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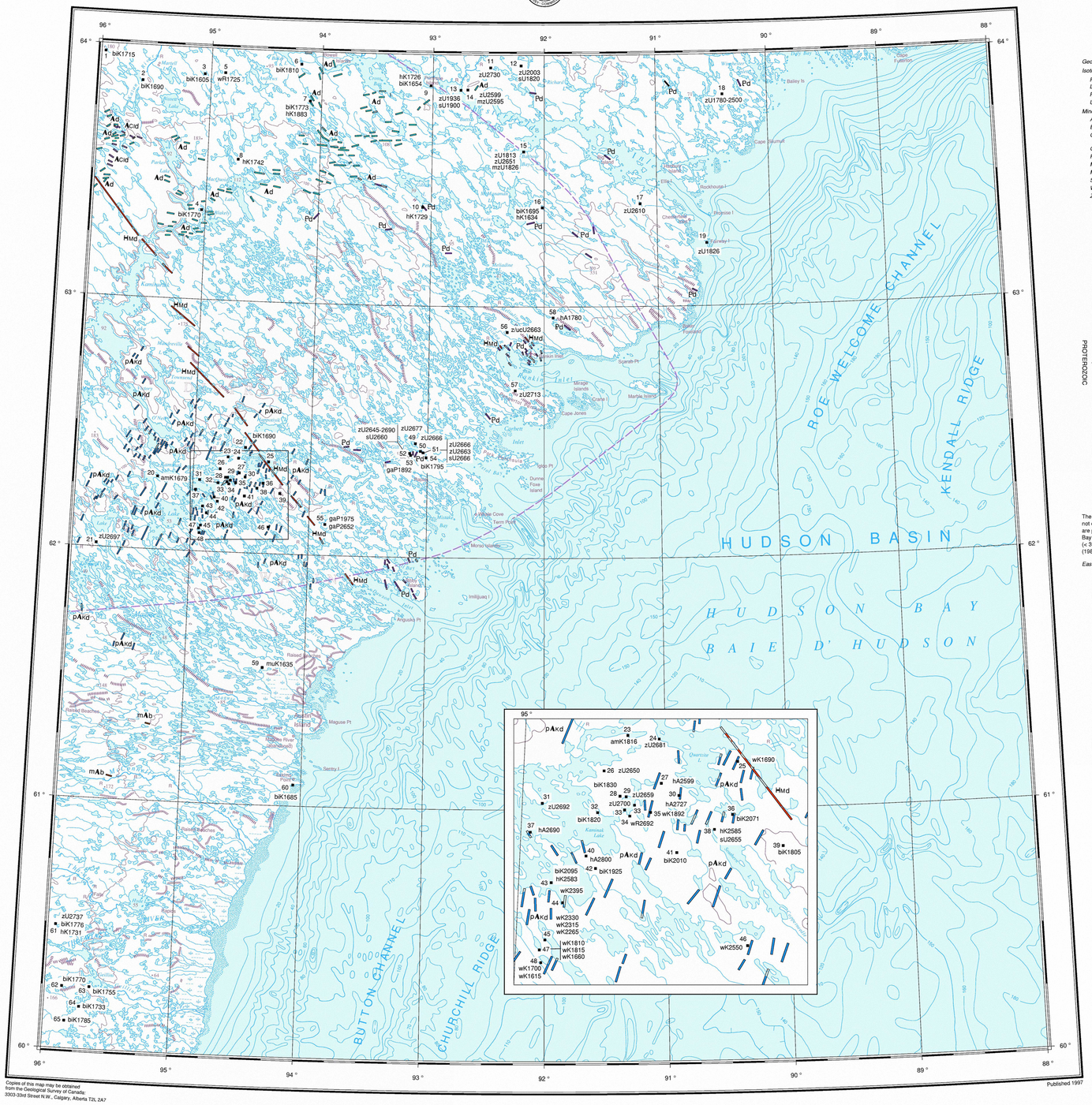

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LEGENDS

GEOCHRONOLOGY

- *Geochronological sample site* . . . . . ■
- *Isotopic systems*
  - *Potassium - Argon* . . . . . K
  - *Lead - Lead* . . . . . P
  - *Rubidium - Strontium* . . . . . R
  - *Uranium - lead* . . . . . U
- *Minerals*
  - *Amphibole* . . . . . am
  - *Biotite* . . . . . bi
  - *Concordia intersection*
    - *upper* . . . . . uc
  - *Galena* . . . . . ga
  - *Hornblende* . . . . . h
  - *Monazite* . . . . . mz
  - *Muscovite* . . . . . mu
  - *Sphene/titanite* . . . . . s
  - *Whole rock* . . . . . w
  - *Zircon* . . . . . z

