



Montague – CTE Scholar Steven Quiring (2009-2010) Department of Geography



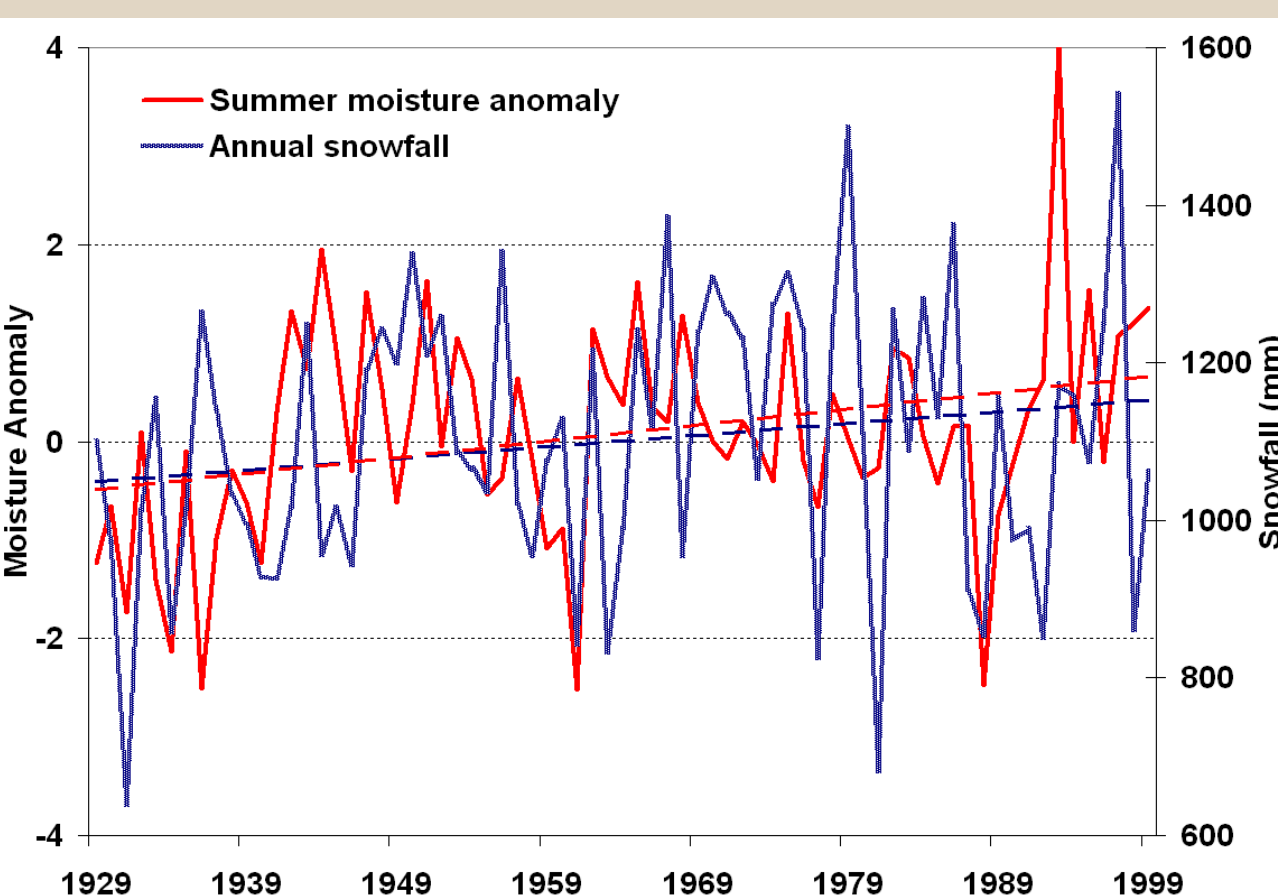
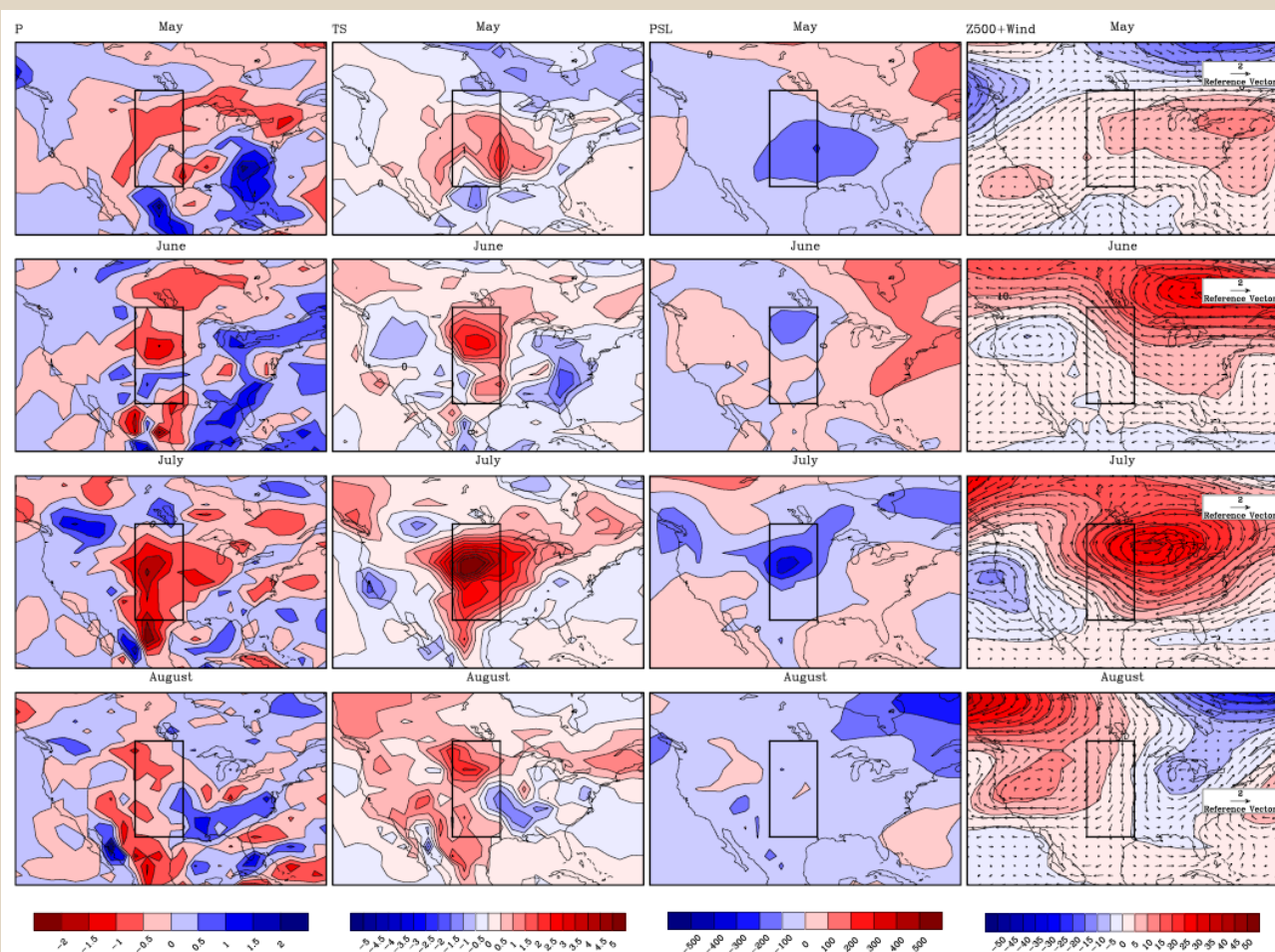
Developing a Drought Science Learning Community



