GEOLOGICAL SURVEY OF CANADA

COMMISSION GÉOLOGIQUE DU CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES
MINISTÈRE DE L' ÉNERGIE DES MINES ET DES RESSOURCES

# Airborne Geophysical Survey
of the
# Cape Spencer — Black River Area
New Brunswick
Aug. 1990

NTS Parts of 21H/4,5

PART 1 OF 2: COLOUR MAPS

Energy, Mines and Resources Canada

Energie, Mines et Ressources Canada

Canada

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2368
GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
OTTAWA

## AIRBORNE GEOPHYSICAL SURVEY

In 1990, a multiparameter geophysical survey was flown by the Geological Survey of Canada in the Cape Spencer – Black River area of New Brunswick. The area surveyed isshown on the index map. Gamma ray spectrometric, VLF electromagnetic and total field magnetic data were recorded.

All data were sampled at one second intervals. The airborne radiometric measurements were made using a 256 channel spectrometer, with twelve 102x102x400 mm NaI(Tl) detectors. A Geometrics proton precession airborne magnetometer model G–803 and a Hertz Totem 1A VLF unit were installed as ancillary equipment. The GSC Skyvan was flown at a mean terrain clearance of 125m with average ground speed of 190 km/h. The survey was flown with a northeast–southwest flight line direction and 250 metre line spacing.

Data are presented in two booklets. Part A includes 1: 50 000 colour contour maps (Exposure, ternary, K, eU, eTh, eU/eTh, eU/K, eTh/K, magnetic total field) and VLF profilemaps (total field, quadrature) all with simplified geology overlays. Also included are six combined data maps (each of K, eTh, eTh/K, magnetic total field, VLF total field and quadrature are overlain with interpreted quadrature cross–over trends and geology.) Separate geology and flight path maps are provided. Part B includes stacked profiles of all parameters.

### Gamma Ray Spectrometric Data

Potassium is measured directly from the 1.46 MeV gamma ray photons emitted by $^{40}K$, whereas uranium and thorium are measured indirectly from gamma ray photons emitted by daughter products in their decay chains. Uranium is monitored by means of gamma ray photons at approximately 1.76 MeV from $^{214}Bi$, and thorium, from 2.62 MeV photons emitted by $^{208}Tl$. The energy windows are as follows:

| | | |
|---|---|---|
| Potassium | $^{40}K$ | 1.36– 1.56 MeV |
| Uranium | $^{214}Bi$ | 1.66– 1.86 MeV |
| Thorium | $^{208}Tl$ | 2.41– 2.81 MeV |

Uranium, thorium and potassium counts have been corrected for dead time, ambient temperature changes,background radiation, spectral scattering and deviations of terrain clearance from planned survey altitude. The data, as presented, represent an average surface concentration which is influenced by varying amounts of outcrop, overburden, vegetation, soil moisture and surface waters. As a result the concentrations as shown are usually lower than the actual concentrations in the bedrock.

Factors for converting the airborne measurements to concentrations were determined by relating the airborne count rates to the known ground concentrations of a test strip in the Ottawa area. The factors used to convert the airborne measurements to ground concentrations are:

| | |
|---|---|
| 1 % K | 91.0 cps |
| 1 ppm eU | 9.1 cps |
| 1 ppm eTh | 7.0 cps |

The exposure rate, in micro Roentgens per hour ($\mu$R/h) has been computed from the measured concentrations of potassium, uranium and thorium (Grasty, R.L., Carson, J.M., Charbonneau, B.W., and Holman, P.B., 1984, Natural Background Radiation in Canada, Geol. Sur.Can., Bull. 360). To compare these data with earlier total count maps expressed in Units of Radioelement concentreations (Ur), the conversion factor is 1 $\mu$R/h = 1.67 Ur.

### VLF Data

The primary electromagnetic field is generated by VLF communication stations. For this survey, the receiving coils were tuned to station NAA in Cutler Maine, which transmits at a frequency of 24.0 kHz.

Anomalies reflect distortions in the primary field caused by a secondary electromagnetic field generated by eddy currents flowing in geological and man–made conductors. Anomalies produce positive peaks on the total field trace and are of the cross–over type (negative to positive) on the quadrature trace. Both parameters are plotted with positive deflections toward west. The profiles presented are the total field value (vector sum of the horizontal and vertical components) and the quadrature value (out–of–phase component). The mean value or the line average of the total field and quadrature component were removed along each flight line. The resultant values are plotted with a two second lag. The quadrature, which depends on the flight line direction was inverted for lines flown from north to south. A five point weighted average filter was applied to both total field and quadrature profile data for final presentation.

### Magnetic Data

The total field aeromagnetic data were acquired using an instrument with one (1) nT sensitivity. Digital processing was supplemented with manual editing to remove obvious errors caused by spikes, heading effects or diurnal variations.

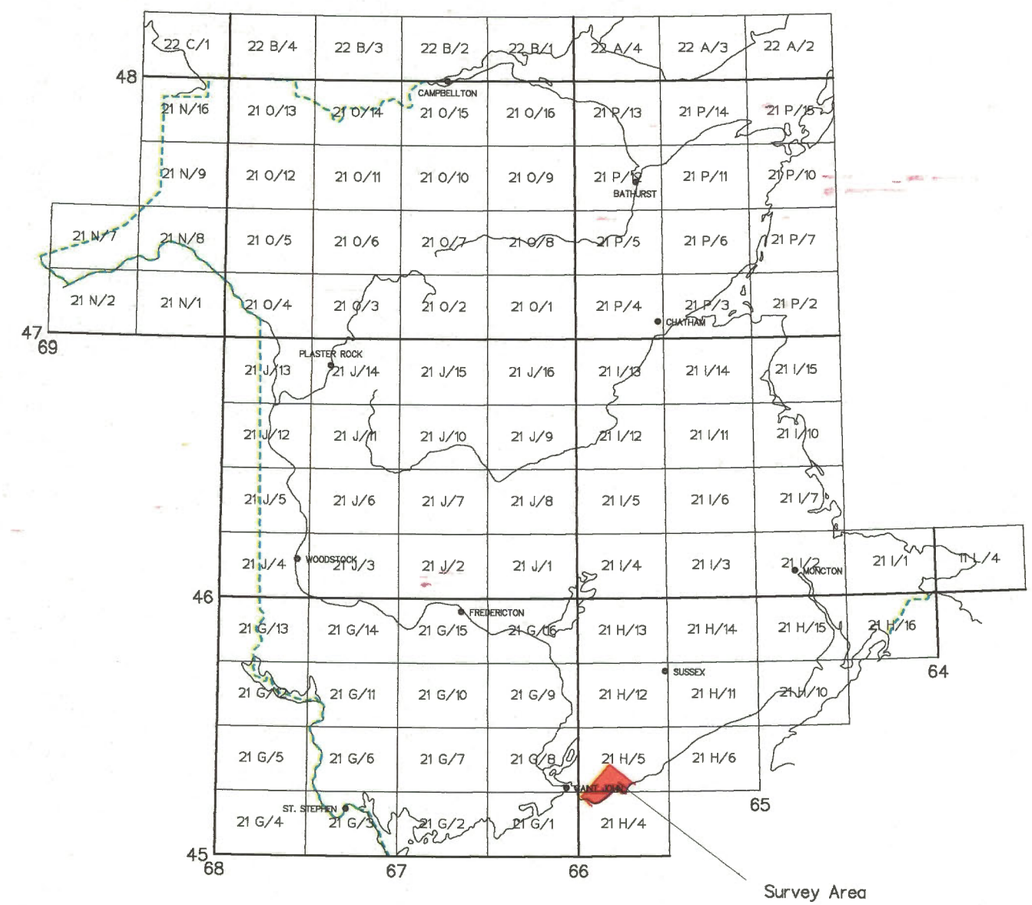
Information regarding Open File 2368 may be obtained from: Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, K1A 0E8. Tel. : (613)995–4342.

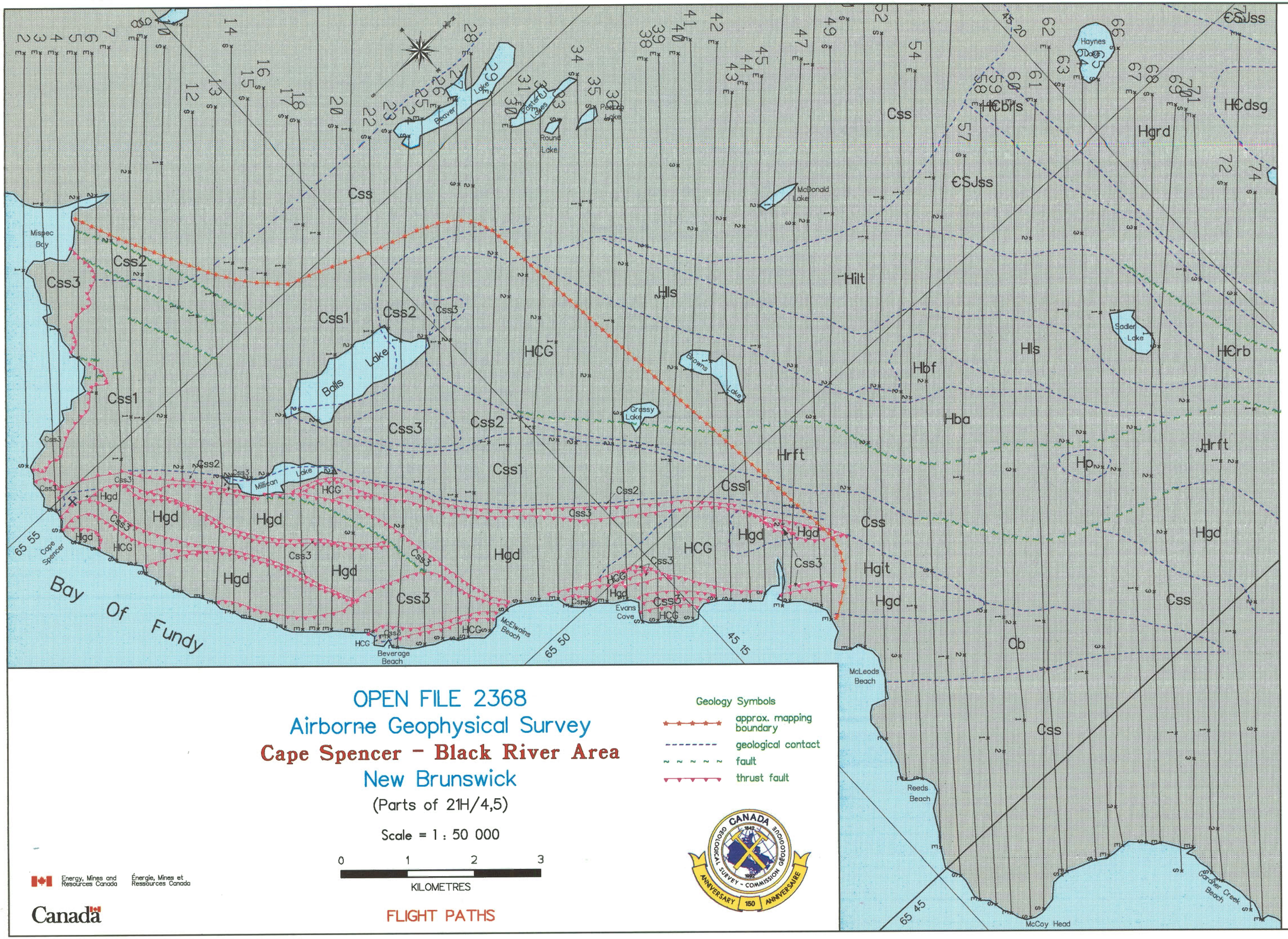
Base map material supplied by Surveys and Mapping Branch

Cartography by Geological Survey of Canada

Airborne geophysical survey flown, compiled and funded by Geological Survey of Canada

INDEX MAP






# OPEN FILE 2368

## Airborne Geophysical Survey

## Cape Spencer – Black River Area

## New Brunswick

(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3

KILOMETRES

FLIGHT PATHS

Geology Symbols

- approx. mapping boundary
- geological contact
- fault
- thrust fault

(Geology Overlay)

