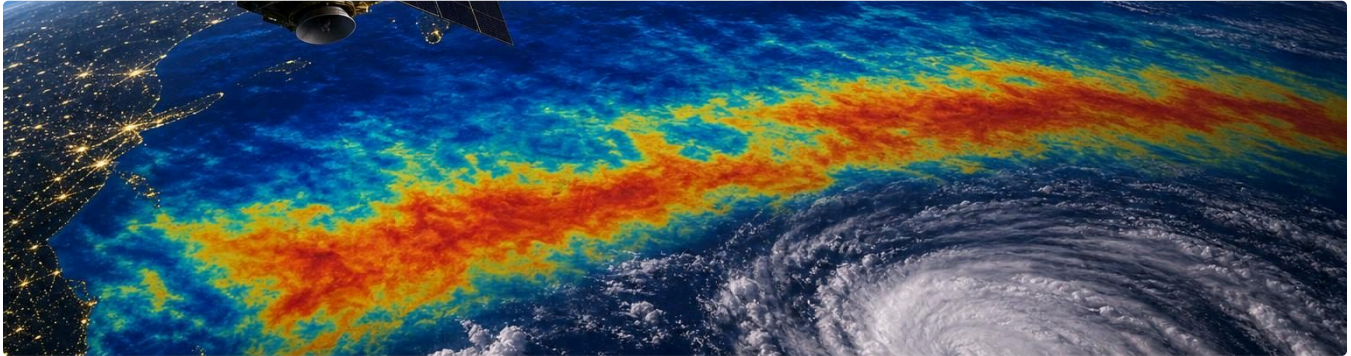


Satellites Show a Strong El Niño Building in the Pacific

NASA says warm Pacific waters in 2026 look similar to past El Niño events that changed weather around the world.



A satellite observes broad bands of warm Pacific water and clouds from above Earth.

A strong El Niño is building in the Pacific Ocean, according to NASA's Earth Observatory, and satellites are helping scientists compare it with some of the strongest El Niño events ever measured. El Niño is a natural **climate pattern** that happens about every two to seven years. During El Niño, water becomes warmer than usual in parts of the equatorial Pacific, the area of the ocean near Earth's **equator**.

That may sound far away from a classroom in the United States. But El Niño can shift weather patterns across the planet. NASA notes that very strong El Niño events in 1997-98 and 2015-16 were linked to major effects, including fires in Indonesia and the Amazon, **drought** that hurt crops in southern Africa, and heavy rain and coastal **flooding** in Southern California. Scientists do not know yet exactly what this winter will bring, but the current event is strong enough to watch closely.

One reason scientists can study El Niño so well is that satellites measure the height of the ocean surface. This method is called **satellite altimetry**, which means measuring height from space.

Warm water **expands**, so it can make the sea surface slightly higher than normal. When satellites see higher-than-average water levels in the central and eastern Pacific, that can be a sign that heat is building there.

NASA compared satellite data from October 1997 with data from October 2026. The 1997-98 El Niño was one of the strongest on record. NASA says the 2026 event came on more suddenly than the 1997 event, but by October the two looked similar in important ways. In both cases, warm, higher water stretched far across the Pacific toward South America. That matters because the location of the warm water helps shape how the **atmosphere** responds.

El Niño starts with a loop between the ocean and the air. Trade winds, which are steady winds near the equator, usually push warm water toward the western Pacific. That warm water piles up there, making sea level a little higher in the west than in the east. When the trade winds weaken, warm water can move east. That movement can weaken the winds even more, which lets still

more warm water move east. The cycle can grow stronger over time.

Still, NASA scientists warn that no two El Niño events are exactly alike. The 2015-16 El Niño was also very strong, but it did not push warm, high water toward South America in the same way. Its rain effects were more concentrated over Central America and the southeastern United States, with serious flooding in Mexico. This is why scientists compare patterns but do not treat the past as a perfect script for the future.

The National Oceanic and Atmospheric Administration, or NOAA, said on October 8 that there was an 83 percent chance of a strong-to-very strong El Niño through the first three months of 2027. NOAA is the U.S. agency that studies

oceans, weather, and the atmosphere. That **forecast** does not mean every place will have extreme weather. It means the ocean pattern is strong enough that it could influence weather in many regions.

This story connects to science classes in several ways. It shows how energy moves through Earth systems, how oceans and air interact, and how scientists use long-term data to compare today with the past. It also shows the limits of prediction. Satellites can measure the ocean with great care, but the atmosphere is chaotic, meaning small changes can lead to different results. The best forecast is not a promise. It is an evidence-based estimate that may help communities prepare.

