

Public-data File 87-1B

VOLUME MAGNETIC SUSCEPTIBILITY DATA FROM THE ARCTIC NATIONAL
WILDLIFE REFUGE (ANWR), ALASKA

Compiled By

Mark A. Vandergon

Alaska Division of Geological and Geophysical Surveys

April, 1987

This report has not been read by the
director, has not received official DGGs
publication status, and should not be
quoted as such.

794 University Avenue, Basement
Fairbanks, Alaska 99709

The Alaska Division of Geological and Geophysical Surveys in conjunction with Standard Oil Production Company submitted 114 rock samples to Elliot Geophysical Co., Inc. for a physical property analysis. The samples were collected from various stratigraphic units which crop out in the mountain belts of northeastern Alaska (Plates 1,2). A volume magnetic susceptibility analysis was completed on a 1.0 inch diameter bicylindrical core cut from each sample. The measurement procedure utilizes a magnetic susceptibility bridge type instrument operating at a frequency of 400 Hertz. The limits of detectibility of the bridge are approximately 1.0 micro cgs units (12.6×10^{-6} SI units). The magnetic susceptibility data are presented in micro cgs units. The SI unit conversion is:

$$k_{SI} = (12.566)k_{cgs}$$

The data is separated by stratigraphic units and includes outcrop location and magnetic susceptibility values. The sample locations are designated by latitude, longitude and by quadrangle (MM = Mt. Michelson, DP = Demarcation Point).

Kekiktuk Conglomerate

85 MR 5A	69°36'35"	145°49'30"	MMC4	1.0 ?
85 MR 6A	69°36'35"	145°49'30"	MMC4	1.8
85 MR 8A	69°36'07"	145°47'08"	MMC3	1.0 ?
85 MR 009	69°36'09"	145°47'18"	MMC3	1.0 ?
85 MR 009A	69°36'09"	145°47'18"	MMC3	7.5
85 MR 038C	69°27'15"	143°23'55"	DPB4	17.
85 MR 038E	69°27'15"	143°23'55"	DPB4	8.5
86 Dn 57B	69°15'23"	143°30'09"	DPB5	1.0 ?
86 Dn 57C	69°15'23"	143°30'09"	DPB5	16.
86 Dn 59	69°15'39"	143°30'20"	DPB5	1.0 ?
86 Dn 60	69°15'55"	143°31'15"	DPB5	1.0 ?
86 Dn 62	69°16'10"	143°31'21"	DPB5	1.0 ?
85 AB 15	69°22'18"	143°39'34"	DPB5	1.0 ?

Itkilyariak Formation

86 MR 57A	69°38'20"	144°35'02"	MMC1	4.3 G
86 MR 57C	69°38'20"	144°35'02"	MMC1	12. G
86 Dn 112E	69°38'19"	144°35'17"	MMC1	1.0 ?

Lisburne Group

85 Tr 17A	69°26'55"	143°28'20"	DPB5	6.9
85 Tr 17B	69°26'55"	143°28'20"	DPB5	1.0 ?
85 Tr 17B2	69°26'55"	143°28'20"	DPB5	1.0 ?
85 Tr 17C	69°26'55"	143°28'20"	DPB5	1.0 ?
85 Tr 17D	69°26'55"	143°28'20"	DPB5	2.0 G
86 Dn 101	69°38'17"	144°33'48"	MMC1	1.0 ?
85 LSB 575	69°35'38"	145°36'30"	MMC3	1.0 ?
85 LSB 1025	69°35'32"	145°36'35"	MMC3	1.0 ?

SADLEROCHIT GROUPEchooka Formation

85 Tr 17E	69°27'07"	143°28'59"	DPB5	9.4
-----------	-----------	------------	------	-----

Ivishak Formation

85 Tr 18F	69°27'20"	143°28'59"	DPB5	3.8
85 Tr 18I	69°27'20"	143°28'59"	DPB5	1.0 ?
85 Tr 18J	69°27'20"	143°28'59"	DPB5	8.3
85 Tr 18K	69°27'20"	143°28'59"	DPB5	18.

Kavik Member

86 Dn 87E	69°17'57"	143°25'38"	DPB5	4.0
86 Dn 87F	69°17'57"	143°25'38"	DPB5	1.0 ?

? = Magnitude too small for accuracy

G = Sample chips glued together for sample measurement

86 JC 8-56	69°33'10"	145°51'43"	MMC4	1.0 ?
85 MR 010	69°36'16"	145°47'40"	MMC3	1.0 ?
86 Dn 115E	69°38'32"	144°52'11"	MMC2	1.0 ?

Nanook Limestone

85 JC 101A	69°30'32"	145°55'03"	MMC4	1.0 ?
85 JC 102	69°30'37"	145°54'35"	MMC4	1.0 ?
85 JC 104	69°30'52"	145°54'37"	MMC4	3.1
85 JC 106C	69°31'38"	145°40'56"	MMC3	1.0
85 JC 108	69°31'36"	145°40'53"	MMC3	1.0
85 JC 148	69°31'16"	145°38'15"	MMC3	1.0 ?
85 JC 150	69°35'58"	145°07'32"	MMC2	1.0 ?G
85 JC 152	69°36'02"	145°07'30"	MMC2	350.
85 JC 157	69°36'09"	145°07'26"	MMC2	1.0 ?
85 NA 425	69°31'38"	145°48'20"	MMC3	2.0
85 NA 1600	69°31'40"	145°47'23"	MMC3	1.0
86 MR 53A	69°36'10"	145°35'57"	MMC3	1.0 ?
86 MR 54A	69°35'59"	145°36'07"	MMC3	1.0 ?
86 Dn 8B	69°24'23"	143°03'45"	DPB4	11.
86 Dn 32	69°26'35"	143°23'09"	DPB4	1.1
86 Dn 37A	69°26'59"	143°16'40"	DPB4	13.
86 Dn 37B	69°26'59"	143°16'40"	DPB4	20.
86 Dn 37C	69°26'59"	143°16'40"	DPB4	9.7 G
86 Dn 73	69°16'46"	143°36'40"	DPB5	20.
86 Dn 82	69°17'52"	143°35'56"	DPB5	1.0 ?

