# odv

Matlab toolbox for handling ODV ascii format from OceanDataView adopted by SeaDataNet.
Please also see our python toolbox pyodv for ODV files.

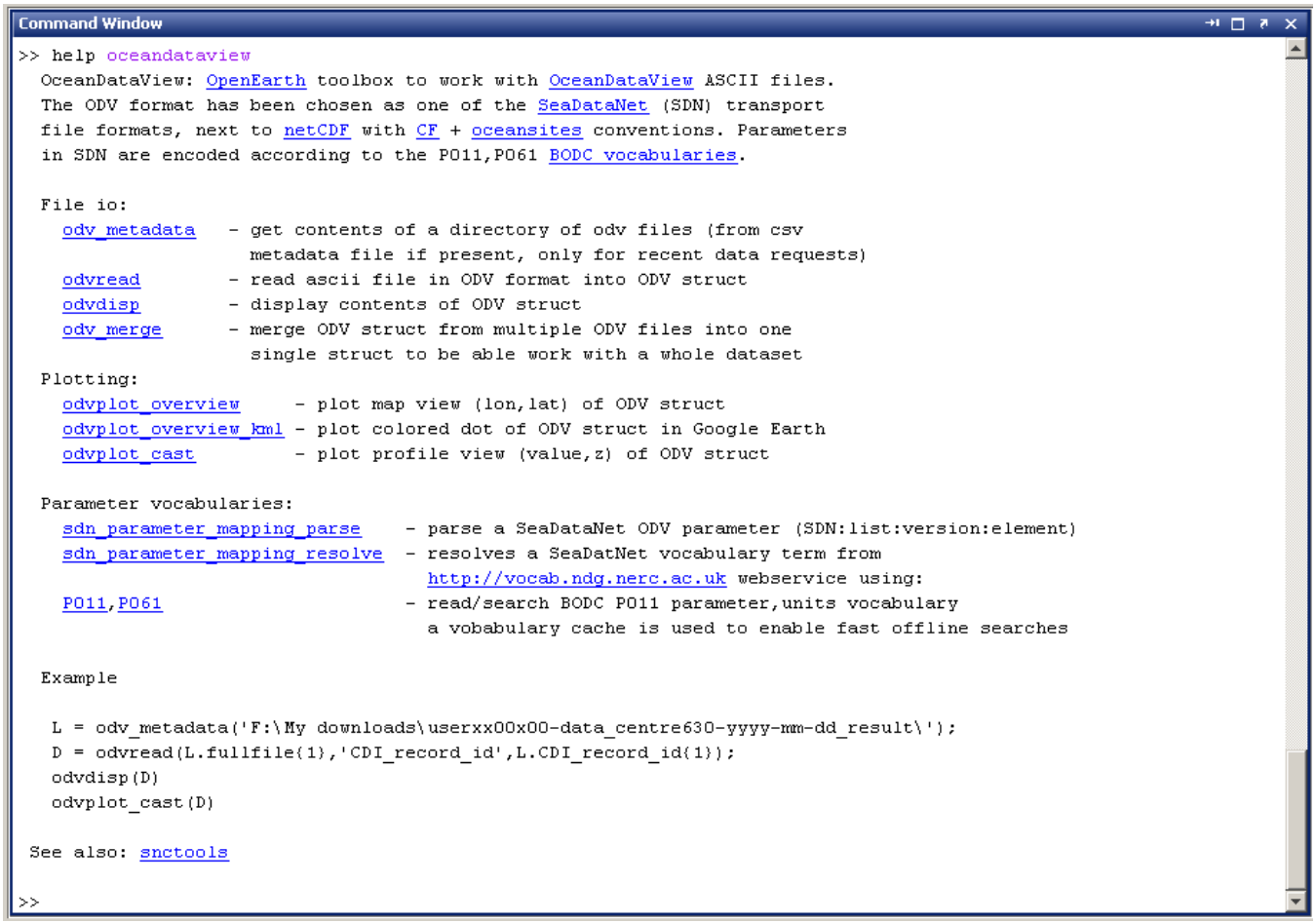


## Getting the toolbox

The free and open source Matlab ODV toolbox can be downloaded from `https://svn.oss.deltares.nl/repos/openearthtools/trunk/matlab/applications/OceanDataView/` when you join openearth, download the tools with SubVersion and add them to your Matlab path. Subsequently

```
>> help oceandataview
```

