

Involving the Public and Students in Planetary Science

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Abstract

The Institute of Astrophysics and Space Sciences (IA) is a Portuguese research institute with a national dimension. In Lisbon, IA is hosted by the Lisbon Astronomical Observatory (OAL). In particular, IA 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 presented in this talk 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 IA.

1. Activities for Schools

IA is committed to take Astronomy and Astrophysics to schools, with projects underway and under development. One example is the project "Astronomy is for me," whose main objective is to involve directly high school students and their teachers 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 of these protocols, already in progress, is the measurement of Jupiter's mass by direct observation of the movement of its Galilean moons – Io, Europa, Ganymede and Callisto. This protocol has produced already amazing results among students of the 10th grade, who have been able to determine Jupiter's mass with an error of only 1.5%. In order to inspire younger students, IA also develops specific activities. "Our Wonderful Solar System" is an example of a workshop that aims to show the scales in our Solar System making use of the UNAWA's Universe in a Box. This workshop was recently given, for the first time, to hundreds of students at Malta's Science Expo.

2. Nights at the Observatory

Another of IA'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 150 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 communication 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).

4. Occultation Group

Science and outreach at IA have created a real synergy, with outreach participating actively in some scientific activities. One example is the recent creation of an occultation group. The activities of this group started in 2014, but we already have a very strong involvement of the academic community which in turn is strongly involved with the outreach.



Figure 3. Occultation group during an occultation event.

5. Social and Media Presence

IA 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.

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