MEETINGS

Reconstruction of Past Mediterranean Climate

First MEDCLIVAR Workshop on Reconstruction of Past Mediterranean Climate

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Pablo de Olavide University, Carmona, Spain, 8–11 November 2006 Mediterranean Climate Variability and Predictability (MEDCLIVAR; http://www.medclivar.eu) is a program that coordinates and promotes research on different aspects of Mediterranean climate. The main MEDCLIVAR goals include the reconstruction of past climate, describing patterns and mechanisms characterizing climate space-time variability, extremes at different time and space scales, coupled climate model/empirical reconstruction comparisons, seasonal forecasting, and the identification of the forcings responsible for the observed changes. The program has been endorsed by CLIVAR (Climate Variability and Predictability project) and is funded by the European Science Foundation.

The main purpose of this first MEDCLIVAR workshop was to identify sources of early instrumental data and natural and documentary climate proxies that had not been previously explored and/or identified and that could be relevant for the reconstruction of the Mediterranean climate or weather extremes covering the past millennia. A key focus was on weather and climate information with high temporal (annual or higher) and spatial resolution as well as the potential to resolve past climate variability based on low-resolution proxies covering the past tens of thousands to hundreds of thousands of years.

The workshop sessions addressed (1) availability of documentary sources in the larger Mediterranean region, (2) natural proxies from the Mediterranean Sea and land areas such as tree ring chronologies or vermetids, and (3) examples of paleoclimate modeling and blending of paleoclimate reconstructions and modeling approaches.

Workshop attendees recommended the building of a catalogue of documentary, early instrumental, and natural archives available in the larger Mediterranean region as well as a database to support this catalogue and promote data interchange. Also recommended was building a broad network of researchers that work toward improving documentary and natural data availability, improving homogeneity and quality of early instrumental data, and promoting multiproxy comparisons and the subsequent integration of documentary, natural proxies, and model outputs.

Workshop participants recommended that an interdisciplinary approach incorporating climatologists, historians, geologists, statisticians, modelers, archaeologists, and scientists from other fields be used in climate reconstruction issues and associated estimation of uncertainties and in efforts to understand past climate change, variability, and extremes. Different reconstruction methods should account for different time and space scales and characterization of the data. In addition, the number of modeling exercises of past Mediterranean climate should be increased.

Other recommendations included carefully defining the dominant climatic variables recorded by the proxies so that reconstructions are performed on the basis of mechanisms relating proxies and climate and not only on the basis of statistical correlations. Comparisons of simulations and climate reconstructions of the past millennium should be done with care as, for instance, precipitation and dynamically related variables are largely subject to internal variability. Ensembles of simulations with different initial conditions and various models would allow for a better discrimination of internal from forced variability at regional scales.

In addition, the development of temperature climate reconstructions over the Mediterranean that include marine proxies (corals, sediments, and so forth) should be encouraged in order to allow comparison with high-resolution simulations, and pseudoproxy studies oriented to the validation and improvement of reconstruction techniques should be carried out.

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ABOUT AGU

Diffenbaugh Receives 2006 James R. Holton Junior Scientist Award

Noah Diffenbaugh received the James R. Holton Junior Scientist Award at the 2006 AGU Fall Meeting in San Francisco, Calif. The award recognizes outstanding research contributions by a junior atmospheric scientist within 3 years of his or her Ph.D.

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Citation

Noah Diffenbaugh is a truly interdisciplinary geoscientist who has already made significant contributions to the field of high-resolution climate modeling. His interests are varied and include climate/carbon dioxide/vegetation interactions, the response of extreme temperatures and precipitation events as well as the response of eastern boundary current regions to anthropogenic radiative forcing, mechanisms of Holocene climate variability, and the potential impacts of future climate on human systems. An outcome of his climate studies is the discouraging prognosis for U.S., especially California, viticulture and enology in light of anticipated global warming. Noah is at the forefront of computational high-resolution climate modeling, which will become an essential tool for policy planners by providing details that cannot be simulated by global models.

In the relatively short time that he has been at Purdue, Noah has played a critical role in developing our interdisciplinary program, including the establishment of a climate change research center. His contributions to date and his anticipated innovative work on the impacts of climate change on