

Department of Aerospace Engineering Sciences

K. D. Wood Colloquium

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The 2013 MAVEN Mission to Mars

The Mars Atmosphere and Volatile Evolution (MAVEN) mission will be launched to Mars in 2013. It is an orbiting mission designed to understand the current structure of the upper atmosphere, the rates of escape of upper-atmospheric gases to space, and how the structure and escape rates depend on the solar energetic inputs. With these, we will determine the escape rates and integrated loss rate through time. These are important for understanding the history of the martian climate and, through its influence on the atmospheric temperature and potential for liquid water, the habitability of Mars through time.

MAVEN has eight science instruments designed to survey the upper atmosphere and the near-Mars space environment. Two will be built at LASP, four at Berkeley, and two at NASA's Goddard Space Flight Center; all have substantial heritage on recent missions, with some identical instruments having flown in Earth orbit recently. The spacecraft, to be built by Lockheed Martin in Littleton, is a three-axis-stabilized spacecraft based on systems from the recent MRO spacecraft. Five instruments are mounted on the spacecraft (including booms), and three are on an articulated payload platform that orients them toward the planet or ram direction.

The primary mission lasts one Earth year once we get into Mars orbit. Lockheed Martin will do the mission operations, and LASP will do the science operations and data center. The mission cap is \$486M in FY06 dollars.

MAVEN is part of a broader program of Mars exploration, with launches taking place at almost every opportunity (26 months apart). It will address key questions about Mars science, in an area that is almost completely unexplored.

Wednesday, February 25, 2009

Discovery Learning Center

12:00 noon – 1:00 pm

Light refreshments will be served!