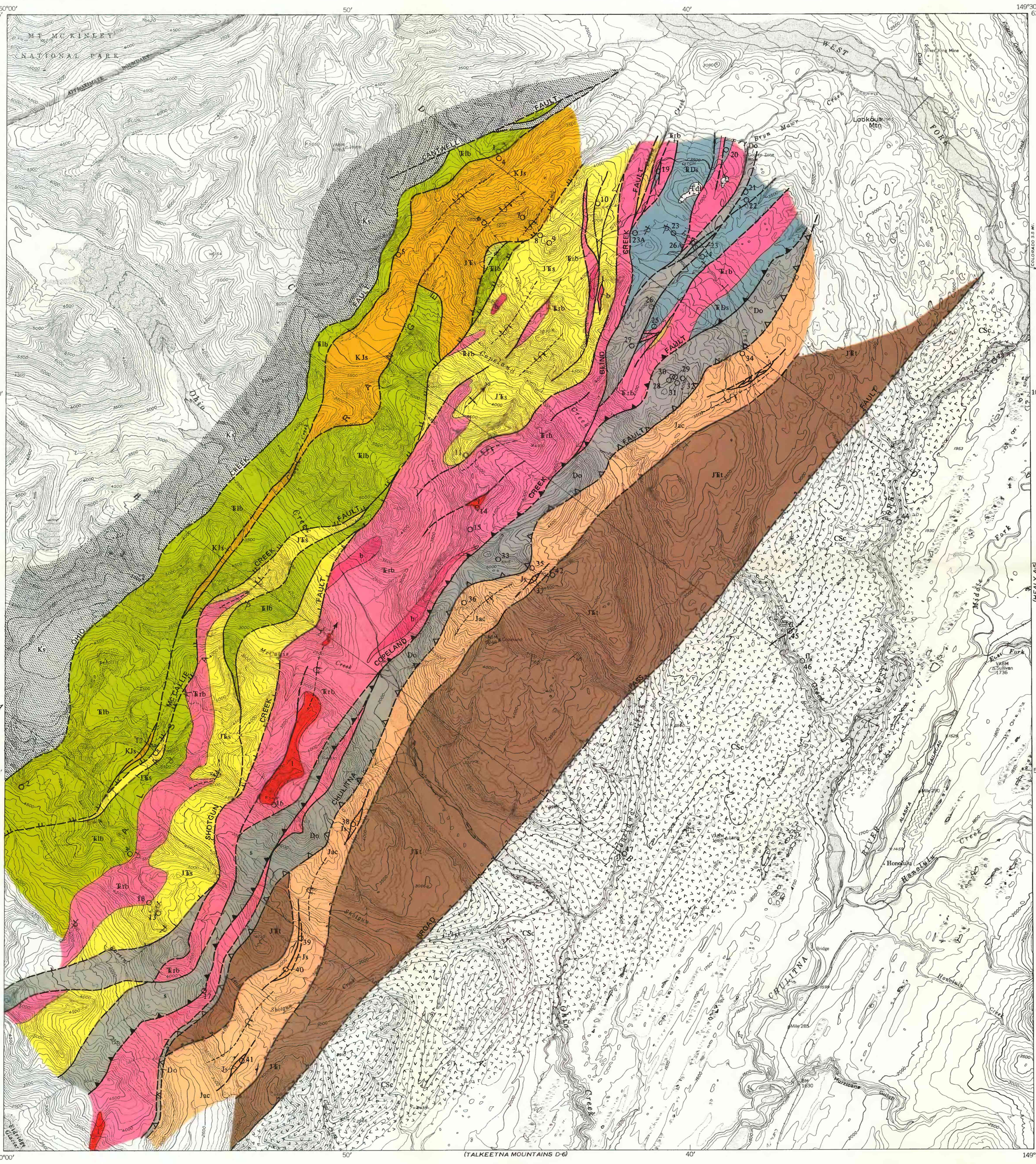
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PROFESSIONAL PAPER 1121–A
PLATE 1



