

Ocean Data View

Sitemap Imprint
AWI

OCN 623 How to use ODV

Ocean Data View

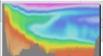


<http://odv.awi.de>
© 2015 Reiner Schlitzer

Latest ODV4 Version: ODV 4.7.10 (Feb 07 2017)
<http://odv.awi.de/>

Currently **>60,000 users**,
10~20 new users every day!!

Feb 1, 2018



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What is ODV?

- *“Ocean Data View (ODV) is a software package for the interactive exploration, analysis and visualization of oceanographic and other geo-referenced profile, time-series, trajectory or sequence data. ODV runs on Windows, Mac OS X, Linux, and UNIX (Solaris, Irix, AIX) systems. ODV data and configuration files are platform-independent and can be exchanged between different systems.”*
- Data from **Argo, GTSP, CCHDO, World Ocean Database, World Ocean Atlas, World Ocean Circulation Experiment (WOCE), SeaDataNet, and Medar/Medatlas** can be directly imported into ODV.
- ODV also supports the **netCDF format** and lets you explore and visualize CF, COARDS, GDT and CDC compliant netCDF datasets.

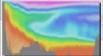


Prof. Reiner Schlitzer
Alfred Wegener Institute

*His Research Interests:
Modeling; Nutrient and Carbon Cycles; Information Systems; Productivity and Particle Fluxes; Radionuclides*

Free, Easy-to-use, visual, practical...etc..

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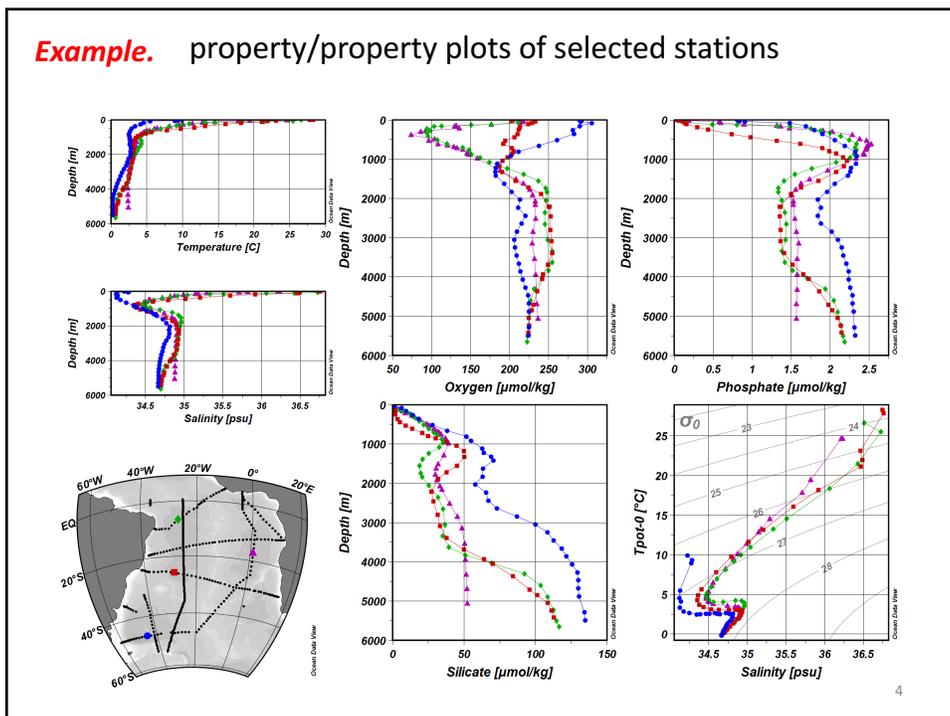

What can you do with ODV?

- [property/property plots of selected stations](#)
- [scatter plots for sets of stations](#)

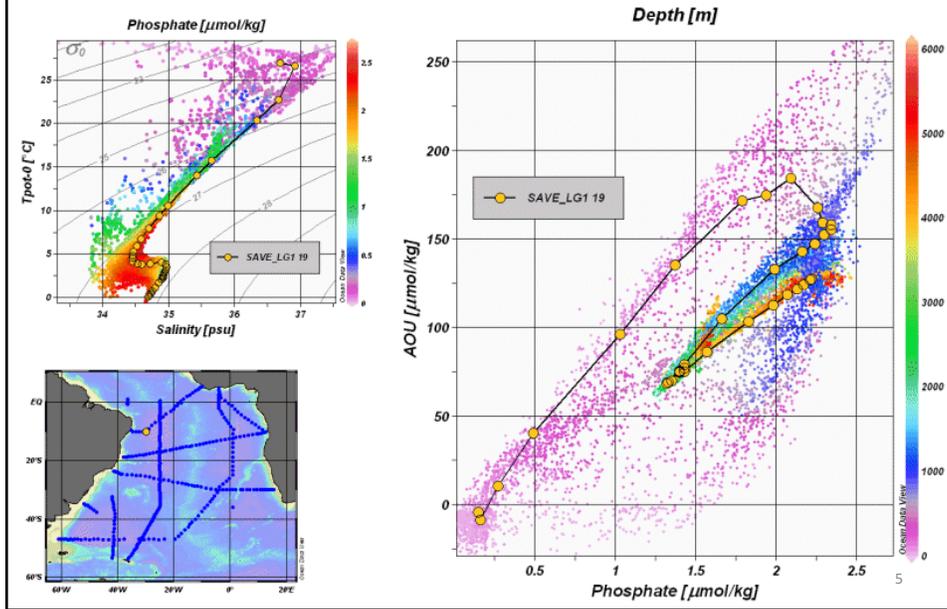
- [color sections along arbitrary cruise tracks](#)
- [color distributions on general isosurfaces](#)

- [geostrophic velocity sections](#)
- [temporal evolution plots of tracer fields](#)
- [differences of tracer fields between repeats](#)
- [Animations](#)
- [interrupted maps.](#)

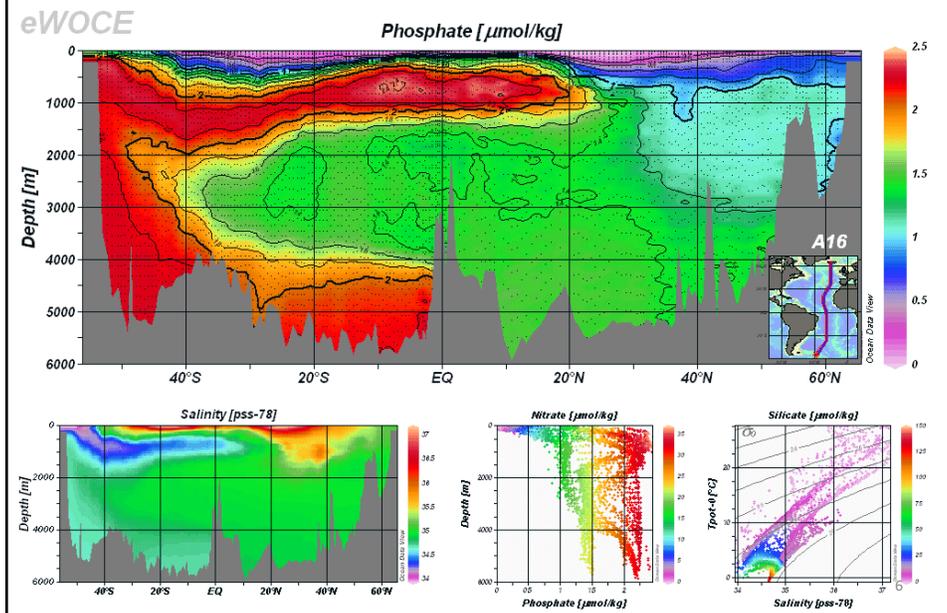
3



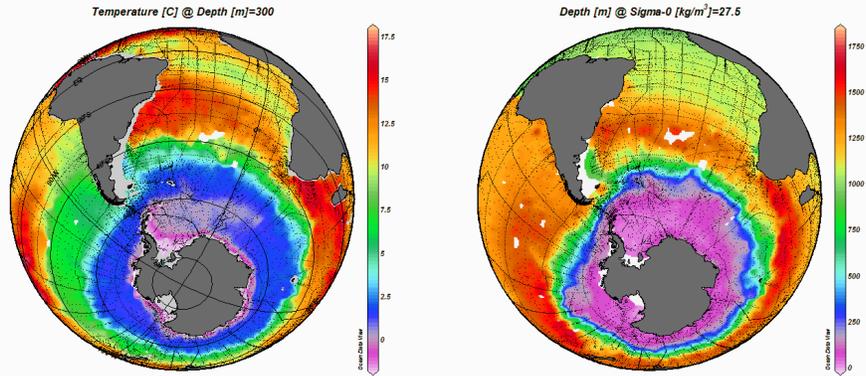
Example. scatter plots for sets of stations



Example. color sections along arbitrary cruise tracks

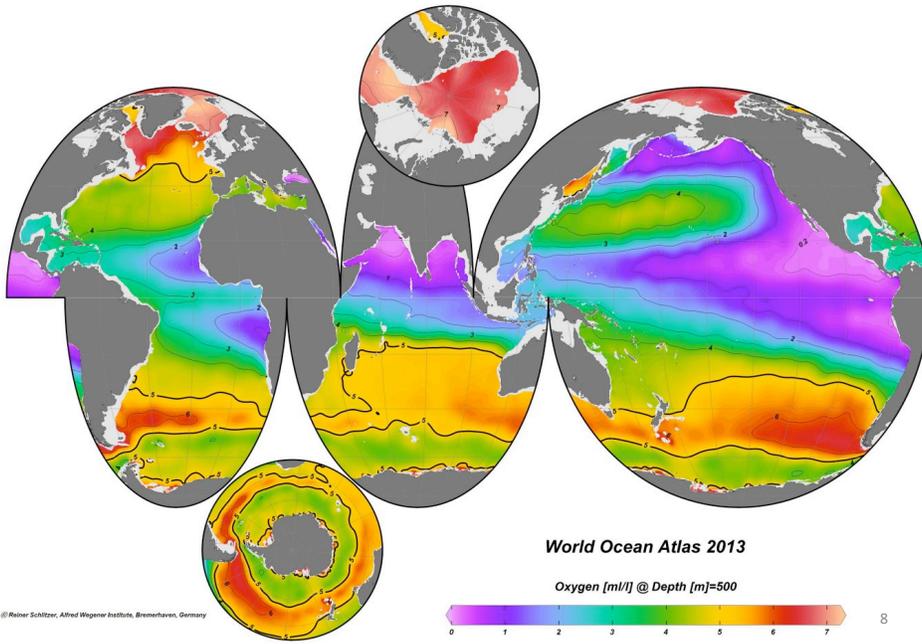


Example. color distributions on general isosurfaces



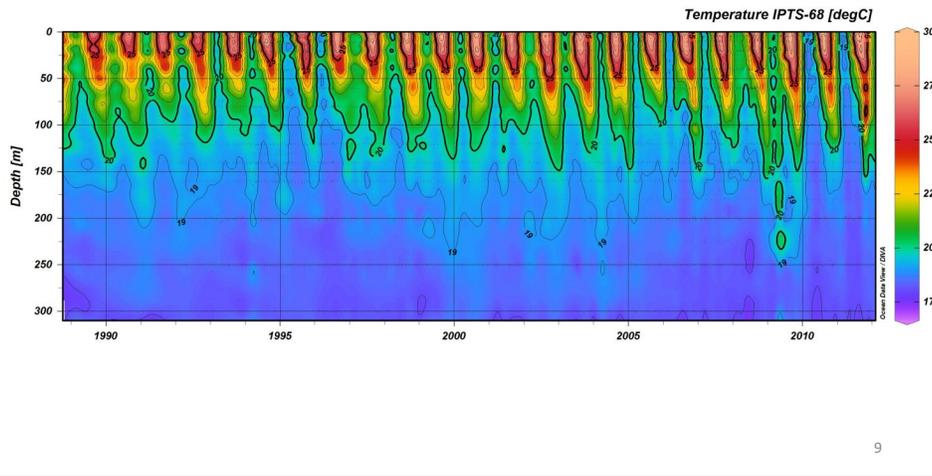
7

Example. interrupted maps

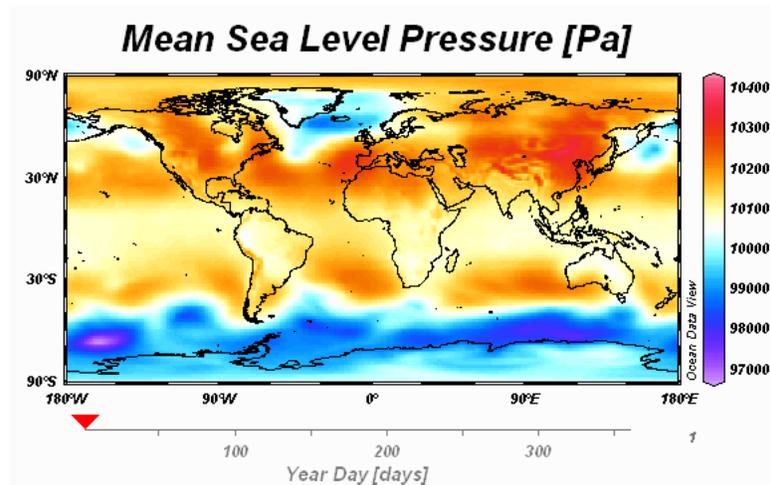


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Example. temporal evolution plots of tracer fields
 - Time-series data at BATS station



Example. animations



Example.

animation 2



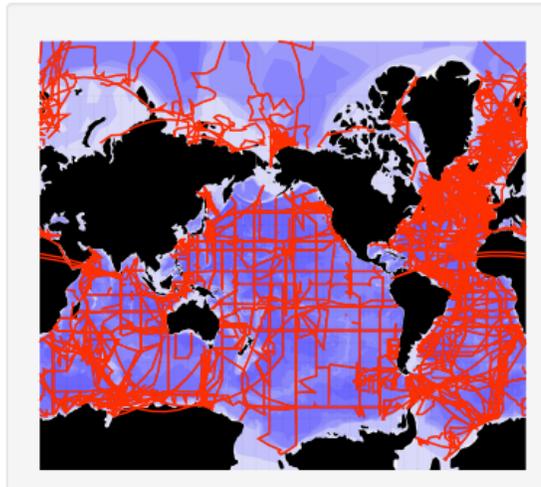
- <http://www.geotraces.org/dp/idp2014>



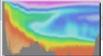
Data sets are able to be downloaded in ODV format
- CCHDO website (<http://cchdo.ucsd.edu/>)

Various programs:

- GO-SHIP
- SOCCOM
- USHYDRO
- WOCE
- DIMES
- ELLETT
- Project Carina
- Hawaii Ocean Time Series (HOTS)
- Bermuda Atlantic Time Series (BATS) ...etc



<http://cchdo.ucsd.edu/search?dtstart=1800>



Ocean Data View



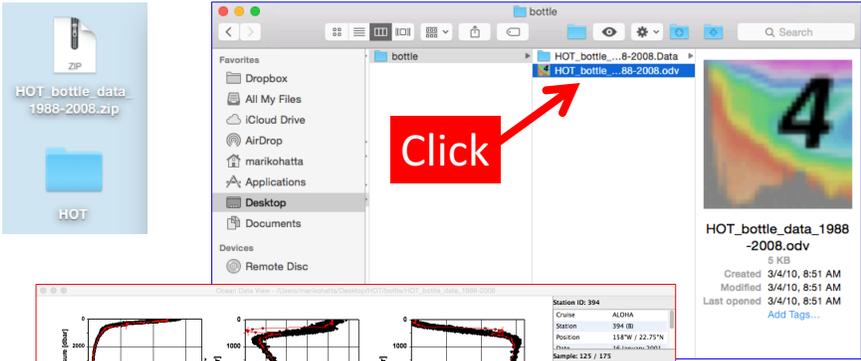
Let's get started

Installation <http://odv.awi.de/en/software/download/>

1. Download data and open it
2. Modify views
3. Create your own data file
4. Open new ODV & import your data file
5. Make T-S diagram and derived variable
6. How to save figures and views

Find where you have put ODV data files on your computer.

