



Introduction to EGU session "Lunar Science and Exploration Towards Moon Village"

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The EGU PS2.2 session "Lunar Science and Exploration" Towards Moon Village" will address:

- Recent lunar results: geochemistry, geophysics in the context of open planetary science and exploration
- Synthesis of results from SMART-1, Kaguya, Chang'e 1, 2 and 3, Chandrayaan-1, LCROSS, LADEE, Lunar Reconnaissance Orbiter and, Artemis and GRAIL
- Goals and Status of missions under preparation: orbiters, Luna-Glob, Google Lunar X Prize, Luna Resurs polar lander, SLIM, Chandrayaan2, Chang'E 4 & 5, Lunar Resource Prospector, Future landers, Lunar sample return missions
- Precursor missions, instruments and investigations for landers, rovers, sample return, and human cis-lunar activities and human lunar surface sorties
- Preparation for International Lunar Decade: databases, instruments, missions, terrestrial field campaigns, support studies
- ILEWG and Global Exploration roadmaps towards a global robotic/human Moon village
- Strategic Knowledge Gaps, and key science Goals relevant to Lunar Global Exploration

Lunar science and exploration are developing further with new and exciting missions being developed by China, the US, Japan, India, Russia, Korea and Europe, and with new stakeholders.

The Moon Village is an open concept proposed by ESA DG with the goal of a sustainable human and robotic presence on the lunar surface as an ensemble where multiple users can carry out multiple activities. Multiple goals of the Moon Village include planetary science, life sciences, astronomy, fundamental research, resources utilisation, human spaceflight, peaceful cooperation, economical development, inspiration, training and capacity building. ESA director general has revitalized and enhanced the original concept of MoonVillage discussed in the last decade. Space exploration builds on international collaboration. COSPAR and its ILEWG International Lunar Exploration Working Group (created in 1994) have fostered collaboration between lunar missions [4-8]. A flotilla of lunar orbiters has flown in the last international lunar decade (SMART-1, Kaguya, Chang'E 1 & 2, Chandrayaan-1, LCROSS, LRO, GRAIL, LADEE). Chinese Chang'E 3 lander and Yutu rover, and upcoming 2017 other landers from 2017 (GLXP, Chang'E 4 & 5, SLIM, Luna, LRP) will constitute a Robotic Village on the Moon.

A number of MoonVillage talks and/or interactive jam sessions have been conducted at International workshops and symposia 2016. Moon Village Workshops were held at ESA centres: they were held with senior experts as well as Young ESA professionals to discuss general topics and specific issues (habitat design, technology, science and precursor missions; public and stakeholder engagement). Many workshops were complemented with ILEWG EuroMoonMars simulation campaigns. Moon Village Workshops or Jam sessions were also conducted at international symposia or in collaboration with specific universities or institutes.

The PS2.2 session will include invited and contributed talks as well as a panel discussion and interactive posters with short oral introduction.

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