FLIGHT

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Canada

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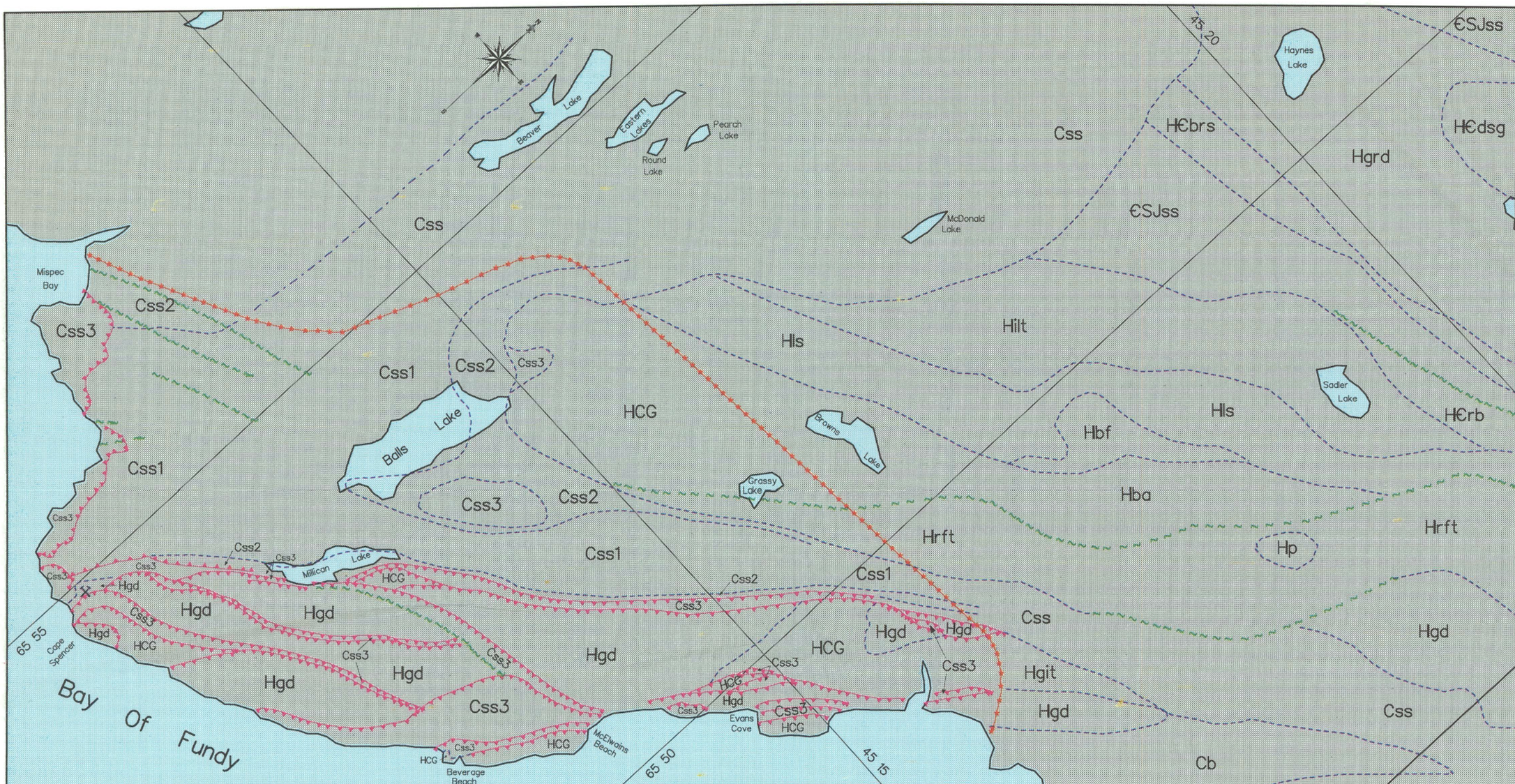



# LEGEND

## CARBONIFEROUS

| | |
|---|---|
| Css | sandstone, siltstone, congl. |
| Css1 | Lancaster Fmn. |
| Css2 | Balls Lake Fmn. |
| Css3 | Cape Spencer Fmn. |
| Cb | epidotized basalt |

## CAMBRIAN

| | |
|---|---|
| €SJss | Saint John Group shale, siltstone, sandstone; minor quartzite, lmst. |

## LATE HADRYNIAN

| | |
|---|---|
| H€rb | siltstone, ss, conglomerate |
| H€brs | amyg basalt, rhy, congl, ss |
| Hgrd | rhyolite, dacite, rhy lap, xl tuff; mafic dykes |
| Hilt | intermediate lap. tuff; dacite |
| Hls | lam. siltstone |
| Hbf | Bloomington Mtn. brown felsite |
| Hba | (HCG) basalt, andes; plag. por. |
| Hrft | felsic xl tuff; minor siltstone dac. porph. (Hp) |
| Hgit | (HCG) intermed. xl tuff |
| H€dsg | Baxters Mtn Plu. diorite, gabbro, syenogranite |
| Hgd | sheared granite, granodiorite |

GEOL

Geology Sources:

1. NORTH of mapping boundary – Barr, S.M., and White, C.E., 1991 Late Precambrian – Early Cambrian geology, Saint John – St. Martins area, southern N.B.; GSC Open File 2353

2. SOUTH of mapping boundary – Watters, S., Geology of Cape Spencer – Black River area, N.B.; DNRE Open File, (in prep),

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

Canada

# OPEN FILE 2368

## Airborne Geophysical Survey

## Cape Spencer – Black River Area

## New Brunswick

(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3

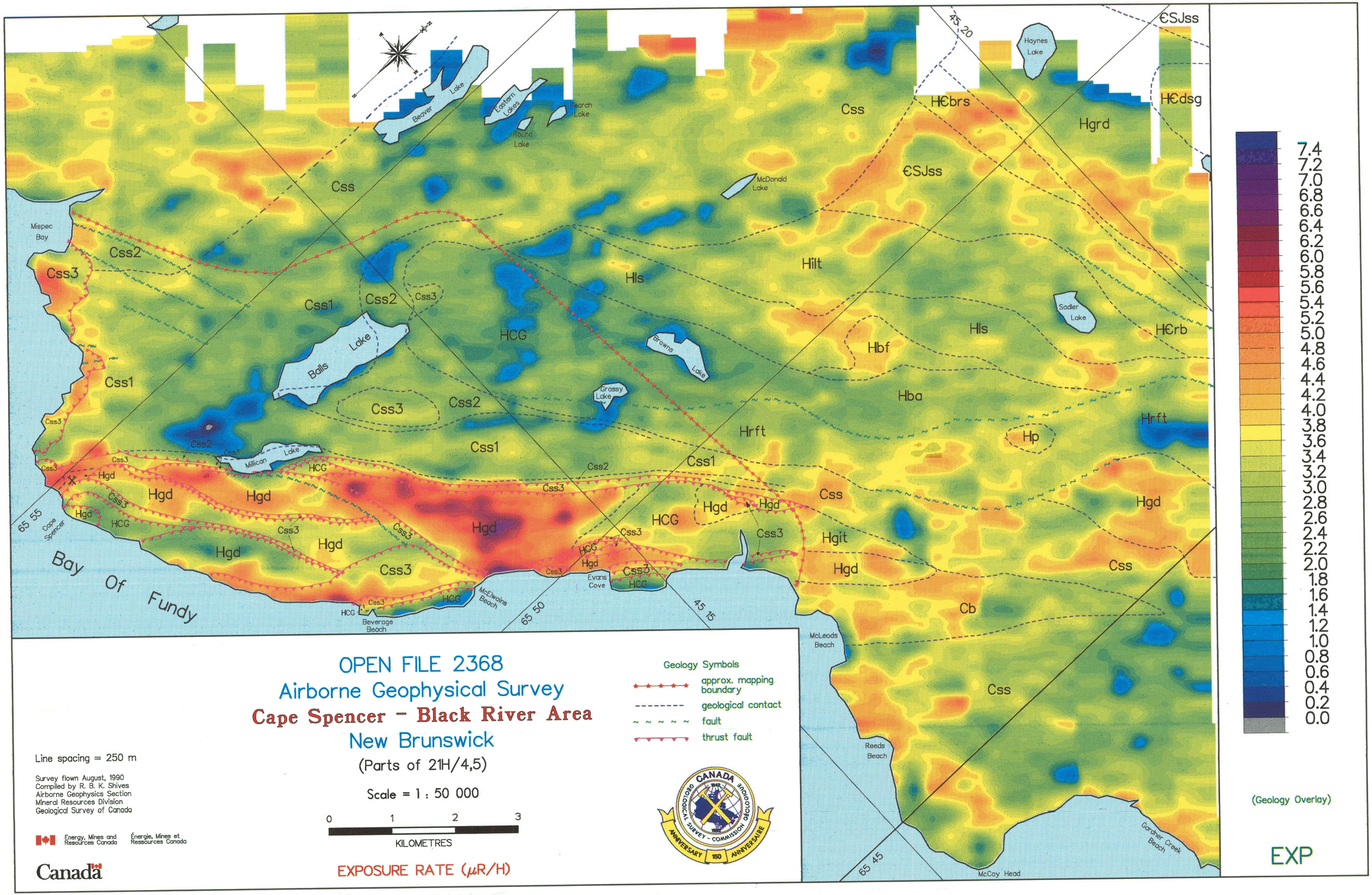
KILOMETRES

SIMPLIFIED GEOLOGICAL COMPILATION

Geology Symbols

- approx. mapping boundary
- geological contact
- fault
- thrust fault

CANADA GEOLOGICAL SURVEY – COMMISSION GÉOLOGIQUE 1842 1992 ANNIVERSARY 150 ANNIVERSAIRE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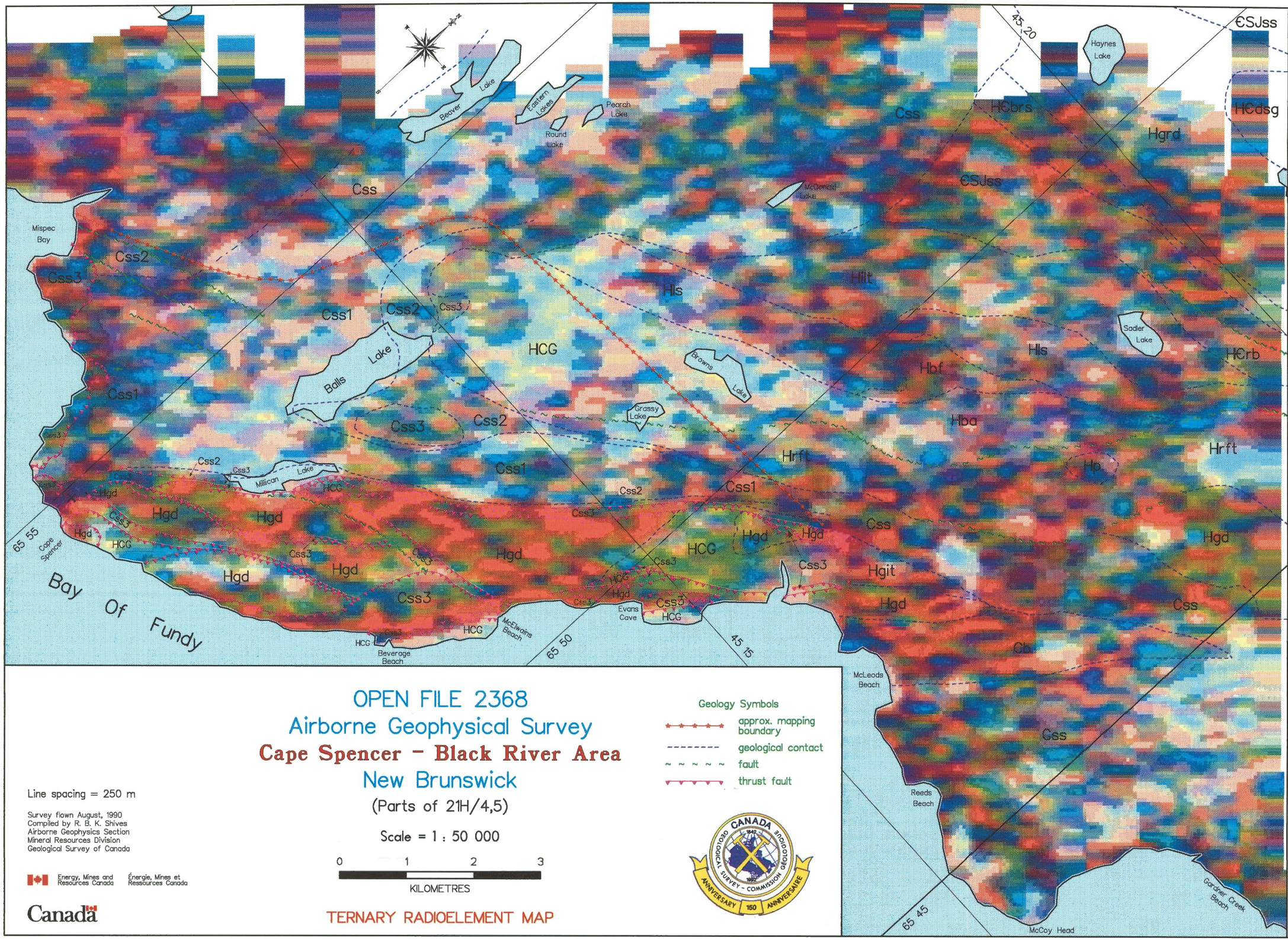
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
EXPOSURE RATE (μR/H)
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
(Geology Overlay)
EXP
7.4
7.2
7.0
6.8
6.6
6.4
6.2
6.0
5.8
5.6
5.4
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Bay Of Fundy
Mispec Bay
Cape Spencer
Beaver Lake
Eastern Lakes
Pearch Lake
Round Lake
McDonald Lake
Haynes Lake
Sadler Lake
Balls Lake
Browns Lake
Grassy Lake
Millican Lake
Evans Cove
McElwaine Beach
Beverage Beach
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Css
Css1
Css2
Css3
HCG
Hls
Hilt
Hbf
Hba
Hrft
Hp
Hgd
Hgit
Cb
H€brs
H€dsg
H€rb
€SJss
Hgrd
45 20
65 55
65 50
45 15
65 45




