

Did a Meteor Explode Over Pittsburgh?

A meteor likely either “exploded or vaporized” over the city on Saturday, a meteorologist said, setting off a strong vibration that one resident likened to a “shock wave.”



By Azi Paybarah

Jan. 2, 2022

For Heather Lin Ishler, the first morning of 2022 in Dormont, a neighborhood just south of downtown Pittsburgh, began like most days had in 2021. She was on her bed, scrolling through social media while her boyfriend was downstairs playing a game on his Xbox.

Then, the bed shook.

“The sensation,” Ms. Ishler, 34, later said, “reminded me of fireworks” and how, if you stand too close, you can feel “a rumbling in your chest.”

She looked out her bedroom window. It was gray — a little rainy, but calm.

Her boyfriend said that he, too, had felt something, as did a neighbor in their building.

“It was just the feeling of the shock wave,” Ms. Ishler recalled, “but no sound or flash or anything like that.”

Diane Turnshek, an astronomer who lectures at Carnegie Mellon University, felt something powerful on Saturday morning, too. She was in her home atop a Pittsburgh hill, 1,120 feet above sea level. Her initial thought was that her dryer had fallen off the washing machine in the room next door.

Calls started coming into the Pittsburgh office of the National Weather Service from people who had heard “a really loud sound but didn’t see anything,” said Jenna Lake, a Weather Service meteorologist.

Soon, it seemed as if everyone was looking for answers. (Ms. Lake’s curiosity was more professional than personal. She was in the office that morning but did not feel or hear anything. Ms. Lake chalks that up to the fact that the office has “pretty sturdy windows,” and also possibly that “our cleaning staff was here and maybe a vacuum was on.”)

No earthquakes were detected by the seismograph at the nearby Allegheny Observatory, Ms. Turnshek said. Seismographs are sensitive enough to detect earthquakes, but they are not calibrated to detect surface vibrations that rattle homes or windows.

Ms. Lake at the Weather Service said the air over Pittsburgh on Saturday was “too benign” for storms or lightning, so those were ruled out, too.

Airplanes were quickly discounted, Ms. Lake said, because they do not move as fast as meteors that break pressure barriers, and “we don’t typically hear them when they’re all the way up,” flying at high altitude.

“Our guess was potentially a meteor,” Ms. Lake said. It is the “only thing besides aircraft incidents that would have been known occurrences and could have caused that type of sound.”

Chris Leonardi, also a Weather Service meteorologist based in Pittsburgh, said the thinking was that a meteor either “exploded or vaporized.”

One of their colleagues used a device called a Geostationary Lightning Mapper, which, according to NASA, “can detect the momentary changes in an optical scene, indicating the presence of lightning.”

Since there were no storms in the area, meteorologists believe the source of the vibration was “a meteor moving toward Earth pretty low in the atmosphere, relatively close,” Ms. Lake said.

Just after 4 p.m. on Saturday, the Weather Service announced its conclusion on Twitter: “The loud explosion heard over SW PA earlier,” it said, “may have been a meteor explosion.”

After the Weather Service announcement, people took to social media to share their accounts and theories about what had happened. Some posted videos on Twitter that they said captured the “boom.” One person posted a video of a backyard pond on Facebook in which fish can be seen almost jumping, as if they had been startled. “No discernible sound,” the person wrote, “but something spooked them.”

It was not the first time in recent memory that people have wondered about seemingly mysterious activities overhead.

In December 2018, the sky over New York City erupted in a blue light. People theorized about a U.F.O. flyby or an alien invasion, though the cause turned out to be a transformer explosion at a Con Edison substation. In 2015, a 500-pound meteor streaked through the sky above western Pennsylvania triggering a sonic boom, The Pittsburgh Post-Gazette reported. More recently, in October, a boom shook homes in New Hampshire, giving rise to theories that an earthquake or an aircraft was to blame. (Satellite imagery, however, suggested a meteor exploded in the atmosphere above the state.)

In Pittsburgh on Saturday, Ms. Lake said that nobody reported seeing anything “below the cloud deck,” which was about 2,000 feet above the ground. Ms. Lake thinks the meteor could have been “a couple of thousand feet” above the ground, but not below the cloud cover.

For now, a meteor explosion is the best theory about what happened over Pittsburgh on Saturday, Ms. Lake said, though it will remain just that — a theory — “unless someone finds some rocks in their backyard,” she said.

Ms. Turnshek, the Carnegie Mellon lecturer, said that what she and others in Pittsburgh experienced on New Year’s Day was “rare and notable,” a “once-in-a-lifetime event.”

Despite the rarity, there is no shortage of movies depicting the dangers of a meteor, asteroid or comet crashing to Earth (including “The Day the Sky Exploded,” “Meteor,” “Armageddon” and the recent “Don’t Look Up”).

Astronomers are on the lookout for such things, Ms. Turnshek said. “If we had found a large body incoming,” the best solution would probably be to “send a rocket to sit next to it, and the gravitational pull of the rocket will pull it off course.”

Back in Dormont, Ms. Ishler shared the Weather Service’s conclusions with her friends and neighbors, mostly out of delight. The year, she said, had started off “with a bang.”

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