

Weather station makes family part of history after volcano eruption

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Ames Tribune
USA TODAY NETWORK

The at-home weather station that Austin Viall and his family have is usually just a fun way to help decide what to wear in the morning. But it's also made them citizen scientists who observed

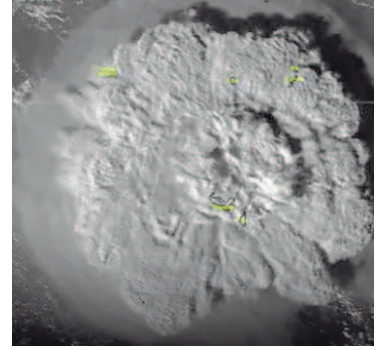
the rippling effects of a rare explosion as big and loud as the recent eruption of a volcano in the South Pacific Ocean.

The mostly underwater Hunga Tonga-Hunga Ha'apai volcano in the Kingdom of Tonga erupted Jan. 15 with the estimated force of a large hydrogen bomb — the blast and rising cloud of ash and steam visible from space, and a low

rumble still heard seven hours and more than 5,500 miles away in Alaska.

The explosion also sent deadly tsunami waves racing across the entire Pacific Ocean basin and atmospheric pressure waves radiating out that are still circling the world.

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Tonga volcano eruption. AP

Eruption

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The first of those pressure waves — traveling east across the Pacific from Tonga — reached Ames at about 8:30 a.m. local time on Jan. 15, Viall said.

He didn't immediately think to check the weather station that measures the basics like temperature, air pressure and

humidity — he read about the eruption in the morning after it happened, but it wasn't until later in the day that he saw on social media that people reported they had detected the pressure waves on their own weather stations.

Sure enough, there had been a temporary drop in air pressure as the wave passed through west Ames — the same thing his parents-in-law had noticed in Seattle on their same brand of

weather station.

His in-laws had gotten him the weather station as a present the Christmas before last.

"It's always been something that has always been on the back of my mental burner to want to buy," Viall said.

His wife Jen and he don't work in anything weather-related — he's a veterinary pathology professor at Iowa State University — but they have a 4-year-old child, and

"growing up as a kid, like a lot of kids I was always interested in weather and meteorology," so Viall thought it would be neat to have a weather station at home.

The weather station had picked up a quick pressure drop during the derecho that hit in December — the first event of its kind in U.S. history — but nothing like what it showed after the Tonga volcano eruption, Viall said.

A rare event, but also maybe first of its kind to be measured globally in real-time

Around the world, approximately 20 volcanoes are actively erupting on any given day, out of 40 or 50 volcanoes that are typically in a continuing state of activity, according to the Smithsonian Institution's Global Volcanism Program.

Few volcanoes ever create explosive eruptions as powerful as Hunga Tonga-Hunga Ha'apai's.

The explosive power of volcanic eruptions is measured from 0 to 8 on what's called the Volcanic Explosivity Index, or VEI. VEI 0 eruptions are not explosive, while VEI 8 represents the kind of eruption that the Yellowstone supervolcano burst out approximately 600,000 years ago, according to a chart from the U.S. Geological Survey.

Ingrid Ukstins, a volcanologist who's an adjunct associate professor with the University of Iowa, said that based on the estimated height of the ash column from Hunga Tonga-Hunga Ha'apai and the amount of ash that fell out, the Jan. 15 eruption is probably somewhere between a VEI 5 and VEI 6.

That would put the eruption somewhere among or between the May 18, 1980 eruption of Mt. St. Helens in the state of Washington, the 1991 eruption of Mt. Pinatubo in the Philippines and the 1883 eruption of Krakatau in what's now Indonesia, according to the USGS.

Ukstins did not hear Hunga Tonga-Hunga Ha'apai's explosion in New Zealand, but said many other people in the country did.

Just as the eruption's energy rippled out through the ocean as tsunami waves and through the ground as seismic waves, so too did that energy ripple through the air as pressure waves, said Daryl Herzmann, an Iowa State systems analyst with the Iowa Environmental Mesonet.