# OPEN FILE 2368

## Airborne Geophysical Survey

## Cape Spencer – Black River Area

## New Brunswick

(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3

KILOMETRES

TERNARY RADIOELEMENT MAP

Geology Symbols

- approx. mapping boundary
- geological contact
- fault
- thrust fault

Line spacing = 250 m

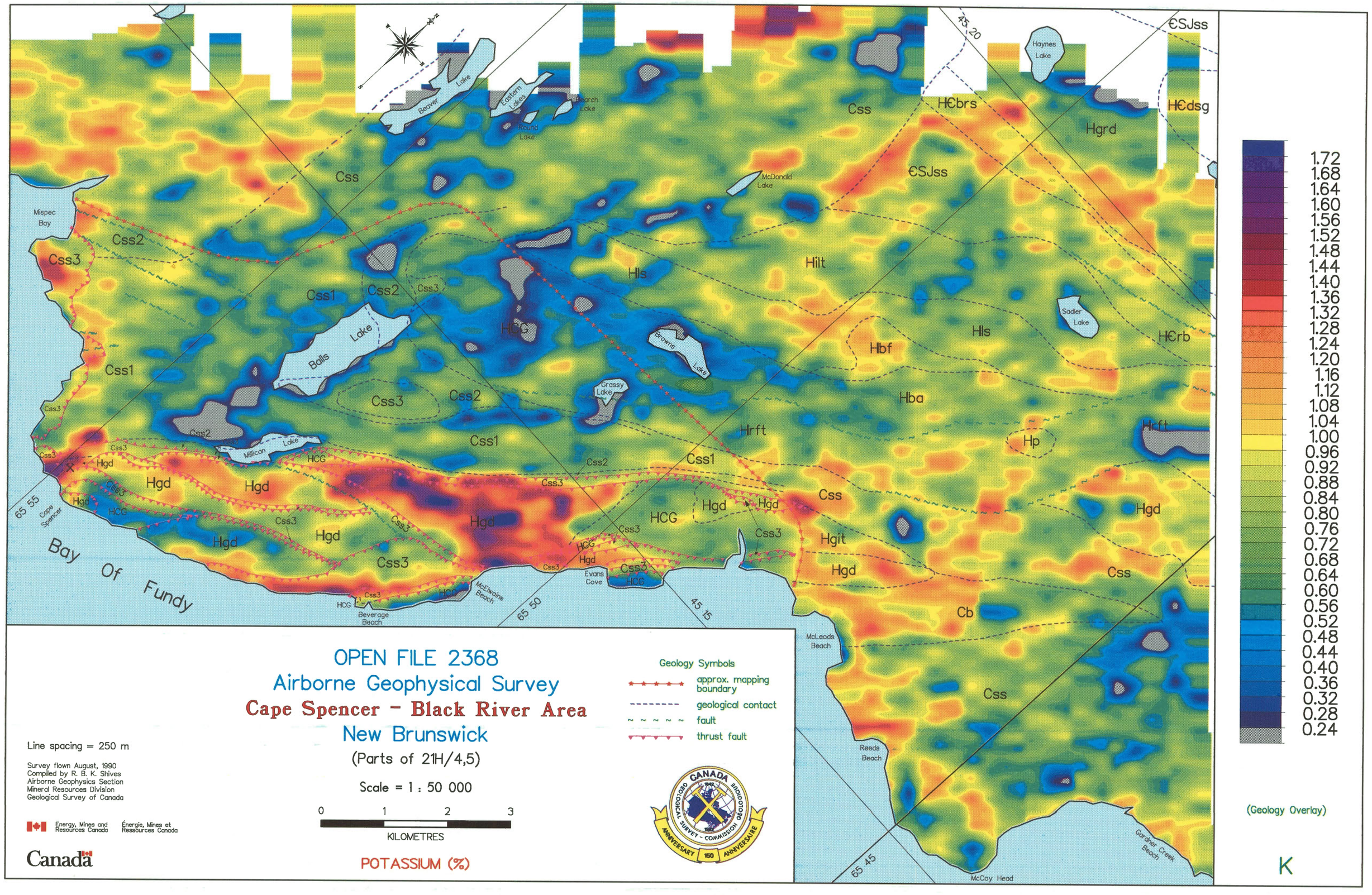
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

Canada

(Geology Overlay)