Written from reporting by NASA.

THINK IT THROUGH

1. When scientists say this El Niño looks similar to one from 1997, how much should communities rely on that comparison when preparing for winter weather?

A strong answer: A strong answer should weigh the usefulness of historical patterns against the article's warning that each El Niño is different.

2. Should public officials explain forecasts mostly with percentages, past examples, or simple safety advice? Defend your choice.

A strong answer: A strong answer should consider clarity, uncertainty, and how different audiences might respond to scientific information.

3. What does this story show about the strengths and limits of using satellites to understand Earth's climate?

A strong answer: A strong answer should discuss precise long-term measurements as well as the difficulty of predicting exact local impacts.

Satellites Show a Strong El Niño Building in the Pacific

L E N A L Q E D Y H H O X D S R L C
F R C F E E T R E T G I I E A L K M
S O M L D A A O M U T E E I U M I C
R S R L I O M U S E S I G T L A O Y
I M T E G M A G Q D P L Y I T A I F
C E F A C D A H D S M T D E M E S L
G F E H A A L T I M E T R Y T L M I
T T A A T T S O E B T E P E D I E A
T T S T S A R T L E P R A F H I A F
D E P G O P E A N S A T E L L I T E
L C E T M T A O R E T U M O T C M Q
F O N X E Q H H D E T S O O S E O U
E T D C P O E D H T E T R D T I S A
R S N E C A H R L S R T O I I L P T
A R F E I J N S Y I N R A N E E H O
P U A R A O T D A E I H E G M U E R
V V T S J T O T S E L N W A N A R Y
T O E E E E O H I A C E F E E E E I

