Science and Technology Seminar

Detection and Prediction of Heavy Precipitation

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Ongoing Hydrology Laboratory research and development point to a number of potential improvements in operational radar and multi-sensor detection of heavy rainfall capable of causing flash flooding. These improvements include application of radar mosaics rather than single-radar rainfall estimates, probabilistic rainfall estimates, and short-term deterministic nowcasts.

Recent experimental results indicate that, for detection of locally-heavy rain, mosaicked radar estimates are superior to estimates from a single radar station. This is probably due to the application of data from the closest radar to all points within the forecast domain. The result holds even if the mosaics are of relatively coarse horizontal resolution. The use of probabilistic rainfall estimates could improve operational decision-making in flash flood warning operations by providing forecasters with a consistent framework for evaluating the significance of radar rainfall estimates that approach flash flood guidance thresholds. Finally, application of short-term precipitation forecasts could provide greater lead time in issuing flash flood warnings.

Wednesday, February 01, 2006
2:00 - 3:00 P.M.
SSMC#2, Room 2358

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