GETTING TEACHERS INVOLVED IN RESEARCH: A POTENTIAL COMPONENT OF FUTURE SUBORBITAL MISSIONS V. Gorjian,[1] L. M. Rebull[2], T. Spuck[3], G. Squires[2], and the NASA/IPAC Teacher Archive Research Program Team, [1]Jet Propulsion Laboratory/Caltech (vg@jpl.nasa.gov), [2]Spitzer Science Center/Caltech, [3]Oil City High School

Introduction: One really good way to get the word out about how science works is to have more people experience the process of scientific research. The way we have chosen to do this, since 2004, is to provide authentic research experiences for teachers using *Spitzer Space Telescope* data. We present this as a model for EPO programs arising from the various suborbital missions being considered, and offer the opportunity for collaboration on future missions.

The program originally called the Spitzer Program for Teachers and Students has newly been rechristened NITARP: the NASA/IPAC Teacher Archive Research Program. We partner small groups of high school teachers with a mentor astronomer, they do research as a team, write it up, and present it at an American Astronomical Society (AAS) meeting. The teachers incorporate this experience into their classroom, and their experiences color their teaching for years to come, influencing 100s of students per teacher.

Teacher Selection: NITARP selects teachers from a competitive nation-wide selection process; teachers have to apply via an essay-style application to be accepted. Applications are due annually in September.

The Research Program: The following is a brief description of the cycle that the selected teachers follow in their research project in astronomy. A similar path can be reproduced for any other science mission.

Attending the introductory workshop and first professional meeting: A teacher starting this program attends our workshop held immediately before a January AAS meeting to get rapidly up to speed on the available datasets, tools, archives, etc., and to learn the basics of multi-wavelength astronomy. Then, for most teachers, they attend their first AAS meeting ever (See 2006 team below). This is a critical experience because they need to experience the community of astronomers ("I learned that astronomers are normal, friendly people" – real quote from a participant!), they need to see what an AAS poster is like (because they are going to be asked to write one in the coming year), to meet their team in person for the first time and get started on defining their science program (their first task after returning home is to collaborate and write their proposal), and to network with past, present, and future colleagues (just like professional astronomers).

Main data reduction: The following summer, the teachers and two carefully selected students per teacher attend a workshop at IPAC, home of the Spitzer Science Center, at Caltech. This visit is the heart of the program, and is where most of the hard work on the project takes place. For three days, each of the teachers and their students typically work 10-12 hour days with their scientist intensively learning the astronomy/physics, how to work with their data, developing a work plan for the rest of the project, and talking as a group about how to work their project into their curricula at home.

Attending the second professional meeting and presenting results: Finally, at the second AAS meeting (a year after the first) is when the teams proudly present the work they have done. Each team is expected to present at least two posters – one on the science and one on the educational aspects of their project. The science poster is displayed as part of a regular science session (not an education session), and many of the students are often pleasantly surprised when professional astronomers come by and are eager to learn what they did… and the astronomers are often shocked to learn that they are "just" high school students and their teachers. Often teachers present educational products as part of their educational poster (e.g., curricula or Excel spreadsheets to support working with Spitzer data); these are all collected and shared on our wiki and website.

Program Results: From the eleven major research projects sponsored by the program so far, 31 scientific posters have been presented, and a number of scientific papers have been published. Students involved in the program have received regional and international science fair awards. In terms of impact on the local community, there have been nearly 100 newspaper, radio, and TV reports, and numerous Internet articles reporting on various aspects of teacher and student involvement in the project, and over 100 students feel the program has influenced them to pursue careers in science. Finally, one Texas teacher's involvement in this program played a major role in the state of Texas adopting astronomy as a high school science. ***This program has a record of success, and we can collaborate with you to start a similar program for your mission.***