

BEIJING LUNAR DECLARATION 2010: B) TECHNOLOGY AND RESOURCES; INFRASTRUCTURES AND HUMAN ASPECTS; MOON, SPACE AND SOCIETY R. Arvidson^{1,3}, B.H. Foing^{1,2}, J.E. Blamont^{1,2,4}, J. Plescia^{1,5}, B. Cohen^{1,6}, and participants to GLUC-ICEUM1 (Global Lunar Conference-11th ILEWG Conference on Exploration and Utilisation of the Moon, Beijing 2010), ¹GLUC-ICEUM11 International Programme Committee, ²ILEWG c/o ESTEC Postbus 299, 2200 AG Noordwijk, NL (Bernard.Foing@esa.int), ³Washington U. St Louis (arvidson@rsmail.wustl.edu), ⁴CNES, ⁵JHU APL (Jeffrey.Plescia@jhuapl.edu), ⁶MSFC (Barbara.A.Cohen@nasa.gov)

GLUC-ICEUM11 2010: We report on the Beijing Lunar Declaration endorsed by the delegates of the Global Lunar Conference/ 11th ILEWG Conference on Exploration and Utilisation of the Moon, held at Beijing on 30 May- 3 June 2010. Specifically we focus on Part B: Technologies and resources; Infrastructures and human aspects; Moon, Space, Society and Young Explorers. We recommend continued and enhanced development and implementation of sessions about lunar exploration, manned and robotic, at key scientific and engineering meetings.

Beijing Lunar Declaration 2010 (part B):

“2. Technologies and resources

- A number of robotic missions to the Moon are now undertaken independently by various nations, with a degree of exchange of information and coordination. This should increase towards greater cooperation, while still allowing areas of competition to keep the process active, and time and cost effective.

- Lunar landers, pressurized lunar rover projects as presented from Europe, Asia and America are important steps that can create opportunities for international collaboration, including a coordinated village of robotic precursors and assistants to crew missions.

- We have to think about development, modernization of existing navigation capabilities, and provision of lunar positioning, navigation and data relay assets to support future robotic and human exploration. New concepts and new methods for transportation have attracted much attention and are of great potential.

3. Infrastructures and human aspects

- It is recommended to have technical sessions and activities dealing with different aspects including human adaptation to space environments, the modeling of sub-systems, microbial protection and use of inflatable technologies.

- While the Moon is the best and next logical step in human exploration, we should make effective use of the space station as a stepping stone for exploration and human spaceflight beyond low Earth orbit.

- Further research is needed on lunar dust in regard to humans and interaction with habitats. We note high interest in CELSS (Closed Ecological Life Support

Systems) for Moon and Mars bases, and recommend further research and development.

- We recommend the development and use of terrestrial analogues research sites and facilities, for technology demonstrations, comparative geology and human performance research, and public engagement. We endorse the proposal of development of a site at La Reunion for international Moon-Mars analogue research.

4. Moon, Space, Society and Young Explorers

- We consider that the current legal regime as set out in the Outer Space Treaty and the Moon agreement are satisfactory for current and future missions, but may require further clarification for future exploration. Issues of transparency and security will need to be addressed.

- Young Lunar Explorers have developed exciting mission concepts and hands-on activities as coordinated by ILEWG. Lunar exploration is encouraging students of all ages to pursue higher education.

- More possibilities for participatory engagement should be offered to the society, e.g., via interdisciplinary activities with the humanities.

- We appreciate the work from COSPAR panel on Exploration PEX that should be shared further.

- Continued cooperation should be enforced at all levels. The space community feels strongly that joining the forces of space faring nations to explore the Moon should be a priority, with the views of creating a Global Robotic Village and eventually a Manned International Lunar Base.

- We propose that a panel be formed through ILEWG with the help of IAF and Chinese Society of Astronautics in cooperation with space agencies, COSPAR and other stakeholders in order to initiate a permanent International Space Exploration Governance Forum.

We, the participants of the GLUC-ICEUM11 conference, commit to an enhanced global cooperation towards international lunar exploration for the benefit of humankind.

Endorsed by the delegates of GLUC-ICEUM11 Beijing, 2 June 2010”

Links: <http://sci.esa.int/ilewg>, www.gluc2010.org