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HOT_bottle_data_1988-2008.zip

HOT

bottle

HOT_bottle...8-2008.Data

HOT_bottle...88-2008.odv

Click

HOT_bottle_data_1988-2008.odv

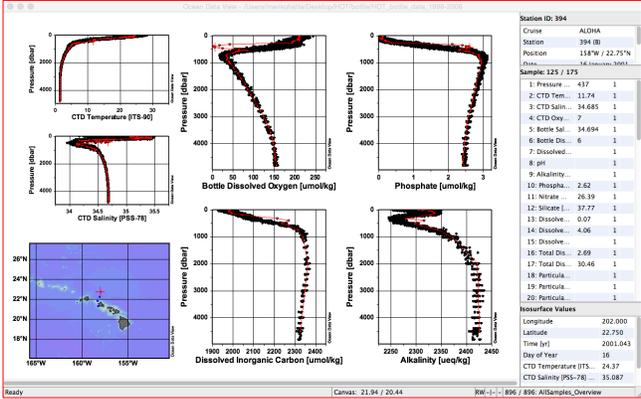
5 KB

Created 3/4/10, 8:51 AM

Modified 3/4/10, 8:51 AM

Last opened 3/4/10, 8:51 AM

[Add Tags...](#)



Ocean Data View - A:\Users\marikohatta\Desktop\HOT\Bottle\HOT_bottle_data_1988-2008

Station ID: 394

Cruise: ALDHA

Station: 394 (B)

Position: 18°W / 22.75°N

Depth: 16.000000000000000

Sample: 125 / 175

1: Pressure	417	1
2: CTD Temp	21.24	1
3: CTD Salin	34.685	1
4: CTD Day	7	1
5: Bottle Sal	34.694	1
6: Bottle Dts	6	1
7: Dissolved...	1	1
8: pH	1	1
9: Alkalinity...	1	1
10: Phospha...	2.62	1
11: Nitrate...	26.39	1
12: Silicate...	31.77	1
13: Dissolve...	0.07	1
14: Dissolve...	4.06	1
15: Dissolve...	1	1
16: Total Dis...	2.69	1
17: Total Dis...	30.46	1
18: Particula...	1	1
19: Particula...	1	1
20: Particula...	1	1

Resurface Values

Longitude: 202.000

Latitude: 22.750

Time [yr]: 2001.043

Day of Year: 16

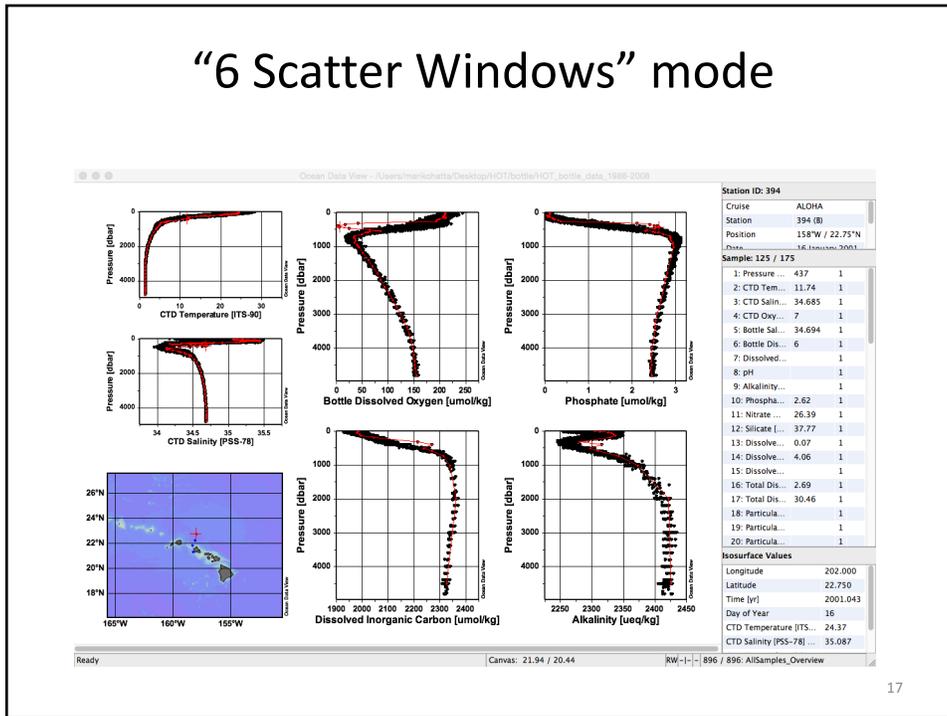
CTD Temperature [ITS-90]: 24.17

CTD Salinity [PSY-78]: 35.087

Ready Canvas: 21.04 / 20.44 RWI-[-]-[] 896 / 896: A:\Samples_Overview

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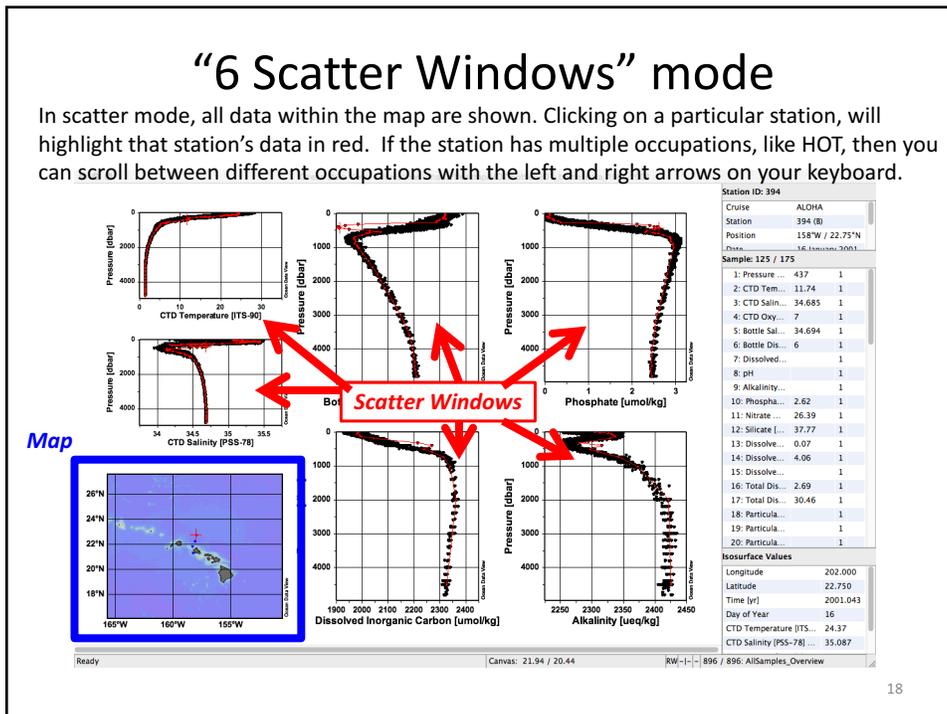
“6 Scatter Windows” mode



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“6 Scatter Windows” mode

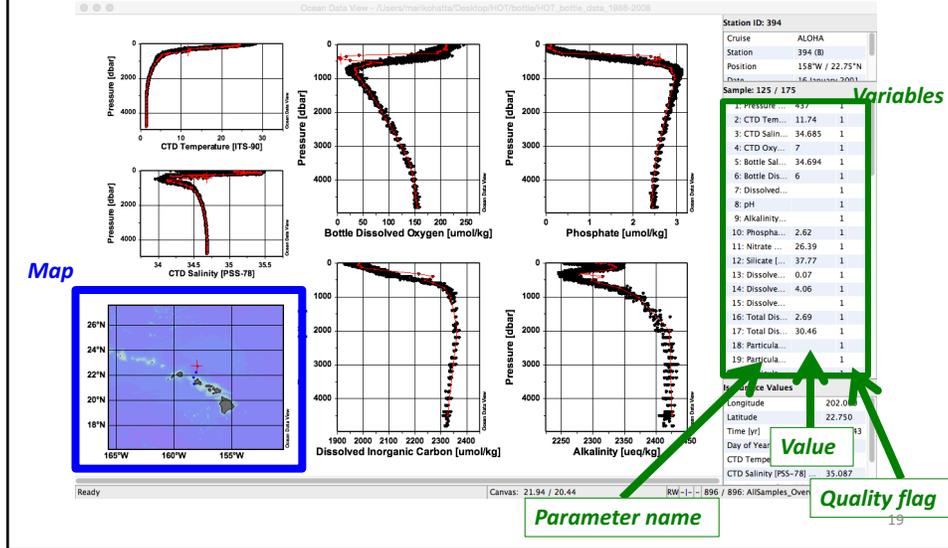
In scatter mode, all data within the map are shown. Clicking on a particular station, will highlight that station's data in red. If the station has multiple occupations, like HOT, then you can scroll between different occupations with the left and right arrows on your keyboard.



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“6 Scatter Windows” mode

You can move up and down the red highlighted profile with up and down keys. And the data corresponding to the point will be shown in the variables window.



Quality Flag (QF)

Quality flag document: <http://odv.awi.de/en/documentation/>

ODV flag:

QF

Flag Description	ODV
good quality	0
unknown quality	1
questionable quality	4
bad quality	8

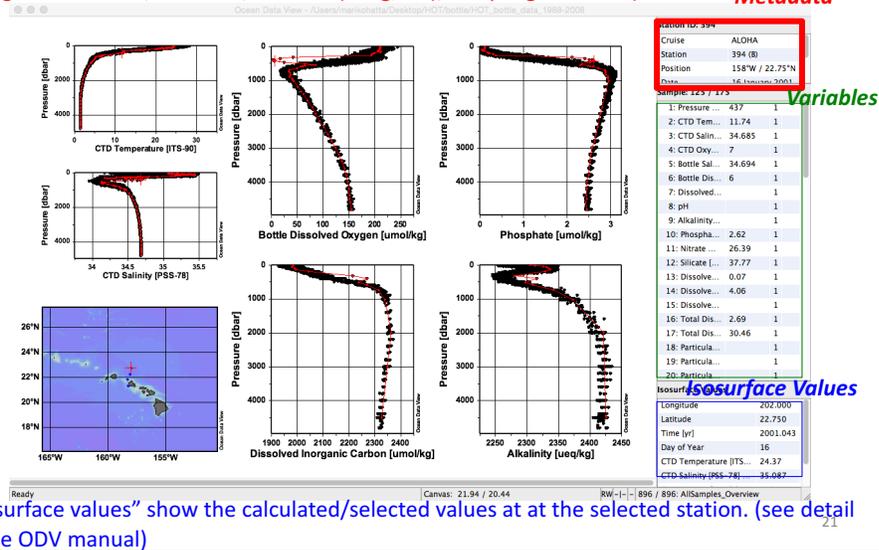
-Every parameter and each sample can have its own quality flag, good, unknown, questionable, or bad.

-You use the flag to identify data quality, you can then isolate bad data from your figure!

- ODV always assign quality flag = 1 i.e. unknown if you do not.

“6 Scatter Windows” mode

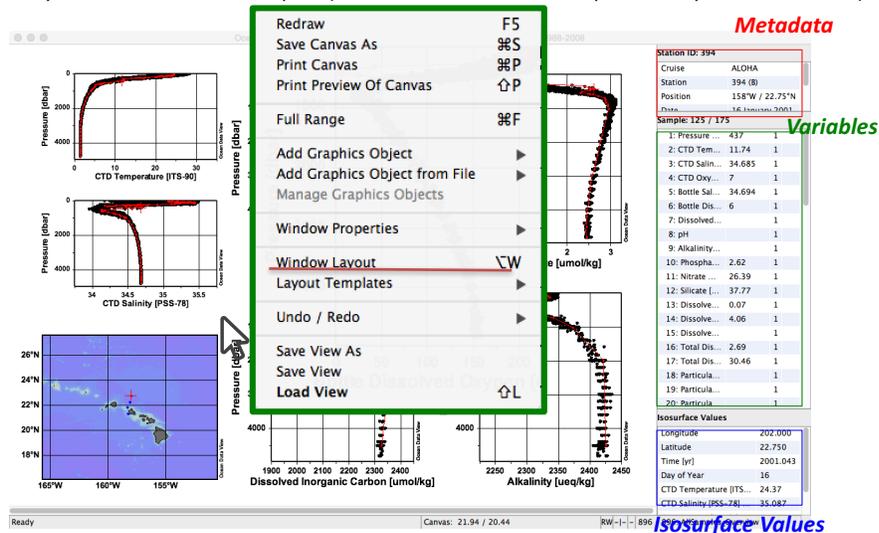
“Metadata” show the information of the selected station on the map (e.g. Cruise name, Station #, Position (Long/Lat), sampling date etc.)



