

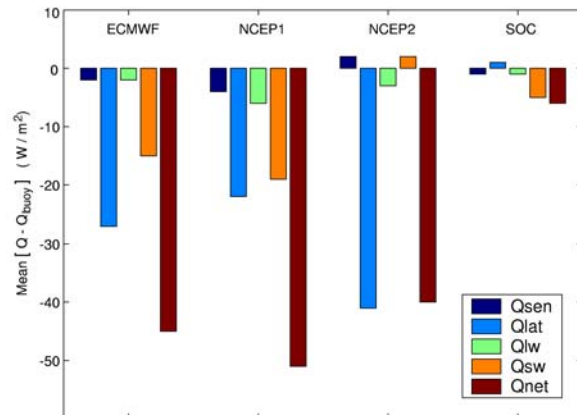
TACE: Surface fluxes in the eastern tropical Atlantic

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Based on observations from the 15° N, 51° W NTAS flux mooring, it is expected that the available gridded flux products for the TACE region will have substantial errors (Fig. 1). As a result, validation of flux products for the region using in-situ observations will be important for the estimation of mixed layer heat budgets during TACE.

Figure 1. Differences between in-situ and modeled net heat flux at the NTAS site (15° N, 51° W) are large (4-5 times larger than the expected NTAS error of about 10 W/m²). The two-year mean net heat flux is significantly underestimated by the three models: All three models indicate a negative two-year mean net heat flux, whereas the observed value is +40 W/m². The SOC climatology and the observations agree to within the observational error.



Objective

Evaluate the accuracy of gridded flux products for the TACE region and provide alternative fluxes derived from in-situ observations.

Approach

As a part of the NOAA VOS program, we presently operate a bulk flux package on the SeaLand Express, operating between the U.S. East Coast and Africa, along a route that includes a high density XBT run (AX-8) from Cape Town to New York (Fig. 2). As part of TACE, we would propose to compute and analyze fluxes from the SeaLand Express as a means to tie together the PIRATA and PIRATA-extension mooring data in the eastern tropical Atlantic, to provide information on spatial correlation scales for the fluxes, to provide flux estimates for the TACE region based on in-situ data, and to allow determination of the accuracy of gridded flux products in the region.

Figure 2. The route of the SeaLand Express. The VOS AUTO-IMET system was installed in March 2004. The ship is on a cross-equatorial route between the U.S. east coast and South Africa that takes about 7 weeks to complete. It includes a high density XBT run from Cape Town to New York (AX-8).

