

Lunar Ore Reserves Standards 101 (LORS-101), a First Code for the Reporting of Lunar Exploration Results, Lunar Resources, and Lunar Reserves

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Abstract:

There is a current revived interest and financial commitment to space activities in particular with the Moon by a number of international governments, space agencies, and the private sector. Together with a current interest in the exploration, utilization, and commercialisation of space resources (e.g. water, H, He, O, Fe, Al, Ti, etc.), which are hosted on Earth's Moon, planets, asteroids, or in any other form. These have raised many important items to be addressed and questions to be answered before Space Resource Utilization (SRU) activities should commence.

One of the important items that need to be addressed prior to SRU activities is the creation of standards for the estimation and public reporting of; space exploration results, space resource evaluations, and space reserves estimation.

This work introduces the current development of the Lunar Ore Reserves Standards (LORS-101).

These standards aim to provide a consistent guide to Lunar resource explorers, miners, investors, and any concerned party interested in the estimation of Lunar resources (mineral and volatiles) quantities, evaluation of Lunar resource projects, and to report results within a comprehensive classification framework. The LORS-101 classification framework considers geological uncertainty, project and technology maturity, together with socio-political and economic viability.

The Lunar resources currently of the interest are in the form of minerals, ices, glasses, and within the regolith. These types of resources relate to the Mineral, and Oil & Gas extraction industries. Therefore, LORS-101 considers as foundation the existing and very mature Earth standards for these two resource extraction industries.

LORS-101 also includes a glossary for SRU and makes a comparison to similar definitions currently used in the Oil & Gas and Mining Industry.

LORS-101 is a collaborative and inclusive effort which will involve a number of expert individuals, organisations, and research institutions for the iterative development of this important and transcendent document.