

Global Vegetation Dynamics

Concepts and Applications in the MC1 Model

Dominique Bachelet, *Conservation Biology Institute, USA*

David Turner, *Oregon State University, USA*



MC1 is a widely used dynamic global vegetation model (DGVM) that has been used to simulate potential vegetation shifts in National Parks (NPs) such as Wind Cave NP and Yosemite NP, across various states such as California and Alaska, over the entire continent of North America, and even over the entire globe, under a variety of climate change scenarios.

Global Vegetation Dynamics: Concepts and Applications in the MC1 Model describes the creation in the mid-1990s, architecture, uses, and limitations of the MC1 DGVM that is being used by an increasing number of research groups around the world. The scientific foundation of most models is often poorly documented and difficult to access, and a centralized source of information for MC1, including the complete list of

over eighty papers and reports with MC1 results will be useful to scientists and users who want to better understand the model and the output it generates.

The topics in this volume include general descriptions of the original model design, including the fire model, which was the first of its kind among dynamic global vegetation models; a brief history of the model creation; summaries of model results at the continental (North America), regional (Pacific Northwest), and local (Wind Cave NP and Sierra Nevada) scales; a description of its use to transform a state and transition model into its climate-smart version to help managers prepare for climate change challenges; and the description of an on-line tool (databasin.org) that provides snapshots as well as animated time series of its results. Finally, a complete bibliography (as of spring 2015) lists over 80 publications that include MC1 results.

Global Vegetation Dynamics: Concepts and Applications in the MC1 Model will be a valuable resource for students and researchers in the fields of climate change science, conservation science, and biogeochemistry and ecology, as well as for land managers looking for a better understanding of the projections of climate change impacts and of the tools that have been developed to produce them.

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