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A SIMULATED REAL-TIME SEVERE WEATHER NOWCASTING

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Abstract. An upper-level undergraduate course entitled "Radar and Satellite Meteorology" has offered for the past five years at the Department of Atmospheric and Oceanic Sciences, University of Wisconsin-Madison. This course has two components, one is the lectures on remote sensing theory, and the other is laboratory exercises that involve the investigation of archived radar and satellite data. One of the most popular laboratory exercises, according to the students' feedback, is the simulated real-time severe weather nowcasting in the computer-equipped classroom. The students are experienced a severe weather outbreak and placed in a real-time operational decision-making environment. Archived Level-II and Level-III Next-generation Radar (NEXRAD) data is viewed with either the freely available Integrated Data Viewer (IDV) or McIDAS software packages. The "bundling" feature of these software packages allows the instructor to pre-package radar data (e.g., reflectivity, storm-relative Doppler velocity) and feed it to the students every four to five minutes, simulating the delay between radar volume scans. Teams of students are required to monitor the evolution of the situation and issue severe weather warnings based on radar analysis skills developed in lecture and previous labs. Documented storm reports are also integrated into the lab to assist — or sometimes detract from — the students' warning decisions, and the classroom clock is even adjusted to correspond with the time of the events. This exercise provides students with a unique operational experience that is often missing from the undergraduate curriculum. Its inherent portability and flexibility allows instructors to adapt it to any historical severe weather event, making it appropriate for courses in mesoscale and synoptic meteorology in addition to remote sensing.

[Conference Paper](#) (PDF, 251 KB)

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