

2021 Conference on Weather Analysis and Forecasting by Central Weather Bureau

Poster topic :

Statistical Analysis of the Characteristics of Afternoon Thunderstorm in Central Taiwan

Purpose :

Afternoon convection develop rapidly, can bring heavy precipitation, and are most intense and frequent in central Taiwan. When this type of heavy rainfall is serious, it will cause flooding, lightning strikes, landslides, and other disasters. To reduce losses, it is particularly important to predict the occurrence of this system. In this study, the central area of Taiwan was selected to analyze the environment before the occurrence of precipitation and to find out the signs of the occurrence of precipitation events.

Method :

First, the central area of Taiwan is divided, and then the weak synoptic days in the warm season (May-September) of 2016-2020 are selected, and each day is divided into the presence or absence of afternoon convection and different background wind fields. Finally, various meteorological factors are used to analyze the environmental differences in the presence or absence of afternoon convection, and the meteorological factors that cause afternoon convection and the temporal and spatial variation of precipitation are discussed.

Conclusion :

Meteorological factors favoring afternoon convection pointed out that in the central region of Taiwan under weak synoptic conditions, the signs of convective precipitation can already appear before they occur. This suggests that, in the future, these factors can be used in machine learning to find the best weights for the region and potentially build models that predict the temporal and spatial distribution of afternoon convection events in central Taiwan.