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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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Improving Radar-Based Nowcasting by Blending Numerical Model Wind Information over Taiwan area

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You are invited to a Zoom meeting.
When: April 21, 2021 at 3:30PM HST

Register in advance for this meeting:

<https://hawaii.zoom.us/join/9151242021>

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

Abstract:

In this study, by using composite radar data from Central Weather Bureau (CWB), 16 typhoons are selected to examine the performance of the McGill Algorithm for Precipitation nowcasting using Lagrangian Extrapolation (MAPLE) over Taiwan area. In addition, instead of blending the precipitation between radar extrapolation and numerical model, information of wind is blended to improve the nowcasting system. It is found that the hybrid system could capture and maintain the circulation of rotation and rain-band structure much better than the original system. To validate the performance of nowcast, continuous, categorical, and neighborhood method (FSS score) are applied for verifications. For 16 typhoon cases, results of radar extrapolation show the quantitative precipitation nowcasting could last at least 2 hours. When blending the wind information from numerical model, it is able to improve the performance of nowcast for another 1 hour, which extends the capability of nowcast up to 3 hours. Furthermore, it is found the hybrid system performs better after typhoon landed over Taiwan even though orographic effect has to be considered.