TER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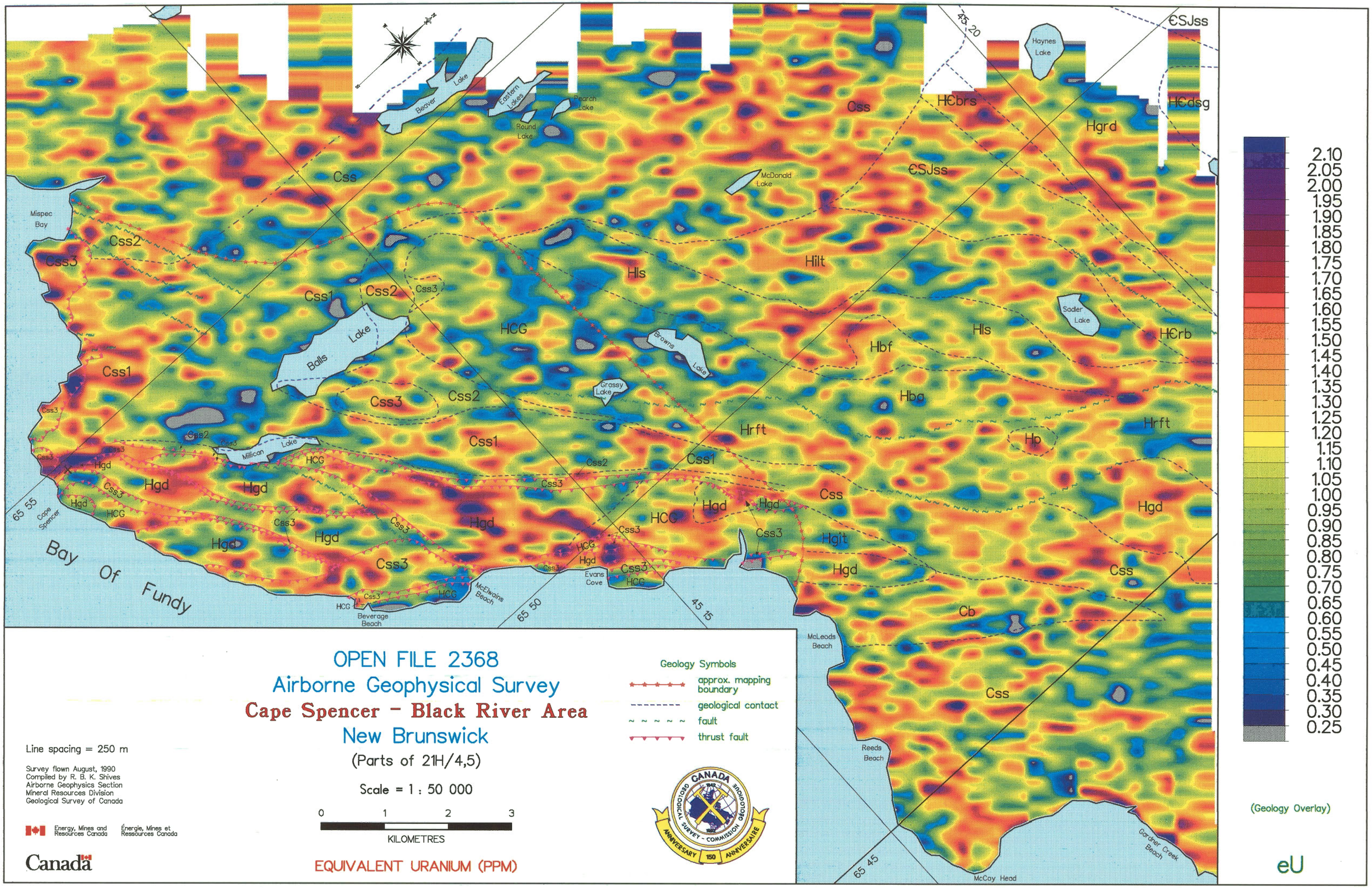
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
POTASSIUM (%)
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
(Geology Overlay)
K
1.72
1.68
1.64
1.60
1.56
1.52
1.48
1.44
1.40
1.36
1.32
1.28
1.24
1.20
1.16
1.12
1.08
1.04
1.00
0.96
0.92
0.88
0.84
0.80
0.76
0.72
0.68
0.64
0.60
0.56
0.52
0.48
0.44
0.40
0.36
0.32
0.28
0.24
Bay Of Fundy
Mispec Bay
Cape Spencer
Beaver Lake
Eastern Lakes
Round Lake
Beach Lake
McDonald Lake
Haynes Lake
Sader Lake
Balls Lake
Browns Lake
Grassy Lake
Millican Lake
Evans Cove
McEwains Beach
Beverage Beach
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Css
Css1
Css2
Css3
HCG
Hls
Hilt
Hbf
Hba
Hrft
Hp
Hgd
Hgit
Cb
HЄbrs
HЄdsg
Hgrd
ЄSJss
HЄrb
45 20
65 55
65 50
45 15
65 45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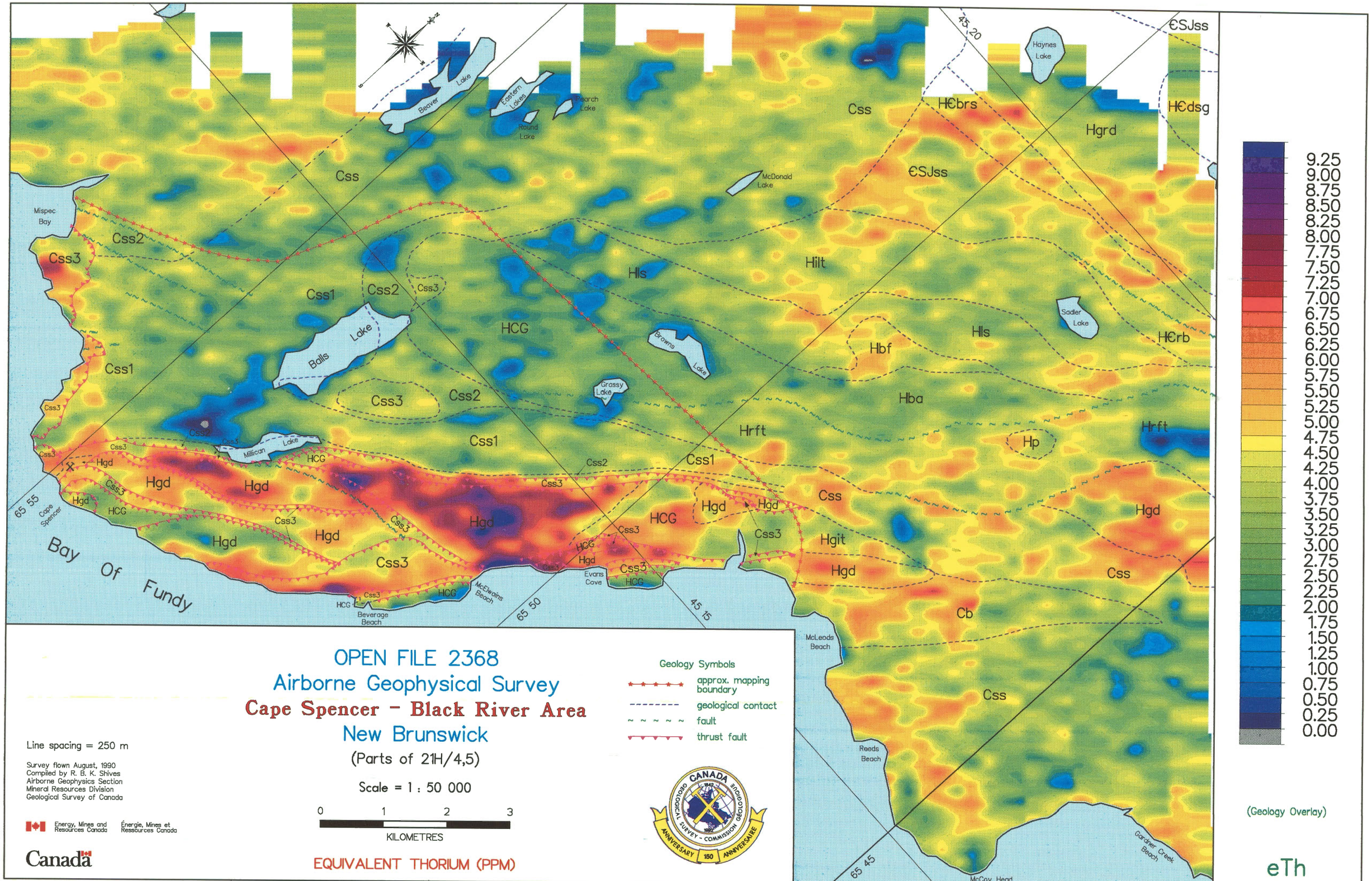
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
EQUIVALENT URANIUM (PPM)
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
Bay Of Fundy
Mispec Bay
Cape Spencer
Beverage Beach
McElwains Beach
Evans Cove
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Balls Lake
Millican Lake
Beaver Lake
Eastern Lakes
Round Lake
Pearch Lake
McDonald Lake
Haynes Lake
Sader Lake
Browns Lake
Grassy Lake
Hls
Hilt
Hbf
Hbg
Hrft
Hp
Hgrd
Hgd
Hgit
HCG
HCbrs
HCdsg
HCrb
ЄSJss
Css
Cb
Css1
Css2
Css3
65 55
65 50
65 45
45 15
45 20
2.10
2.05
2.00
1.95
1.90
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
(Geology Overlay)
eU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Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
EQUIVALENT THORIUM (PPM)
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
(Geology Overlay)
eTh
9.25
9.00
8.75
8.50
8.25
8.00
7.75
7.50
7.25
7.00
6.75
6.50
6.25
6.00
5.75
5.50
5.25
5.00
4.75
4.50
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Bay Of Fundy
Mispec Bay
Cape Spencer
Beaver Lake
Eastern Lakes
Pearch Lake
Round Lake
McDonald Lake
Haynes Lake
Sadler Lake
Balls Lake
Browns Lake
Grassy Lake
Millican Lake
Evans Cove
McEwains Beach
Beverage Beach
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Css
Css1
Css2
Css3
HCG
Hls
Hilt
Hbf
Hba
Hrft
Hp
Hgd
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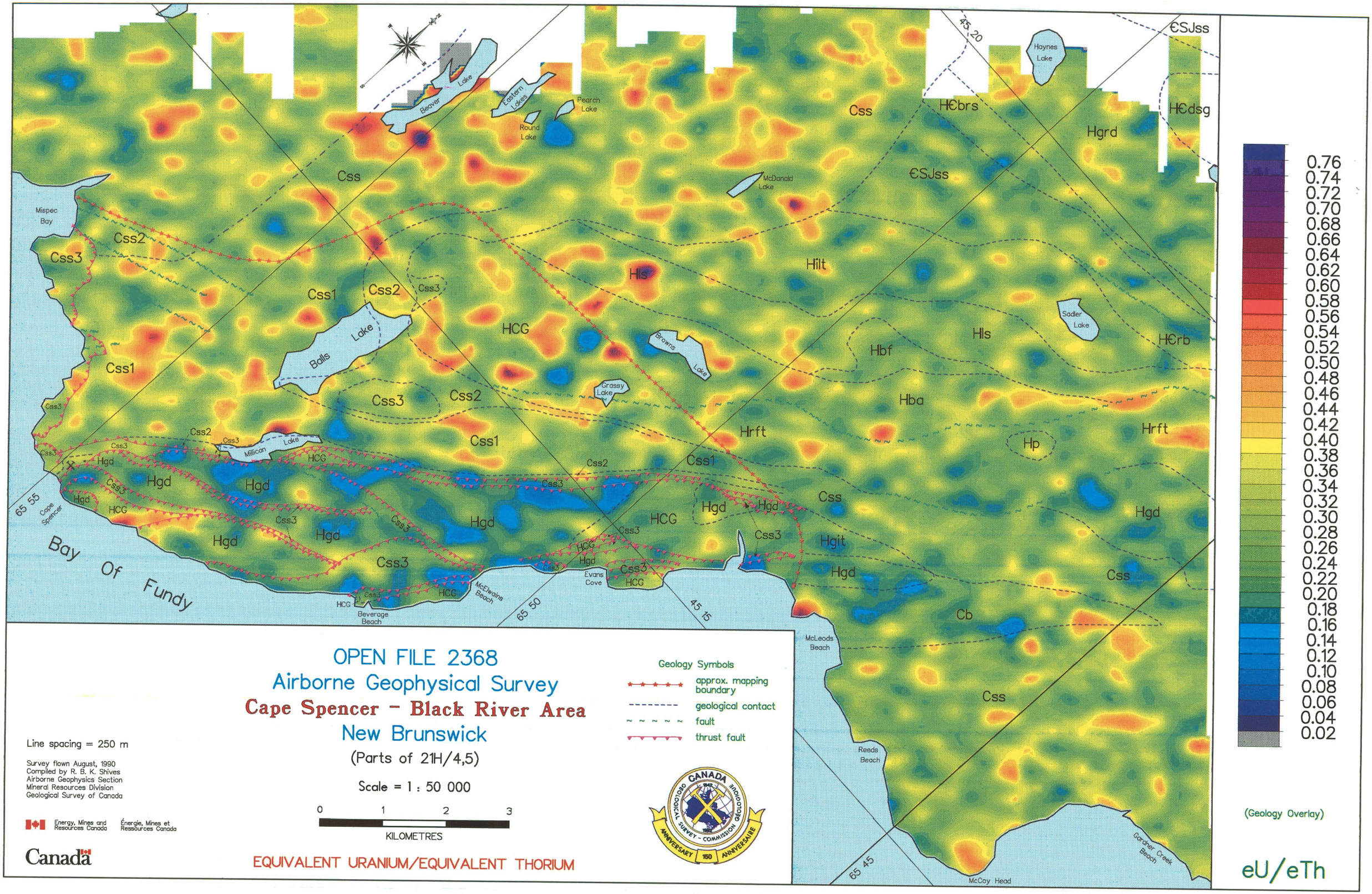
Hgit
Cb
H€brs
H€dsg
H€rb
€SJss
65 55
65 50
65 45
45 15
45 20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Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
EQUIVALENT URANIUM/EQUIVALENT THORIUM
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
GEOLOGICAL SURVEY - COMMISSION GÉOLOGIQUE
CANADA
ANNIVERSARY 150 ANNIVERSAIRE
(Geology Overlay)
eU/eTh
0.76
0.74
0.72
0.70
0.68
0.66
0.64
0.62
0.60
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.42
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
Bay Of Fundy
Mispec Bay
Cape Spencer
Beaver Lake
Eastern Lakes
Round Lake
Pearch Lake
McDonald Lake
Haynes Lake
Sadler Lake
Balls Lake
Browns Lake
Grassy Lake
Millican Lake
Evans Cove
McElwains Beach
Beverage Beach
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Css
Css1
Css2
Css3
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Hls
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HCrb
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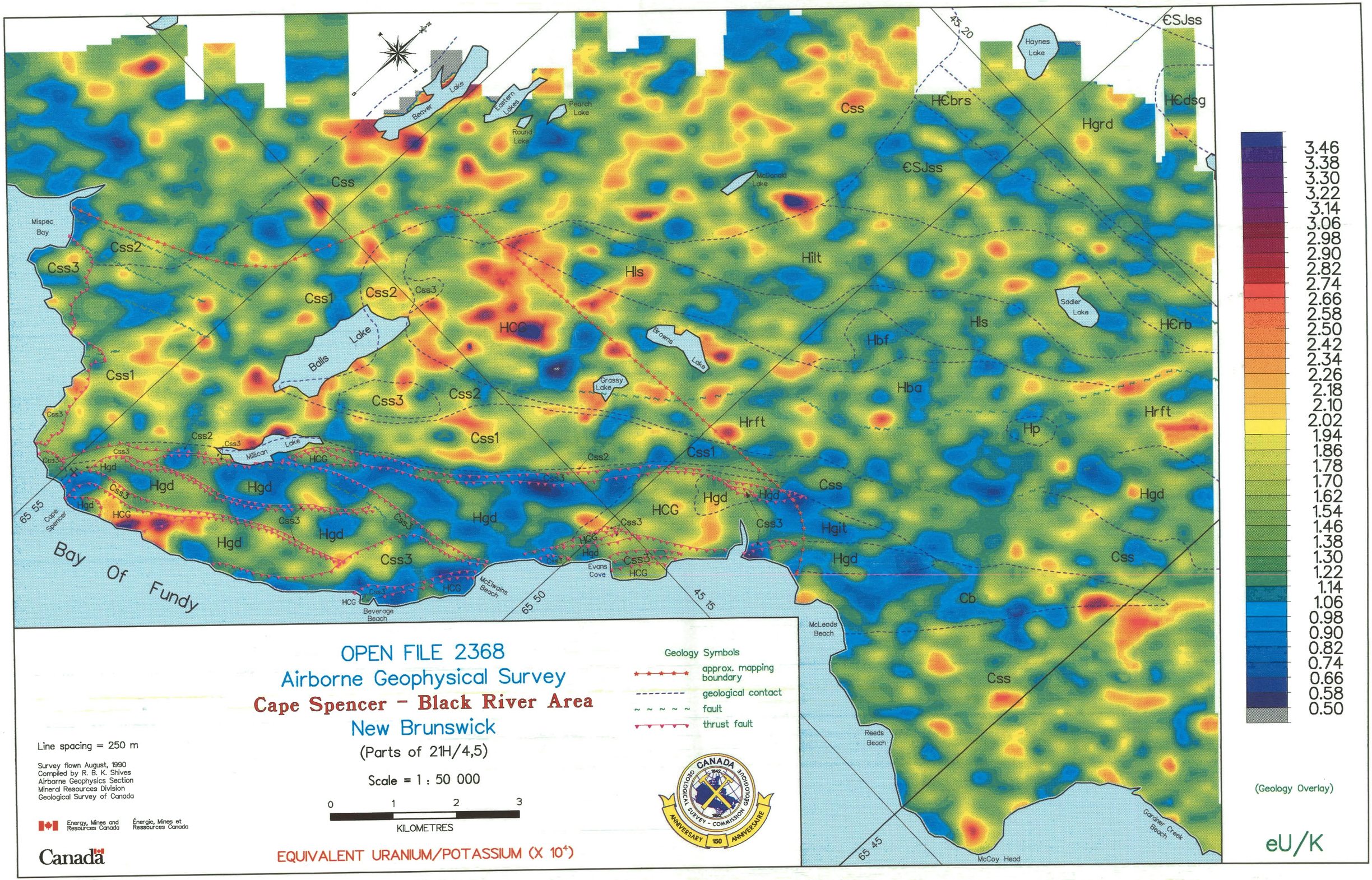
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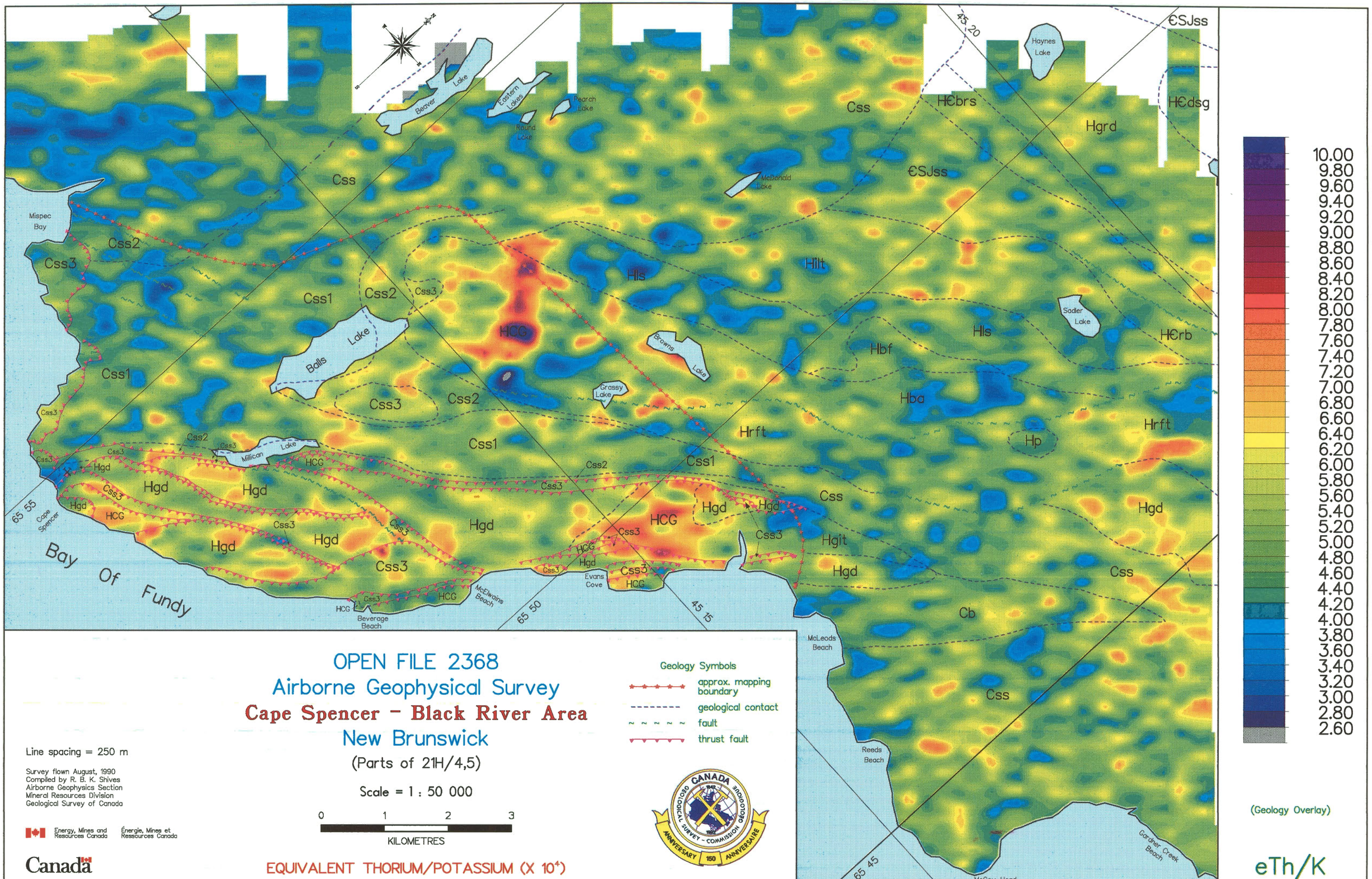
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
EQUIVALENT URANIUM/POTASSIUM (X 10⁴)
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
Bay Of Fundy
Mispec Bay
Cape Spencer
Beverage Beach
McElwains Beach
Evans Cove
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Balls Lake
Millican Lake
Beaver Lake
Eastern Lakes
Round Lake
Pearch Lake
McDonald Lake
Browns Lake
Grassy Lake
Haynes Lake
Sadler Lake
Css
Css1
Css2
Css3
HCC
Hgd
Hls
Hilt
Hbf
Hba
Hrft
Hp
Hgrd
Hgit
Cb
€SJss
H€brs
H€dsg
H€rb
65 55
65 50
65 45
45 15
45 20
3.46
3.38
3.30
3.22
3.14
3.06
2.98
2.90
2.82
2.74
2.66
2.58
2.50
2.42
2.34
2.26
2.18
2.10
2.02
1.94
1.86
1.78
1.70
1.62
1.54
1.46
1.38
1.30
1.22
1.14
1.06
0.98
0.90
0.82
0.74
0.66
0.58
0.50
(Geology Overlay)
eU/K