Base from U. S. Geological Survey
Healy A - 6, 1953

TRUE NORTH — MAGNETIC NORTH 26°
APPROXIMATE MEAN DECLINATION, 1979

SCALE 1:63 360

1 ½ 0 1 2 3 4 5 MILES

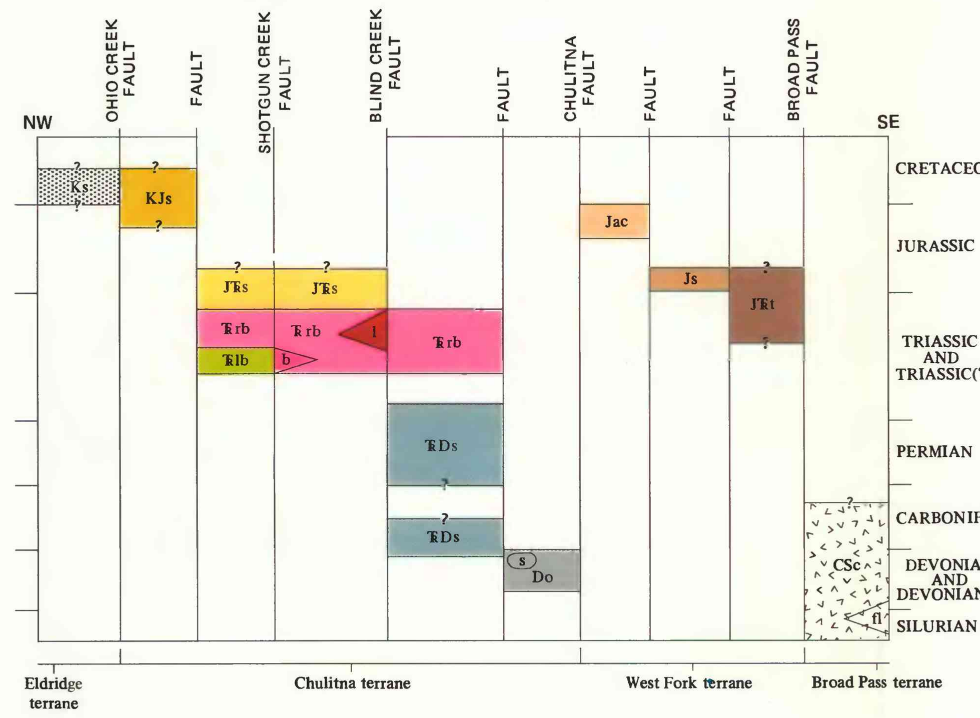
1 .5 0 1 2 3 4 5 6 7 KILOMETERS

CONTOUR INTERVAL 100 FEET
DOTTED LINES REPRESENT HALF-INTERVAL CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MAP LOCATION

Geology mapped in 1976 – 77

CORRELATION OF PRE-TERTIARY MAP UNITS



DESCRIPTION OF MAP UNITS

Tdi — DIKE ROCKS (TERTIARY?)

ELDRIDGE TERRANE

Ks — MARINE SEDIMENTARY ROCKS (CRETACEOUS) – Flyschlike dark-gray to black argillite, sandstone, and minor conglomerate. Mostly sheared and broken

CHULITNA TERRANE

KJs — ARGILLITE, SANDSTONE, AND CHERT (LOWER CRETACEOUS AND UPPER JURASSIC) – Dark-gray argillite, gray to black chert, and sandstone, either thick bedded with *Inoceramus* fragments or thin bedded and notably micaceous. Rare limestone beds of comminuted *Buchia* shells

JTRs — BROWN SANDSTONE AND ARGILLITE (LOWER JURASSIC AND UPPER TRIASSIC) – Gray-brown argillite with minor calcareous sandstone and impure limestone. Grading downward into brown-weathering thick-bedded limy sandstone. Abundant marine shelly fossils in some sandstone beds

