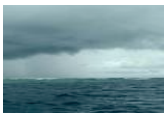
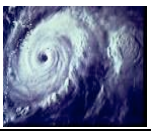
COOPERATIVE INSTITUTE FOR CLIMATE APPLICATIONS AND RESEARCH
THE EARTH INSTITUTE AT COLUMBIA UNIVERSITY

10 Things Kids Should Know About El Niño and La Niña

El Niño and La Niña are opposite phases of an oscillation or "see-saw" of the ocean-atmosphere system in the tropical Pacific and have important consequences for climate and weather around the world. The name El Niño stands for "the Christ child" because it reaches its full strength in late December. El Niño is a large-scale ocean warming that affects most of the eastern half of the tropical Pacific. During La Niña or "the Little Girl" phase the same ocean region cools compared to the normal temperature. Use this checklist to learn more about the "Children of the Tropics" and how they affect our environment.

	**What does El Niño look like?** Scientists look at ocean temperatures in the tropical Pacific and compare them to normal conditions that are averaged over many years. If they see that the ocean between the coasts of South America - Peru, Ecuador, Columbia - and the middle of the ocean - the Date Line - is warmer by 1 to 5°C (2 to 10°F) we know that El Niño is here.	☐
	**La Niña:** is characterized by unusually cold ocean temperatures in the equatorial Pacific, compared to El Niño which is characterized by unusually warm ocean temperatures in the equatorial Pacific. During a La Niña year, winter temperatures in the U.S. are warmer than normal in the Southeast and cooler than normal in the Northwest.	☐
	**El Niño - La Niña:** may alternate between every other year and every three years so that the time from one El Niño to the next tends to be between three and seven years. In the summer of 1997 one of the strongest El Niños of the recent past began, only to be replaced in 1998 by a prolonged La Niña event that lasted until 2003.	☐
	**Tropical Rainfall:** El Niño changes how rainfall is distributed in the tropical Pacific Ocean. Normally, it rains a lot from November to March in the western Pacific, over Indonesia and northern Australia. When EL Niño occurs, it causes increased drying in these areas. Other areas, such as Peru and Ecuador, see an increase in rainfall.	☐
	**Storms & Floods:** The El Niño winter of 1997-98 caused wind-driven waves and abnormally high sea levels that contributed to hundreds of millions of dollars in flood and storm damage in the San Francisco Bay area. El Niño regularly contributes to flooding in Peru and Ecuador, areas not frequented by strong rainfall and unable to accommodate the extra rain.	☐
	**Drought:** is when you have less rainfall than you expected over an extended period of time. The degree of aridity or dryness over the western U.S. is mainly controlled by the frequency and intensity of tropical Pacific EL Niño and La Niña events. In decades of weak events, or when La Niña dominates, the western U.S. tends to experience prolonged droughts. During El Niño drought conditions frequent Australia, Indonesia, and India.	☐
	**Forest Fires:** Areas that are dry during El Niño or La Niña are more susceptible to forest fires. This is often the case in Indonesia and Australia during El Niño and in the western U.S. during La Niña. The 1997-98 El Niño produced the worst drought in 50 years over Indonesia and on the island of Borneo it helped spread ongoing forest fires to well over one million acres.	☐
	**Hurricanes:** El Niño conditions suppress the development of tropical storms and hurricanes in the Atlantic Ocean and La Niña conditions favor hurricane formation. Tropical storms form when winds reach at least 17 mph and then become hurricanes when wind speeds reach 33 mph.	☐
	**The Jet Stream:** is a long narrow wandering current of high-speed winds blowing from a generally westerly direction several miles above the earth's surface. El Niño tends to suppress the formation of hurricanes by steering the subtropical jet stream into the hurricanes' path and shearing off the tops of the storms before they develop into full intensity. During La Niña, the jet stream moves north, and hurricanes tend to form more easily without interference.	☐
	**The most severe El Niño:** of the century occurred in the winter of 1982 & 1983. Winter storms battered southern California and caused widespread flooding across the southern U.S., while northern ski resort owners complained of unusually mild weather and a lack of snow. The loss to the world economy in 1982-83 as a result of the climate changes amounted to over $8 billion. The toll in terms of human suffering is much more difficult to estimate.	☐