

Figure 1. Distributions of climatological (1979-2006) fractional sea-ice concentration: a) over Northern Hemisphere Arctic poleward of 45°N and b) over the Southern Hemisphere Antarctic poleward of 50 °S.

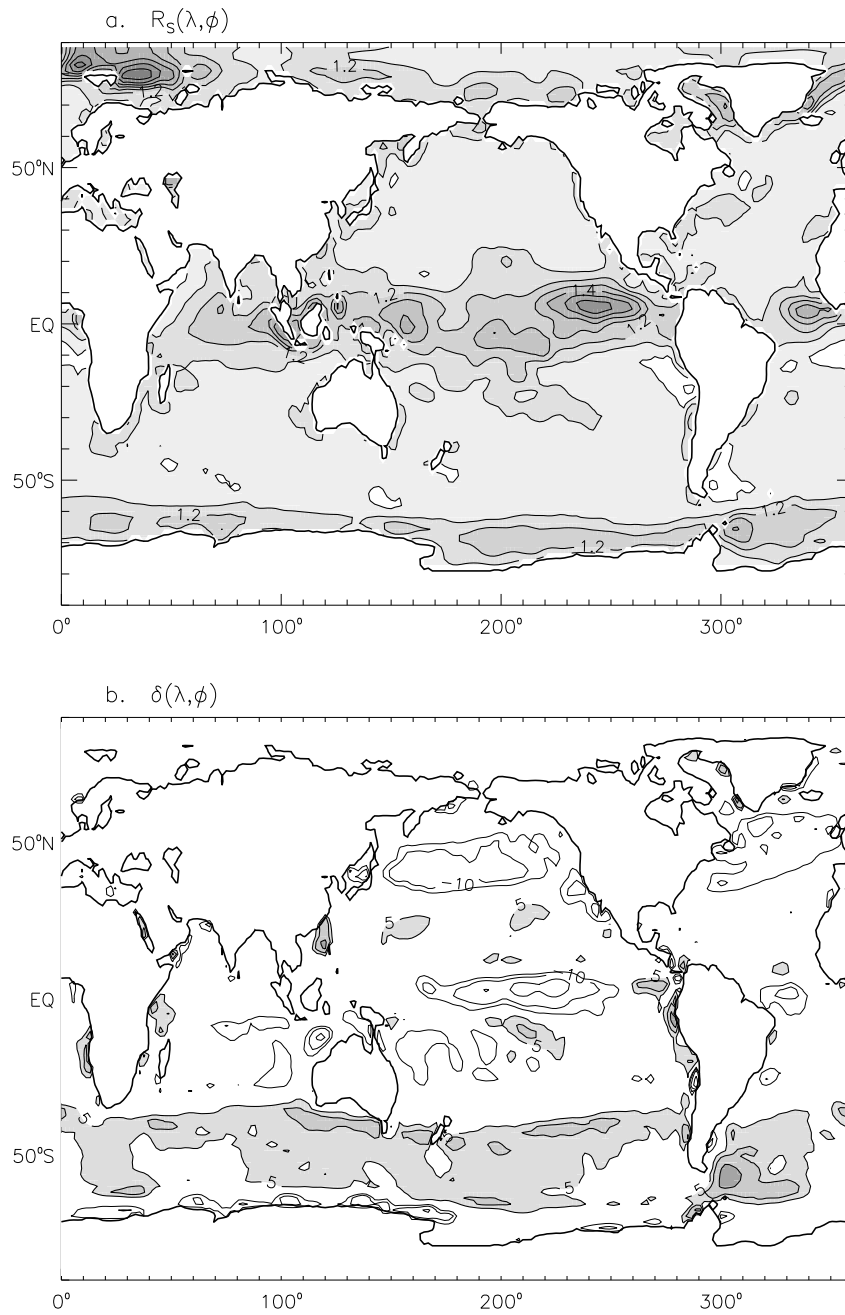


Figure 2. Global distributions of the corrections applied to NCEP wind vectors: a) multiplicative speed factor, contoured at 0.1 intervals, b) rotation, contoured at 5° intervals, but without a zero contour and with positive (counter-clockwise) rotation shaded.

