

## Seismic Activity in the Lake Kivu Basin: Implication for Seismic Risk Management

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**Abstract :** The Kivu Lake Basin is located in the Western Branch of the East African Rift. In this basin is located a multitude of active faults, on which earthquakes occur regularly. The most recent earthquakes date from 2008, 2015, 2016, 2017 and 2019. The cities of Bukabu and Goma in DR Congo and Giseyi in Rwanda are the most impacted by this intense seismic activity in the region. The magnitude of the strongest earthquakes in the region is 6.1. The 2008 earthquake was particularly destructive, killing several people in DR Congo and Rwanda. This work aims to complete the distribution of seismicity in the region, deduce areas of weakness and establish a hazard map that can assist in seismic risk management. Using the local seismic network of the Goma Volcano Observatory, the earthquakes were relocated, and their focus mechanism was studied. The results show that most of these earthquakes occur on active faults described by Villeneuve in 1938. The alignment of the earthquakes shows a pace that follows directly the directions of the faults described by this author. The study of the focus mechanism of these earthquakes, also shows that these are in particular normal faults whose stresses show an extensive activity. Such study can be used for the establishment of seismic risk management tools.

**Keywords :** earthquakes, hazard map, faults, focus mechanism

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