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of anisotropy of magnetic susceptibility fabrics and magnetic data analysis to determine the Stress analysis and tectonic trends of Southern Eastern Desert, Egypt.

In our present research, we have analysed and interpreted the aeromagnetic data and anisotropy of magnetic susceptibility (AMS) fabrics to highlight the structure and tectonic settings of the study area. We used horizontal gradient and tilt derivative to identify deep sources and faults. We applied the Euler Deconvolution technique to provide reliable information. The results indicated significant variations in the magnetic properties across different regions, suggesting complex geological formations. Furthermore, the findings contributed to a better understanding of the tectonic evolution of Egypt, highlighting areas of potential mineral deposits and seismic activity. 93 rock samples were collected from 10 sites. The study found that the main stress and tectonic trend is NE-SW in the south-eastern desert of Egypt. The results align with previous stress directions from geological, seismological, and tectonic analysis. This alignment indicates a consistent geodynamic regime that has shaped the region over millions of years. Additionally, understanding the tectonic behaviour of the south-eastern desert may also provide valuable information for assessing potential risks associated with future seismic activities. This knowledge is crucial for enhancing preparedness and mitigating the effects of potential earthquakes in this geologically active region.

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