

**Add different formats of data into
ODV**

Part 1:

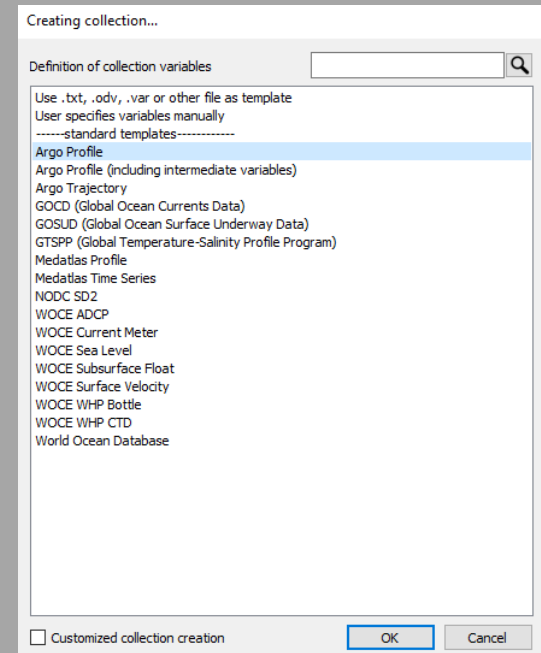
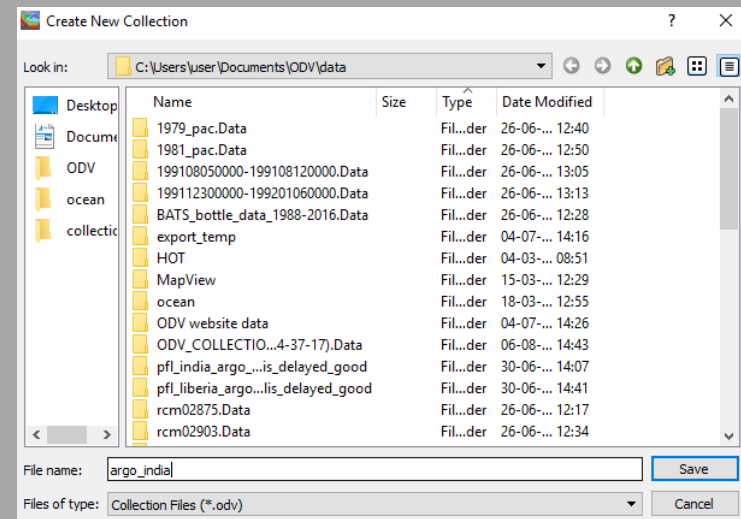
ARGO netCDF Data

1. Create a new collection

- Open the PFL collection previously created.

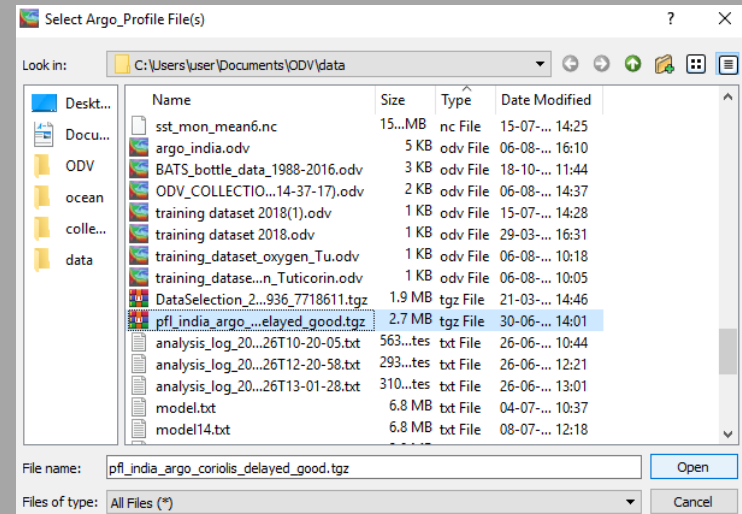
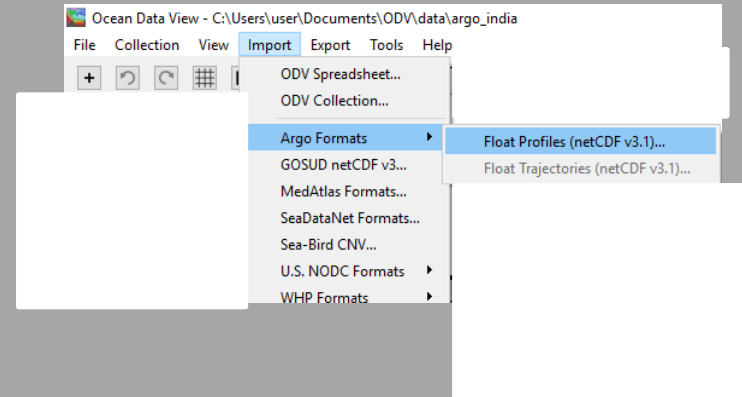
OR

- Select File > New to create a new profile and name it **argo_india**
- Select **Argo** profiles under Definition of collection variables window.



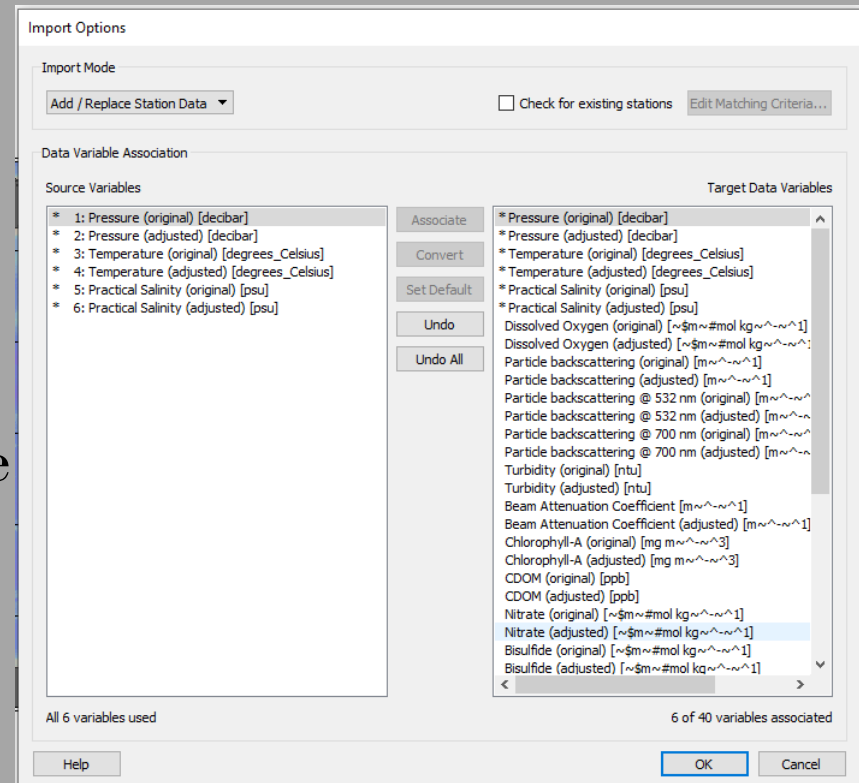
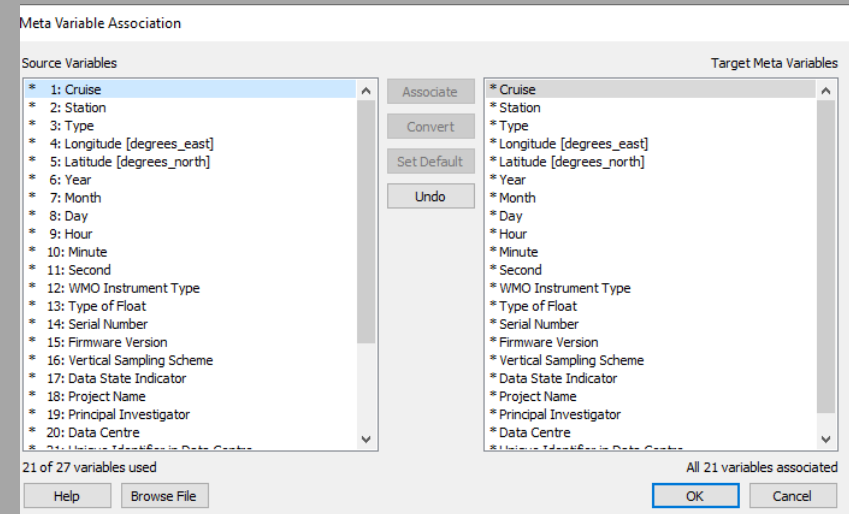
3. Import Data

