

Planetary Science Outreach at CAAUL – Involving the Public and Students

J. Retrê (1, 2), D. Luz (1, 2), P. Machado (1), and R. Agostinho (1, 2)

(1) Centro de Astronomia e Astrofísica da Universidade de Lisboa, Observatório Astronómico de Lisboa Ed. Leste, Tapada da Ajuda, 1349-018 Lisboa, Portugal, (2) Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016 Lisboa, Portugal, (jretre@oal.ul.pt / Fax: +351 213616752)

Abstract

The Centre for Astronomy and Astrophysics of the University of Lisbon is a research centre of the Faculty of Sciences of the University of Lisbon hosted by the Lisbon Astronomical Observatory (OAL). In particular CAAUL has been doing research in planetary science since 1997 and its outreach activities have been closely related to its research strategy. The Lisbon Astronomical Observatory, where the activities take place, is a 150 – year old institution known for its communication activities for the non-specialist public. In this communication we will present how a planetary science communication program has been developed since 2010 at CAAUL.

1. Activities for Schools

CAAUL is committed to take Astronomy and Astrophysics to schools, with projects underway and under development, as exemplified by the project "Astronomy is for me," whose main objective is to involve directly teachers and high school students in the learning of concepts in astronomy and planetary sciences. Such involvement is based on hands-on protocols that require the use of telescopes, by implementing methods of active learning in science education (IBSE - Inquiry Based Science Education). One example has been the measurement of Jupiter's mass by direct observation of the movement of its four largest satellites – Io, Europa, Ganymede and Callisto. This protocol has produced amazing results among students of the 10th grade, who have been able to determine Jupiter's mass with an error of only 1.5%.

2. Nights at the Observatory

Another of CAAUL's main public outreach pillars is the "Nights at the Observatory" activity (NOAL), a reconfiguration of the "Public Lectures" that took place at the Lisbon Astronomical Observatory (OAL) since 1994. The NOAL is a free monthly activity with an average participation exceeding 130 attendants in each session. Each NOAL's session consists of a guided tour to the historical building of the Observatory, combined with a lecture and observations of the night sky with telescopes. The lectures are streamed online, which considerably broadens the range of participating public; on some occasions, concerts and theatre plays are held. The NOAL follow well known models of science communication ^[1, 2], striking a balance between investment in "science literacy", "public understanding of science" and "engagement with science", as witnessed in different periods of its activity.



Figure 1. A session of NOAL - in the central room of OAL during the lecture.

3. Special Planetary Events

Whenever relevant planetary events occur, our activities follow suit. Outstanding examples of activities have been the 2012 Venus Transit, the 2013 Super Moon or the 2013 Annular Solar Eclipse. The Venus Transit has been the last opportunity for observing such an event in 117 years. For this occasion we have deployed a team of observers to Udaipur (India) in the context of the Venus Twilight Experiment ^[3] for which several science mediation items were produced: press releases, social network diaries and a media event. These special events create powerful and timely opportunities for engaging with the public (in particular school students) and the media. It is noteworthy that on site public attendance in such events reached over 2000 people.



Figure 2. The 2013 Super Moon Event (2000 people).

Acknowledgements

The authors acknowledge the support of the Foundation for National Scientific Computing (FCCN) in the online broadcast of the public lectures. Part of the work displayed here receives funding from the Foundation for Science and Technology (FCT, Portugal) through the BGCT SFRH/BGCT/51617/2011 (J. Retrê) and through CAAUL's strategic project PEst-OE/FIS/UI2751/2014.

References

- [1] Bauer, M. (2009) Science, technology and society, 14 (2), pp. 221-240.
- [2] Bauer, M., Allum, N. & Miller, S. (2007) Public Understand. Sci. 16, pp. 79-95.
- [3] Widemann, T. et al. (2012) Venus Twilight Experiment : Observation and analysis of the aureole during the 2012 transit, European Planetary Sciences Congress 2012, EPSC2012-412-4 2012.

4. Social and Media Presence

The CAAUL invests and manages its presence on social networks, reaching about half a million people with regular posts about astronomy and planetary science. In addition, in early 2013, we launched, with the support of FCCN, a series of Vodcasts, short videos aimed at clarifying major topics of current-day research.