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## and Implementation of Multi-Redundant Seismic Data Transmission with VSAT and GSM

The Meteorology, Climatology, and Geophysics Agency (BMKG) is an agency that has an obligation to present earthquake data to the people of Indonesia. The earthquake data presented is obtained from 507 earthquake sensor sites spread throughout Indonesia. Earthquake data from all sensor sites is sent to servers located at the BMKG Center in Jakarta and the BMKG in Bali. Data transmission is carried out using an intranet network with a local IP address through VSAT communication and using the VPN protocol as an intermediary to access the internet network when using GSM communication. From experience, there are sometimes interruptions in both GSM and VSAT communication modes so that data cannot be sent to the server. To eliminate risks and improve data quality in terms of reliability and data availability, a multi-redundant communication system is designed to send seismic data to the server using VSAT and GSM communication at seismic sensor sites that have been covered by GSM cellular signals.

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