

Mass, Salt, and Heat Budgets and Wind Forcing: Supplementary Materials

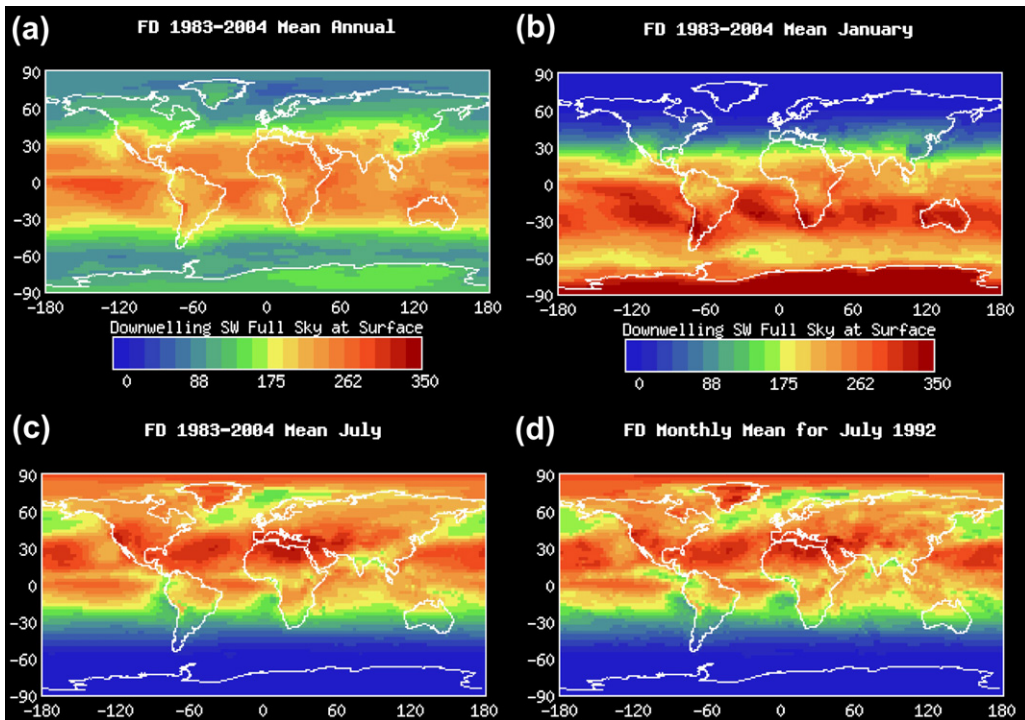


FIGURE S5.1 Mean (1983–2004) shortwave radiation (W/m^2) from the International Satellite Cloud Climatology Project (ISCCP). (a) annual, (b) January, (c) July, and (d) July 1992 monthly mean. *Source: From ISCCP (2007).*

