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THE UNCERTAIN FUTURE OF CLIMATE UNCERTAINTY

par **Alexis HANNART**

CNRS - Université de Buenos Aires

en salle Joël Noilhan (salle de conférences de Navier)

Résumé :

Both models and observations yield broad probability distributions for climate sensitivity, the global equilibrium surface warming after a doubling of atmospheric CO₂ concentration. This high level of uncertainty regarding future climate evolution renders decision making on appropriate mitigation and adaptation steps more difficult.

Further, uncertainty has not decreased significantly over the past decades, an observation that paves the way for climate-warming naysayers and tends in turn to slow down action on this issue, in addition to interfering with a healthy scientific debate. We revisit a key cause for the persisting uncertainties and try to anticipate their future evolution as research makes further progress. In this purpose, we introduce a stochastic model for the future evolution in time of the probability distribution of climate sensitivity. The analysis of this model shows that : (i) climate uncertainty is not doomed to remain high if assuming steady progress in climate research, but also that : (ii) the future trajectory of uncertainty is itself highly uncertain even under this steady progress assumption. Uncertainties in climatic feedbacks play a key role in these considerations.

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