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Title: INTERCOMPARISON OF FOUR SEA SURFACE ROUGHNESS SCHEMES IN COARE ALGORITHMS

Abstract: The data, collected at the American National Data Buoy 44008 from January 1 through March 31, 2003, are used to test sea surface roughness schemes by using the COARE bulk parameterization scheme. The aim of this study is to better understand the sensitively of the buoy-derived surface momentum fluxes to choices of surface roughness parameterization and the range of applicability of the four schemes (YT96, TY01, O02, and GW03). Because the stability dependence scheme is fixed in our calculation of the surface stress, the differences in the modeled results of surface stress should be caused by different determination of roughness length. Our results show that the wind speed ranges from low to moderate regimes, It was found TY01 and YT96 schemes generated friction velocity u* , drag coefficient Cd and wind stress τ in good agreement with GW03 scheme generated. But O02 scheme overestimate u*, Cd and τ with the wind speed larger than 12m/s. So we recommend to use YT96, TY01 and GW03 schemes in future studies. But when the young wave generated, TY01, O02 and GW03 would show some discontinue behaviors.

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