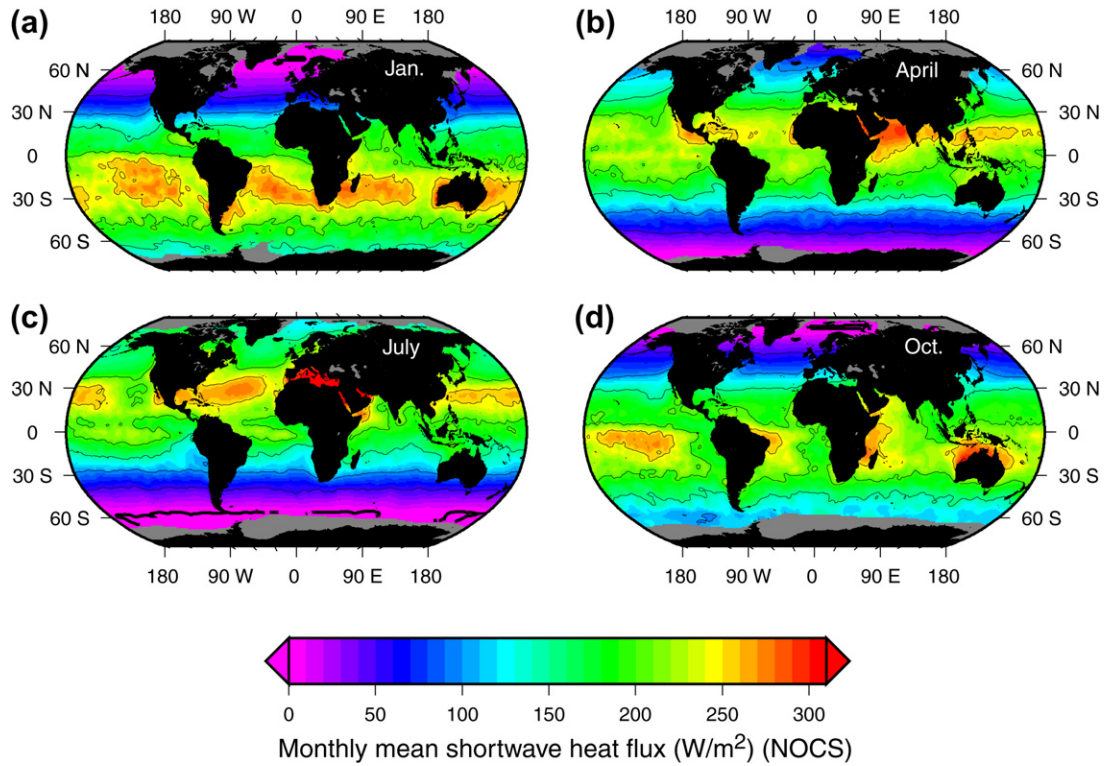


FIGURE S5.2 Monthly mean shortwave radiation (W/m^2) for (a) January, (b) April, (c) July, and (d) October. Data are from the NOCS product of Grist and Josey (2003).