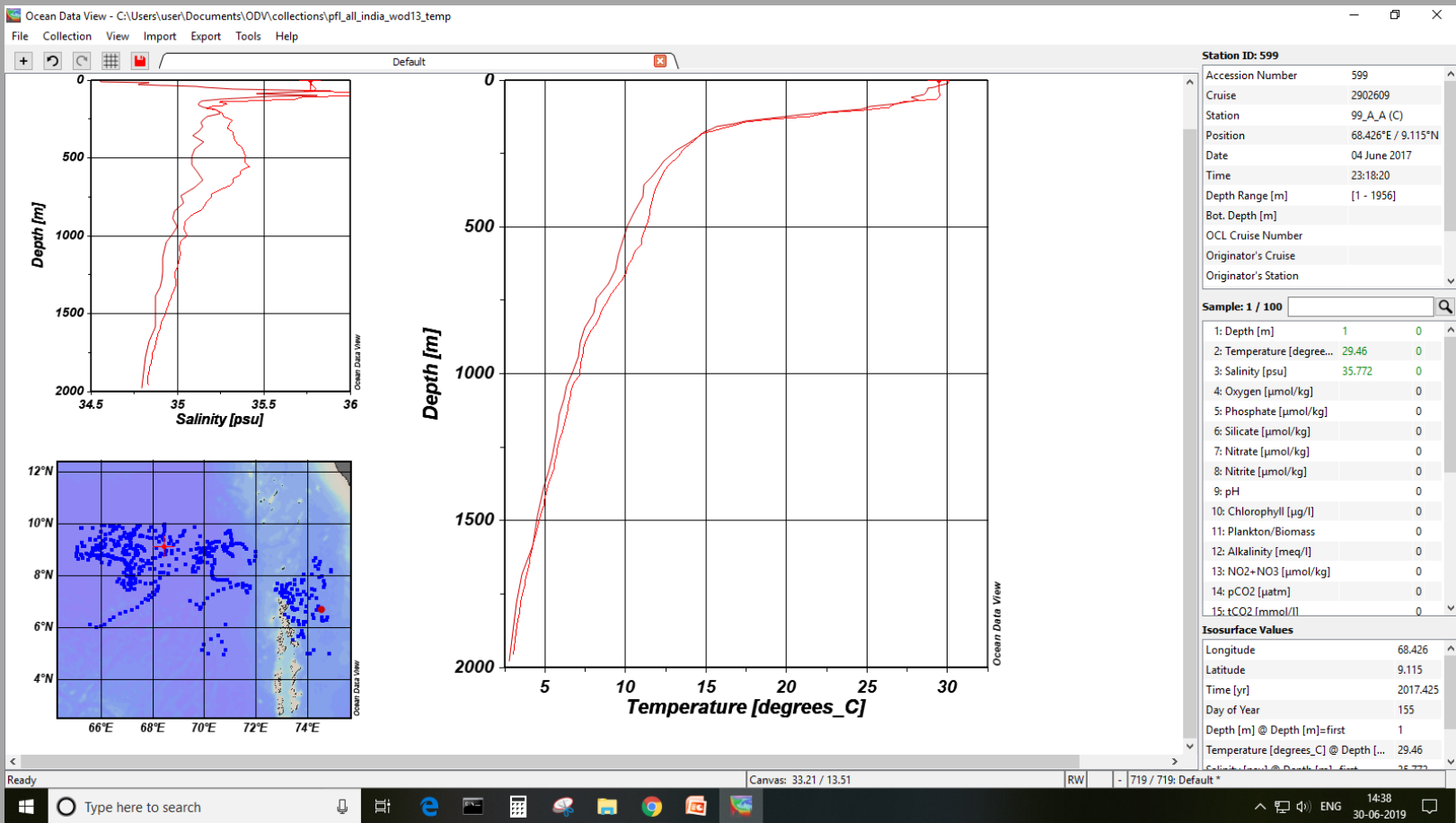
- To import the new Argo data, select Import > Argo Formats > Float Profiles
- Select All Files from File type.
- Navigate to the folder Documents\ODV\Data pfl_india_argo_coriolis_delayed_good.



Import options

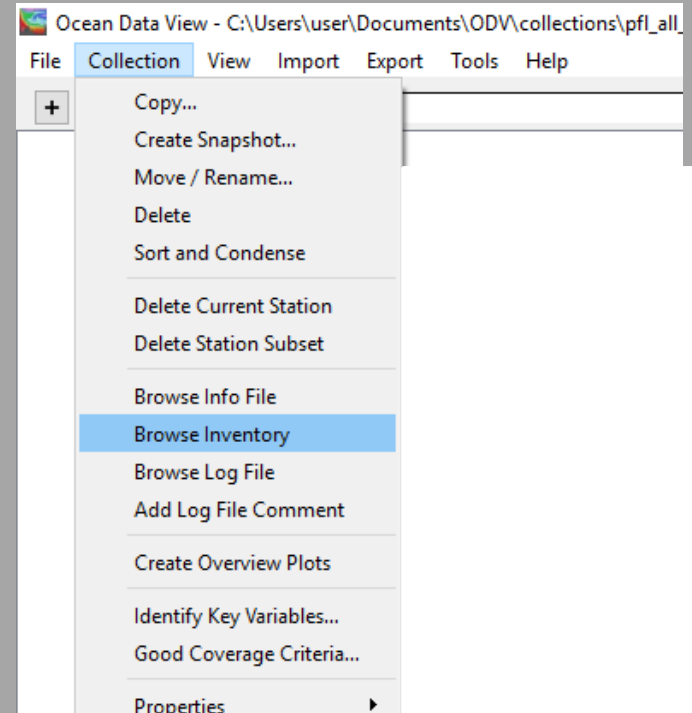
- The Import Options dialog is used to associate variables in the import files with ODV target variables. In most cases the they will differ, so it will be necessary to associate the two sets of variables.
- ODV automatically associates variables with matching labels (name and units) and marks the associated variables with an asterisk *.





4. Data Inventory

- To view the cruise inventory of the collection, select **Collection > Browse Inventory**.
- By default this file will be saved **Products > Products > ODV > pfl_all_liberia_wod13.Data > CruiseInventory.txt**.
- You can open the file in Excel/Notepad

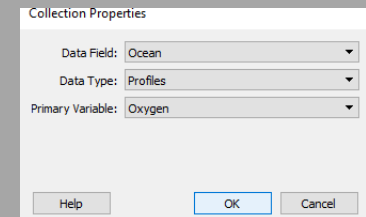
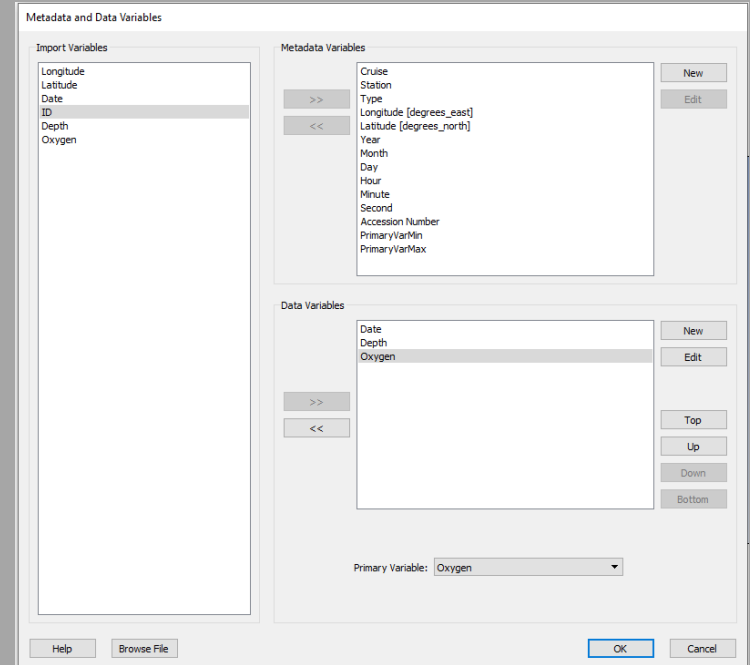


Part 2:

Import ascii data into ODV

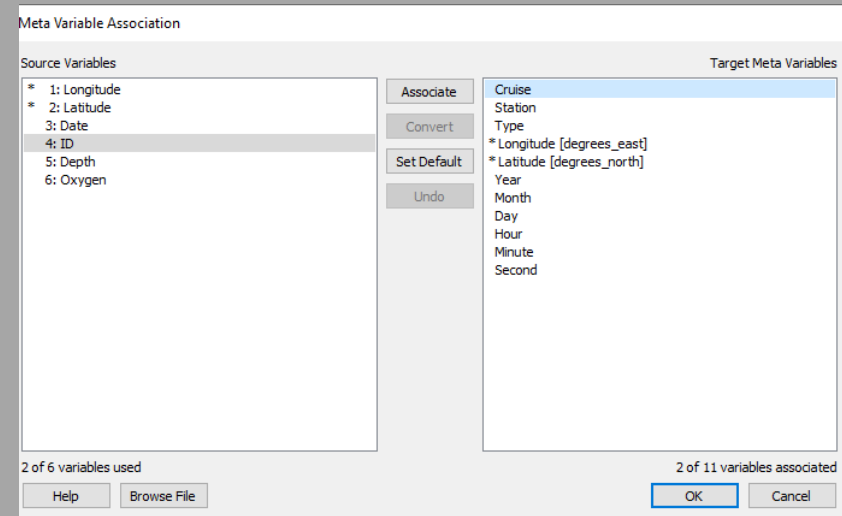
1. Import data

- ODV requires mandatory metadata, such as the geographic location of a station, the date of observation, and the names of the station and cruise
- Select **File > Open** then navigate to the **training_dataset_oxygen.txt** file in the **Documents\ODV\Data** folder and open it. The **Spreadsheet File Properties** dialogue shows the data that will be imported. Select **OK**.
- Remove **ID** from data variable list and select **oxygen** as primary variable

