Update to the Random Parameter scheme for RAL3

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Alongside techniques to capture the uncertainties arising in the initial and boundary conditions, regional ensemble prediction systems also need to represent uncertainties arising in the model physics. In the operational UK ensemble, MOGREPS-UK, this is done through the Random Parameter (RP) scheme. The RP scheme is a perturbed parameter scheme where a subset of physics parameters are stochastically perturbed in time throughout the forecast. It is cheap to run, simple to implement, and can be tailored to target known areas of model uncertainty through the choice of physics parameters. With the move from RAL2 to RAL3, several of the parameters used in the RP scheme are no longer available and the characteristics of the ensemble have changed – most notably with a drop in ensemble spread for 10m wind speeds and summer screen temperatures. Here, we present a new set of parameters to work with the RAL3 science configuration. These include parameters for the bimodal cloud scheme, CASIM microphysics, and the land-surface. We show the impact of these new parameters on objective verification statistics and on a selection of fog case studies from the SOFOG observational campaign.