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How predictable are equatorial Atlantic surface winds?

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Sensitivity tests with the SINTEX-F general circulation model (GCM) as well as experiments from the Coupled Model Intercomparison Project phase 5 (CMIP5) are used to examine the extent to which sea-surface temperature (SST) anomalies contribute to the variability and predictability of monthly mean surface winds in the equatorial Atlantic. In the SINTEX-F experiments, a control experiment with prescribed observed SST for the period 1982-2014 is modified by inserting climatological values in certain regions, thereby eliminating SST anomalies. When SSTs are set to climatology in the tropical Atlantic only (30S to 30N), surface wind variability over the equatorial Atlantic (5S-5N) decreases by about 40% in April-May-June (AMJ). This suggests that about 60% of surface wind variability is due to either internal atmospheric variability or SSTs anomalies outside the tropical Atlantic. A further experiment with climatological SSTs in the equatorial Pacific indicates that another 10% of variability in AMJ may be due to remote influences from that basin. Experiments from the CMIP5 archive, in which climatological SSTs are prescribed globally, tend to confirm the results from SINTEX-F but show a wide spread. In some models, the equatorial Atlantic surface wind variability decreases by more than 90%, while in others it even increases.
Overall, the results suggest that about 50-60% of surface wind variance in AMJ is predictable, while the rest is due to internal atmospheric variability. Other months show significantly lower predictability. The relatively strong internal variability as well as the influence of remote SSTs suggest a limited role for coupled ocean-atmosphere feedbacks in equatorial Atlantic variability.