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Comparison of Lineament Mapping on Various Remotely Sensed Imagery over Newberry County, South Carolina

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ABSTRACT

Three types of remotely sensed imagery: false-color infrared NHAP; black and white panchromatic photography; and SPOT images, both panchromatic and color multi-spectral, were used for lineament mapping over Newberry County, S.C. Lineaments were mapped on the aerial photography with a mirror stereoscope. The SPOT imagery were also interpreted by using the mirror stereoscope, but for pseudo-stereo vision, owing to contrast of image features. One SPOT image was mapped singly. The mapped lineaments were not field checked for correlation with bedrock fracture traces.

Comparison of resulting lineament maps for each imagery type showed NHAP imagery to have the greatest number of lineaments, the greatest number of lineaments per area mapped, and the shortest average lineament length. Aerial photography displayed a strong westerly trend of lineament orientation whereas the SPOT imagery has a general easterly trend.

Lineament overlap by the various imagery types indicates a fair to poor correlation. Roughly 40 percent of the lineaments within the common comparison area, the NHAP imagery area, do not overlap with other imagery lineaments. The black and white aerial photography lineaments had the highest number of lineaments overlapping with NHAP lineaments.

SPOT imagery lineaments, though fewer in number, had a similar overlap correlation rate with NHAP imagery as the black and white photography. SPOT imagery allowed lineament mapping over a large area but identified much fewer lineaments than the aerial photography.

Copies of this report are available in the SCDNR's Columbia office.