OPEN FILE 2368
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
Line spacing = 250 m
Survey flown August, 1990
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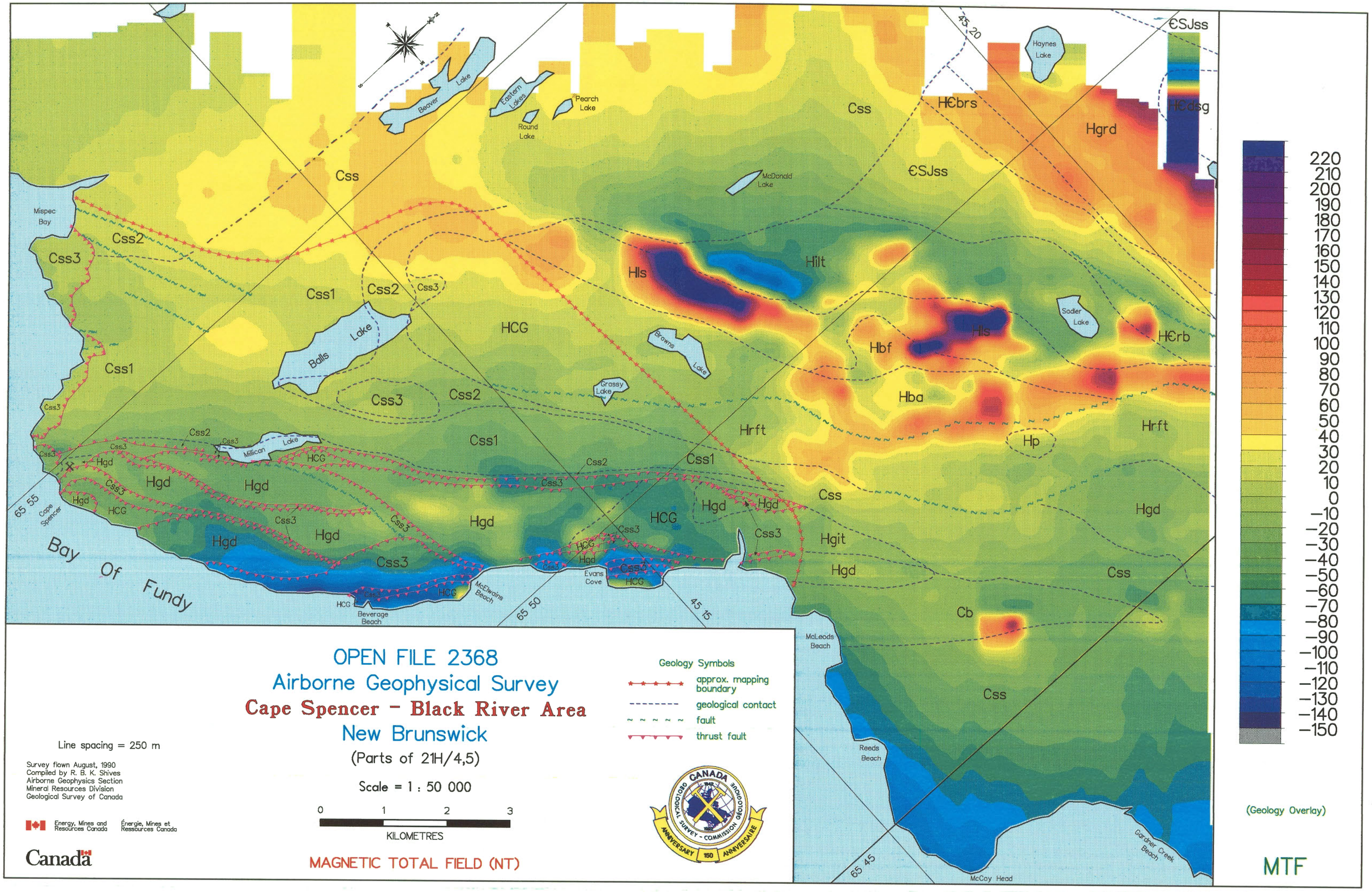
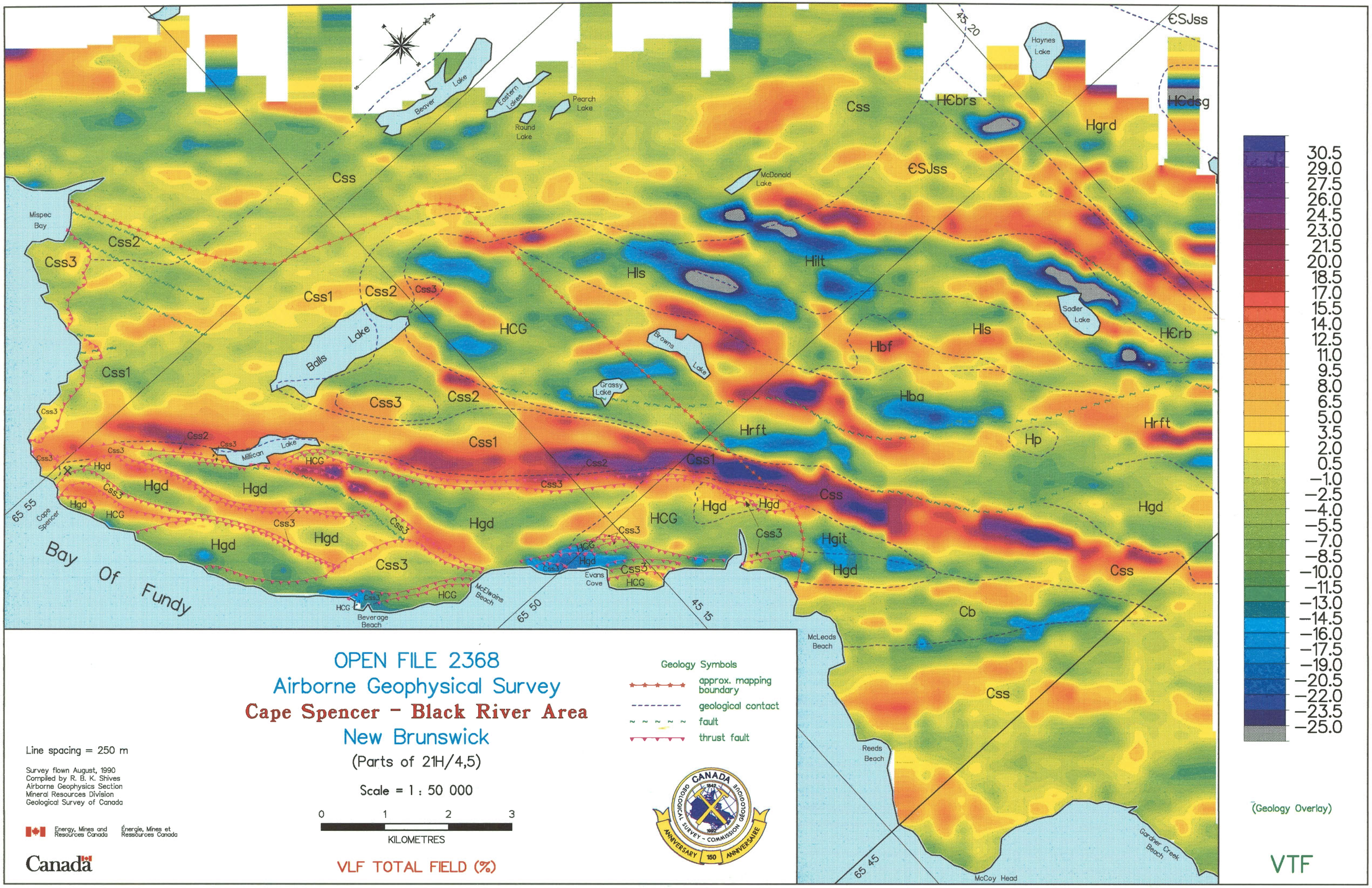
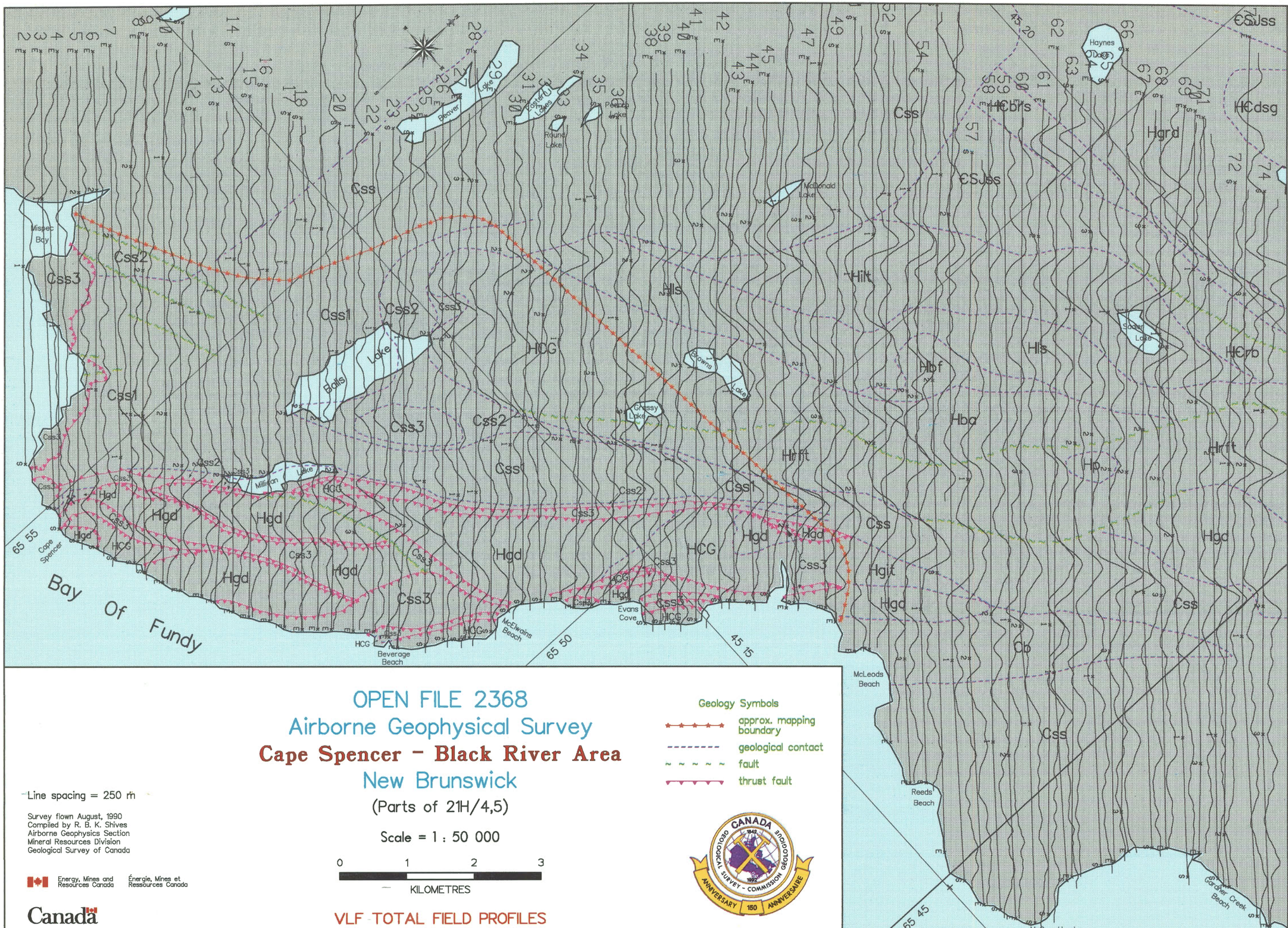
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
EQUIVALENT THORIUM/POTASSIUM (X 10⁴)
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
(Geology Overlay)
eTh/K
10.00
9.80
9.60
9.40
9.20
9.00
8.80
8.60
8.40
8.20
8.00
7.80
7.60
7.40
7.20
7.00
6.80
6.60
6.40
6.20
6.00
5.80
5.60
5.40
5.20
5.00
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
Bay Of Fundy
Mispec Bay
Cape Spencer
Beaver Lake
Eastern Lakes
Pearch Lake
Round Lake
McDonald Lake
Haynes Lake
Balls Lake
Browns Lake
Crassy Lake
Millican Lake
Sadler Lake
Evans Cove
McElwains Beach
Beverage Beach
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Cb
Hgd
Hgrd
Hgit
Hlt
Hls
Hbf
Hba
Hrft
Hp
HCG
HCbrs
HCdsg
HCrb
CSJss
Css
Css1
Css2
Css3
65 55
65 50
65 45
45 15
45 20