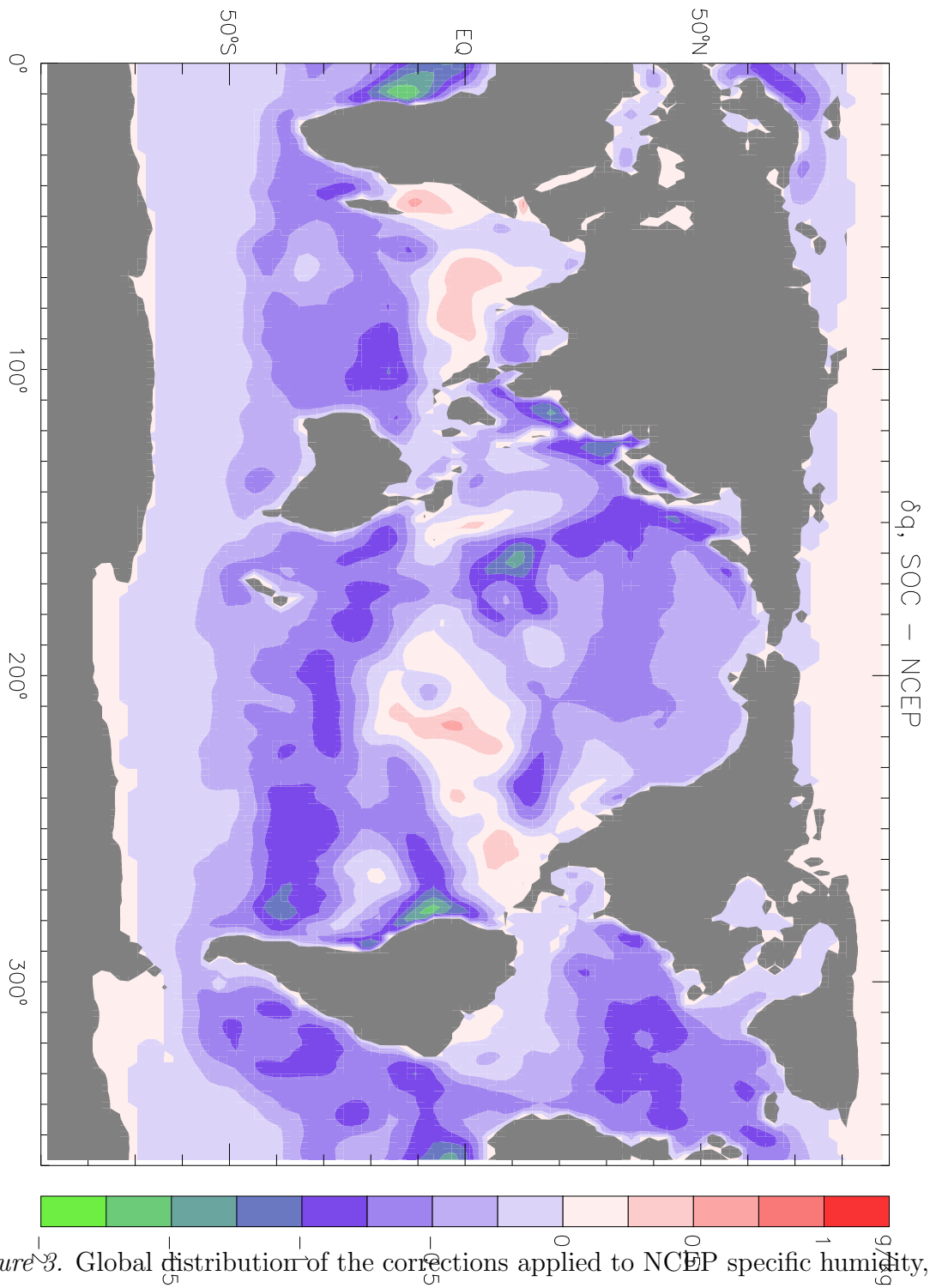


Figure 3. Global distribution of the corrections applied to NCEP specific humidity, colored at 0.25 g/kg intervals.

