



Global energy budget since 1985 and inferred energy transports

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Based on the procedures of *Liu et al.* (2015, 2017) and considering the enthalpy fluxes associated with precipitation and evaporation (*Mayer et al.* 2017), the global net surface energy flux is updated using a combination of satellite-derived radiative fluxes at the top of atmosphere (*Allan et al.* 2014) adjusted using the latest estimation of the net heat uptake of the Earth system, and the atmospheric energy tendencies and transports from the ERA-Interim (*Berrisford et al.* 2011) reanalysis.

Comparisons of the estimations show that the derived turbulent flux is basically consistent with that of OAFLUX, but the agreement with buoy observations is better. The inferred global and Atlantic meridional heat transports show good consistency with observations, particularly the inferred mean transport of 1.18PW at 26°N of North Atlantic over 2004~2013 is much close to the RAPID observations of 1.23PW, due to the treatment of the excess land surface flux redistribution to the oceans (*Liu et al.* 2015, 2017).

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