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A/AC.105/C.1/2006/NPS/CRP.11
20 February 2006

Original: English

COMMITTEE ON THE PEACEFUL USES OF
OUTER SPACE

Scientific and Technical Subcommittee

Forty-third session

Vienna, 20 February - 3 March 2006

Agenda item 9

Use of Nuclear Power Sources in Outer Space

**JOINT UNITED NATIONS/INTERNATIONAL ATOMIC ENERGY
AGENCY TECHNICAL WORKSHOP ON THE OBJECTIVES, SCOPE
AND GENERAL ATTRIBUTES OF A POTENTIAL TECHNICAL SAFETY
STANDARD FOR NUCLEAR POWER SOURCES IN OUTER SPACE
(VIENNA, 20-22 FEBRUARY 2006)**

Session 1. BACKGROUND

**Presentation on “Ongoing, Planned and Currently Foreseeable Nuclear Power
Source (NPS) Applications in Outer Space and Their Scope and Rationale”**

Note by the Secretariat

1. In accordance with paragraph 16 of General Assembly resolution 60/99 of 8 December 2005, the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space will organize, jointly with the International Atomic Energy Agency, a technical workshop on the objectives, scope and general attributes of a potential technical safety standard for nuclear power sources in outer space, to be held in Vienna from 20 to 22 February 2006.

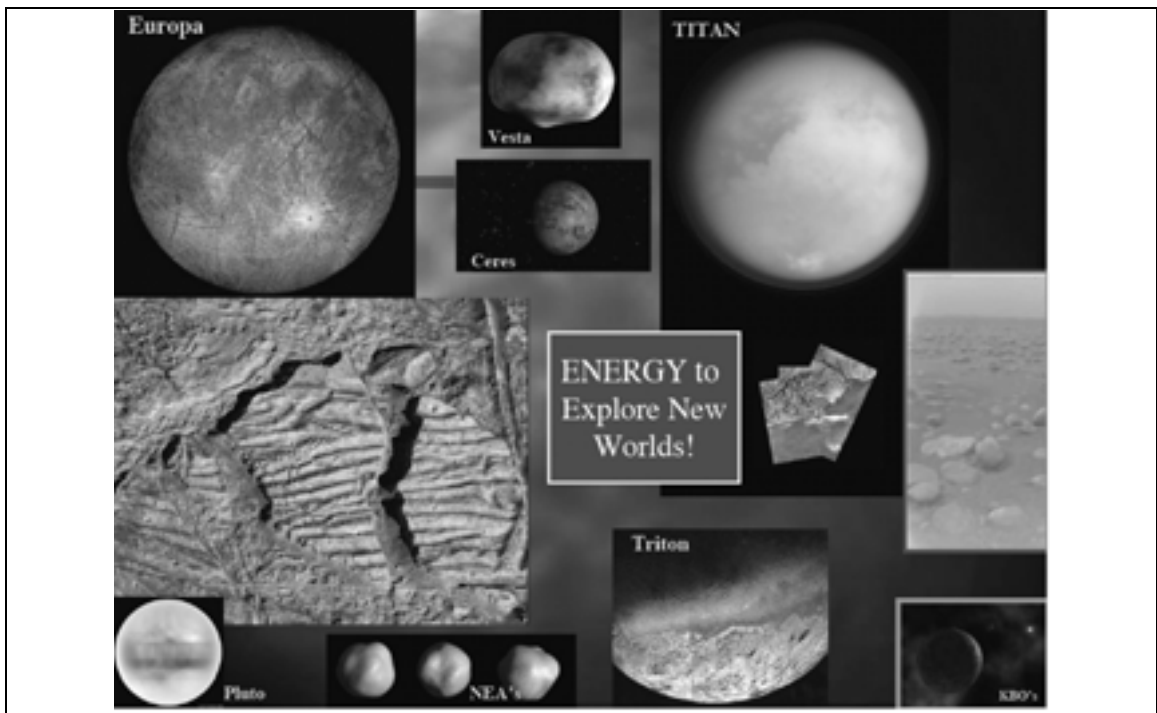
2. The presentation contained in the present conference room paper was prepared for the joint technical workshop in accordance with the indicative schedule of work for the workshop, as agreed by the Working Group on the Use of Nuclear Power Sources in Outer Space during the intersessional meeting held in Vienna from 13 to 15 June 2005 (A/AC.105/L.260).

