



Supplement of

Multi-decadal initialized climate predictions using the EC-Earth3 global climate model

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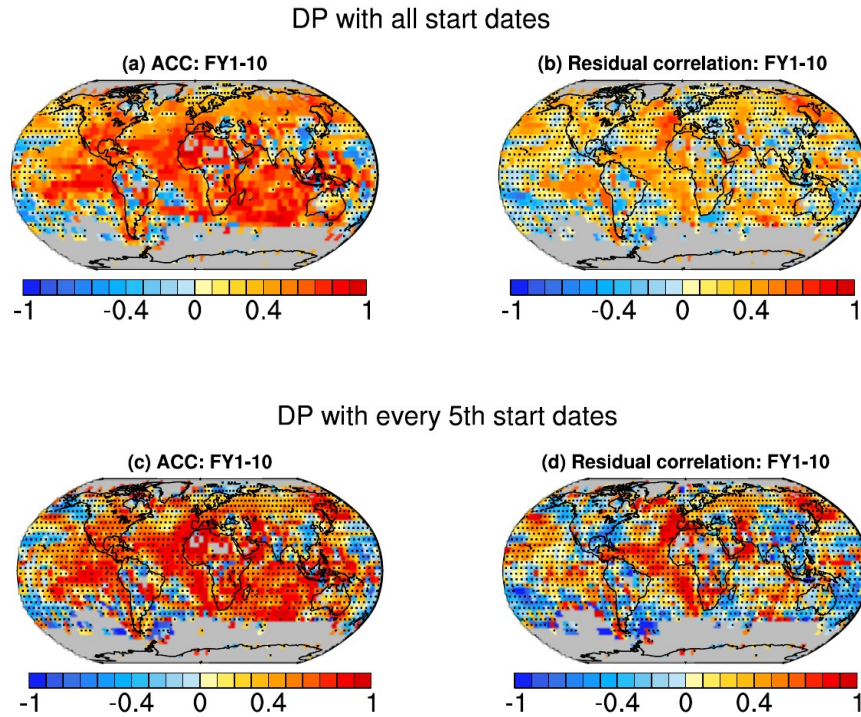


Figure S1. ACC (left) and residual correlation (right) for 10 years mean near-surface air temperature hindcasts for the EC-Earth3's previous decadal prediction system (available on ESGF with i4 identifier under DCP-P-A experiment). (a,b) The results are based on annual start-dates ranging from 1960 to 1990. (c,d) The results are based on every 5th start-date ranging from 1960 to 1990. Stippling indicate regions where ACC and residual correlations are not statistically significant at 95% confidence level.

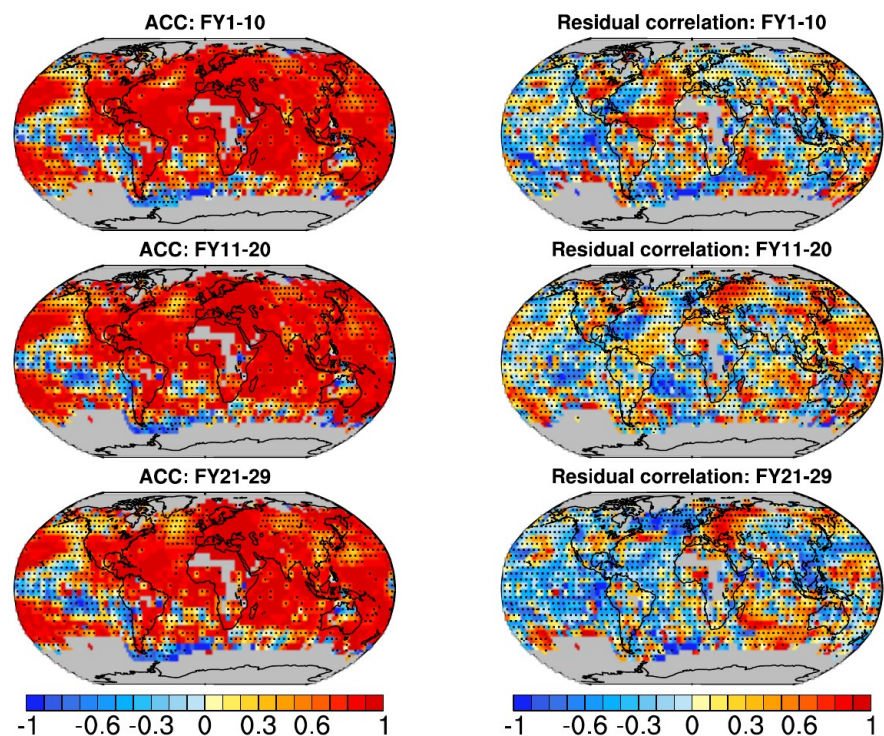


Figure S2: ACC (left column) and residual correlation (right column) of the near-surface air temperature hindcasts for different forecast horizons using the same analysis period (i.e. 1981-2020). Stippling indicate regions where ACC and residual correlations are not statistically significant at 95% confidence level.

