



El Niño returns amid multiple global crises

After a rare three successive years of La Niña, it was confirmed in June 2023 that El Niño conditions had developed in the tropical Pacific, setting the stage for increased global temperatures and more intense weather extremes over the next nine to 12 months (NOAA, June 2023; WMO, July 2023).

These conditions are currently predicted to increase into either a moderately strong (80 percent probability), strong (50 percent), or historically strong event (20 percent), with conditions peaking in January/February 2024 (NOAA, July 2023).

The return of El Niño this year could have significant impacts as it coincides with and contributes to the ongoing effects of multiple global crises (NOAA, July 2023), including the continued recovery from COVID-19, the war in Ukraine and already exceptionally high global temperatures.

During a typical El Niño event, global declines in the production of major staple crops (wheat, rice and maize) and associated increases in their prices are observed (CGIAR, 2014). These crops represent an important share of calories in total food consumption, especially in low-income countries. Reduced supply and increased prices affect vulnerable households' food access, especially in import-dependent countries (FAO, April 2023).

Reductions in global economic growth were also observed following previous El Niño events, with some negative country-level impacts persisting for years. A study on the effects of El Niño by the International Monetary Fund (IMF), which analysed historical data from 1979 to 2013, showed strong regional variance in its impact and that almost all countries experienced a short-lived increase in inflationary pressures due to spikes in energy and non-fuel commodity prices (IMF, April 2015).

A more recent study showed that El Niño reduces economic growth over time, attributing USD 4.1 trillion and USD 5.7 trillion in global income losses to the 1982–83 and 1997–98 El Niño events, respectively (Science, May 2023).

What is El Niño?

El Niño is the warming phase of the naturally occurring La Niña/El Niño climate pattern, otherwise known as the El Niño-Southern Oscillation (ENSO).

During an El Niño year, warming waters in the Pacific Ocean result in changes to global atmospheric circulation that typically lead to above-average rainfall in Central Asia and the Horn of Africa and drought-like conditions in Central America, most of South and Southeast Asia, as well as Southern Africa and the Sahel (FEWS NET, 2020). See map 1.7.

The socioeconomic impacts of these changes in weather patterns are not distributed evenly around the globe, with some countries benefiting and others suffering. However, the overall effect on global agricultural production, prices and economic growth has tended to be negative. See map 1.8.

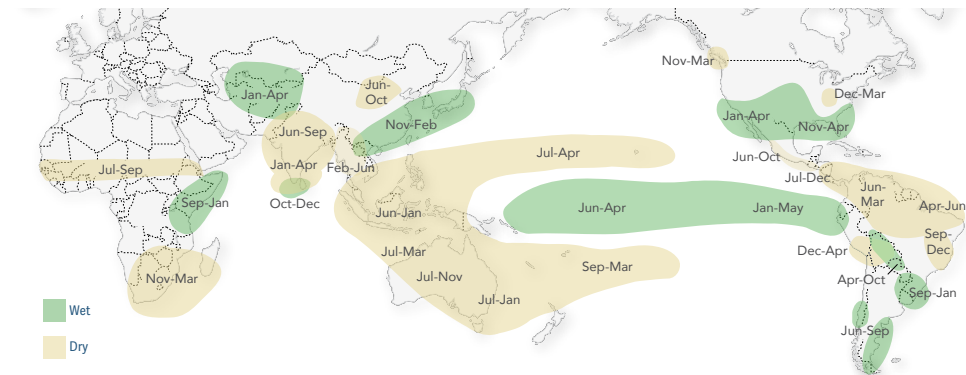
Droughts drive high levels of acute food insecurity during El Niño in major food crises

An FSIN analysis of countries defined as major food crises in the Global Report on Food Crises (GRFC) from 2017 to 2021 (i.e., data from 2016 to 2020) found that more than 100 major food crises were primarily driven by weather extremes – nearly a quarter of which were linked to the two previous El Niño events in 2015–16 and 2018–19.¹ In each case, the change in weather patterns prolonged drought conditions. Haiti was the only country to experience both a drought and hurricane (Hurricane Matthew in 2016) induced by the 2015–16 El Niño. While not two El Niño events are the same, this analysis supports efforts to mitigate and minimize the potential adverse impacts of future events, particularly in areas where there could be back-to-back weather extremes.

¹ Other countries that were either not selected for inclusion in the GRFC, lacked data, or not defined as major food crises were also affected by the 2015–16 and/or 2018–19 El Niños. These included El Salvador, Fiji, Guatemala, Honduras, Nicaragua, Papua New Guinea and Viet Nam. Some major food-crisis countries were counted more than once due to the prolonged effects of the El Niño events.

