Plate I is a compilation of lineaments and curvilineaments observed on Landsat images of parts of the Piedmont and Coastal Plain provinces of the southeastern United States. Lineaments are mappable, simple or composite, topographic or tonal features whose parts are aligned in rectilinear or slightly curvilinear patterns that distinctly set them apart from adjacent features. Straight cultural features, such as roads and railroads, which might appear as lineaments, have been excluded from the compilation with a high degree of confidence.

Landsat images provide a synoptic view of large portions of the earth's crust, enabling the mapper to distinguish many long lineaments that may go unrecognized in studies of smaller areas. The compilation presented here was based largely on a mosaic of midwinter imagery taken in MSS band 7, the near-infrared (0.8 to 1.1 μm); other MSS imagery was consulted for some areas. The band 7 imagery provides good haze penetration and emphasizes topographic rather than cultural differences in the land surface. The shadows of the midwinter scenes also highlight linear topographic features. Lineaments trending N20-40E tend to be emphasized at the expense of those trending in other directions, but all azimuths are represented in the compilation. Two investigators (Trask and Rowan) analyzed the photographs. Agreement between them was excellent for many features; these are generally the most distinct lineaments and are shown by solid lines on the map. Less distinct lineaments, on which there was less agreement of interpretation, are shown by dashed lines.

Lineaments on Landsat images were compiled with a view toward directing workers toward potentially active faults that might pose geologic hazards; it is recognized, of course, that natural lineaments may reflect many other phenomena, including inactive faults, joints, zones of closely spaced joints or alteration, and normal lithologic contacts and foliation trends. Cross-strike lineaments are more apt to reflect structural features than those which are parallel to the general trends of bedding and foliation. The sharpness of some of the cross-strike features suggests that they are relatively recent geomorphic features.

Plate II is a summary of major tectonic features in the southeast drawn at approximately the same scale as Plate I. Detailed comparisons of the lineament pattern with known tectonic features requires close study of the imagery and existing geologic information.

PLATE I
LINEAMENT MAP OF PARTS OF VIRGINIA, NORTH CAROLINA, AND SOUTH CAROLINA

by
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0 25 50 Miles
0 25 50 Kilometers
Scale approximately 1:1,000,000