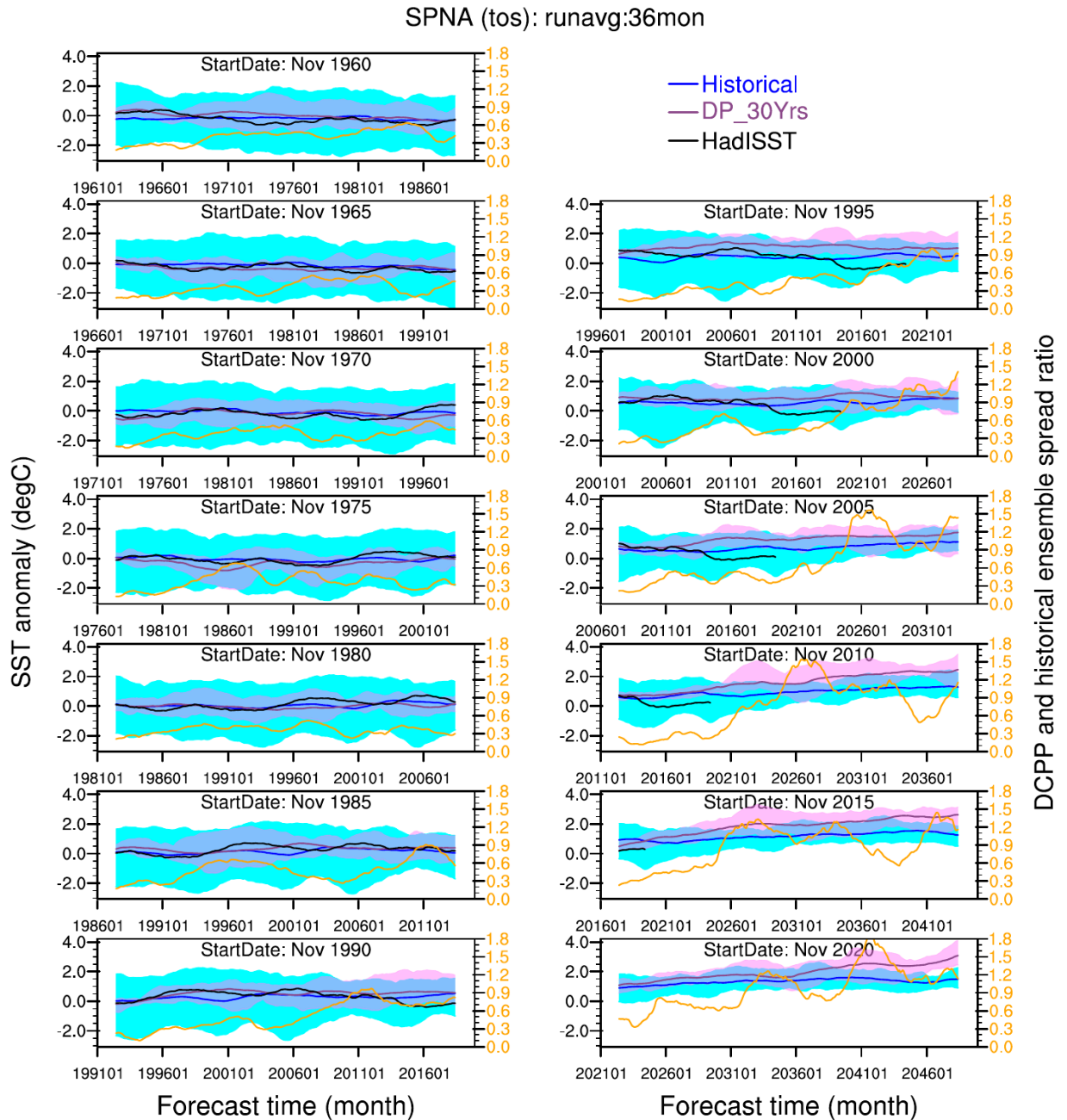


Figure S3. Comparison of mean SST anomalies in SPNA in initialized (in pink) and uninitialized (in blue) predictions. The spread in initialized and uninitialized predictions is based on minimum and maximum values of 10 members. Observations are shown by the black lines. The monthly anomalies were smoothed using a 36 months running average. The Yellow lines (right y-axis) represent spread ratios between initialized and uninitialized ensembles.

