

研究论文

新疆1960—1999年第一对流层顶高度变化及其突变分析

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摘要 采用1960-1999年新疆12个探空站逐日观测资料,按气候特点把新疆划分为阿尔泰山、天山南坡、天山北坡和昆仑山4个区域进行研究。分析了40 a来新疆第一对流层顶年平均高度变化空间分布差异,用Mann-Kendall法和移动t检验法进行了突变检验。结果表明:1960年以来,新疆第一对流层顶年平均高度总体为上升趋势,期间经历了两升两降的变化,较为突出的是1987-1999年的明显上升过程。年代际变化上,20世纪60年代到70年代初第一对流层顶高度有所下降,70、80和90年代的30 a则明显上升,累计上升了百米之多。新疆阿尔泰山、天山南坡和北坡分别于1972、1973和1976年发生了均值突变,昆仑山未发生显著气候突变。尽管存在差异,但在80年代末期至1999年各地呈现的上升趋势却具一致性。

关键词 [第一对流层顶高度,变化趋势,突变分析](#)

分类号

Change Trend and Analysis of Abrupt Change for the First Tropopause Height over Xinjiang in 1960-1999

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Abstract On the basis of the daily radiosounding data collected from twelve stations in Xinjiang from 1960 to 1999, it was divided into four regions by climate features: the Altai Mountains, the northern and southern slopes of Tianshan Mountains and the Kunlun Mountains. The change trend of average height and difference in the spatial distribution of the first tropopause for 40 years were analyzed, and the test of abrupt change was conducted by means of Mann-Kendall and running t-test. The results show that there was an increasing trend of average height for the first tropopause over Xinjiang as a whole during the period from 1987 to 1999 in particular. From the view of the interdecadal change, it obviously decreased from 1960s to early 1970s and then has gradually increased since 1970s. The running t-test shows that a remarkable mean change occurred in the Altai Mountains in 1972, the southern slope of Tianshan Mountains in 1976 and the northern one in 1979, but there was no abnormal change in the Kunlun Mountains. The average height obviously increased all over Xinjiang with the exception of Kunlun Mountains. Although there were all kinds of differences in various regions, the increasing trend was rather similar from the end of 1980s to 1999 over Xinjiang.

Key words [the first tropopause height,change trend,analysis of abrupt change](#)

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