A Mountain Near the Equator Is Losing Its Last Ice

NASA images show that Puncak Jaya's once-flowing glaciers have shrunk into scattered patches.



Small patches of ice remain on a rocky tropical mountain peak above green lower slopes.

Ice near the summit of Puncak Jaya, a mountain in Indonesia, has shrunk so much that it is no longer acting like a **glacier**, according to NASA Earth Observatory. A glacier is a thick body of ice that slowly flows downhill under its own weight. On Puncak Jaya, the remaining ice is now broken into small patches that are too thin and too scattered to flow.

That matters because Puncak Jaya is one of the rare places near the **equator**, the imaginary line around the middle of Earth, where ice has lasted all year. The mountain is in the Sudirman Range on the island of New Guinea. It sits in the **tropics**, the warm region near the equator, beside a huge area of warm ocean water. That makes its ice especially sensitive to changes in temperature and precipitation, which means rain, snow, or other water falling from the sky.

NASA compared images from Landsat satellites, which are spacecraft that take pictures of Earth from **orbit**. One image was taken in 1988, and another was taken in 2026. The images use false color, which means the colors are changed to help scientists tell different surfaces apart. In these images, ice appears light blue, exposed **bedrock** appears brown, clouds appear white, and plants appear green. Bedrock is the solid rock under soil, ice, or loose stones.

The change is dramatic. In 1988, the glaciers covered about 4.31 square kilometers, or 1.66 square miles, according to Donaldi Permana, a climate scientist at Indonesia's weather and climate agency. By September 2025, **satellite** and aerial data showed that only about 0.09 square kilometers, or 0.03 square miles, remained. NASA says that is about the size of a dozen soccer fields. It is also only about 2 percent of the ice area seen in 1988.

The ice has not just shrunk across the surface. It has also become much thinner. At one main **monitoring** site on the East Northwall Firn, the ice was 32 meters, or 105 feet, thick in 2010. By 2023, it was 4 meters, or 13 feet, thick. By November 2024, the ice at that site was gone. As glaciers thin, they can split into pieces. Each new edge gives warmth more places to attack, which can speed up **melting**.

Snow still falls near Puncak Jaya, but NASA reports that it does not stay long enough on the exposed rock to build new ice. For a glacier to

keep going, it needs a place where snow piles up faster than it melts. Without that, the glacier cannot rebuild itself. Recent satellite studies suggest the main ice areas could disappear around 2030, while Indonesia's climate agency estimates they could vanish sooner.

One reason is El Niño, a natural climate pattern that can warm parts of the ocean and change weather around the world. During El Niño years, the air around Puncak Jaya can be warm enough that rain falls instead of snow. Fresh white snow usually **reflects** sunlight and helps protect ice below it. Darker rock and older ice **absorb** more heat, so they melt faster. NASA says the 2015-2016 El Niño and the 2023-2024 El Niño both brought rapid thinning.

For someone studying Earth science, this is a real-world example of how land, air, water, and sunlight connect. It is also a reminder that satellite images are not just pictures. They are evidence. They let scientists compare the same place across decades, measure change, and ask what might happen next.

Written from reporting by NASA.

THINK IT THROUGH

1. **If a glacier is almost gone, what information should scientists try hardest to collect before it disappears, and why?**

   > **A strong answer:** A strong answer should weigh evidence such as satellite images, thickness measurements, local weather data, and what each kind of data can or cannot show.

2. **Should small tropical glaciers get as much public attention as larger ice sheets in places like Antarctica or Greenland? Defend your view.**

   > **A strong answer:** A strong answer should consider scale, symbolism, scientific value, local effects, and the danger of ignoring smaller but faster changes.