ALTIMETRY

ATMOSPHERE

CLIMATE

DROUGHT

EQUATOR

EXPANDS

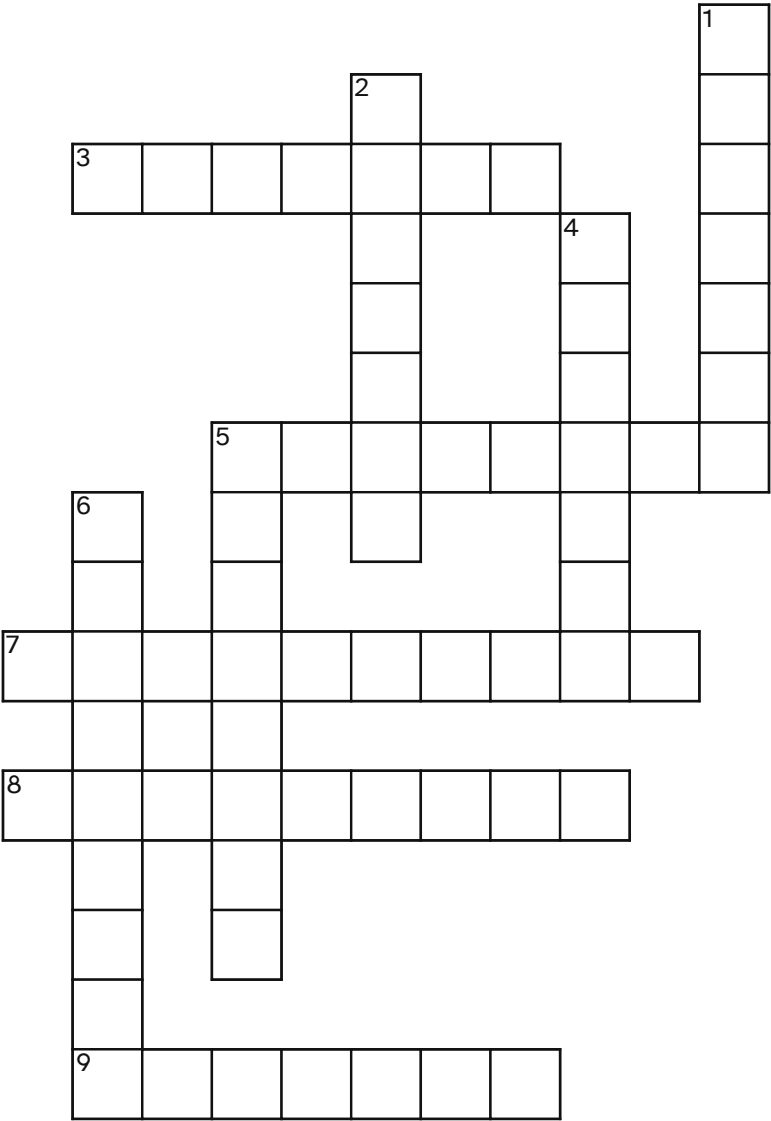
FLOODING

FORECAST

PATTERN

SATELLITE

Satellites Show a Strong El Niño Building in the Pacific

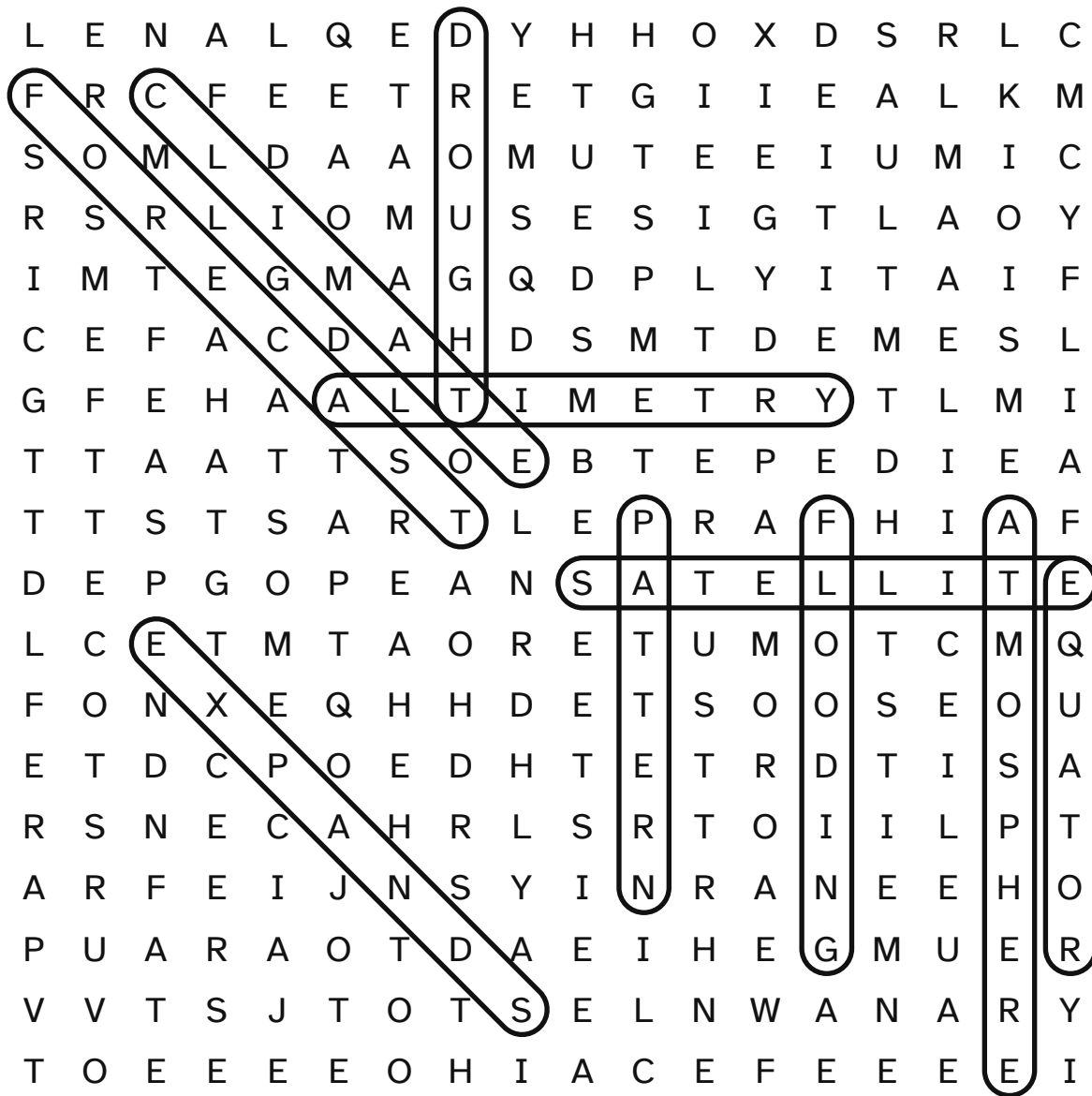


- ACROSS
-
- 3 Usual weather in a place over many years
- 5 Science-based prediction of later weather
- 7 Gases around Earth where weather occurs
- 8 Measuring a surface's height from space
- 9 Gets bigger when warmed

