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Towards Improved Estimates of Ocean Heat Flux

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Recommendations and priorities for ocean heat flux research are for instance outlined in recent CLIVAR and WCRP reports, eg. Yu et al (2013). Among these is the need for improving the accuracy, the consistency, and the spatial and temporal resolution of air-sea fluxes over global as well as at region scales.
To meet the main air-sea flux requirements, this study is aimed at obtaining and analyzing all the heat flux components (latent, sensible and radiative) at the ocean surface over global oceans using multiple satellite sensor observations in combination with in-situ measurements and numerical model analyses. The fluxes will be generated daily and monthly for the 20-year (1992-2011) period, between 80N and 80S and at 0.25deg resolution. Simultaneous estimates of all surface heat flux terms have not yet been calculated at such large scale and long time period. Such an effort requires a wide range of expertise and data sources that only recently are becoming available. Needed are methods for integrating many data sources to calculate energy fluxes (short-wave, long wave, sensible and latent heat) across the air-sea interface. We have access to all the relevant, recently available satellite data to perform such computations.
Yu, L., K. Haines, M. Bourassa, M. Cronin, S. Gulev, S. Josey, S. Kato, A. Kumar, T. Lee, D. Roemmich: Towards achieving global closure of ocean heat and freshwater budgets: Recommendations for advancing research in air-sea fluxes through collaborative activities. INTERNATIONAL CLIVAR PROJECT OFFICE, 2013: International CLIVAR Publication Series No 189. http://www.clivar.org/sites/default/files/ICPO189_WHOI_fluxes_workshop.pdf