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GEOLOGICAL SURVEY
OTTAWA

Explanatory Notes

SURFICIAL GEOLOGY AND LANDFORMS

Malloch Hill (97F), Mackenzie Delta (107C), Stanton (107D),

and Cape Dalhousie (107E)

to accompany open file maps by V.N. Rampton

INTRODUCTION

The above maps are the result of airphoto interpretation (airphotos from 1950 and 1952) and field work by J.G. Fyles in 1965 and 1966 and V.N. Rampton in 1969, 1970, and 1971, and are based to a lesser extent on shot hole logs supplied by Gulf Oil Canada Ltd. and Imperial Oil Ltd. and information contained in "The Mackenzie Delta area, N.W.T." (Mackay, 1963, Geograph. Br. (Canada), Memoir 8).

Two legends have been prepared to accompany the maps. The basic legend is an explanation of the letters and symbols used in describing the texture, origin, and morphology of the map-units. The letters are simple abbreviations of common textural, genetic, and morphologic terms; hence, a user familiar with the terminology used in surficial geology can identify a map-unit and its basic characteristics without constantly referring back to the legend. The extended legend includes more detailed descriptions of selected characteristics of the map-units, as well as subjective evaluation of their reaction to certain man-induced changes or disturbances. In the extended legend the map-units have been grouped under the major genetic categories, whih are listed according to alphabetical order.

The "hazard index" is a relative assessment of the map-units within the area mapped in this report in terms of the potential for possible interruption of natural systems (sedimentation patterns, etc.) and degradation of the landscape (gullying, landslides, thermokarst development, etc.) following man-induced disturbances such as removal of surface material, addition of material to surface, change in drainage or thermal regime. Consideration is also given to natural hazards (flooding, ground ice slumps, etc.) that would add to the expense and effort necessary for carrying out a variety of developmental activities. The "hazard index" applies to disturbances directly affecting only the upper 20 ft. of a map-unit; deeper disturbances could possibly change the value of the "hazard index" assigned to some units.

BASIC MAP LEGEND

Landform unit notation

Genetic category (ies) → F^G ← Genetic modifier

Textural modifier(s) → s ; pK ← Morphologic modifier(s)

$\frac{M}{F}$ ← Stratigraphic relationship (M overlies F): used where upper unit is thin and irregular and underlying unit is known.

Genetic Categories

C - colluvial
E - eolian
F - fluvial
L - lacustrine
M - morainal
ⓜ - marine
O - organic (see symbol for organic)
R - bedrock
U - undifferentiated or unknown, commonly M or L

Genetic Modifiers[1]

G - glacial
A - responsible genetic process still actively affecting area

Textural Modifiers[2]

c - clay, clayey
ǵ - silt or interbedded clay, silt and fine sand
s - sand, sandy
g - gravel, gravelly
sh - shale

Morphologic Modifiers[3]

e - eroded, gullied
f - fan
h - hummocky
m - rolling
p - plain
r - ridged, beach
t - terrace
v - veneer[4]
G - glaciated[5]
K - thermokarst[5]

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1. Mainly used to separate glaciofluvial deposits (F^G) from nonglacial fluvial deposits (F); to separate late Pleistocene glaciolacustrine deposits (L^G) from lacustrine deposits of thermokarst origin (L); to indicate areas where the responsible genetic process is still active (A).

2. Where textures are not indicated, the following textural modifiers are assumed:

E - sand
F^G - sand or gravel
$ⓜ^A_v$ - silt or clay
$ⓜ^A_p$ - silt or sand
L - a function of materials of surrounding map-units
U - probably silt or clay, but maybe sand in some cases.
F - silt or fine sand
M - stony clay
$ⓜ^A_r$ - sand or gravel
L^G - clay or silt, in some cases dependent on materials adjacent to shoreline

3. Where morphology is not indicated, the following morphologic modifiers are assumed:

C - gentle or moderate slopes
L - flat or gently sloping; in places stepped
U - flat or gently rolling
E - flat or having small ridges
M - rolling

4. Veneer indicates known thickness of category is less than 15 feet, commonly only 3 feet or less. Surface is flat or gently rolling.

5. Glaciated indicates that map-unit has been topographically modified by glaciation even though till is not always easily identified on surface of map-unit. Thermokarst indicates that a hummocky topography has developed as a result of subsidence and erosion where frozen sediments or ground ice have melted.

Symbols

- beach ridge or spit (sand or gravel)
- former beach ridge or spit (sand or gravel; gravel)
- sea cliff or escarpment, ≥ 25 ft, constantly or periodically undercut (v indicates escarpment partly cut in bedrock)
- former sea cliff (partly cut in bedrock)
- abandoned glaciolacustrine shoreline, marked by cliffs, beaches, etc.
- stream-cut escarpment, constantly or periodically undercut (v indicates escarpment partly cut in bedrock)
- former stream-cut escarpment (v indicates escarpment partly cut in bedrock)
- standing water covering ≥30 percent of area
- organic deposit, 5-15 ft thick
- active or recently active blow-out
- ground observation
- aerial observation
- boundaries (defined, approximate, assumed)