

论文

## 沈阳桃仙机场春季冷锋型雷暴与冷锋型大风合成对比分析

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**摘要** 以1996~2005年逐年沈阳桃仙国际机场春季雷暴的天气演变过程相似资料为依据,采用合成方法,选取4个典型冷锋雷暴个例进行分析。结果表明:蒙古气旋前部的暖平流、大范围正涡度区和正涡度平流导致了我国沈阳地区不稳定层结的建立和加强;高空辐散和低空辐合为雷暴天气的发生和加强创造了动力抬升条件;高空具有高湿位势涡度值的干冷空气叠加在低层扰动上,有利于不稳定层结的加强和降水发生。与相似形势下只产生春季大风而未产生雷暴的4次大风个例天气过程的合成对比分析,结果显示:

冷锋的伸展方向及沈阳上空深厚的辐散层和低空湿位势涡度的不同分布可能是产生雷暴和大风不同天气现象的主要成因。

**关键词** [春季](#) [冷锋型雷暴](#) [冷锋型大风](#) [合成与对比](#)

分类号

## Comparative analysis between cold front thunderstorm and gale in spring at Shenyang Taoxian international airport

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**Abstract** On the basis of the evolvement of spring thunderstorms at Shenyang Taoxian international airport from 1996 to 2005, four typical cases of cold front thunderstorm were analyzed with a combination method. The results showed that the development and strengthen of instability stratification in Shenyang area resulted from warm advection of Mongolia cyclone foreside, large positive vorticity region and positive vorticity advection. Upper divergence and lower convergence provided together the dynamic lifting condition for thunderstorm weather and its strengthens. The upper level dry and cold air with high moist potential vorticity value was superposed to the low-level disturbance, which was advantageous to instability stratification strength and precipitation. Compared with four gale cases in spring without thunderstorms under similar circumstances, the result showed the extended direction of cold front and different distributions of thick divergence layer and low moist potential vorticity over Shenyang may be the main causes for thunderstorms and gales.

**Key words** [Spring](#) [Cold front thunderstorm](#) [Cold front gale](#) [Composition and comparison](#)

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