Abstract View

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Annual Mean Surface Heat Fluxes in the Tropical Pacific Ocean

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ABSTRACT

The four components of the long-term annual mean net surface heating of the tropical Pacific Ocean between 30°N and 40°S are calculated and portrayed. These flux elements were derived by using the bulk formulas and about 5 million marine weather reports for the years 1957–76. In addition to illustrating the mean solar, latent heat, infrared radiation and sensible heat fluxes, annual mean values of the atmospheric variables which contribute to those fluxes also are illustrated. A simple error analysis is carried out from which it is concluded that the 95% confidence bands for solar heating, latent heat loss and net oceanic heating are ±29, ±39 and ±49 W m^{-2}, from the respective mean values. The validity of the results for the net heating is partially tested by comparing the horizontal heat transports required by the pattern of heating with independent estimates of those dynamical transports.