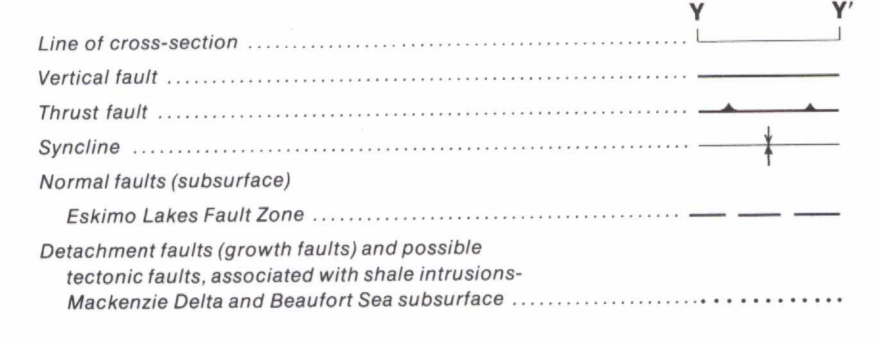


LEGEND

- Q** Quaternary: marine and nonmarine clastics
- TN, TN,Q** Tertiary-Neogene, Quaternary: fluvio-deltaic clastics
- TP** Tertiary-Paleogene: fluvio-deltaic clastics
- uK** Upper Cretaceous: Laramide molasse, fluvio-deltaic and epicontinental clastics
- IK** Lower Cretaceous: flysch and epicontinental clastics
- IK,o** Lower Cretaceous and older: undifferentiated clastics
- J,K** Jurassic-Lower Cretaceous: epicontinental clastics
- uP** Upper Paleozoic: undifferentiated clastics and carbonates
- D** Devonian: clastics and carbonates
- Dg** Devonian: crystalline intrusive rocks
- IP** Lower Paleozoic: carbonates and clastics
- P** Paleozoic undifferentiated: carbonates and clastics
- C** Cambrian
- P,P** Paleozoic and Proterozoic undifferentiated:
- P** Proterozoic: carbonates and meta-clastics

Epicontinentale Flyschf Molassem



Geology by C.J. Yorath, D.K. Norris and F.G. Young,
Geological Survey of Canada

Bathymetric interpretation by D. Monahan,
Canadian Hydrographic Service, 1976

Compiled by B.R. Pelletier, Geological Survey of Canada, 1978

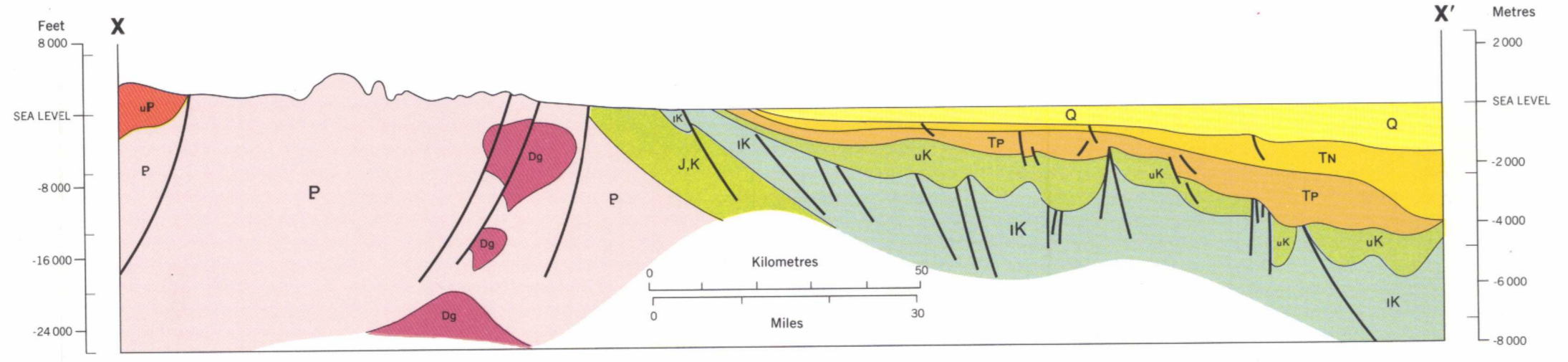
Geological cartography by P. Corrigan, Geological Survey of Canada