OPEN FILE 2368
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
MAGNETIC TOTAL FIELD (NT)
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
(Geology Overlay)
MTF
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
−90
−100
−110
−120
−130
−140
−150
Bay Of Fundy
Mispec Bay
Cape Spencer
Beverage Beach
McElwains Beach
Evans Cove
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Beaver Lake
Eastern Lakes
Round Lake
Pearch Lake
Haynes Lake
McDonald Lake
Balls Lake
Browns Lake
Grassy Lake
Sadler Lake
Millican Lake
Hp
Hgrd
Hgd
Hgit
Hlt
Hls
Hbf
Hba
Hrft
HCG
HCbrs
HCdsg
HCrb
CSJss
Cb
Cs
Cs1
Cs2
Cs3
65 55
65 50
65 45
45 20
45 15


OPEN FILE 2368
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
VLF TOTAL FIELD (%)
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
CANADA GEOLOGICAL SURVEY - COMMISSION GÉOLOGIQUE
1842 1992
ANNIVERSARY 150 ANNIVERSAIRE
(Geology Overlay)
VTF
30.5
29.0
27.5
26.0
24.5
23.0
21.5
20.0
18.5
17.0
15.5
14.0
12.5
11.0
9.5
8.0
6.5
5.0
3.5
2.0
0.5
−1.0
−2.5
−4.0
−5.5
−7.0
−8.5
−10.0
−11.5
−13.0
−14.5
−16.0
−17.5
−19.0
−20.5
−22.0
−23.5
−25.0
Bay Of Fundy
Mispec Bay
Cape Spencer
Beverage Beach
McElwains Beach
Evans Cove
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
Balls Lake
Millican Lake
Beaver Lake
Eastern Lakes
Round Lake
Pearch Lake
McDonald Lake
Haynes Lake
Sadler Lake
Browns Lake
Grassy Lake
Css
Css1
Css2
Css3
HCG
Hls
Hilt
Hbf
Hba
Hrft
Hp
Hgd
Hgit
Hgrd
Cb
HЄbrs
HЄdsg
HЄrb
ЄSJss
45 20
65 55
65 50
45 15
65 45




# OPEN FILE 2368

## Airborne Geophysical Survey

## Cape Spencer – Black River Area

## New Brunswick

(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3

KILOMETRES

Line spacing = 250 m

Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

Canada

Geology Symbols

- approx. mapping boundary
- geological contact
- fault
- thrust fault

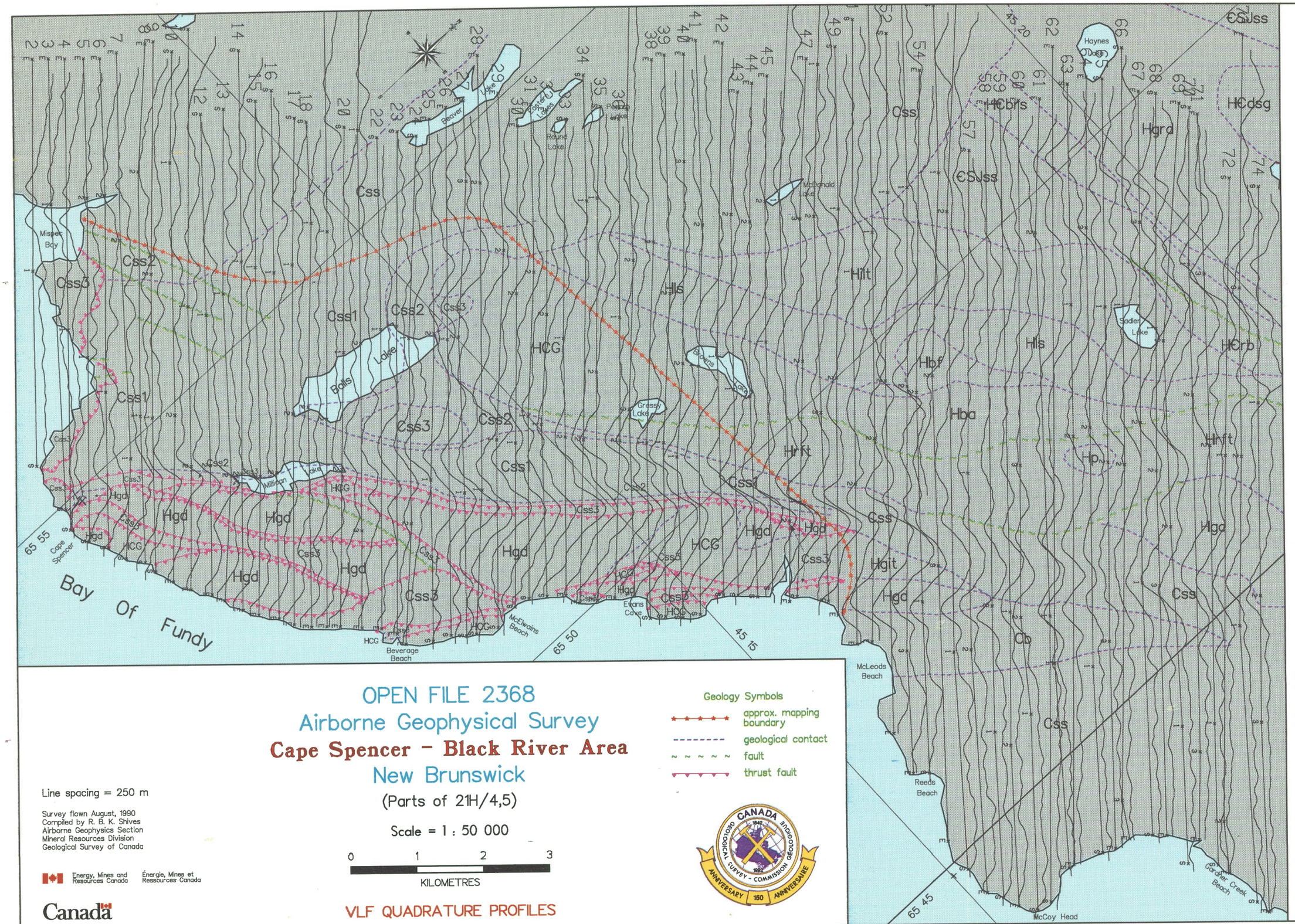
CANADA GEOLOGICAL SURVEY - COMMISSION GÉOLOGIQUE 1842 1992 ANNIVERSARY 150 ANNIVERSAIRE

VLF TOTAL FIELD PROFILES

(Geology Overlay)

(Flight Path Overlay)

VTFP




# OPEN FILE 2368

## Airborne Geophysical Survey

## Cape Spencer – Black River Area

## New Brunswick

(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3

KILOMETRES

VLF QUADRATURE PROFILES

Line spacing = 250 m

Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

Canada

Geology Symbols

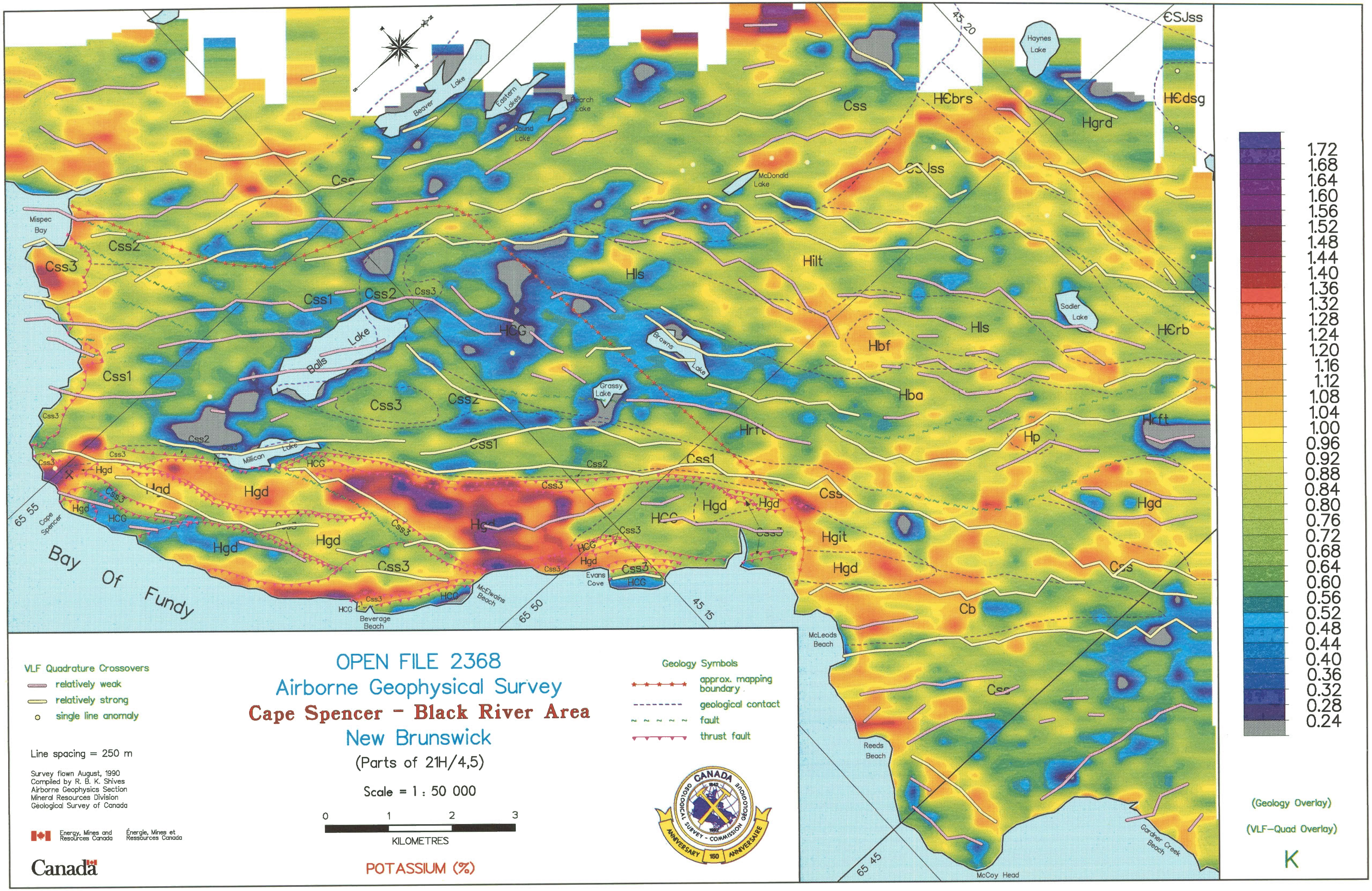
- approx. mapping boundary
- geological contact
- fault
- thrust fault

