

Development Zone: New Pilbara South Iron

Name: New Pilbara South

Number: 1101

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Disclaimer

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This research is designed to highlight prospective locations of space resources, that can be registered by select clients via our Lunar Resources Registrations as a Service Platform, and included in our Public Registry.

For more detailed and analytical information, get in contact.

Resources Profile

New South Pilbara region is located on the lunar Near-Side, in the western region of Mare Serenotatis, which is built of basalt. The inferred concentration of iron in this region is up to 20 wt%, according to the data obtained from the Clementine UV/VIS camera.

Mare basalts have the biggest potential of hosting iron. The concentration of iron in the regolith is on average 15 wt% (the maximum measured was 17 wt%). Native iron in the regolith is usually in the form of grains of 1 – 100 µm size and is found in all lunar breccias. The source of the metal iron is usually other than from the lunar rocks – possibly from asteroidal meteorites. This type of iron consists of alloys containing several percent of nickel and some cobalt.

There are several potential ways of extracting iron from the lunar regolith. It can be produced e.g. during the process of hydrogen reduction of ilmenite, which will produce metallic iron, but also titanium oxide, which would require further processing. Another way would require using a magnet which would allow the meteoritic metals to be extracted from the regolith. There is also an idea to extract lunar iron microbially with use of self – reproducing bacteria *Shewanella oneidensis*. Finally, another method could be electrolysis of molten silicates.

Further reading:

1. <https://www.biorxiv.org/content/10.1101/2020.11.15.382614v1.full>
2. <https://www.lpi.usra.edu/meetings/lpsc2013/pdf/2276.pdf>
3. https://www.lpi.usra.edu/publications/books/lunar_bases/LSBchapter07.pdf
4. “Lunar Minerals”, James Papike, Lawrence Taylor, Steven Simon, 2012
5. “The Constitution and Structure on the Lunar Interior”, Mark A. Wieczorek et al., Mineralogical Society of America geochemical society, Reviews in Mineralogy & Geochemistry Volume 60, 2006
6. “Thermal and Magmatic Evolution of the Moon”, Charles K. Shearer et al., Mineralogical Society of America geochemical society, Reviews in Mineralogy & Geochemistry Volume 60, 2006

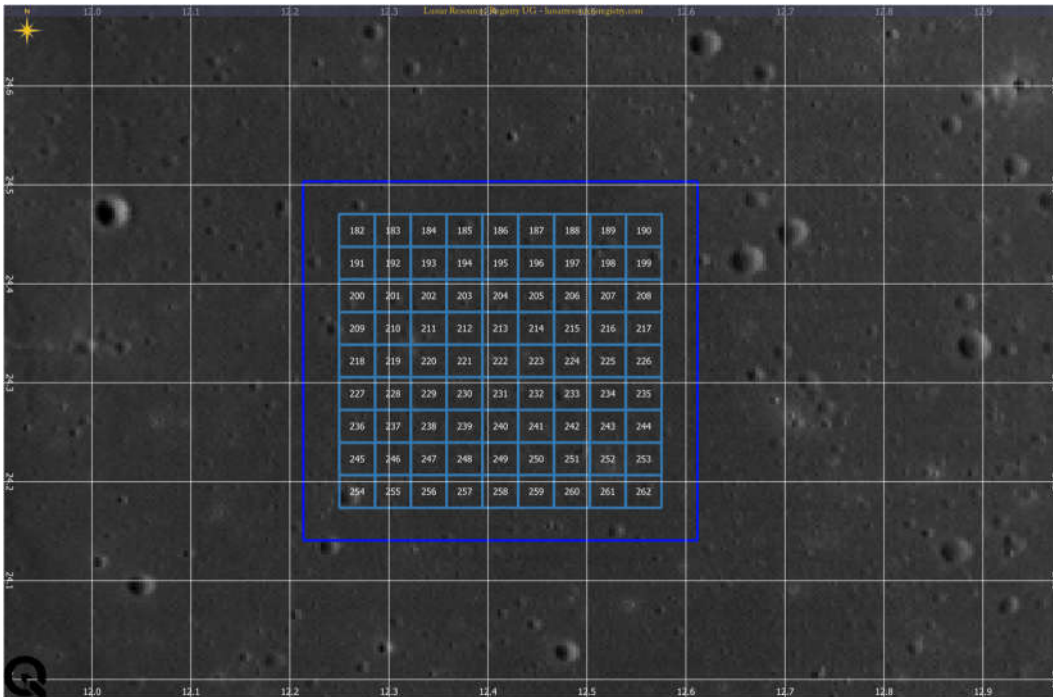
Registration Development Status


Lunar Resources Registry and Lunar Station Corp have signed a Partnership Agreement to provide Registrations to selected clients in relation to this Development Zone.

Registrations Available

Registrations plots, 1km²

<http://lunarresourcesregistry.com/development-zones/new-pilbara-south-development-site-iron-resources-and-infrastructure/>



Type	Overview
	<p>Qty: 81</p> <p>Potential Iron Resources Registrations</p> <p>Registrations plots, 1km²</p> <p>Potential for:</p> <ul style="list-style-type: none"> ● Iron exploration and extraction ● In-situ resources utilisation



Qty: To be determined.

Infrastructure locations can be registered for relation operations:

- Processing
- Manufacturing