ABSTRACT ONLY

HANDS-ON ACTIVITIES FOR STUDYING LIGHT POLLUTION: PHOTOMETRIC MEASURING OF ZENITH NIGHT SKY BRIGHTNESS

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Night sky brightness (SB) is an important quantity to investigate light pollution contamination at a given site. It can be measured by different methods and apparatus, resulting in different forms of analysis and comprehension of the artificial light regime. The objective of this work is to present some of these measuring methods in order to elaborate hands-on scholar activities material. Two main methods were tested during the year of 2022 at the Observatório Abrahão de Moraes (Valinhos, SP, Brasil): by telescope with coupled CCD camera (the Argus telescope) and by IOS Dark Sky Meter (DSM) app.

Values for SB were found for the photometric Johnson B (16,82 ± 0,30 mag/arcsec^2) and V filters (16,49 ± 0,48 mag/arcsec^2), indicating that the sky at the observatory is highly light polluted, similar to big cities. The DSM app was consistent in its own scale to evaluate night sky brightness variations. However, it is roughly compatible with V or B bands from the UBV Johnson system, showing fainter magnitudes with 2,5 mag offset. The results were used to elaborate a script to conduct similar activities, both locally at a given observatory or remotely through the "Telescópios na Escola" project, allowing students to measure SB with the same Argus telescope used during the work. We also addressed experiments with the DSM app for light pollution teaching and outreach, in order to promote awareness and discussions about its impacts where the usage of astronomic apparatus is neither viable nor recommended.

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