Update and Status Of The 2013 MAVEN Mission To Mars

Bruce Jakosky
MEPAG Meeting
October 4, 2012

NOTE ADDED BY JPL WEBMASTER: This content has not been approved or adopted by, NASA, JPL, or the California Institute of Technology. This document is being made available for information purposes only, and any views and opinions expressed herein do not necessarily state or reflect those of NASA, JPL, or the California Institute of Technology.
MAVEN will help us to understand the role played by loss to space in evolution of the Martian atmosphere and volatiles, and to understand the nature of planetary habitability.

MAVEN Science Objectives:

- Determine the structure and composition of the Martian upper atmosphere today (and the controlling processes)
- Determine rates of loss of gas to space today (and the controlling processes)
- Measure properties and processes that will allow us to determine the integrated loss to space through time

MAVEN Status:

- On track, on schedule, on budget!
- Spacecraft being integrated at Lockheed Martin in Colorado.
- Instruments to be delivered this fall and winter.
- Spacecraft-level testing in winter/spring, ship to Cape in August
- Launch period 18 November – 7 December, 2013
MAVEN Schedule

2 October 2012

MAVEN mission:
• One-Earth-year primary science mission
• Extended mission limited by fuel for orbit control and reaction wheel desats
• Best-case scenario – fuel for additional eight years
The MAVEN Science Instruments
(All Pictures Are Flight Hardware)

Mass Spectrometry Instrument

Neutral Gas and Ion Mass Spectrometer; Paul Mahaffy, GSFC

Particles and Fields Package

Solar Energetic Particles; Davin Larson, SSL

SupraThermal and Thermal Ion Composition; Jim McFadden, SSL

Remote-Sensing Package

Imaging Ultraviolet Spectrometer; Nick Schneider, LASP

Solar Wind Electron Analyzer; David Mitchell, SSL

Solar Wind Ion Analyzer; Jasper Halekas, SSL

Langmuir Probe and Waves; Bob Ergun, LASP

Magnetometer; Jack Connerney, GSFC

Neutral Gas and Ion Mass Spectrometer; Paul Mahaffy, GSFC
The MAVEN Spacecraft

- Launch (Wet) Mass: 2550 kg max
- Spacecraft Dry Mass: 903 kg max
- Power: 1135 W at Mars Aphelion
- 3-axis attitude control (wheel based)
- Mono-propellant propulsion system
- Single-fault tolerant during all critical events
MAVEN Spacecraft In ATLO

Integration of core structure with fuel tank

Recent lift onto rotation fixture, showing current ATLO configuration
Participating Scientist Program

- PS Program planned:
  - Anticipated to run from ~Nov. 2013 to April 2016 (launch through end of mission plus six months)
  - PSs will be added as full members of the science team
  - Foreign proposers welcome; no exchange of funds, but they still would become formal members of science team

- Call for Participating Scientists:
  - To be issued as ROSES amendment via NSPIRES
  - Anticipated proposal due date: ~March 2013
  - Proposal Information Package (PIP) in preparation

- MAVEN Science Community Workshop
  - Intended to brief community on details of mission, instruments, science
  - Sunday, Dec. 2, at venue TBD in San Francisco
  - Agenda posted on MAVEN web site at http://lasp.colorado.edu/MAVEN