

**LRO LAMP PRODUCTS OF CANDIDATE CLPS REGIONS.** E. Dolgas<sup>1,2</sup>, A. D. Whizin<sup>2</sup>, K. D. Retherford<sup>2,1</sup>, E. A. Czajka<sup>1,2</sup>, T.K. Greathouse<sup>2</sup> <sup>1</sup>University of Texas San Antonio (1 UTSA Circle, San Antonio, TX), <sup>2</sup>Southwest Research Institute (6220 Culebra Rd. San Antonio, TX, 78238)

**Introduction:** At present, NASA's Commercial Lunar Payload Services (CLPS) program includes several planned launches to the lunar surface, as part of the Artemis program. Each lander or rover payload will include specialized scientific instruments for surface analysis. With all of the contracted companies still in the development phase, further characterization of anticipated landing sites will assist in confirming final site selection and will provide a baseline of data from past missions to later be used for interpretation of new measurements. We present data from LRO LAMP as another point of comparison for these candidate sites. Some regions of interest to be visited this year and the following include Lacus Mortis, Mare Crisium, Reiner Gamma, and Gruithuisen Domes.

LRO LAMP's Spectral Mapper is one of two mapping pipelines used by the LAMP team for reducing and processing the FUV data in 68 wavelength bins from 57nm to 193nm. The Spectral Mapper's data products include brightness maps, banded ratio maps, and line spectra for regions of interest, all with nearly total coverage of the Moon.

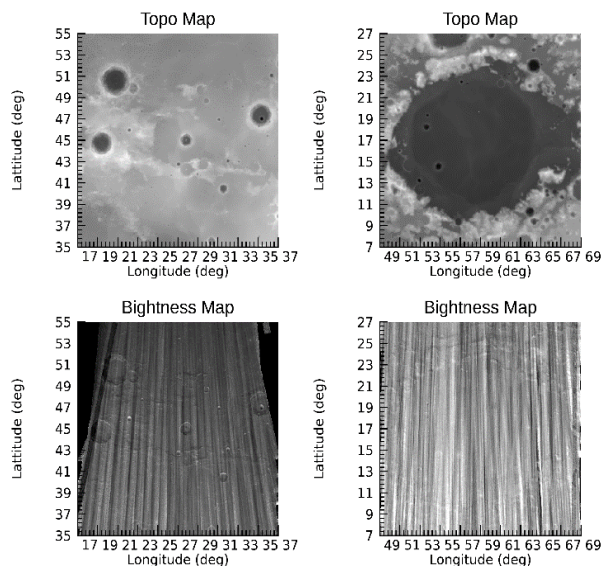


Fig. 1: Spectral Mapper products for Lacus Mortis and Mare Crisium [1]

This set of products will be repeated and expanded on for the sites currently confirmed above, as well as future locations still to be announced.

**Methods:** Data for analysis is obtained from the LAMP pipeline, spanning from 2009 – 2016. The results are plotted to show topography, counts per

second rates, brightness and on band/off band ratio. The results from these data products can provide information on the mineralogy of the mapped regions, such as plagioclase feldspar deposits [2]. From left to right, the first image of figure 2 is a topography map of the Gruithuisen Domes, produced from LRO LAMP. The middle image is the On/Off band ratio map from the same source. The LAMP ratio image highlights the domes themselves (enclosed in white boxes), in addition to some nearby craters. Outside comparisons can be conducted with utilization of the various maps available through Arizona State University's LROC QuickMap interface. One such example of this is through the Clementine spacecraft's color ratio products, shown in the rightmost image.

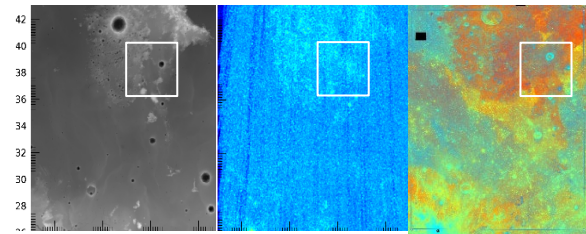


Fig. 2: Gruithuisen Domes; latitude 26-42, longitude 310-324

Further work is in progress to produce brightness spectrums for the four CLPS regions mentioned. We are performing a full spectral analysis on the compositions of these sites of interest. As more CLPS locations are confirmed, the LAMP team will produce maps of those regions, following the same procedures presented here.

**Acknowledgments:** Data results obtained from LRO LAMP.

**References:** [1] Whizin, A. D. et al. (2022). LRO LAMP Updated Global and Spectral Mapping Products Including Future CLPS Landing Sites. Bulletin of the AAS, 54(8). [2] Czajka, E. A. (2022). Aristarchus Crater Mapped in the Far Ultraviolet with LRO LAMP. LPSC 2162.