

Data Assimilation for Convective Cells Tracking in MSG images

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Abstract

This paper presents a variational data assimilation approach for the tracking of convective cells and their associated displacement in Meteosat Second Generation imagery. More precisely, two curves are tracked along a sequence : the heart (which represents the core –active part– of the storm) and the influence area. The difficulty here is to deal with the fact that convective cells might be very sudden, are highly deformable and undergo numerous merge and splits in their successive phases of development. To that end, we represent the contour with implicit surfaces.

The prior knowledges used are issued from atmospheric equations and from a stochastic interpretation of the evolution of the divergence.

Results are presented on several MSG sequences.

Example of Results

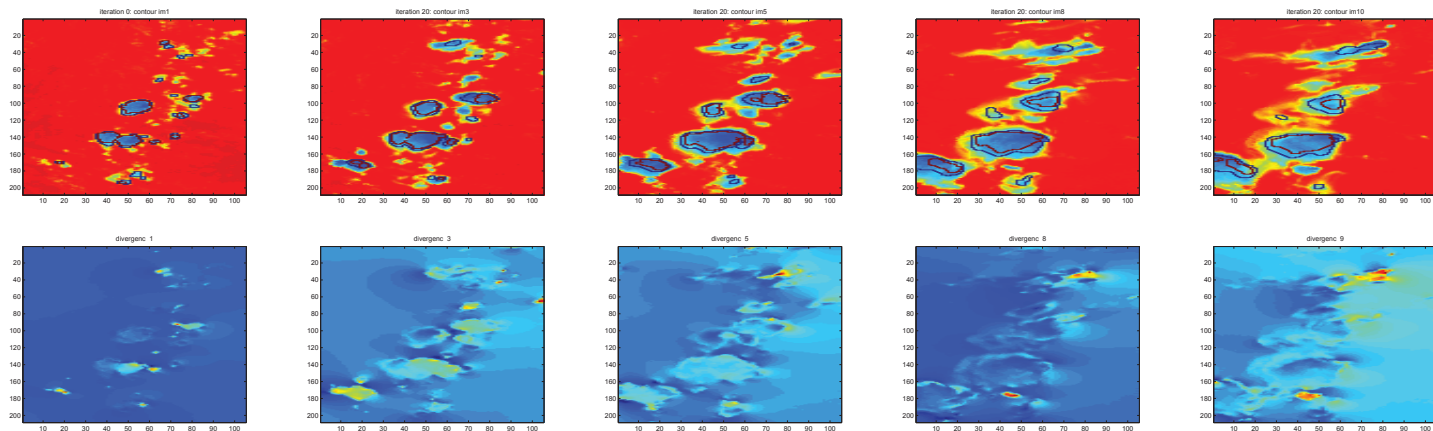


Figure 1: **Example on a real convective cell.** First line : the two curves estimated superimposed to the data where one can observe that split and merge are correctly managed ; second line : the divergence of the associated displacement field which exhibit the different cells