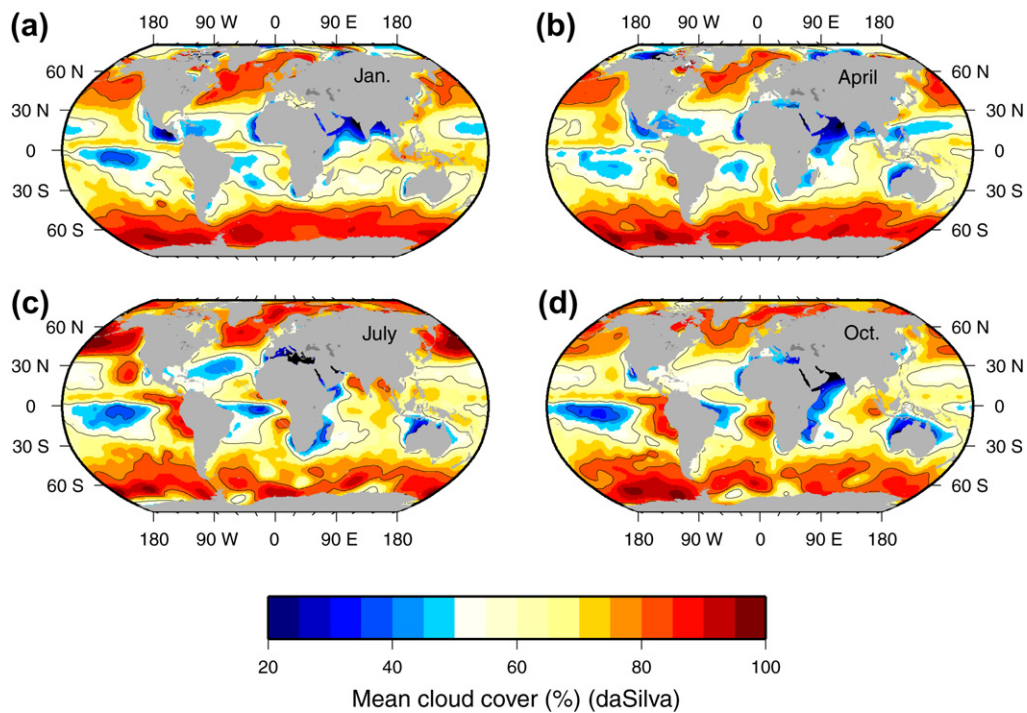


FIGURE S5.3 Cloud cover (%) for (a) January, (b) April, (c) July and (d) October. Data are from the climatology of da Silva, Young, and Levitus (1994), based on surface observations.

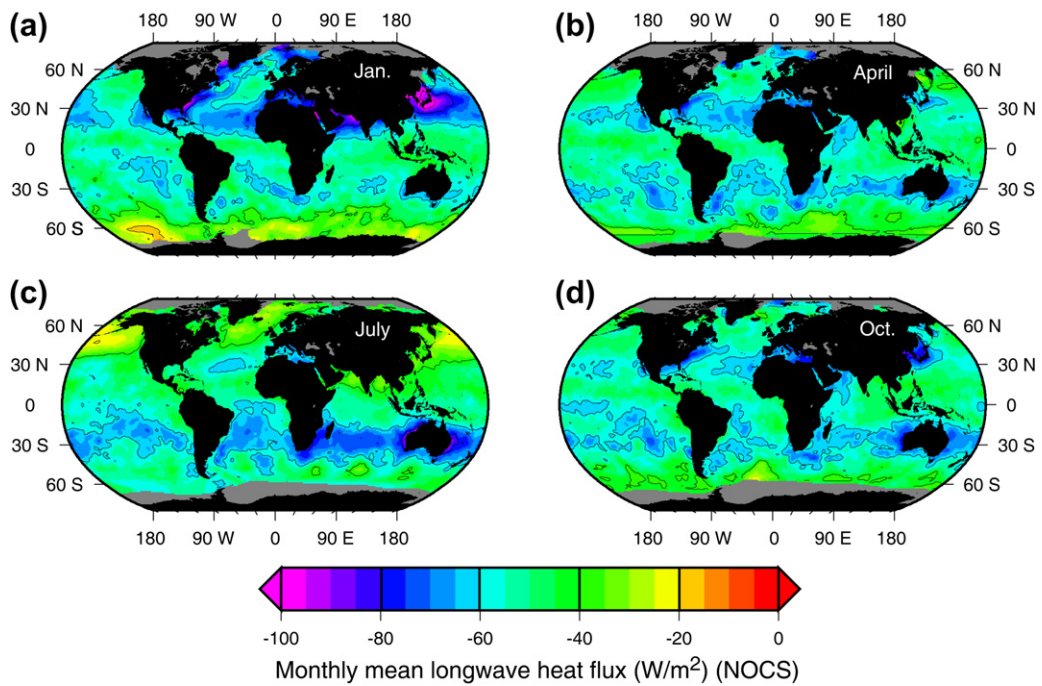


FIGURE S5.4 Monthly mean longwave heat flux (W/m^2) for (a) January, (b) April, (c) July, and (d) October. Data are from the NOCS product of Grist and Josey (2003).

