



A probabilistic verification score for contours demonstrated with idealized ice-edge forecasts

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We introduce a probabilistic verification score for ensemble-based forecasts of contours: the Spatial Probability Score (SPS). Defined as the spatial integral of local (Half) Brier Scores, the SPS can be considered the spatial analog of the Continuous Ranked Probability Score (CRPS). Applying the SPS to idealized seasonal ensemble forecasts of the Arctic sea-ice edge in a global coupled climate model, we demonstrate that the SPS responds properly to ensemble size, bias, and spread. When applied to individual forecasts or ensemble means (or quantiles), the SPS is reduced to the 'volume' of mismatch, in case of the ice edge corresponding to the Integrated Ice Edge Error (IIEE).