USE OF LUNAR LAVA TUBES AS HABITATION STRUCTURES ON MOON. A. A. Mardon[1], [1]Antarctic Institute of Canada (Post Office Box 1223, Station Main, Edmonton, Alberta, Canada T5B 2W4, aamardon@yahoo.ca).

Introduction: Up to the present moment the use of Lunar Lava Tubes as habitation structures has not been seriously looked as an option especially during the first period of manned occupation of a Lunar surface area. Lava tubes should be looked at as potential habitation structures. The first stage would be to map those collapsed ones from Orbit and then send probes to these structures on the Moon specifically to get into them and examine them for their potential. Also looking at analogue sites on Earth would be useful.

We know that Lava tubes likely exist on the Moon a somewhat unaccepted idea is that they might even have ancient ice deposits although that is completely speculative. It would likely sublimate. The author has not seen any investigation as to whether their might be the geological structures related to potential Lunar South Pole landing and habitation locations.

The gravity on the Moon is less than Earth and should therefore affect the size and structure of Lava Tubes on the Moon. They should be larger in width and might be more prevalent than Earth again likely due to lower gravity on the Moon.

Lava tubes give protection from micrometeorites and thin pressure rated structures could be erected and inflated inside of the tubes.

Problems might include the entrance of the lava tubes and how to gain ongoing access and bringing in supplies and structures to be inflated. Also their might be boulders on the floor of the lava tubes.

A collapsed lava tube was viewed during one of the Apollo excursions along with photos being taken of it.

Propositioned supplies and tents could be placed inside the Lava tubes on marked locations for later potential emergency reasons. In Antarctica maintained emergency caches are maintained all over the continent in case of emergencies. Something like this might be considered for the Moon.

Depending on the size of the Lava tubes used substantial tent structures could be erected inside for use.

Conclusion: As an option Lava tubes as habitation structures might give future manned missions to the Moon greater flexibility by increasing the number of potential sites for small stations.

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