Study on the Representation of Geomagnetic Disturbances by using Magnetic Potential Function

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For space weather study, we develop a new evaluation function for fitting magnetic potential function to geomagnetic disturbances observed at CPMN stations. In the most of past studies, magnetic potential function had been made by using pair of D,Z or H,Z, and/or H,D components of observed geomagnetic field variations. However, it is very difficult to fit remaining component of observational value to that of automatically determined value from this magnetic potential. To avoid this problem, we develop a new evaluation function using all observational components of H,D, Z. By minimizing this evaluation function, we can determine the magnetic potential function, which can successfully reproduce all components of magnetic field variations within a certain rage of approximation.