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论文

# 多普勒天气雷达合成切变算法及改进方法的研究

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摘要
该文在研究由多普勒天气雷达速度场计算合成切变所采用的直接计算差值滤波算法的基础上，针对其存在的边缘点的切变识别较少等问题，结合最小二乘法在线性拟合方面的优势以及雷达数据沿径向分布的特点，提出一种基于取不同“拟合窗口”的最小二乘法的算法，并利用计算定位精度等方法比较和分析这两种算法，最小二乘法算法在定位精度、识别能力、边缘切变识别等方面优于直接计算差值滤波算法。在2008年北京奥运气象保障中应用最小二乘法的合成切变气象产品给人工影响天气提供了重要参考资料。

关键词 天气雷达 合成切变 最小二乘法 拟合窗口 人工影响天气

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# Research and Improve on a Method of Radial Velocity Azimuth Composite Shear Using Doppler Weather Radar

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Abstract
Based on the research of a differential filtering method retrieving composite shear from Doppler radar velocity data, considering the problems of this method, such as the number of edge detection points is too small, combined with the least square's advantage on Linear fitting and radar data's radial distribution character, this paper presents a method of least squares based on different “fitting window”. These two methods are compared and analyzed by using computing positioning accuracy method and so on. The method of least squares is better than the differential filtering method on positioning accuracy, identification ability, edge detection and so on. During the 2008 Beijing Olympic Games, by using the method of least squares, the radial velocity azimuth composite shear weather product provides some important information for the weather modification.

Key words Weather radar Radial velocity azimuth composite shear Least squares Fitting window Weather modification

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