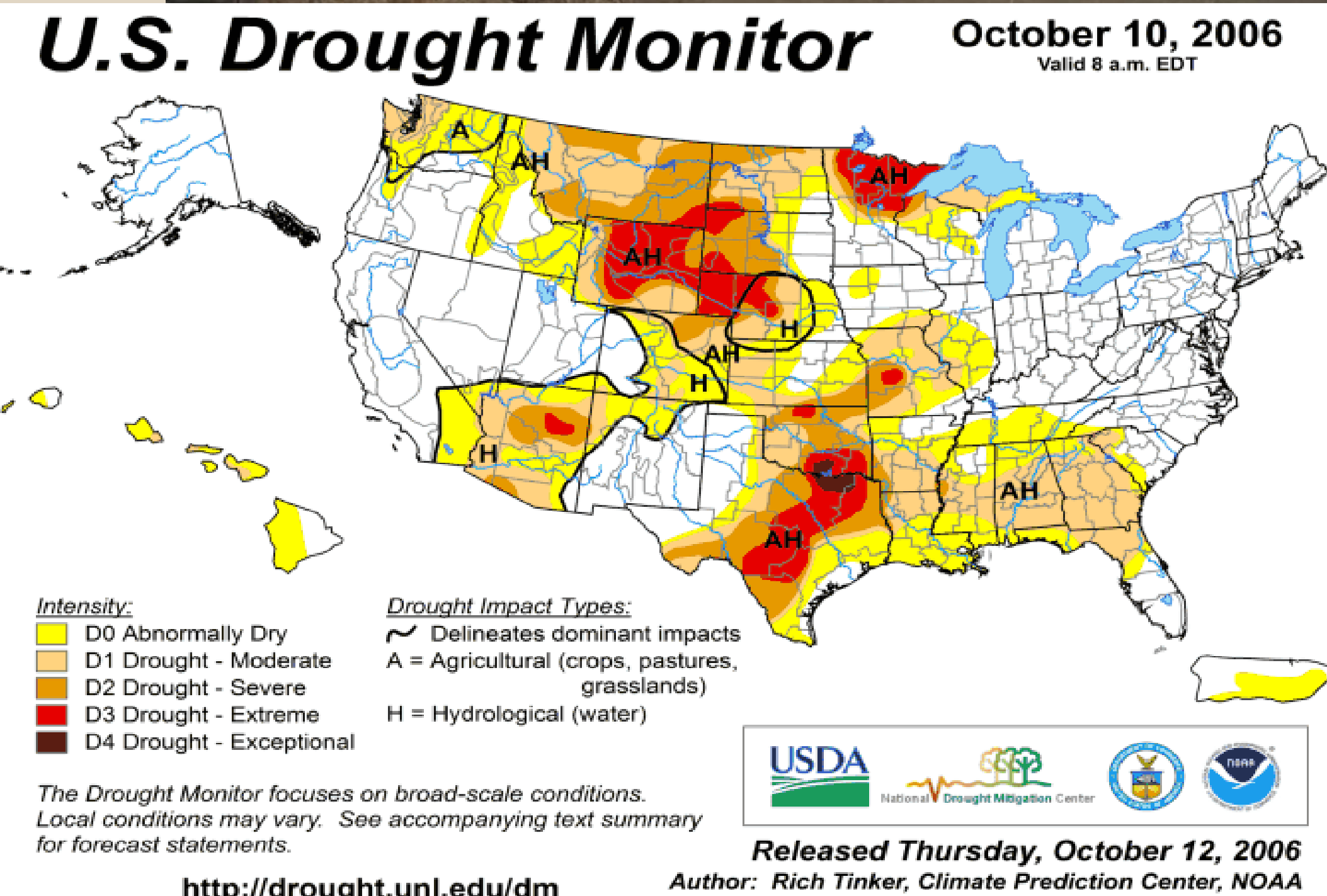
The goals of my education and engagement plan are to recruit a diverse group of students, foster a learning community around climate and drought science, build students' analytical thinking and communications skills, train and equip the next generation of environmental/climate scientists through increasing the number of undergraduate majors and students pursuing graduate studies, disseminate information about drought science to stakeholders, and institutionalize the educational and engagement activities so that they continue beyond the duration of the project.

