Shallow core drilling summary sheets: Cretaceous sediments of Nuussuaq and Svartenhuk Halvø (GGU 400701-400712)

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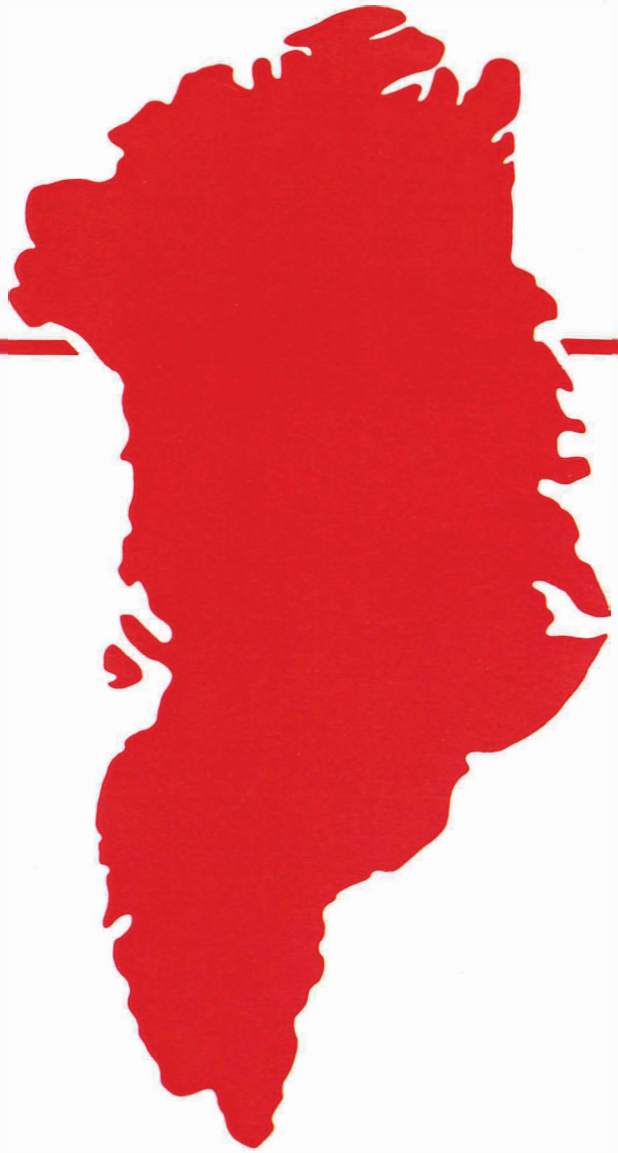

Open File Series 94/10

April 1994

GRØNLANDS GEOLOGISKE UNDERSØGELSE
Ujarassiortut Kalaallit Nunaanni Misissuisoqarfiat
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Shallow core drilling summary sheets: Cretaceous sediments of Nuussuaq and Svartenhuk Halvø (GGU 400701-400712)

Flemming G. Christiansen, Gregers Dam,
Henrik Nøhr-Hansen and Martin Sønderholm

April 1994

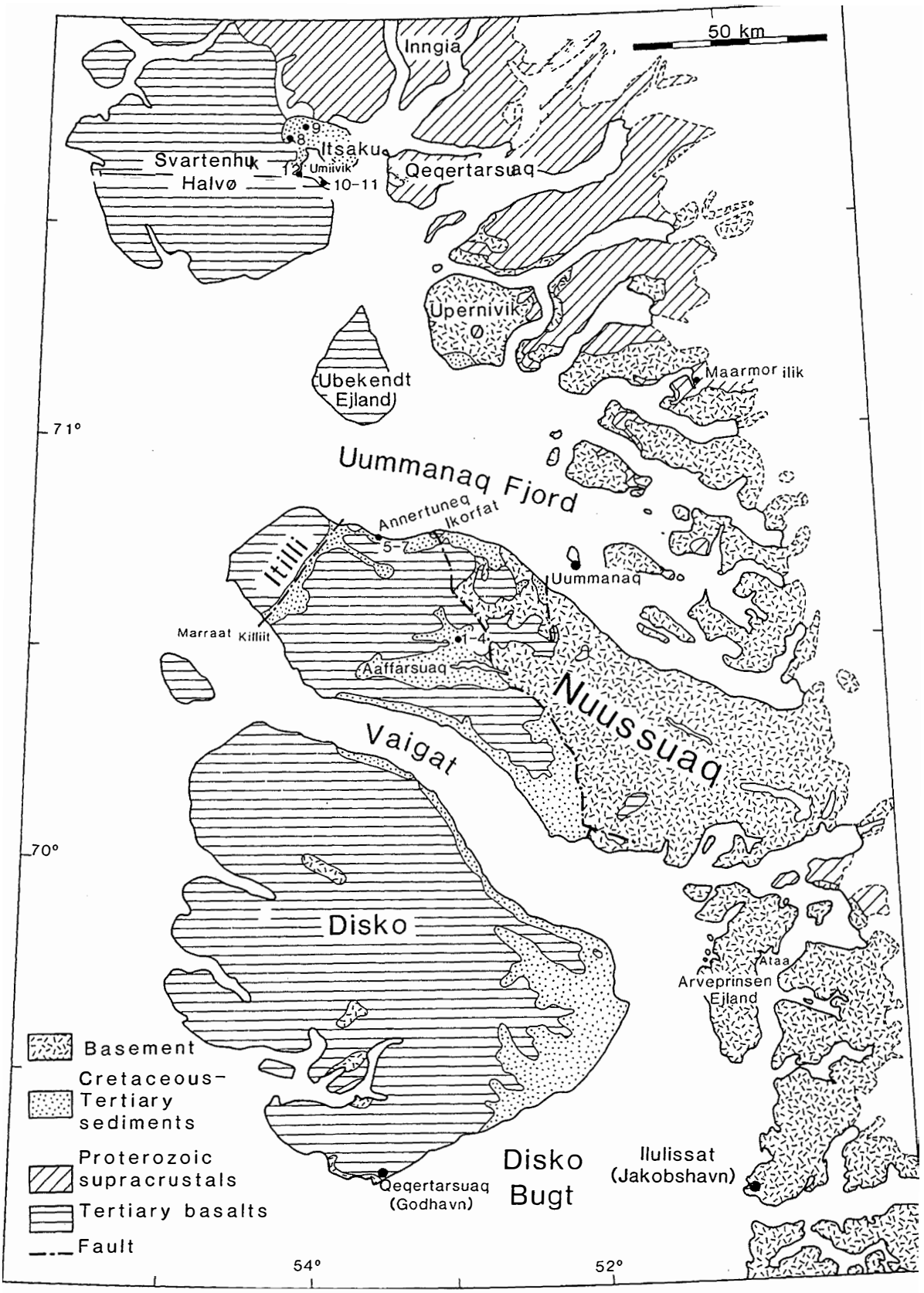

Fig. 1. Simplified geological map of the Disko-Nuussuaq-Svartenhuk Halvø region. Numbers denote position of drill-sites GGU 400701-400712.

Introduction

As part of a major GGU programme during 1988-1992 with the main aim to assess the resource potential of the Disko-Nuussuaq-Svartenhuk Halvø region, a shallow core drilling campaign was carried out in July and August 1992 (Fig. 1) (Christiansen *et al.,* 1992; Kalsbeek & Christiansen, 1992; Christiansen, 1993).

The drilling programme was carried out with a helicopter-portable unit. This unit operates with a wireline system giving a hole diameter of 46 mm and a core diameter of 30 mm.

A total of 12 holes were drilled (GGU 400701-400712) to depths between 45 m and 83 m with a cumulative length of 807 m. Core recovery was almost complete in all holes, although the core quality was often very poor in the top 20 m due to extensive fracturing.

The first four holes (GGU 400701-400704) were located in Agatdalen (Figs 1 and 2). Together these represent a significant part of the marine Cretaceous succession in the Agatdalen area.