TRrb — REDBEDS (UPPER TRIASSIC) – Red sandstone, siltstone, and conglomerate with minor interbedded brown sandstone and dense gray nodular limestone. Gradationally underlies brown-weathering sandstone and argillite unit

l — Interstratified units of bedded gray limestone – Located in exposures between Shotgun Creek fault and Long Creek or Copeland Creek faults

b — Flows of dense basalt – Located in exposures southeast of Shotgun Creek fault

TRlb — LIMESTONE AND PILLOW BASALT (UPPER TRIASSIC) – Pillow basalt, pillow breccia, and basaltic tuff in units as much as a few hundreds of meters thick interstratified with generally thinner and subordinate units of gray shallow-marine limestone. Depositionally underlies red-bed unit northwest of Shotgun Creek fault; may be partially age correlative with red-bed unit on southeast side of this fault. Stipple pattern represents interstratified redbeds, conglomerate, and associated rhyolitic flows and breccias

TRDs — SEDIMENTARY ROCKS (LOWER TRIASSIC TO DEVONIAN?) – Cherty tuff (Carboniferous), volcanic breccia, bedded chert (Upper Devonian in part), argillite, marine limestone (Lower Triassic and Permian), and flyschlike sandstone and argillite in structurally intermixed units to more than 100 m thick. Lower Triassic limestone unconformably underlies Upper Triassic redbeds

Do — OPHIOLITIC AND ULTRAMAFIC ROCKS (UPPER DEVONIAN) – Tectonic mixture of serpentinite, pillow basalt, basaltic breccia, red radiolarian chert (Upper Devonian), and minor gabbro

s — Serpentinite and silica-carbonate rocks

WEST FORK TERRANE

Jac — ARGILLITE, CHERT, AND SANDSTONE (UPPER JURASSIC) – Argillite, cherty argillite, and thin-bedded sandstone. Gray to black rhythmically bedded chert predominates locally. Graded sandstone and siltstone interbedded with argillite form important thicknesses on Long Creek. In places highly sheared and phyllitic. Very minor fine-grained conglomerate

Js — SANDY LIMESTONE AND CALCAREOUS SANDSTONE (LOWER JURASSIC) – Evenly bedded brown-weathering fossiliferous phosphatic marine sandy limestone and calcareous sandstone in fault-bounded slivers

JTRt — MASSIVE TUFF (LOWER JURASSIC AND TRIASSIC?) – Obscurely stratified dark grayish-green crystal tuff and cherty tuff. Minor fossiliferous marine sandstone and conglomerate

BROAD PASS TERRANE

CSc — CHERT AND ARGILLITE (CARBONIFEROUS TO SILURIAN) – Rhythmically bedded chert, cherty tuff, and black argillite (Upper Devonian or younger Paleozoic); dark-gray phyllite; and minor volcanic graywacke

fl — Gray fossiliferous, marine limestone (Middle Devonian and Upper Silurian) – Found in tectonic or redeposited slide blocks, in part associated with serpentinite

Contact – Queried where uncertain

Fault – Showing dip. Dashed where approximately located; queried where uncertain

Copeland Creek thrust fault – Dashed where approximately located. Sawteeth on upper plate

Chulitna thrust fault – Dashed where approximately located. Sawteeth on upper plate

Shotgun Creek fault – Dashed where approximately located

Mc Callie Creek fault – Dashed where approximately located

Axial trace of folds

- Upright and overturned major syncline, showing plunge
- Overturned major anticline
- Overturned minor fold

Strike and dip of beds

- Inclined
- Facing of strata not known
- Vertical
- Demonstrably upright or overturned
- Crenulated

