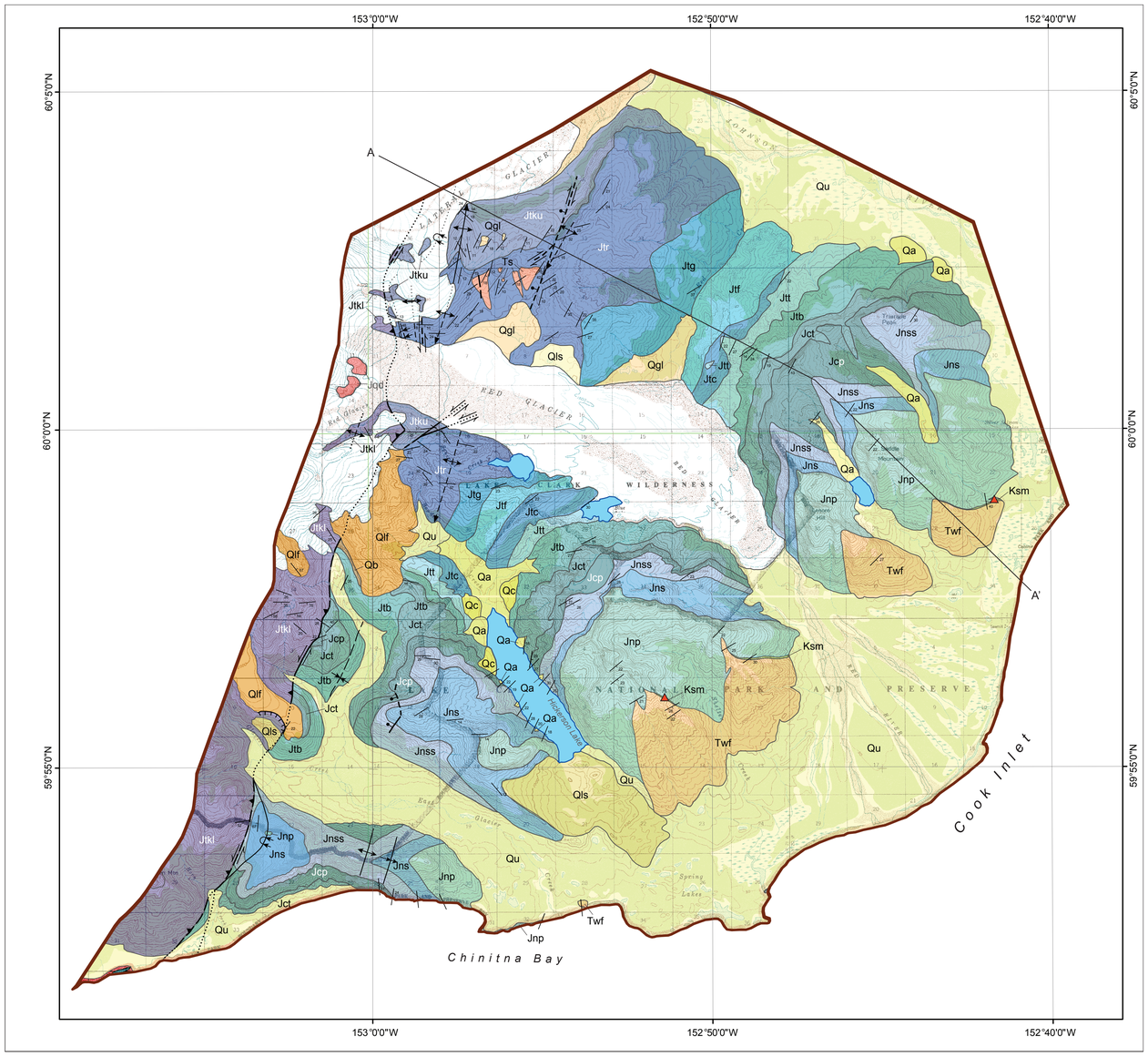
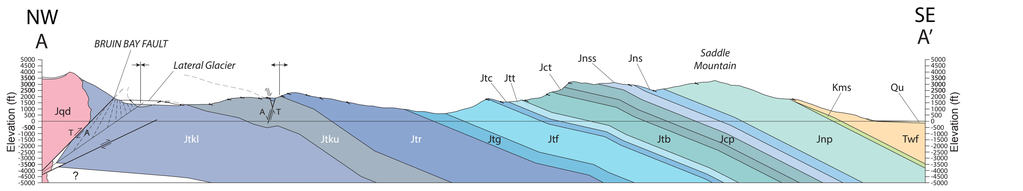