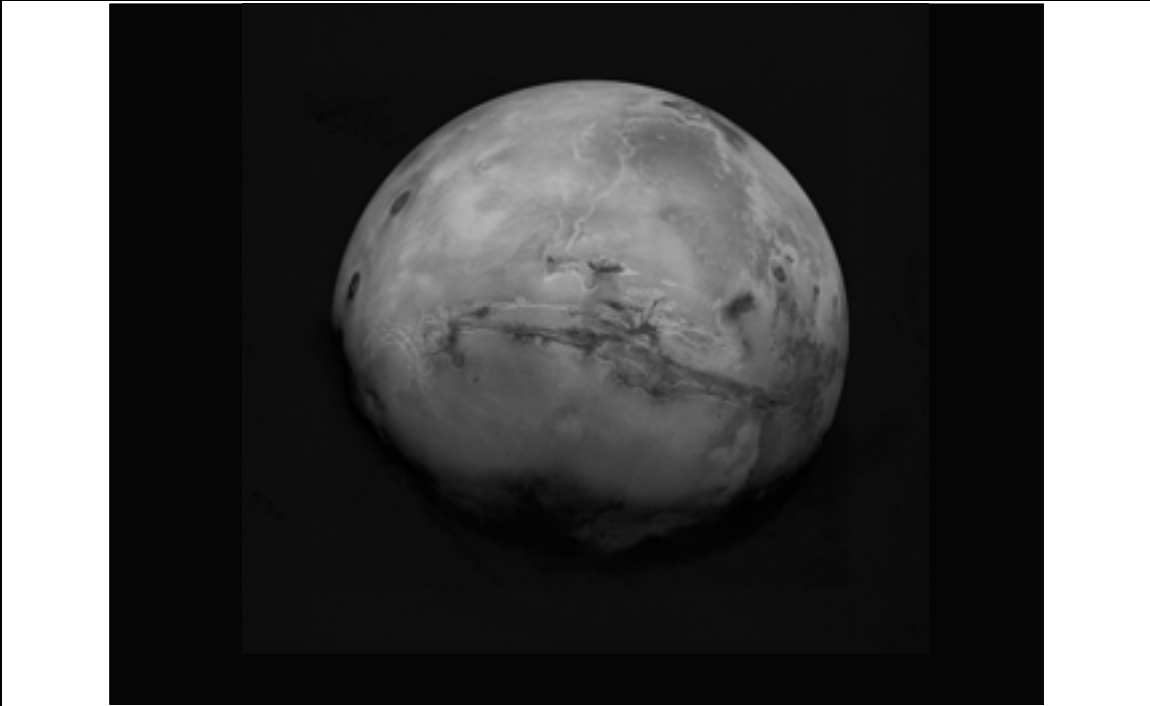
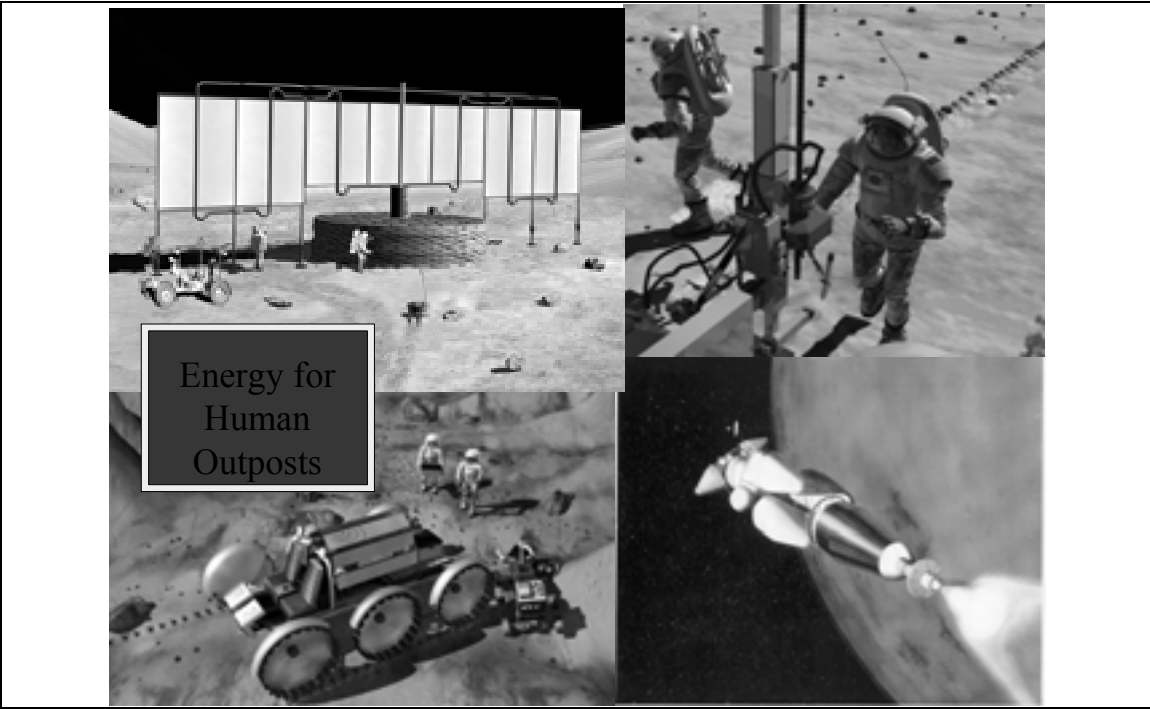


