

## SPACE LIFE SCIENCES SYMPOSIUM (A1)

Public Outreach and Education - Integral Elements of Space Life Sciences Program Development (8)

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## SUSTAINABLE SPACE LIFE SCIENCES EDUCATION: STRATEGIES FOR INNOVATION AND GLOBAL ENGAGEMENT

**Abstract**

The National Space Biomedical Research Institute (NSBRI), the National Aeronautics and Space Administration (NASA), and Morehouse School of Medicine (MSM) have sustained a twelve-year space education consortium that supports space life sciences research and knowledge transfer to students, educators, and general audiences. Recently, this consortium expanded its educational outreach portfolio to include international collaborations in support of a global vision for space exploration education. This vision promotes multicultural understanding of the impact of space exploration on society, including innovative science education to prepare the next generation of students for progress in a borderless, 21st century workplace.

This paper describes the design and achievements of the consortium's educational program, including space life sciences educational products and professional interchanges with audiences in Austria, Canada, Greece, Italy, Scotland, and Spain. Also, the paper makes the case for a comprehensive approach Kindergarten through postgraduate levels; structured engagement with scientists who are actively engaged in space life sciences research; and fundamental educational research to build a sine qua non of best practices. Five mutually reinforcing themes research, teacher professional development, curriculum materials production, career awareness, and science literacy have provided a road map for a coherent program. In addition, commitment to private-public partnerships and targeted use of multimedia technology has proven essential for maintaining up-to-date knowledge and ensuring organizational sustainability during times of scarce resources.

NSBRI-NASA-MSM theme activities are orchestrated around presentations/publications in international forums; multilingual, inquiry-based curricula materials development; summer and multi-year research fellowships and internships for undergraduate, graduate, and postdoctoral students; teacher professional development institutes; public engagement through science centers, museums, and community organizations; and mass media productions that are broadcasted to millions of television, radio, and community-based audiences. Face-to-face, as well as cyberspace technologies, are used to selectively disseminate information to specialized audiences and professional networks that advance the consortium's products and activities around the world.

The NSBRI-NASA-MSM consortium's global educational mission will require a concerted call to action from education decision makers around the world to engage teachers, learners, and ordinary citizens in activities that communicate how space exploration can help global societies overcome 21st century challenges and coexist peacefully. The 60th International Astronautical Congress: Space for Sustainable Peace and Progress will provide a unique forum for garnering feedback to refine and propel these strategies for educational innovation and public engagement in space exploration.