Kuchinoerabujima volcano is located at Ryukyu Islands, South off Kyushu. The active crater is Shindake crater and the geothermal area is located at the western part of the crater. Historical records of eruption at Kuchinoerabujima started in 1841. Since then, several eruptions occurred in Shindake crater in 1931-1934, 1945 and 1966. Last eruption was occurred at the fissure, east of the summit crater in 1980. The eruptions were dominated by phreatic eruptions. After 1980's eruption, repeated significant increase of seismicity occurred in March-June 1996, August-December 1999, February 2004, January 2005 and July-November 2006.

Even though high-frequency (HF) events dominated the seismicity, most of the significant increase activity was usually preceded by the increase in the number of monochromatic events. Monochromatic events can be recognized from their unique waveform, especially their coda part which shows slowly decaying amplitude. Spectra of monochromatic events show more than one of sharp peaks of frequency appeared that may be caused by resonance of fluid-filled crack. Based on their dominant frequency, monochromatic events at Kuchinoerabujima are divided into high-frequency monochromatic (HFMC) and low-frequency monochromatic (LFMC) events.

Hypocenters of monochromatic events using P-wave first motion are located at depth of 0.0-0.4 km beneath the Shindake crater. Using polarities of P-wave first motion, HFMC events are generated by normal fault mechanism. Meanwhile, focal mechanism of LFMC events could not be determined due to polarity is dilatation components at all the stations. Other method, moment tensor analysis, is applied to determined mechanism of LFMC events.

At one of the repeated increase seismicity periods, July-November 2006 showed temporal change of frequencies of monochromatic events associated with the increase in volcanic activity at the volcano. In June, the lowest peak of frequencies varied from 2 to 12 Hz. Then, frequencies declined from 3 to 1 Hz in 3rd week of July. In August, number of monochromatic events increased significantly which 115 events recorded from 25 events in July. During the period frequencies tended to be stable at 1 Hz that may be caused by dimension of crack and or sound speed of the fluid was constant. After that frequencies gradually increased from 1 to 6 Hz in period of September - 1st week of November that can be interpreted sound speed of the fluid increased. Number of monochromatic events dropped from 75 events in September into 6 and 2 events in October and November, respectively. It was observed that the number of low-frequency (LF) events significant increased in October. After this episode, monochromatic event disappeared and the number of HF events increased in November. Corner frequencies of HF event became lower. At the end of the increase activity in December, monochromatic events appeared with frequencies fluctuated in range of 2-12 Hz and corner frequencies of HF events were relatively constant.