Three holes (GGU 400705-400707) were located on the north coast of Nuussuaq at Annertuneq (Figs 1 and 7). The cores from these holes span about 250 m of Upper Campanian-Maastrichtian mudstones. The uppermost hole started *c.* 100 m below the base of a prominent conglomerate unit. The lowermost hole terminated about 35 m below sea-level.

The remaining five holes (GGU 400708-400712) were all drilled on Svartenhuk Halvø (Figs 1 and 11). Hole GGU 400708 was drilled in the presumed oldest exposed marine sediments, on a locality where Turonian ammonites have previouly been discovered. Hole GGU 400709 was drilled into more or less equivalent strata but is more proximal to the basement and exposed non-marine sediments. Holes GGU 400710-400711 were situated fairly close to each other, and together they represent most of the Conacian-Maastrichtian succession known from the Umiivik area. Hole GGU 400712 was drilled at a Conacian ammonite locality close to sea-level (close to loc. 6 in fig. 2 of Birkelund, 1965). This hole terminated more than 70 m below sea-level.

All cores were described at the drill site, and in more detail on return to Copenhagen. Gamma ray logs were run in most of the holes. Small core pieces (5-10 cm) were canned at the drill site for analysis of light hydrocarbons (C1-C8), typically at 5 to 10 m intervals. In the core laboratory samples were selected for biostratigraphical and geochemical analysis. Geochemical analyses were undertaken at the laboratories of the Geological Survey of Denmark and the results of these are given in the appendix (Tables 1-4). Biostratigraphical data are included in Nøhr-Hansen (1994a, b, c).

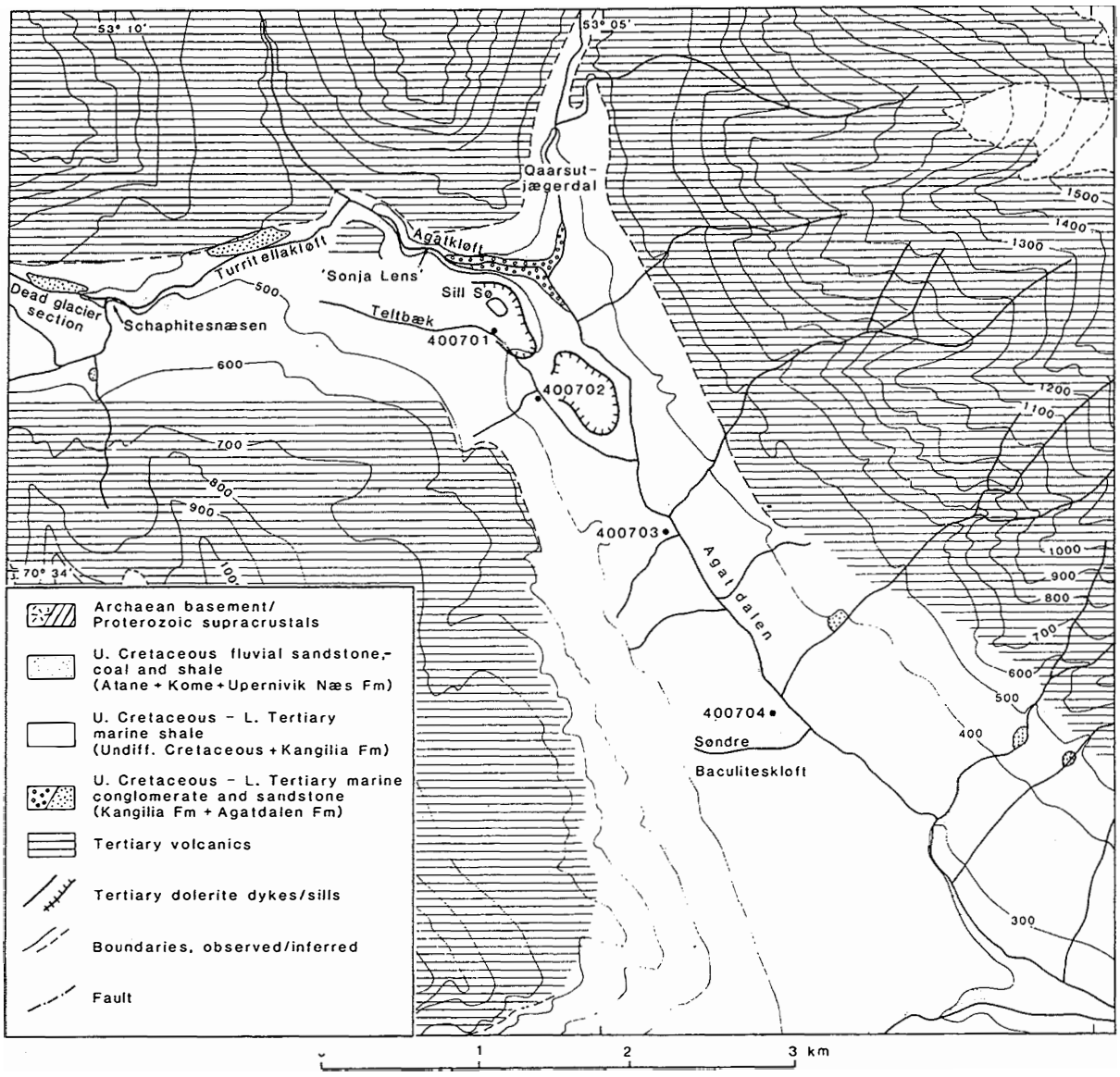

Fig. 2. Map of Agatdalen area in central Nuussuaq with position of drill-sites GGU 400701-400704.

Central Nuussuaq

Shallow drill core #:	GGU 400701
Name:	Agatdalen #1
Region:	Nuussuaq
Subregion:	Agatdalen
Locality:	Teltbæk
UTM-coordinates:	22W DD 220 321
Ground elevation:	420 m
Total length of core:	44.98 m
Date:	7-8 July 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous conglomerates and shales

Shallow drill core #:	GGU 400702
Name:	Agatdalen #2
Region:	Nuussuaq
Subregion:	Agatdalen
Locality:	Teltbæk
UTM-coordinates:	22W DD 223 318
Ground elevation:	387 m
Total length of core:	65.48 m
Date:	10-11 July 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous conglomerates and shales

Shallow drill core #:	GGU 400703
Name:	Agatdalen #3
Region:	Nuussuaq
Subregion:	Agatdalen
Locality:	
UTM-coordinates:	22W DD 231 308
Ground elevation:	363 m
Total length of core:	72.39 m
Date:	15-16 July 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous sandstones and shales

Shallow drill core #:	GGU 400704
Name:	Agatdalen #4
Region:	Nuussuaq
Subregion:	Agatdalen
Locality:	Søndre Baculiteskløft
UTM-coordinates:	22W DD 238 297
Ground elevation:	346 m
Total length of core:	82.91 m
Date:	18-19 July 1992
Geophysical logs:	Gamma ray, temperature
Drilled stratigraphy:	Cretaceous sandstones and shales

