



SEMINAR 專題演講



國立中央大學 太空科學與工程學系

Department of Space Science and Engineering, National Central University

Time

Friday , November 7,
2025

14:00 – 15:00

Place

健雄館 (科四館)

S4-917 教室

Room S4-917,

Chien-Shiung Building

Thermospheric and Ionospheric Data Assimilation for current and future satellite missions with NSF NCAR's Data Assimilation system

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Thermospheric and ionospheric data assimilation has gained increasing attention in recent years, as it is a key technology for advancing solar–terrestrial weather prediction and monitoring. Accurate specification of the coupled thermosphere–ionosphere system is essential for understanding upper-atmospheric variability and improving space-weather forecasts that impact satellite drag, navigation, and communication systems. In this presentation, we introduce the thermosphere–ionosphere data assimilation systems currently being developed and used at the National Science Foundation's National Center for Atmospheric Research (NSF NCAR), U.S.A. We first discuss the importance of data assimilation for enhancing solar–terrestrial weather prediction and monitoring, followed by an overview of the system framework and the fundamental theory that underpins it. Finally, we present examples demonstrating the application of this system to diverse satellite data sets, illustrating its utility for both scientific research and operational forecasting of the thermosphere and ionosphere. These applications highlight the system's capability and point the way toward a more accurate and integrated framework for solar–terrestrial weather prediction.