The Mesonet collects all sorts of weather data in order to improve forecasts, and charted multiple passes of the pressure waves from the Tonga eruption, available to view at mesonet.agron.iastate.edu/onsite/features/tags/pressure.html.

While the disturbance to the atmosphere from the waves was enough to cause storms to develop close to the volcano, Herzmann said Iowans probably won't notice any weather changes because not enough volcanic material and gases were released to significantly cool the planet or alter the colors of sunsets.

Herzmann said the event may be an educational moment on fluid dynamics, that the atmosphere very much behaves like water.

"I didn't realize it was necessarily possible to see this type of wave from a volcano eruption," he said.

He also said it's the presence of constantly-updating weather sensors that made possible global observations of the pressure waves from the Tonga.

"We're more sensitive to these things now," he said.

Viall said he does enjoy contributing the data from his family's weather station to the global scientific community. He said there's a whole online subculture of people who post their weather data, including through networks such as his weather station brand's or Weather Underground.

It's also "just fun to see how are things right here, exactly where we live" — not just a forecast for Ames, but that in their backyard, there's a wind chill of -21 degrees, he said Thursday morning.

Phillip Sitter covers education for the Ames Tribune, including Iowa State University and PreK-12 schools in Ames and elsewhere in Story County. Phillip can be reached via email at psitter@gannett.com. He is on Twitter @pslifeisa-beauty.

Obituaries

TODAY'S OBITUARIES AND DEATH NOTICES

Name	Age	Town, State	Death Date	Arrangements
*Evans-Winfield, Teresa	-	Baxter	18-Jan	Fredregill Funeral & Cremation Care
Gibbs, Pamela Jean	65	McCallsburg	18-Jan	Adams Funeral Home

* Additional information in display obituaries

Obituaries appear in print and online at www.legacy.com/obituaries/AmesTribune

Teresa Evans-Winfield

BAXTER - Teresa Ann Evans-Winfield, 71, of Baxter, passed away on Tuesday, January 18, 2022, at MercyOne in Des Moines, Iowa. A memorial visitation will be held on Friday, January 21, 2022, at Bethany United Church of Christ, in Baxter, from 1:00 – 3:00 p.m. Her memorial service will follow the visitation and begin at 3:00 p.m. Burial in the Evergreen Cemetery in Collins will be held at a later date.

Teresa was born on July 1, 1950 in Marshalltown, Iowa to Earl and Darlene (Haley) Evans. She grew up in Collins where she graduated from Collins High School with the class of 1968. After school, she attended Northwest Missouri State until her senior year where she decided to follow her dream and traveled as a musician and singer. In December of 1978, she married Christopher Winfield and the couple moved to Seattle where they began raising their family together. In 1985 they moved to Collins and Teresa went to Iowa State University where she earned her teaching degree. She began working for Baxter School District in 1995, then taught at Collins-Maxwell until 2001, North Polk until 2007, and Harlan Community Schools until her retirement in 2013. In retirement Teresa enjoyed being a substitute teacher at Baxter Schools. She attended Bethany United Church of Christ where she played the piano.

Teresa had a great love for her family and enjoyed spending time with them, especially her grandchildren. She also loved music, singing, redecorating her house, painting, anything purple, baking, cooking, family dinners, gardening, yard work, and making Tic Tok's with Brianna.

Those left to cherish her loving memory are her husband Chris Evans-Winfield of Baxter, IA; children Robin (Helen) Winfield of London, England, Teresa (Juan Luis) Winfield of Seattle, WA, Ian Winfield of Baxter, IA, and Paddy (Katina) Evans of Newton, Iowa; mother Darlene Evans of Ankeny, IA; grandchildren Brianna, Emily, Drea, Bella, and Aria; siblings John (Peg) Evans of Collins, IA and Barry (Sue) Evans of Alleman, IA; 9 nieces and nephews; and many close friends.

She was preceded in death by her dad, brothers David and Chuck Evans. Memorial contributions may be directed to the family.

Fredregill Funeral & Cremation Care has been entrusted with the care of Teresa and her family

