

论文

星内粒子探测器观测结果与辐射带模型的比较

邹鸿,陈鸿飞,邹积清,施伟红,肖佐,郝永强,吴中祥,向宏文,朱文明

1 北京大学地球物理系, 北京100871 2 中国空间技术研究院501总体设计部, 北京100086

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摘要 我们将资源一号卫星星内粒子探测器的观测数据与辐射带模式AE8/AP8的预测结果进行了对比,发现在南大西洋异常区的高能电子和质子的通量与辐射带模型的预测结果基本相同,而在两极极光带的电子通量比AE8模型预测的低得多.根据NOAA卫星的观测结果,可以认为这一差异主要是因为南大西洋异常区(内辐射带)和两极极光带(外辐射带)的粒子投掷角分布的差异造成的.在南大西洋异常区粒子倾向于各向同性分布,而在极光带粒子各向异性明显,投掷角接近90°的粒子通量比0°投掷角附近的粒子通量大得多.

关键词 [星内粒子探测器](#) [辐射带模型](#) [投掷角分布](#) [南大西洋异常区](#) [极光带](#)

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Comparison between the observation of the particle detector inside `ZY_1' Satellite and the model of the radiation belt

ZOU Hong, CHEN Hong Fei, ZOU Ji Qing, SHI Wei Hong, XIAO Zuo, HAO Yong Qiang, WU Zhong Xiang, XIANG Hong Wen, ZHU Wen Ming

1 Department of Geophysics, Peking University, Beijing 100871, China 2 Chinese Academy of Space Technology, Beijing 100086, China

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Abstract The observation of the particle detector inside `ZY_1' (CBERS-1) satellite is compared with the radiation belt models (AE8/AP8). It is found that the measurement in SAA (Southern Atlantic Anomaly) is in accord with the predictions by the models, while the measured electron flux is much lower than the prediction by the AE8 model in the regions of southern and northern aurora belts. According to the observation of NOAA-POES satellite, this difference is considered to be caused by the difference of the particle pitch angle distributions in SAA and the regions of the aurora belts. The particle's flux in SAA is inclined to be isotropic, while in the regions of the aurora belts it is obviously anisotropic where the particles distributed near 90° pitch angle are much larger than that distributed near 0° pitch angle.

Key words [Particle detector inside `ZY_1'](#); [Radiation belt model](#); [Pitch angle distribution](#); [SAA](#); [Auroral belt](#)

通讯作者:

derakzou@yahoo.com.cn

作者个人主页: 邹鸿;陈鸿飞;邹积清;施伟红;肖佐;郝永强;吴中祥;向宏文;朱文明

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