Economical Effects Of El Nino Essay, Research Paper

Economical Effects of El Ni?o El Ni?o is a warm coastal current that flows south along the coasts of Ecuador and Peru (Wyrtki). El Ni?o is a Spanish term meaning “the child.” The name refers to the Christ child because it usually begins around Christmas and ends around Easter (Cane). El Ni?o has recurred about twenty four times in the last century (Erickson). It is first recorded as far back as the early 1500’s and returns on average of once every four years (Cane). El Ni?o causes much destruction in the short time it lasts. This system has been known to cause forest fires, typhoons, torrential rains, unusually powerful hurricanes, flash floods, severe droughts, and freak snow storms (Nash). The 1982 El Ni?o is thought to have triggered the 1982 eruption of the El Chichon volcano in Mexico. The 1982-1983 El Ni?o also caused so much destruction that the weather-related damage estimated at more than $6.5 billion. A typhoon named Iwa, caused by El Ni?o, that hit the Hawaiian Islands in November, 19823 caused $2 million in damages (Erickson). El Ni?o is one of the strongest weather systems known to man and can destroy lives and production, both agriculturally and economically, with very little warning at all. When a major El Ni?o ocean warming occurs, the barometric pressure over vast areas of the southeast Pacific falls, while the pressure in Indonesia and northern Australia rises. When El Ni?o ends, the pressure difference between these two areas swings in the opposite direction, creating a mass seesawing of atmospheric pressure. This phenomenon is called the Southern Oscillation. The Southern Oscillation is related to large-scale changes in atmospheric circulation over the tropical Pacific and Indian oceans. When the Southern Oscillation index is low, summer monsoon rains in India fail, and when the index is high, the rains are abundant (Erickson). An irregular oscillation of atmospheric mass occurs between the Indonesian low pressure system, and the Easter Island high pressure system. This oscillation can last for several years (Wyrtki). El Ni?o has an immense effect on the economy in many ways. From the 1982-1983 El Ni?o, weather related damage around the Pacific rim estimated at more than $6.5 billion (Erickson). El Ni?o has caused destructive flooding, drought in the West Pacific, and is sometimes associated with devastating brush fires in Australia (TAO). Of the past twenty-eight El Ni?o’s twenty-two have been associated with below normal rainfall in south east Africa. The Souther Oscillation and El Ni?o both have significant effects on state of weather and climate almost everywhere. The 1982-1983 El Ni?o caused destructive winds, tides, flooding, and landslides in California, caused more than $300 million in property damages, and over 10,000 people were forced to evacuate their homes (Erickson). Due to it’s size and strength, El Ni?o has been the focus of international attention and millions of dollars in research (Wood). As a result of the 1982-1983 El Ni?o, it caused a typhoon, named Iwa in the Hawaiin Islands. Iwa struck in November of 1982, and caused around $200,000,000 in damages. In Peru, El Ni?o has caused torrential rain fall, resulting in flooding of the once dust-dry hillsides of the Peruvian coast (Carson). El Ni?o has also generated warm surface waters and biological disturbances that extended southward to Chile and northward to British Columbia (Wyrtki). As for farmers in Southern Africa, they have suffered from loss of water, crop failures, and widespread hunger, consequently more than 1,000,000 people faced possible famine (Erickson). Storms following altered tracks of El Ni?o disrupt normal patterns of wet and dry weather as far away as Africa (Williams). El Ni?o has been known to provoke heavy rains in the usually dry southwest and fires in the drought stricken rain forests of Malaysia (Newshour Forum). El Ni?o can and has prompted catastrophic disturbances in weather with very short advanced notice. Due to El Ni?o there are different cycles in the temperature, thus creating cold years and warm years. Farmers do not like the cold years because they cause drought and crop failures, but these years are welcomed by fishermen. The cold years come on the heels of strong El Ni?o years. Peruvians have reason to be concerned not only about El Ni?o events, but about both extremes, cold and warm years, of the El Ni?o cycle. Warm years tend to be unfavorable for fishing and some have been marked by the damaging floods along the coastal plain and in the Western Andean foothills in the northern part of the country (TAO). During El Ni?o years, the equatorial easterly winds reverse and blow from the west. The wind then drags on the oceans surface in the opposite direction, resulting in major changes in the equatorial current system. The changing of the storms location alters jet stream winds that steer storms. In winter of 1982-1983, intensification of Pacific jet stream reached record proportions (Erickson). Massive warming in the water, as a result of El Ni?o, has killed many fish and sea birds by