Monday, October 8
Poster Session 1
16:00–18:00

Poster 236
AIRBORNE LUNAR SPECTRAL IRRADIANCE (AIR-LUSI) MISSION

Ocean color data records from space require extremely accurate and consistent calibration across multiple years and multiple missions. It is largely recognized that the Moon is the most stable radiometric natural reference for Earth-observing satellites. However, the Moon's full utility as an absolute calibration source has yet to be realized because of significant biases in our knowledge of lunar spectral irradiance. The Airborne LUnar Spectral Irradiance (air-LUSI) mission has the objective to measure lunar spectral irradiance to an unprecedented level of accuracy: <0.3% (k=1) uncertainty. This is to be accomplished by advancing a ground-based instrument system to fly on a NASA ER-2 aircraft above 90% of Earth's atmosphere, providing a new capability to potentially acquire SI-traceable lunar spectral irradiance over different lunar phases and libration angles. Initially, the air-LUSI measurements can be used to enhance the Robotic Lunar Observatory (ROLO) model of exo-atmospheric lunar spectral irradiance. The mission outcome is expected to greatly improve the accuracy of our knowledge of the Moon as a stable reference for calibration and inter-calibration of Earth-observing satellite instruments over long time periods, from the past into the future. This will greatly improve calibration for space-based ocean color measurements such as from SeaWiFS, MODIS, VIIRS and eventually PACE, which are highly sensitive to calibration drifts.

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