The PRISM Approach to Mapping Climate in Complex Region

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Spatial climate data sets in digital form are used heavily in a variety of models and decision support tools for agriculture, hydrology, ecology, natural resource conservation, and many other disciplines. The PRISM climate mapping system is the leading method for developing these data sets, especially in complex regions such as western North America. The premise behind PRISM is that physiographic features on the earth's surface, namely water bodies and terrain, produce the major spatial patterns in climate. Water bodies provide moisture sources for precipitation, and create complex temperature gradients along coastlines and in adjacent inland areas. Terrain effects include the direct effect of altitude; the blockage and uplift of major flow patterns by terrain barriers; and cold air drainage and pooling in valleys and depressions. This presentation will provide an overview of how PRISM works, and focus on the ways in which it accounts for physiographic factors. It will conclude with a short summary of current and recent PRISM Group projects, focusing on Pacific North America and potential linkages to PCIC activities.

Biographical Sketch

Education

B.S. 1978, atmospheric sciences, University of California, Davis
M.A. 1984, geography (mountain climate and tree line dynamics), University of Colorado, Boulder
Ph.D. 1994, general science (climate and vegetation modeling), Oregon State University, Corvallis

Chris is currently a research professor at Oregon State University in the Department of Geosciences. He is the founder and director of the PRISM Group, dedicated to producing the highest-quality spatial climate data sets worldwide. He is developing an emerging discipline called "geospatial climatology," which is a study of how the earth's physiographic features affect the spatial and temporal patterns of climate. The PRISM Group provides climate analysis, quality control, and GIS services to diverse groups in agriculture, forestry, hydrology, ecology, resource conservation, and others. In 2004, Chris' impact on the scientific community and the public good was recognized by the American Meteorological Society's award "Outstanding Contribution to the Advance of Applied Meteorology."