Strike and dip of foliation

Fossil locality – Table has description of localities 1 – 47

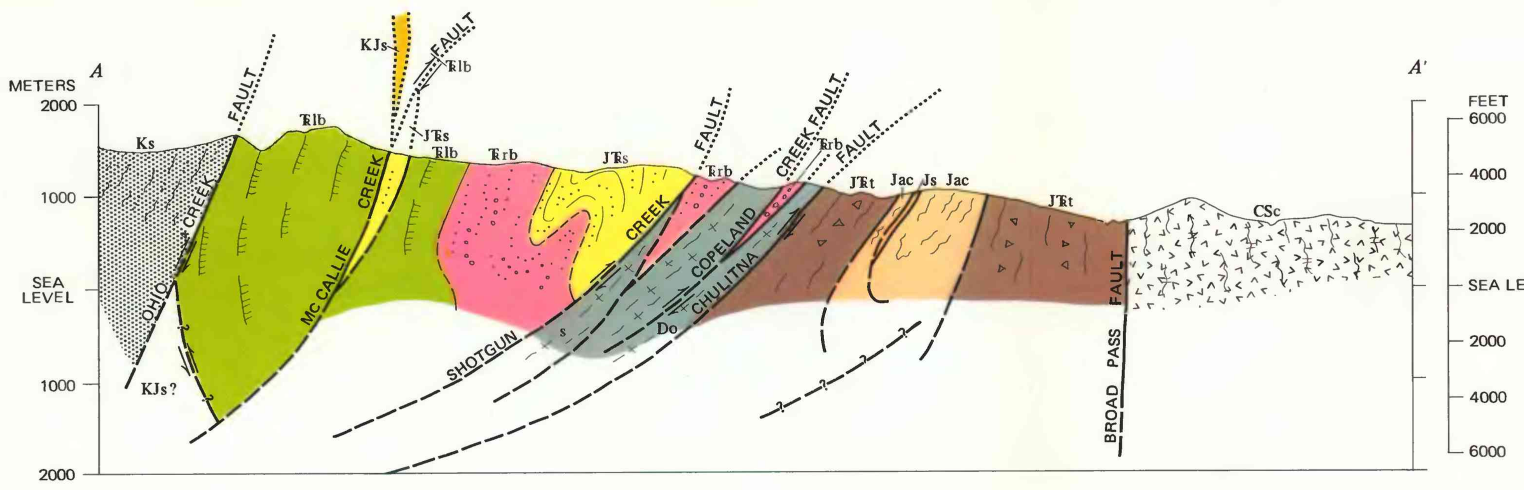
REFERENCES CITED

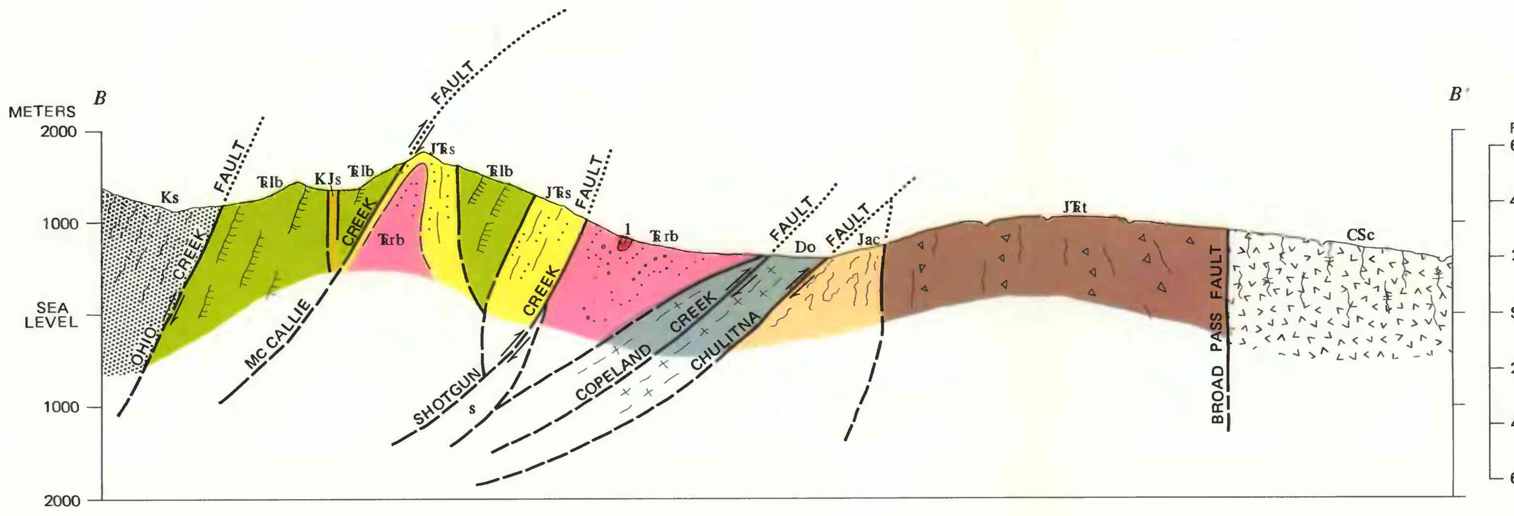
Hawley, C. C., and Clark, A. L., 1974, Geology and mineral deposits of the Upper Chulitna district, Alaska: U.S. Geological Survey Professional Paper 758–B, p. B1–B47.