GEOLOGIC MAP AND CROSS SECTION OF THE RED GLACIER AREA, LOWER COOK INLET (1:63,360 SCALE) PRELIMINARY DRAFT

0 1 2 4 6 8 10 Miles

0 0.5 1 2 3 4 5 Kilometer

1:63,360 1 INCH = 1 MILE

TRUE NORTH

MAGNETIC NORTH 15½° E

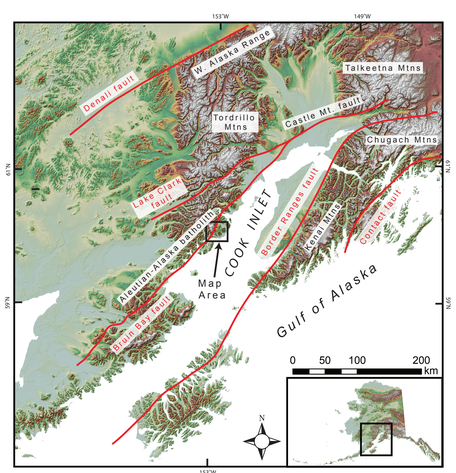
APPROXIMATE MEAN DECLINATION, 2014

Robert Gillis[1], Trystan Herriott[1], Marwan Wartes[1], Paul Betka[1], Paul Decker[2] Nina Harun[1], Alicja Wypych[1], and Katharine Bull[3]

[1]Alaska Division of Geological & Geophysical Surveys, 3354 College Rd., Fairbanks, AK, 99709

[2]Alaska Division of Oil & Gas, 550 W 7th Ave. Suite 1100, Anchorage, AK 99501

[3]Exploration Unlimited, P.O. Box 81418, Fairbanks, AK, 99708



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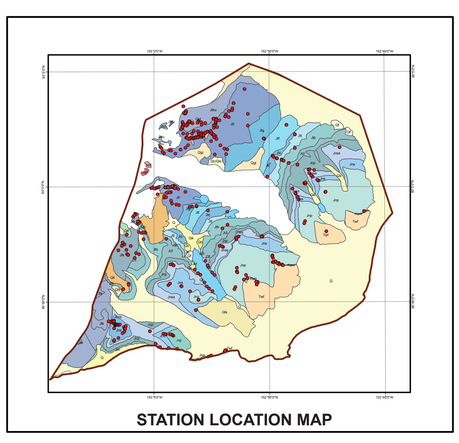

STATION LOCATION MAP

MAP UNITS

SEDIMENTARY ROCKS

QUATERNARY

Qu — *Undifferentiated alluvial, colluvial, beach, glacial, and landslide deposits*

Qgl — *Glacial moraine, till, and outwash deposits*

Qa — *Alluvial fan and fluvial deposits*

Qc — *Colluvium*

Qls — *Landslide deposits*

CENOZOIC

WEST FORELAND FORMATION

Twf

(Paleogene)
Gray-weathering, massive, poorly organized, clast-supported, weakly cross-stratified, pebble-cobble conglomerate, subordinate medium brown-weathering thin- to thick-bedded, cross-stratified, feldspathic sandstone

UPPER CRETACEOUS

SADDLE MOUNTAIN INTERVAL

Ksm

(Maastrichtian)
Brown-weathering, lenticular, cross-stratified, thin- to very-thick-bedded, quartzo-feldspathic sandstone, brown- and gray-weathering limey siltstone, dark gray-weathering carbonaceous mudstone, subordinate, thinly-bedded coal, and pebble-cobble conglomerate

UPPER JURASSIC

NAKNEK FORMATION

Jnp

Pomeroy Arkose Member (lower Kimmeridgian)
Gray-weathering, tabular, thin- to very-thick-bedded, arkosic sandstone, siltstone, and conglomerate; locally cross-stratified

Jns

Snug Harbor Siltstone Member (Oxfordian to lower Kimmeridgian?)
Dark-gray to dark-gray-brown weathering, tabular, thin- to thick-bedded siltstone, sandy siltstone, and very-fine-grained sandstone with minor conglomerate occurrences; sparse bioturbation

Jnss

Lower Sandstone member (informal, Oxfordian)
Tan- to medium-brown- to gray-brown- to light-gray weathering, tabular, thin- to thick-bedded, arkosic very fine- to fine-grained sandstone with subordinate siltstone and medium- to very-coarse sandstone; convolute lamination and bioturbation common

CHINITNA FORMATION

Jcp

Paveloff Siltstone Member (Callovian)
Gray-green weathering, thin- to thick-bedded, lithic-rich, sandy siltstone with subordinate, thin-bedded, very-fine-grained sandstone; locally greater than 100-m thick basal sand-rich package; petroliferous, oil-stained sandstone occurrence

