



**NASA Advisory Council Science, Technology,
Engineering and Mathematics (STEM)
Engagement Committee**

**May 2, 2019, 11:00 am – 12:15 pm ET
Webex**

STEM Engagement Committee Members

Present: Daniel Dumbacher, Norman Fortenberry, Michael Lach, Ray Mellado, Carl Person, Darryl Williams, and Aimee Kennedy, Chair

Not Present: Cristin Dorgelo

Others Present:

Beverly Girten (Executive Secretary), Michael Kincaid, Kris Brown, NASA HQ Office of STEM Engagement; Rob LaSalvia, Rick Gilmore, Glenn Research Center

Opening Comments

Dr. Beverly Girten, Committee Executive Secretary welcomed everyone and noted the meeting is taking place in accordance with the Federal Advisory Committee Act (FACA). The committee will cover topics stated in Federal Registry Notice and will adjourn at approximately 12:15. An additional STEM Engagement Committee meeting will be scheduled toward end of month to finalize recommendations.

Opening Remarks

Mike Kincaid and Aimee Kennedy thanked everyone for joining the meeting. Today's meeting is an abbreviated meeting which will be followed by a longer meeting on May 28. Mr. Kincaid shared the Vice President's announcement and challenge to NASA to put the first woman and next man on the Moon by 2024, also known as Space Policy Directive 1. The Vice President announced this during the March 2019 National Space Council Meeting. NASA STEM Engagement Committee member Dan Dumbacher, was one of the panelists at the National Space Council meeting.

National Space Council Meeting Update

Mr. Dumbacher shared his experience participating in the fifth National Space Council (NSC) meeting at the U.S. Space and Rocket Center in Alabama on March 26, 2019. The prime focus of the meeting was human space exploration. Mr. Dumbacher shared that the Vice President's announcement to execute Space Policy Directive 1 was first announced prior to the National Space Council meeting—during the NSC Users Advisory Group subcommittee, chaired by Admiral Jim Ellis. Mr. Dumbacher stated the first panel session of the NSC focused on near term preparations, including commercial crew, for traveling to the Moon. The second panel focused on longer range planning. Mr. Dumbacher also explained that the panelists had only learned about the challenge to execute Space Policy Directive 1

when the Vice President made the announcement. Panelists were adjusting in real time to the announcement.

Mr. Dumbacher noted Space Policy Directive 1 is a major opportunity for Agency and that it is necessary for the country to move as fast as we can towards that goal. Mr. Kincaid noted that most people in the room were not expecting the announcement and that this committee needs to look at how to use the moment for STEM and to help students, educators and institutions.

STEM Education Advisory Panel Update

Mr. Kincaid provided an update on the progress towards developing the implementation plan for the Five Year Federal Strategic Plan for STEM Education. Mr. Kincaid reviewed the three federal goals and nine objectives for STEM education. Each participating agency was asked to identify which of the nine objectives they could support and how. Mr. Kincaid identified three goals NASA is supporting. These objectives align with Congressional appropriation to NASA. Mr. Kincaid reviewed the timeline for development of the implementation plan. A draft is to be completed in May and the final version is to be released in June. STEM Education Advisory Panel members Aimee Kennedy and Ray Mellado serve on the Advisory Committee to the development of the implementation plan. Mr. Kincaid noted there are 18 people on the Advisory Committee and that he is thankful two of those members are on the NASA STEM Engagement Committee.

Office of STEM Engagement (OSTEM) Updates

Overview

Mr. Kincaid provided an update on activities surrounding the celebration of the 50th anniversary of the Apollo Moon landing. He gave a brief overview of the Space STEM Forum and shared the Space STEM Forum website (<https://spacestem.nasa.gov/>) which is a repository for activities and resources organizations and individuals celebrating the Apollo anniversary. Mr. Kincaid invited the STEM Engagement Committee to add activities to the Events and Exhibits section of the website. Mr. Kincaid also shared plans for a two-hour Apollo broadcast on the afternoon of July 19. Thirty minutes of the broadcast will have a STEM Engagement focus with several museums serving as host sites. Mr. Kincaid briefly discussed the partnership with Peanuts Worldwide, which was unveiled in Houston during the last week of April, and the US Space and Rocket Center's planned Guinness Record attempt for the most rocket launches over a 24-hour period. Mr. Dumbacher added the American Institute of Aeronautics & Astronautics (AIAA) are working to support the world record attempt. Mr. Kincaid invited Mr. Dumbacher to add the AIAA events to the Space STEM Forum events web page.