will show the contents




## ODV meta-data csv

`odv_metadata.m` reads the meta-data csv file, and constructs the urls to the CDI.

```
                Data_set_name: {'OGS_ECOMADR_1_SED'}
                   Discipline: {[1x78 char]}
                     Category: {[1x129 char]}
           Variables_measured: {[1x210 char]}
                     Abstract: {'Ecologia del Mar Adriatico (ECOMADR)'}
                  Data_format: {'ODV'}
                    Data_size: NaN
       Data_set_creation_date: 20110513
                   Latitude_1: 45.6638
                   Latitude_2: 45.6638
                  Longitude_1: 13.5962
                  Longitude_2: 13.5962
                        Datum: NaN
          Measuring_area_type: {'point'}
              Water_depth__m_: NaN
              Depth_reference: NaN
Minimum_instrument_depth__m_: NaN
Maximum_instrument_depth__m_: NaN
                   Start_date: 20060510
                   Start_time: {'00:00:00'}
                     End_date: 20060510
                     End_time: {'00:00:00'}
       Instrument___gear_type: 51
             Track_resolution: NaN
              Resolution_unit: NaN
              Time_resolution: NaN
                    Time_unit: NaN
          Vertical_resolution: NaN
                Vertical_unit: NaN
                Platform_type: {'unknown'}
                  Cruise_name: NaN
     Alternative_cruise_name: NaN
           Cruise_start_date: NaN
                Station_name: {'OGS-1-BIO-AA101'}
    Alternative_station_name: 285916
          Station_start_date: 20060510
                   Originator: {[1x114 char]}
         Data_Holding_centre: {[1x114 char]}
                Project_name: {'ADRiatic sea ECOlogy - ECOlogia del Mar ADRiatico'}
                Dataset_name: NaN
       Cruise_Summary_Reports: NaN
             Data_Distributor: {[1x100 char]}
          Database_reference: NaN
     Access_ordering_of_data: {'web data access with registration'}
          Access_restriction: {'by negotiation'}
               CDI_record_id: 1146989
                LOCAL_CDI_ID: {'285916'}
    CDI_record_creation_date: 20110509
                CDI_partner: {[1x100 char]}
                   Versions: {{1x1 cell}}
           Download_datenum: {[7.3568e+05]}
                       name: {'285916_20140320_163008.txt'}
                       date: {'20-Mar-2014 15:30:12'}
                      bytes: {[1595]}
                      isdir: {[0]}
                    datenum: {[7.3568e+05]}
                     fnames: {'285916_20140320_163008.txt'}
                    fullfile: {[1x113 char]}
                         url: {'http://seadatanet.maris2.nl/v_cdi_v3/print_wfs.asp?n_code=1146989 '}
                   EDMO_code: {[120]}
```

## ODV file loading, merging and parsing

`odvread.m` loads an odv file, and resolves the P01 parameter codes and P06 units, and return one struct

