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SCREEN-LEVEL AND SURFACE ANALYSIS (SSA ONLY)
IFS CONFIGURATION AT ECMWF

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en salle Joel Noilhan

Résumé :

In this talk I will explain and present preliminary results concerning a new IFS configuration at ECMWF called the “Screen level and surface analysis only” (SSA only) configuration. “SSA only” is a highly efficient testing environment for assessing the impact of changes to the land surface component of the IFS on the atmospheric scores.

The ECMWF operational setup currently uses a weakly coupled land-atmosphere analysis. The atmospheric analysis is performed using hybrid 4D-Var, whilst the land surface analysis consists of a pointwise Simplified Extended Kalman filter (SEKF). The analyses are performed independently of each other, but they share the same coupled prior forecast between assimilation cycles. The SSA only configuration is different to operations in that it reads in rather than performs the atmospheric analysis, which vastly reduces the computational cost. Therefore there is no feedback from the land surface analysis to the atmospheric analysis. However, both analyses still share the same coupled first guess, which enables changes in the land surface analysis to influence the atmospheric dynamics during the 12-hour assimilation window. In this presentation, results from a sensitivity study are presented demonstrating the impact of doubling the screen-level observation errors and modifying the snow observations on the atmospheric/land surface scores for (1) the operational setup, and (2) the SSA only setup.