3. **How could the loss of Puncak Jaya's ice change the way people understand maps, climate zones, or the idea of what belongs near the equator?**

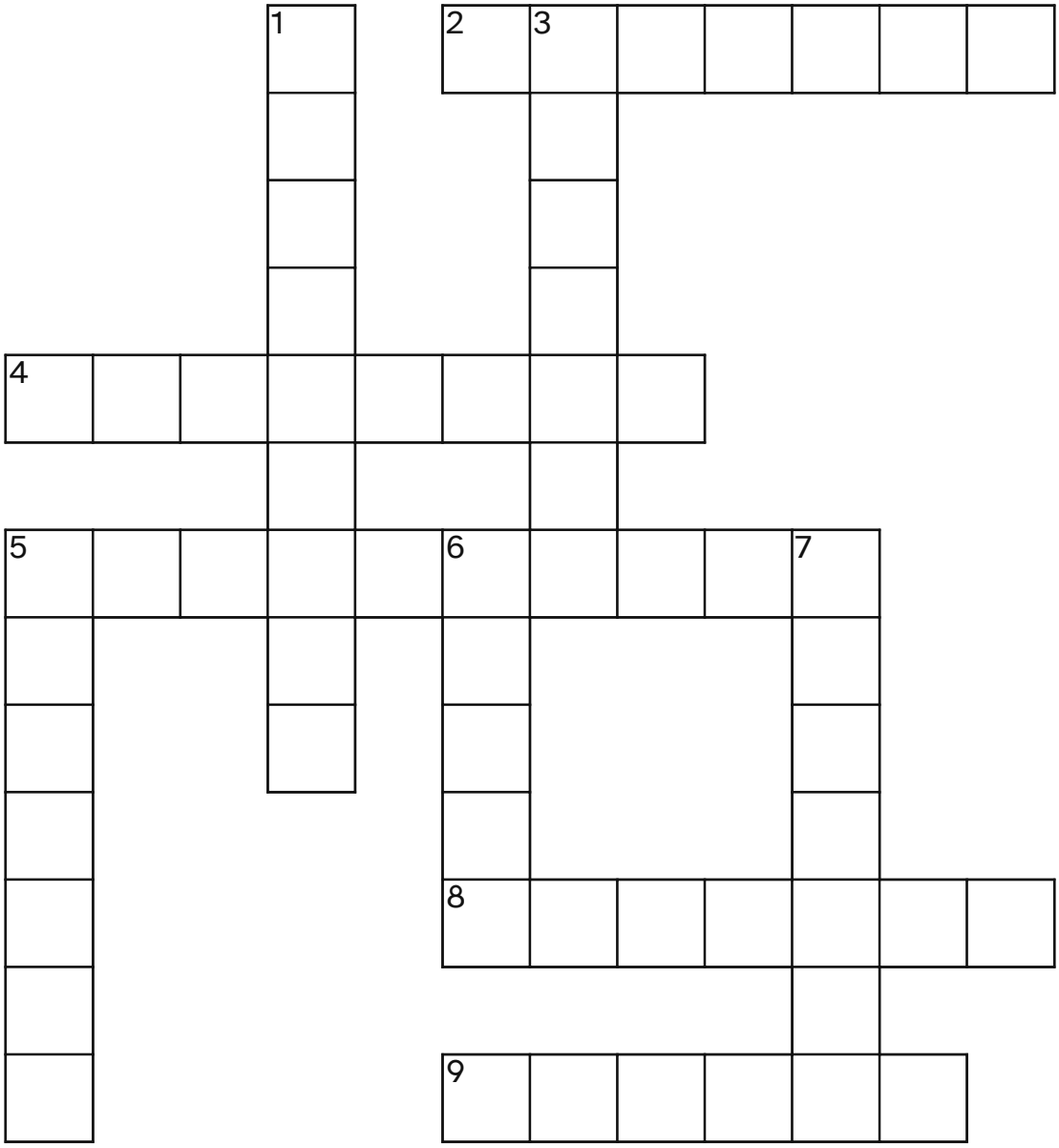
   > **A strong answer:** A strong answer should connect the story to geography concepts and explain how real places can challenge simple assumptions about climate.

