



Infrared Lunar Laser Ranging at Calern : Impact on Lunar Dynamics

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Introduction: Since 2015, in addition to the traditional green (532nm), infrared (1064nm) has been the preferred wavelength for lunar laser ranging at the Calern lunar laser ranging (LLR) site in France. Due to the better atmospheric transmission of IR with respect to Green, nearly 3 times the number of normal points have been obtained in IR than in Green [1].

Dataset: In our study, in addition to the historical data obtained from various other LLR sites, we include the recent IR normal points obtained from Calern over the 1 year time span (2015-2016), constituting about 4.2% of data spread over 46 years of LLR. Near even distribution of data provided by IR on both the spatial and temporal domain, helps us to improve constraints on the internal structure of the Moon modeled within the planetary ephemeris : INPOP [2].

Data reduction: IERS recommended models have been used in the data reduction software GINS (GRGS,CNES) [3]. Constraints provided by GRAIL [4], on the Lunar gravitational potential and Love numbers have been taken into account in the least-square fit procedure. Earth orientation parameters from KEOF series have been used as per a recent study [5].

Results: New estimates on the dynamical parameters of the lunar core will be presented.

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