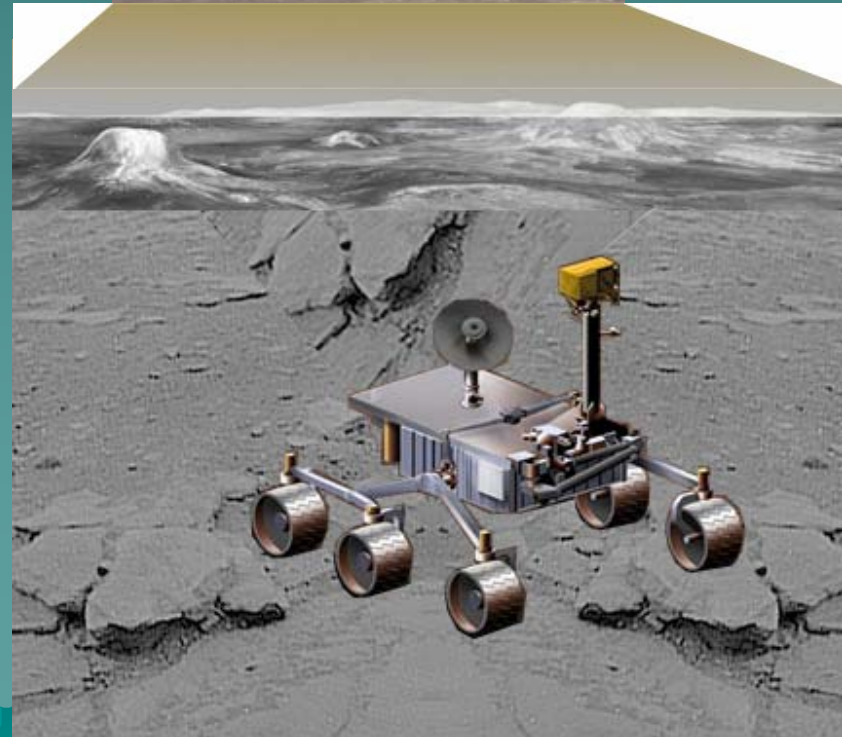


The Human Exploration of Venus

Mark A. Bullock and David H. Grinspoon

A long term goal:
What's after VSE?

- CEV-Venus human crew
- Robot/human synergy
- 1 year mission
- Remote operated rovers w/ crew in Venus orbit
- 2 months on the surface
- Continuous contact with rovers and Earth
- Real-time field geology on Venus!



The Vision for Space Exploration calls for eventual use of CEV derived technology for Mars and beyond. A proposed Venus mission could provide an additional destination and further rationale for long term development of CEV.

No radical leaps in technology beyond those already in development and projected for 2020 - 2030:

- CEV under development as part of the Vision for Space Exploration.
- Remote operation/telepresence - Earth deep ocean, future Mars.
- High temperature electronics and other components.

A small network of communication satellites will allow nearly instantaneous, continuous communication between CEV and ROVS.

As widely discussed for Mars, future geological exploration will require human judgements and real-time decision making.

Astronauts in Venus orbit could safely operate exploration equipment on the surface, much as deep ocean explorers use remotely operated vehicles from ships.