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Role of spatial aggregation over runoff calculations on southeast french catchments

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Grids are a very suitable way to allow hydrologic modelling. The efficiency of a grid based model should be defined in respect to a spatial resolution, i.e. the pixel size that the model can handle with an adequate degree of precision. The size of a pixel defined as a computation unit can introduce significant artefacts on the results, due to surface error estimation plus intrinsic model error. Quantify these influences is the aim of the tests carried out over 100 catchments on the French southeast region. Each of these catchments was defined with one to thousands pixels and the errors computed. Effective rainfall was calculated by means of the SCS method. The intrinsic error is due to the CN aggregation procedure to make adequate the soil and land use source maps to the pixel size adopted for the computations. Results had shown, as expected, that for coarse resolutions the error due to surface estimation is the most important, meanwhile for fine resolutions only the aggregation error is present. The paper contribution stays on the intermediate scales where thresholds of error magnitude could be associated to spatial resolution.