

China's Changbaishan volcano showing signs of increased activity

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Roughly 1,100 years ago, the Changbaishan volcano that lies along the border between northeastern China and North Korea erupted, sending pyroclastic flows dozens of kilometers and blasting a 5-kilometer (3-mile) wide chunk off of the tip of the stratovolcano.

The eruption, known as the Millennium eruption because of its proximity to the turn of the first millennium, was one of the largest volcanic events in the Common Era. In the subsequent period, there have been three smaller eruptions, the most recent of which took place in 1903. Starting in 1999, spurred by signs of resumed activity, scientists established the Changbaishan [Volcano Observatory](#), a network to track changing gas compositions, [seismic activity](#), and ground deformation. Reporting on the data collected over the past 12 years, Xu et al. find that these volcanic indices each leapt during a period of heightened activity from 2002 to 2006.

The authors find that during this brief active period, earthquake occurrences increased dramatically. From 1999 to 2002, and from 2006 to 2011, they registered 7 earthquakes per month using 11 [seismometers](#). From 2002 to 2006, this rate increased to 72 earthquakes per month, peaking in November 2003 with 243 events. Further, tracking the source of the earthquakes, the authors tie the bulk of the events to a region located 5 kilometers (3 miles) beneath the volcanic caldera, a source that slowly crept upward throughout the study period, suggestive of an ongoing magmatic intrusion. [Gas composition](#) measurements collected from hot springs near the volcano showed spikes in carbon dioxide,

hydrogen, helium, and nitrogen gases, which the authors suggest could be related to magmatic outgassing. [Ground deformation](#) studies, too, show a brief period of rapid expansion.

The authors suggest that though Changbaishan is likely not gearing up for an imminent eruption, one could be expected in the next couple of decades.

More information: Recent unrest of Changbaishan volcano, northeast China: A precursor of a future eruption? *Geophysical Research Letters*, [doi:10.1029/2012GL052600](https://doi.org/10.1029/2012GL052600) , 2012

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