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E P O T E S R K A A R N T D H I C R
G M C C R T F B A T R E L T C T E O
I E A O E Q U A T O R K H M T O O O
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ABSORB BEDROCK EQUATOR GLACIER MELTING
MONITORING ORBIT REFLECTS SATELLITE TROPICS

A Mountain Near the Equator Is Losing Its Last Ice



ACROSS

- **2** Hard rock layer below soil or ice
- **4** Sends light or heat back
- **5** Careful watching and measuring over time
- **8** Hot zones near Earth's middle circle
- **9** Take in heat or other energy

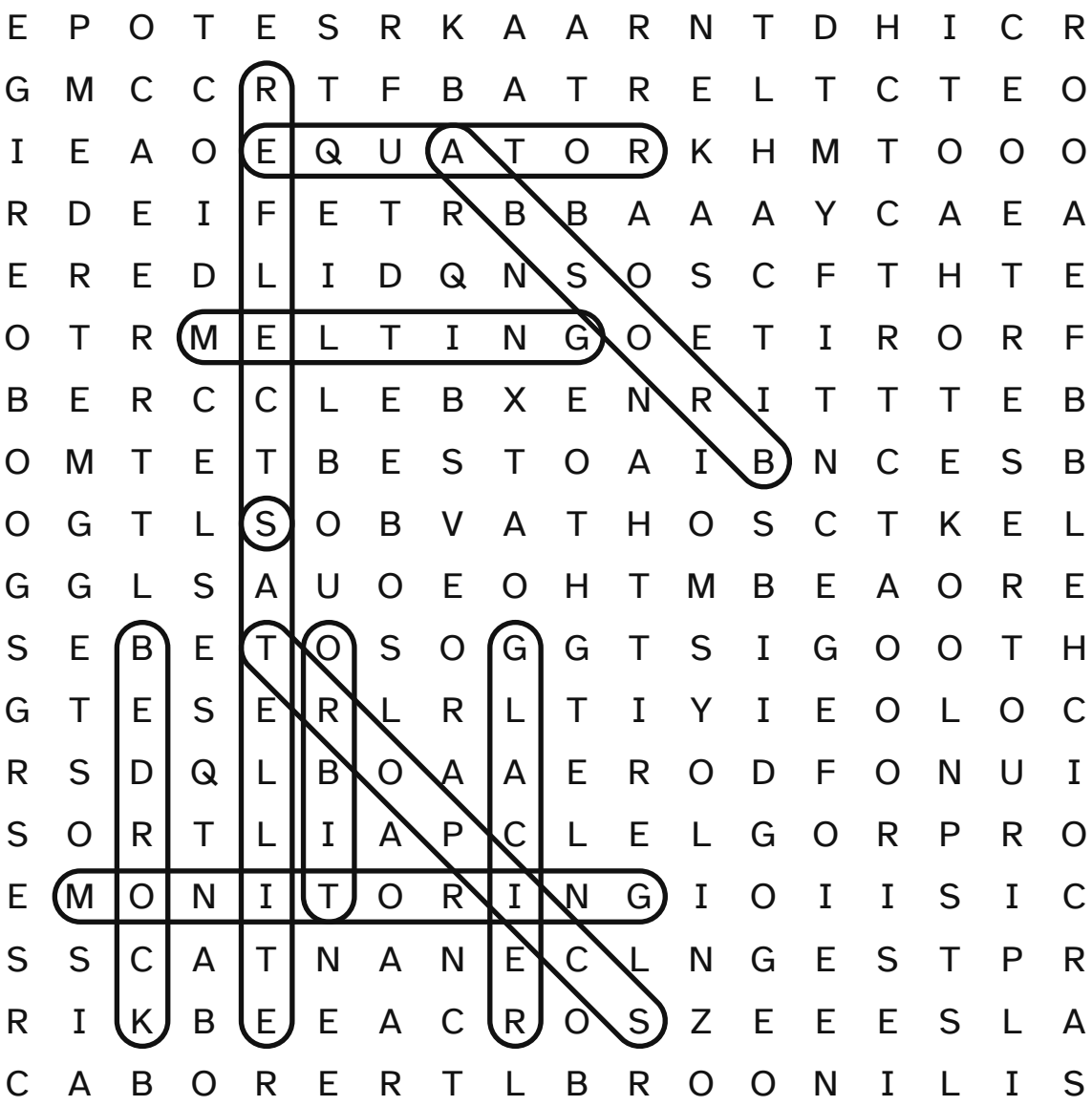
DOWN

- **1** Spacecraft that circles Earth and gathers information
- **3** Earth's imaginary middle circle
- **5** Ice turning to liquid because of heat
- **6** Curved route around a planet
- **7** Slow-moving river of ice

