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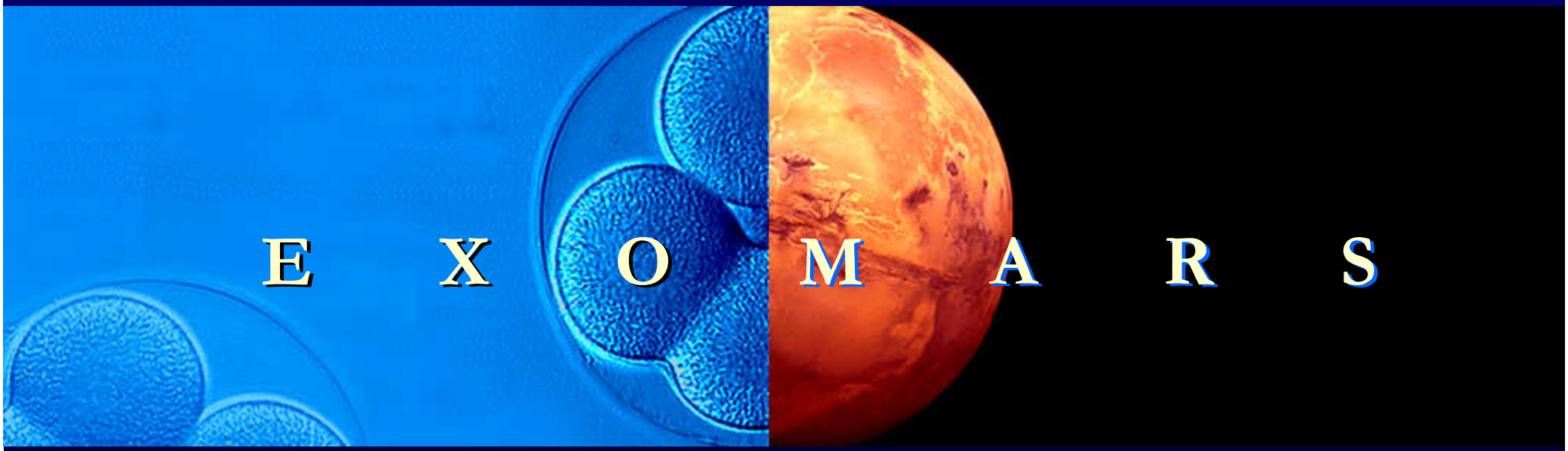


European Mars Exploration Scene

J. L. Vago and the ExoMars Project Team

esa

20th MEPAG Meeting

3–4 March 2009, Arlington, VA (USA)

Political Status

C-MIN 2008 Decision:

- **In November 2008, ESA member states indicated they would subscribe 850 M€ for the ExoMars mission, to be launched in 2016;**

  Together with the national investments for instruments, this corresponds to approximately 1 B€ (1.3 B$)

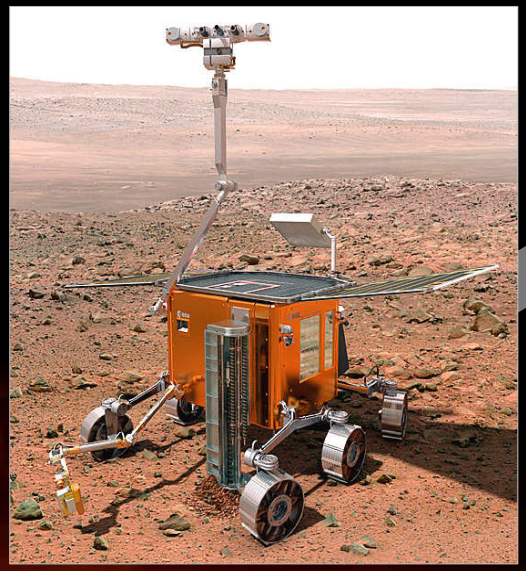
- **Also in November 2008, ESA member states made a long-term commitment to European Mars exploration:**

  MREP: Mars Robotic Exploration Programme

  – *Up to 40 M€ (50 M$) available for studies leading to a series of missions to Mars.*

  – *Programme to be based on international cooperation —first and foremost with the USA.*

Mars Robotic Exploration Programme



MREP

Mars Robotic Exploration Preparation

- ➔ Mars Sample Return
- ➔ …
- ➔ 2020
- ➔ 2018
- ➔ ExoMars 2016

Mars Robotic Exploration Programme

A joint ESA-NASA Mars exploration programme:

Aim is a long-term European Mars exploration line of ~200-300 M€ per year.