This project features an education and engagement plan that is tightly coupled with my research goals. The involvement of undergraduate student researchers is a key strength of this project and vital to its success. The education plan is grounded in the teaching and learning literature and is based on best practices for high-impact education. Kuh (2008) identified ten high-impact educational practices that are beneficial for promoting active learning and student engagement. Seven of these best practices will be adopted to provide the educational framework for this project, namely: first year seminars, common intellectual experiences, learning communities, writing-intensive courses, collaborative assignments and projects, undergraduate research, and capstone courses/project.

Key Components of the Project



- **First Year Seminar:** I have developed a FYS entitled "Death and Destruction: How Drought Changed History" that I am teaching for the first time in Fall 2010. The 12 freshman students enrolled in this class will learn about the scientific, policy, and socioeconomic aspects of drought. Activities in the FYS will include readings, in-class discussions, presentations from experts and field trips to help better understand the impact that drought has on our lives.
- **Drought Science Learning Community:** will be open to students who complete the FYS and those majoring in geography, meteorology and environmental geosciences. The learning community will be built around two courses I regularly teach: Global Climate Regions (GEOG 324) and Hydrology and Environment (GEOG 434) and a new course that I am developing called Hydroclimate Monitoring and Prediction. Students who belong to the learning community will participate in the Water Management and Hydrological Sciences Seminar Series (jointly organized by the Water Program), relevant field trips, and monthly brown bag lunch meetings where students and faculty will discuss their current research projects and recently published scientific articles.
- **Undergraduate Research:** undergraduate students will be hired to work on drought-related research projects during the summer. Students who are involved in the Learning Community will be given first priority. These students will be trained and will develop analytical, critical thinking and communication skills. I currently have two undergraduate students working with me. One student is examining climate-wildfire relationships and the other is examining drought in Africa.
- **Capstone Project:** Students will be encouraged to become Undergraduate Research Scholars. The requirements of the Undergraduate Research Scholars Program include: identifying a faculty member to serve as an advisor, actively participating in a research project for a minimum of two semesters, completing at least 6 credit hours of independent research, submitting a manuscript in a format suitable for publication in a scholarly journal, and presenting the results in a public forum. This capstone project will give students the opportunity to integrate and apply what they have learned from participating in the learning community and/or as research assistants. Their undergraduate thesis will also provide a tangible scientific contribution to the goals of this project. Students will be encouraged to submit their research for publication to scholarly journals.



Educational and Research Outcomes

- To date, the educational and research outcomes from this project include:
- ✓ Development of a new FYS course entitled "Death and Destruction: How Drought Changed"
 - ✓ Submission of an NSF CAREER proposal (July, 2010)
 - ✓ Support for two undergraduate research assistants
 - ✓ Design and planning of a new undergraduate class
 - ✓ Two peer-reviewed journal articles with undergraduate student co-authors are in preparation