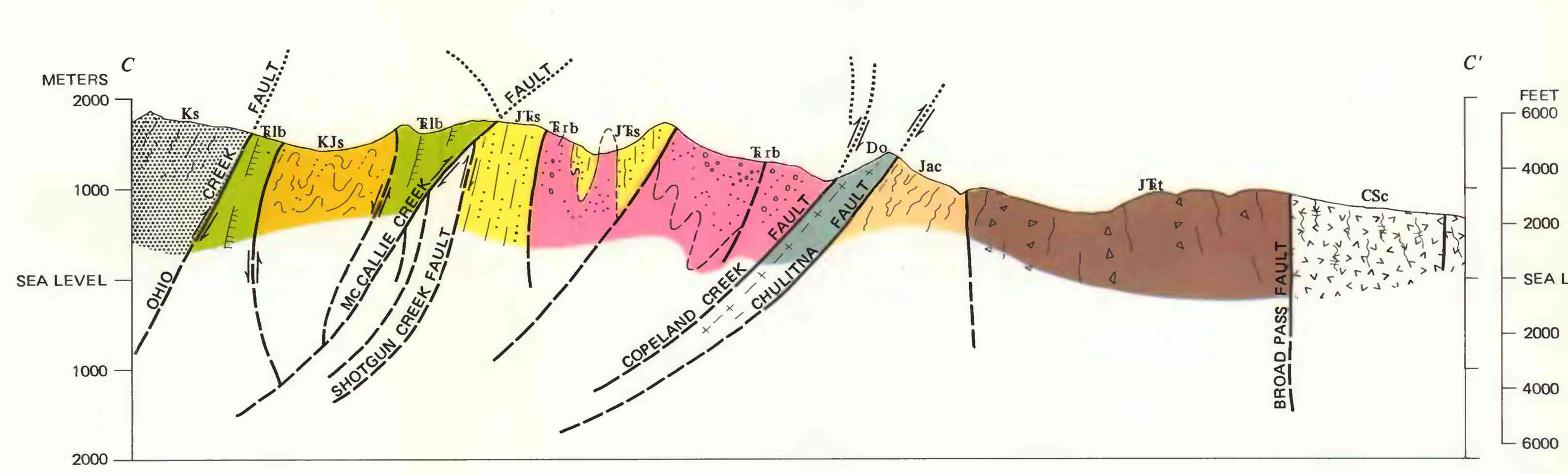
DESCRIPTION OF FOSSIL LOCALITIES

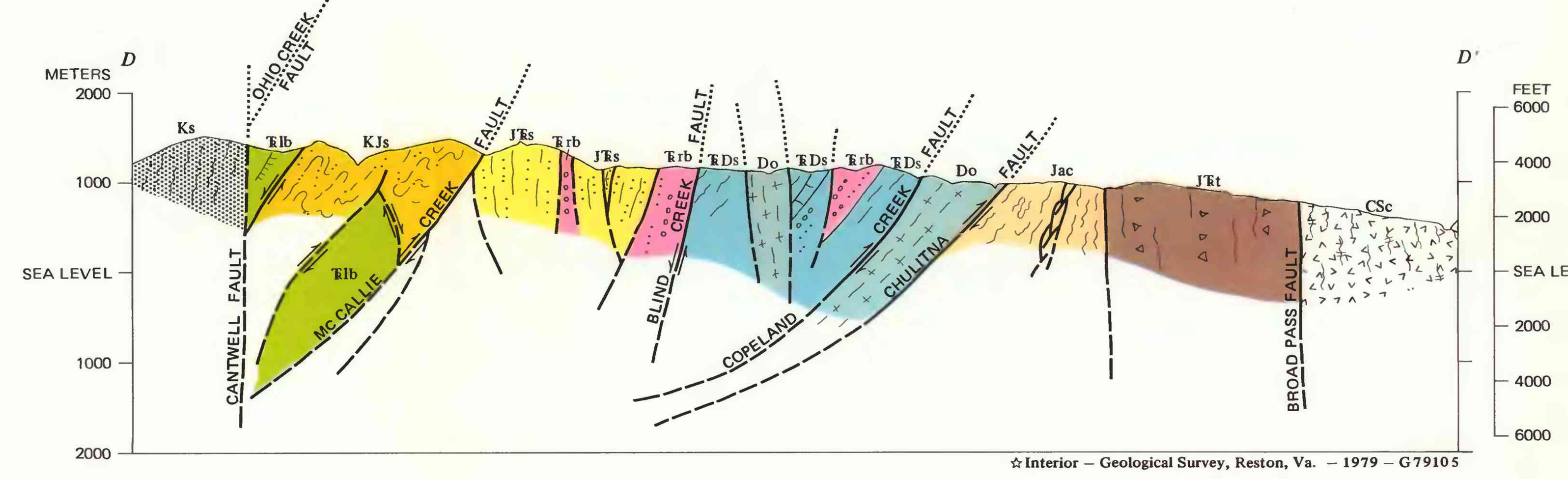
Arrangement of locality numbers on geologic map is by map unit from northwest to southeast across map

