地球物理学报 2006 49 (2): 398-407 ISSN: 0001-5733 CN: 11-2074/P

论文

# 用曲面Spline方法表示1900～1936年中国（部分地区）地磁场及其长期变化的分布

高金田,安振昌,顾左文,韩炜,詹志佳,姚同起

1 中国地震局地球物理研究所，北京 100081 2 中国科学院地质与地球物理研究所，北京 100029

收稿日期 2004-8-2 修回日期 2005-11-4 网络版发布日期 接受日期

摘要 根据1936 0年426个地磁测点和28个IGRF计算的地磁数据，计算地磁场和地磁异常场各个分量的曲面Spline模型，并绘制相应的地磁图和地磁异常图.依据我国部分地区的1909～1915，1915～1920，1920～1930，1930～1936年间地磁偏角长期变化图，1908～1917，1917～1922，1922～1936年间水平强度长期变化图和1908～1922，1922～1936年间垂直强度长期变化图，使用曲面Spline方法，分别计算上述9个时间段的磁偏角（ D）、水平强度（H）和垂直强度（Z ）长期变化的曲面Spline模型，并绘制相应的长期变化图.根据这些长期变化模型，将1936 0年426个点的三分量绝对值数据归算至1940，1930，1920，1910年和1900年，从而为计算这5个年代的地磁场模型奠定了坚实的基础.

关键词 地磁数据 地磁场 地磁场长期变化图 曲面Spline 中国

分类号

**DOI:**

## Distributions of the geomagnetic field and its secular variations expressed by the surface Spline method in China(a part) for 1900～1936

GAO Jin Tian, AN Zhen Chang, GU Zuo Wen, HAN Wei, ZHAN Zhi Jia, YAO Tong Qi

1 Institute of Geophysics, China Earthquake Administration, Beijing 100081, China 2 Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 1000 29, China

Received 2004-8-2 Revised 2005-11-4 Online Accepted

**Abstract** Based on geomagnetic data of 426 geomagnetic sites and calculated from IGRF at28 sites for 1936 0, surface Spline models for various components of the geomagnetic field and geomagnetic anomaly field are calculated, and the corresponding geomagnetic field charts and geomagnetic anomaly charts are drawn. According to the secular variation charts of geomagnetic declination D during 1909～1915, 1915～1920, 1920～1930 and 1930～1936, the secular variation charts of horizontal intensity during 1908～1917, 1917～1922 and 1922～1936, as well as the secular variation charts of vertical intensity during 1908～1922 and 1922～1936 in partial regions of China, the surface Spline models of secular variations are respectively calculated for the geomagnetic declination ( D ), the horizontal intensity ( H ) and the vertical intensity ( Z ) during the above mentioned 9 periods by using the surface Spline method, and the corresponding secular variation charts are drawn. According to these secular variation models, the absolute value data of three components at 426 sites for 1936.0 are reduced to 1940, 1930, 1920, 1910 and 1900 These data have laid a solid foundation for calculating the geomagnetic field models for these 5 epoches.

**Key words** Geomagnetic data; Geomagnetic field; Secular variation chart of geomagnetic field; Surface Spline; China

通讯作者:
gaojt2000@yahoo.com.cn
作者个人主页: 高金田;安振昌;顾左文;韩炜;詹志佳;姚同起