

# odv

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

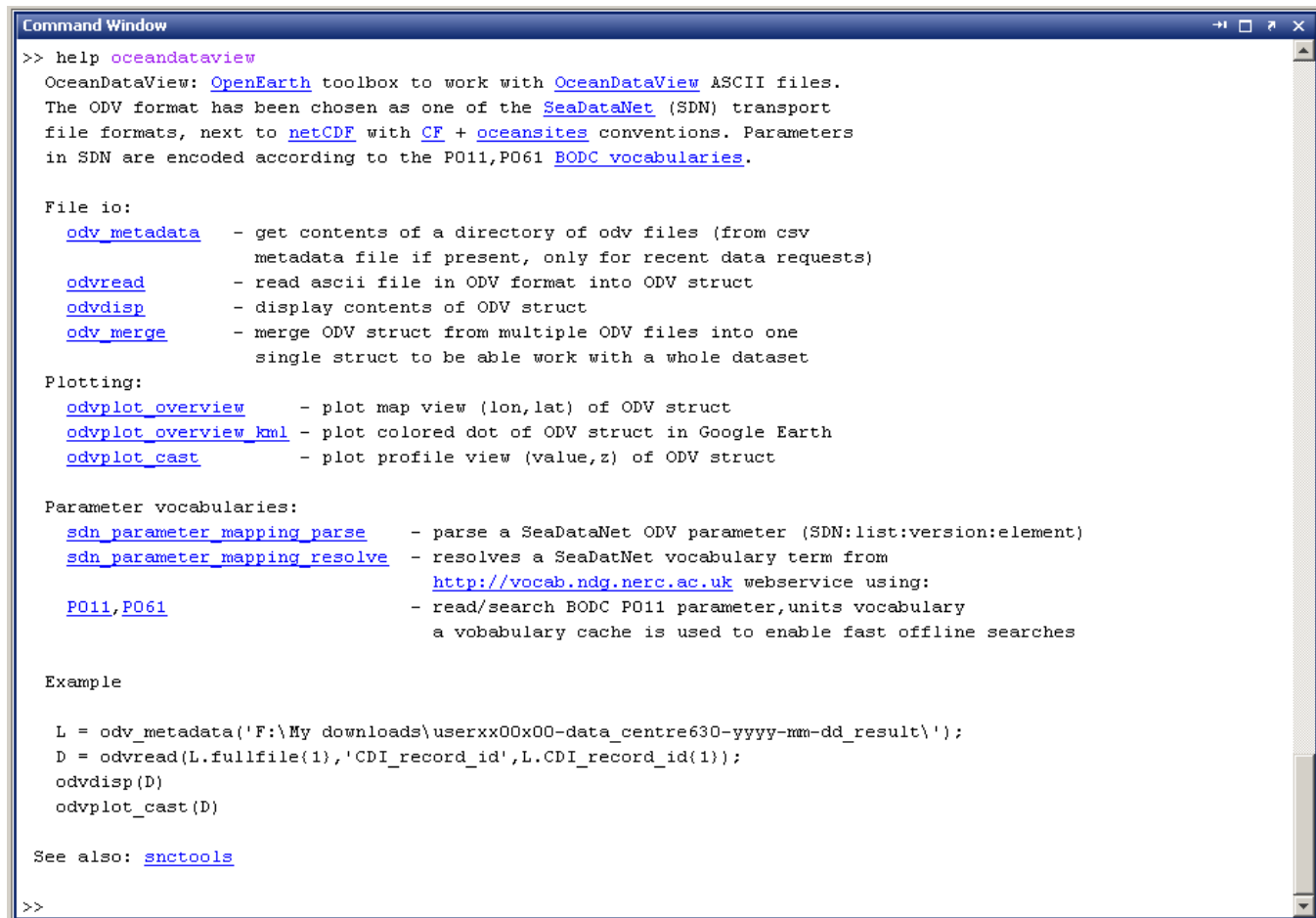
- [Getting the toolbox](#)
- [ODV meta-data csv](#)
- [ODV file loading, merging and parsing](#)
- [ODV plotting](#)
- [Acknowledgments](#)

