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Seismicity and Morphometric Studies In North Sudan

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Sudan is classified as an area of moderate seismic activity. The main objective is to study the seismic activity and estimate the morphometric aspect of the North locality. A unified Mw earthquake data for the period between 1906 to 2016 was used to construct the seismicity map. The areal distribution of the earthquake illustrated the concentration of the earthquakes in the eastern part, A Pie chart of magnitude and depth was created, the earthquakes' depth is between 2.6 and 40 km representing that earthquakes are of a shallow type. The increase of seismic activity in the study area motivated the researcher to construct the normalized water index and quantitatively assess the morphometric parameters (linear, relief and areal). The drainage patterns show eight stream orders. The logarithmic plots indicated that there is an inverse relationship between the number of streams and their Length. The earthquake data were superimposed on a normalized difference water index map and surface drainage density map to display the weak zones. The result indicates GIS techniques and DEMs data are competent for characterizing the morphometric aspect. This study will help decision makers, the governmental sector and local communities to avoid the environmental impact.

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