

Hunting mega-quakes -What we can and cannot find out from tsunami deposit-

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The giant tsunami of 2011 Tohoku was inundated into further inland and transported sand and mud from the coast. Such sand and mud are called tsunami deposit. Researchers have surveyed past tsunami deposits before the 2011 tsunami, and have revealed that the 869 Jogan tsunami had very large inundation in the Tohoku area. Because the inundation area was eventually almost similar between the 2011 and 869, studying past earthquakes and tsunamis (paleoseismology) came to be recognized in its importance for forecasting magnitude of tsunami. However finding out past phenomena beyond several thousand years is not easy. In this talk, I would like to introduce how to reconstruct the past earthquake and tsunami from historical records, tsunami deposits and coastal topography, including episode of field survey and relationship with society.

Keywords: great earthquake, tsunami, tsunami deposit, paleoseismology

Recent eruptions in Japan (review): past and future

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In late November of 2013, eruption started in Nishinoshima approximately 1,000km south of Tokyo, and the activity continued. Including this eruption characterized by gentle lava outflow, various types of eruptions occurred in Japan during recent decades. For instance, Shinmoe-dake (Kirishima) woke up with explosive pumice eruption in 2011 after a quiescent period of 300 years. Sakurajima repeats explosions every day. Miyakejima erupted with subsidence of the volcano peak area in 2000. Eruption at Unzen issued pyroclastic flows for several years in early 1990s. Except some people damaged directly by it, volcanic eruption itself fascinates people, and the resultant landforms, hot springs, and fertile plateaus bring blessings to people. Therefore, eruption activity is different from other natural hazards. In the volcanic belts surrounding the Pacific, such as Indonesia, Chile and so on, eruption activity in the Japanese Islands was very low in magnitude during these centuries. After the large earthquake on March 11, 2011 which caused a extensive crustal movement in the whole East Japan, seismic activity increased in several volcanoes in the East Japan including Mount Fuji. Volcanologists were worried about eruptions triggered. However, no volcanic eruptions were triggered during, at least, three years. Does an earthquake trigger volcanic eruption really?

In this lecture, I review recent major volcanic eruptions in and outside the Japanese Islands with their research results. In addition, I will mention on the possibility of large-scale eruptions near future, especially at Mount Fuji stopping eruption for these 300 years and at volcanoes that experienced caldera-forming eruptions in the past.

Keywords: volcanic eruption, Nishinoshima, natural hazards, triggering eruption, Mount Fuji, Caldera eruption