

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
New Worlds - Non-Traditional Space Education and Outreach (7)

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CREATING A VIRTUAL MOON COLONY BY OPEN-SOURCE COLLABORATION

**Abstract**

At [www.moonwards.com](http://www.moonwards.com) a project is underway to design and build a complete and highly realistic Moon colony, which will then be constructed as a 3d environment that visitors can interact with by downloading an application to their personal computers or tablets.

The website shows and explains the selected site, the digital models of colony infrastructure, and timelines and objectives for the series of missions that construct the colony. That site is Lalande Crater, chosen for its especially high concentration of KREEP minerals, the high likelihood of usable lava-tubes on the crater floor, and the presence of both basalt and highland minerals. Mission architectures are based on construction by tele-operated robotic machinery. Only a few installations are currently shown, as the priority right now is to complete the structure of the website so it best facilitates collaborative work. Online collaboration tools are being added to the project as they become useful. Currently GitHub is being used as an organizing tool, a chat room for the project exists as part of the Space Exploration section of Stack Exchange, and the website has a forum.

The website and related pages are updated frequently. The GitHub and chat room were only just added and are still bare-bones. Currently the Planning page of the website is being completely redone.

The project was the subject of the Mon. Feb 29th episode of The Space Show, and will be presented in May at the ISDC.

The digital models of individual structures, machines, the selected site, and the complete colony at different stages of construction and occupation can be presented as slides. Video fly-throughs of the colony, animations of the machinery at work, and time-lapses of construction over all the missions can be shown. Examples of the basalt materials that would be used in construction would be on display - rebar, geotextile fabric and rope.