Jct

Tonnie Siltstone Member (upper Bathonian and Callovian)
Tan weathering, thin- to thick-bedded siltstone and sandy siltstone with subordinate thin-bedded, tabular, sharp-based sandstone; trace fossils, bioturbation, and calcareous concretions common

TUXEDNI GROUP

Jtb

Bowser Formation (upper Bajocian to Bathonian)
Light-green, dark-gray to dark-brown-gray weathering heterogeneous unit consisting of volcanogenic siltstone, sandy siltstone, fine- to- very coarse-grained sandstone, and pebble-cobble-boulder conglomerate; fossiliferous

MIDDLE JURASSIC

Jtt

Twist Creek Siltstone (lower upper Bajocian)
Dark-rusty brown weathering, thin-bedded to massive, poorly consolidated siltstone, silty shale, and minor lithic sandstone; bright-orange weathering volcanic ash beds occur

Jtc

Cynthia Falls Sandstone (middle Bajocian?)
Light-green to green-gray weathering, thin- to thick-bedded and includes tabular and lenticular geometries, medium- to very coarse-grained volcanogenic sandstone with subordinate conglomerate and coarse siltstone; channel-fill sandstones are trough cross-bedded

Jtf

Fitz Creek Siltstone (middle Bajocian)
Rusty-orange to light gray, chippy weathering, fine- to coarse-grained siltstone with numerous spheroidal limestone concretions and subordinate very-fine- to fine-grained sandstone; pebble-cobble conglomerate occurs locally; macrofossils, wood debris, and leaf fragments are common

Jtg

Gaikema Sandstone (lower middle Bajocian)
Dark-brown to orange-red weathering, volcanogenic, arkosic sandstone with less common cobble-boulder conglomerate, siltstone, and shale; locally conspicuous shell coquinas and bioturbation

Jtr

Red Glacier Formation (Aalenian to middle Bajocian)
Black to dark-brown weathering silty shale, dark-brown to brown weathering siltstone, green-gray siltstone, light brown-gray to green-gray weathering arkosic and lithic sandstone, and minor conglomerate and limestone

CRYSTALLINE AND VOLCANICLASTIC ROCKS

QUATERNARY

Qlf — *Andesitic to basaltic lavas and associated pyroclastic rocks*

Qb — *Basalt sill*

CENOZOIC

Ts

Cenozoic Sills (late Miocene)
Intermediate composition, one to several meters thick

JURASSIC

Jqd

Jurassic Intrusive Rocks
Undifferentiated felsic to intermediate composition intrusive rocks of the Talkeetna batholith; dominantly quartz monzonite and granodiorite

LOWER JURASSIC

TALKEETNA FORMATION

Jtku

Upper Talkeetna Formation (Lower Jurassic)
Brown-olive-green-weathering, massive to well-bedded, coarse-grained, feldspar crystal-rich sandstone and granule-pebble- and locally cobble- volcaniclastic breccia and hyaloclastite, locally interbedded with volcaniclastic sediment gravity flow deposits

Jtkl

Lower Talkeetna Formation (Lower Jurassic)
Resistant, locally amygdaloidal, aphanitic to feldspar + biotite + amphibole + pyroxene porphyritic, mafic to intermediate composition coherent lavas and sills, and related in situ and resedimented autoclastic breccias

MAP SYMBOLS

CONTACTS
(dashed where approximately located, dotted where concealed)

Stratigraphic — Fault

STRUCTURE

Anticline — Strike-slip fault

Anticline with limbs dipping in same direction — Thrust fault

Syncline — Normal fault

Overturned syncline

Strike and dip of bedding — Strike and dip of overturned bedding

PETROLEUM

Oil-stained rocks

CROSS SECTION SYMBOLS

CONTACTS

Stratigraphic — Fault

SCHEMATIC FORM LINES

Bedding — Eroded contact

STRUCTURE

Syncline — Anticline — Oblique-slip fault with arrows reflecting vertical sense of slip (T = toward, A = away)

CORRELATION OF MAP UNITS

Qlf	Qb	Qu	Qgl	Qa	Qc	Qls	QUATERNARY	CENOZOIC
Ts						late Miocene	TERTIARY	
		Twf				Paleogene		
		Ksm				Maastrichtian	UPPER CRETACEOUS	CRET.
		Jnp				Kimmeridgian	UPPER JURASSIC	MESOZOIC
Jqd		Jns				Oxfordian		
		Jnss						
		Jcp				Callovian	MIDDLE JURASSIC	
		Jct						
		Jtb				Bathonian		
		Jtt						
		Jtc						
		Jtf				Bajocian		
		Jtg						
		Jtr				Aalenian		
		Bruin Bay fault						
		Jtku					LOWER JURASSIC	
		Jtkl						