

Follow-up observations of transiting exoplanets: data collection and analysis

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Abstract

The presented work is a long-term project to monitor transiting exoplanets with small and medium scale telescopes, with the aim of improving their ephemerides and help their characterization. In the case of a project on characterising exoplanets, long-term continuous monitoring of targets is necessary.

This is a process that amateur astronomers can work together with professionals and contribute by obtaining or analysing data from small ground-based telescopes. In this context, our team consists of both amateur and professional astronomers and together we have conducted a number of observations using the equipment at two observatories in Greece: the Holomon Astronomical Station and Nunki Observatory.

For data analysis and lightcurve extraction, our team has developed The Holomon Photometric Software (HOPS). We designed the software in a user friendly way to facilitate participants' use, and in parallel, to ensure high data quality and reliability in the scientific results. We will present the methodology, the tools and the first scientific results that have been produced out of this collaboration. We are open for contributions in our project either on the observation part or the data analysis. Our ultimate goal is to create a collective list of observations from transiting exoplanets to better identify their ephemerides and characteristics. At the same time, such an effort would contribute to future space missions dedicated to exoplanet research.