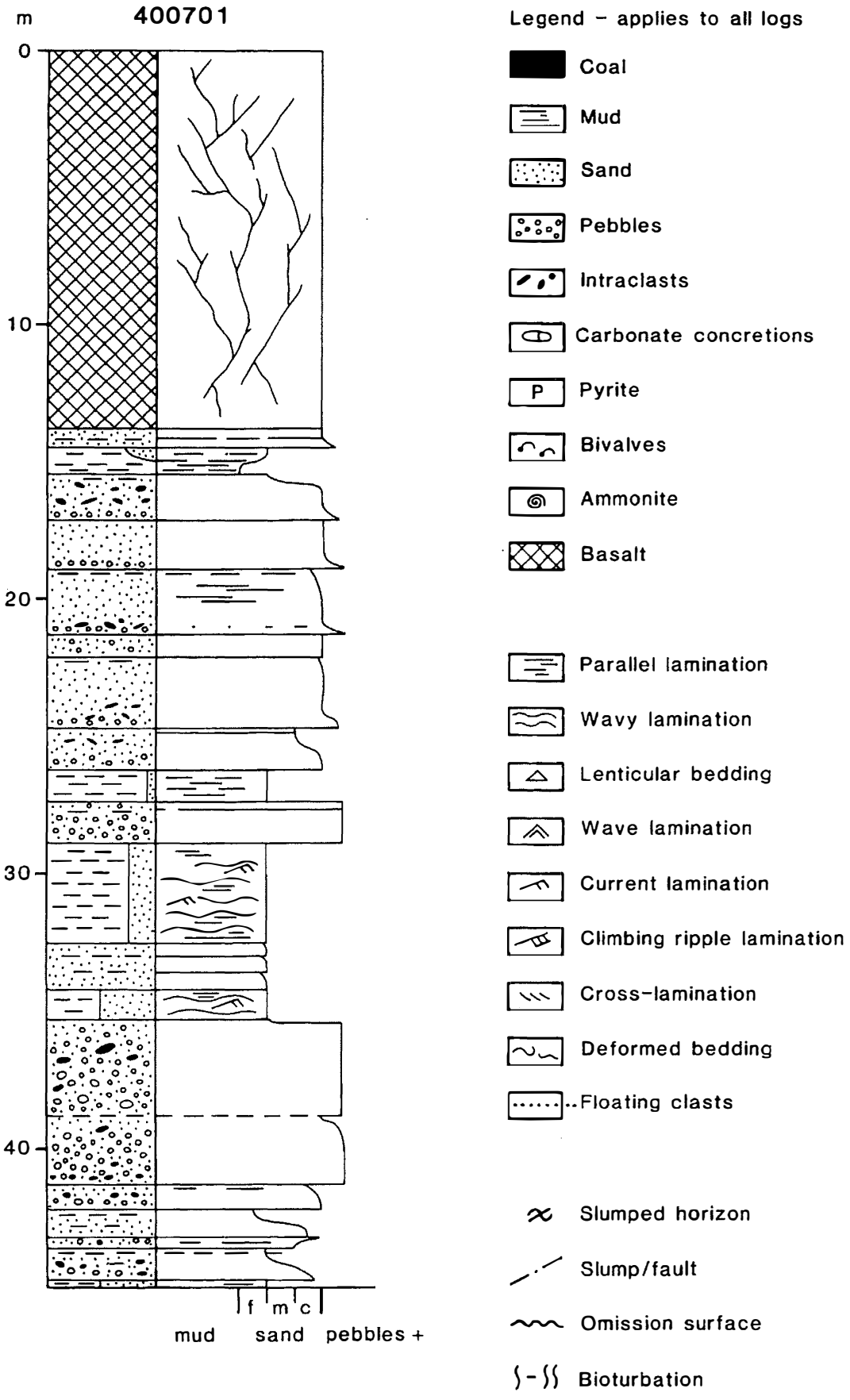

Fig. 3. Log of GGU 400701.

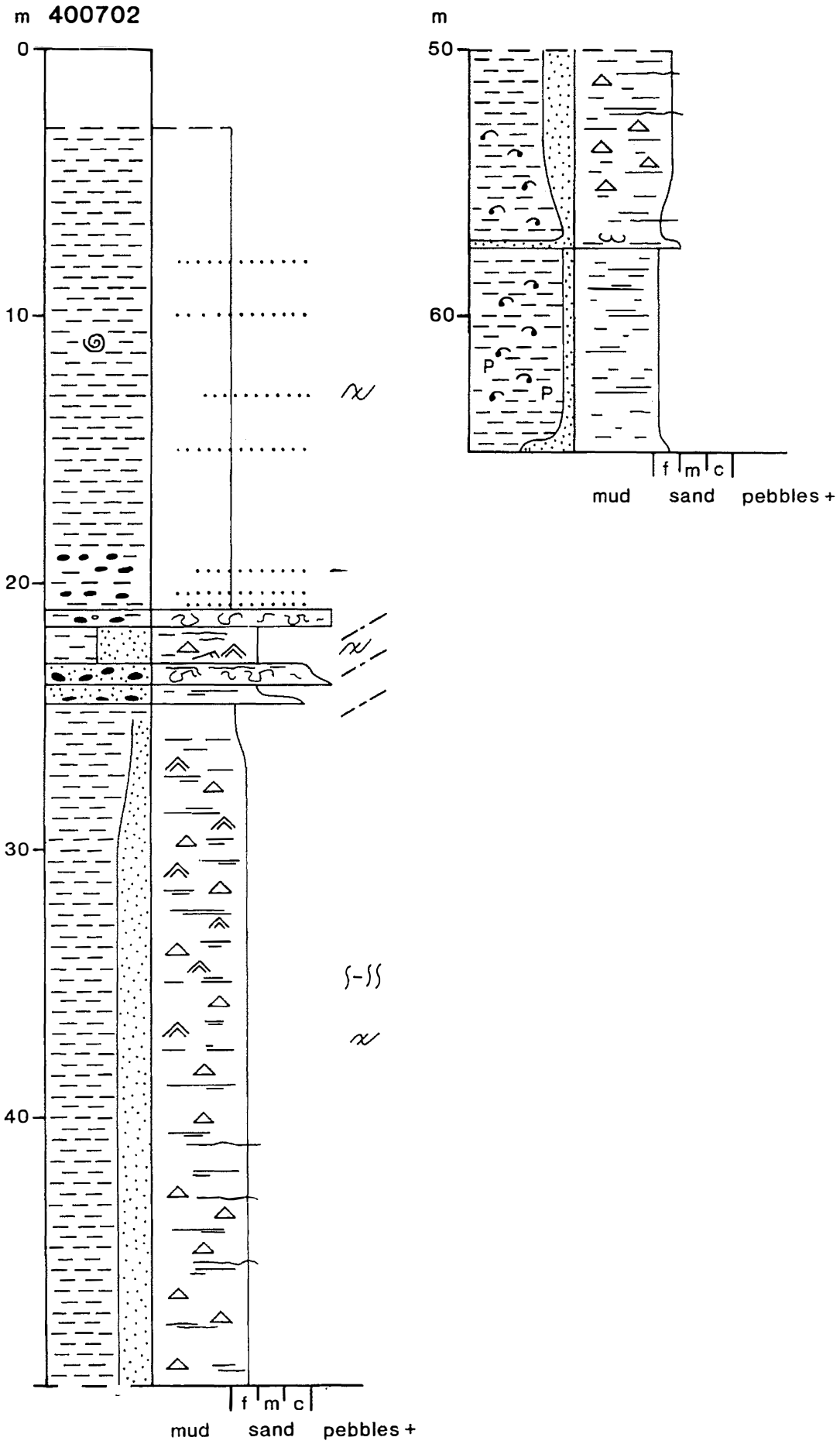

Fig. 4. Log of GGU 400702.

