



Twenty years on: Atmospheric blocking representation in Global Climate Models from AMIP to CMIP-5

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Atmospheric blocking simulation has always been a big concern for Global Climate Models (GCMs). Making use of a series of equivalent metrics, the improvement of GCMs since the 90s to nowadays is assessed. Results from the AMIP (1992), the CMIP-3 (2007) and the CMIP-5 (2012) inter-comparison projects are analyzed, using both coupled and atmospheric-only models for a total of 82 climate models. Although large improvements are seen over the Pacific ocean minor success has been achieved over the Euro-Atlantic sector, where many state-of-the-art GCMs still exhibits the same negative bias as 20 years ago - associated with large geopotential height systematic errors. Even though, some of the CMIP-5 models reasonably represent the climatological frequency of blocking over both basins. Negligible differences emerge among coupled or atmospheric-only simulations, suggesting weak relevance of sea surface temperatures biases. Conversely, increased horizontal resolution seems cardinal to resolve European Blocking.