# Gardening Etcetera: What to expect from El Niño in the new year

- CINDY MURRAY Special to the Daily Sun
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Will El Niño 2023 bring Northern Arizona above average precipitation? Only time will tell.

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El Niño is a chain of ocean and atmospheric events occurring every five to seven years. El Niño, meaning little boy in Spanish, along with La Niña, meaning little girl, are two halves of a larger climate phenomenon known as El Niño Weather Oscillation (ENSO) cycle. Simply put, El Niño is the warmer phase and La Niña, which generally appears once every three to five years, the cooler.

El Niño materializes when waters of the central and eastern regions of the tropical Pacific Ocean warm more than an average year. The heat causes the trade winds, which predominantly flow from east to west, to weaken. This sets up a chain of events that provokes the warm waters of the eastern Pacific to flow under the surface toward the cool waters off the west coast of the Americas. Consequently, weather patterns in the equatorial regions are altered to the point where the entire globe may be affected. The National Weather Service announces the start of El Niño when the waters in a specific region reaches 0.9 degrees Fahrenheit above average.

While Arizonans are aware El Niño may bring us more rain and snow this winter, many of us don't realize El Niño 2023 has been active since summer. Remember Hurricane Hilary? Certain scientists believe this major weather event may have been triggered by El Niño. Hurricane Hilary formed in August as waters south of Baja California and west of Mexico warmed deeply and substantially — 3.5 to 5.0 degrees above normal. Fed by this energy, the storm intensified to a category 4 hurricane. Within hours after making landfall in Mexico, Hilary became a tropical storm laden with moisture. Due to an atypical hot air mass lying over the central United States, Hilary steered toward California and Nevada rather than heading east. Some scientists theorize that this hot air mass may have been partly caused by climate change. The storm ravaged parts of Mexico and spewed six months' worth of rain on parts of California.

Based on historical data, how might El Niño 2023 affect the globe? Central and South America may encounter heavier rainfall, but the Amazon may endure drought, as is happening currently. South Africa, Australia, north-east China, Indonesia, Marshall Islands, Papua New Guinea, and the Philippines have previously suffered drought. At times our oceans have heated to the point of creating marine heat waves, wreaking havoc on coral reefs and other marine life.

El Niño typically pushes the jet stream south, away from a path that would normally provide ample moisture to the Pacific Northwest. Consequently, this region typically becomes dryer and warmer. Conversely, the shift of the jet stream periodically endows the American Southwest, including Northern Arizona, with above average precipitation. The central United States may become dryer and warmer. El Niño is likely to increase wind shear in the Atlantic, snuffing out nascent hurricanes. Additionally, thunderstorms in the Southeastern U.S. are oftentimes quashed.

Climatologists and meteorologists are hesitant to predict the nature of this, or any, winter's El Niño. Despite a plethora of scientific data from previous El Niños, the phenomenon has always been highly variable in the ways it affects the globe. It's difficult to ascertain precisely how the atmosphere, ocean currents, other temperature phases of the Pacific Ocean, and climate change will interact to construct El Niño's end result. (For example: My brother lives in Panama, which is experiencing severe drought. Nevertheless, his home and local roads were flooded by a torrential downfall several weeks ago.) One of the biggest unknowns, climate change, is particularly tricky. Seeing that El Niños are generally spaced several years apart, there hasn't been adequate time to gather specifics on how one phenomenon affects the other.

Strong El Niños have a tendency to deplete their source of warm water, the very fuel that drives them. If this is the case this winter, the globe may experience El Niño's cooler half, La Niña in the spring.

Cindy Murray is a biologist and co-editor of Gardening Etcetera and has been a Coconino Master Gardener since 2010. She is married and has two amazing grown children and two grown grandchildren. Cindy enjoys photographing Arizona's great outdoors, especially sunsets, birds, and insects.