

# Earthquake Predictors

Since 373 BC when the ancient Greeks first noted that rats, weasels, snakes, and even centipedes fled the city of Helice days before the earth violently shook, people have believed that animals are able to predict earthquakes. When the Tsunami of 2004 devastated the countries along the Indian Ocean, it took the lives of hundreds of thousands of people, but animals fared remarkably well. The Chinese have long believed dogs and cats are able to predict quakes. In 1975, the city of Haicheng was evacuated days in advance of an earthquake based on the behavior of dogs and cats. An estimated 150,000 lives were saved. Stories like these lead many to believe that animals have some kind of sixth sense.

Many scientists are still skeptical about the ability of animals to detect earthquakes. It's difficult to test and prove in a scientifically controlled environment. Most evidence for this phenomenon comes from anecdotes. People recall that their dog or cat had behaved strangely before an earthquake hit. The problem scientists have with that is, dogs or cats may act strangely at any given time. People take special note of it only after the fact, because a very memorable earthquake followed.

Scientists who do believe animals can sense earthquakes don't always agree on the animals' "method." Are they picking up electromagnetic waves the earth emits before a quake? Are they smelling gases? Can they feel early tremors too subtle for our senses? How do they know?

A recent scientific study, conducted by Dr. Stanley Coren, author of many books on dog communication, found that some dogs can indeed detect an earthquake, and he believes he has determined how they do it, as well. They are using their remarkable sense of hearing. He presented his findings this past November at a Psychonomic Society meeting in Houston.

There were 193 dogs in this study done at the University of British Columbia in Vancouver, Canada. An earthquake, with an epicenter in the Seattle area, caused shaking and damage in Vancouver. Twenty-four hours prior, half the dogs showed an increase in activity and anxiety. Fourteen of the dogs in the study were hearing impaired, and only one of them had an increase in anxiety. However, because this hearing-impaired dog was with a hearing dog that became anxious, it's likely he was picking up on the other dog's anxiety.

Dr. Coren believes that the dogs' ability to hear at extraordinarily high frequencies allows them to pick up on the high-pitch sounds of rocks scraping and breaking beneath the earth, an event that precedes earthquakes. This idea was further supported by the finding that the dogs with floppy ears did not react as much as dogs with pointy ears. Floppy ears tend to block high-pitched sounds. Dogs with smaller head sizes were also better at picking up the sound than dogs with larger heads. It's the same with other animals – elephants pick up low-frequency sounds well, while bats are better attuned to high frequencies.

So why do dogs become agitated when they hear rocks scraping underground? Do they understand its meaning? Do they know danger is imminent? Dr. Coren says no. It's more likely that the sound to them is like nails on a chalkboard and they want to get away from it.

This could at least partially explain why animals survived the Tsunami, which was caused by an earthquake in the Indian Ocean. Although it's likely there was also other sensory input that caused the animal exodus, it's possible that those able to pick up on the initial high-frequency sounds fled from the ocean, and those that couldn't, took their cues from the ones fleeing.