Any revisions or additional information known to the user
would be welcomed by the Geological Survey of Canada

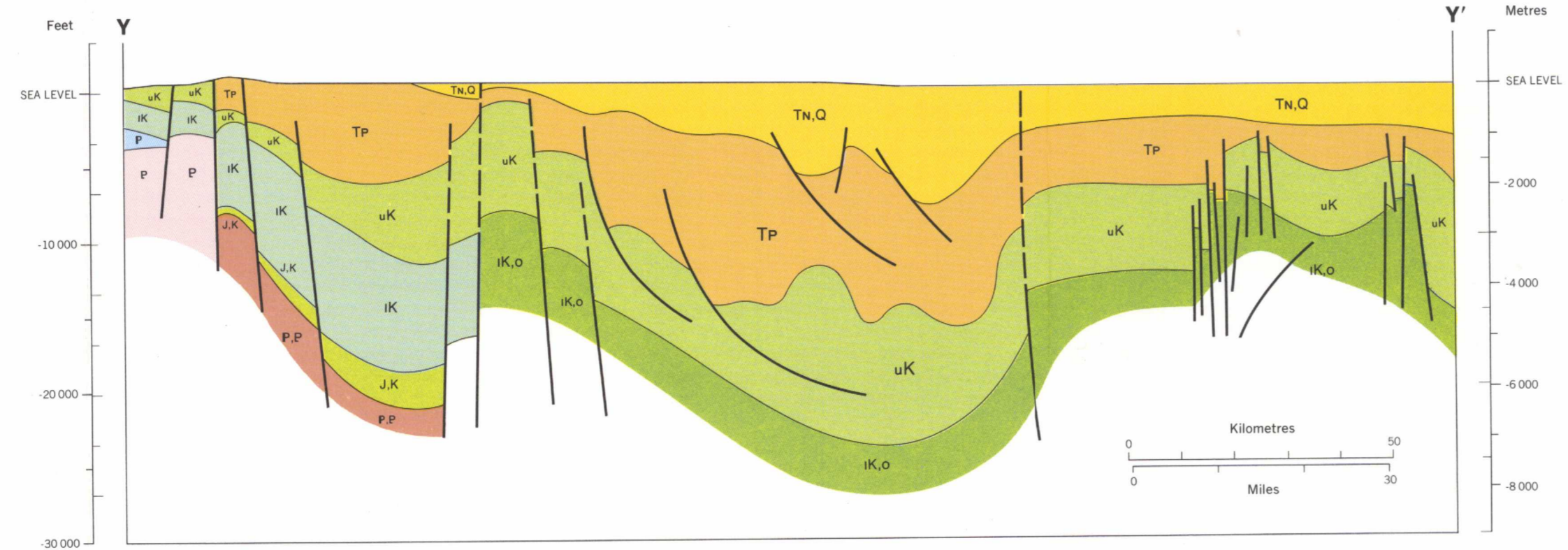
Base map assembled by the Geological Survey of Canada from parts
of International Map of the World NR-7/8/9 and NR-9/10/11/12
printed by the Surveys and Mapping Branch, Department of
Energy, Mines and Resources, Ottawa, in 1976

