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VEMAP 1: U.S. SOIL

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Summary:

The Vegetation/Ecosystem Modeling and Analysis Project (VEMAP) was a multi-institutional, international effort that addressed the response of biogeography and biogeochemistry to environmental variability in climate and other drivers in both space and time domains. The objectives of VEMAP were to study the intercomparison of biogeochemistry models and vegetationtype distribution models (biogeography models) and determine their sensitivity to changing climate, elevated atmospheric carbon dioxide concentrations, and other sources of altered forcing.

Soil properties were based on a 10-km gridded EPA soil database developed by Kern (1994, 1995). Two soil coverages are provided in the Kern data set: one from the USDA Soil Conservation Service (SCS) national soil database (NATSGO) and the other from the United Nations Food and Agriculture Organization soil database (FAO 1974- 78).

Only the SCS NATSGO soils are included in the VEMAP set. Physical consistency in soils data was incorporated by representing a grid cell's soil by a set of dominant (modal) soil profiles, rather than by a simple average of soil properties. Because soil processes, such as soil organic matter turnover and water balance, are non-linearly related to soil texture and other soil parameters, simulations based on dominant soil profiles and their frequency distribution can account for soil dynamics that would be lost if averaged soil properties were used.

To spatially aggregate Kern data to the 0.5 degree grid, we used cluster analysis to group the subgrid 10-km elements into up to 4 modal soil catagories (Kittel et al. 1995). In this statistical approach, cell soil properties are represented by the set of modal soils, rather than by an "average soil." We also provide cell- averaged soil data.

Please see the associated [Data Set Revision](#) page for an explanation of recent changes made to this data set.

Feedback

A complete user's guide to the VEMAP Phase 1 database, which includes more information about this data set, can be found at http://daac.ornl.gov/daacdata/vemap-1/comp/Phase_1_User_Guide.pdf The ORNL DAAC maintains additional information associated with the [VEMAP Project](#).

Data Citation:

Cite this data set as follows (data citation revised on January 15, 2003):

Kittel, T. G. F., N. A. Rosenbloom, T. H. Painter, D. S. Schimel, H. H. Fisher, A. Grimsdell, VEMAP Participants, C. Daly, and E. R. Hunt, Jr. 2002. VEMAP 1: U.S. Soil. ORNL DAAC, Oak Ridge, Tennessee, USA. <http://dx.doi.org/10.3334/ORNLDAAC/227>.

References:

Kern, J. S. 1994. Spatial patterns of soil organic carbon in the contiguous United States. Soil Sci. Soc. Am. J. 58:439-455.

Kern, J. S. 1995. Geographic patterns of soil water-holding capacity in the contiguous United States. Soil Sci. Soc. Am. J. 59:1126-1133.

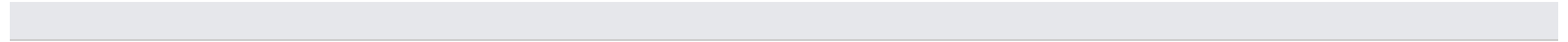
Kern, J. S. 2000. Erratum: Geographic patterns of soil water-holding capacity in the contiguous United States. Soil Sci. Soc. Am. J. 64:382.

Kittel, T. G. F., N. A. Rosenbloom, T. H. Painter, D. S. Schimel, and VEMAP Modeling Participants. 1995. The VEMAP integrated database for modeling United States ecosystem/vegetation sensitivity to climate change. Journal of Biogeography 22:857-862.

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