Map No.	Sample No.	Description
CHULITNA TERRANE		
Limestone and pillow basalt		
1.	77-S-111	*Spondylospira?* and scleractinian corals; Triassic, probably Norian.
2.	76-S-324	Scleractinian corals and megalodontid bivalves; Upper Triassic.
3.	76-S-306	Scleractinian corals and megalodontid bivalves; Upper Triassic.
Argillite, sandstone, and chert		
4.	77-J-12	*Buchia sublaevis;* Lower Cretaceous, Valanginian.
	77-J-13	*Parvicingula citae* and other Valanginian radiolarians.
5.	76-Cy-133	*Praeconocaryomma mamillaria* and other radiolarians; Upper Jurassic, upper Kimmeridgian and lower Tithonian (E. A. Pessagno, Jr., written commun., 1976).
6.	76-J-45	*Inoceramus;* Hauterivian to Barremian. Stratigraphically 2 m lower is chert containing upper Valanginian radiolarians (E. A. Pessagno, Jr., written commun., 1976). Another 2 m lower, *Buchia sublaevis;* Valanginian. All collections Lower Cretaceous.
7.	———	*Buchia sublaevis;* Lower Cretaceous, Valanginian (not collected).
Brown sandstone and argillite		
8.	USGS Mesozoic loc. 31266	Ammonites including *Psiloceras? canadense;* Lower Jurassic, lowest Sinemurian (R. W. Imlay, written commun., 1976).
9.	76-S-342	*Septocardia?;* Upper Triassic.
10.	76-S-343	*Cassianella* and *Septocardia?;* Upper Triassic.
11.	76-S-297	*Cassianella;* Upper Triassic.
12.	77-S-131	*Heterastridium;* Upper Triassic, upper Norian.
13.	76-S-303	*Heterastridium;* Upper Triassic, upper Norian.
Redbeds		
14.	USGS Mesozoic loc. M6505	*Pseudosirenites, Indojuvavites* and other ammonites; Upper Triassic, lower middle Norian.
15.	USGS Mesozoic loc. M6504	Juvavitinid ammonite; Upper Triassic, uppermost Karnian to middle Norian.
16	76-N-138	*Juvavites* cf. *J. magnus;* Upper Triassic, lower middle Norian.
17.	76-N-135	*Juvavites* cf. *J. magnus;* Upper Triassic, lower middle Norian.
18.	76-S-304	*Heterastridium;* Upper Triassic, upper Norian.
Sedimentary rocks		
19.	77-S-101	Ammonites of *Meekoceras gracilitatis* Zone; Lower Triassic, lower Smithian (K. M. Nichols, written commun., 1977).
20.	USGS Mesozoic loc. M5027	Ammonites of *Meekoceras gracilitatis* Zone; Lower Triassic, lower Smithian (K. M. Nichols, written commun., 1977).
21.	76-J-1	Radiolarians; upper Paleozoic, probably Carboniferous.
22.	USGS loc. 26672-PC	Brachiopods; Lower Permian, Wolfcampian to lower Leonardian (J. T. Dutro, Jr., written commun., 1976).
23.	USGS loc. 9799-SD	Conodonts; Upper Devonian, Famennian (A. G. Harris, written commun., 1977) and well-preserved radiolarians from clasts of radiolarian chert in conglomerate.
23A.	78-J-13	Radiolarians; Mississippian (identified by Brian Holdsworth, 1978).
23B.	78-J-12	Radiolarians; upper Paleozoic, probably Permian (identified by Brian Holdsworth, 1978).
