

Meeting: 1003, Atlanta, Georgia, MAA CP L1, MAA Session on Using Real-World Data to Illustrate Statistical Concepts, I

1003-L1-1433 **Gary O. Fowler*** (gof@usna.edu), Mathematics Department, U.S. Naval Academy, 572 Holloway Road, Annapolis, MD 21402-5002. *A.A. Michelson's Measurement of the Speed of Light 1879.*

In 1882 Michelson published the complete data set that he collected in Annapolis for the determination of the speed of light. These data have several desirable characteristics for teaching statistical concepts. (1) It was collected for a specific purpose. So unlike many tradition classroom projects, we do not make-up the questions after seeing the data. (2) In addition to the measured speed of light, the data include several covariates that can be used to test for experimental bias. Issues of multiple comparisons and data mining arise. (3) We are in the unusual position today of knowing the true (defined) speed of light. Generally, midshipmen at Annapolis are surprised by the number of interesting, relevant statistical questions suggested by Michelson's experiment and data. (Received October 05, 2004)