Accuracy or alignment

A conflict in the participatory modeling process?

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Abstract

Coupled human and nature systems (CHANS) are inherently complex and present challenges when developing strategies for sustainable development. Participatory modeling processes are increasingly being used to analyze CHANS, because they offer the ability to integrate knowledge from broader groups, while quantifying and challenging individual preconceptions. In practice, participation occurs in facilitated workshop settings and employ different tools and techniques to support creation of a shared problem understanding. Consensus among participants regarding the system and modeled solutions is sometimes used as an indication that the model is useful. However, research shows that group interaction can both improve and impair accuracy in beliefs, meaning that agreement does not imply accuracy in model conceptualization. In this study, an agent-based model (ABM) was developed and applied to identify group conditions where accuracy and alignment may be in conflict. The scope of the ABM is a convergent workshop activity within a sub-discipline of participatory modeling, group model building (GMB). The results show that varying the markers of social status and individual accuracy of the group members consistently affected both the accuracy of the model produced by the group and the level of alignment among group members. Based on these findings, an approach for characterizing the tension between accuracy and alignment in GMB settings is proposed and future research needs for modeling participatory processes are identified.

Keywords: Participatory modeling, Group model building, Social influence, Group dynamics, Simulation, Accuracy, Alignment