

Review of “Observation of the Lunar Tide in the Middle Atmosphere by the Aura Microwave Limb Sounder” by K. Hocke

Summary of the paper

The author reports upon the first observations of the lunar tide in the geopotential height (pressure) of the middle atmosphere using data from the Microwave Limb Sounder (MLS) onboard NASA’s Aura satellite. They take advantage of the Sun-synchronous orbit of Aura which causes the lunar tide to be aliased as a lunar semimonthly signal in the MLS data. The results of their study are compared to the modeling results of Geller which up to this point is the only previous study of the lunar tide at these altitudes in geopotential altitude. Their results compare well with the Geller model results. The authors therefore conclude that Aura/MLS data can illuminate the lunar tide in the mesosphere and can be used in the future for further observational studies and to aid in improvement of the representation of the lunar tide in models.

General Comments

This is a revised manuscript. In my estimation, the author has carefully addressed each of the two reviewers' comments and questions, resulting in an improved manuscript. Their paper presents science that is at the forefront of the discipline and a topic / dataset that is of interest to the readership of ACP. I recommend the manuscript be published as is.