Mars-NEXT Mission

& Science Overview

23 April 2008

A. Chicarro

(Selected set of slides)
What is missing?
Ionosphere: link atmospheric loss to magnetic fields
Atmosphere: atmospheric dynamics and global circulation
Surface: systematic studies of key landing sites
Subsurface: heat flow monitoring, depth of water-ice
Interior: detailed interior structure, crustal thickness, mantle and core structure, mantle and core dynamics
Geodesy: rotation parameters such as nutation, precession

The IMEWG has repeatedly reiterated its strong recommendation for a network mission, as a key element of Mars exploration. Unique opportunity for Europe to do first class science!
Overarching Goal: Preparation for MSR

• Technological:
  – Rendez-vous & capture
  – Aerobraking
  – X-band proximity link

• Scientific:
  – Global understanding of Mars via Network of stations
  – Global context to interpret MSR results
  – Unique science opportunities (e.g., low altitude orbit)

• Operational Support for MSR
  – Initial command and data relay for MSR(US) lander
  – Mars-NEXT evolving into HME Programme Proposal
Conclusions 1

Mars-NEXT represents a fundamental milestone for Europe to prepare for Mars Sample Return

Mars-NEXT to provide pre-operational support to the MSR mission