Report as of FY2006 for 2006DE76B: "The Effect of Proposed Climatic Warming on the Hydrological Cycle"

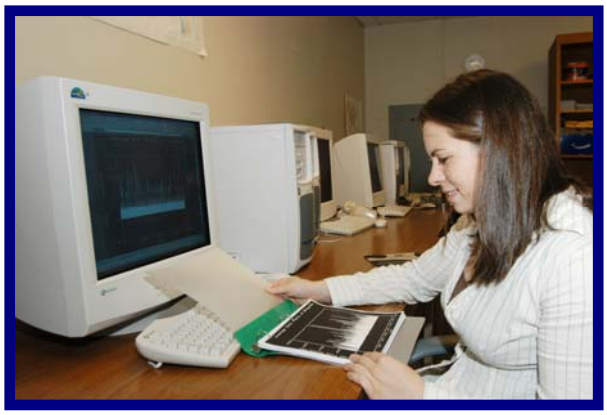
Publications

- Water Resources Research Institute Reports:
  - Boutin, J., and D. Legates, 2007, The Effect of Proposed Climatic Warming on the Hydrological Cycle, Delaware Water Resources Center, University of Delaware, Newark, Delaware, 13 pages.
- Other Publications:
  - Boyd, A., ed., 2006, Delaware Water Resources Center WATER NEWS Vol. 6 Issue 2 Nine DWRC Internship Winners for 2006 2007, http://ag.udel.edu/dwrc/newsletters/Summer2006.pdf, p. 6-7.

Report Follows

Undergraduate Internship Project #7 of 9 for FY06

Jennifer Boutin investigated *"The Effect of Proposed Climatic Warming on the Hydrological Cycle"* in a project co-sponsored by the ***DWRC*** and the ***University of Delaware (UD) College of Arts and Science.*** Her advisor was Dr. David Legates of the ***UD*** Department of Geography. Jennifer learned about contradictory studies of rate of change of the hydrological cycle. She compared regional flood, drought, and storm frequency and intensity data from the Delaware State Climate Office and Delaware Geological Survey to related global data.



Abstract

Air temperature and precipitation are climatic controls that strongly influence the type of ecosystem a region can support. Changes in air temperature have the potential to increase atmospheric moisture content, which could ultimately produce an enhanced hydrologic cycle with more storms and more droughts. These changes, if they occur, would have drastic implications for regional ecosystems, forcing them to adapt the new conditions or be replaced to other ecosystems more suited for survival. This study offers an assessment of climate change throughout the state of Delaware derived from climatic records taken from as early as 1893 through 2006 at thirteen locations. Short-term changes in air temperature, precipitation, snowfall, and snow depth were discovered at some locations but no change is outside the range of natural climate variability. Differences in the timing and length of such short-term changes lead to the conclusion that there is no evidence of long-term climate change within the State. Lastly no correlation is apparent between air temperature fluctuations and the various components of the hydrologic cycle.