Mr. Kincaid then shared the Future of Space live discussion held at NASA Headquarters on April 29, 2019. NASA STEM Engagement partnered with AIAA and Space Grant to bring this discussion to approximately 50 undergraduate and high school students at NASA HQ and many more virtual participants via watch parties at campuses nationwide. NASA Administrator Jim Bridenstine, Human Exploration and Operations Mission Directorate Associate Administrator William Gerstenmaier and Science Mission Directorate Deputy Associate Administrator for Exploration Steve Clarke participated in the discussion moderated by NASA Astronaut Tracy Caldwell Dyson. The discussion included video vignettes of young NASA professionals from across the Agency sharing their experience on how they participate in NASA's missions. Through the discussion, NASA invited students to stay engaged with NASA and STEM. Dr. Fortenberry commented he would like to share this information with colleges of

engineering and find ways they can host similar events on their campuses. Dr. Williams also noted the Philadelphia region has a number of activities planned to highlight the Apollo anniversary.

Sparking Interest in STEM

Rob LaSalvia and Rick Gilmore gave an update on the approach they are using to follow up on the STEM Engagement Committee recommendation on sparking student interest in STEM put forth on the December 4, 2018 committee meeting:

Recommendation #2: Spark that Leads to Engagement

The Office of STEM Engagement should create a deep and comprehensive document that describes what we know about sparking student interest (spark), STEM engagement, and motivation, and use it to create the foundational evidence for the Office.

Mr. Gilmore provided a high-level overview of the approach they will follow to address the recommendation. NASA Office of STEM Engagement (OSTEM) will bring together a nationally recognized panel in the July 2019 timeframe and investigate what the research says about sparking interest and motivation. OSTEM will then pull from the forum experience to create a report on what they should be doing in design and execution that will spark student interest and keep students engaged in STEM. The recommendations in the report will focus on precollege students. Mr. Gilmore shared initial draft questions the team will research to better understand what NASA should be doing in the areas of motivation and sparking interest in STEM. We drafted initial questions. Some initial questions are: What is research base? How does it support sparking student interest in STEM? How do we sustain interest and motivation over the long term? Following the July panel, the team will review panel recommendations to create a report during the August timeframe.

Mr. Gilmore asked the committee if the approach presented will satisfy the recommendation. The team appreciates feedback on the approach and is looking for recommendations for subject matter experts to invite to the panel. Mr. Dumbacher asked about how the report becomes actionable and communicated to industry, universities and the K-12 system to use as a guide. Mr. Gilmore stated it will be a longer term endeavor than just one report and that they would likely work with partners on the distribution. Dr. Kennedy acknowledged the team and the approach presented. She also suggested that when looking for subject matter experts, the team look beyond nationally recognized STEM education experts and include human development and human learning experts who would bring to bear broader content knowledge. Dr. Person supported the approach and agreed with the need for including experts with diverse perspectives and include nonprofits, colleges and universities, among others. Mr. Gilmore stated the team will be meeting in two weeks to identify the types of experts they are trying to include. Mr. Kincaid suggested including some members of the STEM Engagement Committee for continuity between the two groups. Dr. Williams stated the importance of being broad not only research and practice but also in the formal and informal spaces and the intersection of the two.

Following the discussion on sparking interest, Mr. LaSalvia explained that he and Mr. Gilmore were currently participating in the STEMconnector forum. STEMconnector is a consortium of institutions concerned with STEM education and the future of human capital in the United States. One of the issues being discussed at the forum is return on invest and how to capture metrics when working with K-12 students as the workforce impact is years in the future. A lot of passion in leadership but hard to get

everyone talking from the same sheet of paper. STEMconnector is a great opportunity to network with other organizations on closing the STEM talent gap.

Mr. Kincaid then shared that Kris Brown would discuss the agency STEM Engagement portfolio at the next committee meeting. The full NAC was to be during the week of May 6 but was pushed out in response to the Vice President's announcement. The STEM Engagement Committee will convene another meeting on May 28 from 11:00-3:30 eastern.

Mr. Kincaid then adjourned the meeting.