Corrigendum

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In the original manuscript of Vecchi et al. (2013), Eq. (6), which is used to quantify the effective number of degrees of freedom in two autocorrelated time series N_{eff}, was incorrectly transcribed from Bretherton et al. (1999). The correct equation is

$$N_{\text{eff}} = \frac{N}{\sum_{\tau=-(N-1)}^{N-1} (1 - |\tau|/N) r_\tau^X r_\tau^Y},$$

where N is the number of samples in each time series, and r_τ^X and r_τ^Y are the biased estimates of the autocorrelation of each time series at lag τ. We evaluated whether the equation was incorrectly transcribed in the text of Vecchi et al. (2013), or whether the incorrect equation in the published paper was implemented in the calculations for the manuscript (which would have led to a substantial overestimate of the effective degrees of freedom). We found that the equation had been incorrectly transcribed.

However, in reviewing the implementation of the equation an error was found. This error stemmed from an indexing mistake when referencing an array, in which the lag-1 autocorrelation term in the summation in the denominator (which is always less than 1) was summed once instead of twice, while the lag-0 autocorrelation term (which is exactly 1) was summed twice. Therefore, the degrees of freedom were underestimated in the original Vecchi et al. (2013) manuscript; this led to an overestimation in the size of the error bars in Figs. 2, 4, and 9.

For Figs. 2 and 4, because the lag-1 autocorrelation of both the time series was close to 1, the underestimation in N_{eff} was generally between 1 and 2, and resulted in only minor changes to the error bars, without impacting the validity of the statements about statistical significance.

However, for Fig. 9, because the lag-1 autocorrelation of the time series once the 1994/95 shift had been removed was small, N_{eff} was sometimes underestimated by a factor of 2.

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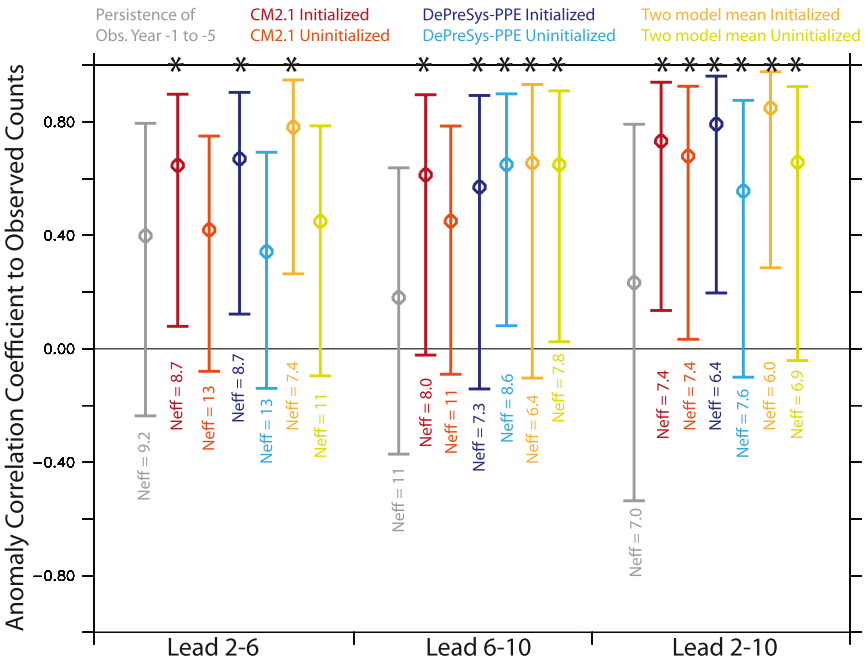

FIG. 2. As in Fig. 2 from Vecchi et al. (2013), but with error bars computed correctly, accounting for autocorrelation in the effective degrees of freedom as in Bretherton et al. (1999).

However, since the most of the correlations were low, most of the statements about statistical significance were not impacted. One exception is that, with the correct error bars, there is now statistically significant evidence (at the $p < 0.1$ level) that the lead 2–6-yr initialized predictions with GFDL CM2.1 outperform the various other when the target is the number of hurricane counts in the Atlantic after removing the changepoint across 1994–95.

The principal conclusions of the manuscript are unchanged by the error.