Bathymetric and elevation contours in metres

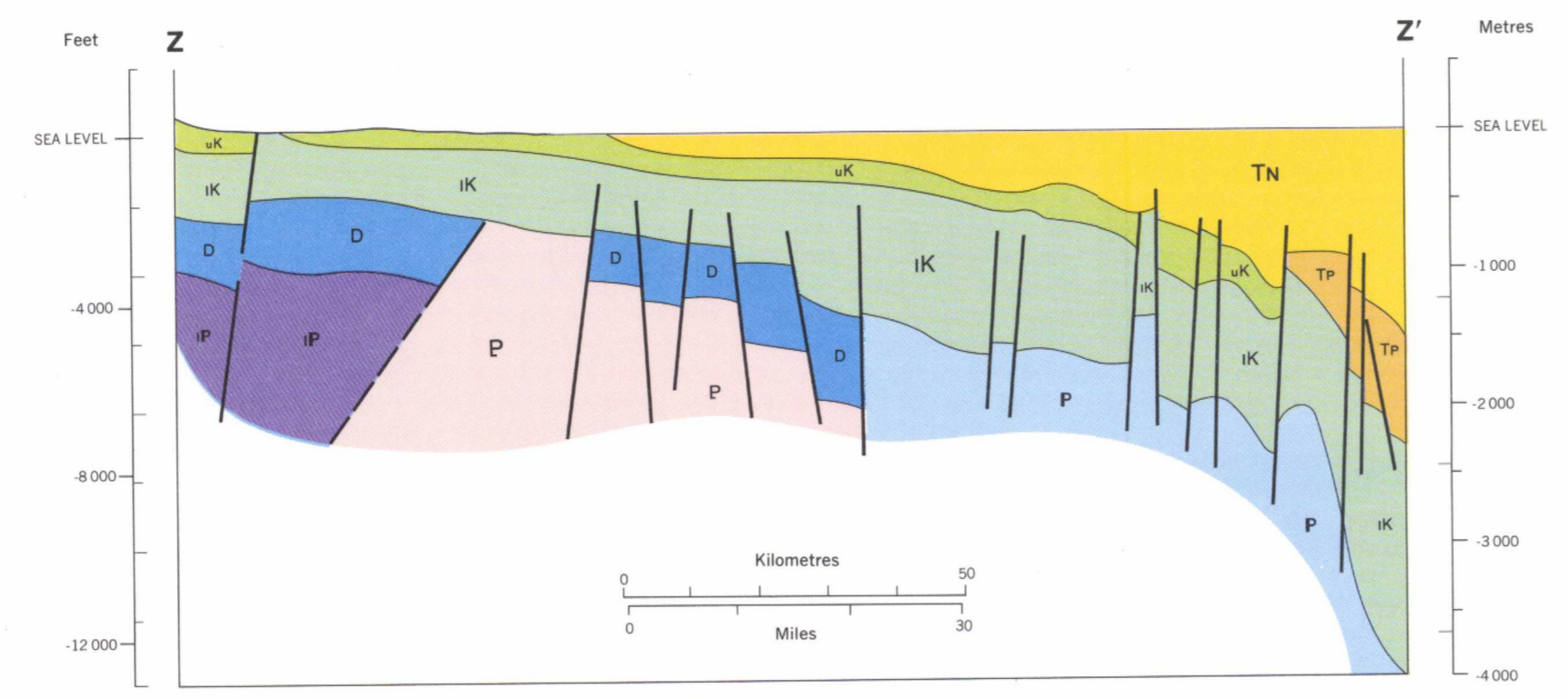
To accompany Map 1509A, Geology of the Beaufort-Mackenzie Basin,
by C.J. Yorath, D.K. Norris and F.G. Young



Diagrammatic cross-section along X-X'



Diagrammatic cross-section along Y-Y'



Diagrammatic cross-section along Z-Z'

The Beaufort-Mackenzie Basin, which is adjacent to the southwestern corner of the northern Canadian continental margin, underlies the northern Richardson Mountains and Yukon Coastal Plain, the modern Mackenzie Delta, Tuktoyaktuk Peninsula, and the adjacent offshore region beneath the Beaufort Shelf. It is a complex Mesozoic and Cenozoic successor basin, structurally and stratigraphically discordant above Proterozoic and Paleozoic sedimentary rocks.

