

BRIDGING THE LUNAR GENERATIONAL GAP: NEXTGEN AND LEAG. R. N. Clegg-Watkins^{1,2}, S. N. Valencia¹, and K. Runyon³. ¹Washington University in St. Louis, 1 Brookings Dr., St. Louis, MO 63130, USA, rclegg@levee.wustl.edu, ²Planetary Science Institute, 1700 E Fort Lowell Rd, Ste 106, Tucson, AZ 85719, ³Dept. of Earth & Planetary Sciences, Johns Hopkins University, 3400 N. Charles St., Baltimore, MD.

Introduction: The Next Generation Lunar Scientists and Engineers (NGLSE or “NextGen”) Group is an assemblage of graduate students, post-docs, and early career scientists who have a passion and vision for lunar science and exploration and who are the future lunar workforce for NASA, academia, and industry. The primary purpose of the group is to provide guidance and networking opportunities to early career lunar students and professionals, as well as to foster collaboration with other groups within the lunar community. NextGen provides professional development through workshops and career training, and offers a support network for young lunar scientists and engineers. Ultimately, NextGen will provide NASA with a workforce that is focused on and experienced with the integration of science and engineering as it pertains to manned and robotic lunar exploration-enabled science.

While NextGen supports NASA’s long-term vision of manned missions to Mars, we believe it is necessary to have crewed lunar surface missions to perfect living, working, and carrying out scientific activities on a planetary surface before crewed Mars or small-body surface missions are attempted. Furthermore, we are excited by the Moon’s unique potential to reveal clues about Earth’s early geologic history and to provide constraints on the origin of terrestrial life.

Background: NASA has long recognized the necessity to encourage and train the next generation of lunar scientists. Recent lunar missions such as LRO, LADEE, GRAIL, Chandrayaan, Artemis, and the Chinese Chang’E missions have contributed to an increase in the number of early career lunar scientists and engineers [1]. The NGLSE was founded informally in 2008 [2] and has seen significant growth in recent years. The group meets in conjunction with meetings such as the Lunar and Planetary Science Conference (LPSC) and Solar System Exploration Research Virtual Institute (SSERVI) Forums to hold professional development workshops and informal social gatherings.

In 2014, the NextGen group gave a presentation at the Brown-Vernadsky Microsymposium on the NextGen role in human space exploration and the need to bridge the gap between the Apollo generation and the NextGen generation. As a result of this presentation, the lunar community at large embraced the idea of “bridging the gap” and creating a link between NextGen and the more established lunar professionals.

NextGen and LEAG: As a result of the 2014 Brown-Vernadsky NextGen presentation, the Executive Committee of the Lunar Exploration Analysis Group (LEAG) expressed a desire to include the NextGen members in their meetings and activities. Establishing interaction and fusion between LEAG and NextGen is crucial in bridging generational knowledge and experience gaps, as well as for preparing the NextGen to lead and train future generations. One day, the NGLSE generation will need to call upon the knowledge of the Apollo generation to support to the next human lunar exploration program. While we bring our own perspectives and innovation to lunar science and engineering, we still need support, guidance, and participation from more experienced LEAG members, especially those involved with Apollo. We passionate-



Figure 1: NextGen members (bottom) listen as members of the planetary science community discuss the publication and peer review process at the 2015 LPSC.

ly desire and work for a human lunar return to enable exciting science and engineering.

There are many ways in which LEAG and NextGen can cooperate: through attendance at conferences, participation in workshops, and informal gatherings, such as we discuss below.

Conferences and Workshops: Conferences and workshops are events that bring new and seasoned lunar scientists and engineers together. These meetings are grounds for networking and sharing the latest in lunar science research. Interactions between NextGen and LEAG at conferences will enable collaborations and discussion regarding ongoing lunar science projects and missions.

Workshops are a central part of the NextGen community [2]. Past workshops focused on topics such as proposal writing, interview skills, Education and Public Outreach training, and the publication and peer review process. NextGen is continually looking for volunteers to provide their knowledge and experience with the group. The NGLSE needs LEAG to intentionally work towards fostering early career professionals, and involvement in workshops is one way that this need can be met.

Community Building: In addition to professional development and training, both NextGen and LEAG will benefit from participation in informal networking events. At the 2015 LPSC, NextGen and LEAG members worked together to hold an informal social hour gathering in the poster hall. This event was widely attended and many new lunar scientists and engineers had the chance to talk with more established members of the lunar community that they otherwise may have been hesitant to approach. At the 2014 LPSC, several NextGen and LEAG members had dinner together to talk about how LEAG and NextGen could benefit from working together. We anticipate planning future informal events like these, including social hours, dinners, small-group discussions, etc. Informal events allow for networking in low-pressure environments and foster collaborations in a more relaxed settings than are found at larger professional gatherings. While we seek to network with established professionals, we also recognize the need to network amongst ourselves as the future lunar leaders.

Advocacy: Many NextGen members are active in writing and visiting their Congressional Representatives to advocate for planetary science funding. Advocacy is an activity that LEAG and NextGen members could participate in together, to show that all ages of lunar scientists and engineers are passionate about continued science and exploration. Many LEAG members have more experience in regards to communicating the importance of lunar science and exploration with rep-

resentatives, and could therefore instruct the NextGen on effective ways to communicate with Congress. At least one NextGen member has joined with the Planetary Society and the Space Exploration Alliance for Capital Hill visits, to great success, and we aim to include more members in future advocacy projects.

Conclusions: The NextGen group intends to keep the Moon at the forefront of discussion for future Solar System exploration, including Discovery, New Frontiers, and Flagship missions. Making focused efforts to foster communication between LEAG and NextGen will ensure that the early career generation is prepared and ready to lead and to train the following generation. With the current lack of funding for future lunar missions, it is imperative that we continue to establish connections between early and late-career scientists and engineers to ensure that we benefit from the knowledge of the previous generation. NextGen aims to ensure that the Moon does not slip from being a priority for planetary exploration, and we need experience, wisdom, and guidance from the LEAG community.

References: [1] Petro, N.E. et al. (2010), *AGU Fall Meeting*, Abstract #ED31B-0620. [2] Bleacher, L.V. et al. (2011), *42nd LPSC*, Abstract #1408.