

DISCUSSION

The magnetic-lineament and anomaly-trend map was prepared to assist in the geologic interpretation of the aeromagnetic data in Survey Pass quadrangle. According to O'Leary and others (1976), "a lineament is a mappable, simple or composite linear feature of a surface, whose parts are aligned in a rectilinear or slightly curvilinear relationship and which differs distinctly from the patterns of adjacent features and presumably reflects a subsurface phenomenon." The magnetic lineaments and anomaly trends were derived solely from the aeromagnetic map (sheet 1). A colored copy of the aeromagnetic map assisted in identifying major magnetic lineaments on the basis of the following criteria: (1) changes in magnetic gradient, (2) termination or truncation of magnetic highs and lows, (3) linear patterns of magnetic contours, and (4) alignments of selected magnetic anomalies and trends.

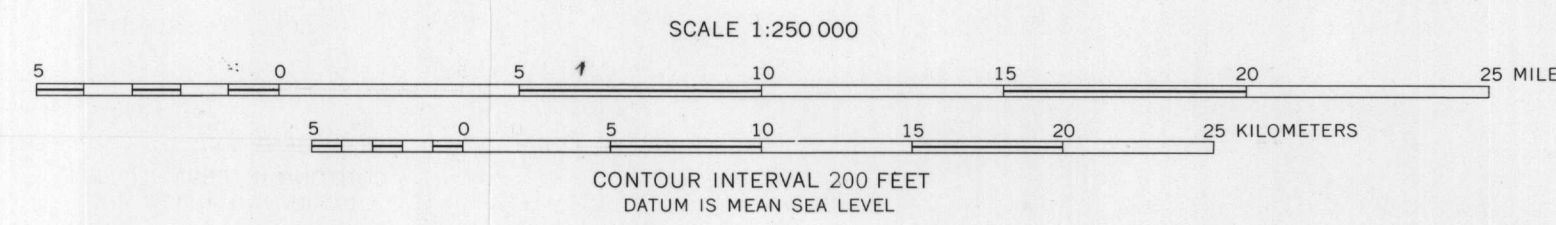
The map presents all likely magnetic lineaments, whether or not all of them are deemed meaningful in a given geologic interpretation. For example, many lineaments can be identified within and adjacent to the belt of schists of the southern Brooks Range. A possible interpretation of these lineaments (Hackett, 1980) is that they represent faults, unconformities, or facies changes that truncate or offset magnetic-anomaly trends. Alternatively, an interpreter might emphasize the curvilinear character of anomaly trends and explain many of the anomaly trends by folding of magnetic rock units and inhomogeneities within these units. The second approach was used in the aeromagnetic-interpretation map of the Survey Pass quadrangle (sheet 3), on which only two magnetic lineaments, labeled F1 and F2, were positively identified by both authors as probable faults. Undoubtedly, there are many other faults having magnetic expression in the Survey Pass quadrangle, but they cannot be readily identified with geologic assurance and have been omitted on sheet 3. Sheet 2 provides a more detailed set of magnetic lineaments that may reflect significant linear structures within the bedrock geology. Sheets 2 and 3 were drawn by different interpreters and do not necessarily show a one-to-one correspondence, even for common features.

References

Hackett, S. W., 1980, Aeromagnetic interpretation maps of Amblor River quadrangle, Alaska: U.S. Geological Survey Open-File Report 78-120K, scale 1:250,000.  
O'Leary, D. W., Friedman, J. D., and Pohn, H. A., 1976, Lineament, linear, lineation—some proposed new standards for old terms: Geological Society of America Bulletin, v. 87, p. 1463-1469.

EXPLANATION

- · · · — — — — — ? — — — — — AEROMAGNETIC LINEAMENT—Solid where readily apparent; long dashed where expression interrupted; short dashed where vague; dotted where probable; queried where doubtful
- — — — — AEROMAGNETIC ANOMALY TRENDS—Dashed where inferred; queried where doubtful
- ○ ○ ○ ○ Alignment axis of selected high
- ⊗ ⊗ ⊗ ⊗ ⊗ Alignment axis of selected low
- △ △ △ △ △ Axis of broad high
- ▽ ▽ ▽ ▽ ▽ Axis of broad low
- ○ ○ ○ ○ AEROMAGNETIC INDEX CONTOURS—Hachured to indicate closed areas of lower magnetic intensity. Contour interval 100 gam mas



Interpreted and compiled by S. W. Hackett, State of Alaska, Department of Natural Resources, Division of Geological and Geophysical Surveys, 1979.

MAGNETIC-LINEAMENT AND ANOMALY-TREND MAP

MAPS SHOWING AEROMAGNETIC SURVEY AND INTERPRETATION  
OF THE SURVEY PASS QUADRANGLE, BROOKS RANGE, ALASKA

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