In this presentation, I will discuss how the distance from the Earth to the Moon can be calculated from certain measurements taken from the observations of a total lunar eclipse. A similar calculation was initially performed by Aristarchus of Samos, ca. 250 B.C.E. I will explain how observations were recorded from the lunar eclipse of October 8, 2014 at Wrightsville Beach, and how relevant measurements were made from those observations. I will then explain the calculation of the Earth to Moon distance from this data and discuss the results.