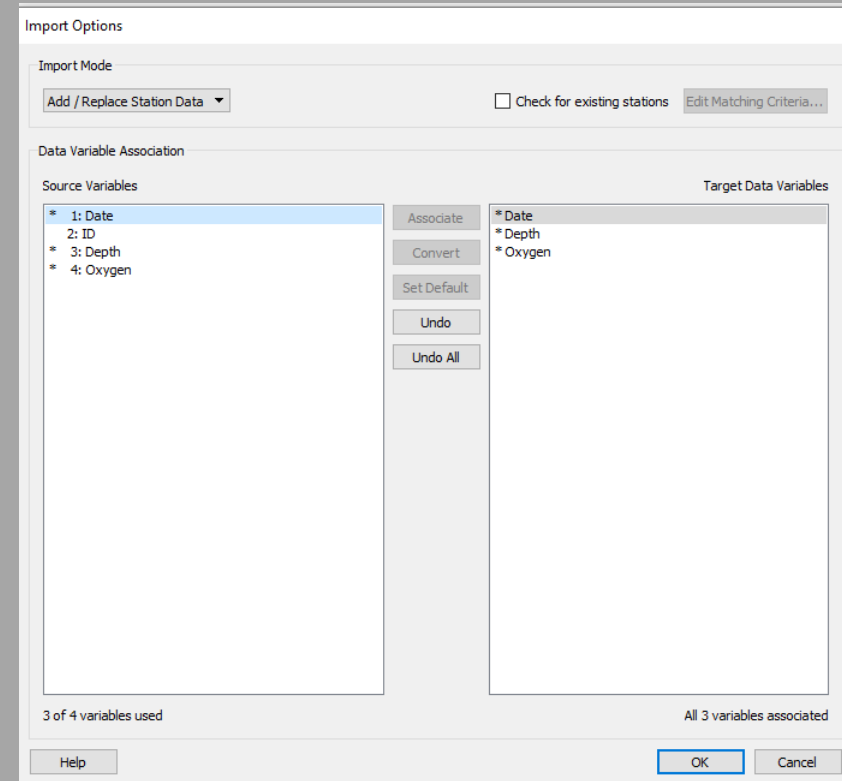


2. Associate variables

- The next step is to match-up between the incoming data (in the spreadsheet) and the fields in the ODV collection structure. Already associated variables are marked by asterisks (*).
- Associate ID with cruise
- Select OK.

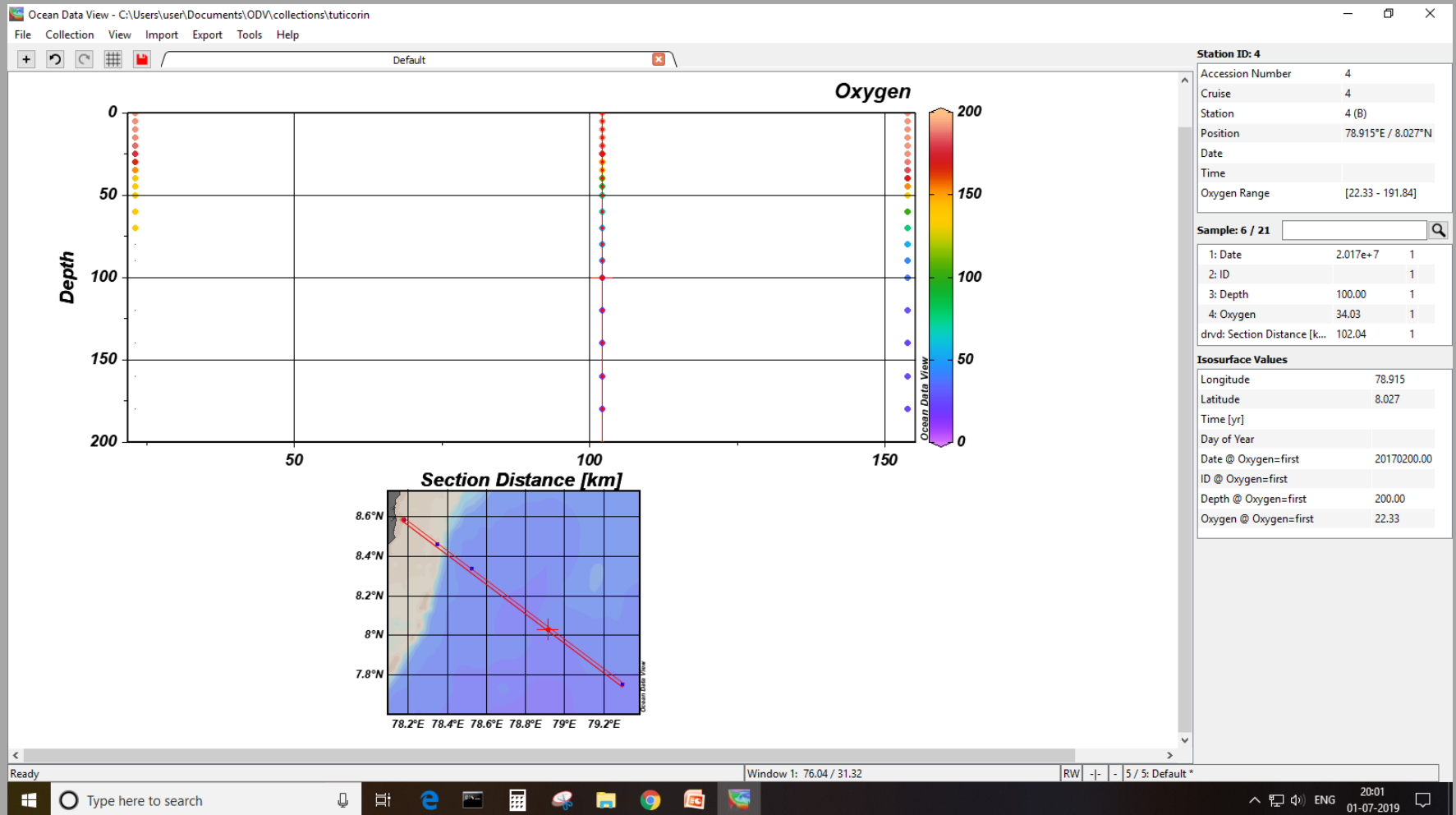


The 'Meta Variable Association' dialog box is shown. It has two main panes: 'Source Variables' on the left and 'Target Meta Variables' on the right. In the 'Source Variables' pane, a list contains: * 1: Longitude, * 2: Latitude, 3: Date, 4: ID (highlighted), 5: Depth, and 6: Oxygen. To the right of this list are buttons: 'Associate', 'Convert', 'Set Default', and 'Undo'. In the 'Target Meta Variables' pane, a list contains: Cruise (highlighted), Station, Type, * Longitude [degrees_east], * Latitude [degrees_north], Year, Month, Day, Hour, Minute, and Second. At the bottom left, it says '2 of 6 variables used' with 'Help' and 'Browse File' buttons. At the bottom right, it says '2 of 11 variables associated' with 'OK' and 'Cancel' buttons.



The 'Import Options' dialog box is shown. It has an 'Import Mode' section at the top with a dropdown menu set to 'Add / Replace Station Data' and a checkbox for 'Check for existing stations' (unchecked) with an 'Edit Matching Criteria...' button. Below this is the 'Data Variable Association' section, which has two panes: 'Source Variables' on the left and 'Target Data Variables' on the right. In the 'Source Variables' pane, a list contains: * 1: Date (highlighted), 2: ID, * 3: Depth, and * 4: Oxygen. To the right of this list are buttons: 'Associate', 'Convert', 'Set Default', 'Undo', and 'Undo All'. In the 'Target Data Variables' pane, a list contains: * Date, * Depth, and * Oxygen. At the bottom left, it says '3 of 4 variables used' with a 'Help' button. At the bottom right, it says 'All 3 variables associated' with 'OK' and 'Cancel' buttons.

3. Task:



4. Generic ODV spreadsheet format

- If you plan to use ODV to regularly import spreadsheet data, it is recommended to use a standard ODV template.
- The Column Header Row contains a label for each column of the file.
- The csv file should contain columns of Longitude, Latitude and atleast any one variable, along with their headers.
- The leftmost columns are the metadata columns, followed by the data column pairs (which can include a qualifying flag column).

Generic ODV spreadsheet format

- The column Type is used to designate the instrument used to collect the data, e.g. bottle, CTD, etc.
- The following metadata column header labels are mandatory and should be included EXACTLY as written:

*Cruise, Station, Type, yyyy-mm-ddThh:mm:ss.sss,
Longitude [degrees_east, Latitude [degrees_north], Bot.
Depth [m]*

- The metadata is followed by the data variables.
- Each column for a data variable can have an optional quality flag QF. Depth [m], QF, Temperature [°C], QF, Salinity [PSU], QF, etc