preventing nutrient-rich cold waters from rising to the surface (Cane). Cold water which is high in its levels of nutrients, supports high levels of primary productivity, diverse marine ecosystems, and major fisheries (TAO). El Ni?o has caused drastic decrease in populations of fish eggs and larvae, and sharp drops in the catches of commercial fish. Due to the killings of many animals because of warm water, the total agricultural losses came to $2.5 billion. As a result of the 1972-1973 El Ni?o, the warm water ravaged the Peruvian anchovy fishery and the warm water came at a time when the Southern Oscillation index had fallen to one of its lowest values ever (Erickson). The 1982-1983 El Ni?o was one of the strongest El Ni?o’s to hit earth. In December of 1982, warm coastal waters were up 7? above normal and reached as high as 11? above normal in places. The central equatorial south east tropical had excessive rainfall and easterly winds in the equatorial pacific collapsed between May and June. Strength of the westerly winds far exceeded those recorded over the previous decade. Due to the 1982-1983 El Ni?o Indonesia and Eastern Australia suffered severe, record-breaking droughts, because of the droughts in Indonesia, 340 people died from starvation. The year-long drought in Australia cut grain production by roughly half of the previous year. Thousands of hungry, thirsty cattle and sheep had to be shot and buried in mass graves. During the 1982-1983 El Ni?o, the Intertropical Convergence Zone shifted southward, bringing an early rainy season to Ecuador. The record rains and flooding led to the most catastrophic and prolonged El Ni?o visitation every recorded in Ecuador and Northern Peru (Erickson). The 1997-1998 El Ni?o was 1? times the size of the U.S. and it had enough water to fill the Great Lakes thirty times over. It also had ninety-three times the energy Americans extracted from fossil fuels in 1995 (Newshour Forum). El Ni?o has the largest irregularity in the year-to-year fluctuations of the oceanic and atmospheric systems, and is caused by interaction of El Ni?o and the Southern Oscillation (Wyrtki). El Ni?o has raged beyond the purview of science, not to mention the weather channel (Wood). It is a strong incentive to be able to forecast El Ni?o, although many related phenomena are still not well understood. If fairly reliable predictions of El Ni?o are not developed soon, the next El Ni?o could mean economic chaos and human suffering of unprecedented proportions in many parts of the world (Erickson). While the 1982-1983 El Ni?o brought scientific focus to the phenomenon, it was not until 1997 that the International Research Institute for Climate Prediction was founded. Scientists understand the physics of El Ni?o and are working on predicting its intensity and duration. The 1997-1998 El Ni?o is important to meteorlogists not only because of it’s intensity but because they saw it coming (Cutlip). The 1997-1998 El Ni?o was about the same size as the 1982-1983 El Ni?o, but scientists predict the 1997-1998 occurence may have been the biggest in 150 years (Newshour Forum). Meteorologists and scientists are developing many new ways each day to help benefit in predicting El Ni?o’s. Computer models that have been recently designed are fed information, mostly in the forms of sets of numbers, describing the present state of the atmospheric-ocean system. Updated sets of numbers, which the models produce, indicate how the atmosphere-ocean system might evolve over the next few seasons or even years (TAO). There are even some scientists who will venture out into the actual potential storm area to get their data hands on. A climatologist with NOAA’s Environmental Technology Laboratory ventured into the center of a Pacific storm to measure temperature, wind, and humidity (Nash). In February 1986, meteorlogists were eyeing the latest observations from the Pacific and noticed the ocean warming the way it does in El Ni?o’s earliest stages. These signs prompted the National Weather Service’s Climate Analysis Center in Washington, D.C. to issue an El Ni?o watch on February 11, and an advisory on March 13. As they followed the approaching storm, they realized it was a false alarm, and all weather patterns returned to normal. No two El Ni?o’s are exactly alike, but fortunately they all share similar warning signs such as stronger than normal trade winds and a rise in the Southern Oscillation index, so they are all possible to recognize them early on. Failure to predict El Ni?o’s underscore current lack of understanding how it develops. Once meteorologists are able to accurately predict an El Ni?o, they will be able to warn people and help to save lives and give enough time for preparation (Erickson). The El Ni?o weather system is the strongest and potentially the most dangerous storm, we have come across as of yet. However, with the help of meteorolgists, we may be able to prevent or at least lighten the disastorous outcomes that are so feared of El Ni?o. El Ni?o’s can cause anything from floods, to droughts, to landslides, even effecting one’s income, or their ability to survive.