Catalogue Number	Fossil	Age	Easting, Northing (NAD83)	Report
C-486313	palynomorphs	Basal Famennian	425302, 7382647	Dolby, G., 2011
C-486316	palynomorphs	Early Famennian	418952, 7388485	JU-2009-06
C-486346	palynomorphs	Late Devonian	432957, 7402296	JU-2009-06
C-486350	palynomorphs	Late Devonian	423797, 7396507	Dolby, G., 2011

Table 1. Fossil localities.

References

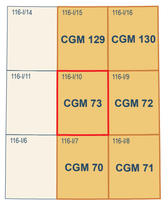
Norris, D.K., 1982. Geology, Porcupine River, Yukon Territory; Geological Survey of Canada, Map 1522A, 1:250 000 scale.

Abstract

This map is dominated by a broad anticline-syncline fold pair. The Tuttle anticline and North and South Tuttle synclines are developed in shale and coarse clastic rocks of the uppermost Imperial and overlying Tuttle formations. Biostratigraphic ages vary from Late Frasnian (Late Devonian) to Viséan (Early Carboniferous). Along the east margin of the map area, the Deception fault juxtaposes the middle, sandy part of the Imperial Formation, of Frasnian to early Famennian age, against the Tuttle Formation. A distinct thermal maturity discontinuity occurs across the fault, with rocks to the east having vitrinite reflectances (Ro) of 1.16–1.3% whereas those to the west have Ro = 0.7–0.8%. Seismic reflection data suggest that the fault has a moderate eastward dip. Taken together, these data indicate that the Deception Fault is a substantial thrust fault. Sandstone and conglomerate of the Tuttle Formation display rapid lateral variations in thickness and facies. This is reflected in the delineation of four mappable lithofacies with no specific stratigraphic order. Although poor exposure precludes a definitive explanation, a channelized depositional system is inferred.

Résumé

L'entité dominante sur la carte est constituée d'une paire de plis anticlinal-synclinal de grande étendue. L'anticlinal de Tuttle et les synclinaux nord et sud de Tuttle se sont formés dans du schiste et des roches clastiques grossières de la partie supérieure de la Formation d'Imperial et des formations sus-jacentes à la Formation de Tuttle. Les âges biostratigraphiques varient du Frasnien tardif (Dévonien tardif) au Viséen (Carbonifère précoce). Le long de la bordure est de la région de la carte, la faille Deception juxtapose la partie médiane sableuse de la Formation d'Imperial, datant du Frasnien au Famennien précoce, contre la Formation de Tuttle. Une discontinuité de la maturité thermique est manifeste d'un côté à l'autre de la faille, où les roches à l'est présentent des valeurs de réflectance de la vitrinite (Ro) de 1,16 à 1,3 %, tandis que, pour les roches à l'ouest, ces valeurs sont de 0,7 à 0,8 %. D'après les données de sismique réflexion, la faille aurait un pendage moyen vers l'est. Prises dans leur ensemble, ces données indiquent que la faille Deception est une faille de chevauchement importante. Le grès et le conglomérat de la Formation de Tuttle présentent de rapides variations latérales en termes d'épaisseur et de faciès. Cela se reflète dans la délimitation de quatre lithofaciès cartographiables sans ordre stratigraphique particulier. Bien que le peu de surfaces exposées ne permette pas d'apporter une explication définitive, on peut présumer un système de sédimentation chenalisé.



National Topographic System reference and index to adjoining published Geological Survey of Canada maps

Cover illustration
View northwest from Eagle River toward Mount Joyal, on the right, and an unnamed flat-topped mesa; both are underlain by resistant sandstones of the Tuttle Formation. Photograph by L.S. Lane. 2012-006