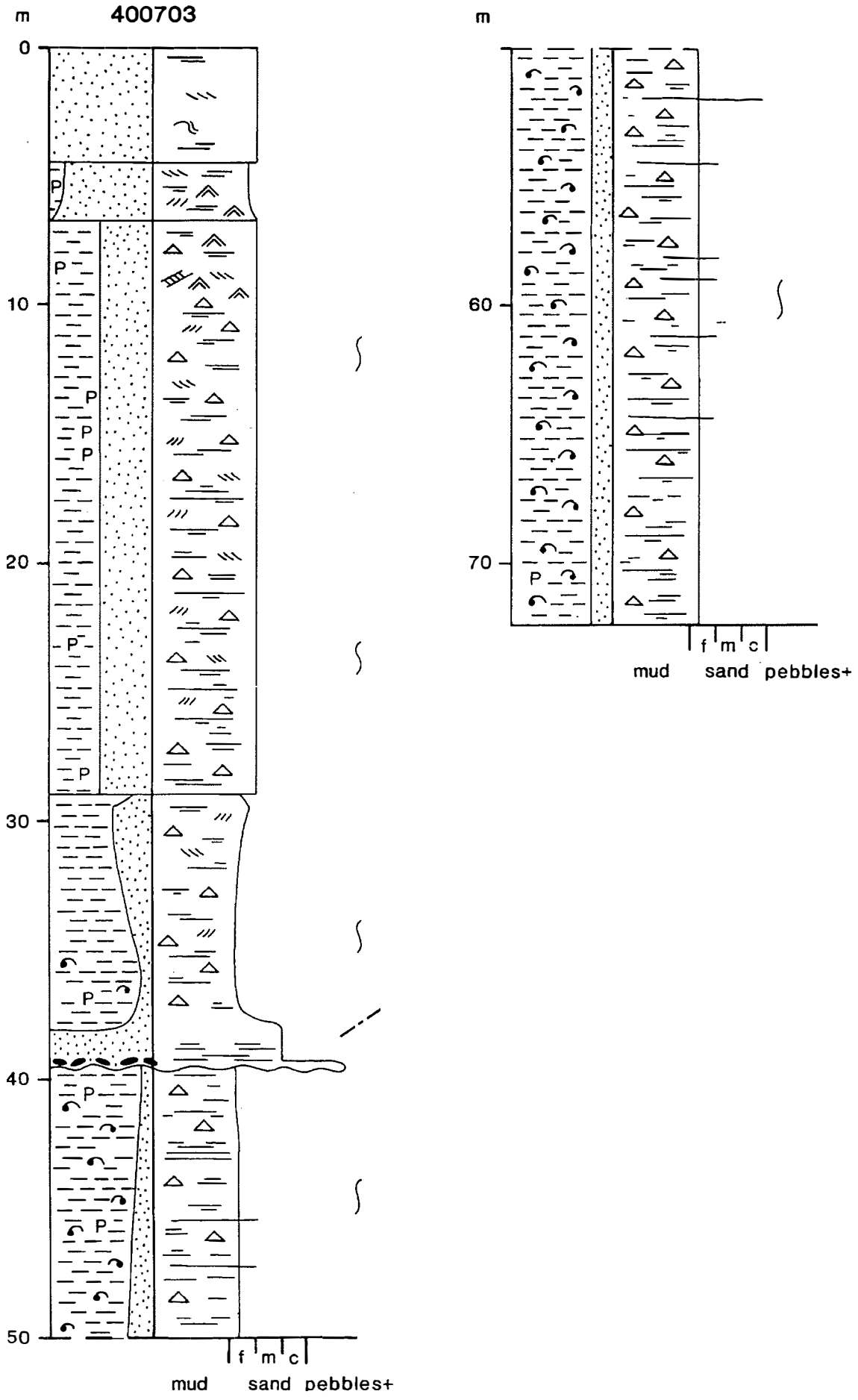

Fig. 5. Log of GGU 400703.

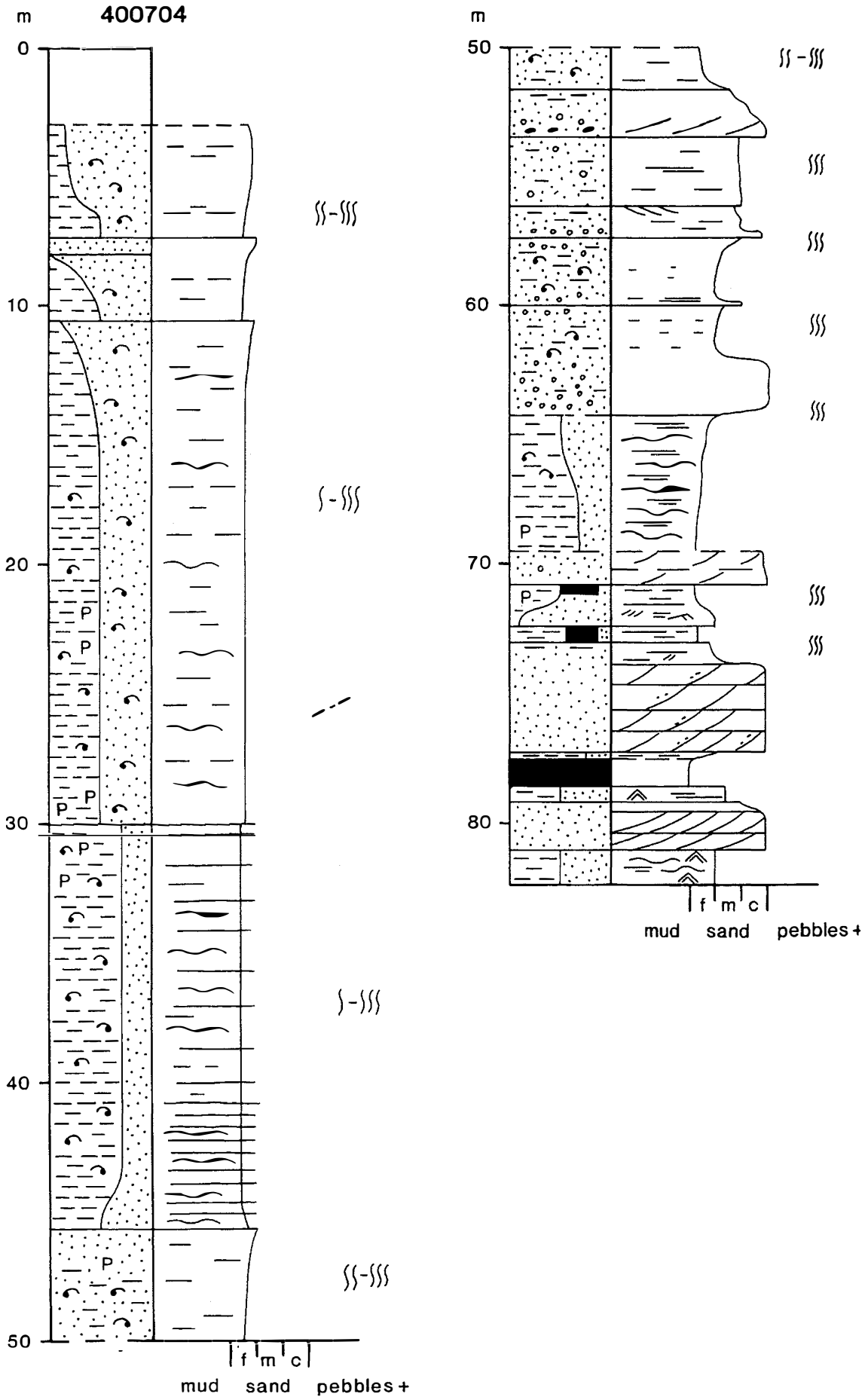

Fig. 6. Log of GGU 400704.

