Field Exploration and Astronaut Training Activities and Goals

The FEAT Perspective

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What is FEAT?

• FEAT = Field Exploration and Analysis Team

• Organizing Committee with expertise in:
  – Field geology training (A. Snoke, M. Helper)
  – Apollo and ISS astronaut training (W. Muehlberger, P. Dickerson)
  – Lunar field work (H. H. Schmitt)

• Membership – 50+ and growing
  – Geologists/Geophysicists (32)
  – Planetary scientists (12)
  + Apollo trainers (4), current astronauts (2), others
Lunar Explorers will need geologic/geophysical field training:
- Who will provide the expertise?
- How will modern tools & technologies be integrated?
- How will lunar surface science be conducted?
- What should a field-based curriculum contain?
- What lessons were learned from Apollo?

FEAT brings together expertise to address these questions and coordinate efforts to get started.
Why Field Training?

• Increase crew and ground team productivity
  – Field training and experience are keys to productive and meaningful human exploration

• Reduce operational risk to crews:
  – Cross training in logistical, technical, and scientific techniques
  – Gain experience in managing a field research program
  – Practice rapid decision making, cope with changing traverse strategies
Why Now?

• 12 year lead-time too soon? NO
  - Developing field expertise is a cumulative process
    • can not be gained from a few field simulations or “show-and-tell” sessions
  - Forging links now between science, operations, and astronaut communities will allow time to develop collective experiences for productive and efficient interactions
  - Direct access to details of Apollo geologic training will soon be lost
FEAT’s First Steps

• White Paper – an evolving document
  – Outlines concepts for lunar field work, rationale, equipment & training needs
• Tempe Field Trip:
  – Demonstrate utility and practice of field geology
  – Provide a field experience for those involved in future planning and implementation
• Input at NAC Tempe Workshop:
  • Recognition of the importance of geological field training
• FEAT session for this meeting
FEAT Tempe Field Trip Findings

• Field training for crews and supporting staff are critical
• Personnel and technology development must be integrated and occur early
• Field training must include technological tools that will be used in the field
• Field mobility and field access to remotely sensed data are crucial to rapid hypothesis development and testing
• Time must be available for documenting, analyzing, and integrating observations and discoveries on a daily basis
Near-term Goals

– Foster communication between field technologists and field geoscientists
– Capture wisdom of Apollo Program veterans
– Recruit young field geoscientists
– Assist in the development of a field geologic training program
FEAT at LEAG

• Thursday PM oral session:
  – Apollo: Lessons learned
    • Dean Eppler – Astronaut interviews
    • Gary Lofgren – Apollo training perspectives
  – Astronaut training
    • Duane Ross – Astronaut geology and geophysical training
  – Technologies associated with lunar field work
    • Andrew Steele – Robotics field testing
    • Brian Wilcox – Lunar surface mobility – mobile lunar landers
    • Charles Weisbin – Gauging efficiencies of robotic vs. human field work
FEAT at LEAG

• Poster presentations, Thursday evening:
  – Lunar surface science:
    • Technology and techniques for lunar paleomagnetic studies
    • Lunar surface instrument packaging
  – Analog field site developments:
    • Infrastructure services for simulations and testing
    • CSA Analog Missions Program
  – Mars Society:
    • Field training curriculums
    • Wireless communication and positioning network tests at MDRS