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2nd EDITION

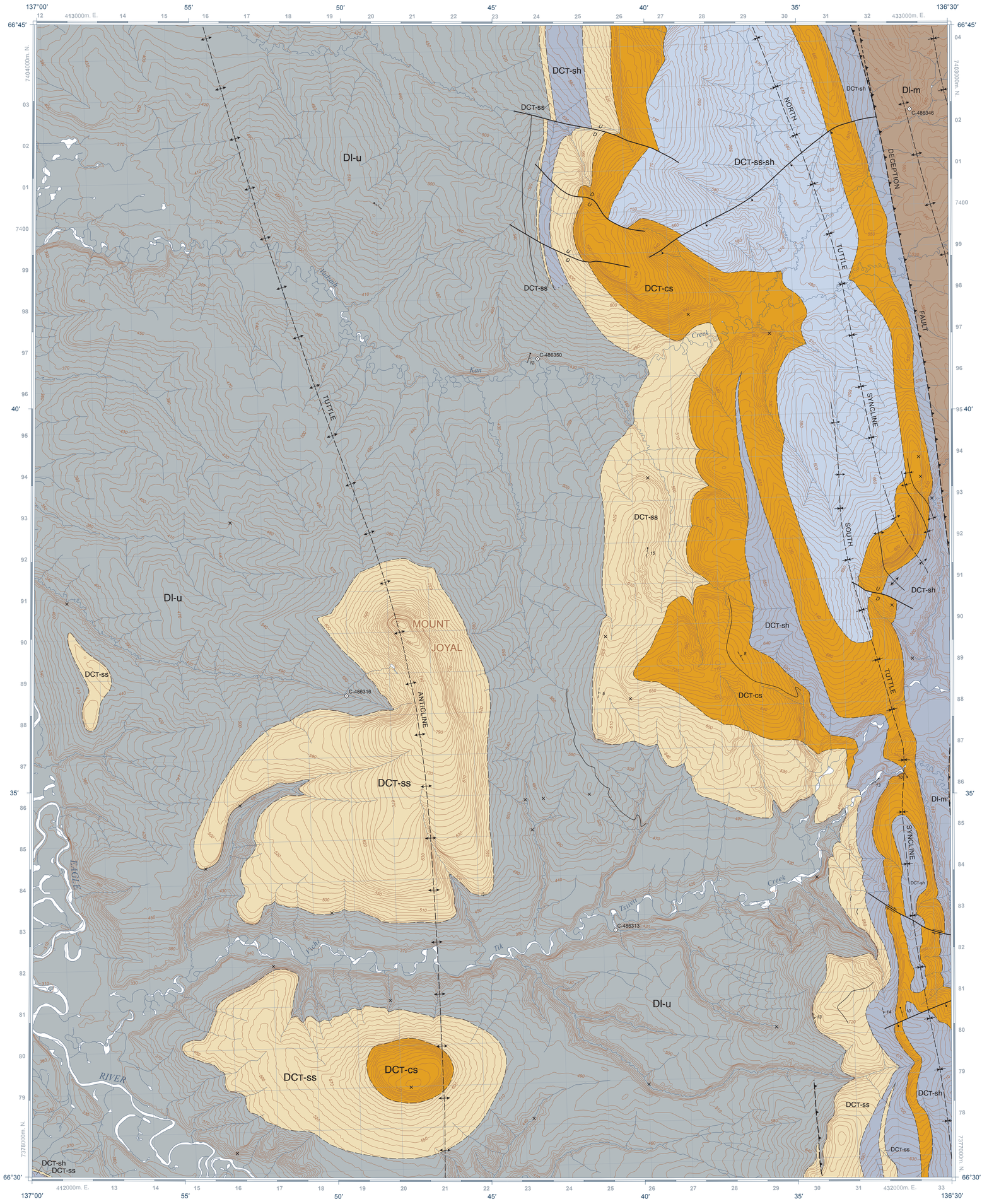
CANADIAN GEOSCIENCE MAP 73

GEOLOGY

MOUNT JOYAL

Yukon

1:50 000



DEVONIAN AND CARBONIFEROUS

Tuttle Formation

- DCT-sh — Shale-dominated lithofacies.
- DCT-ss-sh — Interbedded sandstone and shale lithofacies.
- DCT-ss — Sandstone-dominated lithofacies.
- DCT-cs — Sandstone and conglomerate-dominated lithofacies.

DEVONIAN

Imperial Formation

- DI-u — **Upper member:** shale, dark grey laminated; weathers medium grey; siltstone, dark grey; minor sandstone, pyritic.
- DI-m — **Middle member:** shale, dark grey, siliceous; siltstone, dark grey, laminated and ripple crosslaminated, weathers rusty; siltstone, dark grey, fine-grained, turbiditic.

Contacts
- Defined
- Approximate

Faults
- Motion unknown, defined
- Normal fault, defined
- Thrust fault, approximate
- Thrust fault, inferred
- Dextral strike-slip fault, defined

Folds
- Anticline, upright, defined
- Anticline, upright, approximate
- Monocline, anticlinal bend, upright, defined
- Monocline, synclinal bend, upright, defined
- Monocline, synclinal bend, upright, approximate
- Syncline, upright, approximate

Traces
- Marker bed

Geological Unit Construct
- Nomenclature change

Observations
- Station

Bedding
- Horizontal, estimated remotely
- 10 — Upright, measured at station
- 15 — Upright, estimated remotely
- 5 — Upright, calculated from imagery

Fossil Locality
- C-486350 — Fossil

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Canadian Geoscience Maps

Canada

Author: L.S. Lane

Geology by L.S. Lane in 2011–2013, based on new mapping by L.S. Lane in 2009 and 2010; evaluation of archival field data and fossil localities from Operation Porcupine (1962–1976); new palynology by G. Dolby (2011); interpretation of public domain seismic reflection data; and analysis of air photos and satellite imagery (2008–2012)

Geomatics and cartography by A. Farineau, R. Chan, and L. MacDonald

Initiative of the Geological Survey of Canada, conducted under the auspices of the Yukon Sedimentary Basins project as part of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program.

Map projection Universal Transverse Mercator, zone 8.
North American Datum 1983

GEOLOGY
MOUNT JOYAL
Yukon
1:50 000

1 0 1 2 3 4 km

Base map at the scale of 1:50 000 from Natural Resources Canada, with modifications.
Elevations in metres above mean sea level

Magnetic declination 2013, 23°29′E, decreasing 29.0′ annually.

The Geological Survey of Canada welcomes corrections or additional information from users.

The data may include additional features not portrayed on this map. See documentation accompanying the data. Additional references and tables are included in the map information document.

This publication is available for free download through GEOSCAN (http://geoscan.ess.nrcan.gc.ca/).

Preliminary publications in this series have not been scientifically edited.

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GEOLOGY
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