REACT: Predictibilidad de la precipitación en simulaciones climáticas inicializadas idealizadas y realistas

Description

Precipitation directly affects societies and ecosystems, with both extremely wet and dry conditions posing potential risks. Our ability to predict variations in precipitation on seasonal, inter-annual and decadal time scales is however limited, and state-of-the-art prediction systems exhibit low skill in predicting precipitation despite substantial developments and improvements of the prediction systems over recent years.This lack of skill poses the fundamental questions as to what extent precipitation is predictable; and whether, with further improvements to our prediction systems, we can expect skilful precipitation predictions to emerge above the chaotic climate characteristics that limit predictability,

PRECEDE will explore the extent to which shortcomings with the initialisation of the current prediction systems are responsible for the relatively low skill.To this end, we will produce a large set of idealised perfect-model prediction experiments, assuming perfect knowledge of the initial state and perfect consistency between model and real-world climate was achievable. We will then comprehensively compare these idealised predictions to model predictions (imperfectly) initialised with our best estimate of the observed state. These experiments will enable us to clarify the extent to which thecurrently imperfect initialisation of climate predictions may deteriorate the skill in predicting precipitation. In particular we will investigate how predictability is affected by initialisation shock and related model drift which are pertinent problems affecting the real-world climate predictions. As an overarching concept, all predictability estimates will consider the different aspects of precipitation, including average conditions as well as wet and dry extremes.

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