DYKE SWARMS

PROTEROZOIC

MESOPROTEROZOIC (HELIKIAN)

NEOHELIKIAN

HMd *MACKENZIE dykes*

PALEOPROTEROZOIC (APHEBIAN) or younger

Pd *diabase dykes (undifferentiated)*

PALEOPROTEROZOIC (APHEBIAN)

MESOAPHEBIAN

ACld *syenite, lamprophyre (?) dykes related to CHRISTOPHER ISLAND FORMATION volcanic rocks*

mAb *metagabbro sills and dykes*

PALEOAPHEBIAN AND MESOAPHEBIAN

Ad *diabase dykes (undifferentiated)*

PALEOAPHEBIAN

pAkd *KAMINAK dykes*

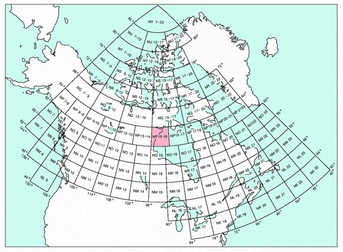
NOTE

The dykes related to volcanic rocks of the Christopher Island Formation not only occur where shown on the map near the Kazan River, but also are present from there east to Chesterfield Inlet and the coast of Hudson Bay and south to Maguse Lake and Dawson Inlet. Several hundred small (< 3 m wide) dykes have been mapped in this region (LeCheminant, et al. (1987) and Peterson and Lecheminant (1993).

