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Structural Uncertainty in the Winter NAO index

E. D. da Costa (1) and M. Juckes (2)

(1) Centre for Environmental Data Archival, Didcot, UK.(eduardo.damasio-da-costa@stfc.ac.uk), (2) Centre for Environmental Data Archival, Didcot, UK.(Martin.Juckes@stfc.ac.uk)

The significance of features (trends or extremes) in indices such as the NAO is usually evaluated against the reference variability of a particular specification of the index. For the NAO, there are many such specifications. The spread in values given by different definitions of the index may be considered as analogous to the spread in results from different climate models: it is not generally possible to identify the best model, and the spread in results must be considered as part of the uncertainty, a part which is often neglected in the interpretation of indices. This study shows that the impact of variations in the way the seasonal NAO is defined may modify the index values as much as the natural monthly pressure variability. This structural uncertainty needs to be taken into account when dealing with NAO trends and extreme values.