CLIMATE CHANGE MAKING EL NIÑO EVENTS MORE FREQUENT AND MORE INTENSE

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"El Niño came around 2017," recalls Leini Miranda, a 19-year-old from Peru. "We had more then 141 000 victims, 100 dead and thousands of collapsed houses. Many of these victims were friends of mine or relatives." The 2017 El Niño event in Peru was the most severe disaster to hit Peru since the previous El Niño two decades prior. Consisting of extremely heavy rainfall which lead to severe flooding and widespread landslides, it was one of the most intense El Niño events on record resulting in death, damaged infrastructure, and a variety of health concerns among other social, economic and environmental impacts.

According to the National Oceanic and Atmospheric Association (NOAA), El Niño is a periodic warming of ocean temperatures in the Pacific which result in an impact on global climate causing extreme weather systems that impact food production, water supply and human health around the world. "Some areas of Lima were seriously affected with the overflowing rivers," Miranda says, explaining the severity of El Niño, "at that time we were supposed to start classes, a new academic year and because some schools were in really bad conditions, the government suspended the start of classes for a bit over a month."

Peru is situated where East Pacific El Niño events occur, which, according to a recent study, are becoming more intense in recent decades. At the same time Central Pacific El Niño events are becoming more frequent. Scientists used coral to construct a 400-year record of these disastrous events, extending the relatively short instrumental record by hundreds of years. Banding in corals contains an oxygen isotope which holds useful information pertaining to past sea surface temperatures and sea surface salinity. These variables held the key to helping researchers identify El Niño events that took place before instrumental records began.

This new knowledge allowed researchers to analyse the frequency and intensity of El Niño events spanning a 400-year time period. With this record at their disposal, they found that the ratio between East Pacific and Central Pacific El Niño events, which has been relatively stable for the

past four centuries, is changing. While the amount of East Pacific and Central Pacific events is normally comparable, ranging from one to six events every thirty years, this analysis saw a twofold increase in Central Pacific events while East Pacific events are in decline. The fact that Eastern Pacific El Niño events are becoming less frequent may seem comforting. However, the decline in events is coming at the same time as an increase in intensity with the three most recent El Niño events being the most intense on record. With an ever-present level of uncertainty relating to how climate change will unfold, predicting future El Niño events will be challenging.

In a time where climate change is impacting our weather systems in unprecedented ways, it is no surprise that this increase in frequency and intensity of El Niño is the result of climate change. This concerning discovery not only impacts our weather systems, but "will induce profound socioeconomic consequences," according to another recent study. As El Niño events become more frequent and more intense, Miranda's disastrous recount of the 2017 impacts of an El Niño event serves as a reminder that the impacts of climate change will not go unnoticed.

Sources

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