Eastern and southern limit of Christopher Island dykes . . . . . —— ——

GEOCHRONOLOGICAL DATA

MAP NUMBER	SAMPLE NUMBER	AGE (Ma)	MAP UNIT	ISOTOPIC SYSTEM	MINERAL	REFERENCE	INTERPRETATION
1	65-74	1715 ± 80	Ay	K-Ar	biotite	Donaldson, 1967	Cooling age, Martell syenite
2	65-73	1690 ± 60	ABL-CI	K-Ar	biotite	Donaldson, 1967	Cooling age, trachyte dyke
3	66-93	1605 ± 50	Ay	K-Ar	biotite	Donaldson, 1968	Cooling age, Martell syenite
4	62-96	1770	Anp	K-Ar	biotite	Stockwell, 1963c	Metamorphic cooling age, paragneiss
5	4	1725 ± 4	ABL-CI	Rb-Sr	whole rock	Donaldson, 1972	Age of extrusion
6	61-102	1810	Anp	K-Ar	biotite	Stockwell, 1963a	Metamorphic cooling age, schist
7	76-191	1773 ± 42	Anqf	K-Ar	biotite	Skippen and Reinhardt, 1978	Metamorphic cooling age
	76-192	1883 ± 52	Anqf	K-Ar	hornblende	Skippen and Reinhardt, 1978	Metamorphic cooling age
8	76-189	1742 ± 75	Ad	K-Ar	hornblende	Reinhardt, 1977	Intrusive age (?)
9	76-194	1654 ± 50	Ag	K-Ar	biotite	Skippen and Reinhardt, 1978	Reset intrusive age
	76-195	1726 ± 50	Ag	K-Ar	hornblende	Skippen and Reinhardt, 1978	Intrusive age
10	76-193	1729 ± 50	Pd in Aqd	K-Ar	hornblende	Chandler and Reinhardt, 1978	Reset intrusive or metamorphic age
11	92RAL-2	2730 ± 2	Ag	U-Pb	zircon	Tella and Schau, 1994	Intrusive age
12	92RAL-1	2003 ± 15	Ag	U-Pb	zircon	Tella and Schau, 1994	Intrusive age
		1820 ± 10	Ag	U-Pb	sphene/titanite	Tella and Schau, 1994	Metamorphic age
13	92RAL-12	1936 ± 8	AA	U-Pb	zircon	Tella and Schau, 1994	Metamorphic age
		1900 ± 10	AA	U-Pb	sphene/titanite	Tella and Schau, 1994	Metamorphic age
14	92RAL-17	2599^{+20}_{-15}	AA	U-Pb	zircon	Tella and Schau, 1994	Metamorphic age
		ca 2595	AA	U-Pb	monazite	Tella and Schau, 1994	Metamorphic age
15	92RAL-4	1813 ± 1	Ag in Ans	U-Pb	zircon	Tella, et al., 1995	Intrusive age
	92RAL-5	2651 ± 4	Ag in Ans	U-Pb	zircon	Tella and Schau, 1994	Syntectonic intrusive age
		1826 ± 4	Ag in Ans	U-Pb	monazite	Tella and Schau, 1994	Metamorphic age
16	61-103	1695	Anp	K-Ar	biotite	Stockwell, 1963a	Metamorphic cooling age
	73-85	1634 ± 48	Anp	K-Ar	hornblende	Stockwell, 1974	Metamorphic cooling age
17	n/a	2610	Ag	U-Pb	zircon	Tella, 1993	Intrusive age
18	n/a	1780 to 2500	g	U-Pb	zircon	Tella, 1993	Intrusive age
19	n/a	1826	Ag	U-Pb	zircon	Tella, 1993	Intrusive age
20	81-194	1679 ± 111	b in AH-A	K-Ar	amphibole	Stevens, 1982	Age of alteration
21	WN-6-72	2697.5 ± 1.4	Ava	U-Pb	zircon	Mortensen and Thorpe, 1987	Extrusive age
22	66-94	1690 ± 55	m Ab in AH-K	K-Ar	biotite	Davidson, 1968	Metamorphic age
23	81-195	1816 ± 16	b in AH-A	K-Ar	amphibole	Stevens, 1982	Age of alteration
24	n/a	2681 ± 3	Ava	U-Pb	zircon	Patterson and Heaman, 1990	Extrusive age
25	72-62	1690 ± 185	pAkd	K-Ar	whole rock	Davidson, 1973	Metamorphic age
26	n/a	2650	Ava	U-Pb	zircon	Wanless, 1975	Extrusive age
27	8	2599 ± 9	Aqd	Ar-Ar	hornblende	Cavell, et al., 1992	Perturbed cooling age
28	72-66	1830 ± 56	Ay	K-Ar	biotite	Davidson, 1973	Metamorphic age
29	6	2659 ± 5	Aca	U-Pb	zircon	Cavell, et al., 1992	Intrusive age
30	7	2727 ± 14	Adi	Ar-Ar	hornblende	Cavell, et al., 1992	Perturbed cooling age
31	WN-4-72	2692.0 ± 1	Ava	U-Pb	zircon	Mortensen and Thorpe, 1987	Extrusive age
32	72-65	1820 ± 60	Ay	K-Ar	biotite	Davidson, 1973	Metamorphic age
33	5A, 5B	2700 ± 11	Aqd	U-Pb	zircon	Cavell, et al., 1992	Intrusive age
34	1 to 5	2692 ± 56	Ay	Rb-Sr	whole rock	Davidson, 1978	Intrusive age
35	72-64	1892 ± 66	pAkd	K-Ar	whole rock	Davidson, 1973	Metamorphic age
36	73-84	2071 ± 47	m Ab in AKvb	K-Ar	biotite	Fahrig, 1974	Intrusive age
37	9	2690 ± 9	Adi	Ar-Ar	hornblende	Cavell, et al., 1992	Perturbed cooling age
38	67-87	2655 ± 40	Adi	U-Pb	sphene/titanite	Wanless, 1968	Intrusive age
	67-87	2585 ± 70	Adi	K-Ar	hornblende	Davidson, 1970	Reset intrusive age
39	67-88	1805 ± 55	Aqm	K-Ar	biotite	Davidson, 1970	Metamorphic age
40	10	2800 ± 3	Adi	Ar-Ar	hornblende	Cavell, et al., 1992	Perturbed cooling age
41	67-89	2010 ± 50	Aqd	K-Ar	biotite	Davidson, 1970	Metamorphic age
42	60-61	1925	An in Aqd	K-Ar	biotite	Stockwell, 1961	Metamorphic (?) age
43	72-51	2583 ± 74	Aqd	K-Ar	hornblende	Davidson, 1973	Intrusive age
	72-52	2095 ± 60	Aqd	K-Ar	biotite	Davidson, 1973	Reset intrusive age
44	72-61	2395 ± 218	pAkd	K-Ar	whole rock	Davidson, 1973	Intrusive age
45	72-58	2330 ± 200	pAkd	K-Ar	whole rock	Davidson, 1973	Intrusive age
	72-59	2315 ± 192	pAkd	K-Ar	whole rock	Davidson, 1973	Intrusive age
	72-60	2265 ± 196	pAkd	K-Ar	whole rock	Davidson, 1973	Intrusive age
46	72-63	2550 ± 204	pAkd	K-Ar	whole rock	Davidson, 1973	Intrusive age
47	72-53	1810 ± 144	pAkd	K-Ar	whole rock	Davidson, 1973	Metamorphic age
	72-54	1815 ± 156	pAkd	K-Ar	whole rock	Davidson, 1973	Metamorphic age
	72-55	1660 ± 166	pAkd	K-Ar	whole rock	Davidson, 1973	Metamorphic age
48	72-56	1700 ± 176	pAkd	K-Ar	whole rock	Davidson, 1973	Metamorphic age
	72-57	1615 ± 172	pAkd	K-Ar	whole rock	Davidson, 1973	Metamorphic age
49	n/a	2677 ± 2	Aqm	U-Pb	zircon	Park and Ralser, 1992	Intrusive age
50	n/a	2666 ± 2	Aqm	U-Pb	zircon	Park and Ralser, 1992	Intrusive age
51	n/a	2663 ± 3	Aqm	U-Pb	zircon	Park and Ralser, 1992	Intrusive age
	n/a	2666 ± 3	Aqm	U-Pb	sphene	Park and Ralser, 1992	Intrusive age
	n/a	2666 ± 9	Ag in Avb	U-Pb	zircon	Park and Ralser, 1992	Intrusive age
52	n/a	2660	Aqm	U-Pb	sphene	Park and Ralser, 1992	Intrusive age
	n/a	2645 - 2690	Aqm	U-Pb	zircon	Park and Ralser, 1992	Intrusive age
53	n/a	1892	Ag/Pb qtz. vein in Aqm	Pb-Pb	galena	Park and Ralser, 1992	Intrusive age
54	61-105	1795	Aqm	K-Ar	biotite	Stockwell, 1963b	Metamorphic age
55	n/a	1975	qtz. vein in Avb	Pb-Pb	galena	Park and Ralser, 1992	Intrusive age
	n/a	2652	Au qtz. vein in Avb	Pb-Pb	galena	Park and Ralser, 1992	Intrusive age
56	n/a	2663 ± 3	Ava	U-Pb	zircon	Tella, 1994	Extrusive age
57	n/a	2713 ± 3	Aqmn in Ans	U-Pb	zircon	Tella, et al., 1990	Intrusive age
58	n/a	1780 ± 25	Aw	Ar-Ar	hornblende	Tella, 1994	Age of gold mineralization
59	72-67	1635 ± 52	g in Anp	K-Ar	muscovite	Davidson, 1973	Minimum intrusive age
60	60-64	1685	Anp in Anm	K-Ar	biotite	Stockwell, 1961	Metamorphic age
61	WN-511-78	2737^{+13}_{-9}	Agd/g	U-Pb	zircon	Loveridge, et al., 1988	Intrusive age
	80-127	1776 ± 41	Agd	K-Ar	biotite	Eade, 1982	Metamorphic age
	80-128	1731 ± 66	Agd	K-Ar	hornblende	Eade, 1982	Metamorphic age
62	80-123	1770 ± 41	Aqmnh	K-Ar	biotite	Eade, 1982	Metamorphic age
63	80-122	1755 ± 42	Aqmnh	K-Ar	biotite	Eade, 1982	Metamorphic age
64	80-124	1733 ± 41	Aqmnh	K-Ar	biotite	Eade, 1982	Metamorphic age
65	80-125	1785 ± 42	Aqmnh	K-Ar	biotite	Eade, 1982	Metamorphic age



