

RESOURCES SCIENCE ACTIVATION AND PUBLIC ENGAGEMENT - PARTNERSHIP WITH HOWARD UNIVERSITY, M. A. Matiella Novak¹, J. L. Heldmann², D. Khalil³, ¹Johns Hopkins University Applied Physics Laboratory, ²NASA Ames, ³Howard University

Introduction: The RESOURCE team is committed to involving the general public in our science and exploration program and to foster science activation and public engagement by conducting a variety of activities. These activities leverage existing NASA programs and utilize multiple Subject Matter Experts (SMEs) within our team who have experience providing authentic experiences and facilitating STEAM (Science, Technology, Engineering, Arts, Math) engagement. The SA/CS/PE team will represent RESOURCE team science and SSERVI at professional conferences, SSERVI events, and through joint activities using the NASA Science Activation infrastructure, as well as committing to fully participating in the SA/CS/PE Working Group.

For the SA/PE activities, we are partnering with multiple NASA Science Activation teams and will 1) provide content for the OpenSpace data visualization project at the American Museum of Natural History (AMNH), 2) provide women Subject Matter Experts (SMEs) to support the SETI Institute’s “Reach for the Stars: NASA Science for Girl Scouts” program, 3) deliver topical seminars through multiple online platforms, and 4) team with Howard University, a Historically Black College & University (HBCU), to help develop highly effective teachers who then elect to serve in either urban schools or in education systems with a predominantly marginalized student population.

Partnering with Minority Serving Institutions: The purpose of teaming with Minority Serving Institutions (MSI), and specifically partnering with the education departments in these institutions, is to provide NASA mission engagement and training opportunities to the future STEAM teachers of this country who will serve as role models to their students. Through these engagements, we will be creating a pipeline of opportunities that help to develop future teachers as they receive their education degrees, continue partnering with them as they begin their careers in the classroom, and serve as resources for them as they encourage their students to pursue STEAM interests and careers.



Our team includes Dr. Deena Khalil (Howard University), whose research focuses on the challenges of recruiting, developing, and retaining highly effective teachers, particularly STEAM teachers, who prefer to serve in these school settings. We enthusiastically support her program to develop STEAM teachers who will in turn inspire future STEAM students from underrepresented communities as part of the pipeline to STEAM technical careers. We will support Khalil with RESOURCE SMEs to participate in engagement training activities through with her current project (PI Khalil) titled “E-Communities: Investigating How a Collaborative Between Engineers and Teachers Influences Underserved Youth’s

Participation in Engineering Design.” Khalil will continue to recruit both pre- and in-service teachers from Prince George’s County, MD public schools and develop a community of practice. The project is investigating whether combining the expertise of professional engineers and scientists with that of STEAM educators will enable classroom mathematics and science teachers to engage students in the engineering design process in ways that affect students' awareness, interest, and ability to identify with engineering principles and careers. RESOURCE is pleased to provide SMEs as professionals for the teachers to engage with during the course of this project (both in-person and through virtual meetings). Therefore, we are not only contributing to the research aimed at optimizing strategies to advance efforts to better understand and promote practices that increase students' motivations and capacities to pursue careers in STEAM fields, but we are also able to directly interact with over 90 middle school teachers already enrolled in the E-Communities program to provide NASA and RESOURCE content, information, and inspiration to the teachers and also their students when the new knowledge is taken back into the classrooms.