

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Open Space: Participatory Space Education and Outreach (8)

Author: Dr. David Tomblin
University of Maryland, United States

Dr. Richard Worthington
Pomona College, United States

Dr. Gretchen Gano
Amherst University, United States

Dr. Mahmud Farooque
Arizona State University, United States

Mr. David Sittenfeld
Museum of Science, United States

Dr. David Guston
Arizona State University, United States

Mr. Jason Lloyd
Arizona State University, United States

Mr. Zachary Pirtle
National Aeronautics and Space Administration (NASA), United States

Mr. Jason Kessler
NASA, United States

Ms. Erin Mahoney
Valador, Inc., United States

Dr. Amy Kaminski
NASA, United States

Dr. Michele Gates
NASA Headquarters, United States

TOWARD A PEOPLE'S SPACE PROGRAM: A PARTICIPATORY TECHNOLOGY ASSESSMENT OF
NASA'S ASTEROID INITIATIVE

Abstract

The National Aeronautics and Space Act of 1958 mandates that NASA conduct activities in space “for the benefit of all humankind.” NASA managers and engineers aim to develop systems and perform missions that will have significant value for publics worldwide. Yet, how can NASA be sure its program choices reflect societal values? This paper reports on a recent effort by NASA to gauge U.S. citizens’ values relating to the agency’s Asteroid Initiative with the aim of incorporating them into decision-making.

NASA’s Asteroid Initiative consists of two related activities: (1) an Asteroid Redirect Mission, which would use a robotic spacecraft to capture a small near-Earth asteroid or a piece of a larger asteroid and redirect it to a stable orbit around the Moon for analysis and sampling by astronauts; and (2) an Asteroid Grand Challenge, which aims to accelerate NASA’s work on planetary defense to find all asteroid threats to human populations and know what to do about them.

Exploring the opportunities asteroids present and responding to asteroid impact threats are issues with implications for every person on Earth. Rather than presuming what views individuals hold about

asteroid threats and NASA's Asteroid Initiative, NASA wanted to establish a process to hear public views as it considered implementation approaches for the Asteroid Initiative. In 2014 NASA partnered with the Expert and Citizen Assessment of Science and Technology (ECAST) network, a consortium of U.S. academic and informal science education institutions, to conduct a participatory technology assessment (pTA) of the Asteroid Initiative. This methodology seeks to engage groups of citizens who are representative of the general population with technology-related issues before officials finalize policy and program choices. Previous uses of pTA by government and technical organizations worldwide have demonstrated that citizens without technical backgrounds are capable of processing complex technical information and offering valuable input that to inform technology planning activities.

ECAST conducted two, day-long Asteroid Initiative pTAs in November 2014, involving 183 citizens in two U.S. cities and many more online. This presentation will offer an overview of the processes NASA and ECAST developed to recruit and inform participants and to structure discussions for the in-person and online forums. We will report on the results of these efforts, including participants' views on the Asteroid Initiative and how the forum influenced NASA management practices. Our experiences can inform others about pTA's efficacy in enhancing decision-making on other topics by NASA and worldwide space programs.