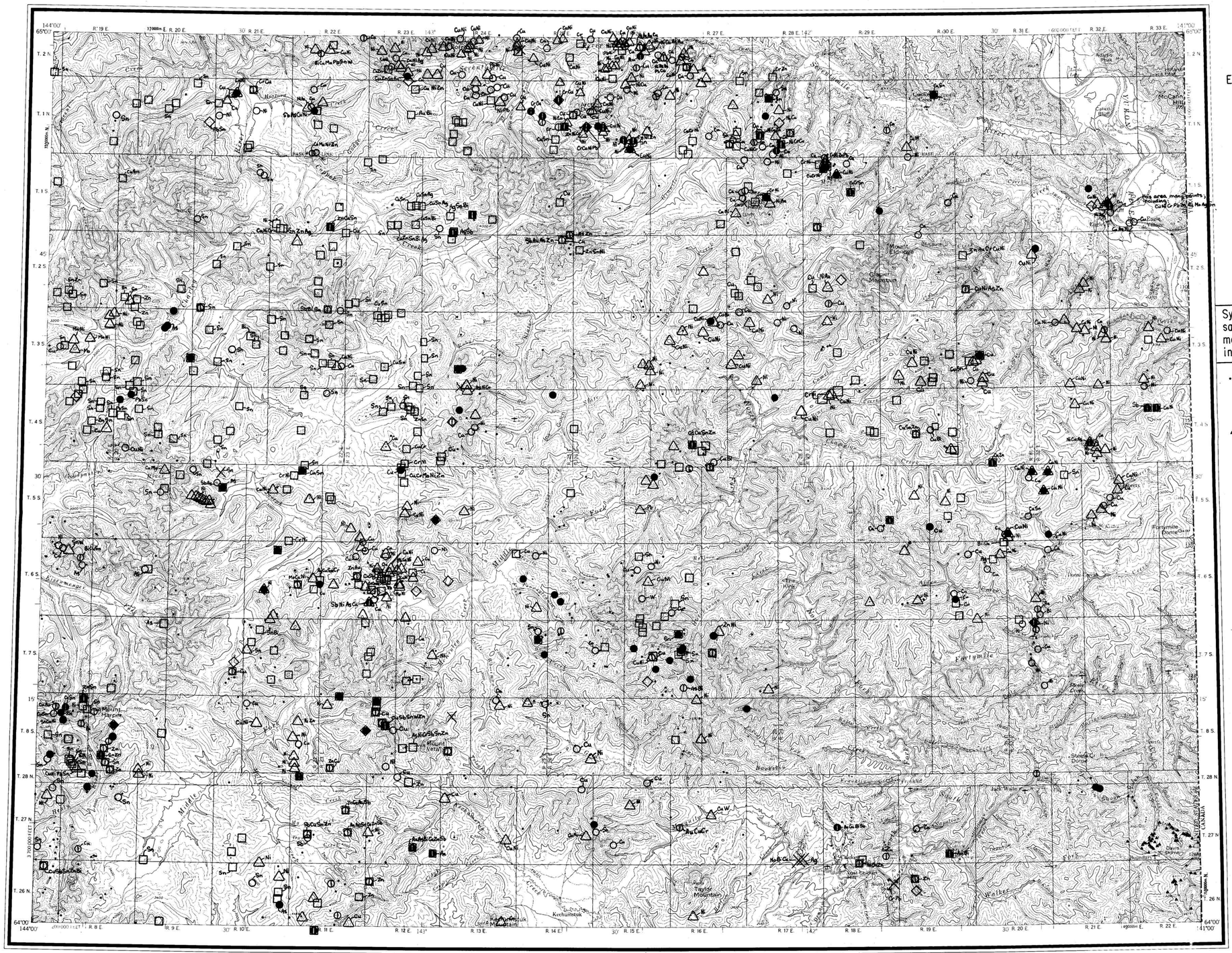
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF – 356
SHEET 2 OF 2



Base from U. S. Geological Survey, 1963.

Figure 2. Rock samples

Compiled by Helen L. Foster and Martha E. Yount, 1971; revised 1972.

MAPS SHOWING DISTRIBUTION OF ANOMALOUS AMOUNTS OF SELECTED ELEMENTS IN STREAM–SEDIMENT AND ROCK SAMPLES, EAGLE QUADRANGLE, ALASKA

by

Helen L. Foster and Martha E. Yount

1972

Explanation

- × Au (≥.02 ppm)
- ⊕ Ag (≥.5 ppm)
- △ Cr (≥200 ppm)
- ● Mo (≥5 ppm)
- □ Pb (≥50 ppm)
- ◇ Zn (≥200 ppm)
- ◐ Ag (≥.5ppm) and Mo (≥5ppm)
- ○ Other:
  - Cu (≥100 ppm)
  - As (≥200 ppm)
  - Ni (≥100 ppm)
  - Sn (≥10 ppm)
  - W (≥50 ppm)
  - Bi (≥10ppm)
  - Sb (≥100ppm)

Symbols combined when sample contains two or more elements in above indicated amounts.