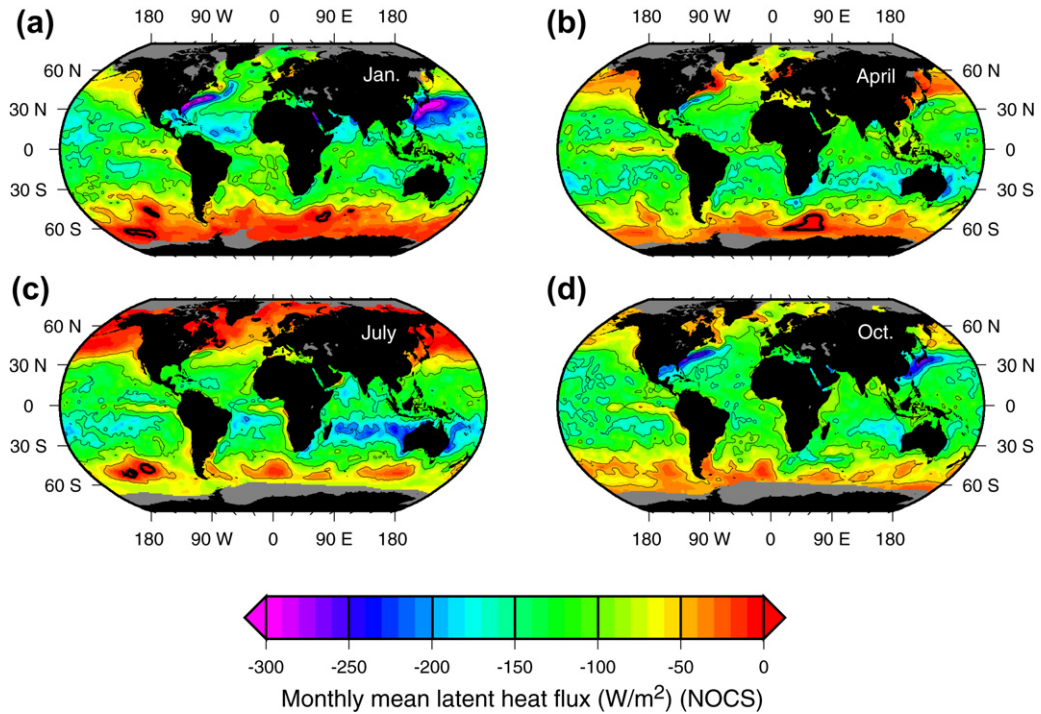


FIGURE S5.5 Monthly mean latent heat flux (W/m^2) for (a) January, (b) April, (c) July, and (d) October. Data are from the NOCS product of Grist and Josey (2003).

