

Possible underground collapse of the summit crater of Fuji Volcano in 1987

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Abnormal earthquakes were felt four times only at the summit of Fuji Volcano during August 20-27 in 1987. Their intensities were 1-3 in JMA scale and did not cause any damages of buildings and climbers despite a season for climbing. Although no seismometer was installed in the summit meteorological station, the source of the earthquakes was estimated to be just beneath the summit crater of Fuji Volcano, based on the records of high-sensitivity seismometers around the volcano. In this study, we collected and analyzed photographs and eyewitness evidence for surface ruptures of the summit crater in and near the period of the earthquakes. We found a series of evidence for a round depression with diameter of ~50m and depth of ~30m on the inner slope of the summit crater. Comparing several photographs taken in different time, the depression is determined to be generated in the middle 1980s but before the earthquakes. Despite no strict coincidence between the depression and the earthquakes, both phenomena are likely to be caused by an underground collapse of the summit crater, because there are no other records of such earthquakes and depressions since the beginning of continuous observation at the summit meteorological station since 1933.

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