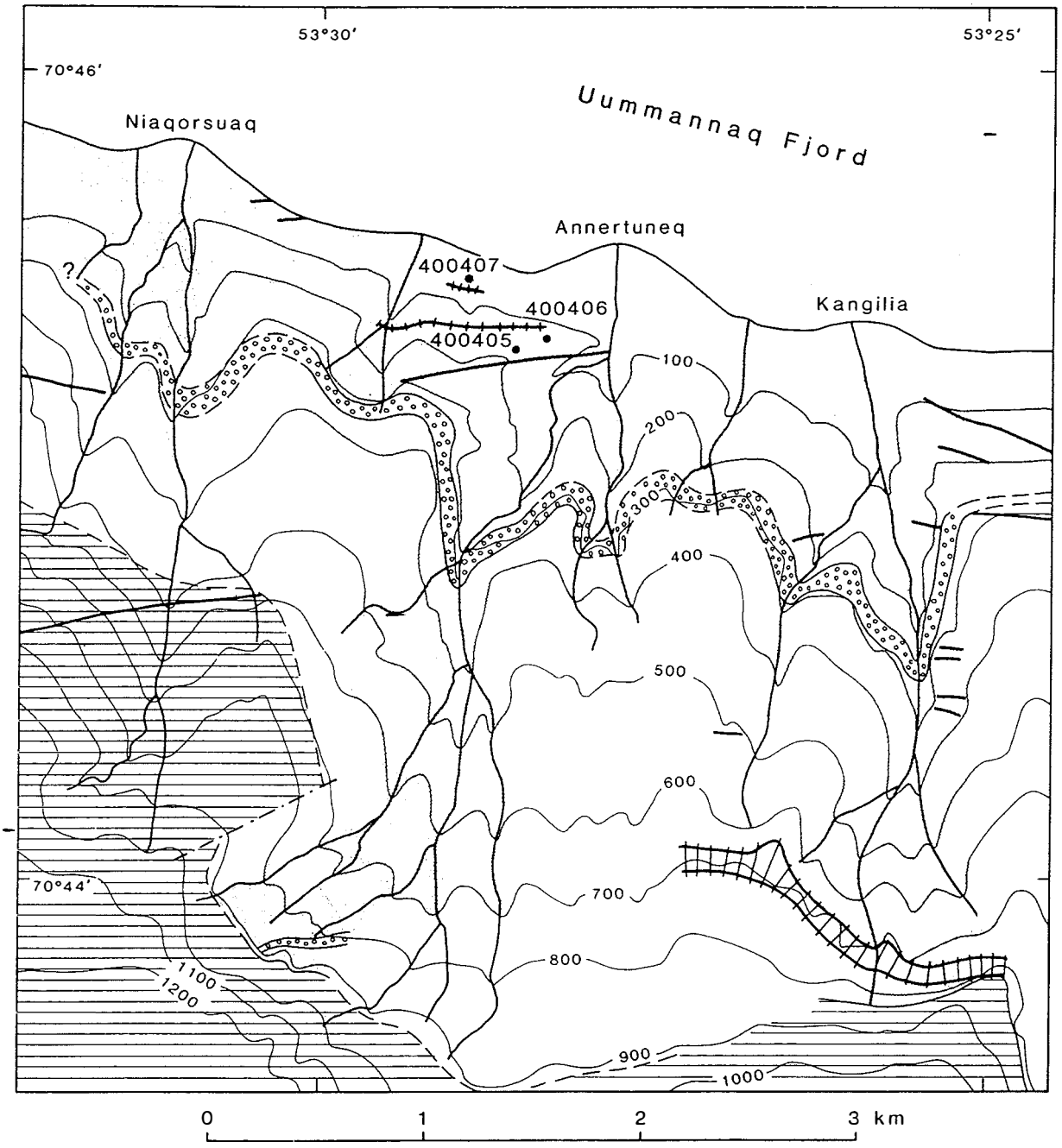

Fig. 7. Map of north coast of Nuussuaq, Annertuneq area, with position of drill-sites GGU 400705-400707.

North coast of Nuussuaq

Shallow drill core #:	GGU 400705
Name:	Annertuneq #1
Region:	Nuussuaq
Subregion:	
Locality:	Annertuneq
UTM-coordinates:	22W DD 090 521
Ground elevation:	175 m
Total length of core:	47.09 m
Date:	24-26 July 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

Shallow drill core #:	GGU 400706
Name:	Annertuneq #2
Region:	Nuussuaq
Subregion:	
Locality:	Annertuneq
UTM-coordinates:	22W DD 091 522
Ground elevation:	125 m
Total length of core:	63.23 m
Date:	27-28 July 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

Shallow drill core #:	GGU 400707
Name:	Annertuneq #3
Region:	Nuussuaq
Subregion:	
Locality:	Annertuneq
UTM-coordinates:	22W DD 087 525
Ground elevation:	30 m
Total length of core:	64.63 m
Date:	1-2 August 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

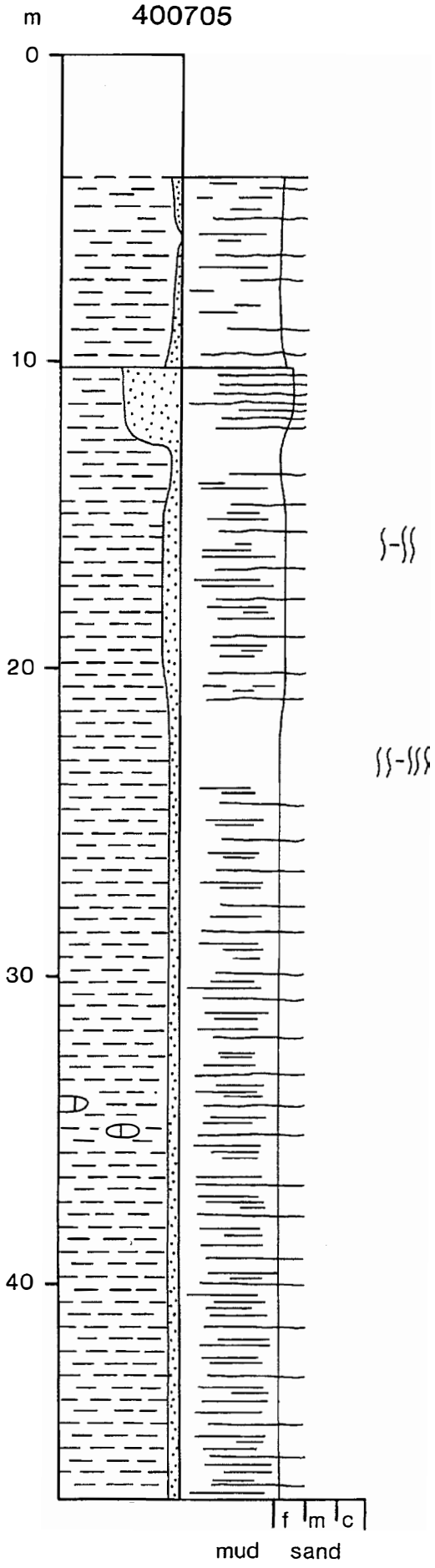

Fig. 8. Log of GGU 400705.

