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Unsatisfying forecast of a Mediterranean cyclone: a verification study employing state-of-the-art techniques

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Abstract. On 16–17 November 2000, a relatively intense precipitation event on the north-western Italy was heavily underestimated, mainly due to shifting error, by three operational 10-km limited area models (LAMs) which differ about basic equations, domain size, and parameterisation schemes. The scope of the work is to investigate possible common error-sources independent from the single model, in particular the effect of initialisation. Thus, the complex evolution over the western Mediterranean Sea of the cyclone responsible for the event was investigated. Several objective and subjective verification techniques have been employed to check one of the LAMs' forecast against the available observations (precipitation from rain gauge and retrieved from ground-based radar, and satellite-retrieved atmospheric humidity patterns). Despite a clear statement is not achieved, results indicate that high sensitivity to the initial conditions, and the inadequacy of the observational network on the southern Mediterranean area, can play a major role in producing the forecast shifting error on the target area.

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