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IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Ignition - Primary Space Education (1)

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IT STARTS EARLY: A LOVE OF LEARNING IS IN THE STARS

Abstract

Elementary and middle level students can be engaged in space science through involvement in research and through innovative engagement strategies. The author of this abstract developed a love of space science at five years old, led activities for other students at age nine, and completed an astronomy research project on the Andromeda Galaxy in middle school. In addition to her own scientific learning, the subsequent development of space science educational experiences for younger children provided to be an equally rewarding experience. The initial research was an analysis of novae rate with respect to location in the Andromeda galaxy and was conducted using images of the Andromeda galaxy taken from the WIYN 0.9 meter telescope on Kitt Peak. This research was presented at the 2017 IAC in Adelaide. The author's own experience and work with other youth is a case study outlining how early engagement in space science positions youth for a future ready career and for space science literacy. Three foundational elements are necessary to ensure a strong launchpad at the primary level. First, authentic and relevant experiences must be introduced to youth. For example, the electromagnetic spectrum is not too complex for a young child. By providing tools such as ultraviolet beads and infrared thermometers, children can explore their environment with technologies that allow them to see the invisible. Slinkies and string can represent wave behavior. No matter what the medium, it is critical to support the child to ask her own questions and define problems. Second, supporting children to think outside of stated curricular parameters is crucial. This author proposed a science fair experiment to her middle level teacher that was not on the list of acceptable projects. Fortunately, her teacher approved and years of research on the Andromeda Galaxy ensued. By empowering a child to investigate phenomena that are relevant to their own context, engagement is established. Third, direct connections with researchers and professionals must begin at a young age. The author presented her Andromeda research at an oral session at the Committee on Space Research (COSPAR) conference in Bremen, Germany at the age of 14. She engaged defended her work, fine-tuned presentation skills, and collaborated with the greater scientific community. For youth to access space science as a career, they must know it is an option. The author recently graduated college and is exploring graduate school options in a space science health care field.