24.	78-J-15	Radiolarians; upper Paleozoic, probably Permian.
25.	USGS loc. 23402-PC	Productid brachiopods and other megafossils; definitely Paleozoic, probably Permian (J. T. Dutro, Jr., *in* Hawley and Clark, 1974).
Ophiolitic and ultramafic rocks		
26A.	78-J-3C	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1978).
26.	76-J-9	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1977).
27.	76-Nw-162	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1977).
28.	77-J-19	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1977).
29.	77-J-20	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1977).
30.	77-J-21	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1977).
31.	76-Nw-164	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1977).
32.	76-Nw-165	Radiolarians from red radiolarian chert; Upper Devonian, Famennian (identified by Brian Holdsworth, 1977).
33.	75-J-3B	Conodonts from red radiolarian chert; Upper Devonian, Famennian (identified by A. G. Harris and B. R. Wardlaw, 1977).
WEST FORK TERRANE		
Argillite, chert, and sandstone		
34.	76-J-55	Radiolarians; Upper Jurassic.
35.	76-J-22	Radiolarians; Upper Jurassic.
36.	76-J-41	Radiolarians; Upper Jurassic.
Sandy limestone and calcareous sandstone		
37.	USGS Mesozoic loc. 31260	Ammonites including *Arnioceras* cf. *A. densicosta;* Lower Jurassic, lower Sinemurian (R. W. Imlay, written commun., 1976).
38.	USGS Mesozoic loc. 31263	Ammonites including *Arnioceras* cf. *A. densicosta;* Lower Jurassic, lower Sinemurian (R. W. Imlay, written commun., 1976).
39.	USGS Mesozoic loc. 31264	Ammonites including *Psiloceras? canadense;* Lower Jurassic, lower Sinemurian (R. W. Imlay, written commun., 1976).
40.	USGS Mesozoic loc. 31265	Ammonites including *Arnioceras* cf. *A. densicosta;* Lower Jurassic, lower Sinemurian (R. W. Imlay, written commun., 1976).
41.	USGS Mesozoic loc. 31262	Ammonites including *Arnioceras* cf. *A. densicosta;* Lower Jurassic, lower Sinemurian (R. W. Imlay, written commun.. 1976).
Massive tuff		
42.	USGS Mesozoic loc. 31261	Ammonites including *Arctoasteroceras jeletskyi;* Lower Jurassic, upper Sinemurian (R. W. Imlay, written commun., 1976).
BROAD PASS TERRANE		
Chert and argillite		
43.	77-J-7	Radiolarians; upper Paleozoic, Upper Devonian or younger Paleozoic.
44.	77-J-18	Radiolarians; upper Paleozoic, Upper Devonian or younger Paleozoic.
45.	USGS loc. 9743-SD	Corals; Silurian and Devonian, probably Middle Devonian (W. A. Oliver, Jr., written commun., 1977).
46.	USGS loc. 9744-SD	Corals; Silurian or Devonian (W. A. Oliver, Jr., written commun., 1977).
47.	USGS loc. 9824-SD	Conodonts; Upper Silurian (uppermost Pridolian) or Lower Devonian (Gedinnian) (A. G. Harris, written commun., 1978); from isolated exposure of limestone associated with serpentine.