5. To import a generic spreadsheet data

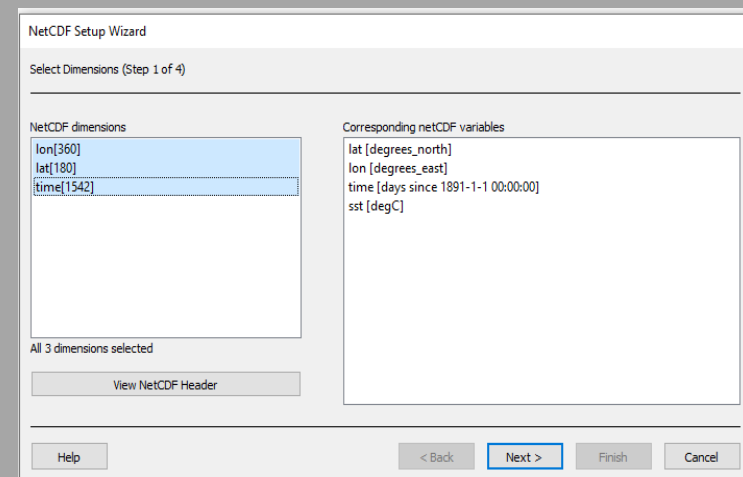
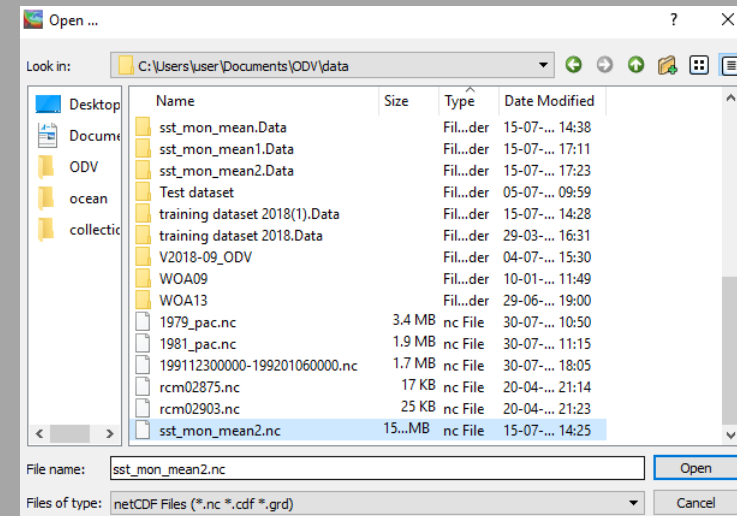
- Open ODV. To load in the data, you may either access the File menu and click Open and select your file or simply drag your text file into the window itself.
- ODV will then indicate how many stations have been imported and from what directory. Click OK to proceed.
- Depending on the size of the data file, you may have to perform Sort and Condense if the data was poorly sorted. Click Yes if you are prompted to do so.

Part 3:

Import NETCDF data

Open netcdf data

- Goto File > Open and select the NC file `sst_mon_mean`
- Netcdf setup wizard shows up showing the input variables, click NEXT after the the select dimension.
- Under Associate meta-variables, Add SST to the right hand side list by clicking on >>
- Select time as days since 1981 as primary variable as primary variable and in the last step select the option to subset the time dimension.



NetCDF Setup Wizard

Associate Meta Variables (Step 2 of 4)

NetCDF variables

- * 1: lat [degrees_north]; var=lat
- * 2: lon [degrees_east]; var=lon
- * 3: time [days since 1891-1-1 00:00:00]; var=time
- * 4: sst [degC]; var=sst

Meta variables

- Cruise
- Station
- Type
- * Longitude [degrees_east]
- * Latitude [degrees_north]
- * Year
- * Month
- * Day
- * Hour
- * Minute
- * Second
- * sst [degC]

Associate

Convert

Set Default

Undo

>>

All 4 variables used

9 of 12 variables associated

Help

< Back

Next >

Finish

Cancel

NetCDF Setup Wizard

Select Primary Variable (Step 3 of 4)

Available netCDF dimensions

time [days since 1891-1-1 00:00:00]

☒ Use selected variable

☐ Use decimal date/time (header)

☐ Use dummy variable

Help

< Back

Next >

Finish

Cancel

NetCDF Setup Wizard

Subset Dimensions (Step 4 of 4)

64800 stations. You can reduce the number of stations by subsetting one or more dimensions or by zooming into the map.

NetCDF dimensions

lon[360] use[0:1:359]

lat[180] use[0:1:179]

time[1542] use[0:1:1541]

Subset Dimension

Zoom into Map

Full Domain

Help

< Back

Next >

Finish

Cancel

Animation - Isosurface

time [days since 1891-1-1 00:00:00] = ...

Isosurface Values

Start: 0

Step: 31

Number of frames: 151

Use Available Coordinate Values

Style

☐ Adjust Z value range

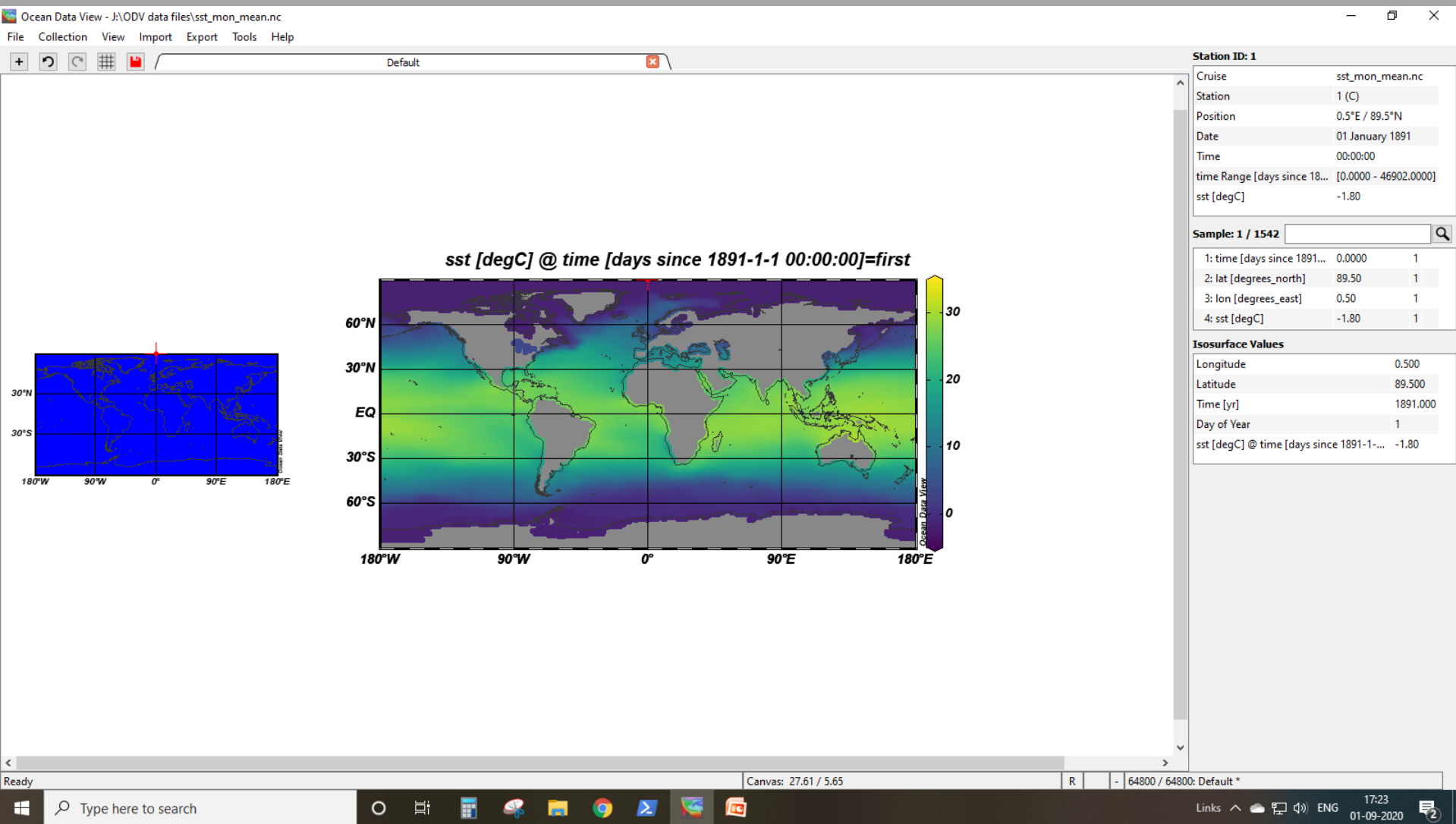
☐ Adjust Z color mapping

OK

Cancel

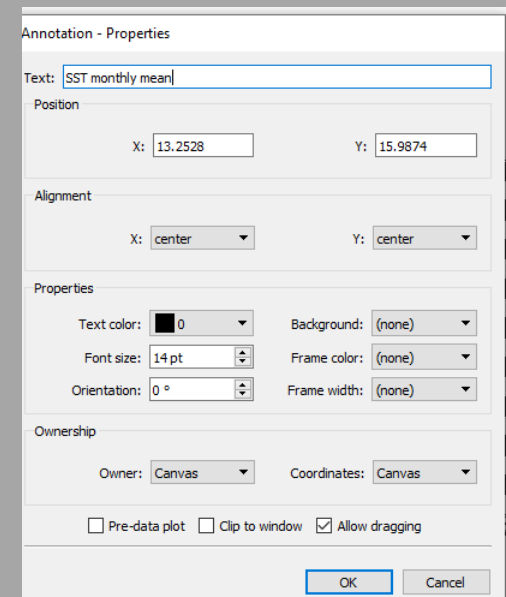
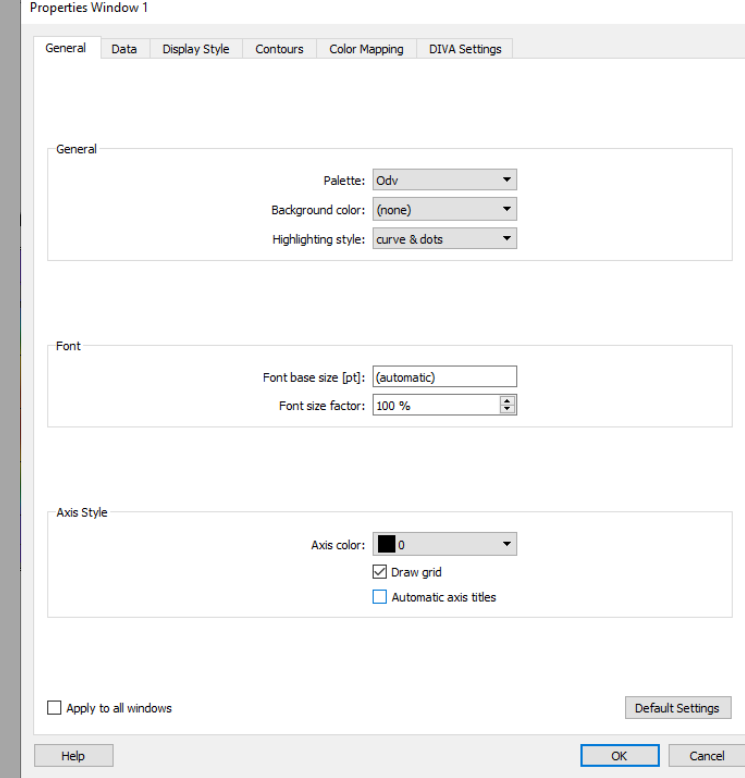
Subset the lat and lon dimensions to use all the values in the gridded data and the time dimension to include values upto 150 monthly timesteps

