

## 东亚MLT区域平均纬向风再评估——WINDII测量分析结果

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**摘要** 本文利用1991年11月至1997年8月期间美国WINDII/UARS获得的风场测量数据对东亚上空纬向风进行考察. 研究结果给出了位于120°E 子午圈中90~120 km之间平均纬向风的典型结构及其季节特征, 与在武汉开展流星雷达探测结果进行比较的结果说明卫星测量分析结果在对季节特征的描述方面与地基测量有相当好的一致性; 较好的一致性还表现在与过去从HRDI/UARS数据中得到的月平均纬向风. 这些说明卫星探测结果有相当好的代表性. 与国际标准大气CIRA-86月平均纬向风开展比较的结果显示, 从100 km高度开始这两种卫星数据分析结果都与CIRA-86结果表现出严重偏离, 例如在赤道和低纬度地区某些高度, CIRA-86纬向风在全年的大部分时段中表现出与卫星数据分析结果风向不一致. 分析结果还显示WINDII纬向风和HRDI纬向风分析结果之间表现出一个幅度约20 m·s<sup>-1</sup>的系统偏差, 考虑到本文分析过程中采用了通过归并36天测量数据来消除周日变化影响的方案, 同时参考其他研究工作中对MLT纬向风周日潮幅度的描述, 两种卫星数据分析结果之间的系统偏差可能部分来自大气潮汐的影响.

**关键词** [MLT, 纬向风, 评估, WINDII/UARS, HRDI/UARS, CIRA-86, 东亚](#)

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## Re-examination of MLT mean zonal winds over East Asia by using WINDII /UARS dataset

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**Abstract** In this paper, monthly mean zonal winds in MLT region (90~120 km) over Eastern Asian sector are re-examined by using the WINDII/UARS winds taken during November 1991 to August 1997. Estimation results for the winds over one year course in the latitude-height cross-section, from the equator to 60°N and from 90 to 120 km height, at the median of 120°E with 40° width reflect the characteristic feature of the zonal winds in the meridian. Good agreements is seen in the comparison between the current estimates of the zonal winds and that taken by the Wuhan meteor radar winds, agreement is also seen in the comparison with the same zonal winds but derived by using the HRDI/UARS data. Both these agreements suggest that the current results represent the general features of the zonal winds in the meridian. Very large discrepancy is seen when comparing with the monthly mean zonal winds from the CIRA 86 model in particular in the height range above 100 km. At low latitudes equatorward, the CIRA 86 zonal winds often exhibit wind direction against that of the WINDII or HRDI winds. A systematic bias of 20 m·s<sup>-1</sup> is observed in between the winds derived from the WINDII data and that from the HRDI data. Considering that the current analysis approach can reduce the diurnal variation with the WINDII data, and that the bias exhibits a magnitude comparable to the amplitude of the MLT diurnal tide as reported in other researches, the bias is likely accounted for by the presence of diurnal variations in the HRDI data.

**Key words** [MLT](#) [Zonal wind](#) [Evaluation](#) [WINDII/UARS](#) [HRDI/UARS](#) [CIRA-86](#) [East Asia](#)

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