“Isosurface values” show the calculated/selected values at the selected station. (see detail in the ODV manual)

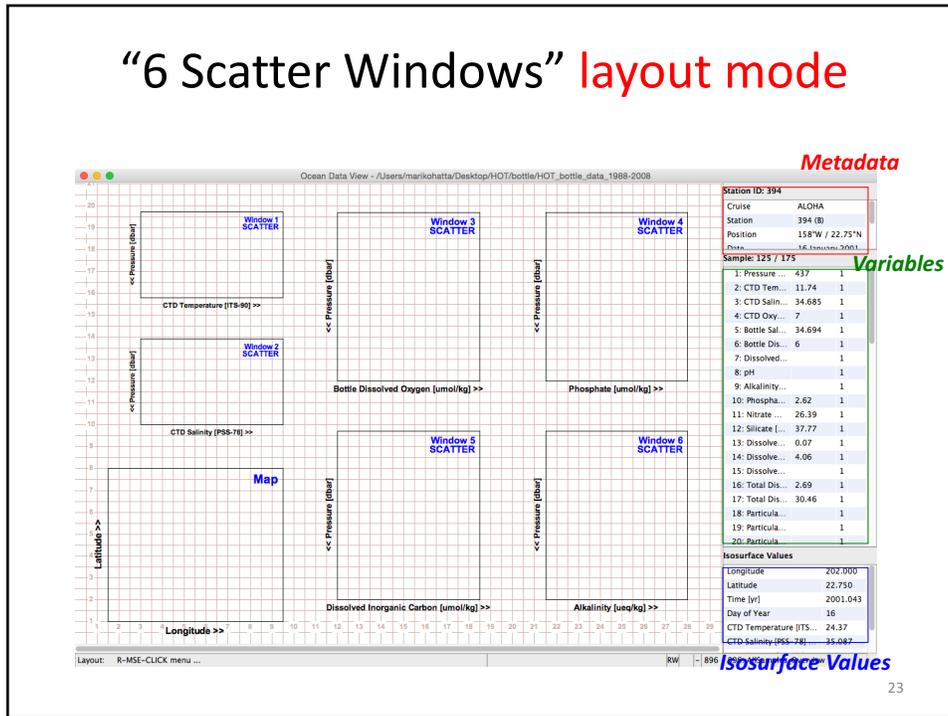
Let's change the layout of the canvas

Move your cursor in the white part (it should not be on the map or on any scatter window)



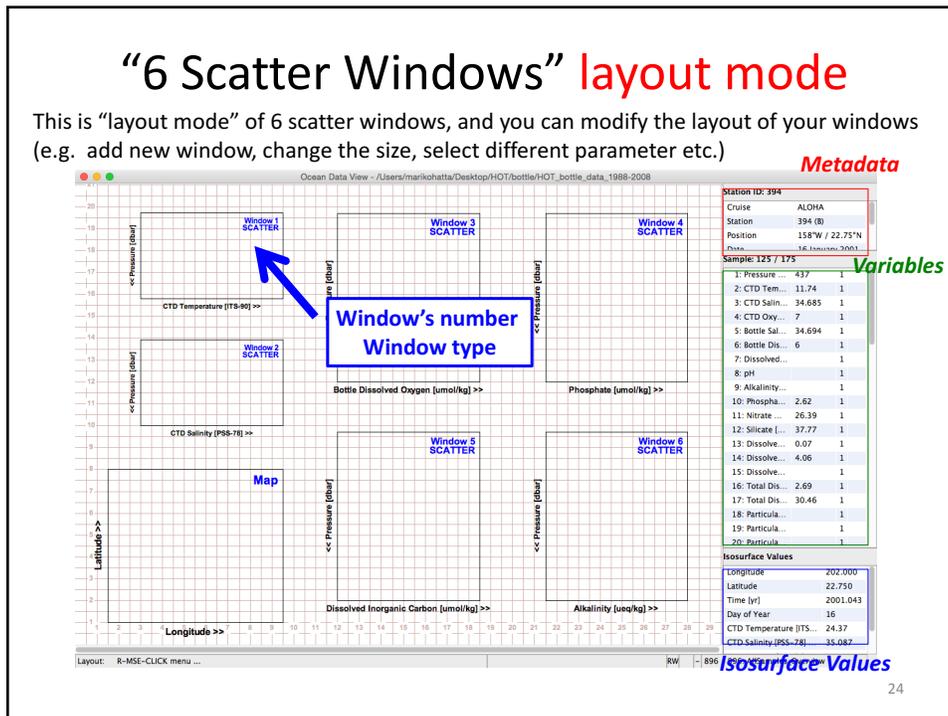
Right click (“control” + click if you are Mac user), and select “Window Layout”.

“6 Scatter Windows” layout mode



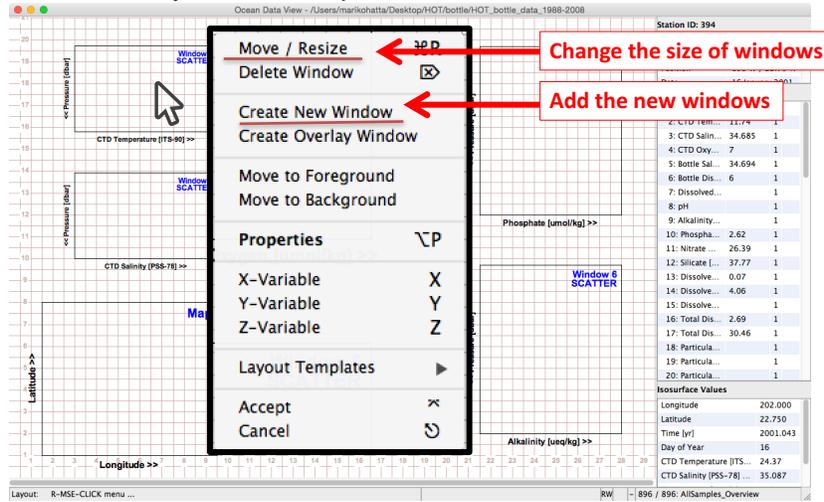
“6 Scatter Windows” layout mode

This is “layout mode” of 6 scatter windows, and you can modify the layout of your windows (e.g. add new window, change the size, select different parameter etc.)



“6 Scatter Windows” layout mode

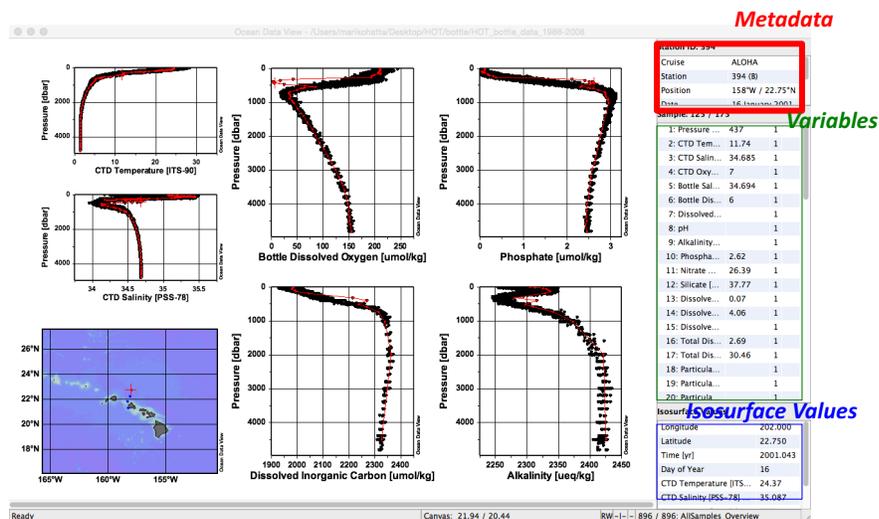
Move your cursor on the scatter window that you want to modify, and then **Right click** (“control” + click if you are Mac user).



After you change the layout, select “Accept”.

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“6 Scatter Windows” mode



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Let's change the temperature plot to pH.

To make changes in any window, put your cursor and right click ("control" + click if you are Mac user) click in the window, then select "Properties".

Station ID: 394
 Cruise ALOHA
 Station 394 (B)
 Position 158°W / 22.75°N
 Date 16 January 2001

Sample: 125 / 175

1: Pressure	437	1
2: CTD Tem...	11.74	1
3: CTD Salin...	34.685	1
4: CTD Oxy...	7	1
5: Bottle Sal...	34.694	1
6: Bottle Dis...	6	1
7: Dissolved...	1	1
8: pH	1	1
9: Alkalinity...	1	1
10: Phospha...	2.62	1
11: Nitrate ...	26.39	1
12: Silicate [...]	37.77	1
13: Dissolve...	0.07	1
14: Dissolve...	4.06	1
15: Dissolve...	1	1
16: Total Dis...	2.69	1
17: Total Dis...	30.46	1
18: Particula...	1	1
19: Particula...	1	1
20: Particula...	1	1

Isosurface Values
 Longitude 202.000
 Latitude 22.750
 Time [yr] 2001.043
 Day of Year 16
 CTD Temperature [ITS-... 24.37
 CTD Salinity [PSS-78] ... 35.087

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Let's change the temperature plot to pH.

Select "Data" tab, then select "X-axis" (now selected "2:CTD Temperature [ITS-90] ").

Properties Window 1

General **Data** Display Style Contours Color Mapping DIVA Settings

Scope: SCATTER: Data of all stations shown in the map

X-Axis
 2: CTD Temperature [ITS-90]

X-Axis Settings Reverse range

Y-Axis
 1: Pressure [dbar]

Y-Axis Settings Reverse range

Z-Axis
 (none)

Colorbar Settings Reverse range

Apply to all windows

Help OK Cancel

Station ID: 394
 Cruise ALOHA
 Station 394 (B)
 Position 158°W / 22.75°N
 Date 16 January 2001
 Time 16:29:44.000
 Pressure Range... [3 - 4804]

Sample: 88 / 175

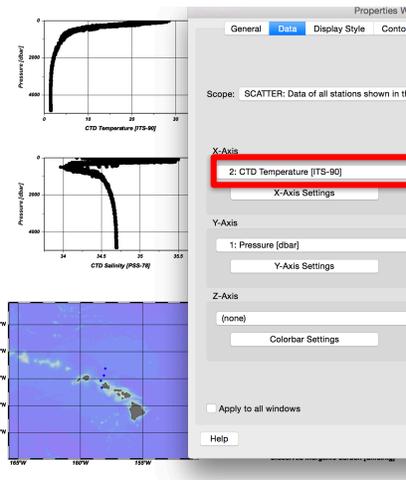
1: Pressur...	149	1
2: CTD Te...	23.86	1
3: CTD S...	35.428	1
4: CTD O...	1	1
5: Bottle ...	35.433	1
6: Bottle ...	1	1
7: Dissolv...	1	1
8: pH	1	1
9: Alkalini...	1	1
10: Phospp...	1	1
11: Nitrate...	1	1
12: Silicat...	1	1
13: Dissol...	1	1
14: Dissol...	1	1
15: Dissol...	1	1
16: Total ...	1	1
17: Total ...	1	1

Isosurface Values
 Longitude 202.000
 Latitude 22.750
 Time [yr] 2001.043
 Day of Year 16
 CTD Temperature [ITS-... 24.37

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Let's change the tem

Select "8:pH", then select "OK".

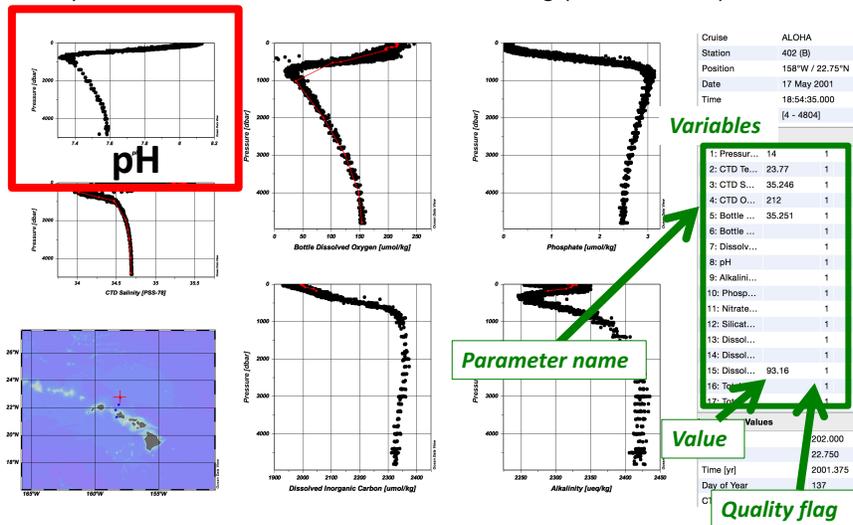


- 4: CTD Oxygen [umol/kg]
- 5: Bottle Salinity [PSS-78]
- 6: Bottle Dissolved Oxygen [umol/kg]
- 7: Dissolved Inorganic Carbon [umol/kg]
- 8: pH**
- 9: Alkalinity [ueq/kg]
- 10: Phosphate [umol/kg]
- 11: Nitrate + Nitrite [umol/kg]
- 12: Silicate [umol/kg]
- 13: Dissolved Organic Phosphorus [umol/kg]
- 14: Dissolved Organic Nitrogen [umol/kg]
- 15: Dissolved Organic Carbon [umol/kg]
- 16: Total Dissolved Phosphorus [umol/kg]
- 17: Total Dissolved Nitrogen [umol/kg]
- 18: Particulate Carbon [umol/kg]
- 19: Particulate Nitrogen [umol/kg]
- 20: Particulate Phosphorus [nmol/kg]
- 21: Low-Level Nitrogen [nmol/kg]
- 22: Low-Level Phosphorus [nmol/kg]
- 23: Low-Level Silica [umol/kg]
- 24: Fluorometric Chlorophyll a [ug/l]
- 25: Pheopigments [ug/l]
- 26: HPLC Chlorophyll c3 [ng/l]
- 27: HPLC Chlorophyll c1+c2 [ng/l]
- 28: HPLC Chlorophyll c1+c2+c3 [ng/l]
- 29: HPLC Peridinin [ng/l]
- 30: HPLC 19' Butanoyloxyfucoxanthin [ng/l]
- 31: HPLC Fucoxanthin [ng/l]
- 32: HPLC 19' Hexanoyloxyfucoxanthin [ng/l]
- 33: HPLC Prasinoxanthin [ng/l]
- 34: HPLC Diadinoxanthin [ng/l]
- 35: HPLC Zeaxanthin [ng/l]
- 36: HPLC Chlorophyll a (chl) [ng/l]
- 37: HPLC Chlorophyll b (hpl) [ng/l]
- 38: HPLC Chlorophyll c4 [ng/l]
- 39: HPLC α -Carotene [ng/l]
- 40: HPLC β -Carotene [ng/l]
- 41: HPLC Carotenes [ng/l]
- 42: HPLC Chlorophyllide a [ng/l]
- 43: HPLC Violaxanthin [ng/l]
- 44: HPLC Lutein [ng/l]
- 45: HPLC Monovinyl Chlorophyll a [ng/l]
- 46: HPLC Divinyl Chlorophyll a [ng/l]
- 47: Heterotrophic Bacteria (HAB/ml)

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"6 Scatter Windows" mode

Now you will see the modified scatter window showing pH as a vertical profile.



Now, we are going to modify the sample selection criteria used for the plot.

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Let's modify the sample selection criteria!

Move your cursor in the scatter window that you want to change the selection criteria, right click ("control" + click if you are Mac user), then select "Sample Selection Criteria".

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How to modify the sample selection criteria (Quality Flag)!

In Quality tab, select "Variable" that you want to modify the selection criteria.

Select Quality Flags that you want to show. You can select multiple qualities if you want. ODV default is all flags.

0: good quality
1: unknown quality
4: questionable quality
8: bad quality

Select only "0:good quality" here.

