



Hirlam forecast impact to extra observations for some Mediterranean high impact weather events

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One objective of several of THORPEX-sponsored field experiments has been to determine the potential of targeted observations to improve forecast of high impact weather. The aim of observation targeting or data targeting (DT) is to deploy extra observations in specific regions in order to reduce the initial atmospheric state inaccuracies. In autumn 2008, the PREVIEW project has used DT to improve short-range forecast of Mediterranean high impact weather events and as a result several sets of additional radiosonde observations have been collected.

In the present study we focus on the usage of the HIRLAM forecast and data assimilation system to test the added value produced by extra observations over some high impact weather events in the Mediterranean. The baseline system includes conventional and satellite observations (ATOVS). Two experiments are conducted. In the first one extra radiosonde data are assimilated. In the second one, ATOVS data thinning strategy in the HIRLAM data assimilation system is modified to increase the observations density in sensitive areas.

The forecast performance is assessed with respect to both verifying analyses and surface and radiosonde observations. Besides, model precipitation is verified with the novel object oriented SAL method using 24-h rain gauge data upscaled to the model resolution. In general, results show a significant improvement due to the extra observations, especially when sensitive regions are located in data sparse areas.