

Earthweek: Diary of a Changing World

By Steve Newman

Week ending Friday, February 14, 2025

Radiation Belts

A new study found that one of last year's intense solar storms created two never-before-seen radiation belts high above Earth.

While the planet is always surrounded by the Van Allen belts, which shield the surface from deadly solar radiation, the biggest geomagnetic storm in 21 years last May formed two additional belts between the inner and outer Van Allen belts.

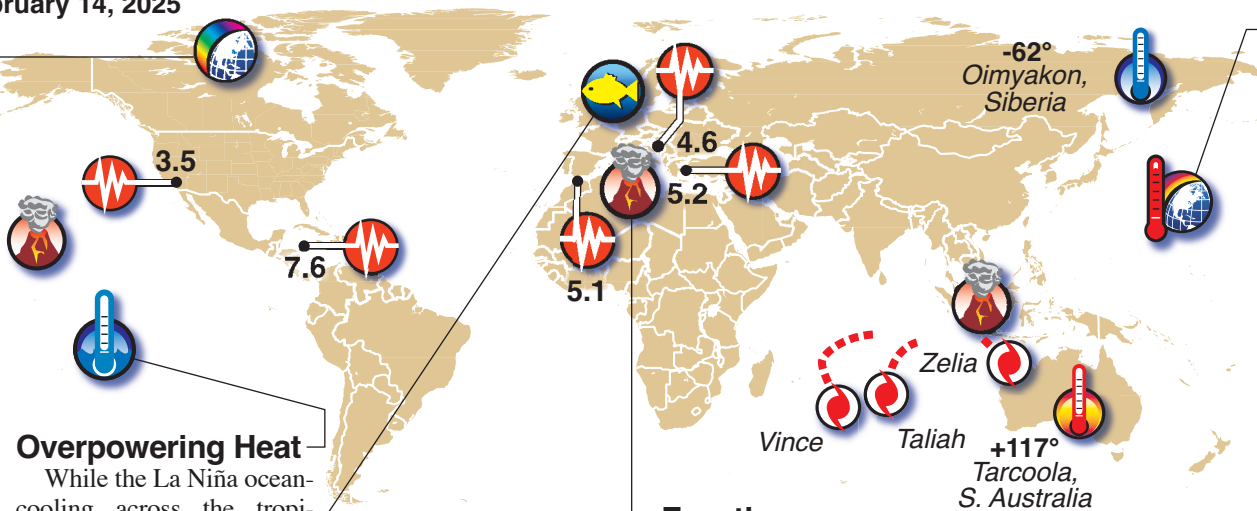
The storm also triggered auroras and communications blackouts worldwide.

Compared to previous temporary radiation belts, this pair lasted much longer.

Earthquakes

The strongest in a "storm" of thousands of earthquakes to strike Santorini and other islands of the southern Aegean Sea prompted further evacuations. Officials along the coast of western Turkey made disaster preparations should a much stronger quake, or even a volcanic eruption, produce a tsunami.

• Earth movements were also felt in Croatia, northern Morocco, the Caribbean and greater Los Angeles.



Overpowering Heat

While the La Niña ocean-cooling across the tropical Pacific Ocean typically brings a temporary chill to Earth's atmosphere as well, January was still the hottest on record — a full 1.75 degrees Celsius (3.15 F) above preindustrial levels.

The current La Niña is relatively weak, and scientists say its year-to-year ability to offset global warming may be diminishing.

The phenomenon's cool band across the Pacific is relatively narrow, while the rest of the world's oceans continue to warm, overwhelming La Niña's cooling effects.

Even the El Niño ocean warming that developed in 2023 was unusual, struggling to stand out against the globally warmer seas.

Salmon Bounty

A global seafood giant is offering a \$48 bounty per fish captured after around 27,000 of its farmed salmon escaped from a facility off Norway's coast, sparking concerns for the area's ecology.

The escape occurred after a powerful winter storm damaged a fish pen in Troms.

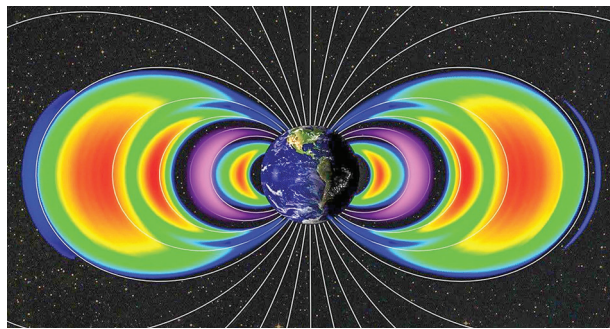
Norway's government has ruled out banning open-net farms, where fish are raised in large floating cages in the ocean.

Conservationists warn that escaped farmed salmon threaten wild populations by reducing genetic diversity, spreading disease and increasing competition for spawning grounds.

Eruptions

Sicily's Mount Etna roared to life with colorful fountains and flows of lava, as well as columns of ash. Europe's tallest and most active volcano has the longest documented history of eruptions in the world, with records dating back to 425 B.C.

- Indonesia's Mount Semeru erupted dozens of times, spewing ash that blanketed nearby areas.
- Hawaii's Kilauea volcano erupted for the ninth time since November with fountains of lava 330 feet high.



The CIRBW CubeSat that discovered the new radiation belts was knocked out of orbit by other solar storms in October, so scientists don't know if the new belts still exist. Image: NASA/Goddard Space Flight Center

Missed Deadline

Nearly all nations failed to meet the Feb. 10 U.N. deadline to submit updated greenhouse gas reduction targets, with only 10 out of 195 countries delivering their revised commitments on time.

Major economies, including China, India and the European Union, didn't make the deadline, raising concerns about waning international cooperation on climate action.

Scientists warn that without stronger climate policies, greenhouse gas emissions will continue to rise, making it nearly impossible to limit warming to 2 degrees Celsius and curb the increasing risk of more extreme weather, higher sea levels and ecosystem collapses.

Tropical Cyclones

Category-5 Cyclone Zelia took aim on a coastal stretch of northwestern Australia, halting mining and port operations in the remote region.

• Cyclones Vince and Taliah lost force over the central Indian Ocean.

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