

Normalization of grid-point background error variances induced by a block-diagonal wavelet covariance matrix

Résumé

A wavelet block-diagonal approach can be used in order to specify 3D background-error covariances from ensemble data. In this presentation it will be shown how resulting variances in gridpoint space can be expressed and diagnosed from variances of wavelet coefficients of background errors. In the context of correlation modelling, these formal results can be used for computing normalization coefficients in an accurate and efficient way, in order to ensure that diagonal elements of the resulting correlation matrix are effectively equal to one. The impact of this normalization approach is also examined in analysis and forecast experiments with the Météo-France ARPEGE 4D-Var system.

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