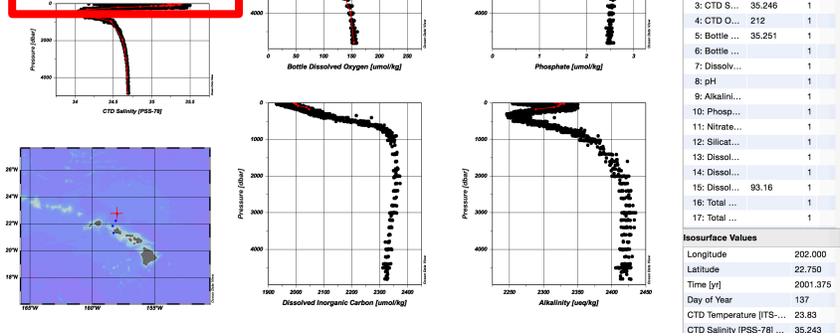
32

“6 Scatter Windows” mode



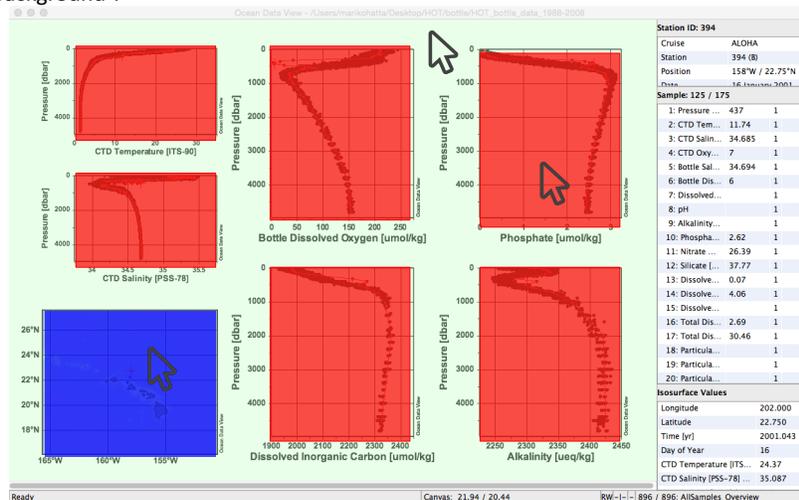
If the pH data in the scatter window disappeared, you are exactly following my instructions.

The pH values are not showing here because all of the flags in this data set were recorded as “unknown (=1)” by ODV.



Different window types (shown in color) have different pop-up menus!

Depending on what you want to modify, you have to select “Map” or “Scatter Window” or “background”.



Map Scatter Windows Background

Different window types (shown in color) have different pop-up menus!

Map (blue border):

- Redraw (F5)
- Save Map As (⌘S)
- Zoom
- Auto-Zoom In (⌘+)
- Auto-Zoom Out (⌘-)
- Valid Domain (⌘F)
- Full Domain
- Global Map
- Current Station by
- Station Selection Criteria (⌘S)
- Manage Pick List
- Manage Section
- Extras
- Properties (⌘P)

Background (green border):

- Redraw (F5)
- Save Canvas As (⌘S)
- Print Canvas (⌘P)
- Print Preview Of Canvas (⇧P)
- Full Range (⌘F)
- Add Graphics Object
- Add Graphics Object from File
- Manage Graphics Objects
- Window Properties
- Window Layout (⌘W)
- Layout Templates
- Undo / Redo
- Save View As
- Save View
- Load View (⇧L)

Scatter Windows (red border):

- Redraw (F5)
- Save Plot As (⌘S)
- Zoom
- Z-Zoom
- Auto-Zoom In (⌘+)
- Auto-Zoom Out (⌘-)
- Move to Foreground
- Move to Background
- Full Range (⌘F)
- Set Ranges
- X-Variable (X)
- Y-Variable (Y)
- Z-Variable (Z)
- Extras
- Sample Selection Criteria (⇧S)
- Properties (⌘P)

Change the scale of Map (points to 'Valid Domain' in Map menu)

Show window layout (points to 'Window Layout' in Background menu)

Change the properties of the window (points to 'Window Properties' in Background menu)

How to save figures and views

All of the parameters in a canvas, window types, parameters shown, scaling, etc. are known as a view which can be saved. Click "View" in the Menu Bar to select "Save View as" or "Save View".

View Import Export Tools

- Undo / Redo
- Station Selection Criteria (⌘S)
- Derived Variables (⌘D)
- Isosurface Variables
- Window Properties
- Window Layout (⌘W)
- Layout Templates
- Save View As
- Save View
- Load View (⇧L)
- Browse Session Log File

How to save figures:
Click "File" in the Menu Bar to select "Save Canvas as".

File Collection View Import

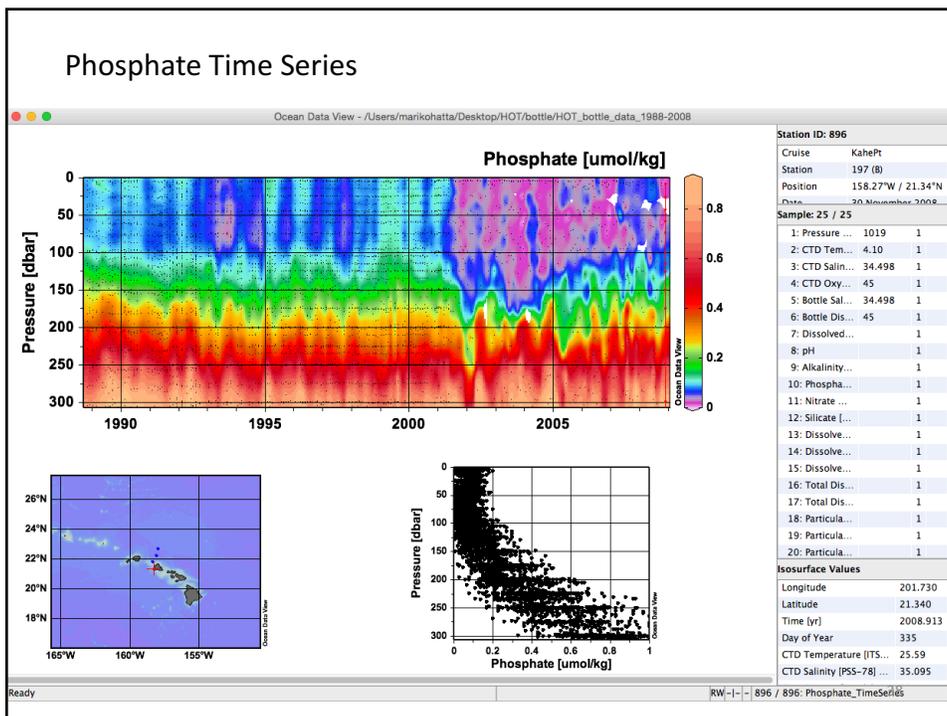
- New (⌘N)
- Open (⌘O)
- Open Remote
- Close (⌘W)
- Execute Batch File
- Save Canvas As (⌘S)
- Print Canvas (⌘P)
- Print Preview Of Canvas (⇧P)
- Recent Files

Tip: The highest resolution of the canvas you can save is 499, which would be important for a publication. Also when you print the Canvas, it would take a long time to print. Save as the canvas, and then print it (faster!).

Let's change the view from the vertical profiles to "Phosphate Time Series" mode!

Map
 DIC Time Series
 Oxygen Time Series
 pH
Phosphate Time Series
 Silicate
 Temperature

Phosphate Time Series



Exercise 1.

Now to create your own ODV readable text file

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1. Open the "header.xlsx" file, and look at the first row. The essential parameters are:

Cruise (name) **Station** (numbers) **Type** (B or C) **Latitude** (North +, South -) **Longitude** (East +, West -) **Pressure QF** (or depth)

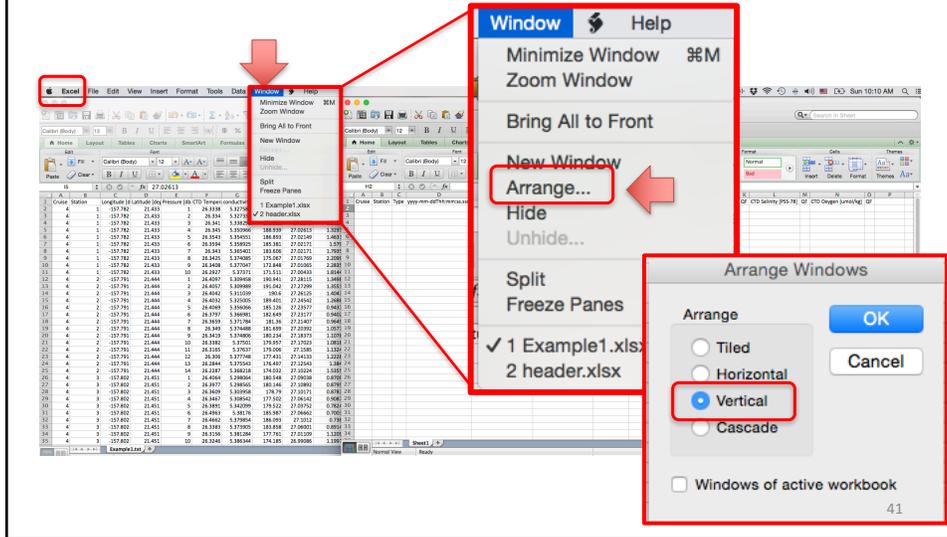
Your parameters

You must have all 6 meta parameters except type in the header and data must be in the columns or ODV won't work.

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2. Open “example1.xlsx” and then let’s arrange the windows to look at both Excel files together.

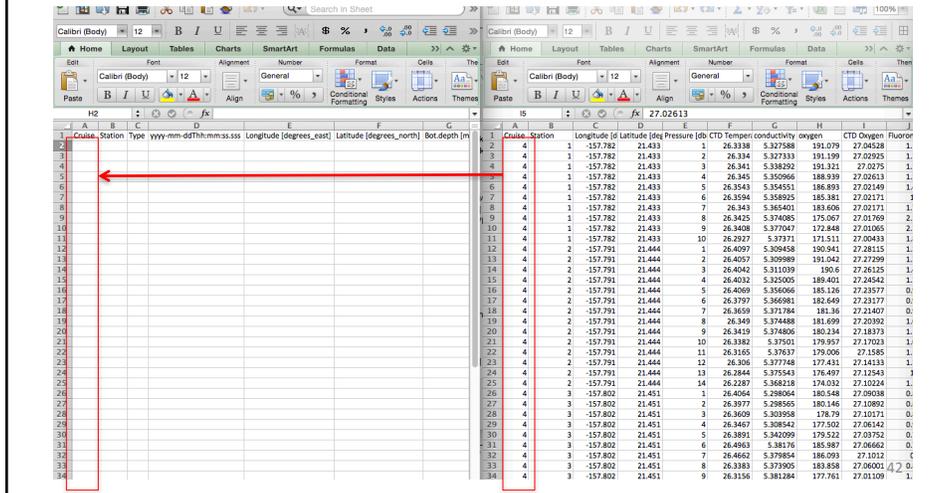
Select “Window”- then select “Arrange”, then click “vertical”.



3. Copy the parameter values from “example1.xlsx” to the correct parameter name in the “header.xlsx” Excel spreadsheet.

header.xlsx

Example1.xlsx



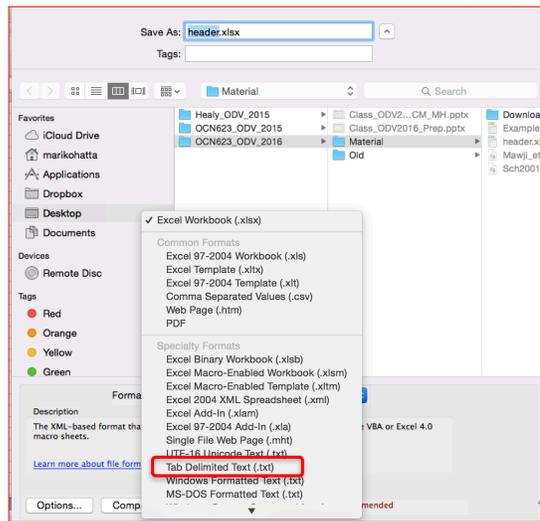
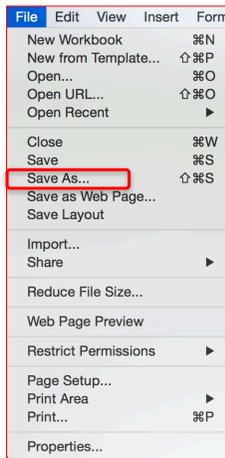
When you have finished, it should look like this.

header.xlsx

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Cruise Station	Type	yyyy-mm-ddThh:mm:ss.sss	Longitude [degrees_east]	Latitude [degrees_north]	Bot. depth [m]	Pressure [dbar]	Qr	CTD Temperature [ITS-90]	Qr	CTD Salinity [PSS-78]	Qr	CTD Oxygen [umol/kg]	Qr
1	4	1	-157.782	21.433	1	26.338	1	26.338	1	34.1383	1	27.04528	1
2	4	1	-157.782	21.433	2	26.334	2	26.334	2	34.1361	2	27.02925	2
3	4	1	-157.782	21.433	3	26.341	3	26.341	3	34.2095	3	27.0275	3
4	4	1	-157.782	21.433	4	26.345	4	26.345	4	34.2976	4	27.02613	4
5	4	1	-157.782	21.433	5	26.3543	5	26.3543	5	34.3162	5	27.02149	5
6	4	1	-157.782	21.433	6	26.3594	6	26.3594	6	34.3436	6	27.02171	6
7	4	1	-157.782	21.433	7	26.343	7	26.343	7	34.4023	7	27.01769	7
8	4	1	-157.782	21.433	8	26.3425	8	26.3425	8	34.465	8	27.01695	8
9	4	1	-157.782	21.433	9	26.3408	9	26.3408	9	34.4874	9	27.01065	9
10	4	1	-157.782	21.433	10	26.2927	10	26.2927	10	34.499	10	27.00453	10
11	4	2	-157.791	21.444	1	26.4097	1	26.4097	1	33.9518	1	27.28115	1
12	4	2	-157.791	21.444	2	26.4057	2	26.4057	2	33.9583	2	27.27299	2
13	4	2	-157.791	21.444	3	26.4042	3	26.4042	3	33.9666	3	27.26125	3
14	4	2	-157.791	21.444	4	26.4032	4	26.4032	4	34.0675	4	27.24542	4
15	4	2	-157.791	21.444	5	26.4069	5	26.4069	5	34.288	5	27.23577	5
16	4	2	-157.791	21.444	6	26.3797	6	26.3797	6	34.3866	6	27.21177	6
17	4	2	-157.791	21.444	7	26.3659	7	26.3659	7	34.4312	7	27.21407	7
18	4	2	-157.791	21.444	8	26.349	8	26.349	8	34.4631	8	27.20392	8
19	4	2	-157.791	21.444	9	26.3419	9	26.3419	9	34.4704	9	27.18373	9
20	4	2	-157.791	21.444	10	26.3382	10	26.3382	10	34.4743	10	27.17023	10
21	4	2	-157.791	21.444	11	26.3165	11	26.3165	11	34.5	11	27.1585	11
22	4	2	-157.791	21.444	12	26.306	12	26.306	12	34.5176	12	27.14133	12
23	4	2	-157.791	21.444	13	26.2844	13	26.2844	13	34.5176	13	27.12543	13
24	4	2	-157.791	21.444	14	26.2287	14	26.2287	14	34.5087	14	27.10224	14
25	4	3	-157.802	21.451	1	26.4064	1	26.4064	1	33.9723	1	27.09038	1
26	4	3	-157.802	21.451	2	26.3977	2	26.3977	2	33.882	2	27.10892	2
27	4	3	-157.802	21.451	3	26.3609	3	26.3609	3	33.9476	3	27.10171	3
28	4	3	-157.802	21.451	4	26.3467	4	26.3467	4	33.9907	4	27.06142	4
29	4	3	-157.802	21.451	5	26.3891	5	26.3891	5	34.2006	5	27.03752	5
30	4	3	-157.802	21.451									

4. Save "header.xlsx" in Tab delimited format (.txt) is now "header.txt".

ODV will only recognize files in the tab delimited format (.txt).

