This assignment is designed to inform you about the El Nino Southern Oscillation, a powerful disruption of the ocean-atmosphere system in the tropical Pacific that affects the climate across more than half the planet. It also affects the productivity of many areas of the ocean, which can have huge implications for wildlife and marine commerce in those areas. El Nino events occur irregularly, usually once every three to seven years, an last about eight to 10 months. El Nino events are indicated in red on the graph below.

YOUR ASSIGNMENT

Answer the following questions:

1. What does the name “El Nino” refer to?
2. In between El Nino events, the Pacific often experiences periods when the sea surface temperature (SST) is colder than normal (marked in blue on the graph above). What are those events called?
3. During times when there is no El Nino, which way do the prevailing winds along the equator blow?
4. So, during times when there is no El Nino, which part of the Pacific basin – east or west – is higher?
5. During times when there is no El Nino, which area of the Pacific is the warmest?
6. During times when there is no El Nino, which area of the Pacific experiences the lowest atmospheric pressure and consequently the most rain?
7. During times when there is no El Nino, which area of the Pacific experiences upwelling and therefore has the highest productivity?
8. During an El Nino event, the trade winds weaken or reverse their direction. Therefore, the conditions described in questions 3 – 7 no longer hold true. Describe what conditions are like in the eastern Pacific during an El Nino. Concentrate on water temperature, rainfall, and oceanic productivity.
9. El Nino not only affects conditions in the Pacific. Because the temperature of the ocean influences weather patterns on land, and changes in the ocean will affect conditions that we experience here in the U.S., especially in areas along the Pacific. What happens to the average temperature and amount of precipitation of the western U.S. during an El Nino? What happens to the average temperature and amount of precipitation of Pennsylvania during an El Nino?

This assignment is due by 5:00 p.m. on Monday, March 7th.