

Predicting quakes is still just a dream

by Scott LaFee

Late in December, an earthquake rumbled beneath southern Taiwan, damaging undersea cables and temporarily disrupting communications throughout Asia.

Across the Formosa Strait at the Chinese earthquake bureau in Nanning, researchers announced that they had observed "erratic behavior" in snakes prior to the temblor. The observations fit nicely into their hypothesis that snakes - and possibly many other animals - are able to sense impending quakes up to five days before they happen.

Unfortunately for humans, who seem to lack this particular power of perception and prognostication, the Chinese researchers reported their snake observations two days after the Dec. 26 Taiwan quake.

The ability to predict earthquakes is obviously a good thing. Or would be, if it were possible. It might not be. The variables involved are so numerous, so great and so often incomprehensible that it's unlikely that science will ever get beyond a kind of best-guess pattern of probability. It may be small comfort to know that a major Southern California temblor occurs along the San Andreas fault every 150 years or so (the last time was 1857), but that might be as good as it gets.

Still, people persist in claiming to know more than they do.

In China, earthquake prediction research rests substantially upon the notion that earthquakes are generally presaged by foreshocks, changes in ground-water levels and strange animal behaviors.

In 1975, the China State Seismological Bureau successfully predicted the Feb. 4 Haicheng temblor (magnitude 7.3), ordering the evacuation of 1 million people the day before the earthquake.

The next year, however, it failed to predict the July 28 Tangshan quake (magnitude 7.8), which killed at least 242,419 people.

More recently, Vladimir Keilis-Borok, a geophysicist at the University of California Los Angeles, and colleagues predicted a moderate quake would strike within a 12,000-square-mile area of Southern California in September 2004.

They put the odds at 50-50.

Nothing happened.

Myths abound about quakes and their predictive signs.

Unlike humans, some animals are able to detect the ultrasonic P-waves that precede a quake's more destructive, ground-contorting S-waves. But the reality is that the evidence showing animals can detect quakes before they hit is scant and inconsistent. Very often, they seem as surprised as the rest of us.

Despite the popular mythology, big earthquakes don't invariably occur in the morning. The 1940 Imperial Valley quake, for example, occurred at 9:36 p.m.; the 1989 Loma Prieta temblor at 5:02 p.m. Both were major temblors.

Likewise, there's no such thing as "earthquake weather." Earthquakes take place miles below the surface, far beyond the influence of temperature, wind and relative humidity.

For an earthquake prediction to be truly useful, it must contain key elements. It must identify the specific area to be affected within a specified period of time. It must accurately estimate the magnitude of the seismic event. It must fare reasonably against random chance. It must be based upon sound science.

So far, that hasn't happened. Earthquake prognosticators are generally vague about the details of their predictions - with good reason. But for those who want to know, who need to know, here's my earthquake prediction: This week, there will be a magnitude 6 quake somewhere in the world. And today, somewhere in California, there will be a magnitude 3 quake.

I know this because these things happen every week, every day.

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