

## ILEWG Report and Introduction to EPSC session on Lunar Science and Exploration

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### Abstract

We shall introduce the TP4 session on Lunar Science and Exploration and present a status report of ILEWG/COSPAR International Lunar Exploration Working Group to EPSC 2015.

### 1. Lunar session description

This TP4 session will highlight latest lunar science and exploration results, and recent missions.

It will address key questions on lunar geochemistry, geophysics, evolution, environment, volatiles relevant for planetary research.

We plan overview talks, contributed oral or poster presentations and workshop discussions.

In the last decade, an international fleet of orbiters (SMANRT-1, Kaguya, Chang'E1 & 2, Chandrayaan-1, LRO/LCROSS, Artemis, LADEE, GRAIL ) has unveiled new faces of the Moon with new discoveries and questions. The Chang'e 3 lander and rover have opened a new lunar decade of surface activities towards a lunar robotic village with strong opportunities for science and exploration, and preparation for humans.

We shall discuss EPSC community inputs developing ILEWG/COSPAR, ISECG and other global roadmaps for robotic/human exploration.

How can the community support and prepare for upcoming lunar landers or orbital missions? The workshop will include the discussion of strategic measurements needed for exploration, and of possible science, instruments, terrestrial field work and simulation preparations.

### 2. ILEWG report

The International Lunar Exploration Working Group (ILEWG) was established in April 1995 at a meeting in Hamburg, Germany. As established in its charter, this working group reports to COSPAR and is charged with developing an international strategy for the exploration of the Moon. It discusses coordination between missions, and a road map for future international lunar exploration and utilisation. It fosters information exchange or potential and real future lunar robotic and human missions, as well as for new scientific and exploration information about the Moon.

We refer to COSPAR and ILEWG ICEUM and lunar conferences and declarations [1-19], present the GLUC/ICEUM11 declaration and give a report on ongoing relevant ILEWG community activities. We discuss how lunar missions SMART-1, Kaguya, Chang'E1&2, Chandrayaan-1, LCROSS, LRO, GRAIL, LADEE, Chang'E3 and upcoming missions contribute to lunar exploration objectives & roadmap.

### References

- [1] 1st International Lunar Workshop, Balsiger H. et al., Editors, European Space Agency, 1994. ESA-SP-1170.
- [2] 2nd International Lunar Workshop, Kyoto, H. Mizutani, editor, Japan Space Forum Publisher, 1997.
- [3] 3rd International Lunar Workshop, Moscow 1998, E. Galimov, editor.
- [4] ICEUM4, ESTEC, 2000, ESA SP-462, B.H. Foing & M. Perry, editors.
- [5] ICEUM5, Hawaii Nov 2003, Durst S.M. et al, Editors, Vol 108, 1-576 pp, Science and Technology Series, American Astronautical Society, 2004.
- [6] ICEUM6, Udaipur 2004, Bhandari N., Editor, Journal Earth System Science, India, 114, No6, Dec 2005, pp. 573-841.
- [7] ICEUM7, Toronto Sept 2005, [sci.esa.int/ilewg](http://sci.esa.int/ilewg).

- [8] ICEUM8, Beijing July 2006, Journal of Chinese Society of Astronautics, Vol. 28 Sup., 2007, Ji W., Editor.
- [9] ICEUM9, Sorrento, Italy, Foing B., Espinasse S., Kosters G., Editors. <http://sci.esa.int/iceum9>, Dec. 2007), and declaration <http://sci.esa.int/ilewg/41506-iceum9-sorrento-2007-lunar-declaration/>
- [11] Ehrenfreund, P., Foing, B.H., Cellino, A. Editors, The Moon and Near Earth Objects, ASR Vol 37, 1, 2006.
- [12] Foing, B.H. et al editors, 'Astronomy and Space Science from the Moon', ASR 14, 6, 1994.
- [13] Ip W.-H., Foing, B.H., Masson Ph.L., editors, The Moon and Mars, ASR Vol 23, 11, 1999.
- [14] Foing, B.H. et al, editor, Lunar Exploration, Planetary and Space Science, Vol 50, 14-15, 2002.
- [15] Foing, B.H., Heather, D. editors, 'Lunar Exploration 2000', ASR Vol 30, Nr 8, 2002.
- [16] Huntress, W. et al 'The next steps in exploring deep space - A cosmic study by the IAA', Acta Astronautica, Vol 58, Issues 6-7, 2006, p302-377.
- [17] ICEUM10 Cape Canaveral declaration <http://sci.esa.int/ilewg/43654-declaration-iceum10-leag-srr-florida-2008/>
- [18] ICEUM11-Global Lunar Beijing Declaration <http://sci.esa.int/ilewg/47170-gluc-iceum11-beijing-2010lunar-declaration/>
- [19] Ehrenfreund P. et al (COSPAR planetary exploration panel report) 2012, ASR Vol 49, Nr 1, pp. 2-48.