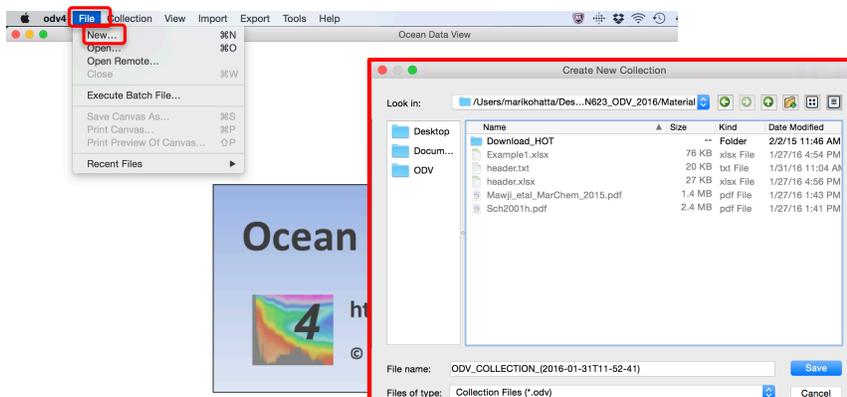


Exercise 2.

Let's create your own ODV file & figures

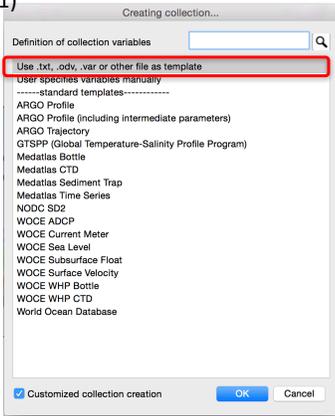
45

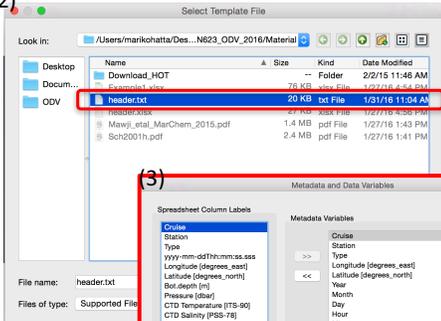
1. Close the HOT ODV data file. Open up the ODV program you downloaded. Then, let's create new collection. Select "File" tab, and select "New". Then, find the place you want to save the new ODV collection.

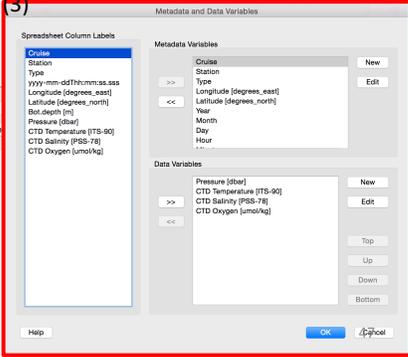


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2. Choose “Definition of collection variables”. Select “Use .txt,.odv,.var or other file as template” and select your file that you made (“header.txt”).

(1) 

(2) 

(3) 

This step defines how ODV will read your data (i.e. metadata, variable name, QF etc.)

Collection Properties

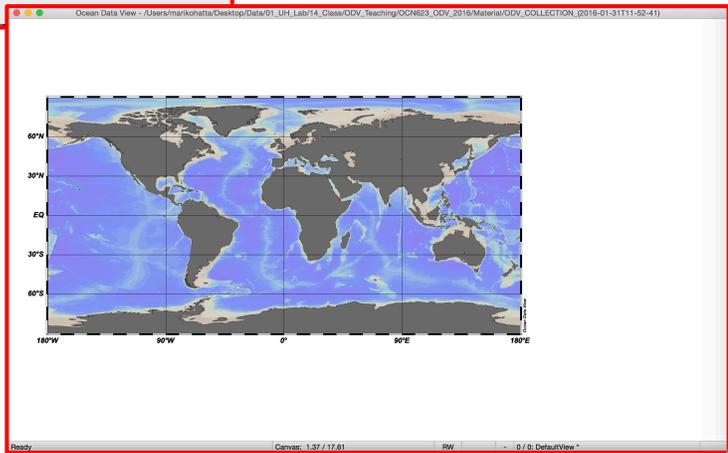
Data Field: GeneralField

Data Type: GeneralType

Primary Variable: Pressure [dbar]

Help OK Cancel

Now you made a new ODV file with your parameters in the header. Next, you have to import your data!

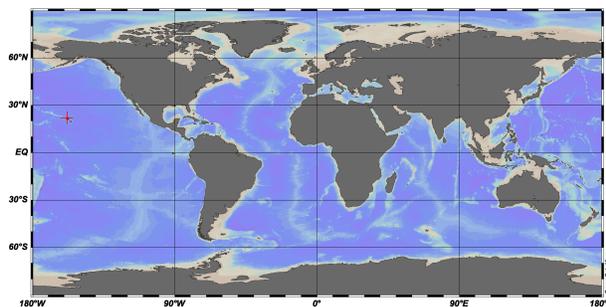


3. Click "Import", and select "ODV spreadsheet" and select the txt file that you made.

This step actually imports your data into ODV.

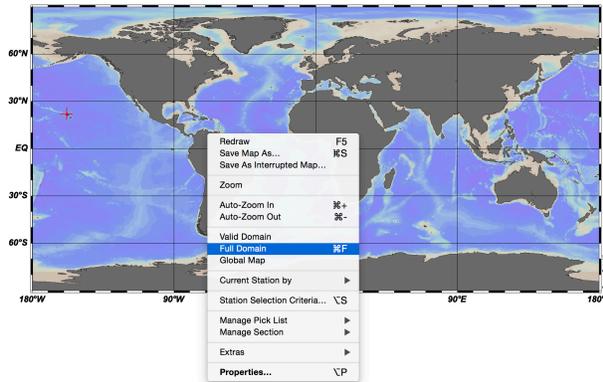
Now you can see your data on the screen!

Use a magnifying glass!



Accession N...	
Accession N...	1
Cruise	4
Station	1 (B)
Position	157.782°W / 21.433°N
Date	
Time	
Pressure Ra...	[1.00 - 10.00]
Bot.depth [m]	
Sample: 1 / 10	
1: Pressure [d...	1.00 1
2: CTD Tempe...	26.33 1
3: CTD Salinit...	34.14 1
4: CTD Oxyge...	27.05 1
Isosurface Values	
Longitude	-157.782
Latitude	21.433
Time [yr]	
Day of Year	
Pressure [dbar] @ Pressur...	1.00
CTD Temperature [ITS-90]...	26.33
CTD Salinity [PSS-78] @ P...	34.14
CTD Oxygen [umol/kg] @ ...	27.05

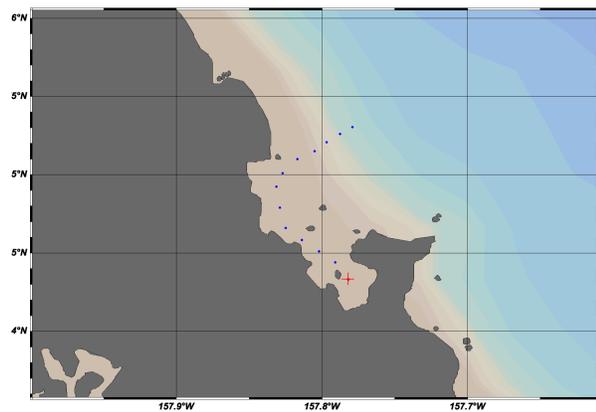
Zoom the map: Right click on “Map” window, and select “Full Domain”.



Accession N...	1
Cruise	4
Station	1 (B)
Position	157.782°W / 21.433°N
Date	
Time	
Pressure Ra...	[1.00 - 10.00]
Bot.depth [m]	
Sample: 1 / 10	
1: Pressure [d...	1.00 1
2: CTD Tempe...	26.33 1
3: CTD Salinit...	34.14 1
4: CTD Oxyge...	27.05 1
Isosurface Values	
Longitude	-157.782
Latitude	21.433
Time [yr]	
Day of Year	
Pressure [dbar] @ Pressure...	1.00
CTD Temperature [ITS-90] ...	26.33
CTD Salinity [PSS-78] @ P...	34.14
CTD Oxygen [µmol/kg] @ P...	27.05

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Kaneohe Bay data!



Accession N...	1
Cruise	4
Station	1 (B)
Position	157.782°W / 21.433°N
Date	
Time	
Pressure Ra...	[1.00 - 10.00]
Bot.depth [m]	
Sample: 1 / 10	
1: Pressure [d...	1.00 1
2: CTD Tempe...	26.33 1
3: CTD Salinit...	34.14 1
4: CTD Oxyge...	27.05 1
Isosurface Values	
Longitude	202.218
Latitude	21.433
Time [yr]	
Day of Year	
Pressure [dbar] @ Pressure...	1.00
CTD Temperature [ITS-90] ...	26.33
CTD Salinity [PSS-78] @ Pr...	34.14
CTD Oxygen [µmol/kg] @ P...	27.05

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Let's make "2 scatter windows" using Layout Templates

The screenshot shows the 'odv4' software interface. The 'View' menu is open, and 'Layout Templates' is selected. A sub-menu is displayed, listing various window configurations. The option '2 SCATTER Windows' is highlighted with a red box. The background shows a map of the ocean with a grid and data points. The map axes are labeled with latitude (21°N to 21°W) and longitude (157.9°W to 157.7°W).

Station ID: 1	
Accession N...	1
Cruise	4
Station	1 (B)
Position	157.782°W / 21.433°N
Date	
Time	
Pressure Ra...	[1.00 - 10.00]
Bot.depth [m]	

Sample: 1 / 10		
1: Pressure [d...	1.00	1
2: CTD Tempe...	26.33	1
3: CTD Salint...	34.14	1
4: CTD Oxyge...	27.05	1

Isosurface Values	
Longitude	202.218
Latitude	21.433
Time [yr]	
Day of Year	
Pressure [dbar] @ Pressure...	1.00
CTD Temperature [ITS-90] ...	26.33
CTD Salinity [PSS-78] @ Pr...	34.14
CTD Oxygen [umol/kg] @ P...	27.05

"2 scatter windows" mode

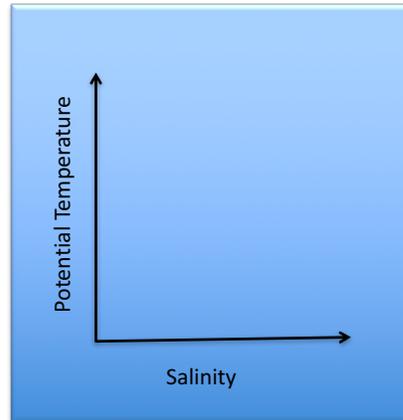
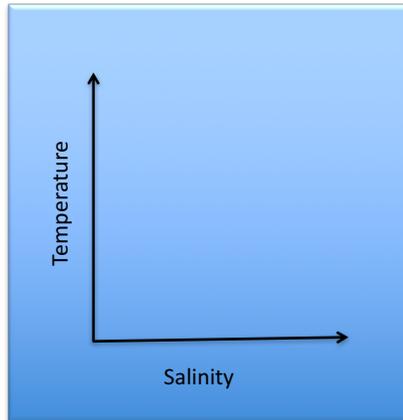
The figure displays two scatter plots of oceanographic data. The left plot shows Pressure [dbar] on the y-axis (0 to 150) versus CTD Salinity [PSS-78] on the x-axis (33.5 to 35). The right plot shows Pressure [dbar] on the y-axis (0 to 150) versus CTD Temperature [ITS-90] on the x-axis (20 to 28). A small map is visible in the bottom left corner, showing the location of the data points in the ocean.

Accession N...	1
Cruise	4
Station	1 (B)
Position	157.782°W / 21.433°N
Date	
Time	
Pressure Ra...	[1.00 - 10.00]
Bot.depth [m]	

Sample: 1 / 10		
1: Pressure [d...	1.00	1
2: CTD Tempe...	26.33	1
3: CTD Salint...	34.14	1
4: CTD Oxyge...	27.05	1

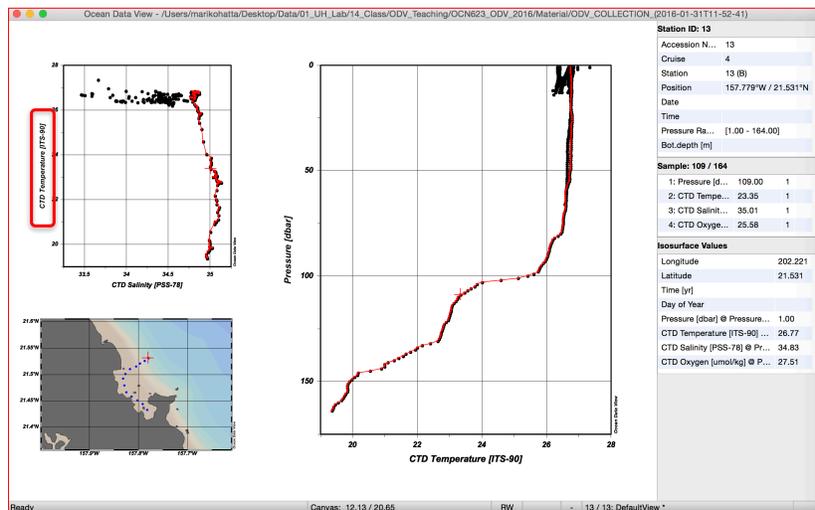
Isosurface Values	
Longitude	202.218
Latitude	21.433
Time [yr]	
Day of Year	
Pressure [dbar] @ Pressure...	1.00
CTD Temperature [ITS-90] ...	26.33
CTD Salinity [PSS-78] @ Pr...	34.14
CTD Oxygen [umol/kg] @ P...	27.05

Exercise 3. Make a T-S diagram



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1. Change the y-axis from Pressure to CTD Temperature



Right click, then select "Properties", then select "Data" tab. Select "y-axis" (now selected "2:CTD Temperature [ITS-90]").