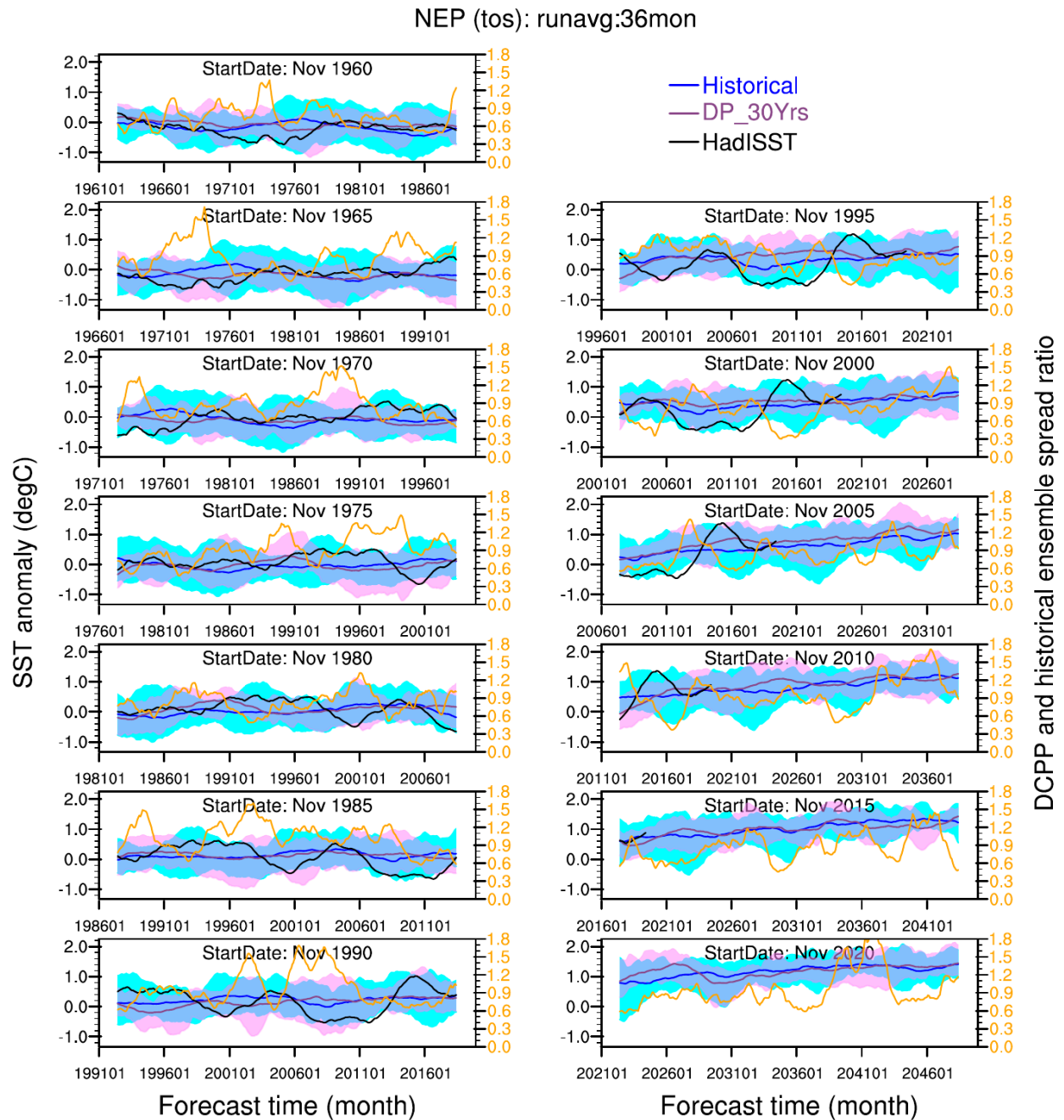


Figure S4. Comparison of mean SST anomalies in NEP in initialized (in pink) and uninitialized (in blue) predictions. The spread in initialized and uninitialized predictions is based on minimum and maximum values of 10 members. Observations are shown by the black lines. The monthly anomalies were smoothed using a 36 months running average. The Yellow lines (right y-axis) represent spread ratios between initialized and uninitialized ensembles.