Algorithm for production of the digital elevation model of the Moon

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We investigated an algorithm for the DEM production from images by TC of SELENE mission. We made simulated TC images, and they were processed the algorithm that is the same one for stereo-images of the Earth. The surface of the Moon is covered with many craters with a similar shape; such a surface pattern has some difficulties of the pattern-matching algorithm for DEM production. Some special criteria when choose the matching points.

TC data is planned to be preformed onboard DCT lossy compression. The effect of data loss for the DEM accuracy can be negligible if the compression rate is about 30 %.

The accurate lunar atlas is one of the most fundamental data of lunar sciences. TC of SELENE is a push-broom imaging camera with a high spatial resolution. It has two slant telescopes for stereo imaging. TC stereoscopic data will be the source of a digital elevation model (DEM). The global and detailed investigation of the topography and geographical features of the Moon will be achieved. The lunar DEM will be used for study of crater chronology, investigation of lunar tectonic history and so on.

We investigated an algorithm for the DEM production from TC images. We made simulated TC images, and they were processed the algorithm that is the same one for stereo-images of the Earth. The surface of the Moon is covered with many craters with a similar shape; such a surface pattern has some difficulties of the pattern-matching algorithm for DEM production. Some special criteria when choose the matching points.

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