

Effects of the geomagnetic secular variation and the paleomagnetic error on the mean direction

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Geomagnetic directions (D, I, etc.) obtained from paleomagnetic studies have nonlinear relationships to Gauss coefficients and can be expanded by Taylor series. We evaluate the effect of the variances of Gauss coefficients on the mean direction to be observed. The effect from the reasonable value of the secular variation on inclination is about few degree at the geomagnetic middle latitude. We also discuss the effect of the paleomagnetic observational errors on the mean direction, and suggest that these effect can be remove by averaging the direction with Fisher distribution not for VGP but for paleodirection.