Digital Geomorphologic Mapping Based on RS and DEM

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Traditional geomorphologic mapping is mainly made by manual and ground survey involving enumeration and observation. Interpretation of large-scale aerial photographs also has been used widely. However, due to the lacking of geological, geomorphologic information and aerial photographs in overseas mineral exploration (Lake Tonle Sap area, Cambodia for example), we adopted a method of digital geomorphologic mapping based on remote sensing and DEM.

The approach can be summarized in the following steps:

(a) classify the land utilization and vegetation cover using Landsat TM and ALOS data in the study area; (b) extract the terrain factors such as slope, aspect, light projection, average elevation and average slope amplitude of landforms from SRTM DEM data; (c) derive the expression and modes of the origin of landforms from regional natural background and geologic function according to the geomorphologic classification standard ; (d) analyze the achieved remote sensing classification image and DEM thematic map and then select proper data to fulfill an image split and object-oriented classification, eventually realize micro physiognomy classification and computer geomorphologic cartography.

Key words：Remote Sensing, DEM, Digital Geomorphologic Mapping, Object-oriented classification, The Tonle Sap, Cambodia