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**BIOLOGY: ENDANGERED SPECIES**

# PANDA TRIPLETS!

**T**he world's only known surviving giant panda bear triplets were born in July at Chimelong Safari Park in southern China. Panda mothers can care for only one baby at a time, so the staff looked after two cubs in a nursery while one stayed with the mother. They regularly swapped the cubs so that each one could spend time with its mother. To increase the cubs' chances of survival, the staff collected the mother's milk to feed the two cubs in the nursery.

The staff's hard work is paying off. The trio were healthy at their one-month checkup. Megan Owen, a behavioral ecologist at the San Diego Zoo in California, had this to say about China's newest triplets, "To have three cubs surviving at this point is really incredible."  
—Jacqueline.



# VOLCANO WARNING

Can sensors help us predict volcanic eruptions?

Sometimes a volcano roars to life with little or no warning. That's what happened in late September when Japan's Mount Ontake belched toxic fumes and ash into the air, killing dozens of hikers. Other volcanoes, like Iceland's Bardarbunga, give some warning of an impending eruption.

Scientists began getting clues that Bardarbunga was stirring to life weeks before it erupted this August: Sensors had detected rumblings in Earth's crust nearby. Despite the warning, no one knew if the recent eruption would become dangerous.

Back in 2010, ash from a volcano in Iceland grounded thousands of airplanes—stranding millions of passengers. Since then, scientists have begun closely monitoring Iceland's 30 active volcanoes.

So far, there's no reliable way to predict when or where on Earth

the next big eruption will occur. Scientists from a project called FutureVolc, which is monitoring Iceland's volcanoes, want to change that. "We hope to develop better warning systems all over the world," says earth scientist Aoife Braiden.

## WHAT LURKS BENEATH

Iceland's explosiveness results from the structure of the earth beneath it. "The geology in Iceland is quite complex," says Braiden. The island nation sits on the Mid-Atlantic Ridge, a border between two tectonic plates that are gradually sliding away from each other. *Magma*, or liquid rock, pushes through the cracks between them and oozes to the surface as *lava*.

Most of the Mid-Atlantic Ridge runs along the bottom of the Atlantic Ocean. Lava that emerges there hardens into new seafloor. But where the ridge cuts across Iceland,

lava erupts from volcanoes on land.

Additionally, Iceland is situated on a *hot spot*, an area where heat wells up from deep within the planet. That heat melts rock into magma, making the country one of the most volcanically active regions in the world. That makes Iceland an ideal place to study volcanoes.

## GATHERING CLUES

Most volcanoes give warning signs before they erupt. But these signs have been hard to measure since it's dangerous to work near a volcano. New tools are helping scientists study volcanoes remotely.

FutureVolc is looking for signs of activity using high-tech sensors that they've placed near volcanoes all over Iceland (see "Volcano Tracking," right). Sensors near cracks in Earth's crust can detect gases that could indicate the movement of magma beneath the





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**CORE QUESTION**

How could sensors help scientists predict volcanic eruptions?

surface. Sensors on rocks can detect the crust rising before an eruption. Others can measure vibrations that pulse through the crust during earthquakes. "Earthquakes within a volcano are often the first sign that it's coming alive," says Braiden.

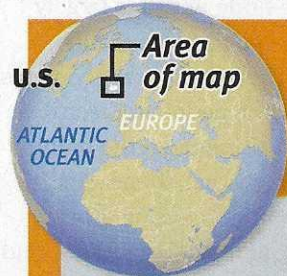
Data from the network of sensors may someday help scientists figure out which volcano could erupt next.

**FOR SAFETY'S SAKE**

Still, scientists may never be able to predict exactly when a volcano will erupt, says Braiden. That's why FutureVolc is also studying how ash spreads during an eruption.

"If humans and animals breathe in the ash, it can damage their lungs," says Braiden. Ash also can pollute lakes and rivers.

The more information scientists can gather on volcanoes now, the better everyone can prepare for the next big boom. ✨ —Maggie Mead



**VOLCANO TRACKING**

Sensors all over Iceland monitor activity that could signal a coming eruption.



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