EPSC Abstracts
Vol. 15, EPSC2021-38, 2021, updated on 27 May 2022
https://doi.org/10.5194/epsc2021-38
Europlanet Science Congress 2021

The multi-wavelength phase curves of minor bodies from the SLOAN Moving Objects Catalog

Alvaro Alvarez-Candal[1,2,3], Paula Benavidez[2,4], Adriano Campo Bagatin[2,4], Toni Santana-Ros[4,5], and Santiago Jimenez Corral[6]

[1]Instituto de Astrofísica de Andalucía / CSIC, Granada, Spain
[2]Instituto Universitario de Física Aplicada a las Ciencias y las Tecnologías, Universidad de Alicante, Alicante, Spain
[3]Observatório Nacional / MCTIC, Rio de Janeiro, Brazil
[4]Departamento de Fisica, Ingeniería de Sistemas y Teoría de la Señal, Universidad de Alicante, Alicante, Spain
[5]Institut de Ciències del Cosmos (ICCUB), Universitat de Barcelona (IEEC-UB), Barcelona, Spain
[6]Universidad Internacional de Valencia, Valencia, Spain

Phase curves of minor bodies describe their brightness change with phase angle, once distance effects have been removed. Using phase curves it is possible to obtain absolute magnitudes, useful parameters as they can be used as a proxy of sizes, with limitations due to albedo. In particular, in this work, we present phase curves of several thousands of minor objects in the filter system of the SLOAN Digital Sky Survey (SDSS).

We obtained the phase curves using the Moving Object Catalog (MOC) of the SDSS including in the final uncertainties those of the input magnitudes and also the uncertainty due to the likely change in magnitude due to rotational variation of the objects. The final products are the absolute magnitudes H_λ and $G12_\lambda$, where λ indicates any of the five central wavelengths of the SDSS filter system. We computed colors at zero phase angle, or absolute colors, that are not affected by phase effects and could be used as a benchmark for future studies. We also analyze the behavior at small phase angles (<7.5 degrees) where the opposition effect dominates.