



## **Application of a potential vorticity modification method to a case of rapid cyclogenesis over the Atlantic Ocean**

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A method to modify the potential vorticity of a numerical weather analysis is applied to a case of rapid cyclogenesis over the Atlantic Ocean. The development of the cyclone's intensity in terms of mean sea level pressure is underestimated by the Dutch version of the limited area weather prediction model HIRLAM. The analysis shows a rather clear mismatch between the potential vorticity of the analysis and the corresponding water vapour satellite image. A barotropic displacement of potential vorticity, based on a subjective comparison with the water vapour satellite image, improves the forecast in terms of the cyclone's mean sea level pressure eighteen hours after the analysis. By using singular vectors and an ensemble of forecasts we shed some light on the sensitivity of the forecast to different modifications.