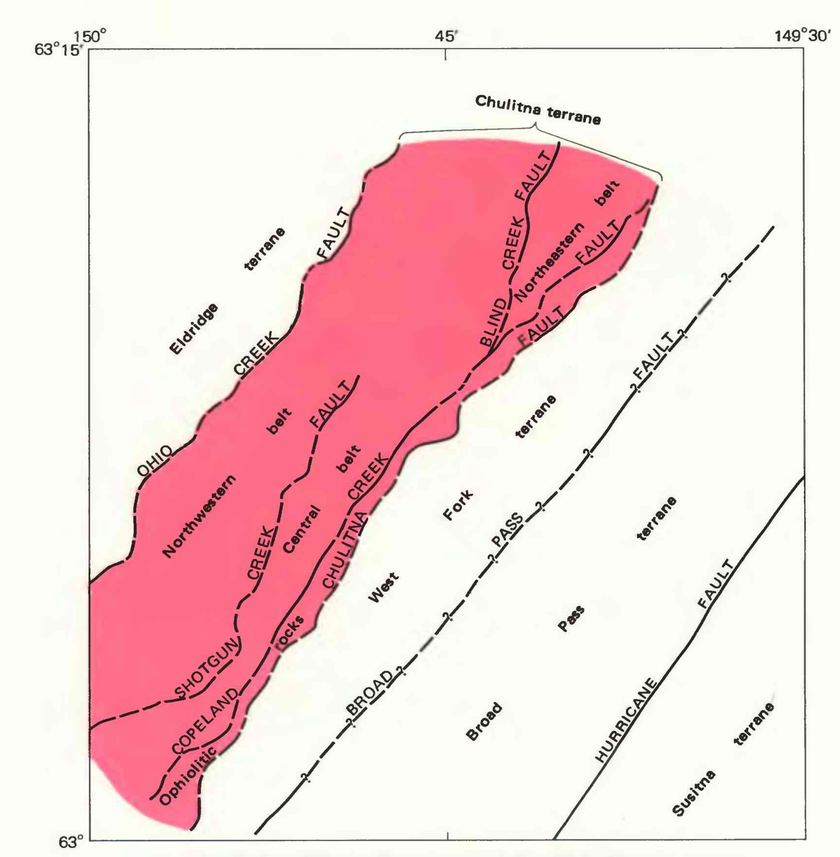








☆ Interior – Geological Survey, Reston, Va. – 1979 – G79105



Index map showing terranes in Upper Chulitna district, Alaska.

INTERPRETIVE BEDROCK GEOLOGIC MAP OF THE UPPER CHULITNA DISTRICT, ALASKA RANGE, ALASKA