

Converging on the Moon's true near-side Spectral Irradiance



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For nearly 2 decades, ROLO \equiv GIRO has been the most commonly used (de-facto standard) Lunar spectral irradiance model.

In the past few years several other Lunar models have appeared. Some of these, at least SLIM, have construction parameters which would benefit from, or even require, community agreement.

These models involve at least 5 dimensions , 4 independent angles and wavelength. 2+ more dimensions are forthcoming related to polarization, total 7+ . Evaluation / comparison is / will be challenging.

Ultimately, it would seem best that the community agree on some model as the “reference” or standard covering all these dimensions. **How do we get there?**

Assumptions: Now is the time to challenge them

- 1) Harmonization of lunar calibration is desirable. I.e., we all use the same Moon & Sun.
- 2) We will reach an era when LunarCal is considered for absolute calibration, not just trending.
- 3) Data sources and resulting models will improve.
- 4) Techniques for radiance images -to- irradiance will improve.
- 5) There will not be a LSICS dictator.
- 6) GSICS will have a “preferred” (if unofficial) model that will change over time.

We are near the start of that era.

Primary target here is the “Lunar Disk Reflectance Module” of LSICS.

This presentation is short. Please mix in discussion.

Methods

- Have as many interested parties involved as possible.
- Free exchange of information.
 - Lots of challenges here: formal GSICS and institutional restrictions, professional advancement interests, huge files, ...
- Could it be as simple as a GSICS action item?
- Weighted voting based on extent of open data contribution:
 - Politically incorrect; put off detailed discussion ??

Example Issues

- Assignment of uncertainties: large topic, ubiquitous.
- SLIM[†] incorporates many data sources; the model construction includes assignment of “heft” which adjusts the relative total weight of each data source. I would like community input on what the relative weights should be.
- How to adjudicate differences between “absolute” measurements.

Suggestions? It's your turn.

[†] H. H. Kieffer, Multiple-instrument-based spectral irradiance of the Moon. *Journal of Applied Remote Sensing (JARS)*. Vol. 16, Issue 3, (2022)
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