- To plot in surface mode, go to View > Layout Templates and select 1 Surface window



Change plot label

- Go to properties and untick the Automatic Label option
- To change the figure title click outside the canvas near the current title and Add Graphic Objects > Annotation
- Then add the text **Monthly Mean SST** during January 1901

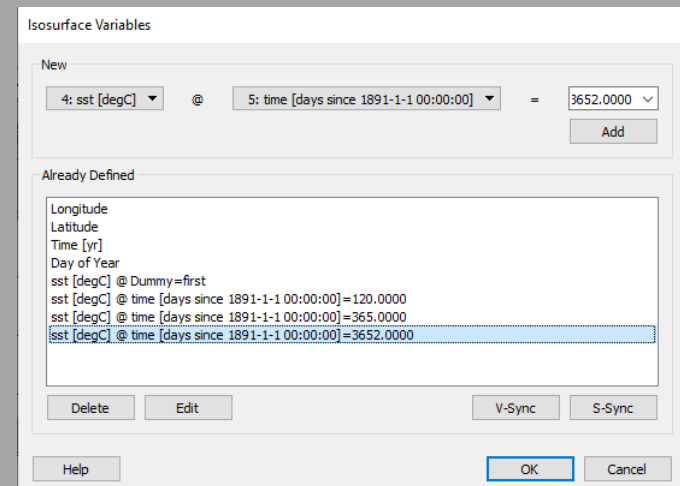
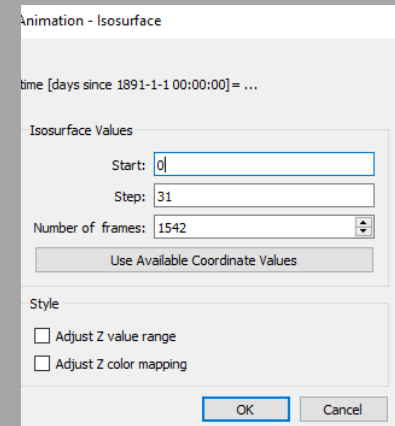
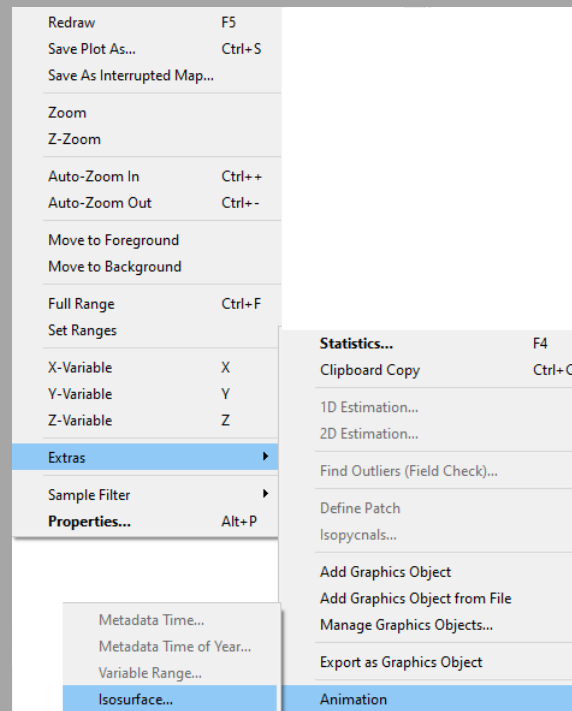


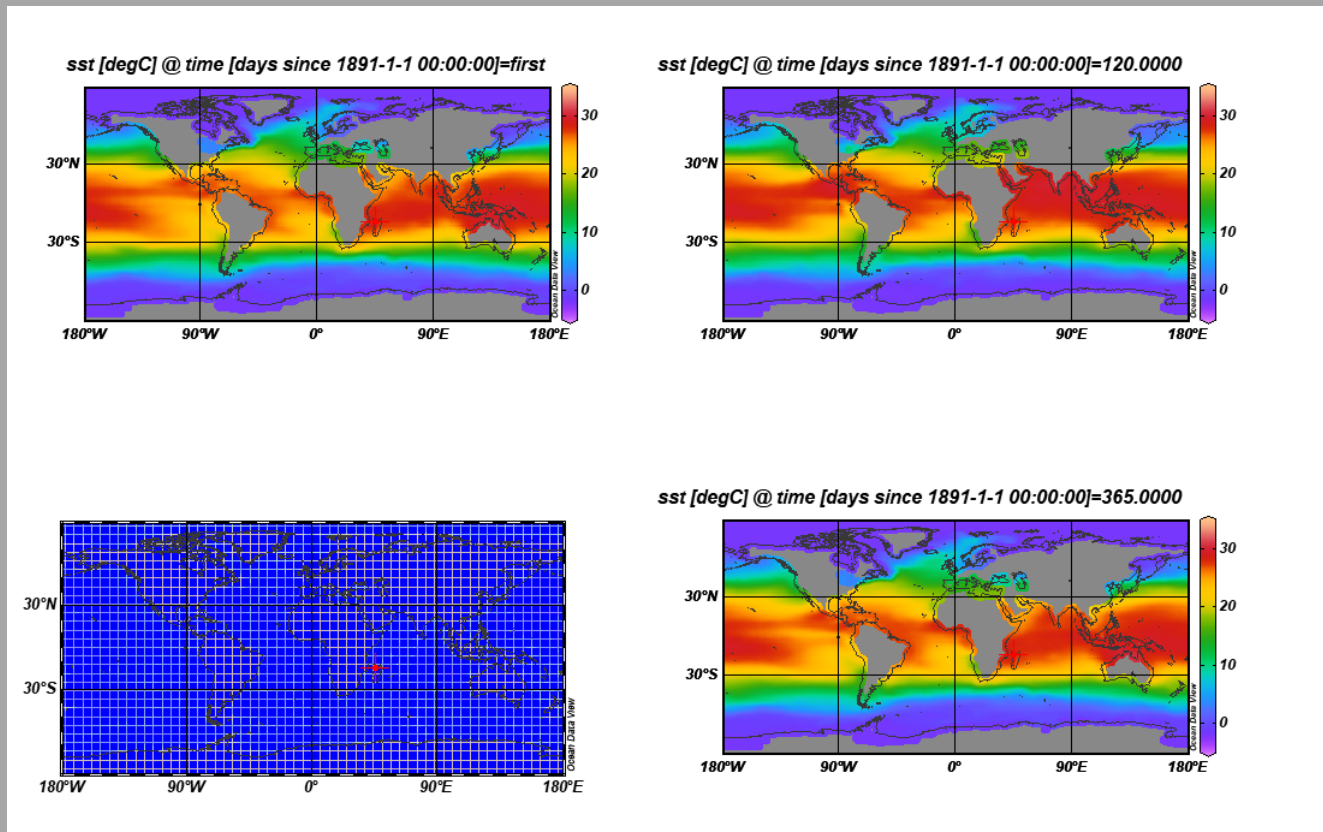
Animations

- Right click on the figure,
Go to Extras >
Animation > Isosurface

Create monthly plots

- To plot sst during the months May 1891, January 1892 and January 1901, go to View > Isosurface variables and add SST @ time = 120, 365 and 3652 respectively
- Go to Layout Templates > 3 Surface Windows





- Go to File > Save canvas as to get the above layout in jpeg format
- By clicking on any data point in any window, the corresponding time will be shown in the left top window labelled STATION ID

