Slopes of Mt. Sharp

Pahrump Hills

Murray Formation

Lisa Pratt, MEPAG Chair

Curiosity: NASA / JPL-Caltech / MSSS
Examples of bedding diversity at Pahrump Hills
Comet /2013 A1 Siding Spring: Comet Dust in the Mars Atmosphere

**MAVEN IUVS & NGIMS:** Metallic signatures of Comet Dust in the Mars Atmosphere

**MEX MARSIS & MRO SHARAD:** Comet-induced Ionization in the Mars Atmosphere

**MAVEN NGIMS:** *In situ* metal detection (~175 km)

**MEX MARSIS:** Transient Ionospheric Layer at ~100 km
Comet /2013 A1 Siding Spring: Nucleus & Inner Coma

MRO HiRISE: Closest Approach Images

MRO HiRISE: Brightness variation during CSS Encounter

Rotation?

MRO CRISM:

Left: Comet Siding Spring Color Composite From Closest Approach (CA) Images

Right: Composite Spectrum of CSS Reflecting Dust of the Inner Coma

CRISM Siding Spring Spectrum

Dust Spectrum
Status / Progress

- **Comet Siding Spring Encounter Observations:**
  - MRO: First-ever imaging of the nucleus of a long-period comet
  - MAVEN: First-ever determination of metals in dust from an Oort Cloud comet
  - MAVEN, MEX, MRO: Meteors definitely entered Mars atmosphere!

- **Landing Sites:** MRO has completed >50% of all current requests for 2016 InSight, 2018 ExoMars and 2020 Mars rover landing site characterization
  - Pace has slowed as expected during Comet encounter & November “no roll” period
  - New requests expected to extend coverage as sites are down-selected.

- **Curiosity** on slopes of Mt. Sharp investigating Murray formation

- **Opportunity** finished up investigation of a variety of rocks excavated by Ulysses Crater impact on Endeavour Crater rim

- **Special Regions (SAG2) Report** accepted and posted by MEPAG; to appear in *Astrobiology*

New Activity: MEPAG Goals Revision

- **Objective:** To update the MEPAG Goals document to reflect discoveries and progress in Mars Exploration since the last major updates of the document in 2008 and 2010.
  - This will serve as a basis for future MEP and PSD planning.

- **Approach:**
  - Build on presentations at the Eight International Conference on Mars (July, 2014), including a synthesis activity that was conducted at the meeting, as well as other relevant meetings.
  - Task the MEPAG Goals Committee to put together a draft for the community to consider at the February MEPAG face-to-face meeting.

- **Status/Schedule:**
  - Draft to be released to Mars community in January and discussed at Feb. 24-25 MEPAG meeting.
  - Follow-up and finalization by April 2015.
Five Major Segments:

- **Report from NASA Headquarters**
  - New Mars Exploration Program Director
  - Science Highlights
  - HEOMD Plans for Mars Exploration

- **Status of Mars Exploration by NASA and Other Space Agencies**
  - NASA, ESA, JAXA, ISRO
  - Emerging Technologies/Mission Capabilities
  - Status of Missions in Development: 2020 Mars rover, InSight, ExoMars

- **Discussion: Proposed Revision of MEPAG Goals Document**
  - Next steps in Mars Exploration Program Planning

- **NASA and ESA Landing Site Progress**

- **New Science Results: MAVEN & MOM**