## 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



```
Command Window
>> help oceandataview
OceanDataView: OpenEarth toolbox to work with OceanDataView ASCII files.
The ODV format has been chosen as one of the SeaDataNet (SDN) transport
file formats, next to netCDF with CF + oceansites conventions. Parameters
in SDN are encoded according to the P011,P061 BODC vocabularies.

File io:
odv\_metadata - get contents of a directory of odv files (from csv
                metadata file if present, only for recent data requests)
odvread      - read ascii file in ODV format into ODV struct
odvdisp     - display contents of ODV struct
odv\_merge   - merge ODV struct from multiple ODV files into one
                single struct to be able work with a whole dataset

Plotting:
odvplot\_overview - plot map view (lon,lat) of ODV struct
odvplot\_overview\_kml - plot colored dot of ODV struct in Google Earth
odvplot\_cast    - plot profile view (value,z) of ODV struct

Parameter vocabularies:
sdn\_parameter\_mapping\_parse - parse a SeaDataNet ODV parameter (SDN:list:version:element)
sdn\_parameter\_mapping\_resolve - resolves a SeaDataNet vocabulary term from
http://vocab.ndg.nerc.ac.uk webservice using:
P011,P061 - read/search BODC P011 parameter,units vocabulary
            a vocabulary cache is used to enable fast offline searches

Example

L = odv_metadata('F:\My downloads\userxx00x00-data_centre630-yyyy-mm-dd_result\');
D = odvread(L.fullfile(1),'CDI_record_id',L.CDI_record_id{1});
odvdisp(D)
odvplot_cast(D)

See also: snctools

>>
```