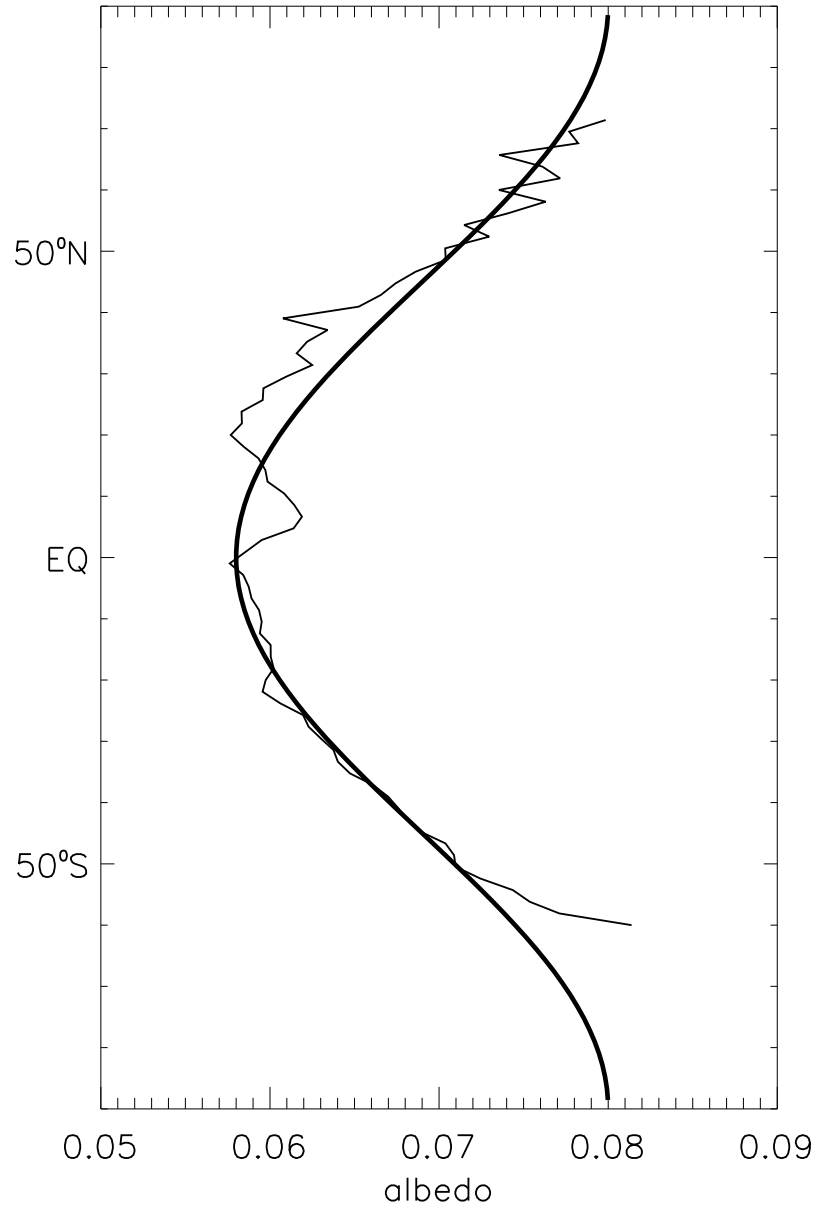


Figure 4. Ocean surface solar albedo as a function of latitude from zonal averages of ISCCP-FD (thin trace), and the fit given by Eq. 8 (thick trace).

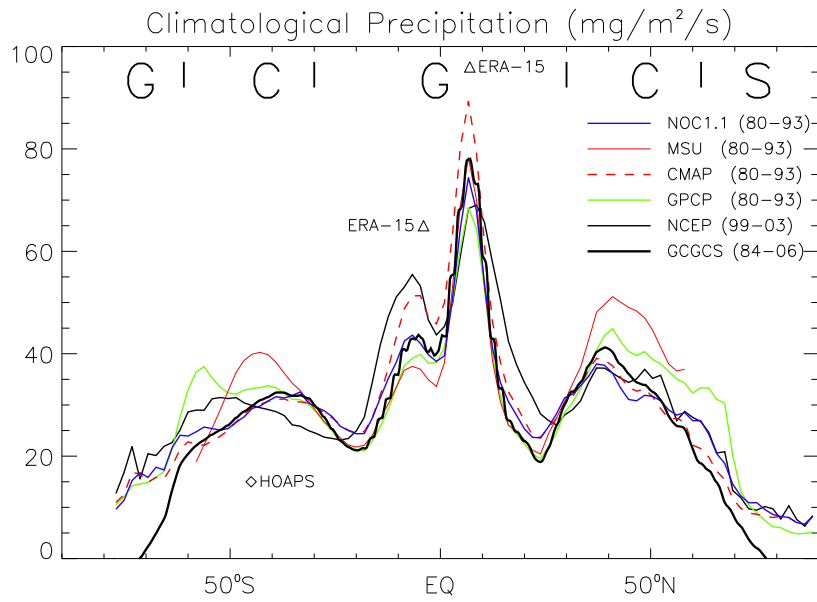


Figure 5. Meridional distributions of zonally averaged precipitation from various sources described in the text, mostly over the common years 1980-1993, except for NCEP (1999-2003) and the combined GCGCS product (1984-2006). Units are $\text{mg}/\text{m}^2/\text{s}$ ($0.084 \text{ mm}/\text{day} = 3.1 \text{ cm}/\text{year}$).

