Verification of decadal forecasts: Climatology via simulation

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We investigate here the utility of stochastic simulation for the probabilistic verification of regional decadal forecasts that have been produced using dynamical models. Given observational records of sufficient length, a synthetic decadal climatology can be developed, in the Monte Carlo sense, via the fitting of a suitable statistical model and the generation of a large ensemble of stochastic simulations. Combined with an estimate of the regional forced response, such an ensemble constitutes an effective climatological standard against which both initialized and uninitialized forecasts can be compared. These comparisons can include amplitude ranges, spectra, persistence characteristics or other features of interest. The method is tested via application in selected regions.