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Correction to "1973–1996 trends in depth-averaged tropospheric temperature" by R. A. Pielke Sr. et al.

In the paper "1973–1996 trends in depth-averaged tropospheric temperature" by R. A. Pielke Sr., J. Eastman, T. N. Chase, J. Knaff, and T. G. F. Kittel (*Journal of Geophysical Research*, *103*(D14), 16,927–16,933), there were several errors in Figures 1, 2, and 3a and Tables 1a, 1b, and 1c. These errors do not affect the major conclusions of the paper. The National Center for Environmental Prediction (NCEP) reanalysis anomalies and trends depicted in Figures 1, 2, and 3a and Tables 1a, 1b, and 1c in the original paper should have been multiplied by 2. In addition, the northern and southern hemisphere labels in Figure 2 and Tables 1b and 1c were reversed. We discovered these errors after page proofs had been returned. The corrected figures and tables appear below. A correct version of the paper has also been posted on our Web site http://hercules.atmos.colostate.edu/~project/.

Table 1a. Global Trends in Tropospheric Temperatures From NCEP

Layer, mbar	NCEP Reanalysis Trend °C/yr 1973–1996	NCEP Reanalysis Trend °C/yr 1979–1996
1000-850	0.0128[a]	−0.0042
1000-700	0.0139[a]	−0.0038
1000-500	0.0109[a]	−0.0050
1000-300	0.0136[a]	−0.0045
1000-200	0.0176[a]	−0.0075
MSU[b]	N/A	−0.0054

[a]Indicates the trend meets the 95% confidence interval.
[b]The MSU trends are for 1979–1995 and are presented here for comparison.

Table 1b. As in Table 1a Except for Northern Hemisphere

Layer, mbar	NCEP Reanalysis Trend °C/yr 1973–1996	NCEP Reanalysis Trend °C/yr 1979–1996
1000-850	0.0168[a]	+0.0027
1000-700	0.0165[a]	+0.0010
1000-500	0.0141[a]	−0.0020
1000-300	0.0156[a]	−0.0032
1000-200	0.0153[a]	−0.0076
MSU[b]	N/A	+0.0006

[a]Indicates the trend meets the 95% confidence interval.
[b]The MSU trends are for 1979–1995 and are presented here for comparison.

Table 1c. As in Table 1a Except for Southern Hemisphere

Layer, mbar	NCEP Reanalysis Trend °C/yr 1973–1996	NCEP Reanalysis Trend °C/yr 1979–1996
1000-850	0.0089	−0.0112
1000-700	0.0112[a]	−0.0085
1000-500	0.0077	−0.0082
1000-300	0.0117[a]	−0.0058
1000-200	0.0200[a]	−0.0074
MSU[b]	N/A	−0.0114

[a]Indicates the trend meets the 95% confidence interval.
[b]The MSU trends are for 1979–1995 and are presented here for comparison.

For the revised figures, we used the most recent monthly averaged reanalysis data obtained from the National Center for Atmospheric Research (NCAR). The NCAR data includes reanalysis back to 1958 and up to 1997 (data prior to 1973 and after 1996 were not available at the time of the original submission) which were used to compute the anomalies shown in Figure 5. The thickness-derived temperature anomalies with respect to the 40-year climatology for the 1000-850 layer for the period 1958–1997 are plotted in Figure 5 for reference. The new data also included new NCEP model runs for 1976, 1977, and 1978 which made very minor changes to our analysis.

Correlations with the microwave sounding unit (MSU) time series were nearly identical with those shown in Figure 4 of the original paper which is not reproduced here. The longer time period (Figure 5) provides further evidence that there is a cold bias in the analyses prior to 1979, as we noted in our paper in section 3.2. The only change in our interpretation of the analyses is with respect to the seasonal variation of the temperature trends in the northern and southern hemispheres. In the corrected Figure 2b, for instance, only the southern hemisphere winter shows a warming trend. The following are corrected figures and tables and new Figure 5.

