

Data Lab Template

*Example Worksheet*

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| *Activity Title* | Processes that Change Salinity |
| *Short Description* | Explore seawater characteristics of processes that are correlated with changes in salinity over time. |
| *Your Objective (Challenge Question)* | Use water and atmospheric conditions (above the surface ocean) data across different time periods from the North Pacific Ocean to see if there are patterns.1. Make a prediction about how as salinity in the surface ocean changes, what changes in other aspects of the ocean and/or atmosphere you may observe.
2. Explore the data below to see what you can observe.
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| *Data Visualization / Interactive Notes* | Students interactively toggle on and off the non-salinity variables, as well as can zoom in and out of the data to explore it more. The standing time series graph is the full dataset for salinity (CE02SHSM Q2-15 through Q4-16). Also to the right side, there is a linked scatterplot that plots salinity vs. the non-salinity variable selected for the same time range. |
| *Data Tips* | When the site loads, you are able to see the full dataset of salinity and air temperature data from the Oregon Shelf Surface Buoy in the Coastal Endurance Array. You can interact with the data by:* Turning on and off different oceanic or atmospheric variables to compare their data to the salinity data.
* Zooming in and out of the data to look at different time scales that interest you by changing the width of the highlighted section of the bottom graph (it loads with all of the data highlighted).
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| *Questions for Thought* | **Orientation Questions:*** What oceanic or atmospheric variables can you look at in these graphs?
* Across what time periods are you able to observe oceanic or atmospheric variables in these graphs?
	+ What is the first month and year there are data?
	+ What is the last month and year there are data?

**Interpretation Questions:*** What changes or patterns did you observe at the surface in other variables as salinity changes over this time period off of Oregon?
* When did you see these changes or patterns?
* What questions do you still have about what drives changes in salinity at the ocean surface over time?
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| *Background Information* | Picture File, Title, & Caption (with links if needed) provided in Google Drive |
| *Dataset Information* | Data for this activity were accessed from the following instruments: Coastal Endurance: Oregon Shelf Surface Mooring, Surface Buoy, Bulk Meteorology Instrument Package (CE02SHSM-SBD11-06-METBKA000), telemetered metbk\_a\_dcl\_instrument |
| *Student Learning Objective* | Students compare time series of air temperature, salinity, precipitation, evaporation, and rain rate at a coastal site over time to explore the data for changes and patterns. |

See final product @

<http://explorations.visualocean.net/chemistry/activity2.php?level=exploration>



Data Lab Worksheet for Wed Presentation

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| *Activity Title* |  |
| *Short Description* |  |
| *Your Objective (Challenge Question)* |  |
| *Data Visualization / Interactive Notes* |  |
| *Data Tips* |  |
| *Questions for Thought* |  |
| *Background Information* |  |
| *Dataset Information* |  |
| *Student Learning Objective* |  |