

100-kyr variations in geomagnetic field and orbital eccentricity

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Recent paleomagnetic studies reported long variations of geomagnetic field, whose time scales are close to the Earth's orbital elements. We here investigated one of the time scales, 100 kyr. In order to clarify the relationships between the geomagnetic field and the eccentricity, we extracted their 100-kyr variations and calculated correlation coefficients. We found a high correlation between the variations of geomagnetic vertical component and a derivative of eccentricity. This implies that a change of eccentricity can excite the geomagnetic field.