Progress Report Title: Cooperative Institute for Climate Science Professional Development Summer Institute in Weather and Climate July 19-23, 2010

Principal Investigator: Steven Carson (Princeton Township, NJ Middle School Chemistry Teacher)

Other Participating Researchers: Anne Catena, Program in Teacher Preparation (Princeton University)

Task I: Administration & Outreach

NOAA Sponsor: Brian Gross (GFDL)

Education/Outreach

NOAA Goals: #2 Understand Climate Variability and Change to Enhance Society’s Ability to Plan and Respond

Objectives: In support of the Cooperative Institute for Climate Science’s (CICS) intent to educate society about the complexity of understanding and predicting climate and environmental consequences, we designed and delivered professional development for New Jersey teachers to improve their students’ understanding of earth system modeling. This work is a collaboration of Princeton University science and education professors as well as local educators: Dr. Steven Carson, formerly of the Geophysical Fluids Dynamics Laboratory and currently a middle school science teacher in Lawrence Township, New Jersey; and Dr. Anne Catena, Program in Teacher Preparation at Princeton University.

Methods and Results/Accomplishments:
Teachers explored the fundamentals of weather and Earth’s climate as a system and the interaction of land, ocean and atmosphere. Models were introduced to help the participants better understand weather conditions as well as weather predicting. Teachers specifically responded to the value of modeling for their own classroom instruction: “The overall highlights were a great understanding of models to demonstrate the teaching of weather.” Inquiry-based investigations included air pressure, temperature, seasons, the greenhouse effect, humidity, clouds, wind, the Coriolis effect, storms, and colors in the sky. Teachers responded positively to learning through inquiry; “I will do more inquiry-based experiments and less lecturing. I know my students will be more engaged.” Discussions on climate change including consideration of the public communication of research to improved understanding. Teachers’ comments include “I had the opportunity to ask questions which clarified subject matter knowledge and cleared up misconceptions I had.”

The class was taught by Dr. Steven Carson, former scientist at the Geophysical Fluid Dynamics Laboratory and currently a middle school teacher in Princeton Township, NJ. The instructional team also included Travis Merritt, a middle school teacher in Lawrence, NJ. Ten teachers in grades 2-8 participated in the seminar representing seven different school districts. Teacher serving underrepresented students in urban district comprised 40% of the districts.
Teacher feedback:

"The overall highlights were a great understanding of models to demonstrate the teaching of weather."

"I will do more inquiry-based experiments and less lecturing. I know my students will be more engaged."

"I had the opportunity to ask questions which clarified subject matter knowledge and cleared up misconceptions I had."