**Progress Report:** Cooperative Institute for Climate Science Professional Development
Summer Institute in Weather and Climate
July 6-10, 2009

**Principal Investigator:** Steven Carson (Princeton Regional Middle School Chemistry Teacher)

**Other Participating Researchers:** Andrew Bocarsly, Chemistry (Princeton), Anne Catena, Program in Teacher Preparation (Princeton)

**Education/Outreach**

**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: Professor Andrew Bocarsly, Chemistry, Princeton University whose research focuses on fuel cells as a source of alternative energy; Dr. Steven Carson, formerly of the Geophysical Fluids Dynamics Laboratory and currently a middle school science teacher in Princeton Township, New Jersey; and Dr. Anne Catena, Program in Teacher Preparation at Princeton University. The instructional team also included Heidi Wachtin, an elementary teacher in West Windsor Plainsboro, NJ, John Travis, a high school math teacher in Trenton, New Jersey and Jesse Palermo, a novice K-8 certified teacher of the Program in Teacher Preparation.

**Methods and Results/Accomplishments:**

The teachers explored the fundamentals of Earth’s climate as a system and the interaction of land, ocean and atmosphere. Issues regarding the greenhouse effect, global warming and the consequences change provided the content framework. Discussions focused on understanding climate change and the need to plan remediation in respect to the public’s understanding. The teachers’ commented that their students have many misconceptions about the greenhouse effect and climate change. They indicated that the material and resources included in this program will impact their own teaching and their students' understanding. Teachers learned strategies to evaluate the current technological and social solutions based on alternate energy technologies. The potential of wind and solar energy were considered in respect to the current public and policy environment.

Thirteen teachers in grades 3-8 participated in the seminar representing nine different school districts. Teacher serving underrepresented students in urban district comprised over 50% of the participating districts.
Feedback from teachers:

"I am more confident about teaching content, since I have deepened my knowledge."

"This is an engaging and enlightening experience."

"I feel empowered by my new knowledge and more capable to teach."

"No professional development stretches your brain and expands your knowledge this way!"

The faculty is "the best! I couldn't ask for better. They can adjust to many levels and never make you feel deficient."

"I enjoyed listening to interactions and conversations of other teachers, hearing input, and other teaching ideas."

This program ..."made me realize how much I need to learn."