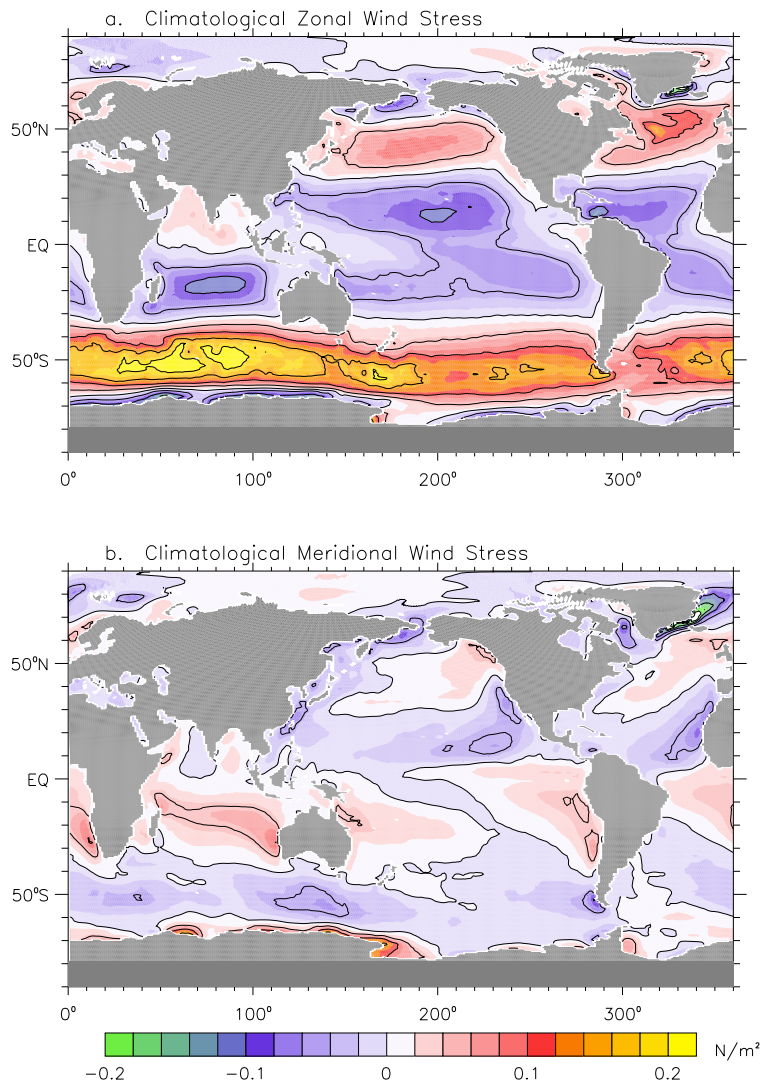


Figure 6. Global distributions of the CORE.2 air-sea momentum flux components: a) zonal, with eastward stress shaded, b) meridional, with northward stress shaded. The contours are at 0.05 N/m^2 intervals.

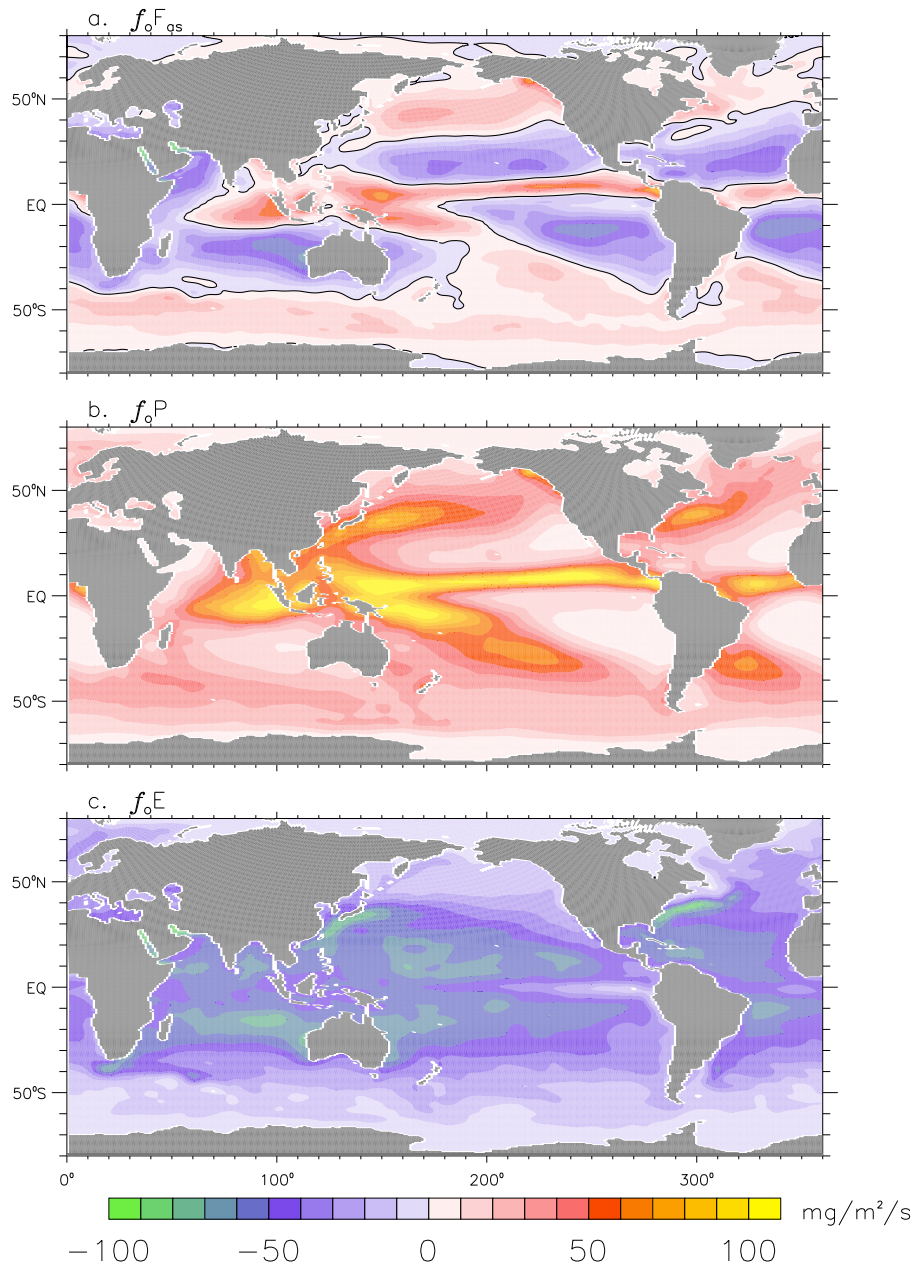


Figure 7. Global distributions of the climatological CORE.2 air-sea fluxes of a) freshwater, b) precipitation, c) evaporation, colored at 10 $\text{mg}/\text{m}^2/\text{s}$ intervals are 10 $\text{mg}/\text{m}^2/\text{s}$ with a zero contour. Multiplication of the evaporation by a factor of 2.5

gives the latent heat flux in W/m^2 .

