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Paleo-latitude and paleo-azimuth of northeast Africa during the Cretaceous- Paleogene: A paleomagnetic study on the Lower Cretaceous alkaline ring complexes in Mishbeh area [142 Ma] and the late Oligocene basalt [25 Ma] in Shelatin area along the Red Sea coast, south Eastern Desert, Egypt

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The progressive thermal demagnetization of the acquired three-axis isothermal remenant magnetization [IRM] revealed that most sites are, reasonably, fresh with magnetite being the main remanence carrier with little contribution of goethite and/or hematite.
The progressive stepwise thermal demagnetization of the natural remanence of the magnetite-dominated sites was, overwhelmingly, bivectorial. After the early decay of a goethite-residing present-day field overprint, a characteristic higher blocking temperature [Tb <590°C] magnetite-residing anchored component decays. The characteristic remanence direction [N=19 sites] of the Lower Cretaceous [141-143 Ma] Mishbeh area ring complexes [22.7°N/34.75°E] was bipolar and passed the reversal test at 95% confidence. The mean paleomagnetic north pole was at 46°N/258°E [A95=6.3°]. On the other hand, the characteristic remanence [N=13 sites] of the late Oligocene [25Ma] Shelatin basalt [23°N/35°E] was reversed. The mean north pole was at 81.6°N/173°E [A95=8.6°] in the tilt- corrected coordinates. These paleopoles are in general accordance with their coeval poles rotated from the North American and European Cratons as well as those from South America, Australia and Africa.
According to the Mishbeh ring complexes pole, in the Lower Cretaceous [142Ma], northeast Africa was just south of the Equator, as Cairo [now at 30°N] was at 3°S. Africa was, also, about 30° clockwise with respect to its present azimuth. By the late Oligocene [25Ma], Africa moved about 26° of latitude, as Cairo became at paleo-latitude 23°N, that is 7° south to its present-day latitude. Synchronously, Africa rotated anticlockwise about 35° to become about 5° anticlockwise to its present azimuth.