

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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PRE-COLLEGE SATURDAY RESEARCH ACADEMY AT ARECIBO OBSERVATORY

Abstract

The Arecibo Observatory (AO) is helping the Puerto Rico Educational System by motivating high school students to become scientists at an early age. This research approach was developed and tested by Universidad Metropolitana (UMET) with over 2,000 pre-college students during ten years (2000-2010) with the sponsorship of the National Science Foundation (NSF), and was based on the Model Institutions for Excellence (MIE) best practices to foster the study of science, technology, engineering, and mathematics (STEM) disciplines among the youth of Puerto Rico. The main objective of this project has been to motivate talented high school students (grades 10th to 12th) in Puerto Rico to get involved in a project based research program in Astronomy, Atmospheric Sciences and Physics. Pre-College students are recruited at high schools visited by the program coordinator, Internet promotions and email invitations. After the recruitment process is finished all the applications are evaluated by a committee composed of qualified scientists and administrators. Twenty (20) students are selected to participate in the program during the Spring and Fall. The students meet every Saturday at the AO facility for a period of 16-weeks (an average of 80 contact hours) to work in their projects guided by mentors. The mentors are scientists, faculty, graduate students, or undergraduates available for the program. At the end of each term the students develop and present research outcomes in professional posters or oral presentations in a Pre-College Research Symposium.

The program has impacted 62 high school students with projects such as: BANA Space Settlement Communication and Navigation System and Exoplanets Explorers Encyclopedia: Discoveries. Partnerships with universities and research organizations in Puerto Rico and the US mainland provided mentorship in very competitive projects. NASA/AMES, and NASA/Goddard as well as UC Berkeley are offering mentorship in Space Weather, CubSat, Soho Mission, Lunar Exploration, and SETI. Funding for this project has been provided by NSF via two grants: The Caribbean Computing Center for Excellence (CCCE) CNS-0940522, and the Advance Modular Incoherent Scatter Radar (AMISR) AGS-1039593.