

## Giant Eruptions did not Frequently Occur in the Periods When Giant Earthquakes Frequently Occurred and *vice versa* after 1900

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It was found that, at least after 1900, giant eruptions (VEI4+) had not frequently occurred in the periods when giant earthquakes (MW 8+) had frequently occurred, namely, 1950-1970 and 2000 to the present, and vice versa. A reduced major axis for the logarithms of the annual seismic and eruption energies which were calculated by accumulating them for each decade was drawn with a correlation coefficient of -0.39. The coefficient value implies a weak but negative correlation between the giant earthquakes and eruptions. It was also confirmed that MW 8+ earthquakes did not occur just after and in the vicinity of the three VEI6+ eruptions after 1900, namely, Santa Maria in 1902, Novarupta in 1912 and Pinatubo in 1991. It is well known that the VEI5 eruption of St. Helens in 1980 was just after the MW 5.1 earthquake, however, VEI6+ eruptions did not occur just after and in the vicinity of the MW 8+ earthquakes. MW 8.8+ earthquakes are of course located on the subduction zones around the Pacific Ocean. It seems that the location of the epicenters is basically exchanged between Peru-Chile Trench and such trenches as Aleutian, Kuril-Kamchatka and Japan. It irregularly flies to Java Trench. The epicenters seem to be too sparse to consider that they are mechanically related with each other. It was found, however, that the epicenters of the five MW 8.8+ giant earthquakes and the three VEI6+ eruptions between 1900-2011 and five of the six VEI7+ eruptions since 6440BC (except for Santrini in 1610BC±14) as well as the major subduction zones were located along a great circle. Stress change can not be released by expansion or shrinkage on a great circle and it can affect to seismicity and volcanic activities on the whole great circle. Further considerations are required, however, the great circle would be the key to understanding the mechanism of the global scale interaction between giant earthquakes and eruptions on the subduction zones.