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Changing Teaching Techniques and Adapting New Technologies to Improve Student Learning in an Introductory Meteorology and Climate Course

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Responding to the call for reform in science education, changes were made in an introductory meteorology and climate course offered at a large public university. These changes were a part of a larger project aimed at deepening and extending the program of science content courses that model effective teaching strategies for prospective middle school science teachers. Therefore, changes made in this course reflect the emphasis on key science concepts, nature of science issues, and inquiry-based learning strategies. Course changes made include interactive discussions on weather and forecast using computer technology such as Integrated Data Viewer (IDV), identification of misconceptions at the start of chapters, group discussions and interactions, student self-assessment questions following the completion of chapters, and activities designed to encourage student interaction with the text. This paper describes the process of changes made in this introductory meteorology and climate course in a case study format. Preliminary data indicate that these changes have positively affected student learning and achievement in the course. This study is supported by three grants: NSF grant # 0202923, the Unidata Equipment Award, and the Lucia Harrison Endowment Fund.