## 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

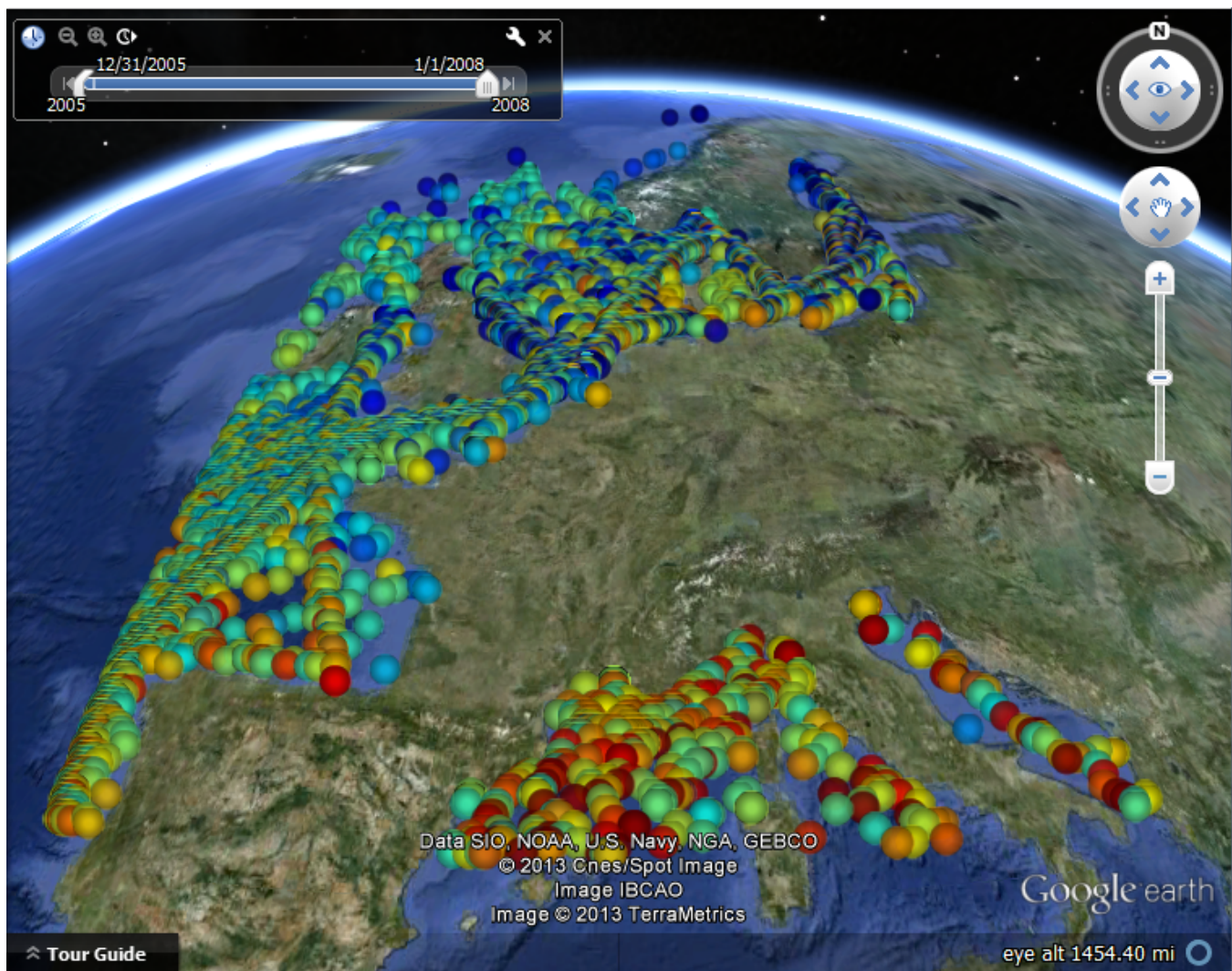
```
        odv_name: {1x25 cell}
    standard_name: {1x25 cell}
        units: {1x25 cell}
    local_name: {1x25 cell}
    local_units: {1x25 cell}
sdn_standard_name: {1x25 cell}
    sdn_units: {1x25 cell}
    sdn_long_name: {1x25 cell}
sdn_description: ''
    data: {1x25 cell}
    file: [1x1 struct]
    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

PRES01:Pressure (measured variable) exerted by the water body by fixed in-situ pressure sensor  
TEMP01:Temperature (ITS-90) of the water body by CTD or STD  
PSAL02:Practical salinity of the water body by conductivity cell and computation using UNESCO 1983  
CPHLM01: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 temperature

Select all

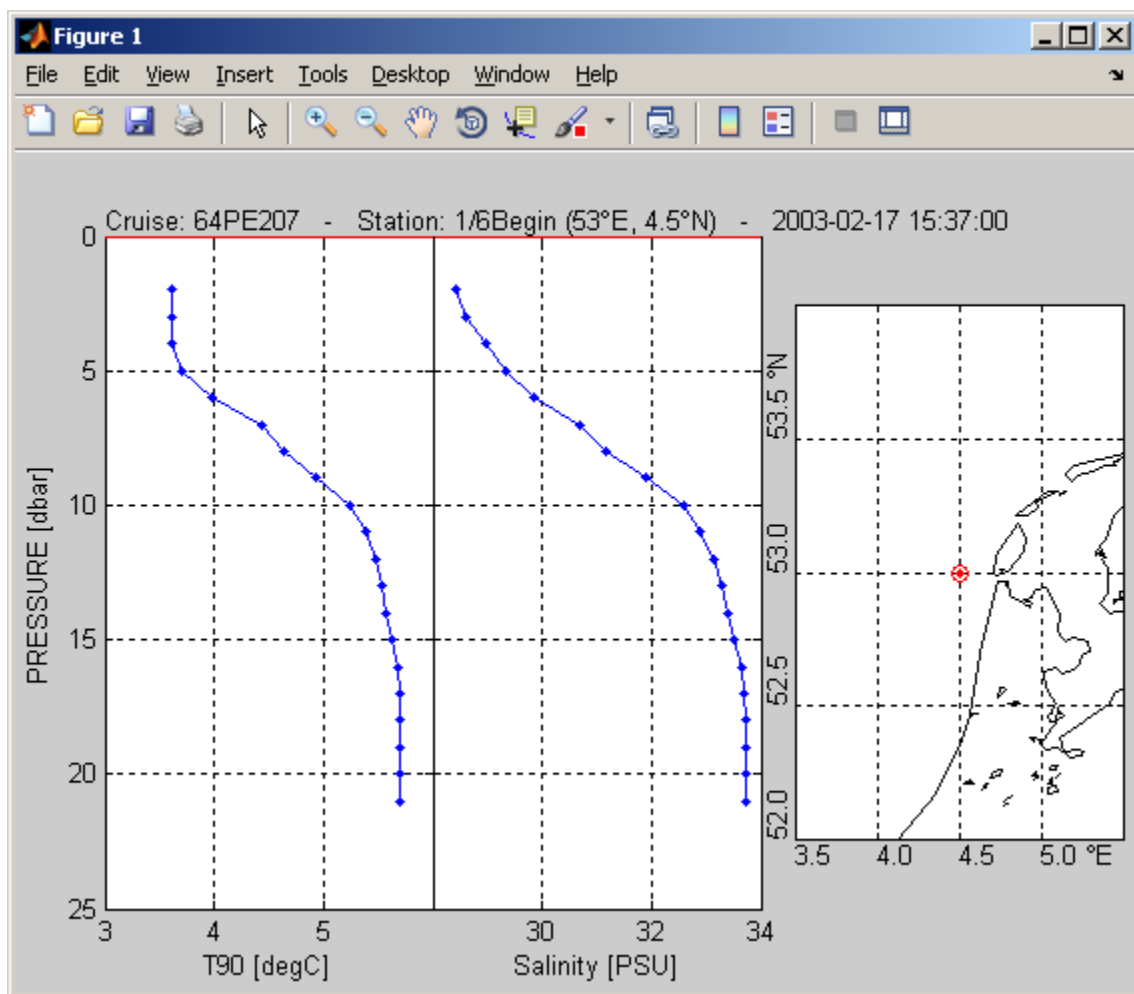
OK Cancel

**Selection of y/z-variable**

Select ONE variable y/z-vertex (depth, pressure, ...)

PRES01:Pressure (measured variable) exerted by the water body by fixed in-situ pressure sensor  
TEMP01:Temperature (ITS-90) of the water body by CTD or STD  
PSAL02:Practical salinity of the water body by conductivity cell and computation using UNESCO 1983  
CPHLM01: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 temperature

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.

