

# Making Sense of Modeling: Beyond Representation

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## Abstract

It has recently been aptly emphasized that how models are used is essential to what scientific models are. But the explanations of why and how a model is used or why a model is scientifically valuable are still merely in terms of the relation between the model and its target, just as they were before the explicit mention of uses and users. To use a model is to perform an action, and as for any action, different accounts can be given depending on the perspective that is adopted. An account of use and users in terms of relations between the model and its target is close to the poorest we could get of the role of the users and the function of models.

I will argue that models need to be regarded as elements of an epistemic space, a space of related models-of-phenomena and activities of modeling. On that view, whether a model-of-X is epistemically valuable or scientifically worthwhile depends on the difference it makes in this epistemic space with respect to the investigation of scientifically significant problems. I will focus on the most common way for a model to make a difference: to be used in the construction of other models.

**Keywords:** models, modeling, use, epistemic value, fluid mechanics, wakes, representation

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