

## **SPECIAL EDUCATOR OPPORTUNITY**

### **ASU Mars Educator Remote Sensing Workshop, Field Trip, and the 20<sup>th</sup> Semi-annual ASU Mars Education Workshop**

**February 27 - March 1, 2003**

**Sponsored by the Mars Space Flight Facility and the  
ASU Mars Education Program - Arizona State University**

Come to a special series of teacher-friendly Mars workshops to learn the methods and details of how satellite data relating to minerals and rock types are collected from the surface of Mars...taught by the scientists that are currently doing it! The Mars Space Flight Facility and the ASU Mars Education Outreach Program are offering a Mars-related remote sensing workshop and field trip especially geared for 30 classroom teachers. This event will be held from February 27 – March 1, 2003 at ASU and an Arizona desert field location.

Dr. Phil Christensen, who will be leading the class, is a proponent of connecting space scientists and educators together to create unique learning experiences and has a history of making scientific concepts understandable for the classroom teacher. He is the Principal Investigator for the Thermal Emission Spectrometer (TES). The TES instrument is aboard the Mars Global Surveyor spacecraft and is currently collecting mineralogical data about the Martian surface from orbit. Dr. Christensen is also the Principal Investigator of the Thermal Emission Imaging System (THEMIS) Camera on board the Mars Odyssey spacecraft and has similar instruments scheduled for the 2003 Mars Explorer Rovers getting ready to be launched in May and June of 2003.

For the first two days, Dr. Christensen and his remote sensing staff will instruct the class in the fundamentals of remote sensing (collecting data from orbit around a planet). Each participant will receive a notebook with information and educational materials that will help to relate this experience and knowledge to their students. Dr. Christensen will oversee a field trip to a richly diverse geologic location: the Granite Wash Mountains in the Arizona desert. This workshop will allow participants to become familiar with infrared data and the methods of "ground-truthing" satellite data in the field. Teachers will also be introduced to the technology that is currently being used in the 2001 Mars Odyssey mission and will be used in the 2003 Mars rover missions.

The final day, participants will attend the 20th semi-annual ASU Mars Education Workshop. The featured speaker will be Dr. Phil Christensen and a member of the 2003 Mars rover team. Dr. Christensen will detail the latest, spectacular discoveries from his instruments, the Thermal Emission Spectrometer, the THEMIS camera on board the Mars Odyssey spacecraft, and outline the possibilities for the upcoming Mini-TES instruments, which will be roving the Red Planet on the Mars Explorer Rovers in 2004. In addition, this event will also include additional Mars-related hands-on classroom activities. Participants will also stay connected electronically through the ASU Mars Education Program to the Mars missions, receiving new data and lesson plans as they are developed for the upcoming instruments and will be made aware of future educational opportunities.

**Participant requirements:**

- Approved application for workshop
- Willing to participate in all 3 days of workshop/field trip
- Ability to hike in field terrain (not too difficult, but does involve some mountains and hill hiking)

**Cost:** A \$35 workshop fee will provide participants with a workshop/field manual, field trip transportation, and lunch on the day of the field trip.

**In addition to the \$35 workshop fee, participants will be responsible for the following costs:**

- Transportation to and from ASU (Phoenix, AZ)
- Lodging (Approx. \$75.00 - \$100/night depending on hotel choice - might be possible to share a room and split cost or check with other nearby hotels that could be less)
- Meals
- Parking on campus if driving (\$5.00/day)

One ASU graduate credit is possible for interested teachers (credit and registration fee of approx. \$160\* will apply in addition to the workshop fee of \$35 for those wishing to take this course for credit - \*In-state Arizona Teachers Only.) Please indicate interest in the ASU credit on your workshop application.

The workshop schedule starts promptly at 8:00am on Thursday, February 27th and ends at 5:00pm on March 1st. Flights should be scheduled to arrive no later than Wednesday night and depart from Sky Harbor airport no earlier than 7:00pm on Saturday, March 1st to ensure all participation requirements can be met.

**Special note:** Arizona State University requires all students attending classes on campus to be immunized against measles if you were born after 12-31-56. Proof of immunization will be required for all workshop participants. Bring proof of immunization or get a booster shot before the trip. ASU can provide an immunization form. Maricopa County (where ASU is located) has had an outbreak of measles and seeks to make sure this disease is contained. Forms will be provided upon request.

**Ideas for funding:** Eisenhower professional development funds, state Space Grant Consortium, local service clubs (Kiwanis, Rotary, etc.), district professional development funds, personal funds.

**How to apply:** Due to the limited space available (30 teachers maximum), an application of no more than one page on school letterhead should include:

- Name, address, phone, fax, and e-mail on form included
- Current grade level you are teaching (this workshop is most appropriate for classroom teachers who include geology, earth science, rocks and minerals, or remote sensing in their curriculum)
- How this information will be used in your classroom instruction (one page or less)
- Ability to cover funding of trip.

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\_\_\_\_\_ I AM APPLYING TO ATTEND the Feb. 27 - March 1 ASU Mars National Educator Remote Sensing Workshop / Field Trip and the 20th Semi-annual Regional Mars Educator Workshop at Arizona State University, Tempe, AZ. I can cover the expenses listed (transportation to Arizona, lodging and meals.)

\_\_\_\_\_ I cannot attend, but please put me on the mailing list for future newsletters, announcements, and K-12 education opportunities.

**Teacher Name:**

**School Name:**

**School Address:**

**Home Address:**

**Phone Number:      Work:**

**Home:**

**Fax Number:**

**Grade(s) taught:**

**Email:**

Deadline for applications: **Please fax, mail, or e-mail your application by 2-14-03.**  
(Be aware, workshop will be limited to 30 educators and might fill before final deadline date.)

**Applications or inquiries may be e-mailed, faxed, or mailed to:**

Sheri Klug  
Director, ASU Mars Education Program  
Mars Space Flight Facility  
P.O. Box 876305  
Tempe, AZ 85287-6305  
(480) 727-6495 (office)  
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