Breakout Session Reminders

Presentations should:

- Summarize the important problems;
- Define the requirements to fulfill the science objective(s);
- Outline how the implementation of the science objective(s) fit(s) in with the lunar architecture.

Also:

- How do the objectives fit into the “mother of all worksheets”?
  - Are there any technology developments needed and if so, are these major/minor?
  - Are there any short-term feasibility studies needed?
A Lunar-Based
“Earth Observatory” (LBEO)

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Introduction

• A Lunar-Based “Earth Observatory” Concept
  - permanent Earth-viewing location
    - goal: ability to “start simple” and expand over time
    - address the 12 original science objectives defined
    - reality: what really is possible with the proposed location and architecture?
      - or only possible from a remote position?
    - how do we proceed as a subcommittee?
      - recommendations
        » emphasize different base location
        » emphasize the strong need for a remote sortie location
        » walk away from the lunar planning
Introduction

• A Lunar-Based “Earth Observatory” Concept
  ▪ “simple” instruments expanded over time
  ▪ human connection
  ▪ global monitoring and climate change
Introduction

• A Lunar-Based “Earth Observatory” Concept

  ▪ passive
    - measure UV – IR radiation from the Earth
      - instantaneous temperature of entire globe
      - monitor ozone, aerosols, CO₂ levels
      - land and ocean surfaces
  
  ▪ active
    - SAR/InSAR
      - deformational monitoring
      - vegetation/land surface changes
      - variability of large ice sheets/glaciers
  
  ▪ spreadsheet
    - details are listed in the back of the room
• **Challenges:**
  - monthly change of ~5%
  - ~10X further than GEO
  - lunar environment
• ASTER (15m VNIR) Cal/Val Using the Moon
• ASTER (15m VNIR) Cal/Val Using the Moon
• Yearly Variation

2/07
4/07
6/07
8/07
10/07
12/07
• Daily Variation (every 2 hours): 28 Feb 2007
• GEO vs. Lunar
Session Agenda

• Yesterday
  ▪ P. Christensen: “Lunar Earth Observatory Concept”

• Today’s Break Out Session
  ▪ 10:10-10:30: Patrick Hamill
    A Lunar Earth Observatory
  ▪ 10:30-10:50: Tony Freeman
    Dual-use Earth Science and Lunar Exploration missions
  ▪ 10:50-11:10: John West
    Science Observations from the Earth-Moon L1 Point
  ▪ 11:10-12:00: all
    Panel Discussion/Q&A
Conclusions

• Tasks for the Session/Workshop
  - can we do any useful Earth science from the moon?
  - is a South Pole architecture workable for a LBEO?
    - if so, how do the objectives fit into the “mother of all worksheets”?
    - are there any technology developments needed and if so, are these major/minor?
    - Are there any short-term feasibility studies needed?

  - can any of the decadal survey results feed forward into a future LBEO?