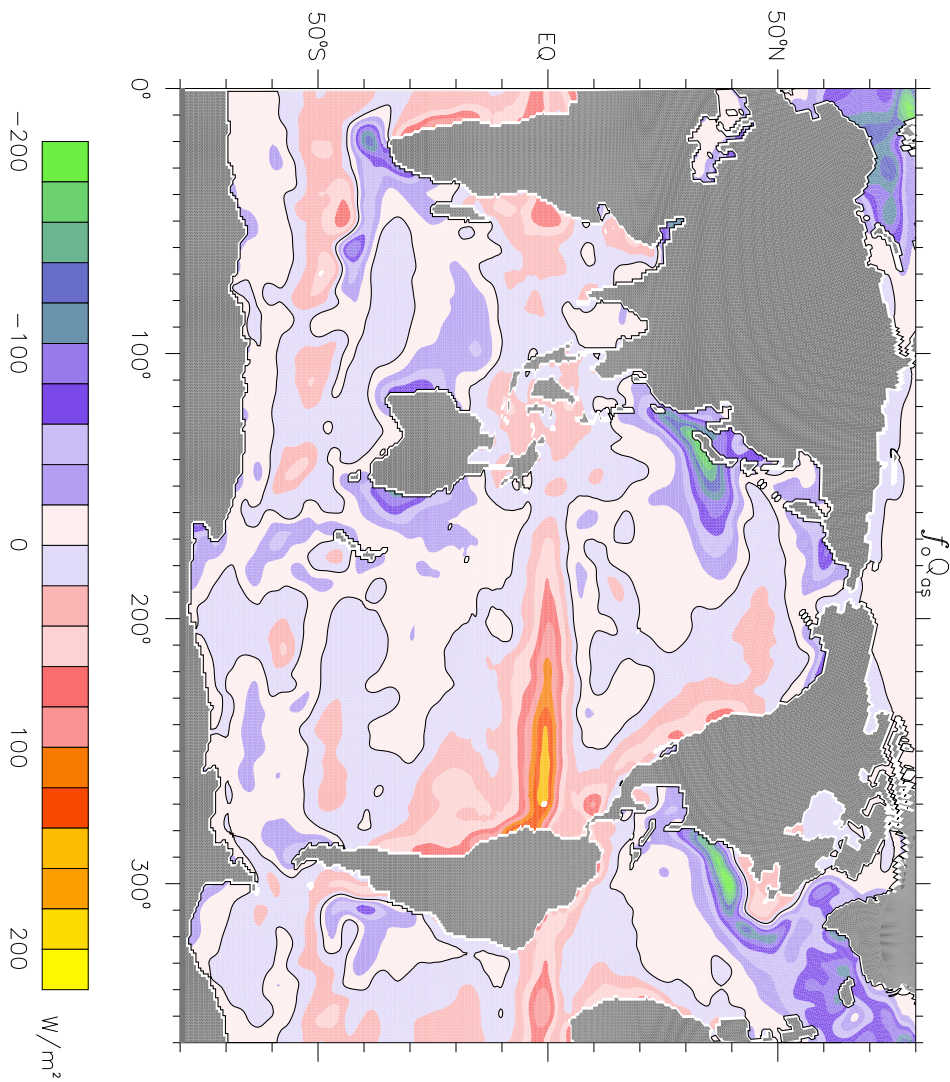


Figure 8. Global distribution of the climatological CORE.2 net air-sea heat flux. The coloring is at $20 W/m^2$ intervals, with positive values where the flux is into the ocean.

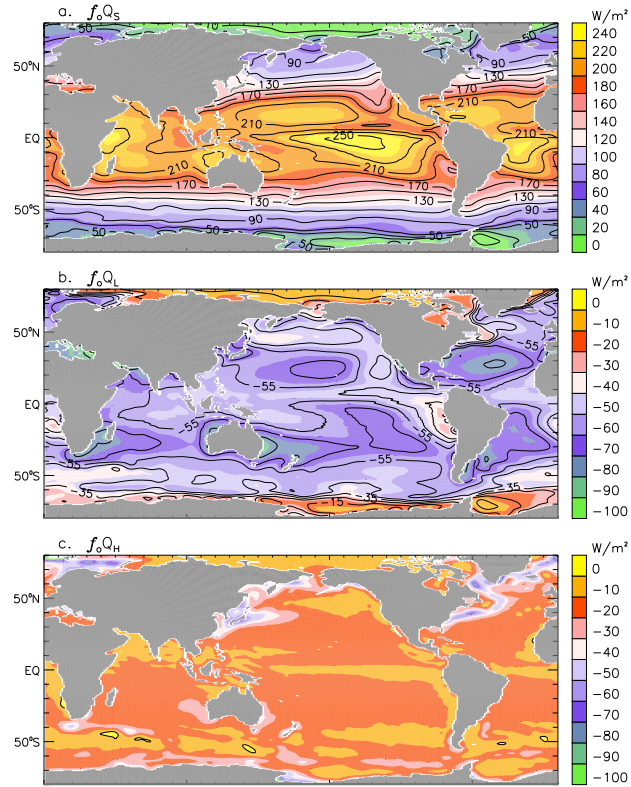


Figure 9. lobal distributions of the climatological CORE.2 air-sea heat flux components: a) net solar radiation, with 20 W/m^2 contour intervals; b) net longwave radiation, with 10 W/m^2 contour intervals; c) sensible heat flux, with coloring at 10 W/m^2 intervals. The latent heat flux can be inferred by multiplying the evaporation of Fig. 7c by a factor of 2.5.