pre-Devonian Hornfelsed basement

86 Dn 92A	69°08'01"	143°41'58"	DPA5	20.
86 AB 100A	69°14'33"	143°30'09"	DPA5	1.0 ?
86 AB 100B	69°14'33"	143°30'09"	DPA5	9.2

Devonian Granite

86 Dn 54	69°14'35"	143°30'19"	DPA5	1.0 ?
86 Dn 69B	69°17'44"	143°31'08"	DPB5	1.0 ?G
86 Dn 90A	69°18'10"	143°30'19"	DPB5	1.0 ?
86 Dn 90B	69°18'10"	143°30'19"	DPB5	1.0 ?
86 Dn 90C	69°18'10"	143°30'19"	DPB5	1.0 ?
86 Dn 92Z	69°08'01"	143°41'58"	DPA5	13.
85 AB 12	69°16'46"	143°30'18"	DPB5	14.
85 AB 14	69°22'46"	143°40'43"	DPB5	17.
85 AB 30	69°19'56"	144°06'30"	MMB1	2.5
85 AB 37	69°19'57"	144°07'20"	MMB1	1.0 ?
85 AB 51	69°18'13"	144°21'33"	MMB1	8.7
86 AB 16	69°15'44"	144°25'47"	MMB1	2.2
86 AB 39	69°18'10"	143°30'20"	DPB4	8.0

SAMPLE NO.	LATITUDE	LONGITUDE	QUADRANGLE	VOLUME MAGNETIC SUSCEPTIBILITY
<u>Neruokpuk Formation</u>				
85 MR 025	69°38'14"	144°56'51"	MMC2	18. G
85 MR 026	69°37'58"	145°03'01"	MMC2	2600.
85 MR 037A	69°27'05"	143°26'15"	DPB4	12.
85 MR 037B	69°27'05"	143°26'15"	DPB4	4.4
85 MR 037C	69°27'05"	143°26'15"	DPB4	4.8
85 MR 070A	69°39'30"	144°58'20"	MMC2	11000. G
85 MR 070B	69°39'30"	144°58'20"	MMC2	10.
85 MR 070C	69°39'30"	144°58'20"	MMC2	1.0 ?
86 MR 59A	69°38'04"	144°35'50"	MMC1	3100.
86 MR 63A	69°37'25"	144°48'35"	MMC2	2500.
86 Dn 66B	69°17'30"	143°32'02"	DPB5	11.
86 Dn 72	69°16'52"	143°35'56"	DPB5	12.
86 Dn 84A	69°18'49"	143°30'33"	DPB5	7.0
86 Dn 88D	69°17'53"	143°29'13"	DPB5	15.
86 Dn 112B	69°38'19"	144°35'17"	MMC1	1.0 ?
86 Dn 119	69°38'18"	144°36'20"	MMC2	75.
85 AB 15A	69°22'18"	143°39'34"	DPB5	99.
86 AB 16J	69°15'44"	144°25'58"	MMB1	170.
86 AB 16K	69°15'44"	144°25'47"	MMB1	2500.
86 AB 25	69°14'19"	143°29'10"	DPA5	2.6
85 AB 25	69°19'37"	143°58'09"	DPB5	2.0
<u>OPCLS</u>				
86 Dn 6	69°23'43"	143°02'33"	DPB4	1.0 ?
86 Dn 31	69°26'36"	143°22'29"	DPB4	1.0 ?
<u>PreCambrian Mafic Volcanic rocks</u>				
86 Dn 97C	69°38'24"	144°35'10"	MMC1	150.
86 Dn 97D	69°38'24"	144°35'10"	MMC1	180.
86 Dn 97F	69°38'24"	144°35'10"	MMC1	1.2
86 Dn 116	69°38'29"	144°52'14"	MMC2	38.
85 AB 11	69°38'11"	144°57'34"	MMC2	1.0
85 AB 11A	69°38'11"	144°57'34"	MMC2	620.
85 AB 19	69°31'40"	146°02'58"	MMC4	930.
85 AB 21	69°31'40"	146°02'58"	MMC4	1100.
85 AB 21A	69°31'40"	146°02'58"	MMC4	1000.
<u>Katakturuk Dolomite</u>				
85 JC 100	69°38'04"	145°56'03"	MMC4	1.0 ?G
85 JC 128	69°37'56"	145°43'08"	MMC3	1.0 ?
85 JC 134	69°37'42"	145°43'06"	MMC3	1.0 ?G
85 JC 136A	69°37'31"	145°43'00"	MMC3	1.0 ?
85 JC 142	69°36'40"	145°42'25"	MMC3	1.0 ?G
86 JC 1-40	69°37'28"	145°36'25"	MMC3	1.0 ?
86 JC 1-41	69°37'28"	145°36'25"	MMC3	1.0 ?
86 JC 1-50	69°37'27"	145°36'30"	MMC3	1.2
86 JC 2-28	69°37'50"	145°22'45"	MMC3	1.0 ?
86 JC 6-2	69°33'26"	145°50'14"	MMC4	15.
86 JC 6-3	69°33'26"	145°50'14"	MMC4	1.0 ?G
86 JC 8-52	69°33'10"	145°51'44"	MMC4	1.0 ?