- Sample where above elements occur in amounts less than the indicated level.
- ▲ Location of sample collected by other investigators; results published and comparable.

Maps showing the distribution of anomalous amounts of selected elements found in more than 1,600 stream-sedimen and more than 1,500 rock samples have been prepared from results of semiquantitative spectrographic analyses. The samples were collected in the Eagle quadrangle, east-central Alaska, in the summers of 1968, 1969, 1970, and 1971.

Figure 1 is a map showing localities for all stream-sediment samples analyzed and indicates by symbols those co taining anomalous amounts of one or more of the following elements: gold (Au), silver (Ag), arsenic (As), bismuth copper (Cu), chromium (Cr), molybdenum (Mo), nickel (Ni), lead (Pb), antimony (Sb), tin (Sn), tungsten (W), and zinc (Zn). Figure 2 shows the localities for analyzed rock samples and indicates those containing specified amounts of same elements as selected from the stream-sediment samples.

Maps similar to these which showed the distribution of anomalous amounts of selected elements in stream-sedimen and rock samples from the Eagle quadrangle were compiled in 1971 and issued as a U.S. Geological Survey open-file re (Foster and Yount, 1971). The maps of this report are revised from the open-file maps to include the sampling in th summer of 1971. No further systematic sampling is presently planned in the Eagle quadrangle.

Standard procedures were followed in the collection and preparation of the stream-sediment samples. The sampl were generally collected from an active stream channel; where this was not possible, the samples were collected fro stream deposits adjacent to the active channel. The samples were dried and sieved, and the minus 80-mesh fractions were analyzed for 30 elements by the six-step semiquantitative spectrographic method and for gold by the atomic abs tion method. The spectrographic analyses were reported in percentage (pct) or parts per million (ppm) to the neare number in the series 1.0, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, etc. The precision of a reported value is approximately gi 100 percent or minus 50 percent. Minimum limits of determination in parts per million (ppm) for each element inclu on the maps are: silver (Ag) 0.50, arsenic (As) 200.0, gold (Au) 0.02, bismuth (Bi) 10.0, chromium (Cr) 10.0, copp (Cu) 5.0, molybdenum (Mo) 5.0, nickel (Ni) 5.0, lead (Pb) 10.0, antimony (Sb) 100.0, tin (Sn) 10.0, tungsten (W) 50. zinc (Zn) 200.0.

The rock samples were of many different kinds and included specimens high in visible sulfides (mostly pyrite), from sheared and altered zones, and representative rock types. After crushing, rock samples were split, and one sp was pulverized. The pulverized split was then analyzed.

The results of the analyses of the stream-sediment and rock samples were processed by means of a computer progr known as GEOSTN. These processed analyses have been previously presented in the following reports: Foster and Clark 1969; Clark and Foster, 1969a; Foster, 1970, 1971a and b; and Foster and Yount, 1972. On the basis of histograms f the computer output, the following values were selected as anomalous for the stream-sediment samples: copper (Cu) or more ppm; lead (Pb) 50 or more ppm; nickel (Ni) 100 or more ppm; chromium (Cr) 200 or more ppm; molybdenum (Mo) or more ppm; and any reported value for gold, silver, tungsten, arsenic, antimony, zinc, tin, or bismuth.

The selection of these concentrations as anomalous values is subjective and interpretive, and the local geolog must be considered before significance is attached to any anomalous value.

The same concentrations were arbitrarily considered anomalous in rock samples for convenience, but the designa of anomalous has limited meaning without knowledge of the rock sample and its relation to the geology of the area wh it was collected. Field identifications of most of the analyzed rocks are given in Foster and Clark (1969), Clark a Foster (1969a), Foster (1970, 1971a and b), and Foster and Yount (1972). Additional information on some sample loca tions is given in Foster and Clark (1970) and Clark and Foster (1971).

Much of the southeastern part of the Eagle quadrangle was not included in the U.S. Geological Survey sampling p gram because it was covered by work carried on under the auspices of the Division of Mines and Minerals, State of A Locations of samples collected under the State program that were analyzed by methods comparable to those used by th U.S. Geological Survey are shown on the maps by small triangles. The reported results of analyses of these samples (Saunders, 1966, 1967; Smith, 1968; Burand, 1968; and Asher, 1970) can be used to supplement the date presented in t report.

The most comprehensive discussion of the geology of the Eagle quadrangle and surrounding areas is a report by Merrie, Jr. (1937). More recent reports and maps by Foster (1969a and b), Foster and Keith (1968, 1969), Clark and Foster (1969a and b, 1971) and Asher (1970) include parts of the Eagle quadrangle. Locations of known metallic min occurrences and prospects in the Eagle quadrangle are shown on a map by Cobb (1967).

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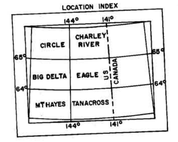

SCALE 1:250 000

0 5 10 15 20 MILES

0 5 10 15 20 KILOMETERS

CONTOUR INTERVAL 200 FEET
DATUM IS MEAN SEA LEVEL
1957 MAGNETIC DECLINATION AT SOUTH EDGE OF SHEET VARIES FROM 30°00' TO 30°30' EAST