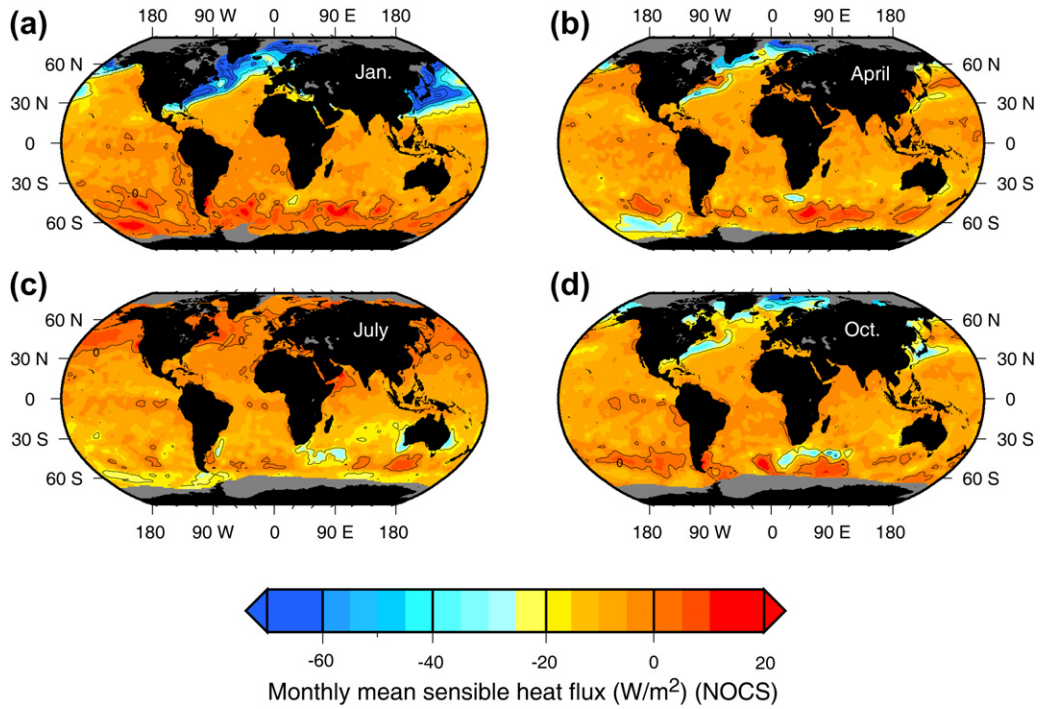


FIGURE S5.6 Monthly mean sensible heat flux (W/m^2) for (a) January, (b) April, (c) July, and (d) October. Data are from the NOCS product of Grist and Josey (2003).

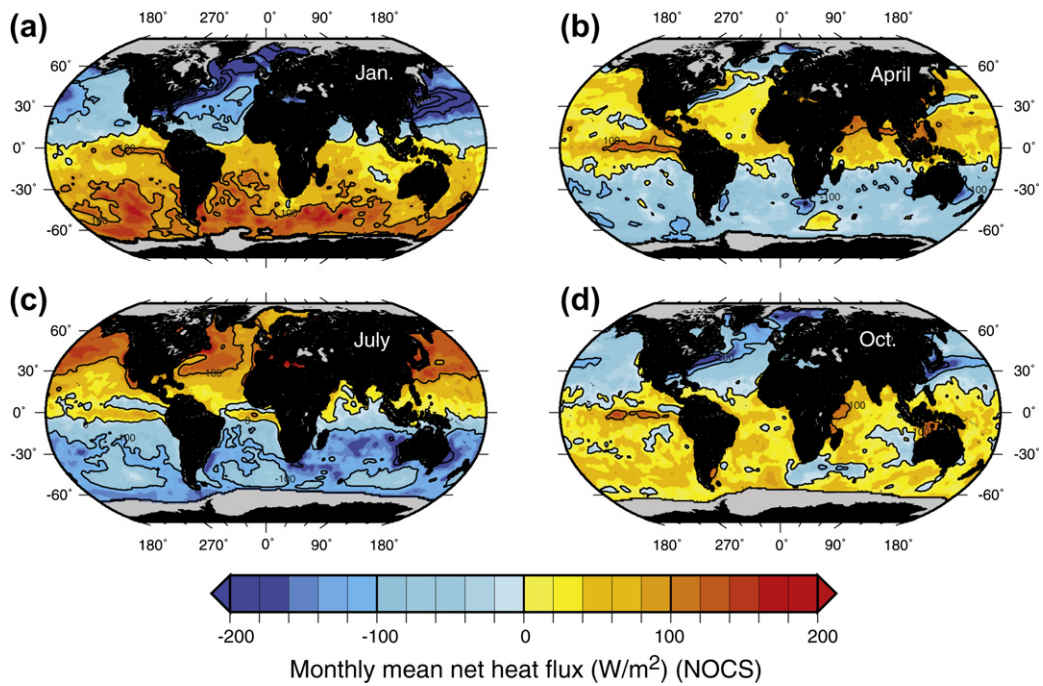


FIGURE S5.7 Monthly mean net heat flux (W/m^2) for (a) January, (b) April, (c) July, and (d) October. Data are from the NOCS product of Grist and Josey (2003).

