

Earthweek: Diary of a Changing World

Week ending Friday, July 17, 2020

By Steve Newman

Greenhouse Earth

Scientists predict that Earth's atmosphere will soon contain the same high level of carbon dioxide that existed at the peak of the Pliocene Epoch warmth 3 million years ago, when temperatures were 5 to 7 degrees Fahrenheit warmer and sea levels were 65 feet higher.

A report published in the journal *Nature Scientific Reports* says that given the level of emissions present at the start of the study, prior to the coronavirus lockdowns, CO2 levels could surpass 427 parts per million within five years.

The authors say that the comparison with the Pliocene shows what is likely to happen in the future as the Earth responds to the buildup of greenhouse gas emissions.

Atlantic Cyclone

Tropical Storm Fay spun up off the North Carolina Outer Banks as the earliest sixth-named storm of the Atlantic hurricane season on record. It later drenched New Jersey, New York and New England.

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Brutal Heat

A punishing heat wave blanketing the southwestern U.S. produced the hottest temperature anywhere on the planet since 2017.

The thermometer at Death Valley, California, reached 128 degrees Fahrenheit on July 12, only one degree lower than what experts believe was the hottest temperature ever recorded on Earth. That reading was 129 degrees, also in Death Valley during the scorching summer of 2013.

The temperature dropped to only 100 degrees at dawn following last week's scorcher.

Asian Inundations

Unprecedented heavy rainfall has inflicted disastrous flooding from Japan to mainland China since mid-June in a trend many experts say was predicted by climate change models for parts of the planet.

Chinese officials say as many as 33 rivers in the country have risen to their highest levels ever recorded due to the deluges.

The Chinese inundations have left more than 140 people dead or missing, with experts warning even worse conditions are probably yet to come this summer.

Some of the worst floods in decades have also killed at least 58 people in Japan.

Disco Defense

Farmers in northern Botswana may soon be protected from elephant raids on their crops by a novel technique that also keeps humans dancing around the world.

Researchers near Chobe National Park installed lines of solar-powered, multi-colored strobe lights around crops and found they repelled elephant incursions by 75% compared to areas without the lights.

The disco-themed LEDs were placed on poles every 33 feet and constantly flashed a different color — red, green, amber, white, blue or yellow. The color patterns were changed every week to prevent the pachyderms from getting used to them.



Arctic ice has become so thin and patchy that researchers are now having difficulty transporting gear to study it. Photo: Lianna Nixon/MOSAIC

On Thin Ice

One of the largest-ever scientific expeditions to the Arctic has encountered polar sea ice so thin it could soon threaten future efforts to study the dwindling ice cap.

A team of 90 researchers and crew aboard the ice-breaker *Polarstern* found the ice was so thin in places that they couldn't transport heavy gear across it.

Writing in the journal *The Cryosphere*, MOSAiC team members said the ice off Russia's Arctic coastal shelf was only about 20 inches thick, compared to the average of about 60 to 63 inches measured during the 1990s.

They blame the lack of solid ice on the record warmth that has lingered since last summer.

Earthquakes

China's Hebei province was jolted by a tremor that struck near where, in 1976, the country's deadliest temblor in modern times killed about 240,000 people.

• Tremors were also felt in the far southern Philippines, Indonesia's Flores Sea, Java, northwestern Sumatra, the Republic of Georgia and the northern Netherlands.

