

论文

南极中山站与北极地磁活动相关性研究

胡红桥,刘瑞源,杨惠根,刘顺林

中国极地研究中心, 上海 200136

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摘要 本文利用南极中山站和新奥尔松(NAL)等5个北极站2000年9月到2003年3月共719天的地磁观测数据,以20 min间隔内地磁北向水平分量的互相关系数大于0.9为判据,对南北极地磁活动相关的发生率进行了统计,并与T89地磁模型得到的中山站共轭位置的分布进行了比较.结果表明,南北极地磁活动相关的发生率与台站位置、季节、地方时和地磁活动性有着密切的关系.在北极的5个台站中朗伊尔站(LYR)与中山站地磁相关的时间最多(占17%);在两分季发生相关的情况比冬季和夏季多;在傍晚发生相关的情况最多,中午发生相关的情况最少;地磁活动较强时,相关的情况比地磁宁静时更多一些.

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Cross correlations of geomagnetic field variations between Zhongshan and Arctic stations

HU Hong_Qiao, LIU Rui_Yuan, YANG Hui_Gen, LIU Shun_Lin

Polar Research Institute of China, Shanghai 200136, China

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Abstract The occurrence rates of the cross correlations of the inter_hemispheric geomagnetic field variations are studied statistically with the magnetic data observed at Zhongshan Station, Antarctica and at Ny_Alesund, Longyearbyen, Hopen Island, Bear Island and Tromso in the Arctic during Sept. 2000 to Mar. 2003, in which the criterion is that the correlation coefficient within sliding 20 min bin is larger than 0.9. It is shown that the occurrence rates of correlations of geomagnetic field variations between Zhongshan and Arctic stations are related to locations of the Arctic stations, season, local time and geomagnetic active level. Among the 5 stations in the Arctic, Longyearbyen is correlated most frequently with Zhongshan (17%), Ny_Alesund or Hopen take the second place. In the equinox, the occurrence rate of correlations is higher than other seasons. In the daily variation of the occurrence rate of correlations, there is a peak in the evening and a valley at noon. The occurrence rate of correlation increases as geomagnetic activities increase.

Key words [Antarctica](#); [Zhongshan Station](#); [Conjugate](#); [Geomagnetic activity](#); [Cross correlation](#)

通讯作者:

hhq@pric.gov.cn

作者个人主页: [胡红桥](#); [刘瑞源](#); [杨惠根](#); [刘顺林](#)

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