



**Week ending Friday, December 11, 2020**

### Solar Record

The sun has begun a new 11-year cycle of activity, which some scientists predict could be one of the strongest since observations began 270 years ago. Writing in the journal *Solar Physics*, a team from the U.S. National Center for Atmospheric Research (NCAR) says Sunspot Cycle 25 will peak with a maximum of about 210 to 260 sunspots, putting it near the top of the most active. But the official NOAA forecast says the new cycle will be about the same as No. 24, which peaked with only 116. Predicting solar activity is very difficult, and the NCAR researchers say that if their prediction is accurate, their new understanding of the sun's internal magnetic dynamics "is on the right path."

### Earthquakes

An eastern Mediterranean temblor was felt widely from southern Turkey to Israel and Egypt.

- Tremors were also felt in southern Spain, northern Chile, the central Philippines, Taiwan, northeastern New Zealand and Kansas.

### Human Footprint

Centuries of humankind's impact on Earth will soon result in the combined weight of all concrete, metal, plastic, bricks and asphalt being greater than that of all living matter, according to new scientific estimates. A team at Israel's Weizmann Institute of Sciences says the weight of manmade objects is now about one teraton and growing. For every person in the world on average, more than their body weight is now being generated weekly. Writing in the journal *Nature*, the team says this is causing the weight of all the stuff humans create to double every 20 years. They add that, combined with the loss of plant life and vanishing or dwindling of species due to human activities, the planet's weight balance between nature and man's creation is shifting.

### Second Wave

East African officials say weather conditions are now favorable for another wave of ravenous locusts to swarm across the region from the Red Sea to Kenya. The United Nations Food and Agriculture Organization also predicts fresh immature swarms will soon migrate southward to Ethiopia and Somalia before eventually invading northeastern Kenya. These same areas were hit earlier this year by massive swarms that also originated around the Red Sea. Successive generations are still devouring grasslands, threatening food shortages and laying eggs.

### Herbal Prevention

An international team of researchers says it has found that a species of sparrow intentionally uses medicinal herbs to ensure the health of its offspring. Such behavior was earlier thought to be restricted to only a small number of animals, mainly higher primates. William Feeney of Australia's Griffith University says russet sparrows use wormwood leaves to build nests. "The phytochemical compounds within wormwood leaves reduced infestation of the nest parasites, which results in the production of healthier chicks," Feeney said. Writing in the journal *Current Biology*, he and colleagues say that the birds seek out those leaves and adjust how many are in their nests through their sense of smell.

### Ray Scanning

Japanese scientists have proposed a novel way to map the ocean's vast unexplored seabed by equipping stingrays and electric rays with ultrasonic pingers and tiny cameras to collect data. "Electric rays and stingrays are benthic animals, meaning that they spend most of their time swimming around the ocean floor in deep places," Yo Tanaka, of the RIKEN Center for Biosystems Dynamics Research, said. By placing cameras on rays and linking the timing of the recorded video to the timing and locations determined by the pingers, the researchers believe they can create accurate maps of the ocean floor. Tanaka says trial experiments confirm the scheme is practical.

### **Tropical Cyclones**

The cyclone season in the Indian Ocean heated up with Tropical Storm Bongoyo forming midway between Australia and Madagascar.

- Cyclone Three spun up just south of Java.

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