MAP 17

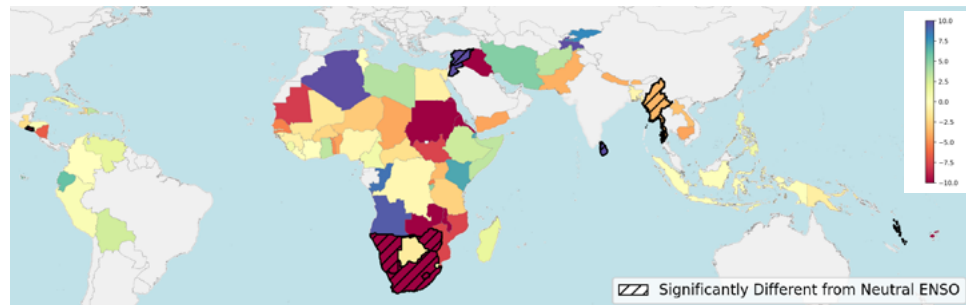
Typical impacts of El Niño on precipitation patterns



Source: Columbia Climate School International Research Institute for Climate and Society.

MAP 18

Annual national cereal production in comparison to average during El Niño years, 1981–2022



The map shows analyses at the national level. At a sub-national level, cereal production trends may be different, depending on the local cropping system and timing of rainfall/agricultural seasons. Additionally, for areas that receive more than one rainy season per year, El Niños may not affect all rainy seasons during the year equally.

Source: WFP, August 2023.

The analysis reflects other findings that droughts are the principal risk to agricultural production and food security during El Niño events (FAO, 2014; UNDRR, 2021). The intensity of its impact on crop development, particularly cereals, depends on when in the crop lifecycle the event's peak period of influence occurs, as certain phases are more sensitive to water and heat stress than others (FAO, 2014).

In addition to its effects on crop yields, droughts can limit water supplies, create livestock losses, and reduce energy production. These effects intersect and then cascade through socioecological and technical systems at different scales, and persist long after the drought has ended (UNDRR, 2021). The knock-on effects can lead to livelihood losses, higher food prices, worsening poverty and increased rates of malnutrition and disease.

For El Niño-driven droughts included in the GRFC, the severity of the impacts corresponds to the strength of each event. The 2015–16 El Niño was one of the strongest and most widespread events in the last half century (NOAA, 2016) while the 2018–19 one was relatively weak (NOAA, August 2019). This difference is mirrored in the GRFC, as there were more countries and populations affected by the 2015–16 El Niño than the 2018–19 event. For instance, ten GRFC countries/territories were affected by the 2015–16 El Niño, and six impacted by the 2018–19 event.

The impacts were always compounded by successive weather extremes. During these back-to-back shocks, household resilience to shocks would be eroded due to loss of assets and livelihoods, as well as the early depletion of food stocks, thus creating market dependence at a time when food prices were increasing. In the case of all the food crises linked to the 2015–16 El Niño, there were drought conditions during previous season(s) that had already affected agricultural production (GRFC 2017).

Similarly, Central American countries and Pakistan (Balochistan and Sindh provinces only) experienced prolonged drought conditions prior to the 2018–19 El Niño events (GRFC 2019; GRFC 2020), and in the following year, there was flooding in Central American countries (GRFC 2020).

Effects of the historic 2015–16 El Niño on food insecurity lingered for years

The El Niño event that peaked in November 2015 caused significant rainfall variation around the world, which triggered droughts in the Caribbean, Central America, parts of the Horn of Africa, and southern Africa (FAO, 2016).

The region with the highest number, prevalence and severity of food crises during the event was Central and Southern Africa where roughly 14.2 million people were in Crisis or worse (IPC Phase 3 or above) across six countries in 2016. See *figure 1.9*.

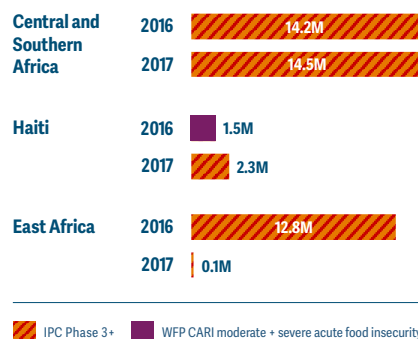
Decreased production of staple crops – primarily maize – due to droughts in 2016 created domestic supply shortages throughout the region. The resulting steep rise in food prices cascaded into broader economic downturns, as well as contributed to the depreciation of national currencies in the Central and Southern Africa region. This added additional upward pressure to food prices while also reducing countries' ability to import food (GRFC 2017).