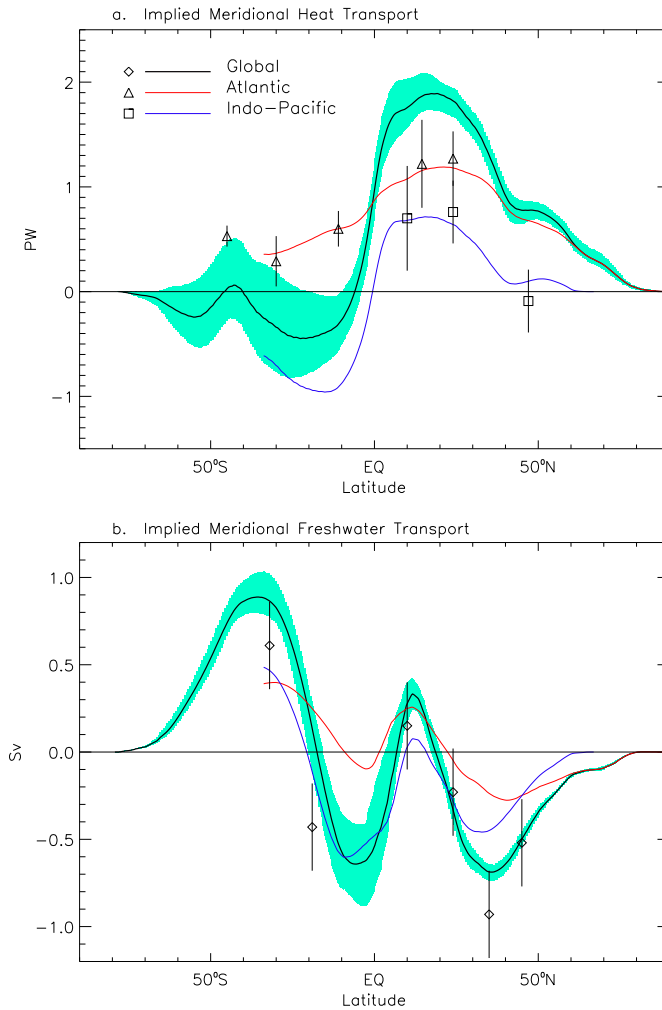


Figure 10. Northward transports of a) heat in PW, b) freshwater in Sv. Implied transports from the climatological CORE.2 air-sea heat and freshwater fluxes are shown by the solid, dashed and dotted traces for the global ocean, the Atlantic Ocean and the Indo-Pacific basin, respectively. The range of the global transport in individual years is indicated by the shading. Direct estimates from ocean sections across entire basins are shown as diamonds, triangles and squares, again for the global ocean, the Atlantic Ocean and the Indo-Pacific basin, respectively.

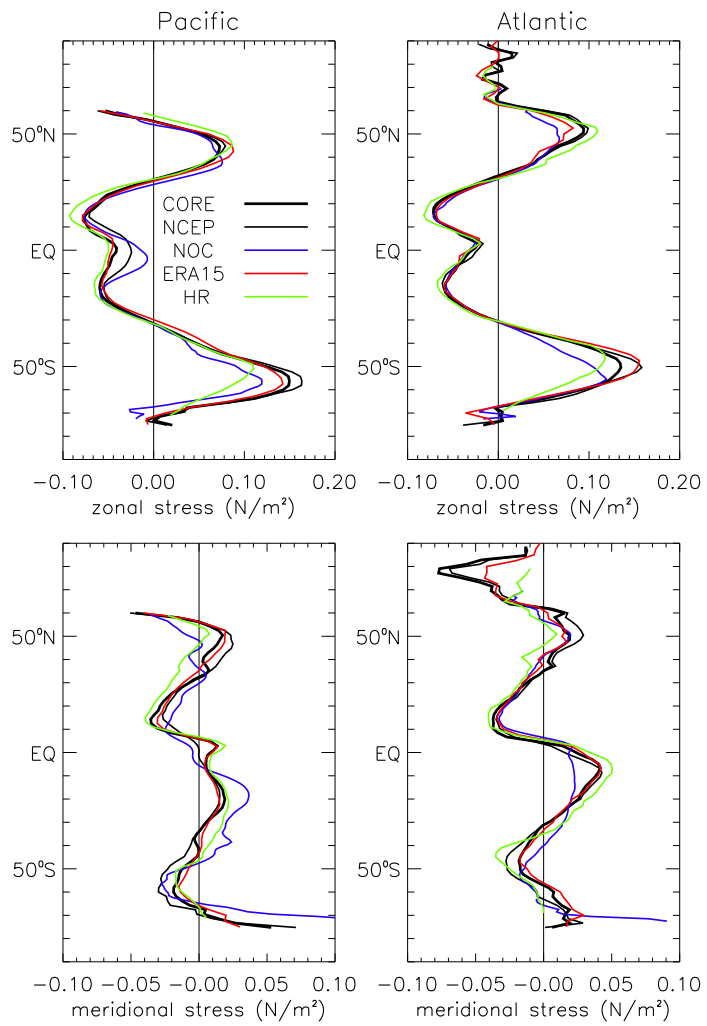


Figure 11. Zonal averages of climatological CORE.2 wind stress components over the Atlantic (295-20°E) and Pacific (155-255°E) ocean basins. The sources are described in the text.