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2. Let's make a potential temperature-salinity diagram. In order to calculate "potential Temperature" using ODV "Derived Variables" function!

(1)

(1) Select "Derived Variables" under "View" tab.

(2) Select "Potential Temperature" under "Physical Properties".

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3. Identify each parameter from the list. At first, you have to identify "Depth in Water Column (m)", here is "1. Pressure". Next, identify "Temperature", so select "CTD Temperature", and finally identify "Practical Salinity", and select "CTD salinity". Then enter "reference pressure", so type "0".

(1)

Identify: Depth in Water Column [m]

- 1. Pressure [dbar]
- 2. CTD Temperature [ITS-90]
- 3. CTD Salinity [PSS-78]
- 4. CTD Oxygen [μmol/kg]

Not Available OK Cancel

(2)

Identify: Temperature [degC]

- 1. Pressure [dbar]
- 2. CTD Temperature [ITS-90]
- 3. CTD Salinity [PSS-78]
- 4. CTD Oxygen [μmol/kg]

Not Available OK Cancel

(3)

Identify: Practical Salinity [psu]

- 1. Pressure [dbar]
- 2. CTD Temperature [ITS-90]
- 3. CTD Salinity [PSS-78]
- 4. CTD Oxygen [μmol/kg]

Not Available OK Cancel

(4)

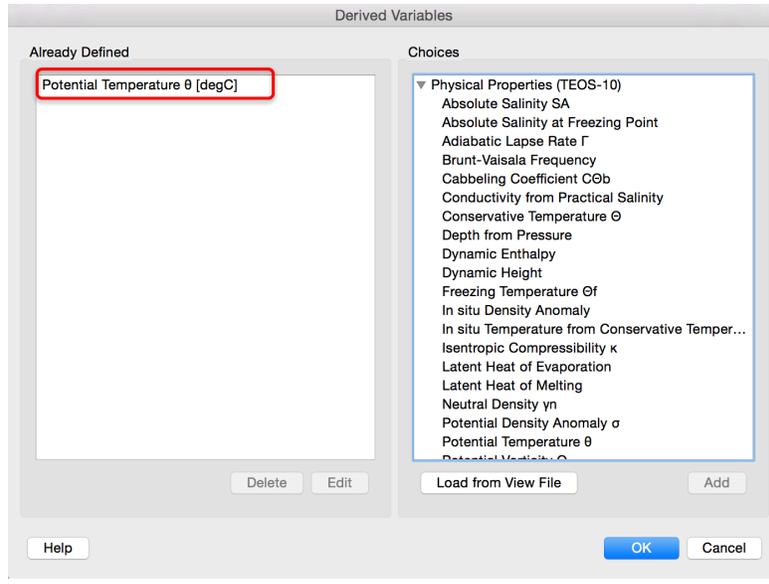
Enter reference pressure [db]:

0

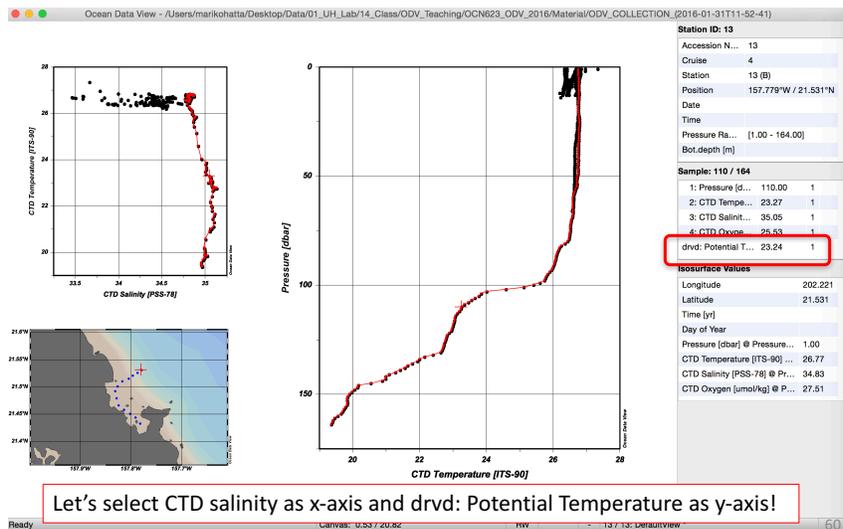
Cancel OK

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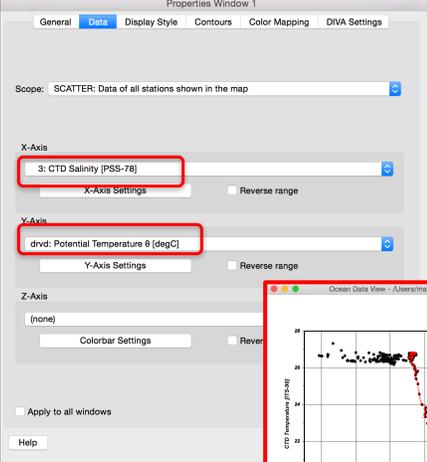
4. You calculated “Potential Temperature”!



Now, “drvd: Potential Temperature” are appeared in the variables window!



Let's select CTD salinity as x-axis and drvd: Potential Temperature as y-axis!



Properties Window 1
 General | **Data** | Display Style | Contours | Color Mapping | DIVA Settings

Scope: SCATTER: Data of all stations shown in the map

X-Axis: **3: CTD Salinity (PSS-78)**
 X-Axis Settings Reverse range

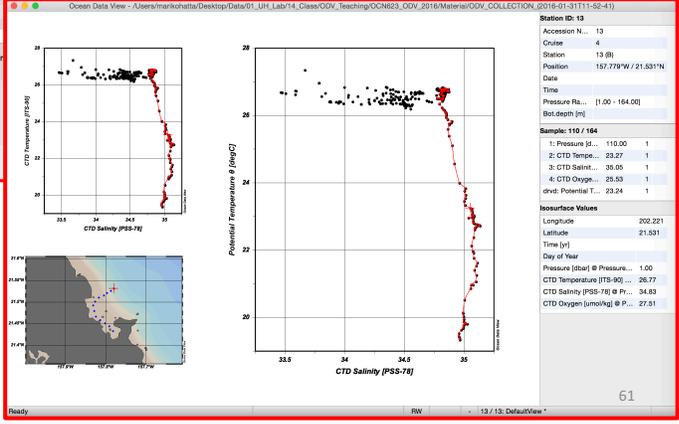
Y-Axis: **drvd: Potential Temperature θ (degC)**
 Y-Axis Settings Reverse range

Z-Axis: (none)
 Colorbar Settings Reverse range

Apply to all windows

Help

5. Right click over the Window, then select Properties. Then Select “Data” tab. And Select X-axis as “3: CTD salinity” and Y-axis as “drvd: Potential Temperature.”



Ocean Data View - /Users/markonetta/Desktop/Data/01_LH_Lab/14_Class/ODV_teaching/OCN303_ODV_2016/Materials/ODV_COLLECTION_2016-01-31(11-52-41)

Station ID: 13

Accession N... 13
 Cruise 4
 Station 13.00
 Position 157.778°W / 21.531°N
 Date
 Time
 Pressure Pa... (1.00 - 164.00)
 Bit depth [m]

Sample: 110 / 164

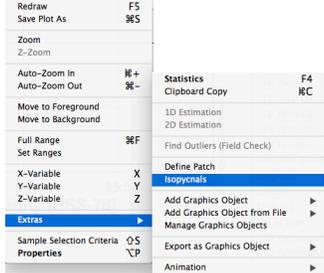
1: Pressure [d]... 110.00 1
 2: CTD Tempe... 23.27 1
 3: CTD Salini... 35.05 1
 4: CTD Dwyer... 25.53 1
 drvd: Potential T... 23.24 1

Isosurface Values

Longitude 202.221
 Latitude 21.531
 Time [yr]
 Day of Year
 Pressure [dbar] @ Pressure... 1.00
 CTD Temperature [ITS-90]... 26.77
 CTD Salinity [PSS-78] @ P... 34.83
 CTD Dwyer [µmole/kg] @ P... 27.21

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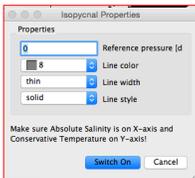
6. Draw the Isopycnals.



Redraw F5
 Save Plot As ⌘S
 Zoom
 Z-Zoom
 Auto-Zoom In ⌘+
 Auto-Zoom Out ⌘-
 Move to Foreground
 Move to Background
 Full Range ⌘F
 Set Ranges
 X-Variable X
 Y-Variable Y
 Z-Variable Z
 Extras
 Sample Selection Criteria ⌘S
 Properties ⌘P

Statistics F4
 Clipboard Copy ⌘C
 1D Estimation
 2D Estimation
 Find Outliers (Field Check)
 Define Patch
Isopycnals
 Add Graphics Object
 Add Graphics Object from File
 Manage Graphics Objects
 Export as Graphics Object
 Animation

Right click over the Window, then select “Extras”. Then Select “Isopycnals”. Select “Switch On”.



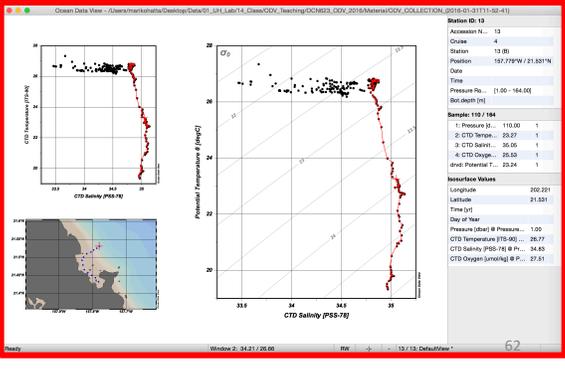
Isopycnal Properties

Properties

Reference pressure [d] 0
 Line color 8
 Line width thin
 Line style solid

Make sure Absolute Salinity is on X-axis and Conservative Temperature on Y-axis!

Switch On Cancel



Ocean Data View - /Users/markonetta/Desktop/Data/01_LH_Lab/14_Class/ODV_teaching/OCN303_ODV_2016/Materials/ODV_COLLECTION_2016-01-31(11-53-41)

Station ID: 13

Accession N... 13
 Cruise 4
 Station 13.00
 Position 157.778°W / 21.531°N
 Date
 Time
 Pressure Pa... (1.00 - 164.00)
 Bit depth [m]

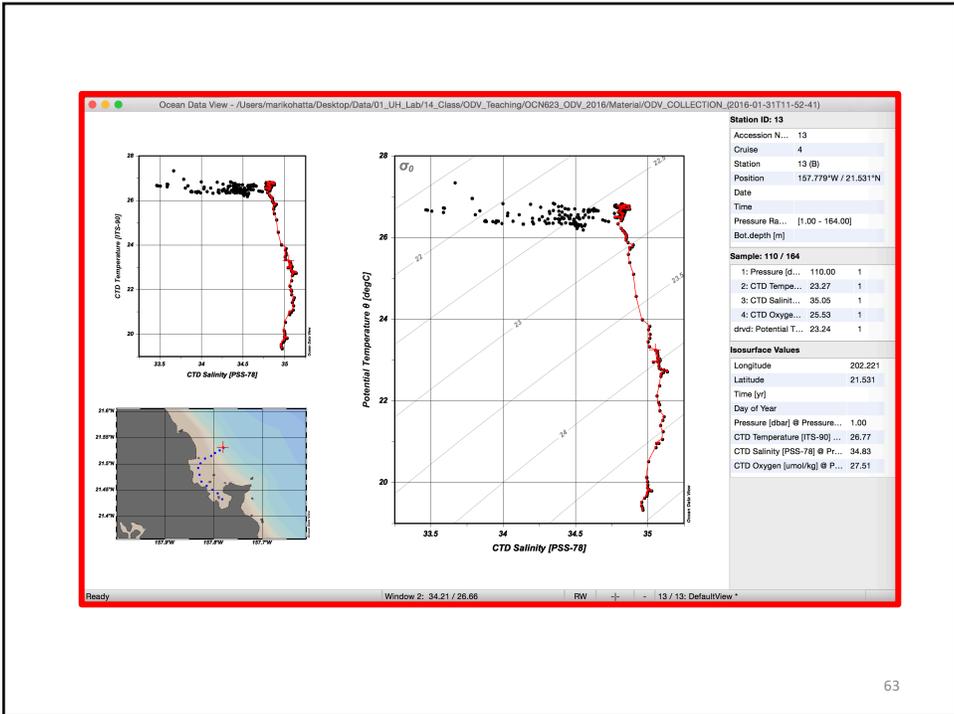
Sample: 110 / 164

1: Pressure [d]... 110.00 1
 2: CTD Tempe... 23.27 1
 3: CTD Salini... 35.05 1
 4: CTD Dwyer... 25.53 1
 drvd: Potential T... 23.24 1

Isosurface Values

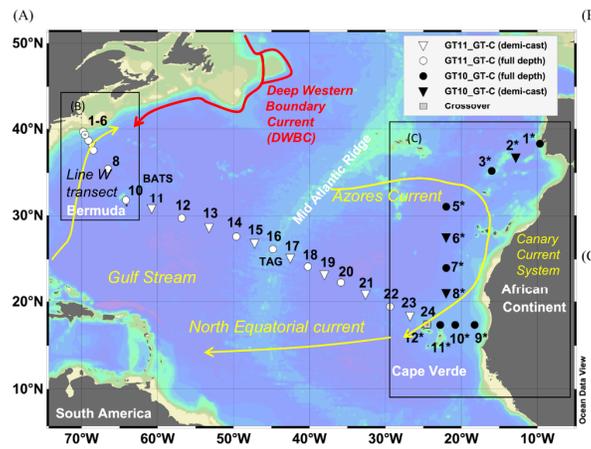
Longitude 202.221
 Latitude 21.531
 Time [yr]
 Day of Year
 Pressure [dbar] @ Pressure... 1.00
 CTD Temperature [ITS-90]... 26.77
 CTD Salinity [PSS-78] @ P... 34.83
 CTD Dwyer [µmole/kg] @ P... 27.21