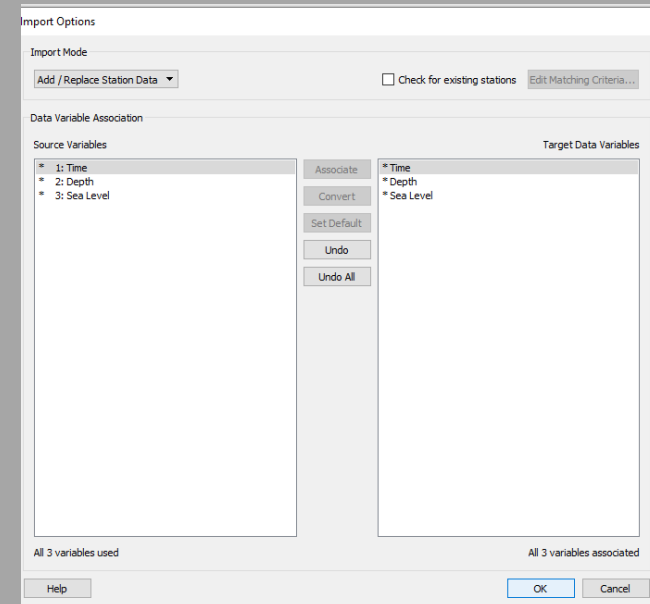
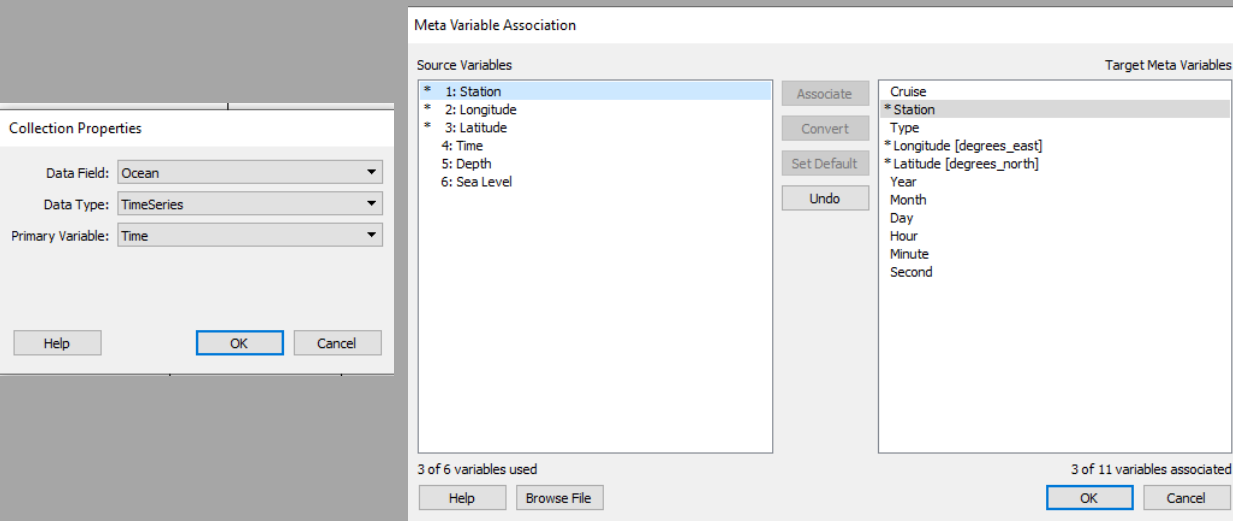
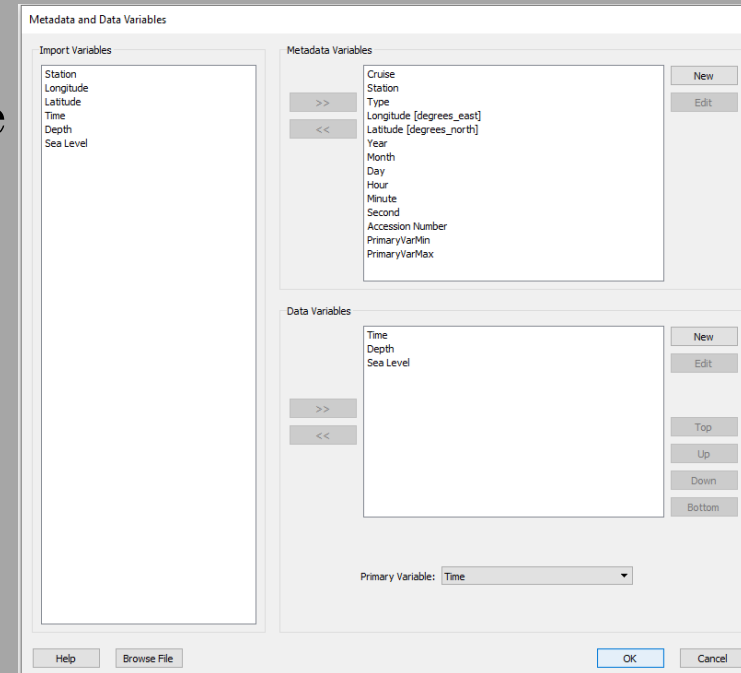
Other options

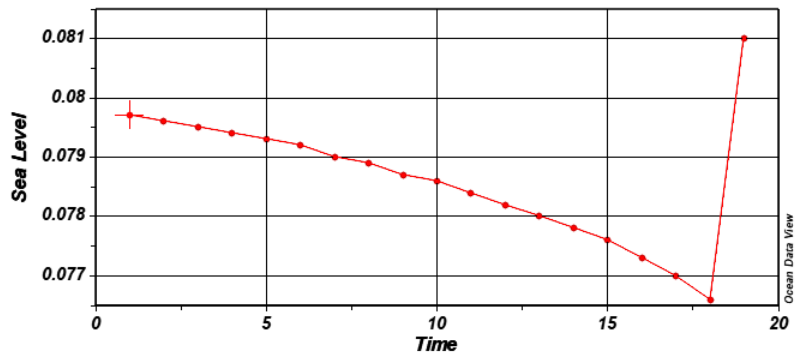
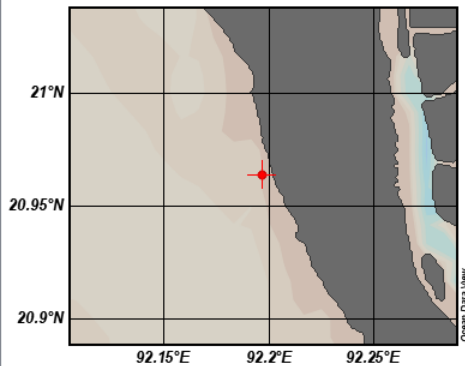
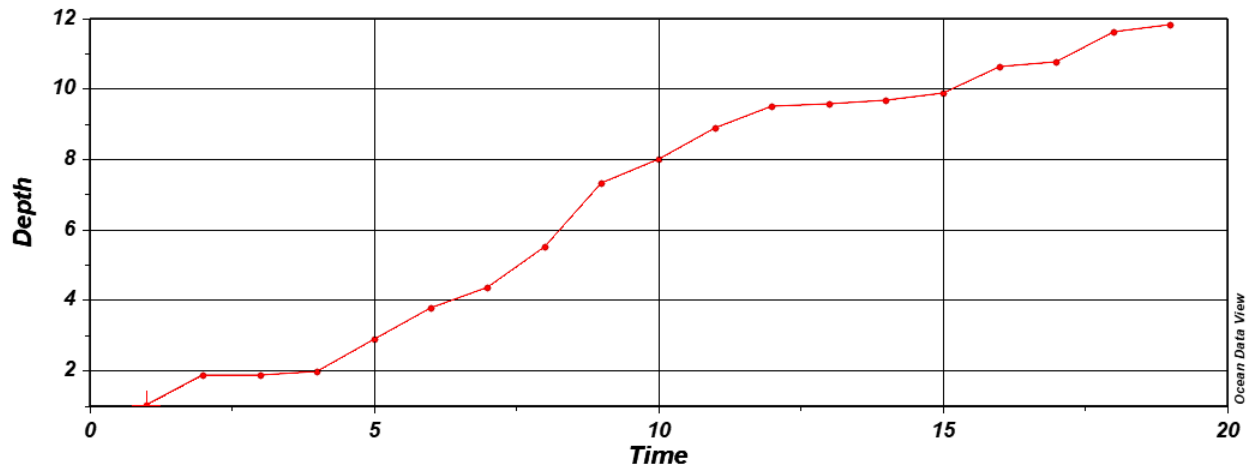
- Go to Collections > Browse info file to see the properties of the netcdf file
- Similarly Collections > Browse inventory to see the data inventory created by ODV

Part 4:

Timeseries data

- Select **File > Open** then navigate to the **timeseries_trial.csv** file in the **Documents\ODV\Data** folder and open it.
- Match the meta variables and data variables, and click **OK**.
- Select **timeseries** as datatype and **time** as primary variable





Station ID: 1

Accession Number	1
Cruise	timeseries_trial1.csv
Station	1 (B)
Position	92.197°E / 20.964°N
Date	
Time	
Time Range	[1.00 - 19.00]

Sample: 1 / 19

1: Time	1.00	1
2: Depth	1.01	1
3: Sea Level	0.08	1

Isosurface Values

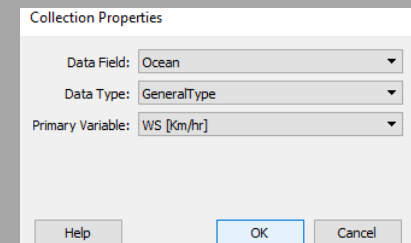
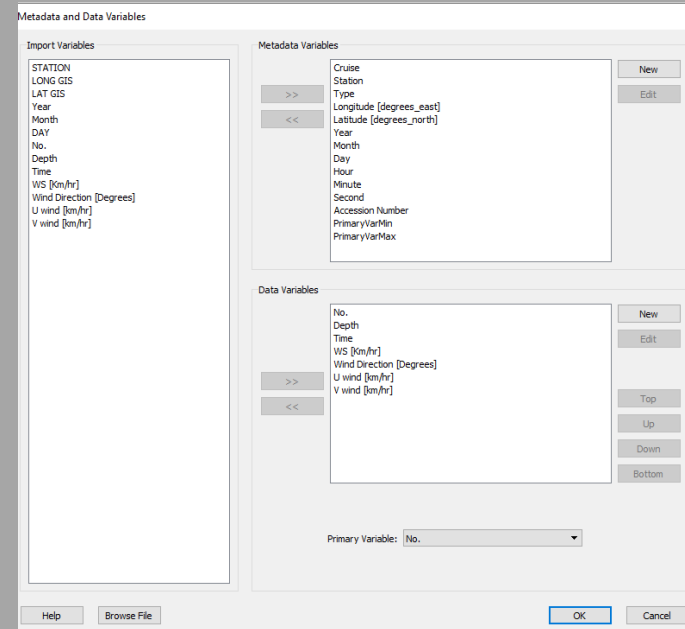
Longitude	92.197
Latitude	20.964
Time [yr]	
Day of Year	
Time @ Time=first	1.00
Depth @ Time=first	1.01
Sea Level @ Time=first	0.08

