

Contribution to the EPSC-DPS 2019 conference on outreach evaluation methods

During the 2019 EPSC-DPS joint meeting we had the unique opportunity to present our results from evaluating an outreach / pro-am [series of seminars entitled “Introduction to Observational Astronomy”](#) which we carried out in 2018 and 2019. More details follow:

Evaluating introductory seminars on observational astronomy, using the Europlanet Evaluation Toolkit

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During December 2018 – February 2019, the Hellenic Amateur Astronomy Association coordinated a series of seminars entitled “Introduction to Observational Astronomy”. The goal of this series was to introduce interested individuals to the aspects of the observational techniques for scientifically useful observations. Using the Europlanet Evaluation Toolkit we implemented a number of evaluation methods to receive feedback. The results show the participation of a mainly young audience (60% between 18-39), where females are represented more than equally (52%). Using the “pebbles in a jar” method a 94% of satisfied attendees was measured, while by using post-event surveys (questionnaires) the lectures were

perceived as “(very) explicit” and “(very) interesting” (94%), fulfilling the attendees’ expectations (92%). It is important to note that 88% considers that their interest in Astronomy increased and is willing to get involved in observations.

A short paper is available at the NASA/ADS link: [2019EPSC...13.1749M](#) , while you can also find a [local version of the poster](#).

The need for Professional-Amateur collaborations in studies of Jupiter and Saturn – a JBAA publication

This work is a collective presentation of the type of contributions within the professional-amateur framework for the study of gaseous giants. In particular:

The need for Professional-Amateur collaborations in studies of Jupiter and Saturn

Emmanuel Kardasis, John H. Rogers, Glenn Orton, Marc Delcroix, Apostolos Christou, Mike Foulkes, Padma Yanamandra-Fisher, Michel Jacquesson, Grigoris Maravelias

The observation of gaseous giant planets is of high scientific interest. Although they have been the targets of several spacecraft missions, there still remains a need for continuous ground-based observations. As their atmospheres present fast

dynamic environments on various time scales, the availability of time at professional telescopes is neither uniform nor of sufficient duration to assess temporal changes. However, numerous amateurs with small telescopes (of 15-40 cm) and modern hardware and software equipment can monitor these changes daily (within the 360-900nm range). Amateurs are able to trace the structure and the evolution of atmospheric features, such as major planetary-scale disturbances, vortices, and storms. Their observations provide a continuous record and it is not uncommon to trigger professional observations in cases of important events, such as sudden onset of global changes, storms and celestial impacts. For example, the continuous amateur monitoring has led to the discovery of fireballs in Jupiter's atmosphere, providing information not only on Jupiter's gravitational influence but also on the properties and populations of the impactors. Photometric monitoring of stellar occultations by the planets can reveal spatial/temporal variability in their atmospheric structure. Therefore, co-ordination and communication between professionals and amateurs is important. We present examples of such collaborations that: (i) engage systematic multi-wavelength observations and databases, (ii) examine the variability of cloud features over timescales from days to decades, (iii) provide, by ground-based professional and amateur observations, the necessary spatial and temporal resolution of features that will be studied by the interplanetary mission Juno, (iv) investigate video observations of Jupiter to identify impacts of small objects, (v) carry out stellar-occultation campaigns.

The paper is available either through [arXiv: 1503.07878](https://arxiv.org/abs/1503.07878) or directly from [JBAA \(2016, vol. 126, p. 29\)](#).

Imaging dense globular clusters like M3 and M15

During the Society for Astronomical Sciences 29th Annual Symposium on Telescope Science (held May 11-13, 2010 at Big Bear Lake, CA) the following work was published:

Imaging dense globular clusters like M3 and M15

Rodney Howe, Iakovos-Marios Strikis, Ido Bareket, Dimitrios Stouraitis

Abstract

The objective for this study will be to explore new photometric methods for amateur telescope observations of 'cluster variables' and globular clusters using CCD photometry. Amateur telescope photometric observations of 'cluster variables' in globular clusters are limited because of dense, crowded star fields. However, with improvements in CCD photometric methods, there are opportunities to observe cluster variables, such as RR Lyrae and SX Phoenicis type stars, through time series analysis of multiple exposures of whole cluster images. Traditional methods for determining light curves in 'field' RR Lyrae and SX Phoenicis type stars require selection of comparison and perhaps check stars to perform differential photometry; i.e. subtraction of flux density measures between a non-variable (comparison star) and the variable star as they change in magnitudes over time. We explore the possibility of measuring the variable star's periodicity in areas, or sections of a globular cluster, to sort different stellar type 'cluster variables' within each

section of the cluster. There are areas or regions of a globular cluster which 'pulsate' at a variable rate which is representative of 'cluster variables' that make up that region. For example: we have detected different variability periods within the 'core' of a cluster compared to the outer circumference areas of the cluster.

A link to the work can be found to NASA/ADS: [2010SASS...29..129H](#)