- DOWN
-
- 1 Long spell with far less rain than usual
- 2 Repeated arrangement or way something happens
- 4 Imaginary line around Earth's middle
- 5 Water covering land that is usually dry
- 6 Device orbiting Earth that gathers information from space

Satellites Show a Strong El Niño Building in the Pacific

— answer key



ALTIMETRY

ATMOSPHERE

CLIMATE

DROUGHT

EQUATOR

EXPANDS

FLOODING

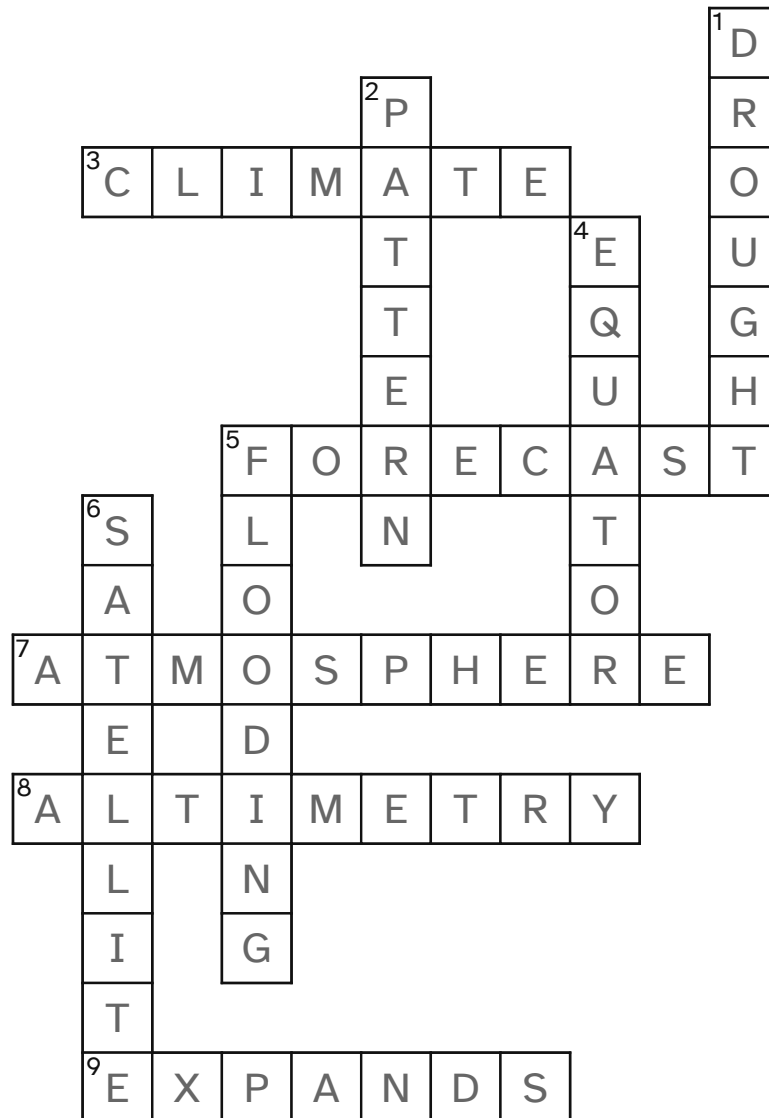
FORECAST

PATTERN

SATELLITE

Satellites Show a Strong El Niño Building in the Pacific

— answer key



ACROSS

- 3 Usual weather in a place over many years
- 5 Science-based prediction of later weather
- 7 Gases around Earth where weather occurs
- 8 Measuring a surface's height from space
- 9 Gets bigger when warmed

DOWN

- 1 Long spell with far less rain than usual
- 2 Repeated arrangement or way something happens
- 4 Imaginary line around Earth's middle
- 5 Water covering land that is usually dry
- 6 Device orbiting Earth that gathers information from space

Where this came from

This article was written for 3andB from the reporting below. It is not a reprint — the wording is ours and the facts are theirs.

NASA

“El Niño Then and Now”

Published Friday, October 23, 2026

Read by us on Friday, October 23, 2026

<https://science.nasa.gov/earth/earth-observatory/el-nino-then-and-now/>

WHAT IS IN THIS PACKET

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

COPYING AND REUSE

Free to print, copy and hand out for classroom use. Please keep this page with the packet, so the next teacher can see where the story came from.

More where this came from

If this short lesson worked for your class, our full workbooks go further with the same care:

- Complete units with student and teacher editions
- Worked solutions for every exercise
- Standards-aligned, classroom-tested, print-ready

See the full lessons at 3andB.com