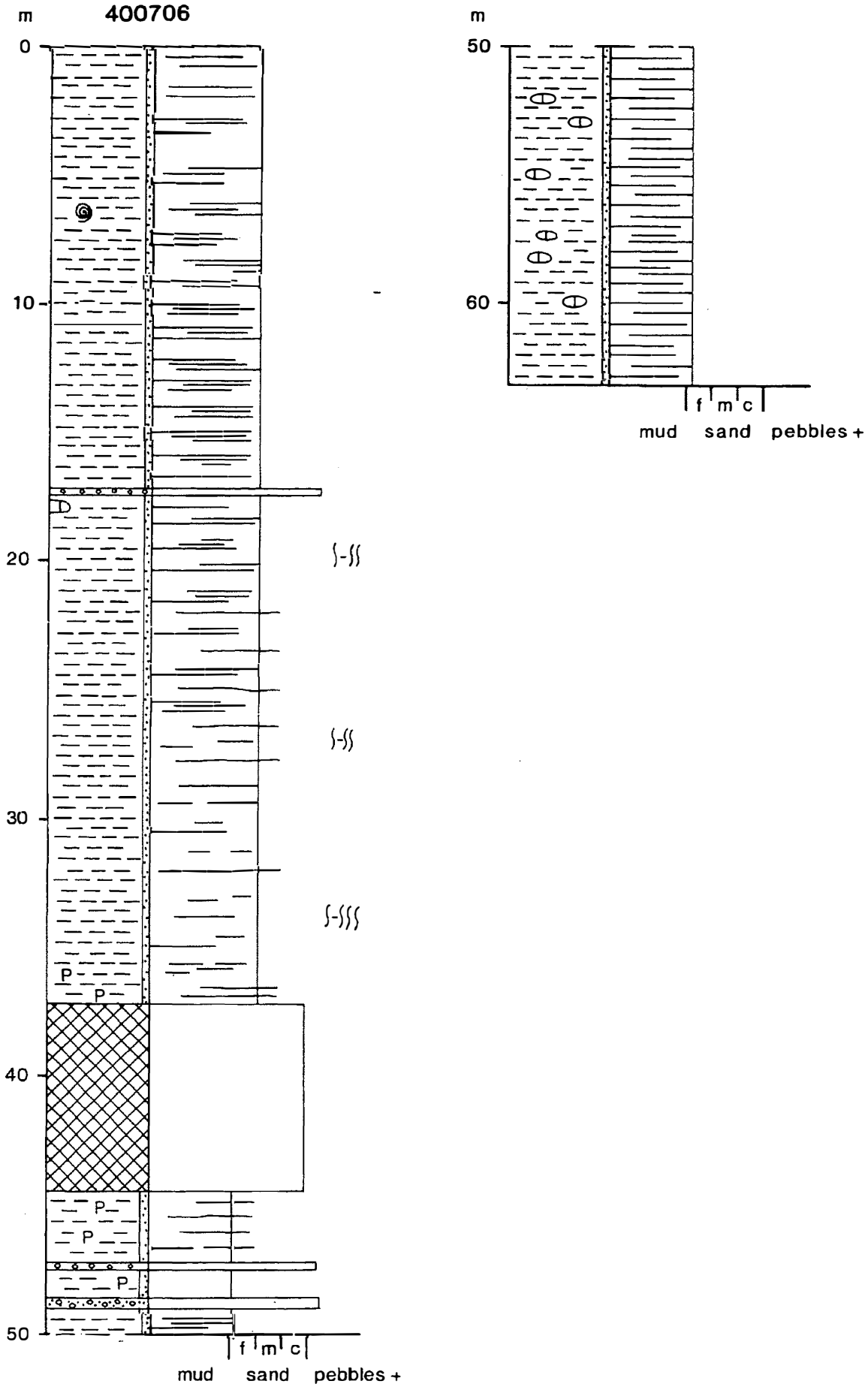

Fig. 9. Log of GGU 400706.

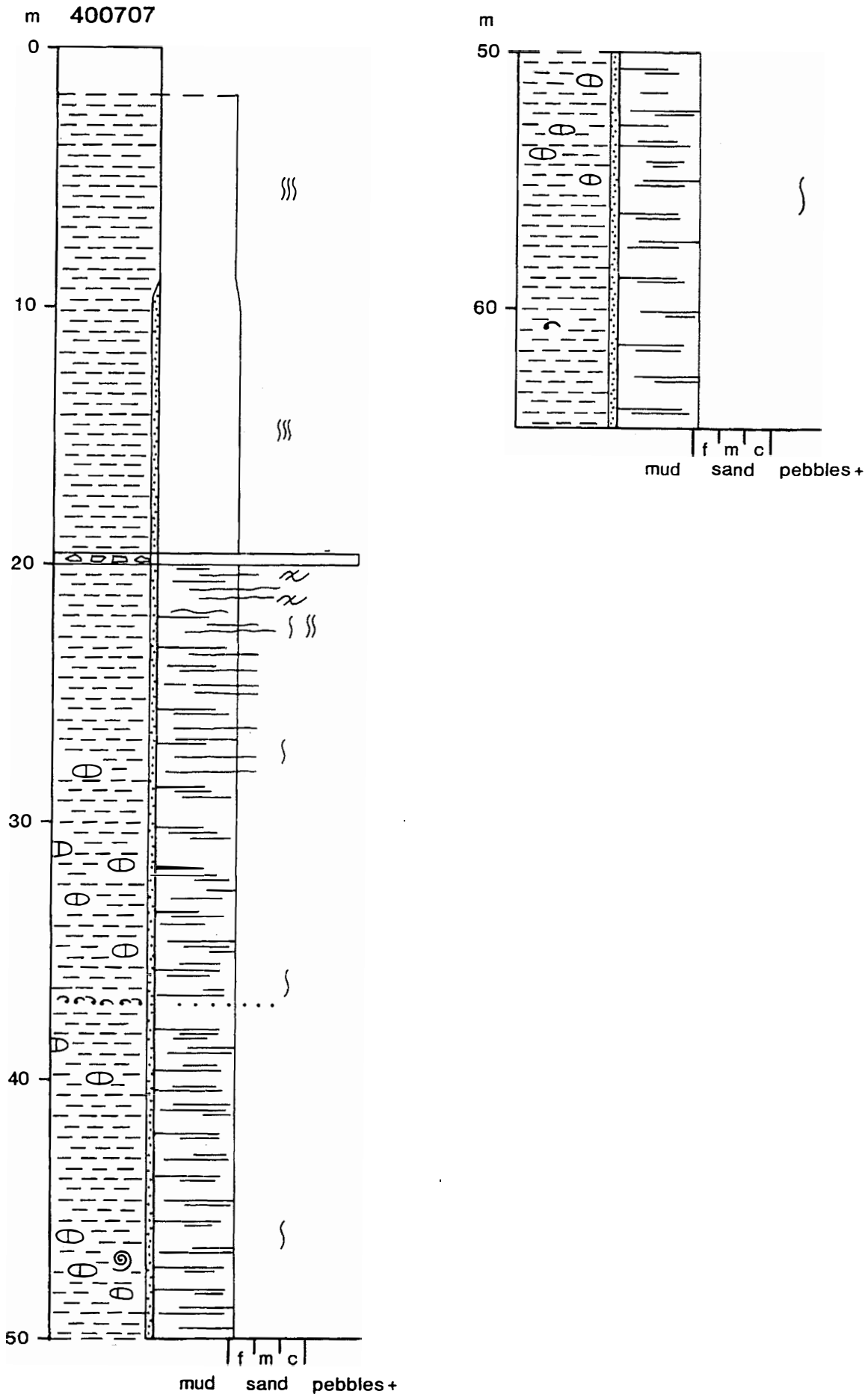

Fig. 10. Log of GGU 400707.

