

LANDSAT TM **ENHANCEMENTS** AND VISUALIZATION  
APPLIED TO THE YUCCA MOUNTAIN, NEVADA,  
NUCLEAR WASTE REPOSITORY SITE EVALUATION\*

Robert E. **Crippen**  
Ronald G. Blom

Jet Propulsion **Laboratory** MS 300-233  
California Institute of Technology  
Pasadena, California **91109** USA

Warren Hamilton

Branch of Geophysics  
United States Geological Survey  
Denver, Colorado 80225 USA

SUMMARY

**Extensive** field mapping to evaluate the **lithologic**, structural, and hydrologic characteristics of the region surrounding Yucca Mountain, Nevada, is being conducted to **determine** the suitability of that site for long-term storage of high-level nuclear waste. The region lies in the southern Great **Basin**, is generally quite arid and rugged, and is readily amenable to the application of remote sensing methodologies. Therefore, in order to aid the mapping process, we have enhanced four contiguous Landsat Thematic Mapper images. The enhancements were optimized for local **lithologic** discrimination, and data problems (such as atmospheric effects, striping, and saturation) were minimized by a variety of processing routines. The resulting images are extremely helpful and cost-effective in the mapping effort. We expect to publish selected portions of the images as spectral maps in the standard USGS geophysical map series,

To facilitate the image interpretation process, we are combining the enhanced data with topographic data to produce orthographic views, stereoscopic pairs, and interactive fly-around video displays on computer workstations. Addition of the **third** spatial dimension significantly increases the interpretability of the images, particularly in regard to geologic structure and surface hydrology.

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