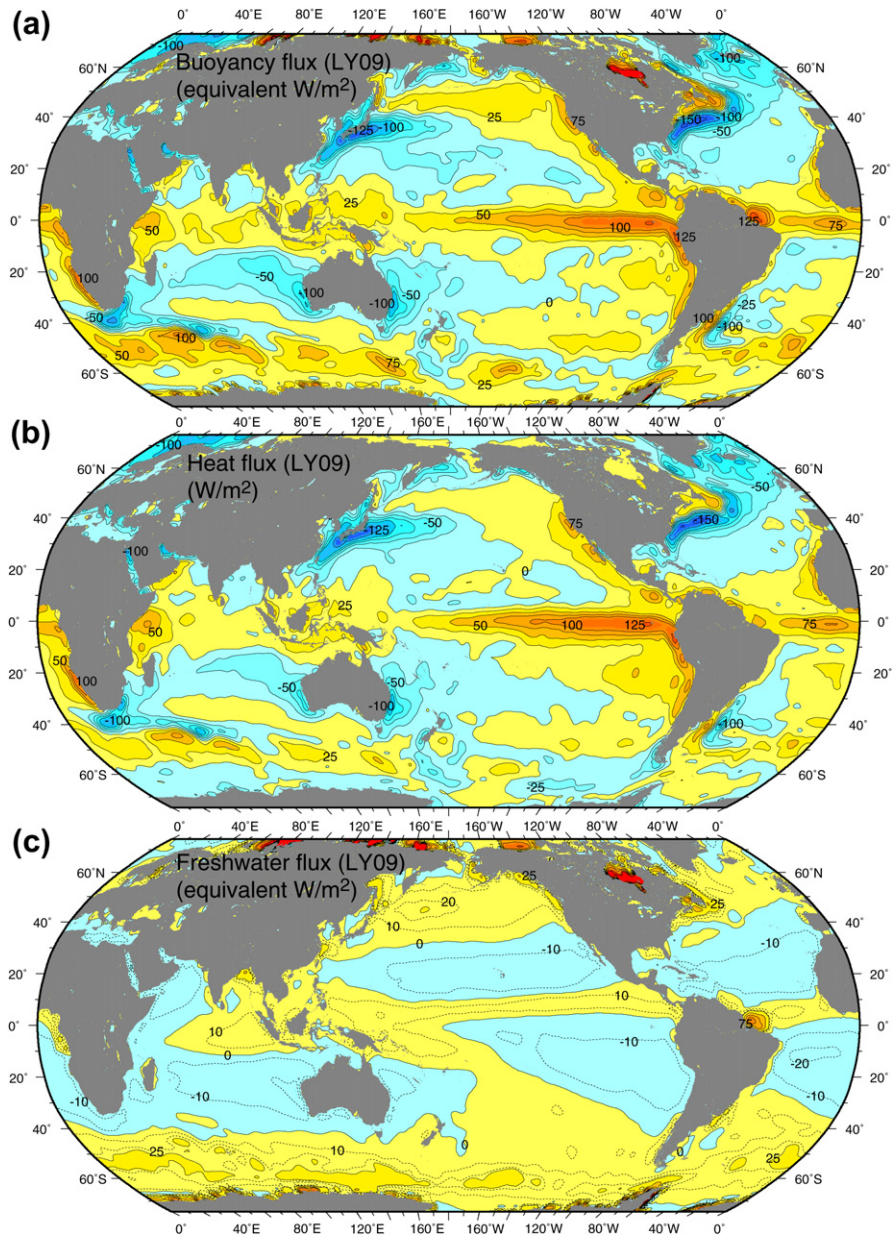


FIGURE S5.8 Annual mean air–sea (a) buoyancy flux, (b) heat flux, and (c) freshwater flux (precipitation, evaporation, and runoff) with the buoyancy and freshwater fluxes converted to equivalent heat fluxes (W/m^2), based on Large and Yeager (2009) air–sea fluxes. Positive values (yellows-reds) indicate that the ocean is becoming less dense, warmer, or fresher in the respective maps. Contour interval is $25 W/m^2$; in (c) dotted contours are 10 and $20 W/m^2$.

