

STUDY ON DISTRIBUTION OF HORIZONTAL GRADIENT OF GEOMAGNETIC FIELD IN CHINA USING THE SURFACE SPLINE METHOD

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Based on geomagnetic data of 157 geomagnetic sites (including repeat stations and observatories) in China and calculated from IGRF10 at 39 sites out of China for 2000.0, the geomagnetic models of the total intensity (F), the declination (D), the inclination (I) and their horizontal gradient were developed using surface Spline method. The distributions of F, D, I and their horizontal gradient in China 73-136°E 18-54°N were analyzed. The main results showed that F increased from south to north gradually and changed between 39081 and 60855 nT. D were negative in east of 100°E and positive in west of 100°E, which changed between -13.64 and 11.06 degree. I increased from south to north gradually and changed between 21.17 and 73.36 degree. There was a high positive value centre of the gradient of F in south-north direction in middle, which changed between 2.51 and 19.12 nT/min.. The gradient of F in east-west direction were negative in east of 100°E and positive in west of 100°E, which changed between -10.90 and 7.33 nT/min.. The gradient of D in south-north direction were negative in east of 100°E and positive in west of 100°E, which changed between -2.27 and 0.74 min./min.. The gradient of D in east-west direction were negative in most parts and changed between -1.23 and 0.50 min./min.. The gradient of I in south-north direction decreased from south to north gradually and changed between 0.66 and 2.55 min./min.. The distribution of the gradient of I in east-west direction were like saddle and changed between -1.00 and 0.55 min./min..

Geomagnetic field, horizontal gradient, surface Spline method

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