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Climate impacts of multidecadal change in Atlantic sea surface temperature

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In a 2005 Science paper we presented evidence that basin-scale changes in Atlantic sea surface temperatures (SST) were an important driver of recent multidecadal variations in boreal summer climate. As part of the EU Framework 6 DYNAMITE project we have followed up this study by carrying out new experiments to investigate the sensitivity of our results to specific aspects of the SST pattern, and also to the choice of atmospheric General Circulation Model. Our results for the HadAM3 model largely support out previous conclusions, and also highlight other important impacts, for example on precipitation over South America. By contrast, results for some of the other models show much weaker impacts, indicating that model uncertainty is a significant issue for understanding the influence on climate of Atlantic multidecadal variability.