

## 9.5 LOCALIZED VARIATIONAL BLENDING FROM INCA AND AROME-RUC

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Data assimilation (AROME-Rapid Update Cycle) has been proved to help solving some problems of the numerical weather prediction models such as the spin-up time and the disagreement with high resolution observations. However, these computational expensive techniques do not provide quantitative precipitation forecast able to beat the observation based lagrangian extrapolation nowcasting (INCA) of fields such as precipitation for the first hours.

These two sources of forecast do not tend to agree in the overlapping forecasting period (6 hours for nowcasting). To solve this problem, they are usually blended by adding one forecast to the other one multiplied previously by a weight, which depends on the quality of each source of forecast. In this paper, a new blending technique, most complex than a regular global weight, is developed. The technique takes advantage of variational techniques to merge both forecasts in a location dependence framework while keeping the spatial structure of the rainfall field.

The final blended nowcasting is verified for two different periods; July 2016 and January 2017, against the original nowcasting from INCA and AROME-RUC, and also against a global weighted blended nowcasting. Some statistical properties such as the variance of the field and the power spectrum for different scales are compared with the observed field in order to highlight the advantages of this variational technique.

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