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Assessment of the Response of Seismic Refraction Tomography and Resistivity Imaging to the Same Geologic Environment: A Case Study of Zaria Basement Complex in North Central Nigeria

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Abstract : The study area is Zaria, located in the basement complex of northern Nigeria. The rock type forming the major part of the Zaria batholith is granite. This research work was carried out to compare the responses of seismic refraction tomography and resistivity tomography in the same geologic environment and under the same conditions. Hence, the choice of the site that has a visible granitic outcrop that extends across a narrow stream channel and is flanked by unconsolidated overburden, a neutral profile that was covered by plain overburden and a site with thick lateritic cover became necessary. The results of the seismic and resistivity tomography models reveals that seismic velocity and resistivity does not always simultaneously increase with depth, but their responses in any geologic environment are determined by changes in the mechanical and chemical content of the rock types rather than depth.

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