Acute food insecurity outcomes in Central and Southern Africa worsened in 2017 despite El Niño conditions ending in June 2016. The number of people in IPC Phase 3 or above reached over 14.5 million. See *Figure 1.9*. In this region, recovery from the environmental and socioeconomic impacts of El Niño was difficult because households' resilience was weakened by the poor 2015 agricultural season (GRFC 2017), and the knock-on economic impacts that these El Niño-driven droughts caused (GRFC 2018). In fact, there were still references to communities not having recovered from its impacts in Eswatini, Lesotho, southern Madagascar, Malawi, Mozambique and Zimbabwe through the GRFC 2019.

The 2015–16 El Niño exacerbated drought conditions in some areas of East Africa and led to above-average rainfalls in others. Prolonged drought conditions affected Djibouti, northeastern Ethiopia and northern Somalia while flooding occurred in the Afar, Amhara, Oromia and Somali regions of Ethiopia, as well as the southern and central regions of Somalia. These weather extremes led to crop failures, fewer rural employment opportunities, widespread shortages of water and pasture with consequent increases in livestock deaths (GRFC 2017).

FIGURE 1.9

Number of people facing IPC Phase 3 or above or equivalent, primarily due to 2015–16 El Niño



Central and Southern Africa: Eswatini, Lesotho, southern Madagascar, Malawi, Mozambique and Zimbabwe. East Africa: Djibouti, Ethiopia (2016 data only), Somalia (2016 data only).

Source: GRFC 2017 and 2018.

However, the GRFC 2018 did not cite El Niño as a factor in either Ethiopia or Somalia's droughts during 2017, which is why the number of people facing IPC Phase 3 or above drops between 2016 and 2017 in *figure 1.9* (GRFC 2018).

A weaker 2018–19 El Niño resulted in fewer major drought-induced food crises

The weaker El Niño event of 2018–19 translated into less severe impacts on agricultural production and food security overall. However, Haiti and the Central American Dry Corridor experienced food crises that were primarily driven by changes in weather patterns from this event (GRFC 2019). Drought in Haiti depressed production of the main cereal crops, except for rice, which again contributed to further weakening of vulnerable households' resilience (GRFC 2019). The irregular rainfall and drier-than-normal conditions in the Central American Dry Corridor led to crop losses that jeopardized livelihoods (GRFC 2019).

The GRFC 2020 reported that Balochistan and Sindh provinces in Pakistan faced acute food insecurity in 2019 primarily driven by the 2018–19 El Niño droughts (GRFC 2020). Over 3 million people were in IPC Phase 3 or

above during the 2019 peak, of whom more than 1 million faced IPC Phase 4 conditions (GRFC 2020). The 2018–19 El Niño was a secondary driver in Haiti in 2019, as it continued to affect precipitation levels, which resulted in higher food prices (GRFC 2020).

The 2023–2024 El Niño forecast

The extent of the current El Niño event's impacts on agriculture and food security will depend on a complex interplay of meteorological, seasonal and vulnerability factors that are difficult to predict and analyse.

Most regional outlooks forecast typical El Niño patterns, but rainfall in the Sahel and parts of the Pacific could deviate from expectations (WFP, August 2023). The Sahel, which would typically see drier conditions, is expected to experience average to above-average rainfall during the 2023 rainy season (June–September) while parts of Myanmar, Philippines and Viet Nam are forecast to receive below-average amounts of rainfall.

The historically dry regions of southern Africa are forecast to experience average or below-average rainfall. In East Africa, below-average rainfall and higher temperatures are expected in August–October 2023 in eastern Ethiopia, South Sudan and Uganda, but Kenya and Somalia could experience flooding. Below-average rainfall is predicted for the Caribbean coast of Central America in line with historical El Niño trends, increasing the risk of drought conditions for the second agricultural season. Parts of Southeast Asia and the Pacific will likely see above-average rainfall while there could be below-average rainfall in Indonesia and Timor-Leste. The southeastern areas of Pakistan (including Sindh province) are forecast to receive average to below-average rains between June and September (WFP, August 2023).

The observed secondary impacts to growth, food prices and inflation are also of concern, as low- and middle-income countries are still suffering the consequences of the back-to-back shocks of COVID-19 and the war in Ukraine. These countries are less resilient due to low global stockpiles of grain, increasing public debt and weak growth prospects, and may therefore be less able to ease the transmission of any additional food price volatility to vulnerable households (IMF, July 2023).