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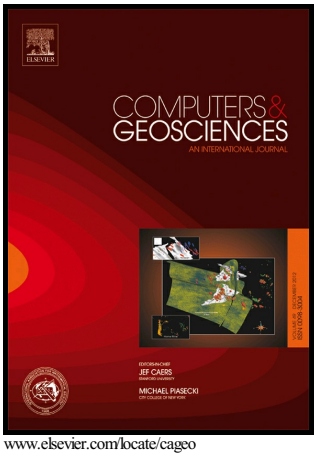

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Uncertainty quantification in modeling Earth surface processes: It's most applicable at one end of the spectrum of model types

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Abstract:

In Earth-surface science, numerical models are used for a range of purposes, from making quantitatively accurate predictions for practical or scientific purposes ('simulation' models) to testing hypotheses about the essential causes of poorly understood phenomena ('exploratory' models). We argue in this contribution that whereas established methods for uncertainty quantification (UQ) are appropriate (and crucial) for simulation models, their application to exploratory models are less straightforward, and in some contexts not relevant. Because most models fall between the end members of simulation and