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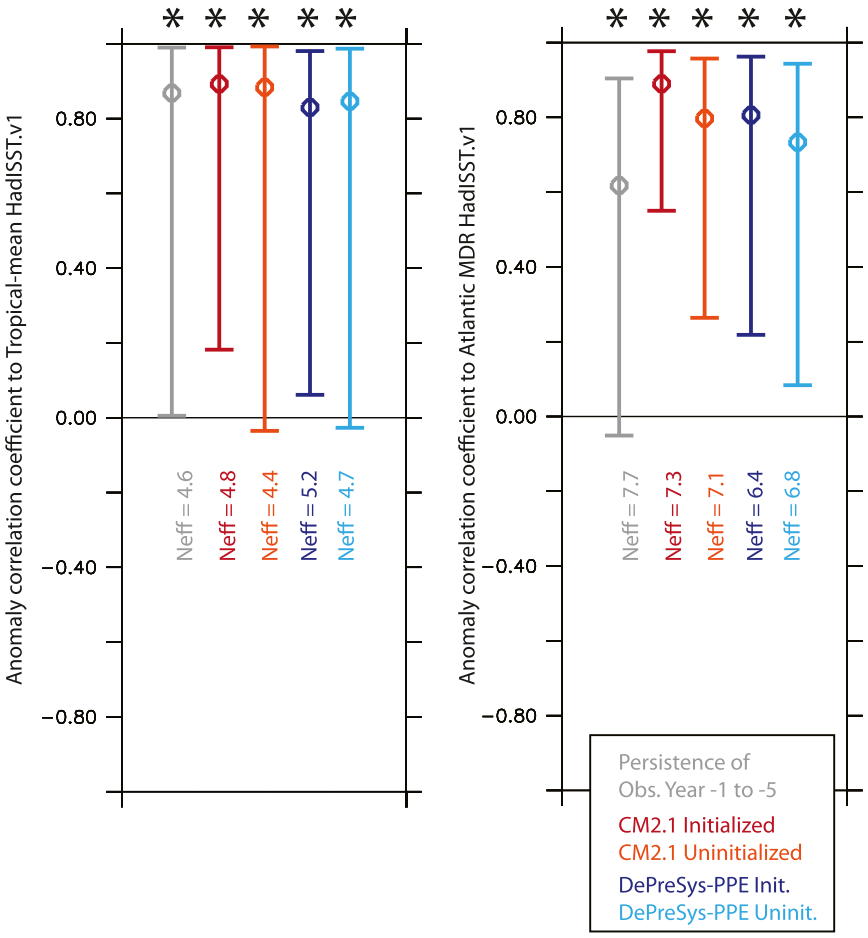

FIG. 4. (left) As in Fig. 4, top right, and (right) as in Fig. 4, bottom right, from Vecchi et al. (2013), but with error bars computed correctly, accounting for autocorrelation in the effective degrees of freedom as in Bretherton et al. (1999).

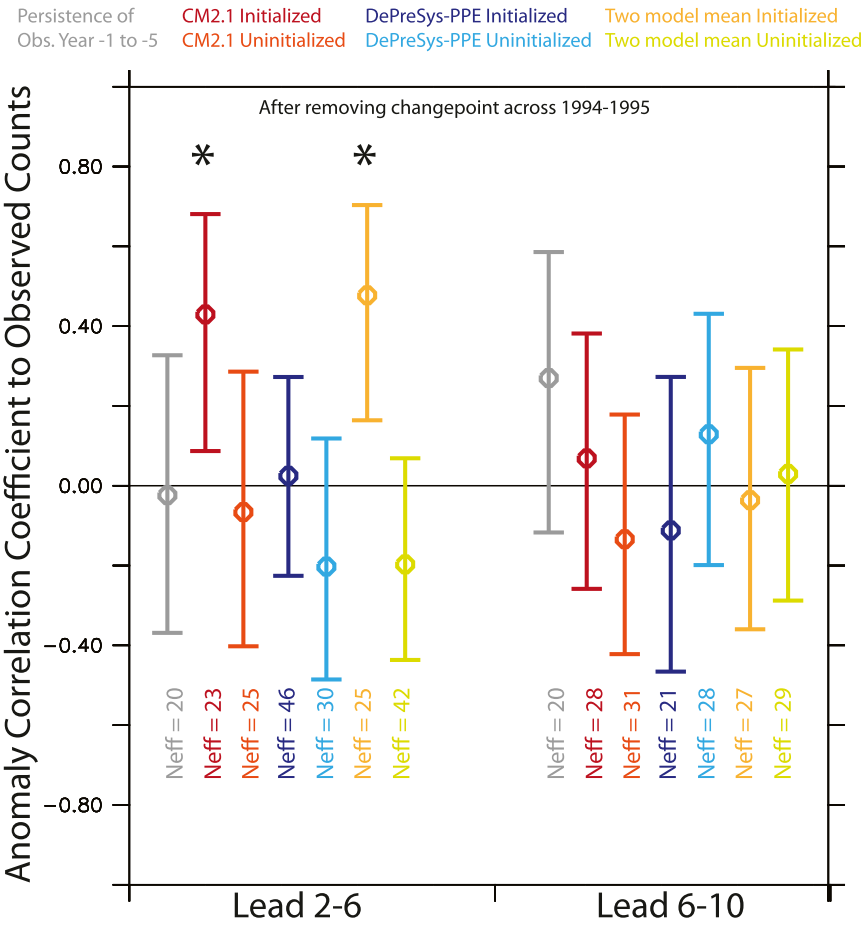

FIG. 9. As in Fig. 9 from Vecchi et al. (2013), but with error bars computed correctly, accounting for autocorrelation in the effective degrees of freedom as in Bretherton et al. (1999).