Ocean Surface Temperatures

Ocean water has distinct chemical and physical properties, such as level of salinity, temperature, and the ability to absorb light. Because the oceans constantly intermix, these properties can vary from day to day and from place to place. Scientists use satellite data to track changes in some of these properties. Ocean surface temperatures, for example, can be determined by using satellite imagery that detects differences in thermal energy. These data are then compiled into maps.

PREPARATION

PROBLEM
How do ocean surface temperatures vary from place to place?

OBJECTIVES
• Interpret a world map of ocean surface temperatures.
• Compare the surface temperatures of different oceans.
• Analyze why ocean surface temperatures vary.

MATERIALS
• globe

PROCEDURE

1. Study the map, which shows ocean surface temperatures in October 2000. Compare it to a globe.
2. Use the globe to label the oceans and the continents on the map. Add latitude and longitude coordinates to the map. Also label north, south, east, and west on the map.
DATA AND OBSERVATIONS

LAB MAPPING

15.1

22–25
25–29
29–32

0–8
8–16
16–22
1. What is the range of ocean surface temperatures shown in the scale on the map?

2. Look for and describe patterns on the map. For example, which surface temperature or range of temperatures appears to be most common?

3. What is the surface temperature of the ocean nearest to the place you live? Convert this temperature to the Fahrenheit scale.

4. Describe how ocean surface temperatures change from the northern Pacific Ocean southward to Antarctica.
1. Where are the coldest surface temperatures found? Where are the warmest found? What accounts for these differences in temperature?

2. Global warming is an increase in global temperatures caused by increases in certain atmospheric gases. How might scientists use maps such as the one in this lab to analyze global warming? What might be some other uses of this map?

3. How might this map change if the satellite data were gathered in February? In July?