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Moon Zoo: Educating the Public while Engaging in Science

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Abstract

The Moon Zoo citizen science project (http://www.moonzoo.org) directly engages the public in identifying geological (and sometimes technological) features on the lunar surface. With just a few clicks, users can mark craters, linear features, and even left-behind lunar landers on Lunar Reconnaissance Orbiter images. This science task, which is geared at answering specific questions discussed in the sister presentation by Lintott et. al, is embedded in an environment designed to encourage learning and collaboration. On the main Moon Zoo site users can explore educational content, including video tutorials, articles, glossary terms, and flash interactive activities. Additionally, there is a blog and a forum to encourage collaboration and social learning, and a twitter feed for general communications. Together, this suite of software facilitates Moon Zoo users in contributing to science while learning about the Moon and geology.

1. Introduction

The Moon Zoo website launched on 2010 May 11, bringing Lunar Reconnaissance Orbiter (LRO) images to the interested public along with the simple question: What do you see? This question can be answered by clicking on images with tools selected from a graphical menu, and using drop down menus to provide more detailed information where appropriate. Images can take anywhere from a few seconds to a couple of minutes to fully annotate, depending on the complexity of the lunar region displayed. The features users are asked to identify aren't all as simple as "crater" or "boulders," but rather include features that require a certain level of user sophistication, such as "sinuous channels," "elongated pits," and "boulder tracks." Helping users to understand both these features and the purpose of the work they are doing are educational articles, videos and interactive flash simulators. The majority of this content is an aggregation of materials created by various NASA missions and centers, by Astronomy 101 instructional designers, and by educational researchers. Along with these materials, we present users with "Quiz" questions that test their conceptual understanding of lunar geology. To support communications and social learning, we also have blogs, twitter feeds, and forums. Each of these aspects are discussed in detail below.

Figure 1: The Moon Zoo interface facilitates citizen scientists annotating LRO images with the locations of various geologic features, as well as the locations of spacecraft.

1.1. Educational Content

The Moon Zoo educational content is designed with one purpose in mind: To make sure that a curious user can find information quickly, easily, and on (or within 1-click of) the Moon Zoo site. The internet is filled with many excellent lunar educational products, and many high-quality digital products exist in offline archives. Finding desired resources, however, can sometimes be a challenge even for professional educators. In order to make finding content easier, we developed a glossary list and a basic concept map for our website that addresses geology, lunar exploration, observing, and the moon in history and culture, and then we populated these terms and concepts with already available materials. In addition to embedding

Figure 2: In addition to science tasks, Moon Zoo includes educational materials for learning about the Moon, geology, and lunar exploration.

content directly within our site, we have also collected links to additional content around the net that users can explore for further information. The content collection is a work forever in progress, and we will continue to build on our current repository in response to what we see users searching on, and to changes in our understanding of the Moon.

1.2. Blog & Twitter: Communicating to Users

As a citizen science project, Moon Zoo will be producing science results based on the users' annotations of images. In a sister project, Galaxy Zoo, survey-based research [Gay et. al 2009] found the most common motivation to participate in the project was the desire to contribute to research. To show participants how their contributions are being used, we ask all our project scientists to blog about their results. We also use the blog and twitter accounts to communicate site changes, the addition of new images and features, and other site news to our users. It is our goal to make our users feel like they are cherished colleagues who are part of the process of science.

1.3. Forums: Building a Community of Citizen Scientists

Science is a collaborative endeavor, both at the educational and investigative levels. Through forums, we encourage users to question, collaborate, and help one another. These forums form a social core to the Moon Zoo. We find the forums are actually a necessary part of our citizen science projects for two reasons: Users have many questions (and many of them have the same questions), and through forums we can create a place where they can find answers, and in some cases, as we've seen with Galaxy Zoo, even research answers when they make new discoveries [Cardamone et al. 2009]. Additionally, the forums provide a place where like-minded people can socially share cool geologic features they find, discuss their opinions on exploration, and sometimes just make friends and discuss the weather. Research is being done to see if forum engagement causes users to participate in citizen science longer than non-forum engagement.

2. Summary and Conclusions

This project is still in its first days at the time of this writing. In the coming months we will be watching in detail as science is produced, as our forum community grows, and as educational research begins to allow us to understand what motivates Moon Zoo users as well as what they know and what they are learning. For now, we work to communicate to and educate our population of citizen scientists as they annotate LRO images through the Moon Zoo interface.

3. Summary and Conclusions

References

[1] Gay, P.L., Bracey, G.L., and Raddick, M.L., 2009, "Motivations of Citizen Scientists Participating in Galaxy Zoo," 214th Bulletin of the American Astronomical Society. #401.09

[2] Cardamone, C. et. al 2009, "Galaxy Zoo: A New Class of Compact Extremely Star Forming Galaxies?" Monthly Notices of the Royal Astronomical Society 299, 1191

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