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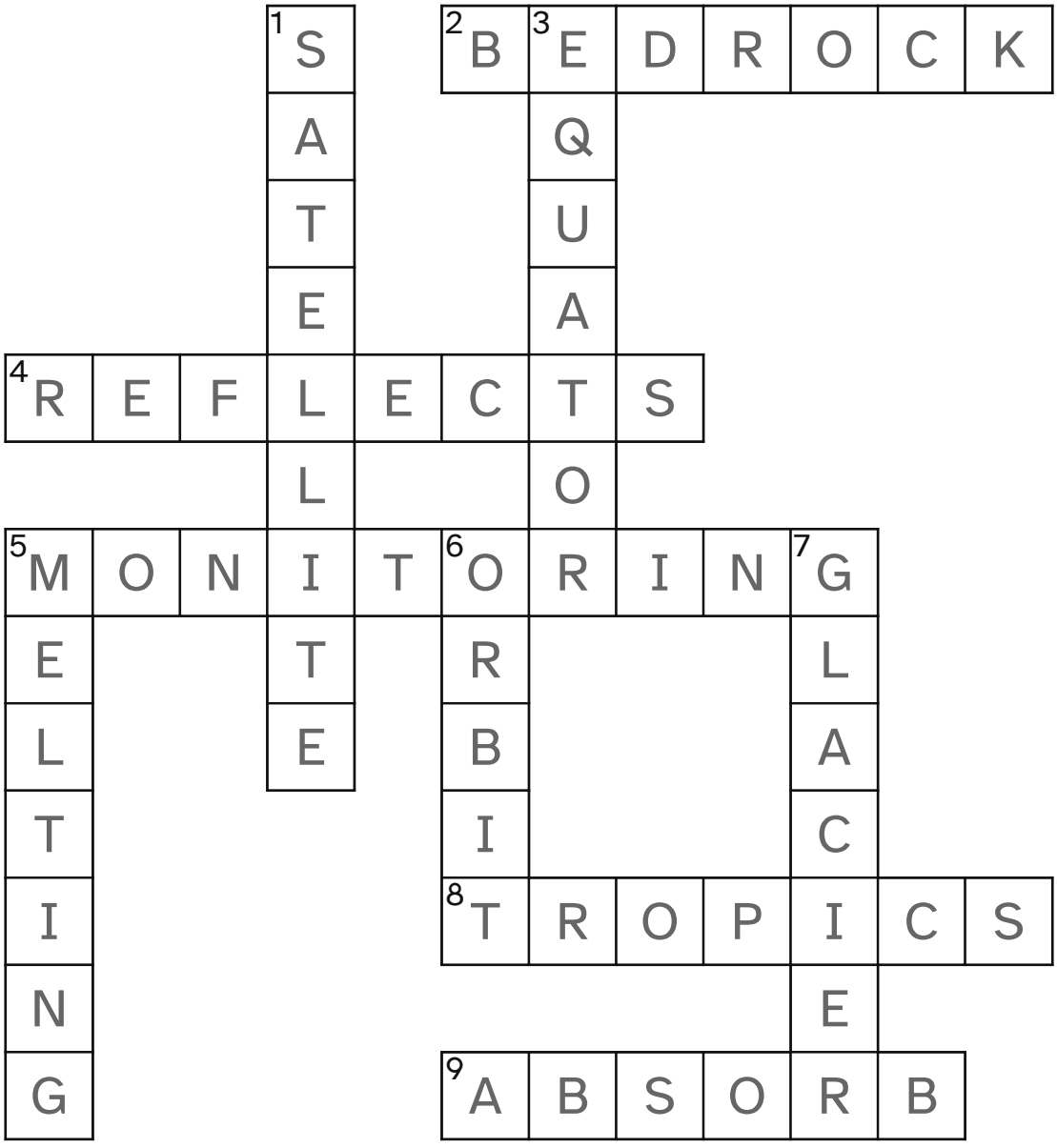
— answer key



ABSORB BEDROCK EQUATOR GLACIER MELTING
MONITORING ORBIT REFLECTS SATELLITE TROPICS

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— answer key



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Where this came from

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NASA

"The Last Ice on Puncak Jaya"

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https://science.nasa.gov/earth/earth-observatory/the-last-ice-on-puncak-jaya/

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The article with a note on each question, a word search, a crossword, and the answer key to both.

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