CANADA GEOLOGICAL SURVEY - COMMISSION GÉOLOGIQUE 1842 1992 ANNIVERSARY 150 ANNIVERSAIRE

(Geology Overlay)

(Flight Path Overlay)

VQUP




VLF Quadrature Crossovers
- relatively weak
- relatively strong
- single line anomaly

Line spacing = 250 m


Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada


Energy, Mines and Resources Canada — Énergie, Mines et Ressources Canada

Canada

# OPEN FILE 2368
## Airborne Geophysical Survey
## Cape Spencer – Black River Area
## New Brunswick

(Parts of 21H/4,5)

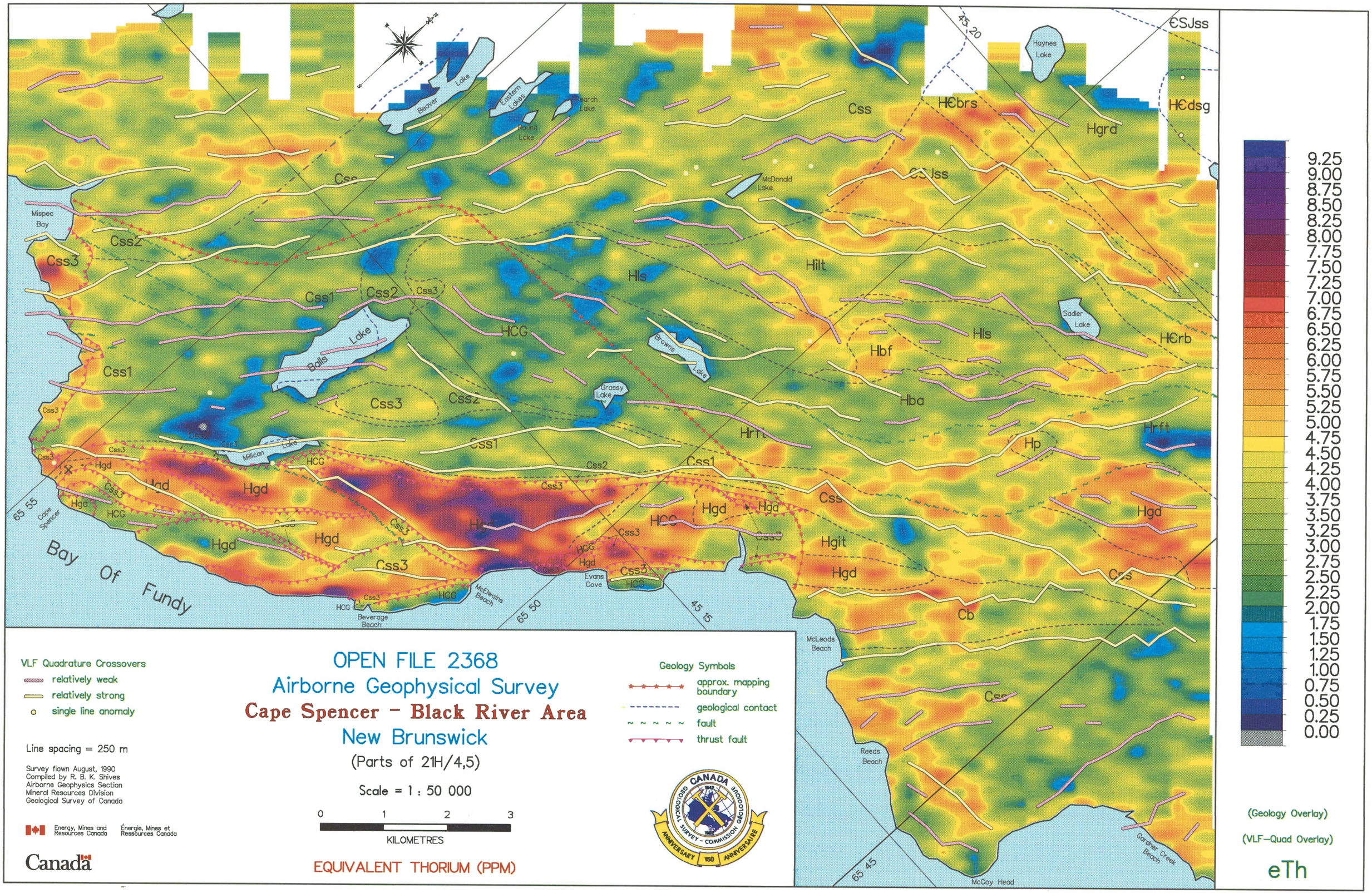
Scale = 1 : 50 000

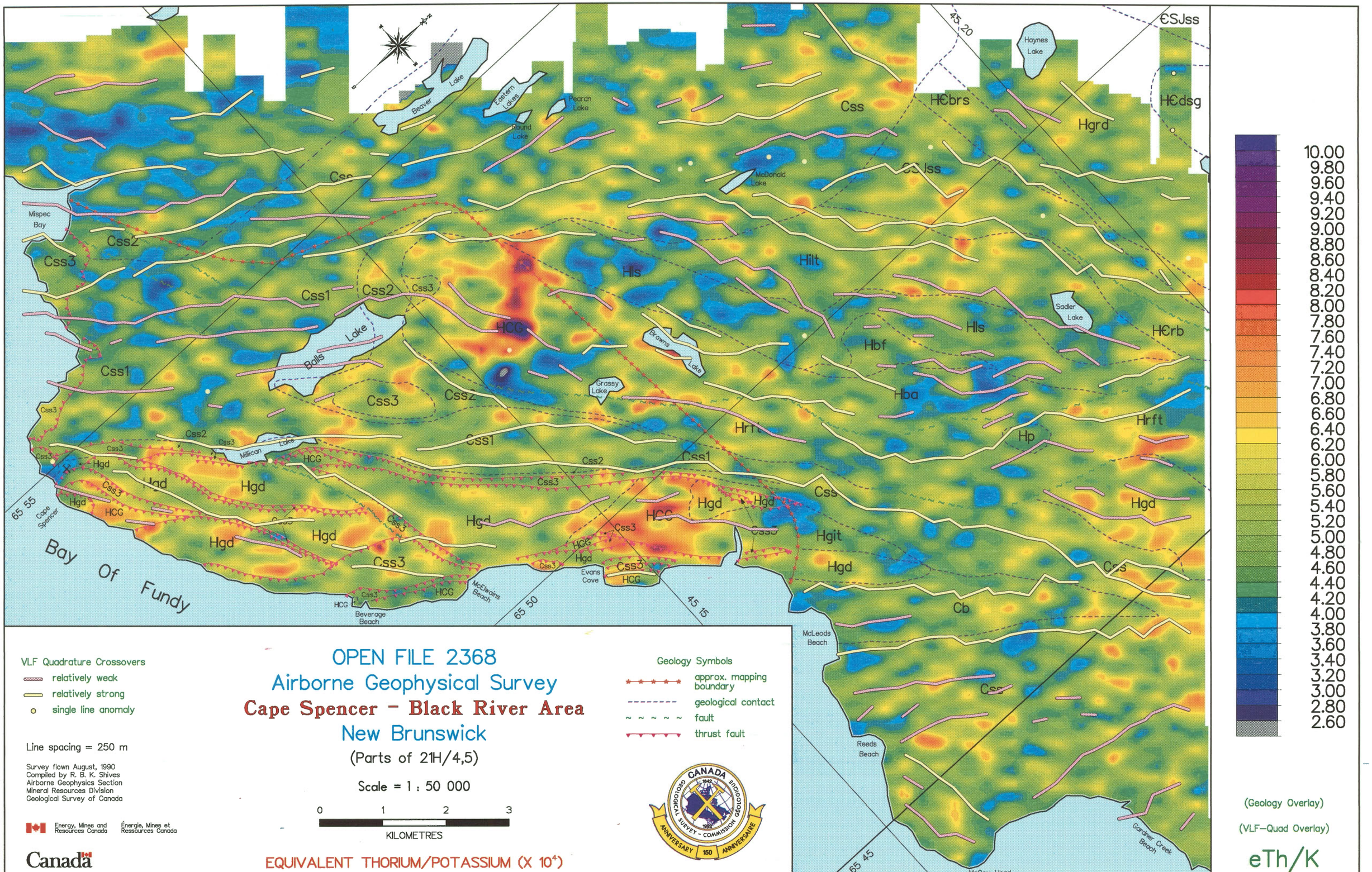
0 1 2 3
KILOMETRES

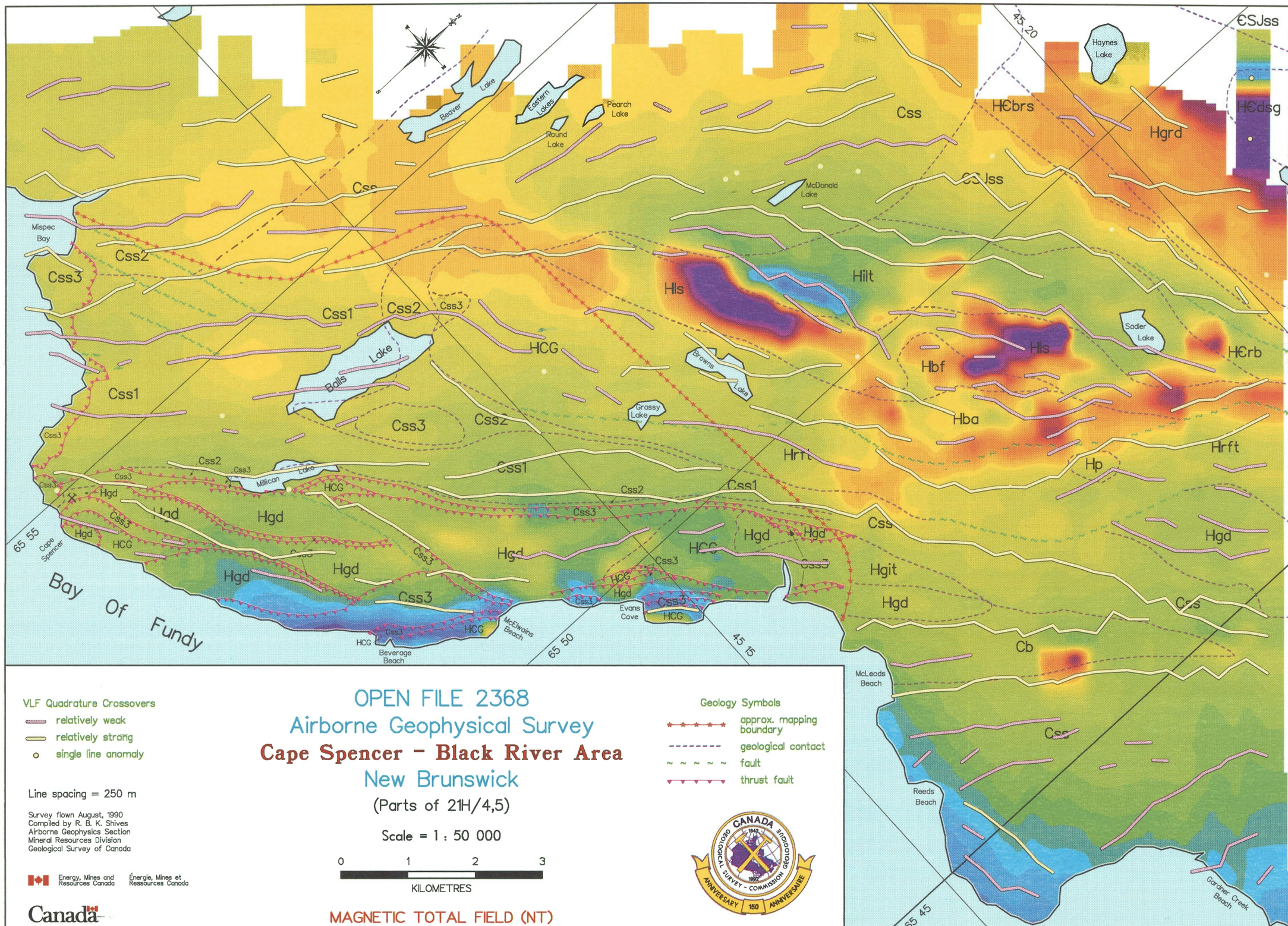
POTASSIUM (%)

Geology Symbols
- approx. mapping boundary
- geological contact
- fault
- thrust fault

