

## Automatic recognition algorithm for craters, ridges and grabens

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This study is development of an automatic recognition algorithm for craters, ridges and grabens on DTM (Digital Terrain Model). The application target is DTM of SELENE/LISM (TC).

The automatic recognition algorithm for craters has been investigated. This study adopts General Hough Transformation (GHT) as core algorithm. The GHT can detect intermittent ellipses, because the GHT has strong noise tolerance. Current score of the algorithm shows good experimental results for plural craters, duplicated craters, nested craters and concentric craters. (detection rate: 70) A goal of this study is establishment of software of automatic recognition for craters and automatic measuring the parameters such as diameters, coordinates, depths, and angle of between length and middle axis.

On the other hand, the method for recognition of linear topographies is composed of three steps. First, areas of topographic features are detected by high pass filter processing on a file of DTM. The detected areas are defined as linear area. The pixels of surrounded the linear areas are defined as around area.

Second, the following two parameters are solved. One is a mean DN value of the linear areas. Another is a mean DN value of around areas. Third, the two mean DN values are compared for the classification whether ridges or grabens. This preliminary investigation shows good results for classifying linear topographies, although some parameter tunings are remained.

This poster demonstrated those methods and verification results.