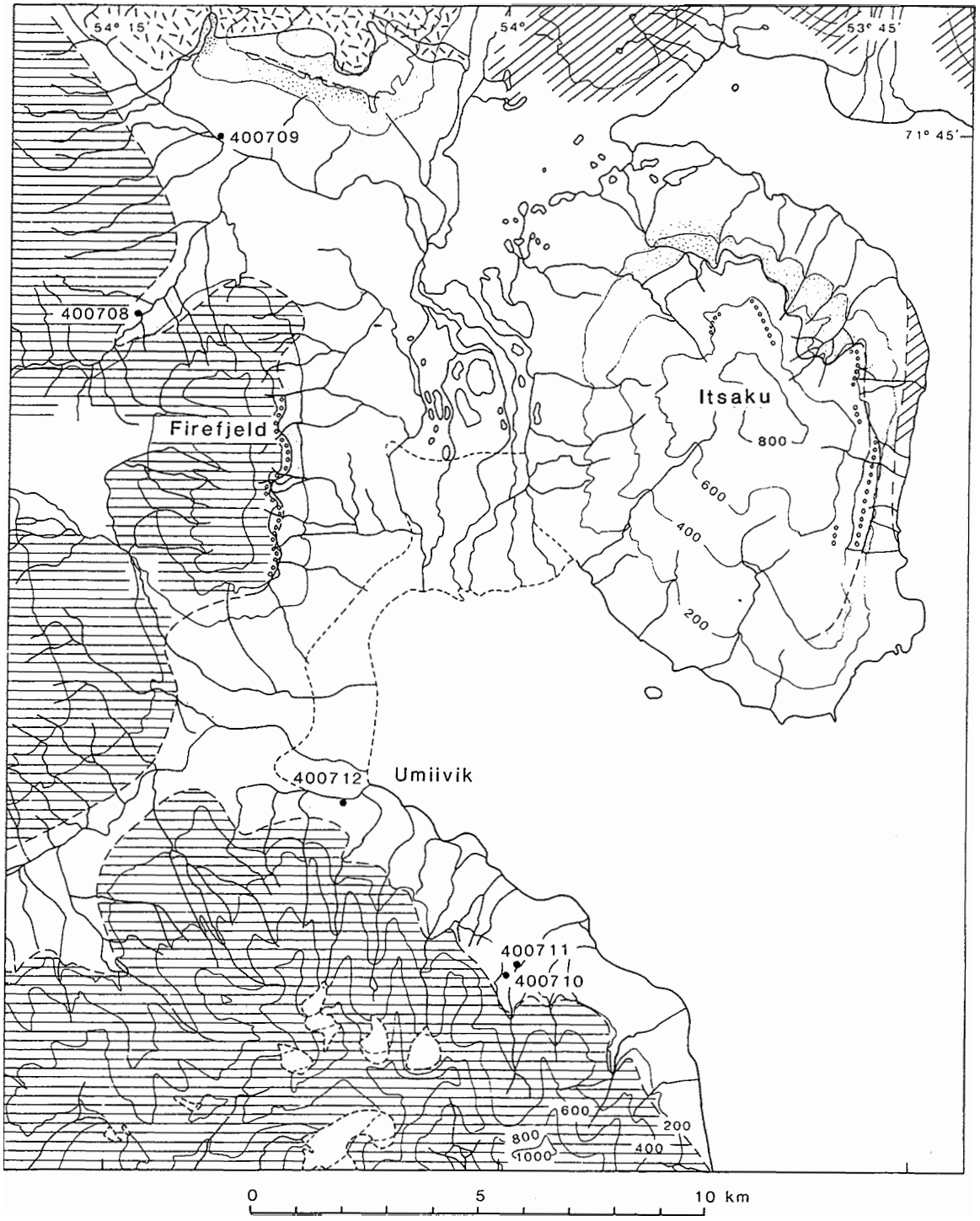

Fig. 11. Map of Svartenhuk Halvø region, with position of drill-sites GGU 400708-400712.

Svartenhuk Halvø

Shallow drill core #:	GGU 400708
Name:	Firefjeld #1
Region:	Svartenhuk Halvø
Subregion:	
Locality:	Firefjeld
UTM-coordinates:	21W WV 969 595
Ground elevation:	125 m
Total length of core:	78.70 m
Date:	6-7 August 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

Shallow drill core #:	GGU 400709
Name:	Qorlortup Kuua #1
Region:	Svartenhuk Halvø
Subregion:	
Locality:	Qorlortup Kuua
UTM-coordinates:	21W WV 982 635
Ground elevation:	50 m
Total length of core:	86.24 m
Date:	10-12 August 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

Shallow drill core #:	GGU 400710
Name:	Store Tange #1
Region:	Svartenhuk Halvø
Subregion:	Umiivik
Locality:	Kussinersuaq
UTM-coordinates:	22W CE 944 454
Ground elevation:	157 m
Total length of core:	66.23 m
Date:	15-16 August 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

Shallow drill core #:	GGU 400711
Name:	Store Tange #2
Region:	Svartenhuk Halvø
Subregion:	Umiivik
Locality:	Kussinersuaq
UTM-coordinates:	22W CE 947 458
Ground elevation:	95 m
Total length of core:	54.55 m
Date:	17-18 August 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

Shallow drill core #:	GGU 400712
Name:	Umiivik #1
Region:	Svartenhuk Halvø
Subregion:	Umiivik
Locality:	Tange 1
UTM-coordinates:	21W XV 017 494
Ground elevation:	5 m
Total length of core:	80.48 m
Date:	20-21 August 1992
Geophysical logs:	Gamma ray
Drilled stratigraphy:	Cretaceous shales

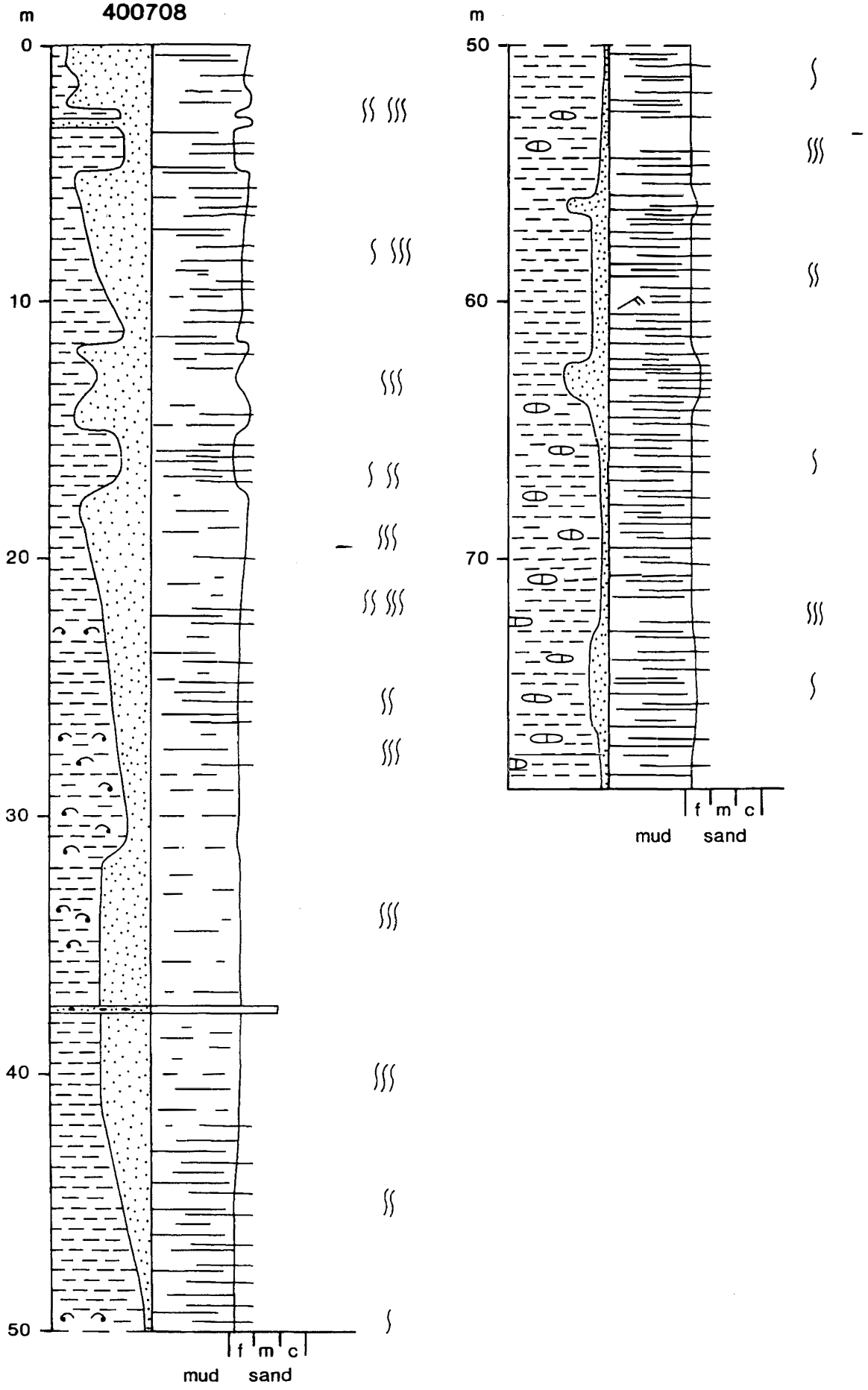

Fig. 12. Log of GGU 400708.

