

INTERNATIONAL OBSERVE THE MOON NIGHT: AN EFFECTIVE MODEL FOR PUBLIC ENGAGEMENT WITH NASA CONTENT. L. V. Bleacher¹, A. J. P. Jones^{1,2}, A. Shaner³, B. Day⁴, S. Buxner² and M. Wegner². ¹NASA Goddard Space Flight Center, MD (Lora.V.Bleacher@nasa.gov), ²Planetary Science Institute, AZ, ³Lunar and Planetary Institute, TX, ⁴Wyle Labs / NASA Solar System Exploration Research Virtual Institute, CA.

Introduction: International Observe the Moon Night (InOMN) is an annual world-wide public engagement event designed with the goal of inspiring the public to want to learn more about NASA's contributions to planetary science and exploration, using the Earth's Moon as an entryway, and to provide connections to do so [1,2,3]. InOMN will celebrate its 6th anniversary on September 19, 2015.

Registration statistics from the past five years show an average of 500 InOMN events are held in 50 countries and 45 U.S. states per year (Figure 1), with over half of the events occurring outside the U.S. Host survey data indicate that approximately 55,000 to 75,000 people participate in InOMN events each year. The consistent hosting of InOMN events across the U.S. and around the world indicates an interest by hosts in sharing lunar and planetary science with their local communities, as well as connecting with a larger international group of fellow space enthusiasts on an annual basis.



Figure 1. Location of registered InOMN events in 2010 (top) and 2014 (bottom) shows consistent participation over five years: approximately 500 events in 50 countries and 45 U.S. states per year, on average.

Background: InOMN began in 2010 after the success of a multi-NASA-Center event in 2009 called "Return to the Moon" that celebrated the successful arrivals of the Lunar Reconnaissance Orbiter (LRO) and Lunar CRater Observation and Sensing Satellite (LCROSS) at the Moon. InOMN was born out of the recognition of interest by the public in observing and learning about the Moon. It is sponsored by the LRO mission and led by its education and communications (E&C) team at NASA's Goddard Space Flight Center in collaboration with members of the InOMN Coordinating Committee (CC), which includes E&C professionals at the Lunar and Planetary Institute, Planetary Science Institute, and NASA's Solar System Exploration Research Virtual Institute.

InOMN is meant to be easy to participate in, since no special equipment is needed to observe the Moon. Events may take many forms, from a family or neighborhood gathering in the backyard of a home to a large public gathering at a museum or National Park with hundreds to thousands of participants. The InOMN CC tracks the number of events, their locations, and additional event characteristics via a registration page and through host and participant surveys available on the InOMN website (observethemoonnight.org). The registration page is linked to a Google map so that the locations of all registered events around the world are visible on the InOMN homepage.

Resources for Hosts: The InOMN website contains a variety of resources for event hosts, including recommendations for hosting events of varying size, suggestions for hands-on activities, advertising materials, logos, information on how to connect with local astronomy clubs, an annually-updated Moon map showing the Moon as it will appear on the InOMN date and highlighting a few interesting features that Moon observers can look for with corresponding images from the LRO Camera. The InOMN CC uses social media networks such as Facebook (International Observe the Moon Night), Twitter (@observethemoon, #moon-night), and Flickr, as well as email, to advertise InOMN and to communicate useful information and new resources with current and potential hosts. Hosts use Twitter to advertise their InOMN events and to share the excitement of their participants on the event day. Hosts can share photos from their InOMN events with the CC and the rest of the world via Flickr.

Leveraging Partnerships: InOMN relies on partnerships for sustainability. The CC represents multiple scientific organizations, NASA Centers, NASA Science Mission Directorate lunar missions, and research programs, with each offering their respective expertise, resources and networks of potential partners and hosts. Hosts sponsor and implement their own events. They represent a variety of venues including museums, local/state/national parks, K–12 schools, planetariums, observatories, research institutions, colleges/universities, businesses, etc. InOMN is advertised via existing NASA and non-NASA networks.

Evaluation: Data about the reach and impact of InOMN events are collected using a variety of tools [4,5,6]. Hosts supply information on the location of their event and a description of it when they initially register. Hosts are also asked to respond to an online survey after their event that asks questions about the number of attendees, the type of location at which the event was held, if telescopes were used to observe the Moon, what resources they used from the InOMN website, what additional resources they would like to have, etc. In addition, hosts are provided with a survey to share with their participants, either online or as a hard copy. The participant survey includes questions about attendees' history of attendance at science-related events, if they have participated in a previous InOMN, how likely they are to seek out additional NASA Moon resources online or to attend another Moon-related event as a result of their InOMN participation, and who they attended InOMN with.

Data from 2010–2013 have been reported on previously [5,6]. Preliminary analyses of data from 2014 are consistent with previous years in that InOMN is a social experience that most attendees share with family members. InOMN also provides an opportunity for authentic STEM engagement for participants. In 2014, 94% of hosts [N=118] who responded to the InOMN host survey reported having telescopes on hand for observing the Moon, and 64% reported using the InOMN Moon map. Participants also reported being more likely to attend another Moon-related event and to seek out additional NASA resources related to the Moon in the future, as result of their participation in InOMN. These data, along with the consistent hosting of events around the world each of the last five years, indicate that InOMN is a successful model for public engagement with NASA STEM content.

Future Directions: In 2015, the CC is taking a fresh eye to InOMN to ensure its ability to meet the needs of its hosts and its growth in 2015 and beyond.

Data collection and evaluation. The InOMN goals and related evaluation tools have been refined to be less LRO-specific so as to broaden the ability of In-

OMN to be used as a platform for engaging the public with NASA planetary science and exploration content. Lessons learned from five years of implementing and evaluating InOMN and other large public science engagement events, such as science festivals, are being reviewed and implemented to improve the experiences of both hosts and participants and to increase the survey response rates for both groups. The online registration form for 2015 has been updated to collect more information on host institutions up front so that the CC can advertise more efficiently to specific regions or types of venues. The InOMN website is also being updated with new resources and to make sure that it contains timely information and is easy to navigate.

Building a sense of community among hosts. The CC is investigating opportunities to build a community of practice for InOMN hosts with both virtual and in-person entryways. We are working with the organizers of the International Public Science Events Conference (IPSEC) to provide a networking and professional development opportunity for InOMN hosts who attend IPSEC. The CC is also working with the Science Festival Alliance to find opportunities to advertise InOMN to festival hosts and to share lessons learned on the planning, implementation, and evaluation of large public science events.

Potential for future collaborations with new partners. InOMN also provides an opportunity for future collaboration with additional groups within and outside NASA. For example, InOMN could be a platform for communicating NASA's and the private sector's future exploration plans in cislunar space and beyond, or for educating participants about other Solar System objects or extrasolar planets using the principles of comparative planetology.

The InOMN CC welcomes new partners and participation in this global event, which reaches thousands of members of the public on an annual basis and has the capacity to reach even more.

References: [1] Hsu B. C. et al. (2010) AGU Fall Meeting, ED31B-0616. [2] Hsu B. C. et al. (2011) *LPS XLII*, Abstract #1193. [3] Hsu B. C. et al. (2012) *LPS XLIII*, Abstract #2021. [4] Buxner S. R. et al. (2013) *LPS XLIV*, Abstract #2479. [5] Hsu B. C. et al. (2014) *LPS XLV*, Abstract #2657. [6] Wenger M. et al. (2014) 46th DPS Annual Meeting, 212.06.