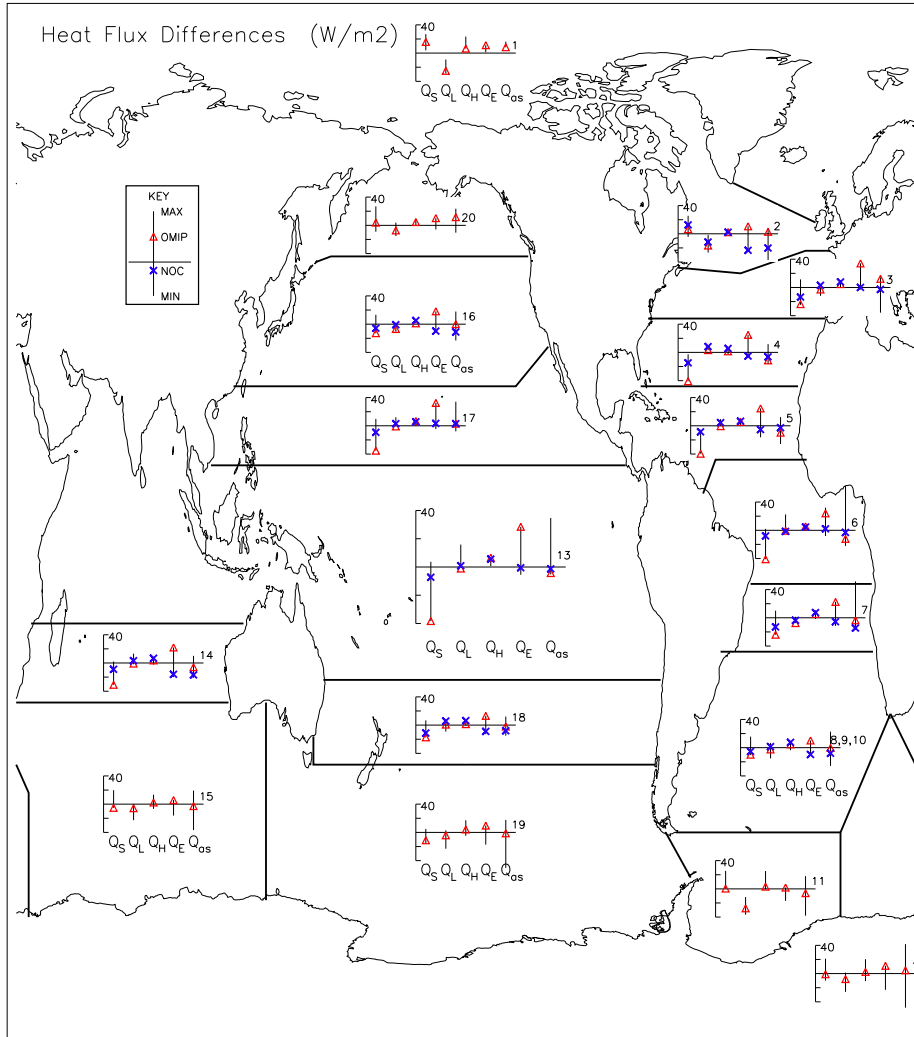


Figure 12. Regional comparison, following Roske (2006), of climatological net heat flux and its components. The differences are from the CORE.2 fluxes of Table 4 in W/m^2 . The OMIP and NOC1.1a values are shown as red triangles and blue crosses, respectively, and the vertical lines indicate the range in the data sets compiled by Roske (2006). The region numbers are given to the right of each axis.

