The Geography of Drought In Nebraska--Patterns, Trends, and Impacts on Agriculture. (A08-waltman160913-Oral)

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Abstract:

The agricultural landscapes of Nebraska reflect a complex pattern of soil climate regimes (Soil Survey Staff, 2000) and inherent variability that influence the cropping systems and sustainability of farms. The historical crop yields and acreage harvested were compared with drought events through time to describe the impacts and trends in agroecology. The USDA National Agricultural Statistics Service and Risk Management Agency's county-level databases were coupled with soil climate regimes derived from the Enhanced Newhall Simulation Model to explain spatial relationships of crop yields and identify growing environments favorable to corn, soybeans, sorghum, and wheat through time and space. Comparisons were developed at the county level between irrigated and nonirrigated yields, yield ratios (corn/ soybean) to identify favored environments, shifts in crop acreages reflecting past drought events, and dominant cause-of-loss processes for specific crops. The Enhanced Newhall Simulation Model was used to calculate probabilities of soil climate regimes and differentiate agroecological zones. This study also addresses the changes in the agroecology and drought characteristics as teleconnections to El Nino/La Nina processes.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 4:00 pm

Keywords:

droughtindices, NASS crop statistics, soil climate regimes, exposure analysis