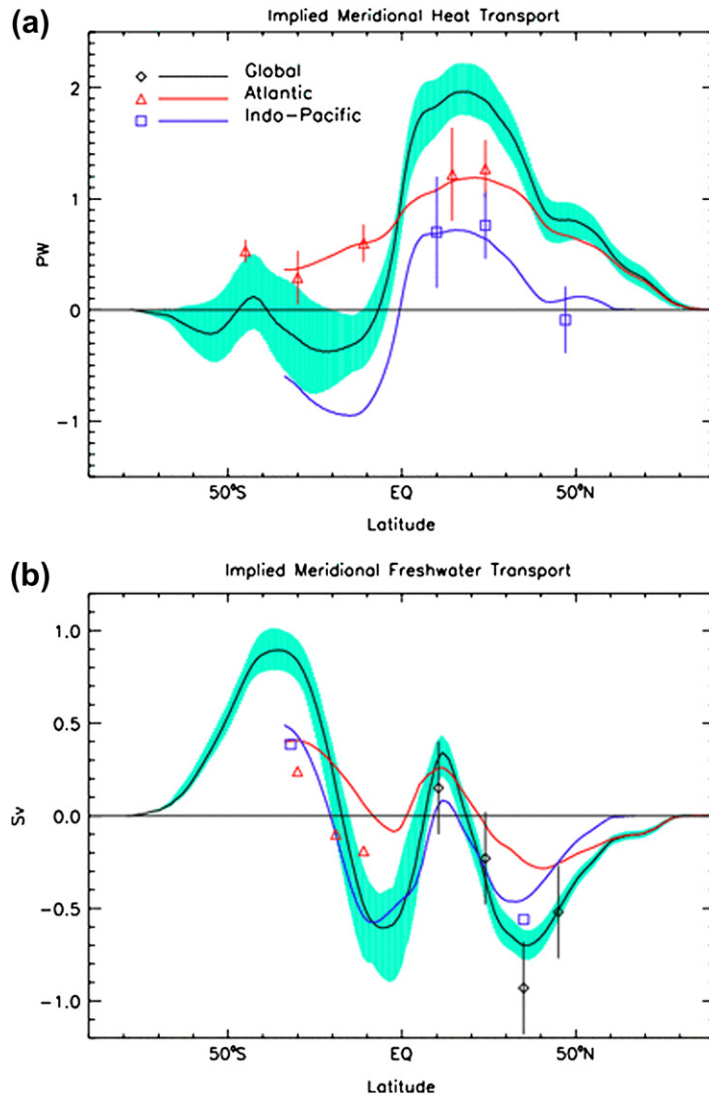


FIGURE S5.9 Annual mean meridional transports of (a) heat (PW) and (b) freshwater (Sv). Uncertainties in the global estimates are given in green. The symbols with error bars show direct transport estimates, from Bryden and Imawaki (2001). Source: From Large and Yeager (2009).

