A COMPARISON OF THE OBSERVED LUNAR IMPACT ASYMMETRIES WITH NASA'S METEOROID ENGINEERING MODEL (MEM). H. McNamara[1], W. J. Cooke[2], R. Suggs[3], [1] Meteoroid Environment Office, National Aeronautics and Space Administration, Marshall Space Flight Center, AL. 35812, heather.mcnamara@nasa.gov, [2] Meteoroid Environment Office, National Aeronautics and Space Administration, Marshall Space Flight Center, AL. 35812, william.j.cooke@nasa.gov, [3] Space Environments Team, National Aeronautics and Space Administration, Marshall Space Flight Center, AL. 35812, rob.suggs@nasa.gov.

Introduction: Observations of the unlit portion of the Moon during waxing and waning crescent phases permit detection of large meteoroid impacts on the lunar surface, as the impacts of these meteoroids produce a substantial amount of light, which can be detected in small Earth-based telescopes equipped with low-light level cameras. Making use of this technique, the NASA lunar impact monitoring effort has detected over 100 impact flashes in two years of operation. Inspection of the frequency of events has revealed a marked asymmetry in the numbers observed between the evening and early morning observations, with the evening showing an impact rate some three times greater than that for the morning. Noting that detection is a function of impacting kinetic energy, and working under the assumption that this asymmetry is a consequence of the directionality of the sporadic background, we compare the observations with simulations involving NASA's Meteoroid Engineering Model (MEM).