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Detection of the Earthquake Swarm of the 2013 Solomon Islands M8.0 Earthquake at Santa Cruz Islands

An earthquake swarm is a series of seismic events that occur in a local area over a short period of time. For a cluster of moderate earthquake activities of the earthquake swarm to have occurred within few days before the main shock is unusual in the Solomon Islands seismic activities from past historical seismic data records. However, before the M8.0 earthquake that triggered a tsunami on the 6th of February in 2013, clusters of earthquake swarms were detected for more than a week. These clusters of earthquakes were analysed to be between magnitudes of 4.0ML to greater than 6.0ML. Therefore, this study is to investigate the occurrence, the analysis and the interpretation of the earthquake swarm that had occurred before the main shock of the M8.0 at Santa Cruz Islands in the Solomon Islands. The aim of these findings is to determine the earthquake activities that cause the clusters of the earthquake swarms from these three main factors of phenomena, which is the fluid movements, the volcanic magma and the slow slip event of the fault. Earthquake activities are taken from the USGS seismic data and will also use the ORSNET seismic data for assistance from this observation.

E-mail

bwaokahi@mmere.gov.sb

In-person or online preference

Primary author: Ms WAOKAHI, Belinda (Ministry of Mines, Minerals and Rural Electrification)

Presenter: Ms WAOKAHI, Belinda (Ministry of Mines, Minerals and Rural Electrification)

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