

Student Master

Research Project: Determining Storm Surge Height

You are joining a team of scientists who are studying the effects of storms along the U.S. coast. Your task is to pick a storm event for a coastal location and design a research plan to help you gather data about the water height before, during, and after the storm. You already know something about the typical or average water height in the area due to tides. Your goal now is to determine the additional effect a storm can have on water height. Once your plan is accepted, you are to carry out your data collection, analyze it, and report your findings to the team.

Planning your project:

1. Form a hypothesis before designing your investigation.

Research question: How do storm events impact water levels at my coastal location?

Hypothesis: Storms produce a surge, which raises water levels above what would normally occur during a typical tide cycle.

2. Design a plan to test your hypothesis and answer your research question.

What do you need?

- a) More information: Do you need more information about specific storm events and their effects?
- b) Specific data: When you go online to collect data, what dates will you look at, and what charts will you generate?

3. Go online and get data.

- a) Visit www.dataintheclassroom.org, and find the Sea Level module.
- b) Follow the link to “Tide Data.”
- c) Choose a location you wish to study, and write the name on your data sheet. Using the form on the Web site, select the location from the list of recording stations.
- d) Search Internet news and weather sources for information about storms that impacted the area near your station. Identify a storm event to investigate and take note of the date of the storm.

- e) Using the form on the Web site, select start and end dates around the time of the storm event you found.
 - f) Click the “Get Data” button.
 - g) If you have access to a printer, print a copy of the tide data chart. Otherwise, save a copy to your computer so that you can refer to it later. On a PC, right-click with the mouse and select “Save as...” On a Mac, hold down the Ctrl key and click with the mouse.
4. **Use the Data Log Sheet to keep a record of the data you select, so you can refer to it later.**
5. **Analyze the data.**
- a) What were the highest and lowest tides recorded during the storm event?
 - b) How did the tides during the storm compare with the average high and low tides you calculated for this station previously?
 - c) Calculate the difference between the highest tide measured during the storm and the average high tide for the area.
 - d) Can you use the data to determine how long the storm impacted the area?
6. **Draw conclusions.**

Write down what you learned from your investigation. Use your data to help you decide if your hypothesis was supported.