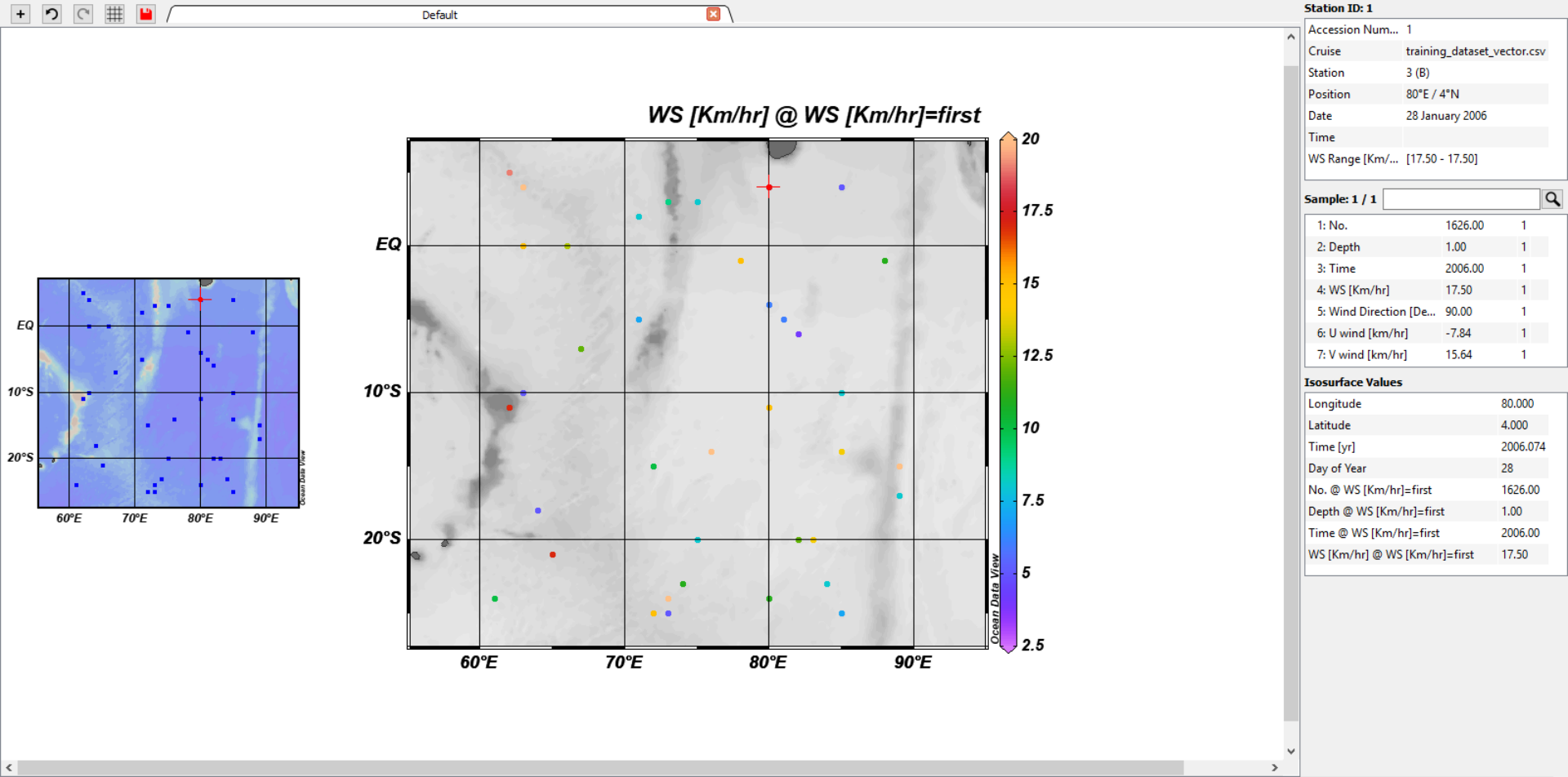
Part 5:

Vector dataset

Open data

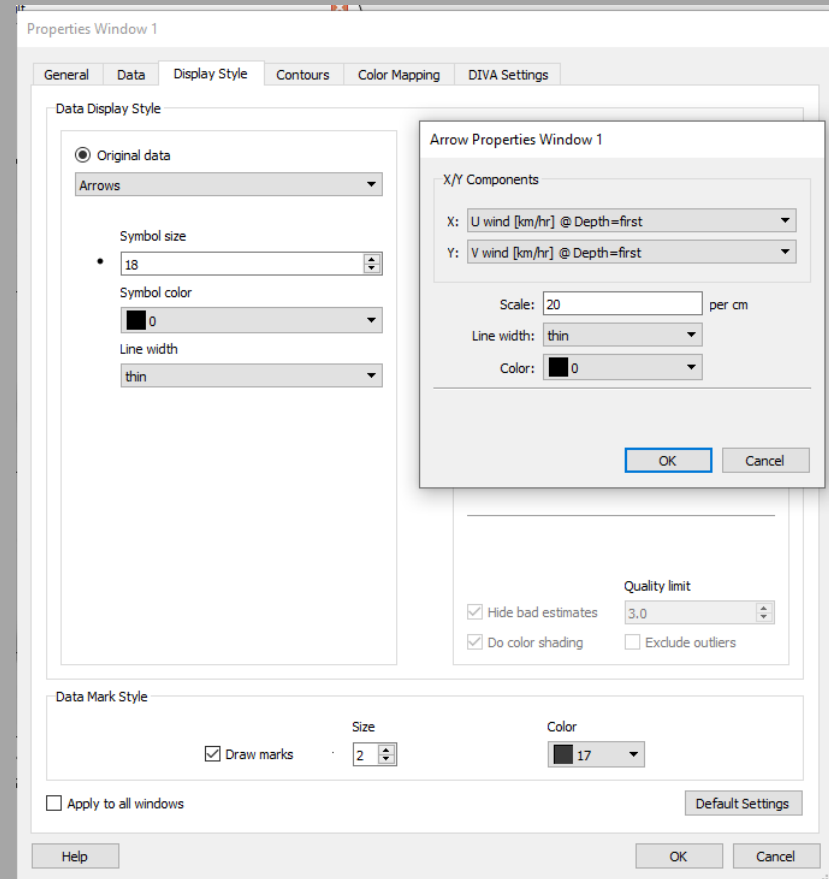
- Select **File > Open** then navigate to the **training_dataset_vector.csv** file in the **Documents\ODV\Data** folder and open it.
- Match the meta variables and data variables, and click **OK**.
- Select **general** as datatype and **WS** as primary variable



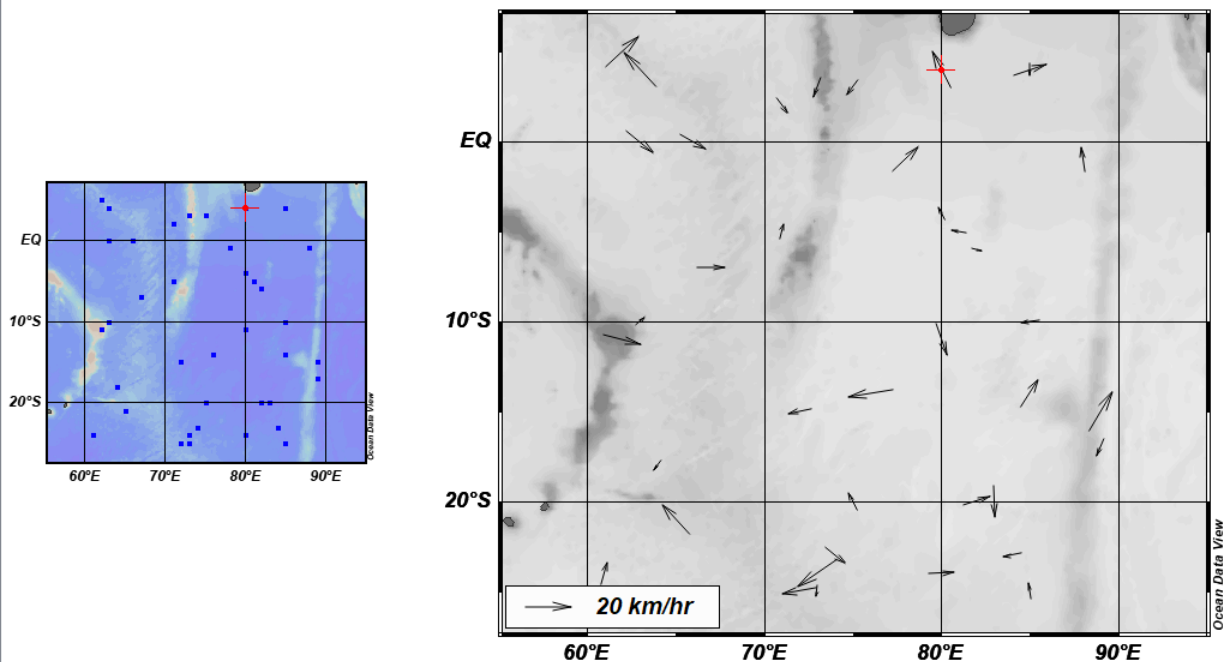


Plot vector

- Create isosurface variables of u and v at depth = first (surface)
- Right click on the figure, go to Properties > Display Style > Original Data
- Select **Arrows** and assign U and V velocities as X and Y respectively. Change scale to 20, or according to the desired arrow length.



