



The Abdus Salam  
International Centre for Theoretical Physics



Conference on Teleconnections in the Atmosphere and Oceans  
17 - 20 November 2008, ICTP, Trieste, Italy

## Zonal asymmetries in the NAO

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### Abstract:

The Annular Modes dominate the low-frequency variability in the mid-latitudes, as well as the response to various forcings. Dynamical studies in zonally-averaged cases typically attribute their prominence to a forcing by baroclinic eddies, which feed back on fluctuations of the latitude of the jet. We examine whether this paradigm holds in the case of the NAO (which is almost identical to the Northern Annular Mode).

In the North Atlantic, the mean jet displays a SW to NE tilt; but the wind anomalies linked with the NAO are much more zonal. As a consequence, the NAO represents a latitudinal shift of the jet in the western part of the Atlantic, but a see-saw between a single and double jet in the east.

Both types of anomalies are forced on average by baroclinic eddies, but there is only evidence of a positive feedback in the western half, where wind anomalies are also more persistent. Moreover, wind anomalies in the west are found to influence eddies downstream, yielding a mechanism for the eastward extension of the NAO. These results suggest that a remote forcing would be more efficient in forcing the NAO if located in the western part of the Atlantic.