- **More science and technology opportunities;**
- **International cooperation has a programme stabilisation effect;**
- **Measurement objectives can be spread over several missions;**

Scenario under consideration:

- **2016: ExoMars, ESA-led exobiology rover mission;**
- **2018: TBD NASA-led rover mission, with likely focus on exobiology in continuation of ExoMars;**
- **2020: Network of landers dedicated to geophysics and environment;**

ExoMars International Status

- **International cooperation has been mandated from the very start for ExoMars;**
  - *From the very beginning:*
    - *US contribution to organics detection instruments on the Rover;*
    - *Cross support with Russia for ExoMars – Phobos/Grunt.*
- **Situation is now evolving —following slides.**

Financial Realities

- **The 850 M€ for ExoMars is less (approx. 85 %) of the request made by ESA to member states;**
  - *The mission as proposed would require contributions (from all sources, national and international) in excess of 1.2 B€.*
  - *In an ESA optional programme there is no mechanism available to make up financial shortfalls (e.g. unlike BepiColombo where money can be moved from other missions).*
  - *Accordingly, not only is international cooperation necessary, but some descoping of mission capabilities is unavoidable.*

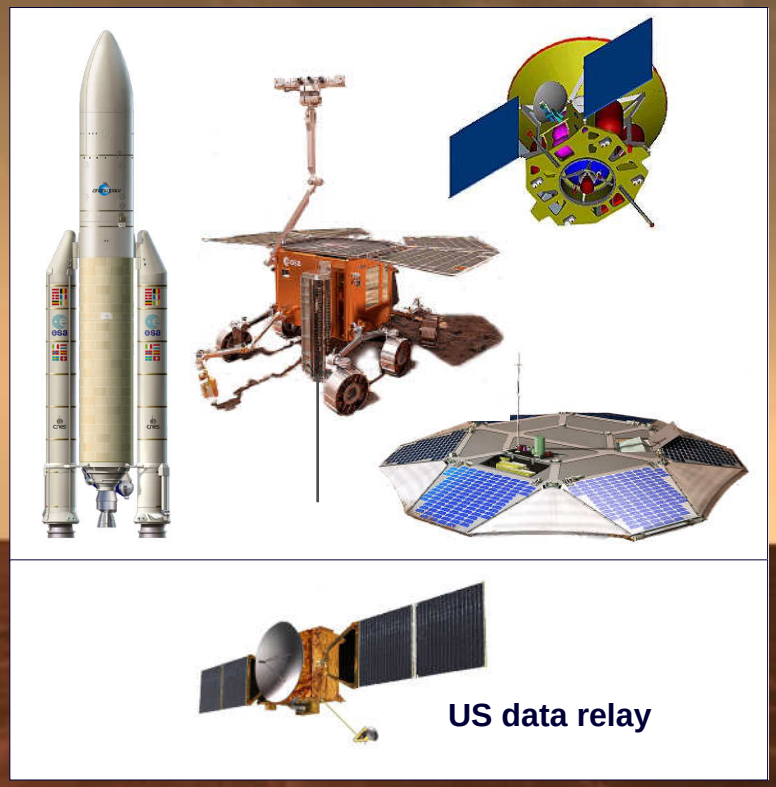
Ongoing ExoMars Actions

- Intensive mission analysis work taking place with NASA, focusing on a restructured joint mission in 2016 within new concept of long-term cooperation;
- Series of meetings with Russia to discuss the possible provision of a launcher and potential science contributions;
- Major review of payload under way —to set priorities and assess readiness— some instrument descoping is inevitable.
- Major project review (Interim-PDR) will be completed in March 2009.
  - *Its aim is to consolidate the mission design and technology development work carried out so far.*

Cooperation for ExoMars

Previous Baseline

- **ESA:** 1200 M€



US data relay

- **NASA:** 75 M$
  US contributions to Rover instruments
- **Russia:**

Possible New Baseline

– Launcher

Data relay carrier

+ Launcher

+ Launcher