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0148-0227/98/1998JD200023$09.00

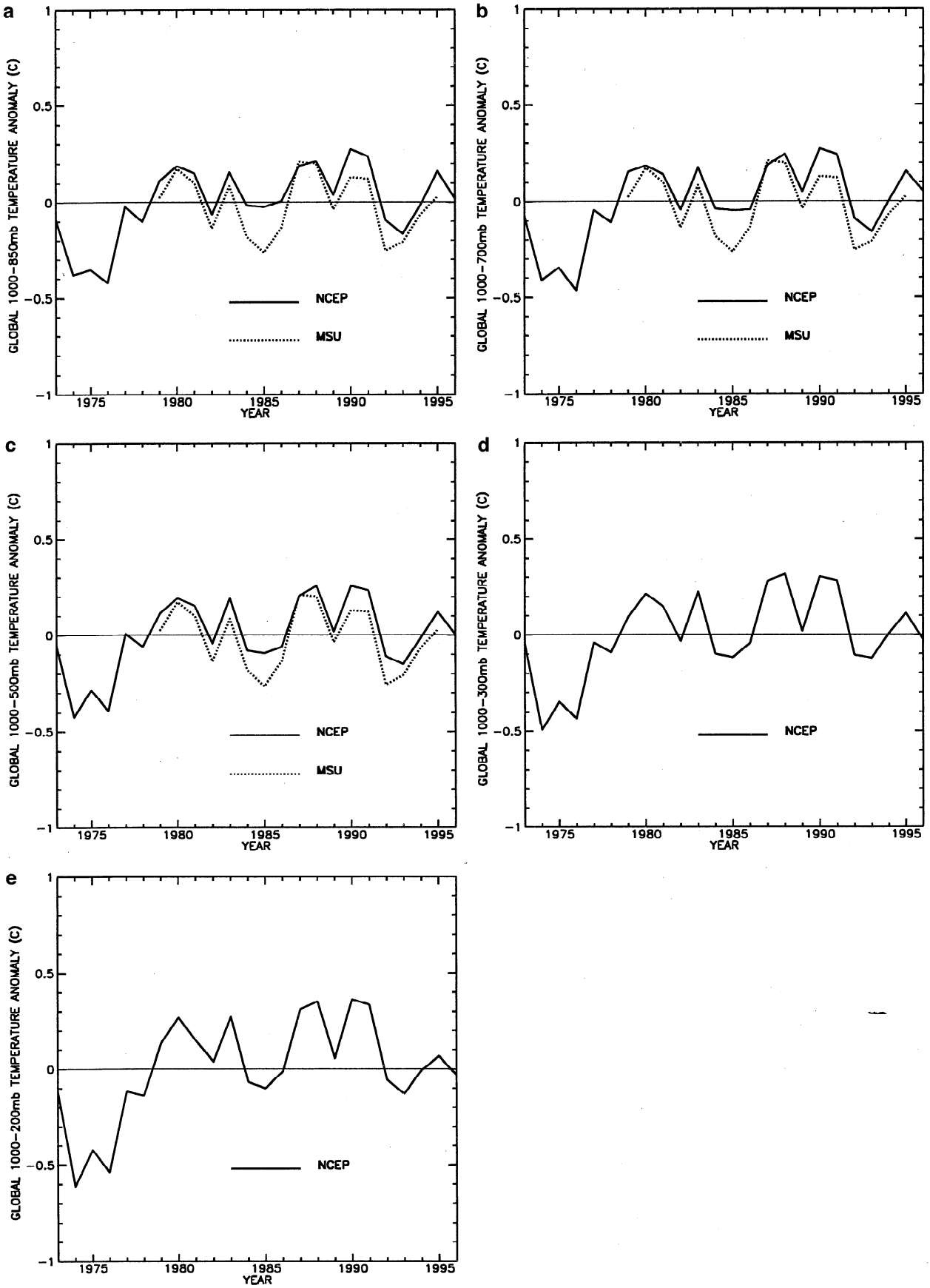

Figure 1. National Center for Environmental Prediction (NCEP) (1973–1996) global layer temperature anomaly (°C) time series for (a) 1000-850, (b) 1000-700, (c) 1000-500, (d) 1000-300, and (e) 1000-200 mbar. Also plotted are microwave sounding unit (MSU) lower-tropospheric temperature anomalies (1979–1995) for the lower-tropospheric layers where it is defined.

