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Aftershock Analysis and its Relation to Active Fault in Mataram City Study Case of Lombok Earthquake August 2018

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An earthquake is a geological event that results from the movement of the tectonic plates. During the event after the main earthquake (mainshock) will be followed by aftershock in a certain period of time. This study will discuss the analysis of aftershock earthquakes that occur in the 2018 Lombok Earthquake using micro-earthquake data (microsesimicity). This research is interesting because it is necessary to have an active fault map in the Mataram City, using micro-earthquake data (microsesimicity) so that it can help provide information on subsurface structures that indicate active structures. The research method uses data from 919 aftershock earthquakes from 5 August to 5 September 2018 with a magnitude of 1 to 4 on the Richter Scale, then using the Digital Elevation Model (DEM) and regional geological maps of the Lombok. Spatial analysis was carried out on areas of morphology whose structure was clearly visible and applied to Mataram City that have cover by loose sediments. Based on the results of data analysis it was found that there was an intensive concentration of earthquake points, this indicates that there is an active structure that controls it, which occurs in the northern part of Mount Rinjani and in Mataram City. The results of the lineament pattern that is made show that the active thrust fault directed NNW-SSE and the decstral shear fault with E-W direction.

Keywords: Aftershock, Lombok, Fault, Microsesimicity.

Biography

Leonardo Manurung was born on July 12, 1998 in Pekanbaru. In 2015 he has earned the medals of win 3rd place in Geology Olympiad in Riau, Indonesia. After graduating in 2016 from Pekanbaru 8 High School, he immediately went to Yogyakarta, studied at Gadjah Mada University with a Geology Engineering major and until now he is still a 6th semester student. Now he is an assistant of laboratory Geophysics exploration and Petrology, his research focuses on Environmental Geology, Geothermal and Petrogenesis of Rock.