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Radar observation of lunar surface by KAGUYA LRS

Takao Kobayashi[1*]

[1]Korea Institute of Geoscience and Mineral Resources

We present recent result of lunar surface observation of KAGUYA Lunar Radar Sounder (LRS).

Extracting nadir surface echoes out of LRS observation data, we made a surface echo map of the Moon, i.e. LRS lunar surface image. Nadir surface echo was defined as the most intense peak of an A-scope data. More than 10^8 observation data was used. The LRS lunar surface image has a wide dynamic range of 20 dB, and shows variety of radar surface features as follows;

1. Highland surface appears darker while mare surface appears brighter.
2. Statistical property of surface echoes is different in highland and mare.
3. A crater whose diameter is larger than a few tens of kilometers can be recognized in the image.
4. The central peak of a middle sized crater is recognized as a dark spot.
5. Wrinkle ridges in maria appeared dark linear features.
6. Surface echo intensity of mare surface has a strong correlation with the surface age.

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