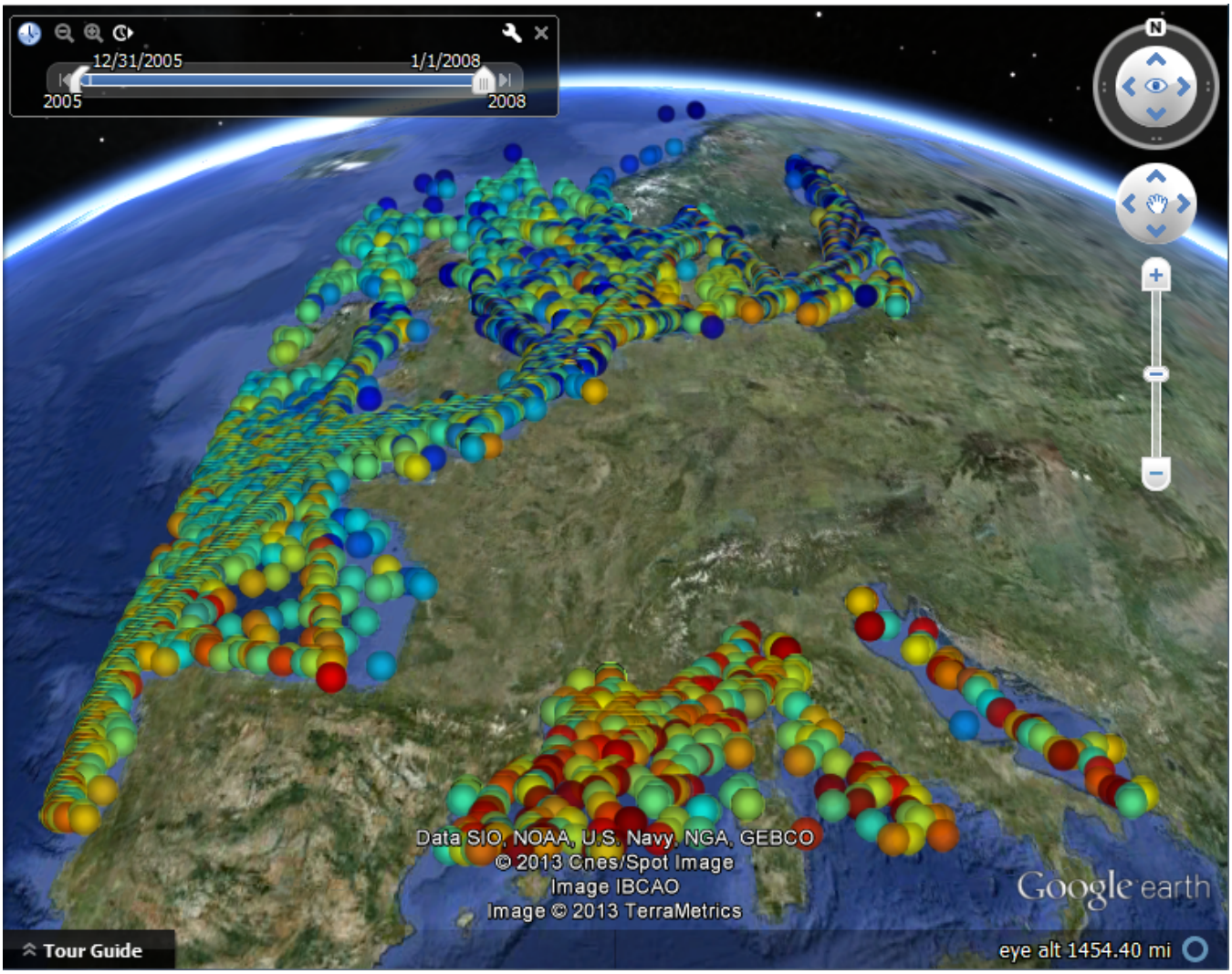
```
           odv_name: {1x25 cell}
      standard_name: {1x25 cell}
              units: {1x25 cell}
         local_name: {1x25 cell}
        local_units: {1x25 cell}
   sdn_standard_name: {1x25 cell}
          sdn_units: {1x25 cell}
      sdn_long_name: {1x25 cell}
    sdn_description: ''
               data: {1x25 cell}
               file: [1x1 struct]
              lines: [1x1 struct]
              index: [1x1 struct]
        institution: [1x38 char]
           metadata: [1x1 struct]
       LOCAL_CDI_ID: '285916'
          EDMO_code: 120
             cruise: 'ECOMADR'
               type: 'B'
               cast: 1
            station: '1'
      CDI_record_id: {[1146989]}
```

`odv_merge.m` merges one parameter from multiple odv files into one struct. This type of information is suited for modellers.

