

## **Earth Systems as Human Systems: Modeling Interactions Between People and the Environment in the Anthropocene**

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Inherent in the concept of the Anthropocene is that anthropogenic processes are significant contributors to earth systems dynamics. The coupling of human and natural systems, with significant environmental consequences, extends much farther into the past than is generally recognized. The science of Anthropocene earth systems and their long-term dynamics requires new modeling approaches that represent human social decisions and their consequences, and couple them with representations of biogeophysical processes. This presents conceptual as well as methodological challenges to social and natural sciences, and underscores the growing importance of computation in the social sciences. I present examples from my current research to stimulate interdisciplinary collaborations required to advance the science of the coupled human and natural systems that have become critical to our future.