Optimization of the operational assimilation of radar data at convective scale in AROME France and international cooperations

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Radial velocities and reflectivities observed by 24 radars of the French ARAMIS network are currently assimilated operationally in the AROME-France NWP system at convective scale. When precipitating events occur over France, such data play nowadays a significant role in this system by reducing the forecast error variances and by improving forecast scores, especially for precipitations.
The main components allowing the assimilation of such data will be presented and the impact on analysis and forecast will be illustrated on case studies, a posteriori diagnostics and scores.

The optimization of their use in the 3DVar is currently being considered in order to increase the data density, to improve the specification of observation error statistics and to reduce forecast errors. This work is based on a posteriori diagnostics on observation error correlations and the use of specific background error covariances in precipitating areas.

Finally, status of European cooperations involving the ALADIN and the HIRLAM consortia will also be given. As it will be shown, such cooperations have permit to take into account six Spanish radars in AROME within the framework of the HyMeX experiment over the Western Mediterranean.