



- **2001: "Crawl, Walk, Run and Fly!" start simple, build on learning, and ultimately make aerospace history by sending student built hardware, representing the 52 Space Grant (SG) Consortia, to Mars." This bold concept was endorsed by NASA's Mars Program Director Scott Hubbard:**  
  
“[Your] concept has a significant visionary aspect. It integrates NASA's Space Science and Education responsibilities into a program that adds substantially to both. If successful... [it]...would constitute the first time student-built hardware has been launched beyond Earth orbit” (Hubbard: January 26, 2001).
- **2002: Orlando Figueroa, Mars Program Manager, pledged \$12 Million from Code S for student satellites to Mars in partnership with the NASA Education Office.**



- **2003: Charles Elachi supported mARZ program at JPL, an Arizona SG focused study geared to building the foundation for a National SG Program student satellites to Mars opportunity.**
- **2004: Charles Elachi and Frank Jordan supported 4 SG Consortia (AZ, MT, CO, AL) to further refine mARZ concept into MIMIC (Magnetic field Investigation of Mars by Interacting Consortia), a concept design for a student satellite capable of performing a science in association with a JPL orbiter, Telesat.**
- **2005: Frank Jordan supported students from 12 state SG consortia (AZ, MT, CO, AL, HI, NM, OH, PA, MN, VA, LA and TX) to continue MIMIC work at JPL. NASA exploration priorities changed and work was redirected to assess how the Mars program can benefit from the Lunar initiative.**
- **2006: Frank Jordan supported Inspiration--student opportunity on future Mars mission.**



# What do we want to accomplish here today?

**Strong Mars program/JPL commitment to visionary concept, but need backing from HQ to institutionalize this important opportunity to enhance Mars program research while training NASA's future scientists and engineers:**

**"The SMD recognizes the value of directly involving a student population in a spaceflight experience. Principal Investigators are encouraged to propose innovative ways to directly involve students in their prospective missions....Proposers may define a Student Collaboration (SC) that may be an instrument, investigation, hardware or software and may be included on either the flight system or ground system."**

# Inspiration: Mars Student Climate Lander





# Project Summary

- *Summer Objective*
  - *11 students for 10 weeks*
  - *Feasibility study for a meaningful, novel science mission in the scope of a student design and built mission*
- *Summer Product*
  - *Mission concept based on high-priority Mars science not planned to be accomplished by the Mars Program*
  - *Dynamic, adaptive, high-fidelity spacecraft infrastructure*
  - *Identified trades, risks, technology needs*
  - *Preliminary plan for management structure*



# *What we need from NASA HQ*

- *Support for JPL to continue these studies*
  - *[JPL cost estimate - Greg]*
- *Support for the Space Grant Consortium Students*
  - *[SG cost estimate, unless otherwise specified, assume 12 students x \$8,000/student = \$96,000/year (how many years)]*
- *Integration of the MSCL into a regular mission budget as work-force development, not just E/PO*

I enjoyed the hospitality and learned a lot--not only on U o A activities but with the students as well.

I intend to talk with Charles on cost sharing for another year of space grant work, so will keep you apprised.

From: Michael J. Drake [<mailto:drake@lpl.arizona.edu>]

Tuesday, October 24, 2006 02:04 PM Central Standard Time

To: McCuistion, Doug (HQ-DG000)

c: Michael J. Drake

Subject: Space Grant

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

# **Seismology**

**Is Mars seismically active?**

**Mars Science Orbiter 2013?**