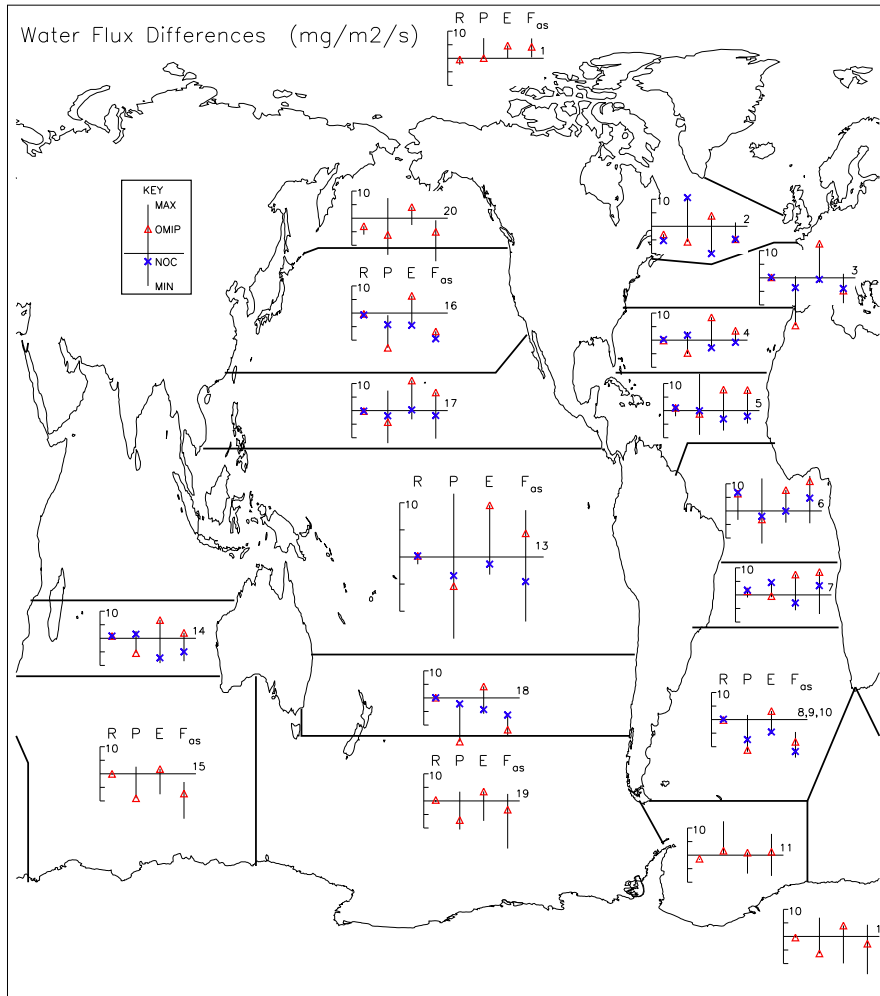


Figure 13 As Fig. 12, but for the climatological net freshwater flux and its components, including the river runoff. The units are $\text{mg}/\text{m}^2/\text{s}$.

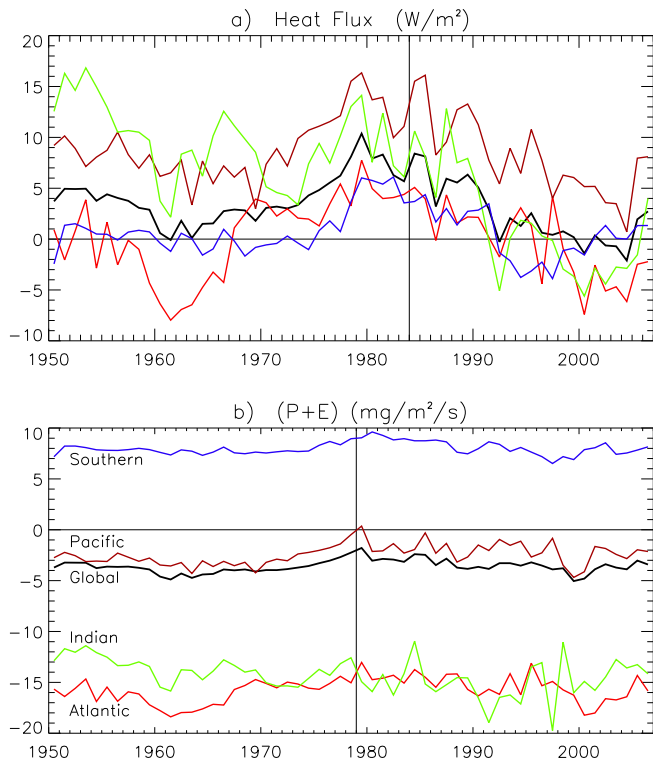


Figure 14. Time series over 57 years (1950 through 2006) of annual mean CORE.2 fluxes: a) air-sea heat flux in W/m^2 , b) air-sea freshwater flux, excluding runoff, in $\text{mg}/\text{m}^2/\text{s}$, averaged over the global ocean and the Atlantic, Pacific, Indian and Southern, but not the Arctic basins.

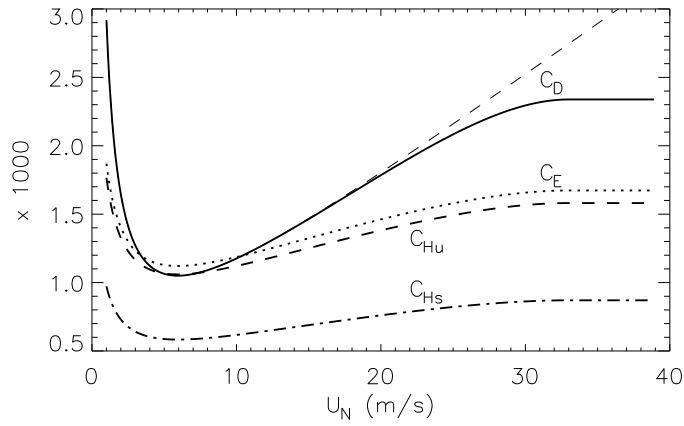


Figure A.1 The neutral, 10 meter transfer coefficients as a function of 10-m neutral wind speed, U_N . The drag coefficient, C_D , formulation follows the thick solid line, not the thin dashed extrapolation of LY04. Only the Stanton number is different in stable, C_{Hs} , than unstable, C_{Hu} atmospheric stratification.