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SCIENTIFIC MODELS AND DECISION-MAKING

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Scientific Models and Decision-Making

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Abstract: This Element introduces the philosophical literature on models, with an emphasis on normative considerations relevant to models for decision-making. Section 1 gives an overview of core questions in the philosophy of modelling. Section 2 examines the concept of model adequacy for purpose, using three examples of models from the atmospheric sciences to describe how this sort of adequacy is determined in practice. Section 3 explores the significance of using models that are not adequate for purpose, including the purpose of informing public decisions. Section 4 provides a basic framework for values in modelling, using a case study to highlight the ethical challenges when building models for decision-making. The Element concludes by establishing the need for strategies to manage value judgements in modelling, including the potential for public participation in the process.

Keywords: models, climate, decision-making, Covid-19, philosophy

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