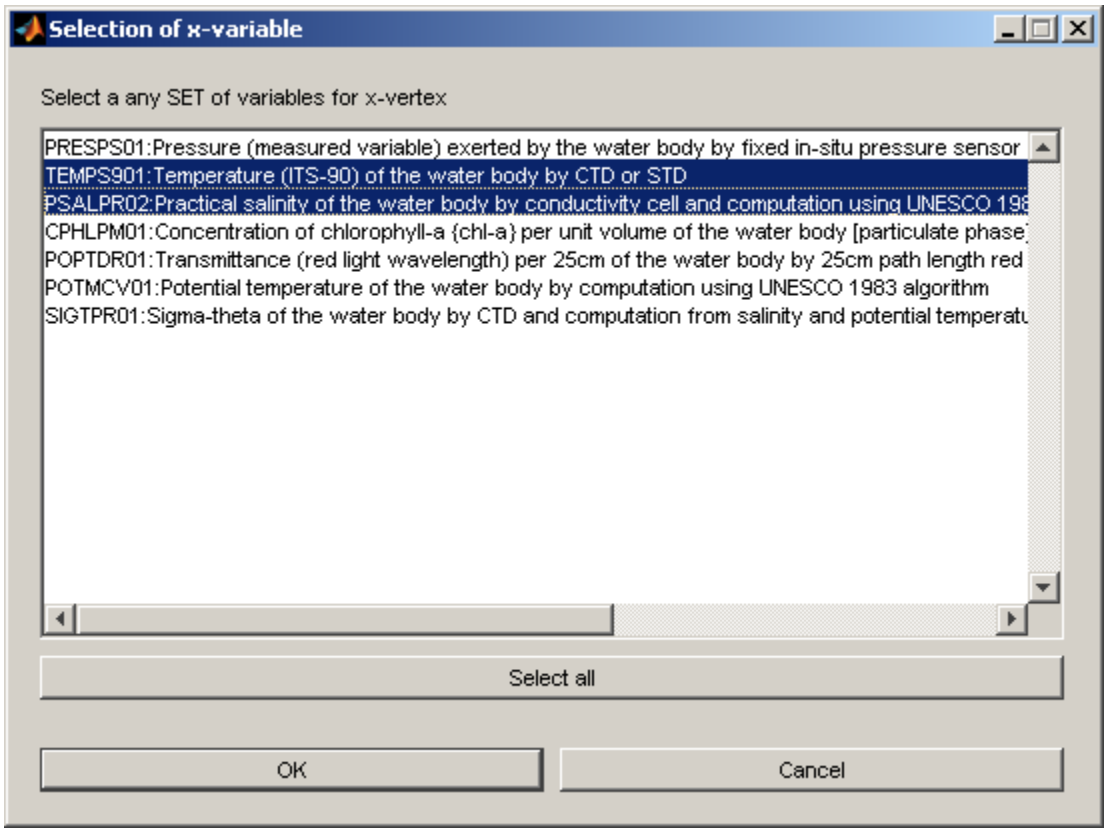
`P01` parses the P01.xml, stored it as a mat cache for fats and offline use, and resolves the P01

