The Study on the Characteristics of Weather and Cloud Types in the Summer and Winter Seasons of the South China Sea

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The South China Sea is vast with a tropical maritime climate near the equator and a subtropical climate in the north. Therefore, although it is winter, there are still deep convective and strong precipitation systems in the South China Sea. In summer, thermal convection is strong, sometimes typhoons pass; Dongsha Island and Taiping Island are located in the north and south of the South China Sea. The weather in the region is bound to be significantly affected by various weather systems in the South China Sea. We selected the winter of December 2017 and the summer of June 2018 to study it. The Dongsha Island and Taiping Island areas were subjected to research on the northeast monsoon and tropical convection. The dual island observation and satellite data were combined with numerical models to analyze the mutual interaction between the thermal and dynamic processes in the South China Sea. To enhance the understanding of the weather evolution mechanism in the South China Sea, in order to further clarify the various cloud-phase characteristics of the monsoon circulation and thermal convection in the South China Sea. The results show that the change of northeast monsoon intensity obviously affects the interaction of air-sea in the South China Sea, enhances the intensity of precipitation, and changes the amount and height of the stratus cumulus in the sea. In addition, the northeast monsoon circulation may interact with the surrounding terrain of the South China Sea, thus induces local deep convection. In the summer, the southwest monsoon will be enhanced and thermal convection is very strong. The intensity and life cycle of the typhoon can be maintained when it passes this area.

Keywords: Dongsha Island, Taiping Island, Air-Sea interaction, Deep Convection

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