Meteorology Seminar

Title: Manually adjusting a numerical weather analysis: Application to a case of rapid cyclogenesis

Speaker: Dr Wim Verkley, KNMI

Date: Thu 8th March 2007 at 2:15PM

Location: Mathematical Sciences Seminar Room

Abstract: We will discuss a method by means of which a numerical weather analysis can be modified by changing the potential vorticity field of the analysis. The method is meant to be of use operationally, but can also be applied to the study of weather phenomena such as rapid cyclogenesis. The onset of rapid cyclogenesis has a clear signature in water vapour satellite imagery. Due to a relationship between potential vorticity and brightness temperature in the water vapour absorption channel, it is sometimes possible to judge whether or not a numerical weather analysis is on the right track in predicting its future development. We will discuss a case in which the Dutch version of HIRLAM (HIgh Resolution Limited Area Model) displayed in its analysis a rather clear mismatch between water vapour satellite imagery and potential vorticity in the beginning phase of rapid cyclogenesis. HIRLAM underestimated the development of the cyclone that ended up at the west coast of Ireland in the afternoon of 7 November 2005. Our method is used to investigate the effect of local shifts of the jet stream on the development of the cyclone.

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