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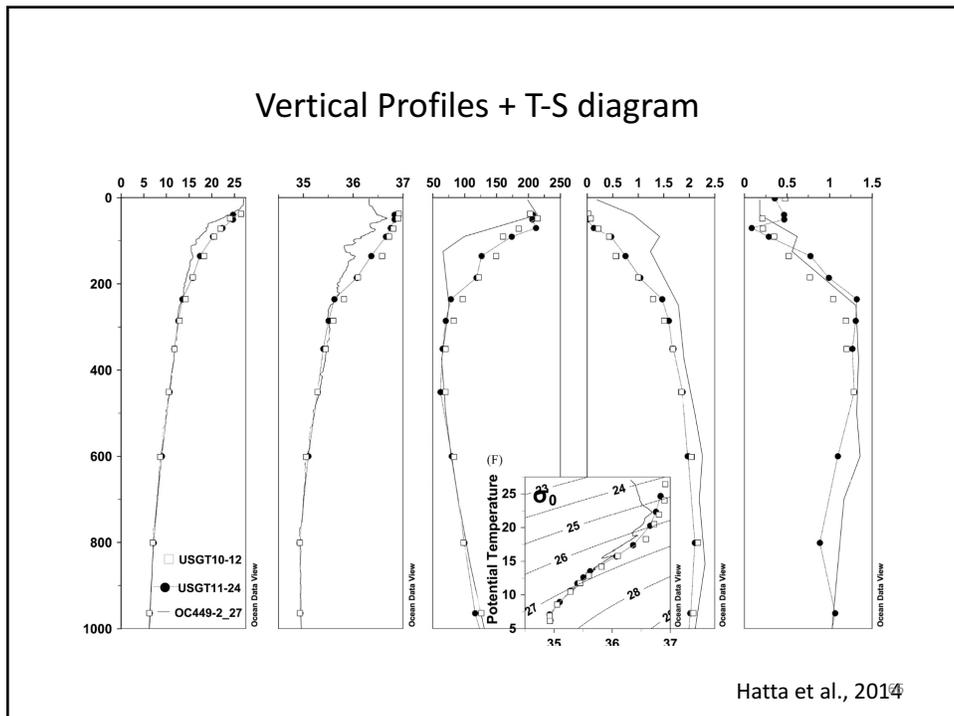
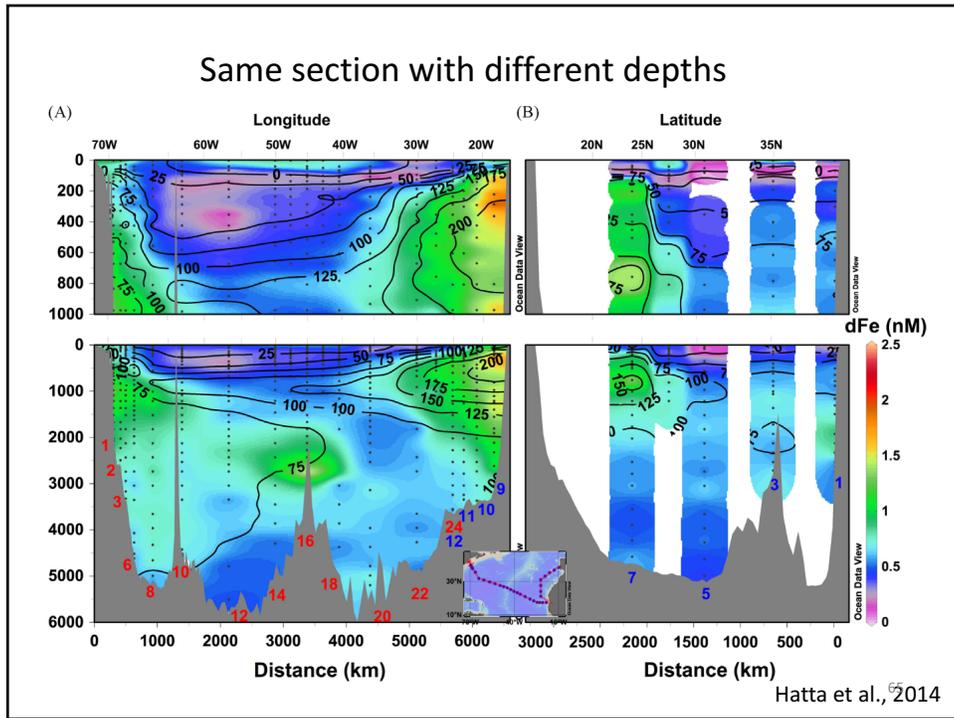


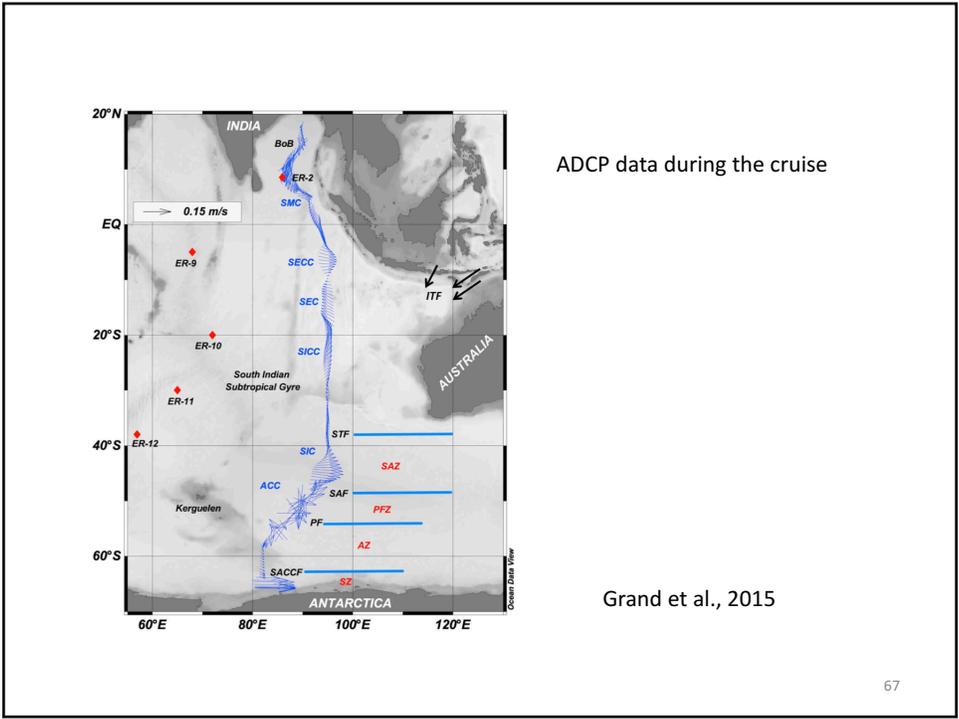
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Draw Map & stations

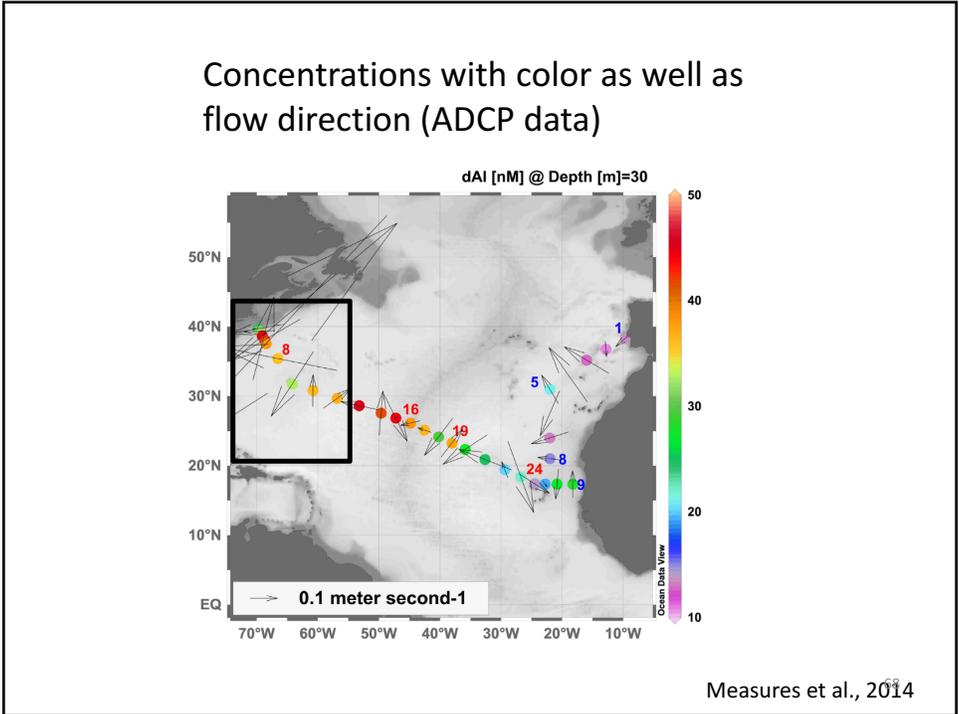


Hatta et al., 2014 & Measures et al., 2014

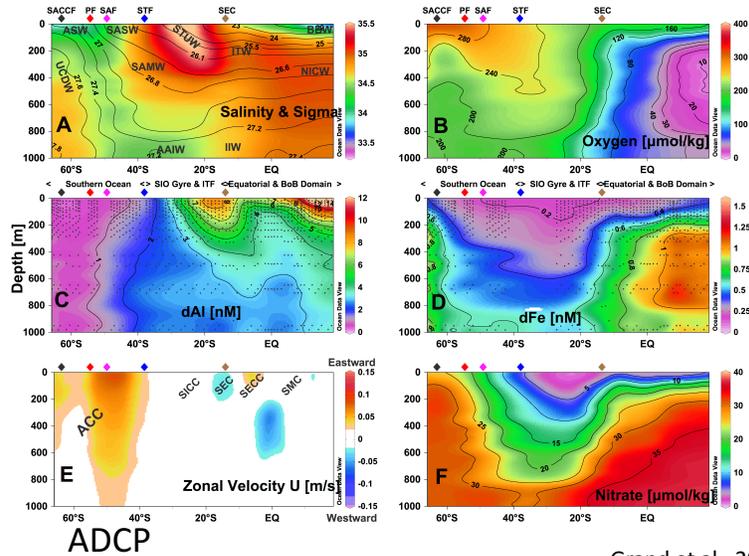




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Temperature overlaid with Salinity



Reference

ODV User's Guide:

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

HOT ADCP data:

<http://currents.soest.hawaii.edu/hot/>

Kaneohe data:

<http://data.nodc.noaa.gov/cgi-bin/iso?id=gov.noaa.nodc:0099831>

Questions?

Mariko Hatta

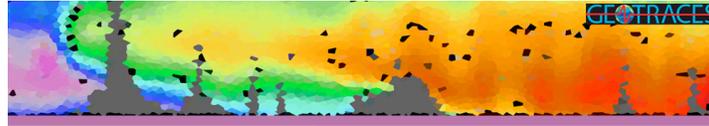
Office: MSB 509

mhatta@hawaii.edu

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Goldschmidt meeting 2016



Exploring *GEOTRACES* Data with *Ocean Data View*

Sunday, 26 June 2016 (9-16h) - Yokohama, Japan

- <http://www.geotraces.org/meetings/meetings-by-year/eventdetail/263/-/exploring-geotraces-data-with-ocean-data-view>

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ADCP data during HOT cruise

<http://currents.soest.hawaii.edu/hot/>

Back to currents

Station Aloha Shipboard ADCP data

The Hawaii Ocean Time-series project involves cruises to ALoha Station nearly every month, starting in October 1988. Most of these cruises have been on ships equipped with acoustic Doppler current profilers, the observations from which are presented here. Continuous time series of currents at ALoha-A are available elsewhere from the WHOI's mooring.

Funding from the National Science Foundation via grants OCE-0752606 and OCE-0826766 is gratefully acknowledged.

For each cruise we provide a set of links to data plots (left column), to the data location in the NODC JASADCP (center, if present), and to netcdf files with the ADCP data and predicted barotropic tides (right column).

LIST VIEW

1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
2008	2009	2010	2011						

2011

hot228	km1101	2011/01/08 to 2011/01/10	Honolulu, HI to Honolulu, HI
hot229	km1102a	2011/01/27 to 2011/01/31	Honolulu, HI to Honolulu, HI
hot230	km1108	2011/02/27 to 2011/03/03	Honolulu, HI to Honolulu, HI
hot231	km1113	2011/04/13 to 2011/04/14	Honolulu, HI to Honolulu, HI
hot232	kok1107	2011/05/08 to 2011/05/12	Honolulu, HI to Honolulu, HI

hot228_km1101
2011/01/08 to 2011/01/10
Honolulu, HI to Honolulu, HI

- os38bb JASADCP netCDF
- os38nb JASADCP netCDF
- wh300 JASADCP netCDF

top

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Hot Cruise Data

Online Data

CRUISE	SONAR	ADCP	PREDICTED TIDE
hot225_km1017	os38bb	short	tpxo7.2 hawaii
	os38nb	short	tpxo7.2 hawaii
	wh300	short	tpxo7.2 hawaii
hot231_km1113	wh300	short	tpxo7.2 hawaii
		short	tpxo7.2 hawaii
	os38bb	short	tpxo7.2 hawaii
		short	tpxo7.2 hawaii
hot232_kok1107	wh300	short	tpxo7.2 hawaii
	nb150	short	tpxo7.2 hawaii

Back to currents

Download this!

Type of the sensor

- os38bb (12m bin/1000m)
- os38nb (24m bin/1200m)
- wh300 (80m)
- os75bb (8m bin/600m)
- os75nb (16m bin/700m)
- nb150 (8m bin/200m)
- etc.. Ask Jules Hummon more detail.

ADCP: raw data

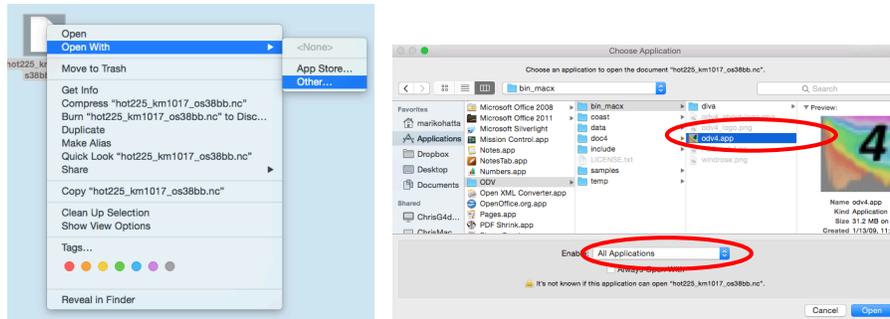
- Short or long
- Short variable list (U and V etc.)
- Long variable list (more)

The "Barotropic Tide" data from the models

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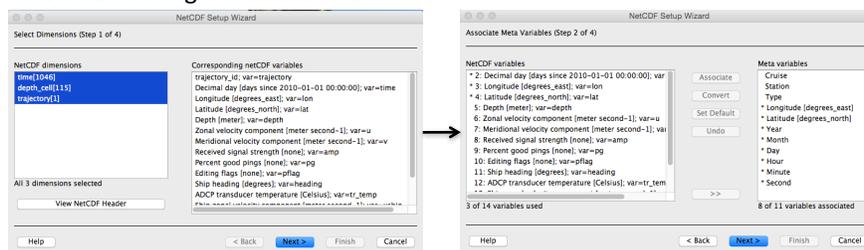
How to open ADCP data (netCDF)

1. After download netCDF file, open XXX.nc file with "Other". In menu "Choose Application", enable "All Application" and go to ODV, bin_macx, odv4.app, then open odv4.app

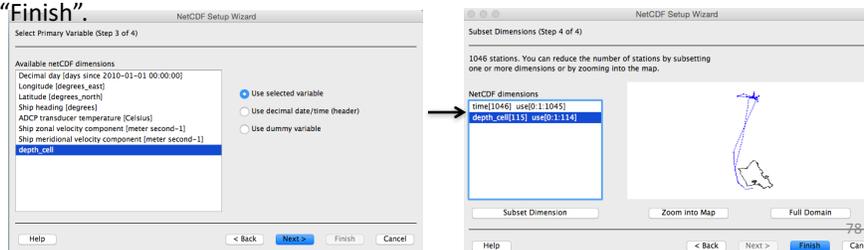


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2. Should get "NetCDF Setup Wizard". Select (highlight) both dimensions shown (at least, "Time" and "depth_cell"). A bunch of corresponding variables should appear to the right, then click "Next". Should get "Associate Meta Variables" screen; likely you will do nothing but select "Next".

