Blame El Niño!

What is El Niño anyway, besides a handy excuse when things go wrong?

The El Niño Southern Oscillation, El Niño for short, is a condition that occasionally occurs in the Pacific Ocean, but it is so big that it affects weather all over the world.

Weather depends a lot on ocean temperatures. Where the ocean is warm, more clouds form, and more rain falls in that part of the world. In the Pacific Ocean, near the equator, the Sun makes the water especially warm on the surface.

Normally, strong winds along the equator push the warm surface water near South America westward toward Indonesia. When this happens, the cooler water underneath rises up toward the surface of the ocean near South America.

However, in the fall and winter of 1997-1998, for example, these winds were much weaker than usual. They actually blew the other way (toward South America instead of Indonesia) in October. So the warm surface water along the equator piled up along the coast of South America (around Peru) and then moved north towards California and south toward Chile.

Many fish that lived in the normally cooler waters off the coast of Peru moved away or died. The fishermen call this condition of warm coastal waters and poor fishing "El Niño" meaning "boy child," because in the occasional years it comes, it comes at Christmas time, the celebrated birthday of the Christ child.

In 1997 and 1998, lots of rain clouds formed over this warm part of the ocean. These clouds moved inland and dumped much more rain than usual in South and Central America and in the United States. Meanwhile, other parts of the world suffered drought. Weather patterns all over the world were unusual, making lakes out of deserts and charcoal heaps out of rain forests.

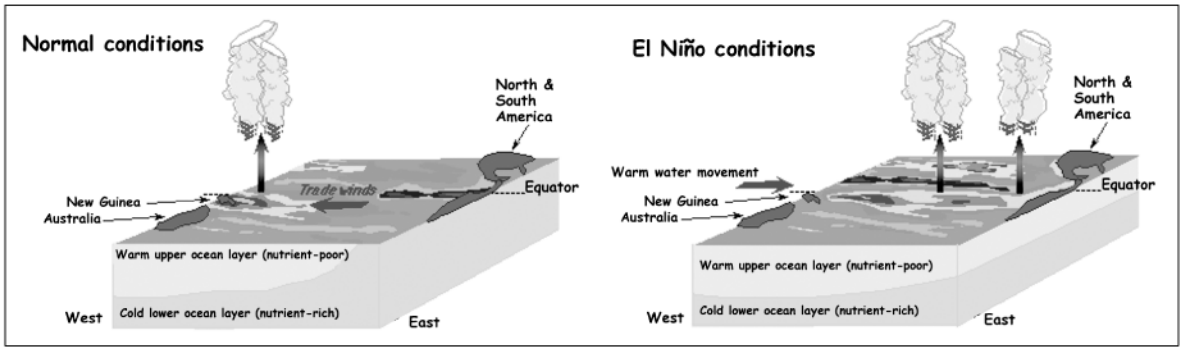
How do we know what is happening to the ocean temperatures around Earth? The best way is to go up into space!

Where the ocean is warmer, sea level is slightly higher. Using information from Jason-1 and TOPEX/Poseidon (see Panel 1 on this poster), scientists make topographical maps of the hills and valleys on the ocean's surface. The different heights of the ocean are shown on flat maps using different colors (See Panel 5 on this poster).

But is it only at the surface that the water is warmer or colder? No way! Where the ocean shows red or white on the map the water is warmer to depths of hundreds of feet!

Questions:

1. Severe floods and droughts can occur through the world during El Niño years. If scientists could make better and earlier forecasts of El Niño conditions, what might people do to prepare? How might they help each other?
2. Find out which years had the most severe El Niño conditions over the past 30 years. What parts of the world experienced the most severe flooding? The most severe droughts?



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