THE APPLICATION AND RESEARCH OF THE LIGHT-ENERGY SPECTRA FUSION TECHNOLOGY IN LITHOLOGY RECOGNITION

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This paper introduced how to use remote sensing images including of Landsat (MSS ,TM) and airborne radioactivity images to identify the type of lithology in the areas covered by vegetation. The relationship between light spectra (Landsat MSS and TM) and energy spectra (U,Th,K) were discussed by correlation analysis, and it was proven that there are correlation between Landsat MSS or TM data and U,Th, K data. Utilizing fusion technique, new images were generated, which contained both light spectra and energy spectra information. LuCong basin, a study area, located in the south of China, the lithology consists of Jurassic and cretaceous lava and quartz syenite. The different types of lithology are represented by different color on the new light-energy spectra image. So the geology interpretation map can be mapped easily and quickly from the fusion image. LingQuan basin in the northeast of China, is another example, using the same technique, the different types of lithology could also be classified in details, and something wrong on the original geological map have been rectified and modified after field investigation. The practice has proven that the light-energy spectra fusion technology is a good way in lithology recognition.