



PSA-027-El Nino-Tropics

Join us to save coral reefs

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El Niño: a global weather event that may save California — and destroy the **tropics**

The last major El Niño brought droughts, floods and disease to equatorial regions – bad luck that those of us in temperate areas should help mitigate



One region's weather win is another region's catastrophe.

Photograph: KC Alfred/ZUMA Press/Corbis

[Kyle Meng](#) and [Solomon Hsiang](#)

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The current buzz in cafes across California is that snow from this year's big El Niño will bring the best skiing in years. What fortunate skiers don't realize is that the same [periodic ocean-atmosphere interaction](#) in the Pacific Ocean is one of the most devastating natural forces on Earth, endangering the wellbeing of over three billion people across the tropics. El Niño creates winners and losers on a global scale. Each year is like planetary roulette, and the current forecast is for families in the tropics to suffer in the coming months.

The last time a really large El Niño occurred was during the Northern Hemisphere's winter of 1997-98. [Droughts](#), [floods](#) and [outbreaks of infectious diseases](#) plagued villages across Africa. Floods inundated [Peru](#). Megafires rampaged through [Indonesia](#). Fisheries collapsed off the coast of [South America](#). Crops [failed](#) across much of the tropics and global [food prices](#) rose. Civil conflicts [broke out](#) in Africa and Asia.



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Today, in all likelihood, we stand about a month away from another major El Niño. Current state-of-the-art [forecasts](#) tell us that an event similar to 1997-98 is likely to return this winter. Our own research on the human toll of El Niño suggests that households in the tropics will begin to feel the heat as early as September.

El Niño occurs when the normal systems of wind and ocean currents in the Pacific collapse – resulting in massive warming and drought throughout much of the tropics and subtropics. Major floods occur in some coastal locations as nearby oceans get warmer. Countries throughout much of Central and South America, Africa, South and South-East Asia and the South Pacific get hotter and dryer. Countries in the temperate regions of North America, Europe and Northern Asia get the reverse, experiencing mostly cooler and wetter conditions.

This global asymmetry translates into major agricultural losses in tropical countries due to heat waves and drought and crop gains in temperate countries. Though the expected food gains from temperate countries could, in theory, more than offset potential losses in tropical countries, this has not happened historically, and countries in the tropics have endured turmoil and hunger mostly on their own. The challenge with El Niño is fundamentally about the limits in the global reallocation of food.

This time can be different. The human cost of El Niño this year does not need to be like in 1997. Our world is more connected than ever before. The cost of moving food around the globe continues to drop. Digital information and news now reach many parts of the world almost instantaneously.

Furthermore, we now have a better understanding of El Niño's human and economic impacts. In a series of scientific papers, we, together with co-authors in climate science and economics, have shown that El Niño events systematically caused [crop failures](#), economic contraction and higher risk of [civil conflicts](#) throughout the tropics over the last 50 years (and not just 1997). This knowledge can empower us to act in anticipation of El Niño's biggest impacts. The further a driver can see down the road, the easier it is for them to avoid catastrophe.

In the coming months, countries that experience bumper cereal yields under El Niño, as the United States likely will, should be prepared to quickly provide food aid to tropical countries when needed. Aid agencies, peacekeeping groups, refugee organizations and other international institutions should start, if they haven't already, to carefully monitor the situation in the tropics.

Furthermore, the US Congress should consider relaxing the [ethanol mandate](#) for this coming year so that excess corn supplies can be redirected for international food trade rather than turned into fuel. International lending agencies



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should consider temporary repayment relief for tropical countries who may need to prioritize avoiding famine and social instability over debt repayment this year.

These short run responses are critical in the coming months. In the long run, the global impact of El Niño can be reduced by greater integration of international food markets and improved global access to financial instruments, like crop insurance, that help families cope with these temporary hardships.

The fundamental physics of El Niño and its unequal effects have been around as long as civilization. It is not a consequence of bad institutions or policies. Rather, individuals in the tropics are about to experience harsh conditions because they were born there – a stroke of bad luck that those of us in temperate regions should recognize with sympathy.

We have applied our ingenuity to make the modern world more connected and technologically advanced than ever before. Let's now apply our humanity to ensure that the unfortunate among us are not crushed by a natural disaster that our technologies can forecast and mitigate. We can be the generation to finally end the devastation El Niño has wreaked on humankind for millennia.

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The only thing necessary for the triumph of evil is that good men do nothing"Edmund Burke