Ongoing, Planned and Currently
Foreseeable Nuclear Power Source
(NPS) Applications in Outer Space and
Their Scope and Rationale

Presented by Mr. R. Wilcox
United States of America (NASA/JPL)
February 20, 2006







Mars: A Complex Planet

Climate Change

Comparative Planetology

Surface Composition

Subsurface Reservoirs

Surface Layering

Atmospheric Processes

Color Viking Lounge

Depth 1 m

Latitude

South Pole

Equator

The collage features several panels: 'Climate Change' shows a hazy Martian landscape; 'Comparative Planetology' displays Earth and Mars side-by-side; 'Surface Composition' shows a close-up of the Martian surface with the text 'Color Viking Lounge'; 'Subsurface Reservoirs' is a cross-section diagram of the subsurface with 'Ice-Void Layer' and 'Ice-Water' labels, and a 1m depth scale; 'Surface Layering' shows layered rock formations; 'Atmospheric Processes' shows a Martian horizon with a dust storm; and a central image shows the 'Color Viking Lounge'.

Today we are limited by WHERE we can go...

Meridiani Planum

Gusev Crater

MSL

Where we landed our two MER vehicles... safe with good science value

The image shows a large, circular view of Mars. Two locations are marked with small circles and labeled: 'Meridiani Planum' and 'Gusev Crater'. In the bottom left corner, there is a small inset image of a rover labeled 'MSL'. In the bottom right corner, there is another small inset image of a rover. The text 'Where we landed our two MER vehicles... safe with good science value' is centered at the bottom.

"Treasure Trove" — Opportunity view of bedrock outcrop

LIGHTBULB-scale Power

Spirit at the Columbia Hills

What if we did NOT have the mobility we built into MER...?

No Mobility, no breakthrough science

Where we might need to go...

Dusty, cold, bizarre... Energy to Adapt... Discover and Understand!

Mars: Human-based Sampling...



Human/Robot partnership takes ENERGY

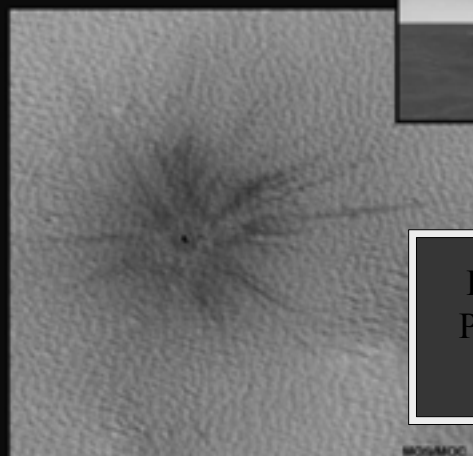


Exploring Cosmic Collisions

VISITING
the future
Impactors of
Planet Earth



It takes ENERGY!



~ 25m scale

Energy to
Protect the
Planet

Mars Crater formed between 1980 and 2004