Wind Direction [Degrees] @ WS [Km/hr]=first



Station ID: 1

Accession Num...	1
Cruise	training_dataset_vector.csv
Station	3 (B)
Position	80°E / 4°N
Date	28 January 2006
Time	
WS Range [Km/...	[17.50 - 17.50]

Sample: 1 / 1

1: Depth	1.00	1
2: Time	2006.00	1
3: WS [Km/hr]	17.50	1
4: Wind Direction [De...	90.00	1
5: U wind [km/hr]	-7.84	1
6: V wind [km/hr]	15.64	1

Isosurface Values

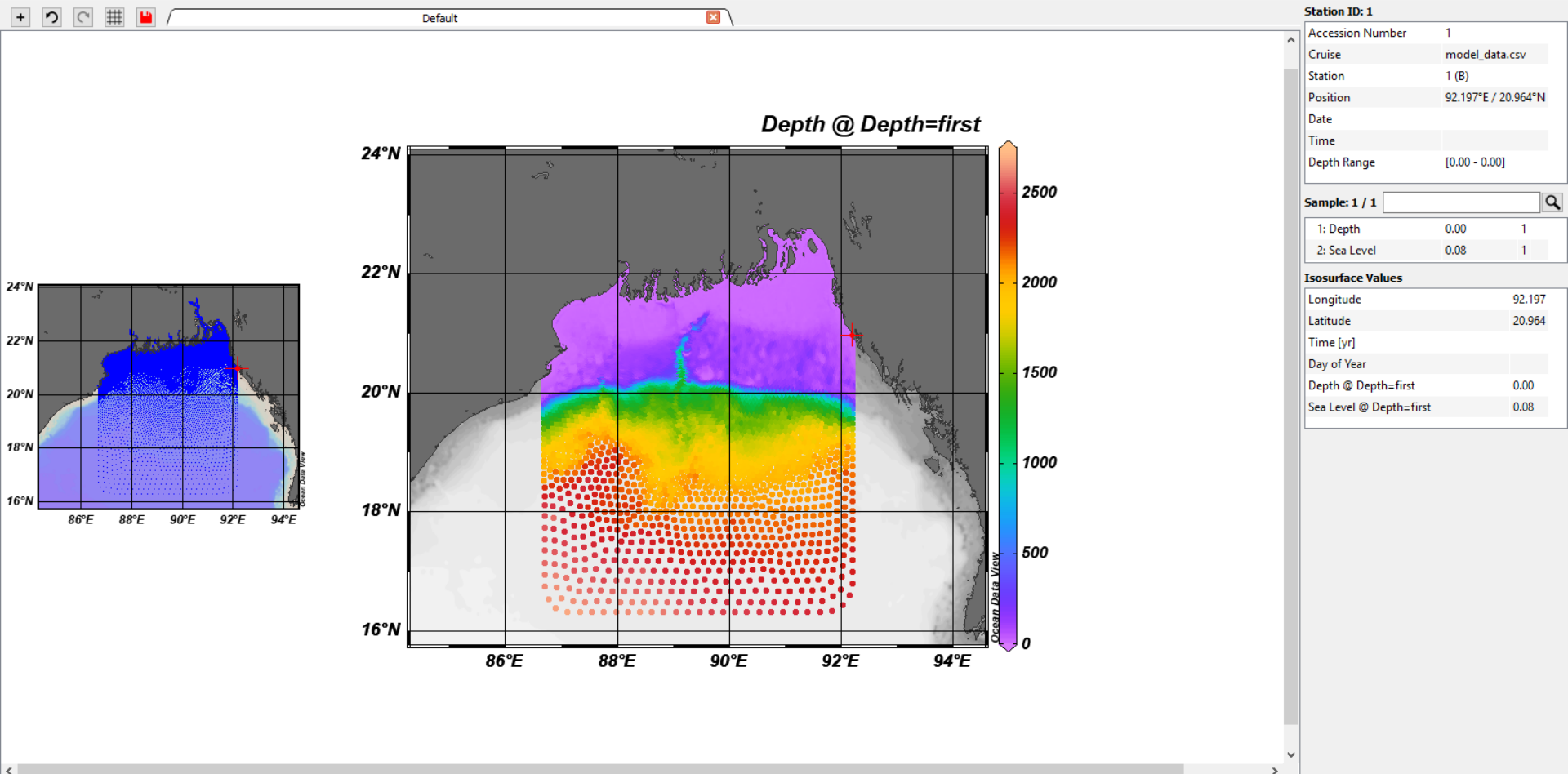
Longitude	80.000
Latitude	4.000
Time [yr]	2006.074
Day of Year	28
Depth @ WS [Km/hr]=first	1.00
Time @ WS [Km/hr]=first	2006.00
WS [Km/hr] @ WS [Km/hr]=first	17.50
Wind Direction [Degrees] @ WS [K...	90.00
U wind [km/hr] @ Depth=first	-7.84
V wind [km/hr] @ Depth=first	15.64

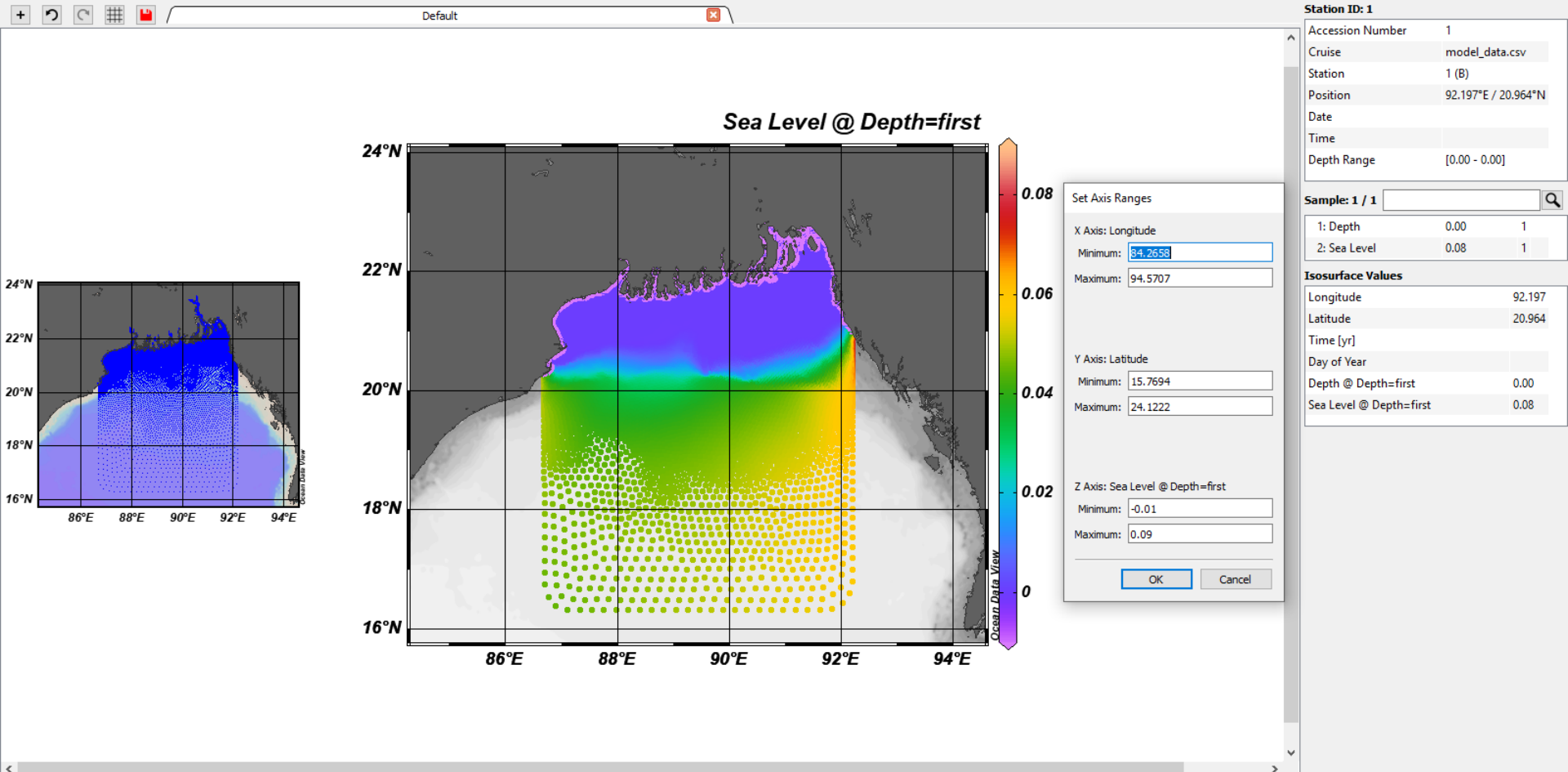
Part 6:

Model data

Import data

- Select **File > Open** then navigate to the **model_data_timeseries.csv** file in the Documents\ODV\Data folder and open it.
- Match the meta variables and data variables, and click **OK**.
- Select **general** as datatype and **depth** as primary variable





Create isosurface variable as sea level at time equals 2.

