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DMS Sea-Air Transfer Velocity Parameterization Based on the NOAA/COARE Gas Transfer Model

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Estimates of the DMS sea-air transfer velocity (*kDMS*) derived from direct ?ux measurements are poorly modeled by parameterizations based solely on wind speed and Schmidt number. DMS and CO2 ?ux measurements show $kCO_2$to be a stronger function of wind speed than *kDMS*. The NOAA/COARE gas ?ux parameterization, incorporating the bubble-mediated gas transfer theory of *Woolf* [1997], appears to do a better job reproducing the observations for both gases, illustrating the importance of trace gas solubility in sea-air exchange. This result is consistent with stronger bubble-mediated enhancement of CO2 transfer associated with the lower solubility of CO2. The development of gas transfer parameterizations based on physical principles is still in its infancy, but recent advances in direct ?ux measurement methods provide an opportunity to evaluate the success of various modeling approaches for this critical geophysical process.