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## The Seismicity of the Eastern Cape Province

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The most important requirements to the study and understanding of seismicity in any region is through the accurate location of earthquakes within the area of interest. Earthquake bulletins compiled from routine seismic analysis basically forms the basis of this research. These bulletins in principle consist of phase information (most often body-wave travel-time readings) observed at different seismological stations. These observations are then reduced to earthquake locations (epicenters). The principle aim of this study is re-evaluating the phase readings and location of the instrumentally recorded earthquakes in the Eastern Cape Province of South Africa during the period 1970 to 1979.

The phase readings mentioned above are detected from the seismic stations built in an area depending on how quiet the local conditions are, the lower the background noise from human and natural resources such as traffic, the more likely the station will be able to detect earthquake signals. The phase information was typed in as digital record, to re-locating the event using seisan earthquake analysis software.

In the Eastern Cape I used local and regional earthquakes to enter phase readings manually locating events, editing events, azimuth of arrival from a single component stations and plot epicenters. Using this program you are able to search the data base for particular events without extracting the events. In addition, secondary seismic phases will be determined through a ray-tracing technique to better restrain earthquake depths in the region. A uniform magnitude scale will be adopted and the focal mechanism of the largest earthquakes determined where sufficient phase readings are available. The resulting database will be used to ascertain whether the recorded seismicity can be related to existing geological lineaments and tectonics in the Eastern Cape.

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