**Introduction to Oceanography**

**Exercise: Hurricanes and Superstorms**

**Date:** **Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_**

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Find yourself a group of 3-5 people. To begin the exercise, go to the following webpage: <https://datalab.marine.rutgers.edu/explorations/investigations/storms/>. First, you will read a short introduction and then analyze some online data that were collected during recent hurricane Irene and Superstorm Sandy.

The goal of this investigation is to write up a description and analysis of the provided datasets. As you work through the exercise, complete the tables below, this will help you to answer the five questions at the end of this exercise.

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| --- | --- | --- | --- | --- |
| **Glider data** | **Hurricane Irene** | | **Superstorm Sandy** | |
| *Before* | *During/after* | *Before* | *During/after* |
| ***Date of storm impact*** |  | |  | |
| ***Maximum wind speed (km/h)*** |  | |  | |
| ***Mixed layer depth (m)*** |  |  |  |  |
| ***Mixed layer water temperature (°C)*** |  |  |  |  |
| ***Deep water temperature (°C)*** |  |  |  |  |
| ***Mixed layer backscatter (m-1)*** |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Buoy data** | **Hurricane Irene** | | | **Superstorm Sandy** | | |
| *Before* | *Peak* | *After* | *Before* | *Peak* | *After* |
| ***Air pressure (hPa)*** |  |  |  |  |  |  |
| ***Date of minimum air pressure*** |  |  |  |  |  |  |
| ***Wind speed (m/s)*** |  |  |  |  |  |  |
| ***Wave height (m)*** |  |  |  |  |  |  |
| ***Sea surface temperature (°C)*** |  |  |  |  |  |  |

**Instructions**

Using the datasets provided, describe the impact that Hurricane Irene and Superstorm Sandy had on the ocean by answering the following questions, including an analysis of how the oceanic response varied between the two storms:

1. As Hurricane Irene moved closer to shore, what changes did you notice in the ocean?
2. As Superstorm Sandy moved closer to shore, what changes did you notice in the ocean?
3. What relationship, if any, between storms and the ocean does the data presented suggest?
4. Explain the differences in mixed layer depths between the two storms as they moved closer to land. Why are they different?
5. If Hurricane Sandy had occurred a couple weeks earlier in the season when atmospheric temperatures were warmer, how do you think the storm would have been different?