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Department of Atmospheric Sciences Seminar Announcement

Department of Atmospheric Sciences, S.O.E.S.T., University of Hawai'i at Mānoa
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A diagnostic Study of a Mei-Yu Front Associated with Heavy Rainfall over Taiwan during 6-7 June 2003

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You are invited to a Zoom meeting.
When: March 31, 2021 at 3:30PM HST

Register in advance for this meeting:

<https://hawaii.zoom.us/meeting/register/tJYvfu2urD8jEtb2-aKc4ISPr4W9YuHre-tE>

After registering, you will receive a confirmation email containing information about joining the meeting.

Abstract:

The Mei-Yu jet/front affecting the Taiwan area on 6-7 June, 2003 during the early summer rainy season exhibits baroclinic characteristics as found in recent studies. Appreciable horizontal temperature gradients exist within the frontal zone, especially below the 850-hPa level and above the 400-hPa levels as the cold, dry postfrontal northeasterlies from the Asian continent advance southeastward behind an upper-level trough and converge with warm, moist southwesterly monsoon flow from the subtropical ocean. It has a marked northward vertical tilt with a frontal slope $\sim 1/100$. A thermally direct circulation across the jet/front system with ascending motion within the prefrontal warm, moist air and descending motion within the postfrontal cold, dry air is evident.

On 7 June 2003, widespread heavy rainfall ($> 300 \text{ mm day}^{-1}$) occurred over southwestern Taiwan. In addition to the subsynoptic low-level jet (SLLJ) associated with the jet/front system, a marine boundary layer jet (MBLJ) exists upstream of the southwestern Taiwan over the northern South China Sea (NSCS). The Integrated Vapor Transport (IVT) from the surface to the 850-hPa level by the MBLJ $> 400 \text{ kg m}^{-1} \text{ s}^{-1}$ brings in the moisture over the Taiwan area. The MBLJ is formed due to large pressure gradients between a developing frontal cyclone associated with the Mei-Yu front over the southern China coast and the West Pacific Subtropical High (WPSH).