THEMIS End of Prime Mission (EOPM)
Impacts of the THEMIS Education and Public Outreach
2003-2009

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Goals and Objectives

Inspire and engage teachers and students in THEMIS science

- Place Magnetometers in 10 schools in U.S.
- Develop classroom materials and trainings for teachers on magnetometer data, THEMIS mission, math and science
- Provide support to the teachers with magnetometers in order to engage students in magnetometer data and THEMIS science

Engage people in auroras and THEMIS at small Planetariums

- Update a small Northern Lights Planetarium show with THEMIS data

Share THEMIS Educational Materials

- Develop a website used by students, teachers, and the general public
- Share THEMIS materials through existing NASA networks
Teachers and Students

Place Magnetometers in 10 schools in U.S.

• THEMIS placed magnetometers at 13 rural, underserved schools/communities with real-time and archived data online for teacher and student use.
Develop classroom **materials** and trainings for teachers on magnetometer data, THEMIS mission, math and science

- THEMIS developed five books with classroom activities, student worksheets, and background information (reviewed by THEMIS teachers and NASA and improved with this feedback)
Develop classroom materials and trainings for teachers on magnetometer data, THEMIS mission, math and science

- THEMIS provided intensive professional development for 20 teachers associated with magnetometer sites over four years; 8 of the teachers estimated reaching more than 2,720 students with THEMIS-related materials/ideas, 75% of which are minorities in science.
Develop classroom materials and trainings for teachers on magnetometer data, THEMIS mission, math and science

- THEMIS funded a permanent site in Nevada for teacher trainings, that began with training 42 elementary and middle school teachers, primarily from Nevada and, since then, has trained some 180 teachers in the first three years after the site opened. It is still operational w/o NASA funding.

- THEMIS trained 550 K-12 teachers in 30 workshop trainings, reaching 48,400 students
Teachers and Students

Provide support to the teachers with magnetometers in order to engage students in magnetometer data and THEMIS science

• Teachers using magnetometer data with their students provided evidence of the project’s positive impact on students’ attitudes toward science, increased enrollment in science, and choosing science as a career.

• The NewsHour with Jim Lehrer featured three students affected by the THEMIS education program at the Petersburg, Alaska magnetometer site.

• The NewsHour potentially reached more than 5 million viewers in two airings, according to Nielsen ratings, and was picked up by National Public Radio.
Update a small Northern Lights Planetarium show with THEMIS data.

• THEMIS changed plans to save cost and maintain the same impact by creating an aurora THEMIS ViewSpace exhibit, an internet-fed self-updating, permanent plasma screen exhibit from the Space Telescope Science Institute

• The ViewSpace museum plasma screen show is currently in 200 museums and science centers around the world and is estimated to have been shown 5,500 times per month

• The network of museums in which ViewSpace is exhibited grows at a rate of 3 to 4 per month
• Develop a website used by students, teachers, and the general public
• Share THEMIS materials through existing NASA networks
• THEMIS Education website has had close to 900,000 successful requests for pages since 2003
• Over 20,000 CD-ROMs with THEMIS classroom books and 25,000 THEMIS flyers have been sent to teachers around the country through NASA’s Sun-Earth Day program and teacher trainings
Heliophysics Educator Ambassador program: Its goal is to develop the capacity of over 70 educators to train other teachers on NASA heliophysics science and educational resources, including using magnetometer data in new classrooms.

Coordination with a variety of NASA E/PO partners affords THEMIS E/PO many opportunities to share resources nationally without duplication of effort.
Acknowledgments

Dr. Nahide Craig was the THEMIS E/PO Lead from 2003 until 2007. She made many of these outcomes possible.

The direct impact on students comes from the many teachers who have been part of the THEMIS program, especially the ‘core’ teachers with magnetometers

Victor Trautman – Alaska; Laura Orr – Oregon
Cris DeWolf – Michigan Jim Bean – Nevada
Terry Parent – Nevada Wendy Esch – Wisconsin
Harriet Howe – North Dakota Wendell Gehmann – South Dakota
Gail Bushey – Nevada Manju Prakash – Maine, Massachusetts

Thanks also to THEMIS scientists and engineers who volunteers their time in many outreach and teacher events throughout the years.