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英文题目： Characteristics of Mesoscale Vortices over China in 2015

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英文摘要： Mesoscale vortex (MV), which appears in the middle and low levels, is a cyclonic circulation with its size between several dozen kilometers and several hundred kilometers. It often has close relationships with the convective activities. To deep understanding of mesoscale vortices in China, the ERA-Interim data and an automatic vortex-searching method were used to get the mesoscale vortices over China in 2015, and the basic characteristics of mesoscale vortices were analyzed. The mesoscale vortices were divided into three categories, which were MCV (Mesoscale Convective Vortex), MSV (Mesoscale Stratiform Vortex) and MDV (Mesoscale Dry Vortex). MCV had the largest intense, size and duration, while the MDV had the smallest intense, size and duration. MCV was able to form in any direction of parent MCS (Mesoscale Convective System). Differently, the secondary convection tended to appear in the southeast of parent MCV. The mesoscale vortices tended to generate in the transition area from high altitude to low altitude. The lee side of the Tibet Plateau was the main source region of mesoscale vortices in China. Most of vortices generated in the midday and midnight. The MCV and MSV activities peaked in summer, while the MDV peaked in winter.

中文题目： 2015 年中国中尺度涡旋的基本特征

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中尺度涡旋是出现在对流层中低层的中小尺度气旋性环流，常与对流活动密切相关。本文采用 ERA-Interim 再分析资料，普查了 2015 年中国的中尺度涡旋，按照中尺度涡旋的性质，将其分为中尺度对流涡旋（MCV）、层云涡旋（MSV）和干涡旋（MDV）三类，对比分析了它们的基本特征。结果表明，MCV 的强度、尺度和持续时间都是最大的，MDV 的强度、尺度和持续时间相对较小。MCV 并不倾向于在中尺度对流系统的某一方位形成；而 MCV 激发的继生对流主要位于 MCV 的东侧和南侧。中尺度涡旋倾向于在高海拔向低海拔过渡的地区形成，青藏高原东侧的背风坡是中国最大的中尺度涡旋的源地。午后和午夜是中尺度涡旋形成的相对集中时段。夏半年是 MCV 和 MSV 的高峰期，MDV 在冬半年高发。

思维导图或文章结构框图：