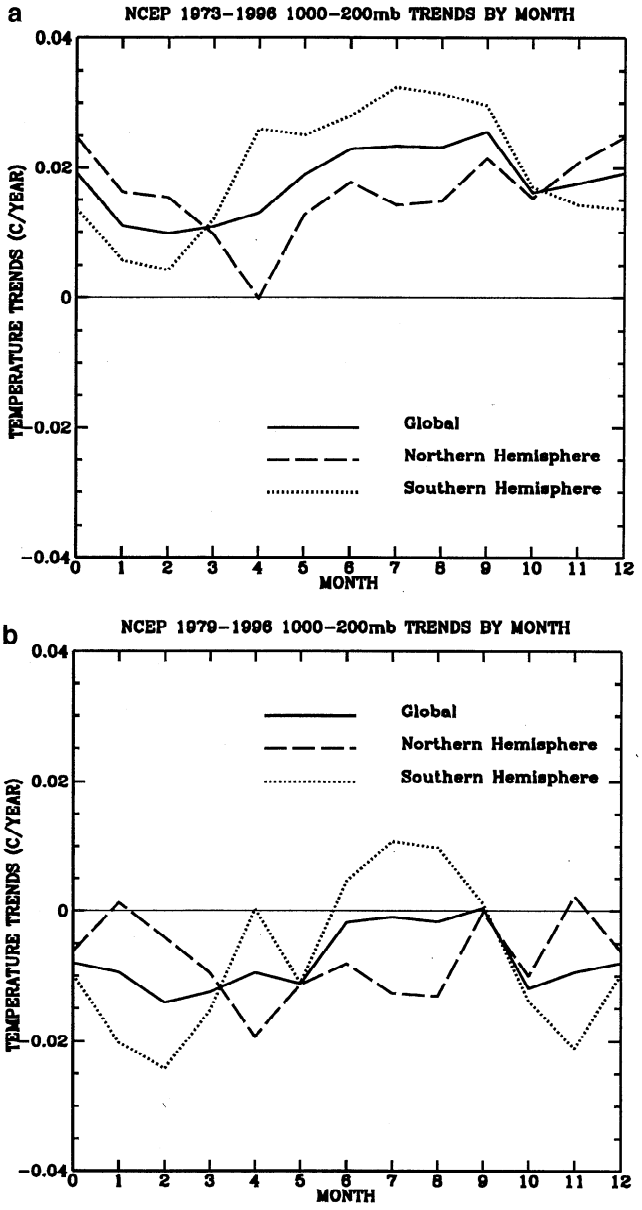

Figure 2. Global and northern and southern hemisphere monthly 1000-200 mbar layer temperature trends (°C yr^{-1}) calculated from the NCEP reanalysis for (a) 1973–1996 and (b) 1979–1996. Months are plotted along the x axis (0 = December, 1 = January, ···, 12 = December).

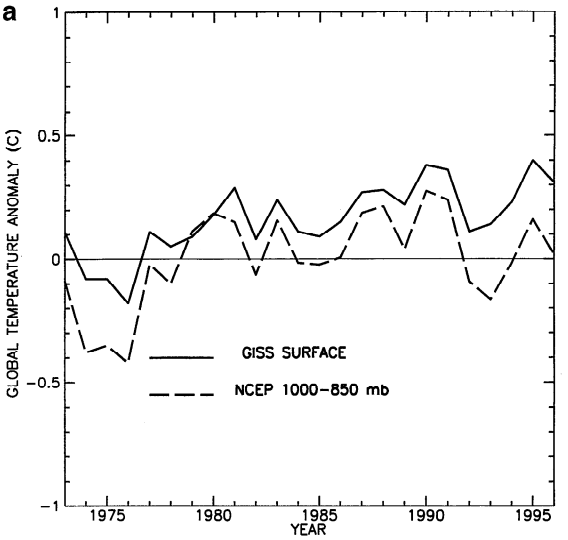

Figure 3. (a) Global surface and NCEP 1000-850 mbar layer mean temperature for the period 1973–1996. The global surface temperatures were obtained as discussed in section 2.1 of this paper.

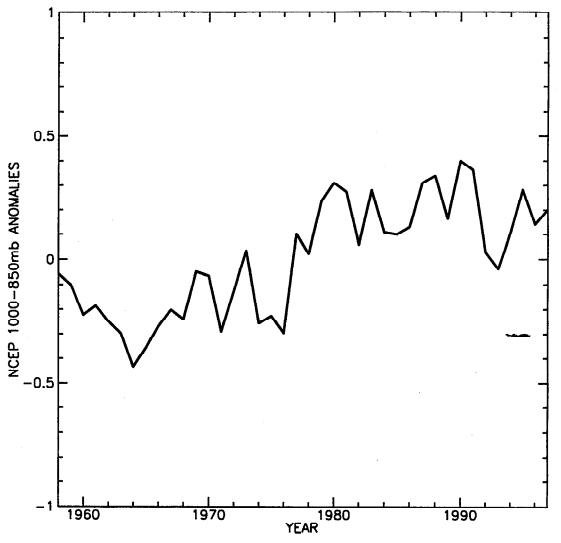

Figure 5. NCEP 1958–1997 global layer temperature anomaly (°C) time series for 1000-850 mbar defined with respect to the 40-year climatology.

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