CANADA GEOLOGICAL SURVEY – COMMISSION GÉOLOGIQUE 1842 1992 ANNIVERSARY 150 ANNIVERSAIRE


OPEN FILE 2368
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
EQUIVALENT THORIUM (PPM)
VLF Quadrature Crossovers
relatively weak
relatively strong
single line anomaly
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
CANADA GEOLOGICAL SURVEY - COMMISSION GÉOLOGIQUE
ANNIVERSARY 150 ANNIVERSAIRE
(Geology Overlay)
(VLF-Quad Overlay)
eTh
9.25
9.00
8.75
8.50
8.25
8.00
7.75
7.50
7.25
7.00
6.75
6.50
6.25
6.00
5.75
5.50
5.25
5.00
4.75
4.50
4.25
4.00
3.75
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Bay Of Fundy
Mispec Bay
Cape Spencer
Beaver Lake
Eastern Lakes
Pearch Lake
Round Lake
McDonald Lake
Haynes Lake
Sadler Lake
Balls Lake
Browns Lake
Grassy Lake
Millican Lake
Evans Cove
McElwains Beach
Beverage Beach
McLeods Beach
Reeds Beach
Gardner Creek Beach
McCoy Head
65 55
65 50
65 45
45 20
45 15
Hgd
HCG
Hgit
Hilt
Hls
Hbf
Hba
Hrft
Hp
Cb
Cs
Cs2
Cs3
Cs1
HCbrs
HCdsg
Hgrd
HCrb
CSJss


OPEN FILE 2368
Airborne Geophysical Survey
Cape Spencer - Black River Area
New Brunswick
(Parts of 21H/4,5)
Scale = 1 : 50 000
0 1 2 3
KILOMETRES
EQUIVALENT THORIUM/POTASSIUM (X 10⁴)
VLF Quadrature Crossovers
relatively weak
relatively strong
single line anomaly
Line spacing = 250 m
Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada
Canada
Geology Symbols
approx. mapping boundary
geological contact
fault
thrust fault
CANADA GEOLOGICAL SURVEY - COMMISSION GÉOLOGIQUE
ANNIVERSARY 150 ANNIVERSAIRE
(Geology Overlay)
(VLF-Quad Overlay)
eTh/K
10.00
9.80
9.60
9.40
9.20
9.00
8.80
8.60
8.40
8.20
8.00
7.80
7.60
7.40
7.20
7.00
6.80
6.60
6.40
6.20
6.00
5.80
5.60
5.40
5.20
5.00
4.80
4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
2.80
2.60
Bay Of Fundy
Mispec Bay
Cape Spencer
Beaver Lake
Eastern Lakes
Round Lake
Pearch Lake
McDonald Lake
Haynes Lake
Sadler Lake
Bollis Lake
Browns Lake
Grassy Lake
Millican Lake
Evans Cove
McElwains Beach
Beverage Beach
McLeods Beach
Reeds Beach
McCoy Head
Gardner Creek Beach
45 20
45 15
65 55
65 50
65 45
Cs
Cs2
Cs3
Cs1
HCG
Hls
Hilt
Hbf
Hba
Hrft
Hp
Hgd
Hgit
Cb
HCbrs
Hgrd
HCdsg
HCrb
CSJss




VLF Quadrature Crossovers

- relatively weak
- relatively strong
- single line anomaly

Line spacing = 250 m

Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

Canada

# OPEN FILE 2368

## Airborne Geophysical Survey

## Cape Spencer – Black River Area

## New Brunswick

(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3

KILOMETRES

MAGNETIC TOTAL FIELD (NT)

Geology Symbols

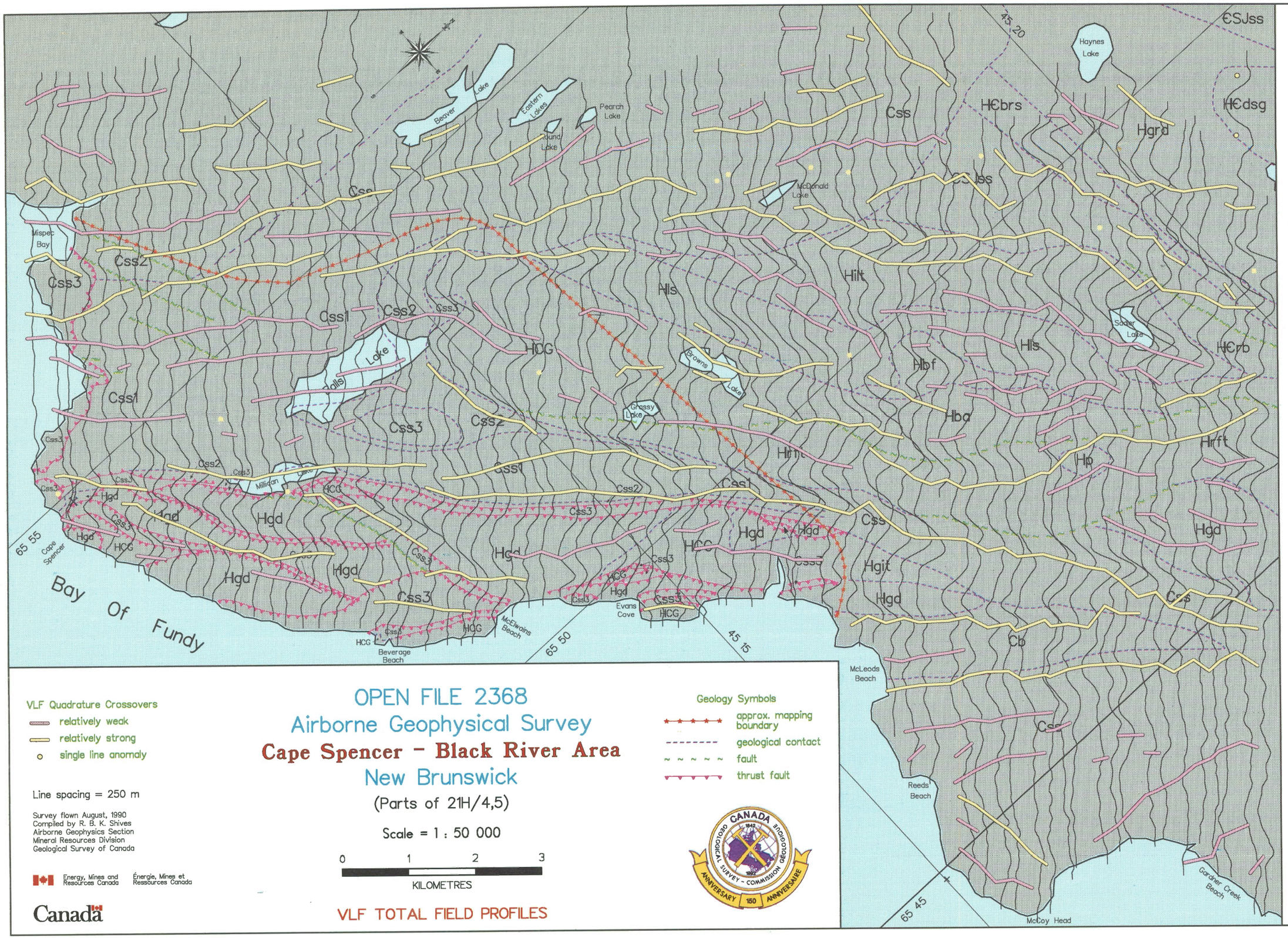
- approx. mapping boundary
- geological contact
- fault
- thrust fault

CANADA GEOLOGICAL SURVEY – COMMISSION GÉOLOGIQUE 1842 1992 ANNIVERSARY 150 ANNIVERSAIRE

(Geology Overlay)

(VLF–Quad Overlay)

MTF




VLF Quadrature Crossovers

- relatively weak
- relatively strong
- single line anomaly

Line spacing = 250 m

Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

Canada

# OPEN FILE 2368
## Airborne Geophysical Survey
## Cape Spencer – Black River Area
## New Brunswick

(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3
KILOMETRES

VLF TOTAL FIELD PROFILES

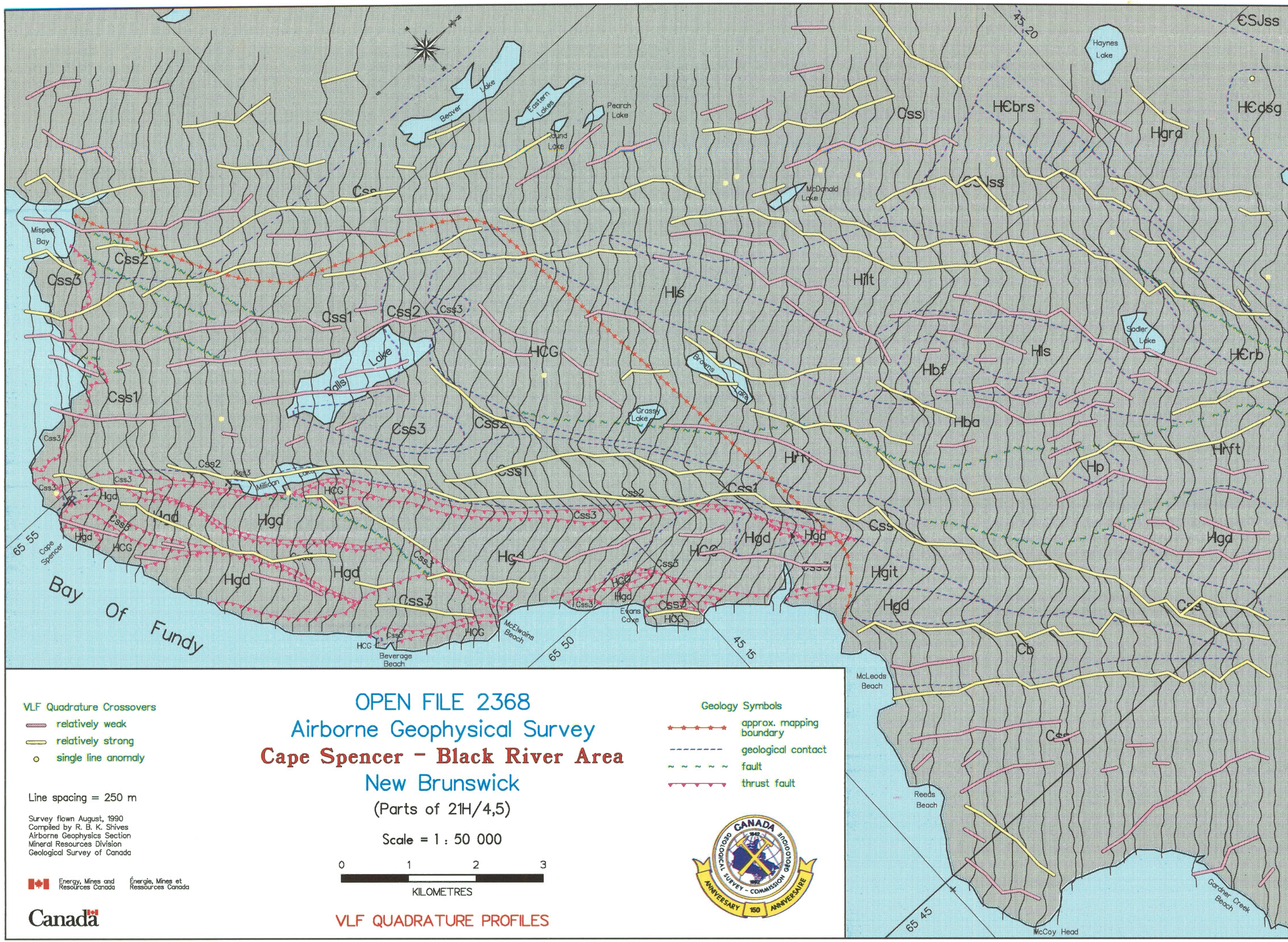
Geology Symbols

- approx. mapping boundary
- geological contact
- fault
- thrust fault

CANADA GEOLOGICAL SURVEY – COMMISSION GÉOLOGIQUE 1842 1892 ANNIVERSARY 150 ANNIVERSAIRE

(Geology Overlay)
(VLF–Quad Overlay)

VTFP




VLF Quadrature Crossovers

- relatively weak
- relatively strong
- single line anomaly

Line spacing = 250 m

Survey flown August, 1990
Compiled by R. B. K. Shives
Airborne Geophysics Section
Mineral Resources Division
Geological Survey of Canada

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

Canada

# OPEN FILE 2368
## Airborne Geophysical Survey
## Cape Spencer - Black River Area
## New Brunswick
(Parts of 21H/4,5)

Scale = 1 : 50 000

0 1 2 3
KILOMETRES

VLF QUADRATURE PROFILES

Geology Symbols

- approx. mapping boundary
- geological contact
- fault
- thrust fault

(Geology Overlay)
(VLF-Quad Overlay)

VQUP