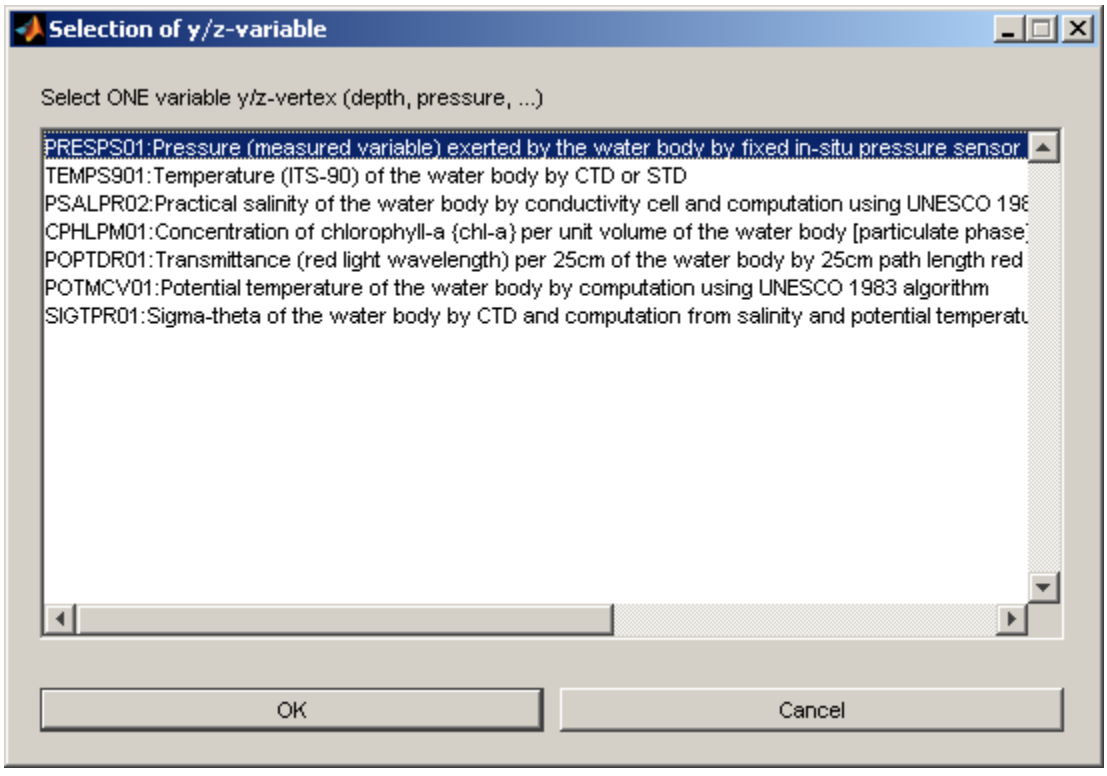
## ODV plotting

`odvplot_overview.m` plots a map of an ODV file with trajectory. `odvplot_overview_kml.m` does that in kml format (Google Earth).




`odvplot_cast.m` plots vertical profiles of one ODV file with profile information.


Selection of x-variable
Select a any SET of variables for x-vertex
PRESPS01:Pressure (measured variable) exerted by the water body by fixed in-situ pressure sensor
TEMPS901:Temperature (ITS-90) of the water body by CTD or STD
PSALPR02:Practical salinity of the water body by conductivity cell and computation using UNESCO 198
CPHLPM01:Concentration of chlorophyll-a {chl-a} per unit volume of the water body [particulate phase]
POPTDR01:Transmittance (red light wavelength) per 25cm of the water body by 25cm path length red
POTMCV01:Potential temperature of the water body by computation using UNESCO 1983 algorithm
SIGTPR01:Sigma-theta of the water body by CTD and computation from salinity and potential temperatu
Select all
OK
Cancel


