Oceanography Seminar

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“The Ocean Doesn’t Take Up and Emit CO2 the Way You Think it Does
The Career Path from Electron Transfer Kinetics at the Surface of Mercury Drops to Gas Transfer Experiments on the High Seas South of Greenland: A Memoir”

Our High Wind Gas Exchange Study (HiWinGS) conducted flux gradient and wave physics cruise in the Labrador Sea during October/November 2013. We encountered winds above 28 m/s, 100 hrs in the 15-22 m/s range. Eddy covariance measurements by three instruments confirm that the CO2 gas exchange coefficient did not rise according to the square or a higher power of wind speed (a formulation widely used in climate models), but leveled off or dropped above 15 m/s. The ocean surface physics above 15 m/s is of course completely differe from that below, and so is gas exchange. Sadly, wind speed may not be a useful independent variable for parameterizing gas exchange in the breaking wave regime. Furthermore, how do I happen to know about this? How does one get from a PhD in Physical Chemistry electrochemical lab kinetics (I’ve never had an oceanog course) to being a Professor of Oceanography/atmospheric chemist claiming “High Wind CO2 gas exchange has been done wrong for a couple of decades”? Like most careers, mine encountered a numberas