The Impact of Land Atmosphere Interaction of the Tibet Plateau on Precipitation in the Middle and Lower Reaches of the Yangtze River and Analysis of Precipitation Water Vapor Tracing therein

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As the most complex and highest altitude plateau in the world, the Tibet Plateau has an average altitude of over 4000 meters and is known as the "Roof of the World" and "Third Pole of the Earth". Due to the strong solar radiation received by the surface of the Tibet Plateau, combined with the large terrain of the plateau's uplift, it has formed a towering and powerful power and heat source that can penetrate into the atmosphere. The dynamic and thermal effects of the Tibet Plateau not only regulate the energy and water cycles in Asia and the world, but also have a profound impact on global climate and environment. The middle and lower reaches of the Yangtze River refers to the central and eastern regions of China to the east of the Three Gorges of the Yangtze River. It is one of the regions with frequent and the intensive rainstorms and flood disasters in China. The thermal and dynamic effects of the special topography of the Tibet Plateau, as well as its complex land atmosphere interactions, play an important role in the changes of atmospheric circulation and the formation of precipitation in eastern China. Studying the land atmosphere interactions on the Tibet Plateau is crucial for understanding the characteristics of precipitation distribution and changes in eastern China, especially in the middle and lower reaches of the Yangtze River where precipitation anomalies and regional droughts and floods occur. Therefore, this study intends to conduct zoning and spatiotemporal evolution analysis of surface flux on the Tibet Plateau. By using correlation analysis, the impact of land atmosphere interaction on the weather in the middle and lower reaches of the Yangtze River will be explored, and the key source areas of land atmosphere interaction will be determined; Using the HYSPLIT model, explore the characteristics of precipitation and water vapor transport in the middle and lower reaches of the Yangtze River and its relationship with the interaction between land and atmosphere on the Tibet Plateau.