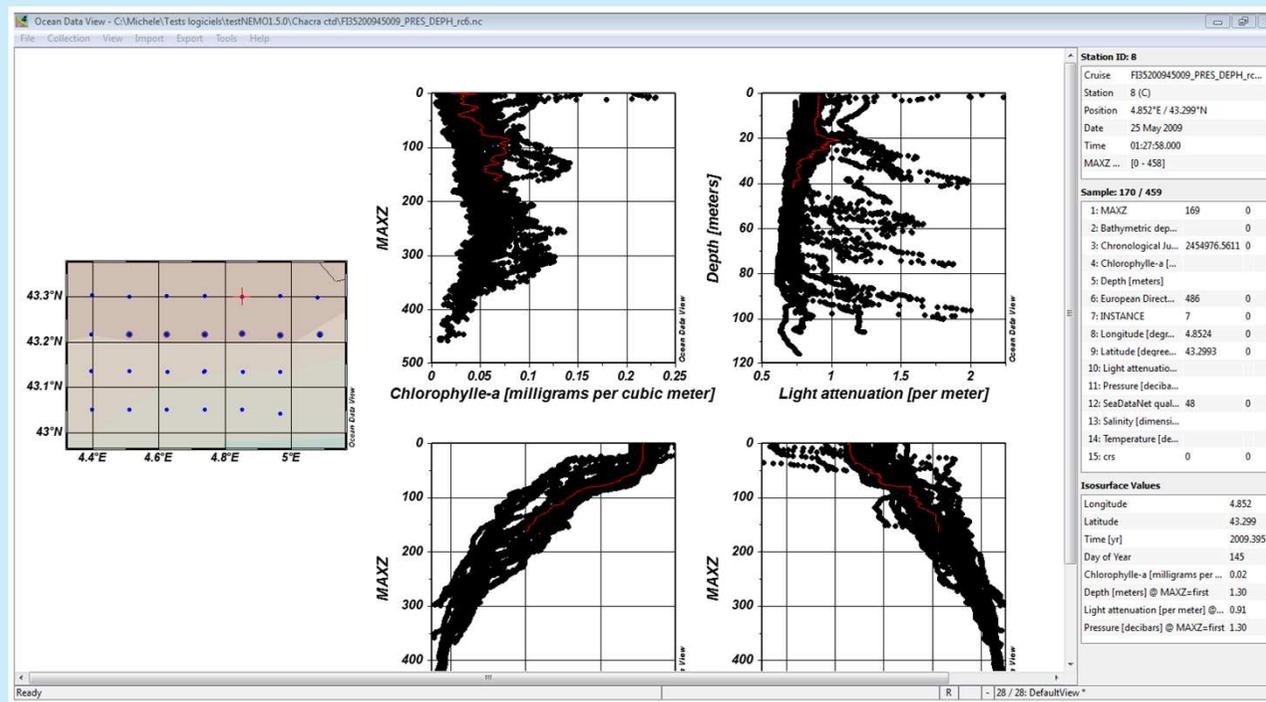
- Open the *output_ASCII_file* in a text editor
 - Have a look at the file and compare it with the original ODV or file
 - Look how the NetCDF file is organised, find the measurements, the metadata
 - Look at mono and multi-station files
- **ncdump**
 - Shows the ncdump different options

Work on the NetCDF files (2)

- `ncdump -h ficname.nc`
 - Shows only the header of the NetCDF file
- `ncdump -v varname ficname.nc`
 - Shows one variable of the file
- `ncdump -t -var TIME ficname.nc`
 - Shows station time as date time string
- `ncdump -t -var TIME ficname.nc`
 - Shows station time as ISO-8601 string

Work on the NetCDF files (3)

- Open your file with ODV and plot all parameters
 - ODV read correctly all measurements but need to be updated to read NetCDF SeaDataNet information (metadata)



Work on the NetCDF files

- Some useful links for ncdump
 - <https://www.unidata.ucar.edu/software/netcdf/docs/netcdf/ncdump.html>
 - <https://www.unidata.ucar.edu/software/netcdf/workshops/2012/utilities/NcdumpExamples.html>
 - <https://www.unidata.ucar.edu/software/netcdf/workshops/2012/utilities/Ncdump.html>
- Other software for NetCDF visualisation
 - PANOPLY developed by NASA
 - http://www.giss.nasa.gov/tools/panoply/download_win.html
 - NCBROWSE developed by NOAA
 - <http://www.epic.noaa.gov/java/ncBrowse/>