

Lunar Resources Registry – Promoting Resources Registrations to Terrestrial Industries

S. Drake (Lunar Resources Registry UG, Berger Strasse 175, 60385 Frankfurt am Main, Germany. Email: drake@lunarresourcesregistry.com).

Introduction:

Lunar Resources Registry (LRR) focus is promoting resources registrations to terrestrial industries- “You do the Science, We find the Miners”.

This includes using internal and 3rd party Lunar resources research, to create resources and complimentary infrastructure operation locations, that can be presented to mining and energy companies who want to establish an exploration presence on the Moon. LRR also maintains various online maps to promote specific locations for resources, including potential ISRU or infrastructure sites.

Since 2 years of operation, including participating in an European Space Agency Business Incubation Centre, LRR has developed a customized suite of Lunar Resources Maps and have identified a growing list of Development Zones (DZ) focused on the following resources: Iron, Silicates, Titanium, Thorium and Water.

LRR gathers information on lunar resources’ abundance on the grounds of remote sensing. In this example, the open-source datasets provided by the Clementine space project, Lunar Prospector mission or the Moon Mineralogy Mapper, are the basis for the LRR’s resource mapping and prospecting activities. LRR has competence to interpret the spectral data with the awareness of lunar geological history, geochemical processes, and analysis of surface features.

Each DZ is processed into tiles (a uniform 1km²), that can then be further evaluated as high value resources locations or potential infrastructure sites (e.g. bases, ports, refined regolith, waste disposal).

LRR is open to 3rd party research that can be matched with the interests (prospective Lunar areas of commercial interest) or Lunar mining companies; from existing mining and energy, to newly formed space resources companies.

Illustration:

In New Pilbara North DZ are 19 (color: aqua) high value Iron (detected in regolith, possible ejecta from neighboring crater) locations and 2 (color: blue) Infrastructure locations.

The base map of the illustration is provided by the Clementine UV – VIS camera. The lunar surface was mapped at various wavelengths – from 415 to 950 nm. The Clementine UV – VIS color ratio uses 3 of the camera bands and their combination is transferred into red (750/415 nm), green (750/950 nm) and blue (415/750 nm) colors. Each color gives information on the composition of the lunar surface, including the distribution of Iron. [1]

LRR current expectation is to create over 2000 resources locations, addressing end-markets such as Metals, Silicate and materials for ISRU, processing of regolith for KREEP, and Water for North and South Poles PSRs.

References: [1] A. S. McEwen and M. S. Robinson, Mapping of the Moon by Clementine (1997), Advances in Space Research, Volume 19, Issue 10, 1523-1533

Figure 1: *New Pilbara North: Center Point: Latitude 27.68, Longitude: 11.5*

