

Simulation the Late Maunder Minimum with global and regional climate models.

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According to many historical accounts, the Late Maunder Minimum (1675-1710) was a period of severe coldness in winter in many parts of Europe. Using a global climate model, we could simulate such cold conditions by subjecting the model to a reconstructed time history of solar and volcanic forcing. In fact, the LMM appears to have been cold everywhere on the globe north of 30 S, with marked sea ice anomalies in the North Atlantic. These global results are dynamically downscaled, using the regional model REMO and the spectral nudging method, to allow for a more detailed estimate of winter conditions in the Baltic Sea region. It turns out that in this model world the LMM was indeed also regionally cooler than the pre-industrial normal, but that this cooling was not a uniform cooling but related to the emergence of a few very cold winters.

Obviously, the study suffers from a series of caveats.