

# **Why Philosophy-of-Science Is Important When Assessing the Outlook for the Ice Sheets**

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Managing and communicating uncertainty in policy-relevant scientific assessments is connected to deep philosophical issues. These issues can have important practical and ethical implications for society. It is therefore of high importance to discuss implicit assumptions and value judgments that are made in policy-relevant scientific assessments, such as the future contribution to sea level rise from the great ice sheets.

The view that science should be free of social and ethical considerations (sometimes called "the value-free ideal of science") is examined. It is shown that this view in itself assumes an ethical standpoint, which becomes particularly important when making scientific assessments that are policy-relevant.

An alternative to the value-free ideal for policy-relevant assessments is proposed, in which scientific assessments that are used to inform societal decision-making should try to anticipate applications and aim to construct statements that characterize knowledge and uncertainty in a way that are most useful for those anticipated applications.

This alternative ideal means that scientific assessments should take into account the context in which the information will be used. In particular, the recent development of decision-making tools that are able to work with great uncertainty, such as bottom-up" and "robust" decision-making frameworks, are presented. It is shown how these tools introduce new demands but also new opportunities for making policy-relevant scientific assessments of the future of the ice sheets.