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Updated assessment suggests >1.5°C global warming could trigger multiple climate tipping points

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Climate tipping points occur when change in a part of the climate system becomes self-perpetuating beyond a forcing threshold, leading to abrupt and/or irreversible impacts. Synthesizing paleoclimate, observational, and model-based studies, we provide a revised shortlist of global 'core' tipping elements and regional 'impact' tipping elements and their temperature thresholds. Current global warming of ~1.1°C above pre-industrial already lies within the lower end of some tipping point uncertainty ranges. Several more tipping points may be triggered in the Paris Agreement range of 1.5-2°C global warming, with many more likely at the 2-3°C of warming expected on current policy trajectories. In further work we use these estimates to test the potential for and impact of tipping cascades in response to global warming scenarios using a stylised model. This strengthens the evidence base for urgent action to mitigate climate change and to develop improved tipping point risk assessment, early warning capability, and adaptation strategies.

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