Selection of y/z-variable
Select ONE variable y/z-vertex (depth, pressure, ...)
PRESPS01:Pressure (measured variable) exerted by the water body by fixed in-situ pressure sensor
TEMPS901:Temperature (ITS-90) of the water body by CTD or STD
PSALPR02:Practical salinity of the water body by conductivity cell and computation using UNESCO 198
CPHLPM01:Concentration of chlorophyll-a {chl-a} per unit volume of the water body [particulate phase]
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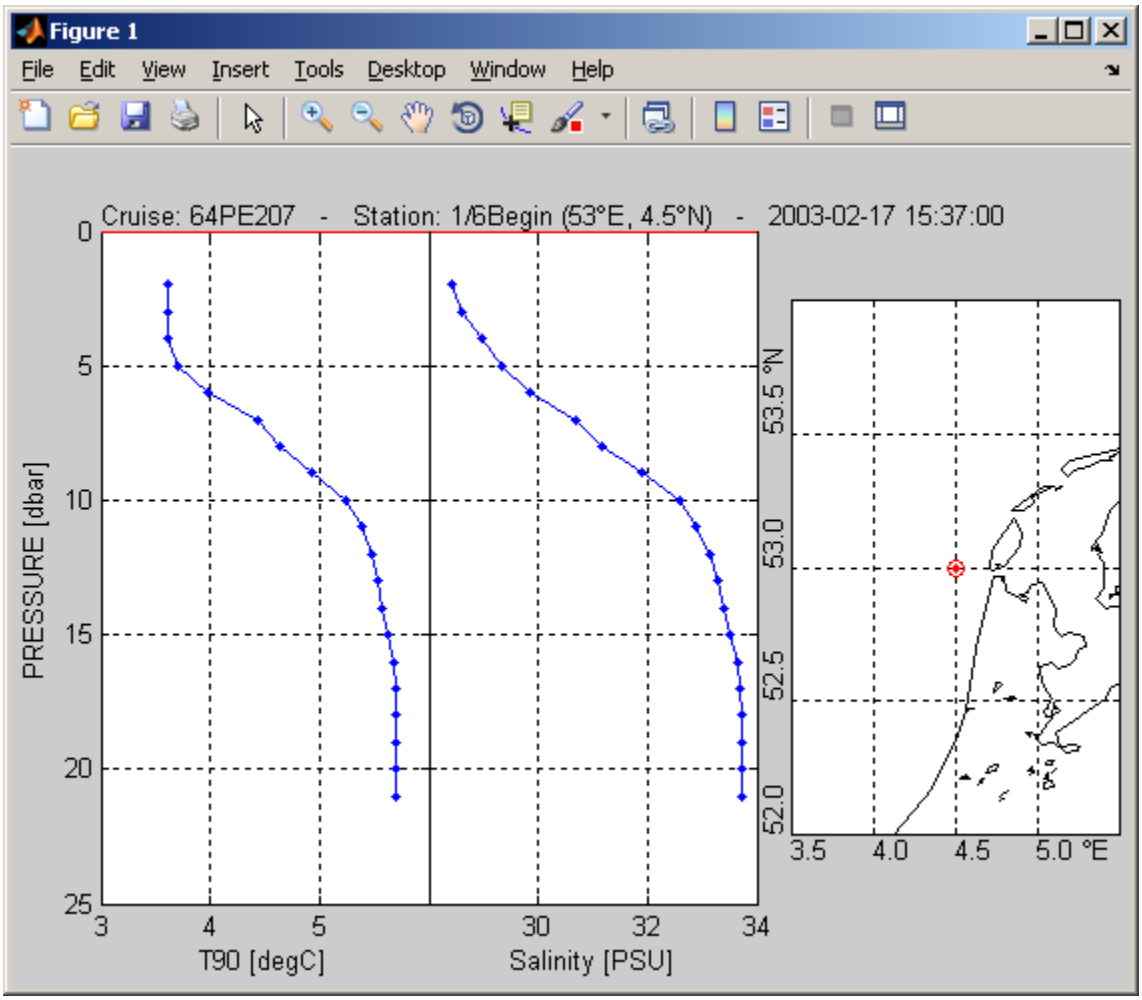
SIGTPR01:Sigma-theta of the water body by CTD and computation from salinity and potential temperatu
OK
Cancel




## Acknowledgments

This toolbox has been developed since April 2009 as part of the Deltares in kind contribution to the NODC of the Netherlands. Early 2014 small fixes were made as part of the EMODnet Chemistry 2 project to handle the BODC/SeaDataNet transition from the P011 to the P01 vocabulary.