

From VOA Learning English, this is Science in the News. I'm Avi Arditti.

And I'm Faith Lapidus. Today we tell you what natural event was found to be as loud as a strong earthquake. We also tell about mysterious and powerful radio signals that scientists say have come to us from far away. But first, we tell how free computer software can help with studies of animal populations.

Researchers have developed software that can listen to recordings of a forest and tell us what animals are there. More importantly, the software can show what animals are not there. This new technology is available on the Internet, and free for anyone to use.

Here is a recording of a rainforest in Puerto Rico. Listen closely, and try to count how many frogs you hear.

You probably had trouble counting the frogs. One of those animals -- the one making the really high-pitched chirp -- is endangered. It is called a Plains Coqui.

Thousands of species die out each year. Scientists want to know how climate change and land development are affecting animals like the Plains Coqui. But how can scientists know how many species are disappearing if they do not know how many there are?

New software can help them. It is called the Automated Remote Biodiversity Monitoring Network, or ARBIMON.

“It’s a generic system to monitor biodiversity.”

That is Mitchell Aide of the University of Puerto Rico. He is one of the leaders of the ARBIMON team. They hope the software program will help environmentalists study creatures worldwide.

“The software is set up for the user to use it for whatever species they’re interested in. It could be snapping shrimp, or whales, or it could be frogs or insects or monkeys.”

Researchers place small, low-cost recording equipment in the rainforest. The equipment makes a recording every 10 minutes. The recordings are sent immediately to a central computer.

The scientists direct the computer to recognize the sounds of different animals. They then use the software program to examine tens of thousands of recordings in less than an hour. The software can identify which animals are in the rainforest and which are not. It can also show which ones are making sounds when, and which are not.

For example, when researchers studied five years of recordings from Puerto Rico, they found that the Plains Coqui called less and less over four years. This could have been evidence that the frogs were in danger. But in the fifth year, the frog sounds returned to earlier levels. This information about what appears to be the frog population's natural rhythm would not have been available without a long-term study.

The team now has recording stations in Hawaii, Arizona, Costa Rica, Brazil and other places. Mitchell Aide says that over months, or even years, scientists can build a "sound picture" of the area and what lives there.

“We’re creating a permanent record. In a sense, each recording is the equivalent of a specimen in a museum. We’re going to archive these recordings so anybody can have access to `em today, or in five years, or in 20 years, and go back and say, ‘You know, what were the sounds like in this forest, in this city, on this island, you know, 15, 20 years ago?’”

The ARBIMON software and its collection of sounds are available to everyone at [arbimon.com](http://arbimon.com).

Human-made sound on the high seas may interfere with the ability of sea creatures to use sound effectively for guidance and communication. Researchers recently studied audio recordings made in the Antarctic Weddell Sea. They discovered that a melting iceberg can make a lot of noise, sometimes as much as a magnitude-4 earthquake.

Listen closely to this sound.

Some people might say that is a truck or a stringed instrument like a double bass. But it is an iceberg pushing slowly against the sea floor.

“The iceberg is essentially scraping along and more or less resonating, kind of like a tuning fork.”

That is Robert Dziak of Oregon State University. He led a study of underwater noises around the Antarctic Peninsula, the northernmost part of the southern continent. He and his team of scientists recorded the sounds of an iceberg being born, as it separated from the ice of the mainland.

“We saw it from the beginning, the birth of the iceberg, to its actual eventual death, for lack of a better word.”

Mr. Dziak believes this is the first time anyone has listened to a single iceberg for all of its life. And he says what his team heard when the iceberg floated into the warmer Scotia Sea was surprising.

“As it begins to enter warmer water, it begins to melt. And it can melt catastrophically. The sound of this iceberg breaking apart was an incredibly loud sound, equivalent to several hundred supertankers in noise levels.”

Mr. Dziak says that is as loud as a small earthquake -- loud enough to be heard all the way up to Earth's equator.

The oceanographers wondered if this much noise could be a problem for sea animals. Many of them use sound to travel, communicate and find food. Chris Clark is a bioacoustician at Cornell University. He studies the effect of underwater sound on ocean life.

"Whales, and fishes, as a matter of fact, and now even all the invertebrates, like the lobsters and the shrimp and crabs and things like that, are all paying attention to sound. So there's been this increasing awareness and concern about "Oh noise in the ocean." Is it good, is it bad, are we indifferent, what's going on?"

There are more and more human-created sounds in the ocean, from increased shipping traffic, seismic testing and sonar equipment. Researchers are finding that the sounds are affecting sea creatures.

Chris Clark says the noise can make it impossible for animals to hear the things they need to hear.

“We refer to it as acoustic bleaching. It’s as though suddenly there’s a big fog bank that just comes into where you’re living and suddenly you can’t see very far, only in this case the fog bank is noise.”

Chris Clark says temporary, natural sounds, like an iceberg breaking apart, may be as loud as an earthquake. But he says they are probably not as harmful to marine life as manmade sounds.

“It’s one thing to have evolved over 5 or 6 million years in a world that’s dynamic, with storms, with ice. The human-generated noise in the ocean is so chronically persistent, it’s now a real concern, and it dwarfs collective noise generated by icebergs.”

This is a time of warming oceans. Researchers say climate change may lead to more polar ice breaking apart, and making sounds as loud as earthquakes, in the Southern seas.

An international team of astronomers recently reported discovery of four powerful radio bursts. The astronomers think the radio signals may have come from halfway across the universe. They have a few theories about what might have produced the signals, but none of these theories have anything to do with strange, alien civilizations.

Astronomers observed a mysterious radio pulse coming from outside our solar system in 2007. Scientists had no idea what it was.

So a group of astronomers decided to study the skies with a radio telescope. They searched for pulsars, neutron stars or parts of stars that had exploded.

Dan Thornton was the head of the group. He works for Australia's Commonwealth Scientific and Industrial Research Organization and the University of Manchester in Britain. He wanted to investigate the mysterious and powerful radio bursts. He also wanted to know if more were still being produced, where they came from and what would cause them.



Dan Thornton says he and his team found more of these radio bursts as they examined the skies. And they learned that the bursts were real and not just common radio interference.

“What we’ve discovered is very, very narrow radio emissions, so very short lived. They only last for a few milliseconds. The main thing that is interesting about them is that they appear to be coming from across the universe, so extremely far away. We get lots of these radio emissions a bit like this from our own galaxy, from pulsars. But these appear to be coming from way, way outside our galaxy, a million times further away.”

He says his team measured only four of the radio pulses over a one-year period because they were studying only small areas of the sky at one time. He says it will take a few more years to complete the entire sky survey. He says it is likely that thousands more of these signals will be discovered.

The astronomers are not completely sure about the cause of these radio bursts. But they think they could be the result of some major cosmological event that took place billions of years ago. Mr. Thornton says astronomers need to continue their investigations to better identify the source and cause of the radio bursts. One thing he is sure of is they are not coming from strange life forms.

His team says their research should help us learn more about space between the Earth and where the bursts took place. They say they hope to use the radio bursts to better understand some of the missing matter in the universe.

A report on the study was published in the journal Science.

This Science in the News was written by Christopher Cruise. Our producer was June Simms. I'm Faith Lapidus.

And I'm Avi Arditti. Join us again next week for more news about science on the Voice of America.