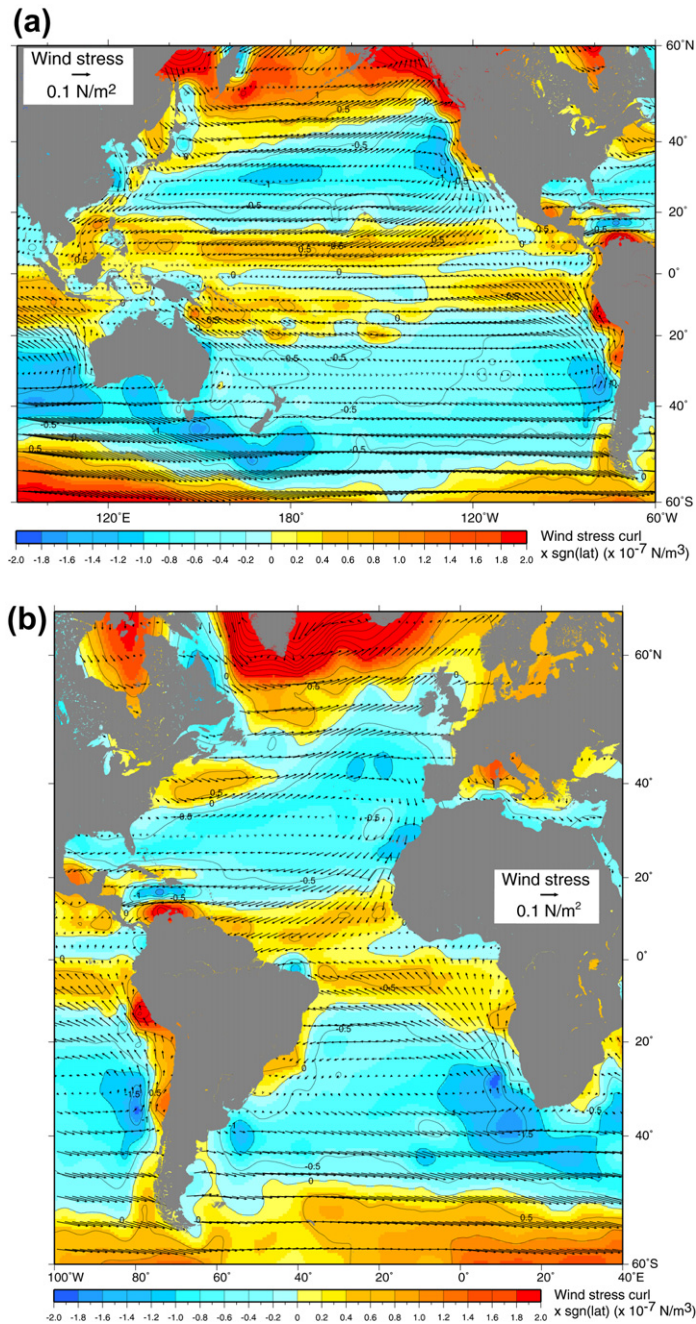


FIGURE S5.10 Annual mean wind stress (N/m^2) (vectors) and wind-stress curl ($\times 10^{-7} \text{ N/m}^3$; color shading), multiplied by -1 in the Southern Hemisphere. (a) Pacific Ocean, (b) Atlantic Ocean, and (c) Indian Ocean. Data are from the NCEP reanalysis 1968–1996 (Kalnay et al., 1996).

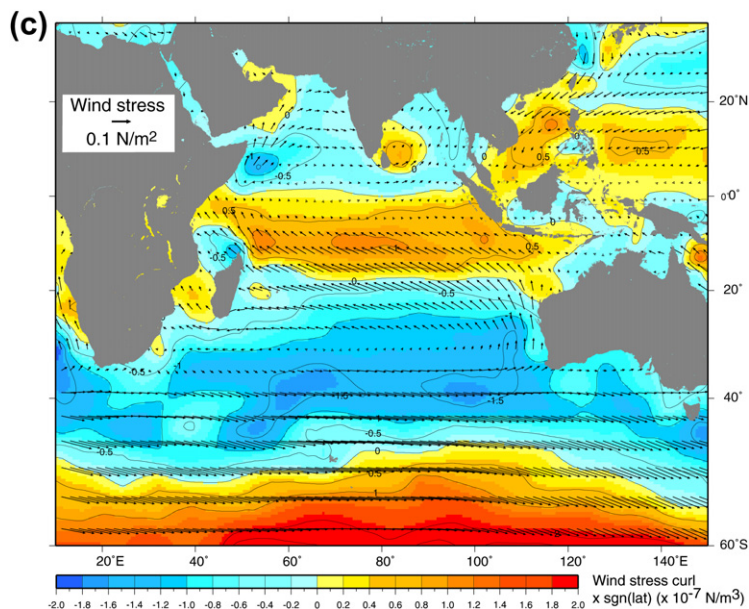


FIGURE S5.10 (Continued).

References

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