**MAVEN OBSERVATIONS OF THE EFFECTS OF COMET SIDING SPRING ON THE MARS ATMOSPHERE.** R. V. Yelle[1], M. Benna[2], P. R. Mahaffy[3], M. Elrod[4], J. Epsley[3] , A. Rahmati[5] , T. Cravens[5], D. Larson[6], B. Jakosky[7], [1]Department of Planetary Sciences, University of Arizona, Tucson, AZ 85721, rogeryelle@gmail.com, [2]CRESST, University of Maryland Baltimore County, Baltimore, MD 21228, [3]NASA Goddard Space Flight Center, Code 699, Greenbelt, MD 20771, [4]CRESST University of Maryland College Park, Greenbelt, MD 20742, [5]Dept. of Physics and Astronomy, University of Kansas, Lawrence, KS, [6]Space Sciences Laboratory, University of California-Berkeley, [7]Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder, CO.,

Comet C/2013 A1 (Siding Spring) passed within 140,000 km of the center of Mars on 19 October 2014, roughly one month after the MAVEN spacecraft entered into orbit about Mars. This extraordinary celestial coincidence provides the opportunity for scientific scrutiny of an Oort cloud comet with a sophisticated collection of spacecraft instruments and for the study of the perturbations of the Mars atmosphere by a unusual exogenous source of mass and energy. The neutral coma of Siding Spring impacted the Mars atmosphere at a speed of 56 km/sec, corresponding to an energy of 300 eV for an $H_2O$ molecule. At these energies the molecules will deposit their energy in the Mars upper atmosphere, above the location of the ionospheric peak: this is the region of Mars that MAVEN is designed to study. Significant perturbations to the temperature, densities, and wind patterns are expected for a sufficiently active comet. MAVEN measurements have the potential to reveal energetic ions and electrons and magnetic perturbations produced by the interaction of the comet coma with the solar wind, as well as perturbations to the neutral and electron temperature, neutral, electron, and ion densities in the upper atmosphere of Mars. The suite of in situ measurements will be described as well as preliminary results.