

Can Climate Change Predict and Trigger the Earthquake Activity?

It is very correct that earthquakes are associated with different tectonic, physical, astronomical, climatic and other events. The earthquakes results from geodynamics which produced by earth's stress field and that is a process of Earth's living with the Sun and other celestial bodies and the climate results from the same living. One general connection between climate and the earth's stress field is that climate change may lead to increased erosion with mass redistribution. That such mass redistribution may increase the probability of stress release in a pre-stressed domain. That would happen because the mass or stress unloading due to erosion decreases the overall or principle stress in the system which may have been just high enough to stabilize the system before the unloading. Mohr's circle of stress analysis would be the physical context behind this. And, in addition, deglaciation could be a significant factor: it decreases lithostatic loading with less stabilization. And, fluids in a stressed system always play a role, as they influence relative stresses. The lithosphere is very close connected with the atmosphere. There is relationship between precipitation and earthquakes on the short-term scale, and between solar irradiation and stress field in the upper crust.

Primary author: SIMANJUNTAK, Andrean (Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG))

Presenter: SIMANJUNTAK, Andrean (Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG))

Track Classification: Theme 1. The Earth as a Complex System