INDEX TO INTERNATIONAL MAP OF THE WORLD
1:1 000 000 SCALE SHEETS

Base map at the same scale, published by Surveys and Mapping Branch in 1975 with bathymetry from National Earth Science Series Map NP 15-16, published by the Canadian Hydrographic Service, 1989 and from data compiled by B.V. Sanford in 1990. Not to be used for navigation.

Elevation in metres above sea level

Copies of the topographical edition of this map may be obtained from the Canada Map Office, Natural Resources Canada, Ottawa, Ontario, K1A 0E8

This 1:1 000 000 scale map is part of the Geological Atlas of Canada and is plotted on the International Map of the World (IMW) base. Bedrock geology is one parameter being published in the National Earth Science Series

THE NATIONAL EARTH SCIENCE SERIES
GEOLOGICAL ATLAS
GENERAL CO-ORDINATOR: A.V. OKULITCH

MAP NP-15/16-G

SHEET 5

DYKE SWARMS AND GEOCHRONOLOGY

MAGUSE RIVER

DISTRICT OF KEEWATIN

NORTHWEST TERRITORIES

Scale 1:1 000 000

Kilometres 25 0 25 50 75 Kilomètres

Lambert Conformal Conic Projection
Standard Parallels 60° 40'N and 63° 20'N

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Geological and geochronological data compiled by K.E. Eade, S. Tella, and A.V. Okulitch

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Digital image processing by A.V. Okulitch, Geological Survey of Canada (Calgary)

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

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The Geological Atlas of Canada is being published in substandard pre - liminary form to make map data available quickly and because there are no resources for traditional A-series printing. Release on open file does not provide the fine detail of bedrock geology, hydrology, topography or bathymetry of the printed version. A French version is available by special order only.

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Sheet 5 of 8, Map NP-15/16-G, Dyke swarms and geochronology

Recommended citation:
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