

Air-Sea Turbulent Fluxes and Related Variables at NOAA National Climatic Data Center

Huai-Min Zhang¹, Lei Shi¹, and Richard W. Reynolds²

¹NOAA National Climatic Data Center, Asheville, NC

²Cooperative Institute for Climate and Satellites – NC, Asheville, NC

Many activities at NCDC focus on the theme of global water and energy budgets. Over the ocean, turbulent air-sea fluxes and related variables, including wind, water temperature, and air temperature and humidity at or near the sea surface, have been produced. This presentation analyzes these products and discusses future plans.

Sea surface wind plays an important role in air-sea exchanges. Blended sea surface wind products have been produced from multiple satellite observations. The multiple satellite retrievals had been cross calibrated, aiming to insure long term climate consistency. Multiple satellite and optimal interpolated sea surface temperature (SST) products have been produced on global $\frac{1}{4}^\circ$ grid and time resolution of daily. The “Daily OI SST” had been updated to version 2 at the end of 2008. The improvements include reduced noises, ship SST bias corrections, improved quality control, etc. For sea surface air temperature (Ta) and humidity (Qa), a neural network method is used to retrieve these quantities from NOAA polar-orbiting satellites: Ta from AMSU-A and Qa from AMUS-A and B. Collocated all-season ship/buoy and satellite data are used for algorithm developments and verification.

The COARE3.0 has been used in the turbulent flux computations. Warm-layer/cool skin module is included. The radiation fluxes are taken from the ISCCP-FD RadFlux of the NASA GISS. Fluxes on global $\frac{1}{4}^\circ$ grid and time resolution of 6-hourly, daily and monthly have been computed. We will present the preliminary analysis results, including the differences of fluxes from different average methods.