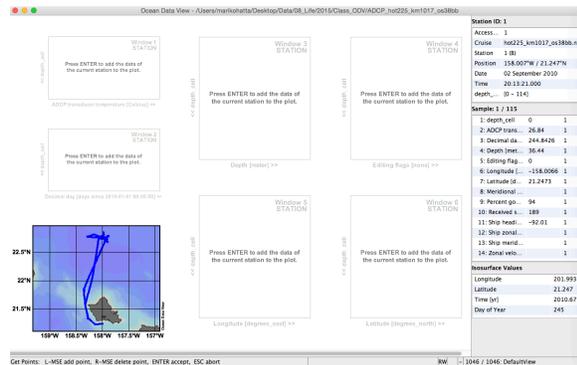


3. Should get "Select Primary Dimension" screen: select "depth_cell" by clicking on it, then click "Next". Then you should get "Subset Dimensions" screen. Then "Finish".

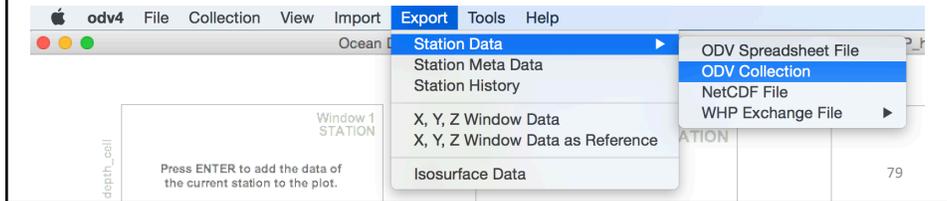


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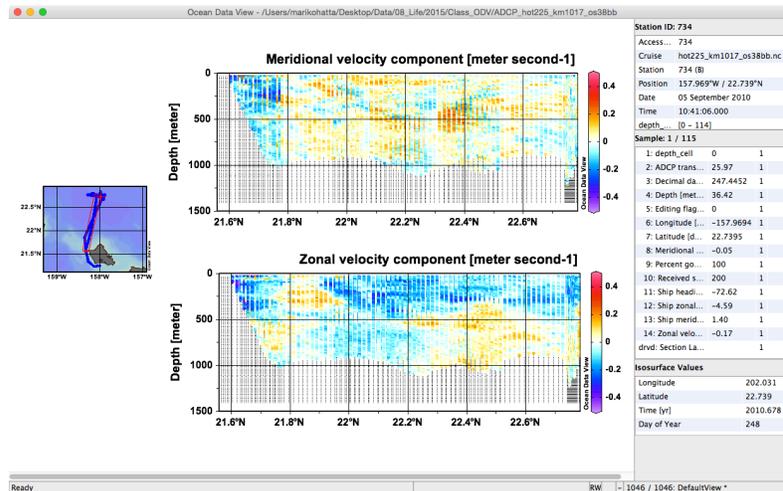
4. You should get the ODV file.



5. You should export the ODV collection. Since the ADCP data is huge, it is easy to crash ODV, so it is the safe thing to do!



6. You can make the section data of ADCP components with “Section Window” mode.



7. Save “View”, then you do not have to make this again! Also you can save the canvas as your favorite format (.jpg/.png/etc..).

How to open US Hydro data set (WOCE bottle/ctd format) with ODV software

1. Go to CCHDO website and select US Hydro data page: <https://cchdo.ucsd.edu/search?q=USHYDRO>

Welcome to the CCHDO

The CCHDO's primary mission is to deliver the highest possible quality global CTD and hydrographic data to users. These data are a product of decades of observations related to the physical characteristics of ocean waters carried out during WOCE, CLVAR and numerous other oceanographic research programs. Whenever possible we provide these data in three easy-to-use formats: WHP-Exchange (which we recommend for data submissions to the CCHDO), WOCE, and netCDF.

The CCHDO also manages public and non-public CTD data to be used for the global Argo and OceanSITES programs.

This site is funded by the National Science Foundation and the National Oceanic and Atmospheric Administration's Climate Observations Division.

Search

Keyword search is provided by the search box in the upper right of the page. Other options include:

- Map Search** lets you draw a box on a map to search for station data.
- Advanced Search** lets you finely define key word, bounding box, and temporal searches.

Some Starting Searches

Here are some searches which may be of general interest:

- Basins**
 - Arctic Ocean
 - Atlantic Ocean
 - Pacific Ocean
 - Indian Ocean
 - Southern Ocean
- Programs**
 - GO-SHIP
 - SOCCOM
 - USHYDRO
 - WOCE
 - DIMES
 - ELLETT
 - Project Carina
- Time Series**
 - Hawaii Ocean Time Series
 - Bermuda Atlantic Time Series

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How to open US Hydro data set (WOCE bottle/ctd format) with ODV software

2. In case that you want to download one of the data from the list, you select the data that you want with your cursor. The cruise track will be highlighted on the map (as yellow).

Search Results

Expcode	Line(s)	Ship	Country	Start Date	End Date	PI
33R020160321	• K09N	R/V Roger Revelle	US	2016-03-21	2016-04-28	• Leticia Barbaro
33R020160308	• K08S	R/V Roger Revelle	US	2016-02-08	2016-03-06	• Alison Macdonald
33H20150809	• ARCD1		US	2015-08-09	2015-10-12	• Kadko
33RC020150225	• P16N • P16	RONALD H. BROWN	US	2015-05-25	2015-08-25	• Alison Macdonald
33RC020150410	• P16C • P16N • P16	Ronald H. Brown	US	2015-04-10	2015-05-13	• Jessica Cross
320620140220	• P16 • P15S	NATHANIEL B. PALMER	US	2014-03-20	2014-05-05	• Lynne Talley
33RC020131223	• A16S • A20	RONALD H. BROWN	US	2013-12-23	2014-02-04	• Leticia Barbaro • Rita Warrachuf
33RC020130803	• A16N	RONALD H. BROWN	US	2013-08-03		• John L. Bullister • Molly C. Berlinger
318M20130321	• P02 • P02E	MELVILLE	US	2013-03-21	2013-06-03	• James Swift • Sabine Mecking
33AT20120419	• A20	ATLANTIS	US	2012-04-19	2012-05-15	• Michael McCartney
33AT20120324	• A22	ATLANTIS	US	2012-03-24	2012-04-17	• Ruth Curry
33RC020110205	• A10	RONALD H. BROWN	US	2011-09-26	2011-10-31	• Alison Macdonald • Molly C. Berlinger

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You can see the Data set Information. You select **“bottle exchange”** or **“ctd exchange”** for ODV formatted data file. File will download to your computer.

Dataset
Files in the Dataset are the data for this cruise. They are updated when new data are submitted or as needed.

[Download Entire Dataset](#) [Submit Data For This Cruise](#)

bottle

- exchange: 33HQ20150809_hy1.csv (1.9 MB)
- whp_netcdf: 33HQ20150809_nc_hyd.zip (885.1 kB)

ctd

- exchange: 33HQ20150809_ct1.zip (2.5 MB)
- whp_netcdf: 33HQ20150809_nc_ctd.zip (2.9 MB)

documentation

- pdf: 33HQ20150809_do.pdf (4.7 MB)
- text: 33HQ20150809_da.txt (136.0 kB)

Unmerged Data as Received

Files listed here are updates to the dataset which have not been processed yet, they may not be well formatted. Data files listed here usually contain the most up to date versions of the data for specific parameters. If you are unsure of which files to use, stick to the Dataset files above.

These files are not yet in the Dataset.

Filename (Download)	Size	Date Submitted
33HQ20150809_exc.csv	1.2 MB	2018-01-10

Data History

Files and History Notes

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How to open US Hydro data set (WOCE bottle/ctd format) with ODV software

3. In case that you want to download all of the data in this list, you click **“Bulk Download Option”** and select **“Download all exchange bottle files”** or **“Download all exchange ctd files”**.

Search Results

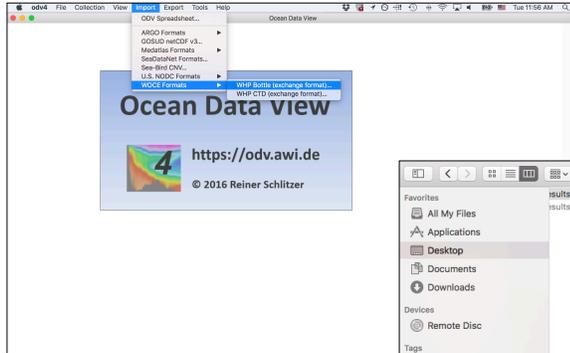
Expedcode	Line(s)	Ship	Country	Start Date	End Date	PI
33R020160321	• K09N	R/V Roger Revelle	US	2016-03-21	2016-04-28	Leticia Barbaro
33R020160308	• K08S	R/V Roger Revelle	US	2016-02-08	2016-03-06	Alicia Macdonald
33HQ20150809	• AR021	HEALY	US	2015-08-09	2015-10-12	Kadko
33R020150225	• P16N • P16	RONALD H. BROWN	US	2015-05-25	2015-08-25	Alicia Macdonald
33R020150410	• P16C • P16N • P16	Ronald H. Brown	US	2015-04-10	2015-05-13	Jessica Cross
320620140200	• P16 • P16S	NATHANIEL B. PALMER	US	2014-03-20	2014-05-05	Lynne Talley
320620131000	• P16S	RONALD H. BROWN	US	2013-12-20	2014-02-04	Leticia Barbaro Rik Wanninkhof
320620130800	• P16N	RONALD H. BROWN	US	2013-08-03		John L. Bullister Molly C. Berlinger
320620130300	• P02 • P05E	MELVILLE	US	2013-03-21	2013-06-03	James Swift Sabine Mecking
320620120400	• P02	ATLANTIS	US	2012-04-19	2012-05-15	Michael McCartney
320620120300	• P02	ATLANTIS	US	2012-03-24	2012-04-17	Ruth Curry
320620110900	• P10	RONALD H. BROWN	US	2011-09-26	2011-10-31	Alicia Macdonald Molly C. Berlinger

Bulk Download Options

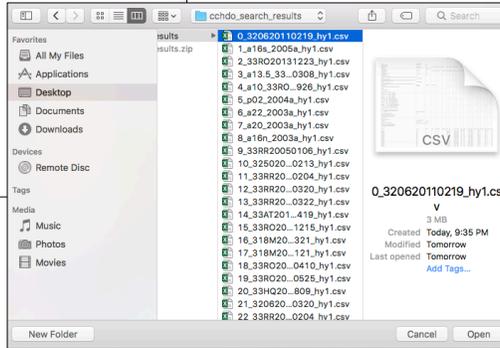
- Download all exchange bottle files
- Download all exchange ctd files
- Download all whp_netcdf bottle files
- Download all whp_netcdf ctd files
- Download all wmoce bottle files
- Download all wmoce ctd files
- Download all wmoce summary files

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4. Open ODV and select “Import” – “WOCE Format” – “WHP Bottle (exchange format)” or “WHP CTD (exchange format)”.

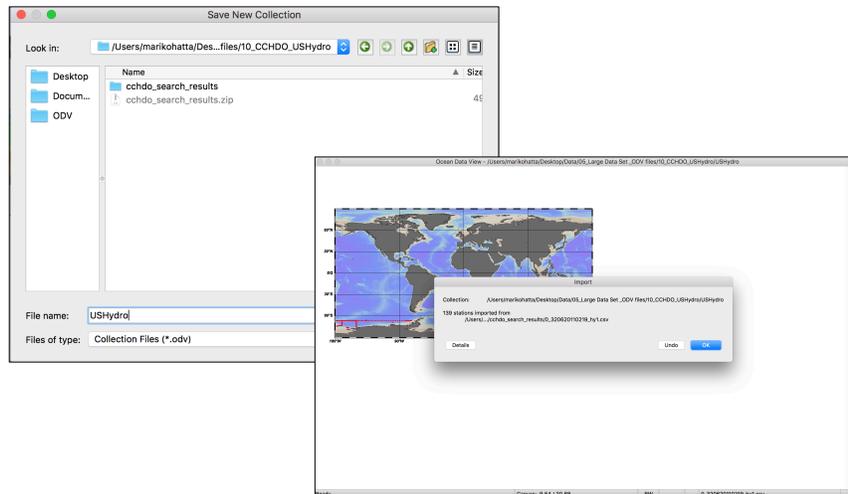


5. Select data file that you want to import. Note that you can select multiple files if you want.



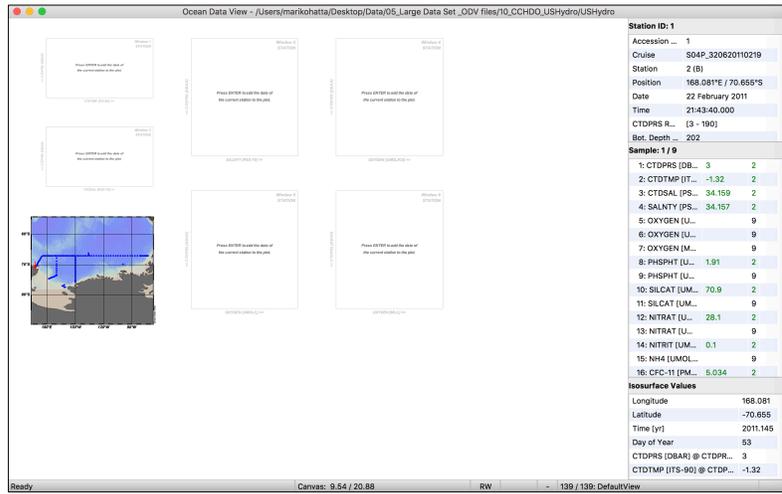
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6. Select the location that you want to save this ODV file, and save as your preferable file name.



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Done!



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Before the class starts

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