Sedimentation in this basin began approximately 200 million years ago (Late Triassic) and continues in the active area of Mackenzie Delta. The basin fill consists predominantly of clastic terrigenous rocks which display an evolution of classical geosynclinal character consisting of three depositional phases. These include an epicontinental phase at the base of the sequence, followed by a syntectonic flyschoid phase west of Mackenzie Delta, and then completed by a long-lived molassic phase beneath the northern Yukon Coastal Plain and Mackenzie Delta. These depositional phases represent responses to specific periods of epeirogenic and orogenic tectonism in the British, Barn, and Richardson Mountains to the west and within the various components of the Aklavik Arch Complex.

Two temporally and spatially separate fault systems played an important role in the development of the basin. The Eskimo Lakes Fault Zone, which flanks and crosses the Aklavik Arch Complex, consists of a series of vertical, mainly down-to-basin faults that were periodically active throughout Phanerozoic time and which sustained major movements during the Tertiary molassic development of the basin. The Rapid Fault Array in northern Yukon comprises a series of vertical faults with both vertical and possible right-lateral dextral separations which are dynamically related to the Kaltag Fault of Alaska, a major element of crustal decoupling that developed during late Mesozoic time. These two families of faults created the structural depressions which received the thick Cretaceous and Tertiary clastic wedges, the aggregate thicknesses of which are in excess of 10 000 metres.

CORRELATION TABLE

AGE	SYSTEM	STAGE	N.W. RICHARDSON MOUNTAINS	MACKENZIE DELTA	CENTRAL & N.E. TUKTOYAKTUK PEN	ANDERSON PLAIN
			QUAT	Pleistocene		Brown sand Grey sand
TERTIARY	NEOGENE			BEAUFORT ?	BEAUFORT ?	BEAUFORT ?
		Pliocene				
		Miocene			Neogene unit "A"	
		Oligocene			Upper Paleogene Unit "B"	
		Eocene			Unnamed Eocene shale	Unnamed Shale
CRETACEOUS	PALEOGENE	Paleocene		REINDEER	REINDEER EQUIVALENT	
CRETACEOUS	UPPER	Maastrichtian	MOOSE CHANNEL	TENT ISLAND	TENT ISLAND	MASON RIVER
		Campanian	TENT ISLAND	BOUNDARY CREEK	BOUNDARY CREEK	SMOKING HILLS
		Santonian				
		Coniacian				
		Turonian				
CRETACEOUS	LOWER	Cenomanian	BOUNDARY CREEK	BOUNDARY CREEK		
JURASSIC	UPPER	Albian	Aptian-Albian flysch div	ARCTIC RED	ARCTIC RED	HORTON RIVER
JURASSIC	MIDDLE	Aptian	Upper sandstone div	Upper sandstone div equivalent	Upper sandstone div equivalent	LANGTON BAY
		Barremian	Upper shale-siltstone	Upper shale-siltstone div	Upper shale-siltstone div	
		Hauterivian	Coaly quartzite			
		Valanginian	Bluish-grey shale	"PARSONS"		
		Berriasian	Lower sandstone div			
JURASSIC	LOWER	Port-U Tith	HUSKY	HUSKY		
		Kimmeridgian	PORCUPINE			
		Oxfordian				
		Callovian				
		Bathonian				
		Bajocian				
		Toarcian				
		PI.-Sin.-Het.				
TRIASSIC	UPPER	Rhaetian				
		Norian				
		Karnian				
		Ladinian				

LEGEND

Strata absent|

Extensional tectonics|

Compressional tectonics|

Wrench faulting|

Significant erosion at unconformity|

Questionable age|

Limestonels

Nonmarine rocksnm

Siltstonesilt

Shalesh

Bentonitebt

Sandstoness

Conglomeratecg

Sands

Gasg

Oilo

Legend, cross-sections and correlation table to accompany Map 1509A, Beaufort-Mackenzie Basin, District of Mackenzie and Yukon Territory

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