HyARC Seminar (HyARC Seminar#174)

Date: June 26 (Thursday) 15:00-

Room: The meeting room (#617) of Research Institutes Building.

Speaker: Prof. Wen-Yih Sun (Department of Earth, Atmospheric and Planetary Sciences, Purdue University/HyARC Nagoya University)

Title:Numerical Study of Asian Dust-Aerosols and Impacts on Regional Weather and Climate

Abstract:
Aerosol particles affect the atmospheric radiation and cloud microphysics. They are considered one of major uncertainties and challenging problems in climate study. We have applied the coupled Purdue Regional Climate Model (PRCM) with dust module to study the April 1998 dust storms occurred in China and beyond.
The PRCM-dust model allows on-line, active interactions among dust, radiation, and meteorological variables including temperature, cloud, wind, moisture and precipitation, etc. The model is capable of reproducing the meteorological environments and atmospheric circulations observed during April 8-24, 1998 without restart or nudging. The results show that dusts are lifted from the ground due to a strong surface wind near the source regions, they moved quickly into the higher altitude, and transported further to the east by westerly wind.

The majority of these dust particles in the atmosphere is large silt (1.8-3μm in radius). The temporal and spatial distributions of simulated dusts are in good agreement with observations by satellite as well as surface stations. These dusts cause local warming near the source region. They also cause cooling in the Southern Asia and regional precipitation redistribution.

(given in English)