

# 國立中央大學大氣物理研究所書報討論

Date : 2024/05/31

Location : S1-713

Speaker : Wan-Li Tsai

Advisor : Prof. Li-Chiao Wang

## **Comparing the impact of Atlantic Multidecadal Oscillation on the decaying phases of Pacific La Niña**

### **Abstract**

The Atlantic Multidecadal Oscillation (AMO) is an ongoing series of long-duration changes in the sea surface temperature of the North Atlantic Ocean, with cool and warm phases that may last for 20-40 years at a time. These changes are natural and have been occurring for at least in the last 1,000 years. The AMO can influence the behavior of the El Niño–Southern Oscillation (ENSO) through modifying the air-sea coupling under the variation of the central-to-eastern tropical Pacific mean-state sea surface temperature. In the ENSO cycle, El Niño and La Niña represent two opposite phases. The study will focus on how the AMO influences La Niña.

Under different phases of the AMO, there are noticeable differences in the development of La Niña. The most significant difference is that during positive AMO phases, La Niña typically evolves into multi-year events, whereas during negative AMO phases, La Niña tends to develop as single-year events. Through exploring the dynamics behind this difference, we find that the Pacific Meridional Mode (PMM) serves as a key factor for preventing the dissipation of La Niña and sustains its occurrence under positive AMO phase. On the other hand, the influence of the Indian Ocean may contribute to the decaying process of La Niña during the negative AMO phase.

### **Keyword**

Atlantic Multidecadal Oscillation (AMO)

Recharge Oscillator (RO)