



Rossby wave interactions with Mediterranean and subtropical latitudes

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The downstream influence of a Rossby wave on weather conditions in the Mediterranean and North Africa is studied. The objective is to gain a better understanding of the atmospheric processes in these regions and to improve their quantification. The emphasis is placed on high-impact weather events to improve numerical forecasts and warnings about these hazardous weather phenomena. For this purpose, 4 days from 5 to 8 February 1997 are used to investigate both a Mediterranean low and a subtropical African convective situation. Sensitivity studies, using a potential vorticity inversion tool associated with the French atmospheric model ARPEGE, are presented. The Mediterranean surface low under study is shown to be associated with the mid-latitude upper level potential vorticity anomaly, itself associated with a Rossby wave. A subtropical convective cell is shown to be related to upward vertical motions associated with a cut-off low; this cut-off low coming from a mid-latitude Rossby wave.