**Ocean Data View Introductory Tutorial**

**Biological Oceanography SCIE3307**

**1 pm September 10th 2012**

1. **Download Software**

<http://odv.awi.de/>

* Find website and download latest version of Ocean Data View (4.1) on to computer desktop

1. **Import Data**

Prepare data file by opening “Eddy Profiles – ODV Test Data 2.xlsx” from LMS Biological Oceanography website and converting to a CSV file (comma delimited) on the desk top. Note that:

* the **column headings must be in a single row** and
* **Latitude and Longitude must be indicated in decimal degrees** for the mapping function to work.
* Open software and click File/Open
* In bottom window, select “files of type” as “Data Files (\*.txt \*csv \*o4x)
* Browse to the desktop and find “Eddy Profiles – ODV Test Data 2.csv” and click Open
* Under “General”, specify a comma as the column separator – legible column labels should appear in box at right hand side, including “salinity”, “temperature” and “turbidity”
* Hit “OK” – the description of “Collection Variables” should appear, including spreadsheet column labels (again), Meta variables (the variables that the program looks for in your spreadsheet) and collection varables (the variables that are actually listed in your spreadsheet).
* Hit OK again
* “Collection Properties” box should now appear – you need to specify how your data look. In this case the Data Field is “Ocean”, the Data type is “Profiles”, and the primary variable is “Pressure” (in this context, Pressure and Depth are the same thing, so you are in fact specifying that your data are stored as depth profiles).
* Hit OK when this is done
* You now have to associate the source/collection variables in your spreadsheet with the “Meta Variables” that the program wants. The key variables that need to be associated are Latitude and Longitude, since ODV is a spatial mapping program. (Remember you have already told the program that you have collected depth profiles). To create the association, highlight a source variable and a Meta Variable at the same time and click “associate”. For example, “START\_LAT” is the latitude the sample was taken – you can associate this with the “Latitude” Meta Variable. Do the same for Longitude. Stars will appear beside the associated variables.
* The “START\_TIME” source variable is a good one to associate, too – however, in this case note that your source data are in a specific format, not in separate columns for Year, Month, Day, etc. So to associate “START\_TIME”, you need to use the command “Convert” instead. You will then have to choose the date and time format that most closely resembles that in your source file, and then hit “Convert”.
* If you do all this correctly, you should see the message “17 stations imported into ODV” and you should see a world map with some blue squares off WA and perhaps a red cursor there too.

1. **View and Manipulate Data**

* Right click inside map box, and chose “Zoom” – then with your cursor, move red box close around the blue data squares off WA
* The map should zoom into a north-south transect off Western Australia – these transect a large mesoscale eddy off Rottnest in 2006.
* Right-click on the map and choose “Section” and then “Define Section”. You can then use your cursor to click on the long line of adjacent stations from north to south or south to north, double-clicking to finish the selection. You have now selected the data to plot.
* Name the Section (e.g., Test Data, Biol Ocean transect, and click “Latitude” as Section Co-ordinate (then OK)
* Move your cursor to a white area outside of the map and right-click to bring up a menu – choose “Window Layout”
* In the “Window Layout” mode you can change the size of your map – make it smaller and place it on the upper LH corner for convenience.
* Then, right click and select “New Window”. This will house your new graph, so make it as large as you wish. Hit “Accept” to go back to the normal window mode.
* In the normal window mode, right-click on your new graph frame and open up the “Properties” box.
* Go to the “Data” tab and at the top, choose “SECTION” as the Scope.
* For the X-axis, choose “Section Latitude” at the bottom of the list.
* For the Y-Axis, select “Pressure” and click “reverse range” because you want 0-pressure, or 0-depth, at the top of your graph instead of the bottom.
* For Z-axis, choose a variable to plot – Temperature is a good one to start with.
* The graph should show you bars of raw data plotted at each station from 0 – 500 m, with temperature colour-coded as indicated on a bar on the right. Depending on where you clicked first, the x-axis will be either south-to-north or north-to-south. Note which it is.
* To smooth the data, right-click on the graph to get into “Properties” again and go to “Display Style” tab. Here you can now click “Gridded field”, specifying “VG” gridding. Hit OK.
* Because your stations are about 10 nm (16 km) apart, you may need to smooth between them. You can try “50” as the x-scale and y-scale lengths and then click OK. Note how the plot changes.
* Now change the gridding type from ”VG” gridding to DIVA gridding. What changes do you see?
* Try other data (Salinity, fluorescence, oxygen) and note the changes in patterns .

NOW try this with your own data!!! Make sure you use the correct initial format for latitude and longitude, and save your data as a CSV file to upload. Good Luck!