Geophysical Research Abstracts
Vol. 16, EGU2014-3347-1, 2014
EGU General Assembly 2014

Impact of Stochasticity in Simulating Weather Regimes

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The real atmosphere has distinct weather regimes. It is crucially important if we are to be able to simulate regional climate change accurately that our comprehensive Earth-System models simulate well these regimes. It is shown that, in deterministic mode, high spatial resolution (c. 10km) resolution is needed to simulate non-gaussian weather regime structure in state space. However, resolution can be relaxed considerably if small scale structures are parametrised using stochastic representations. The results have implications for the use of stochastic hardware in simulating climate.