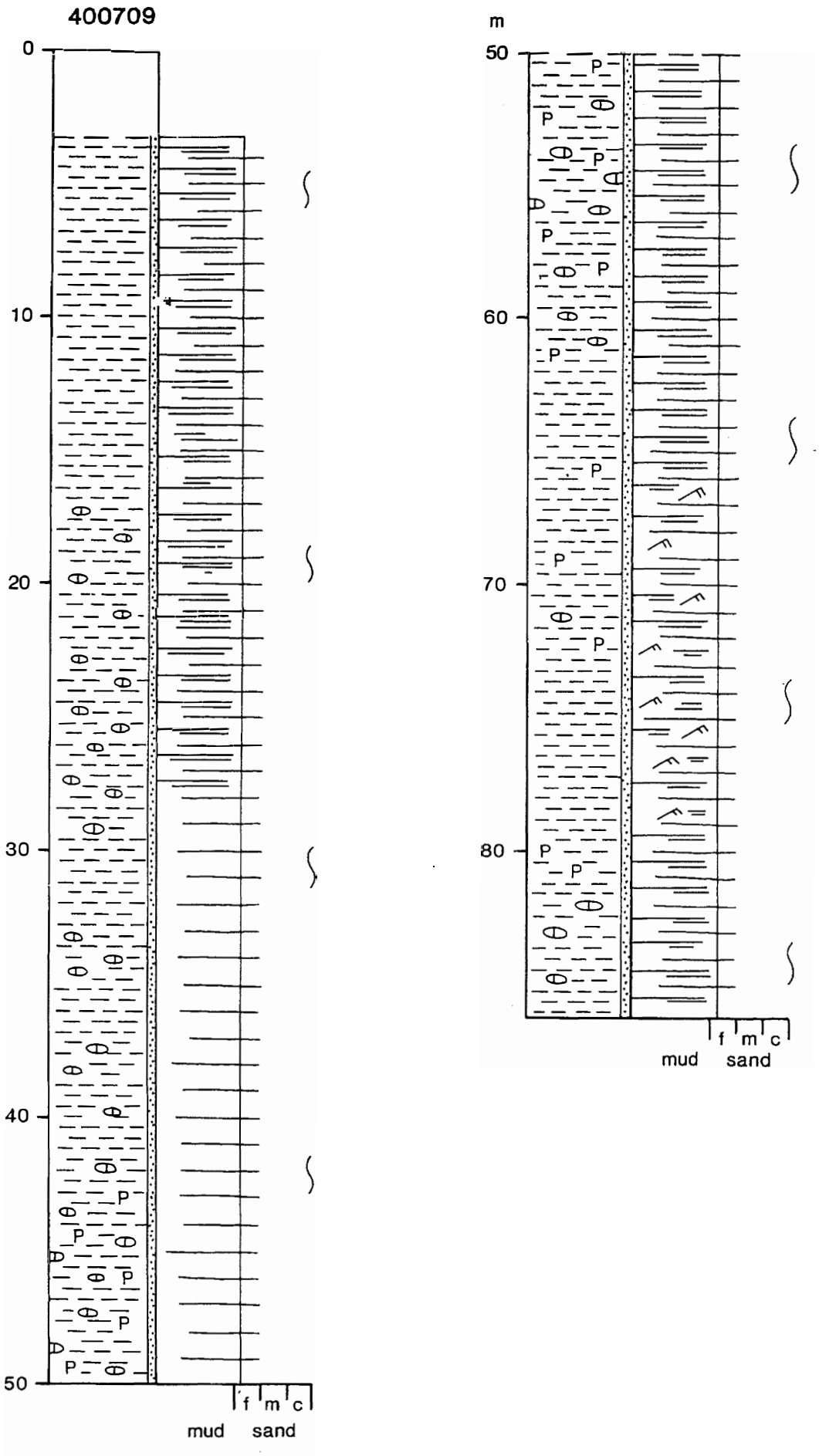

Fig. 13. Log of GGU 400709.

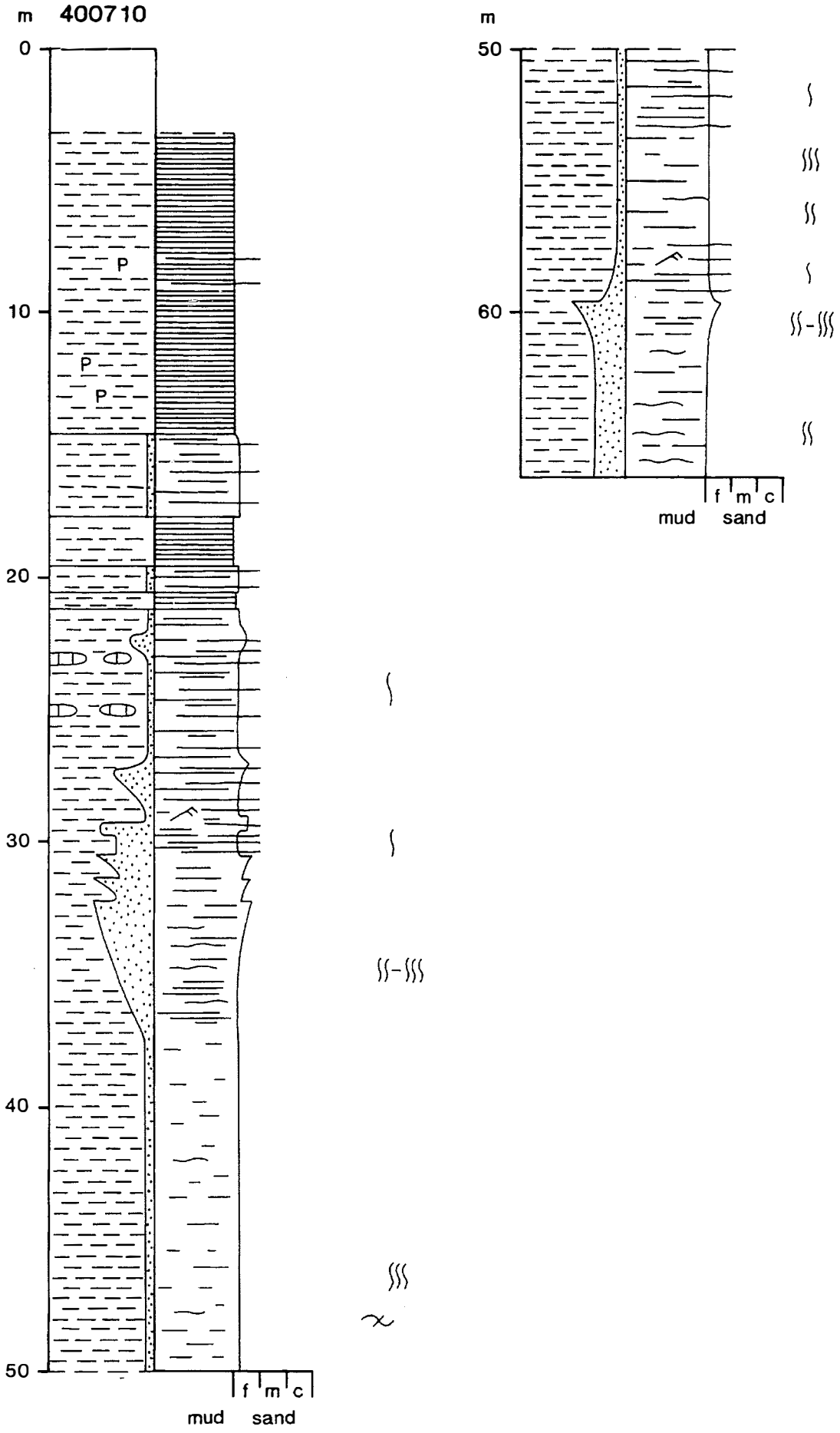

Fig. 14. Log of GGU 400710.

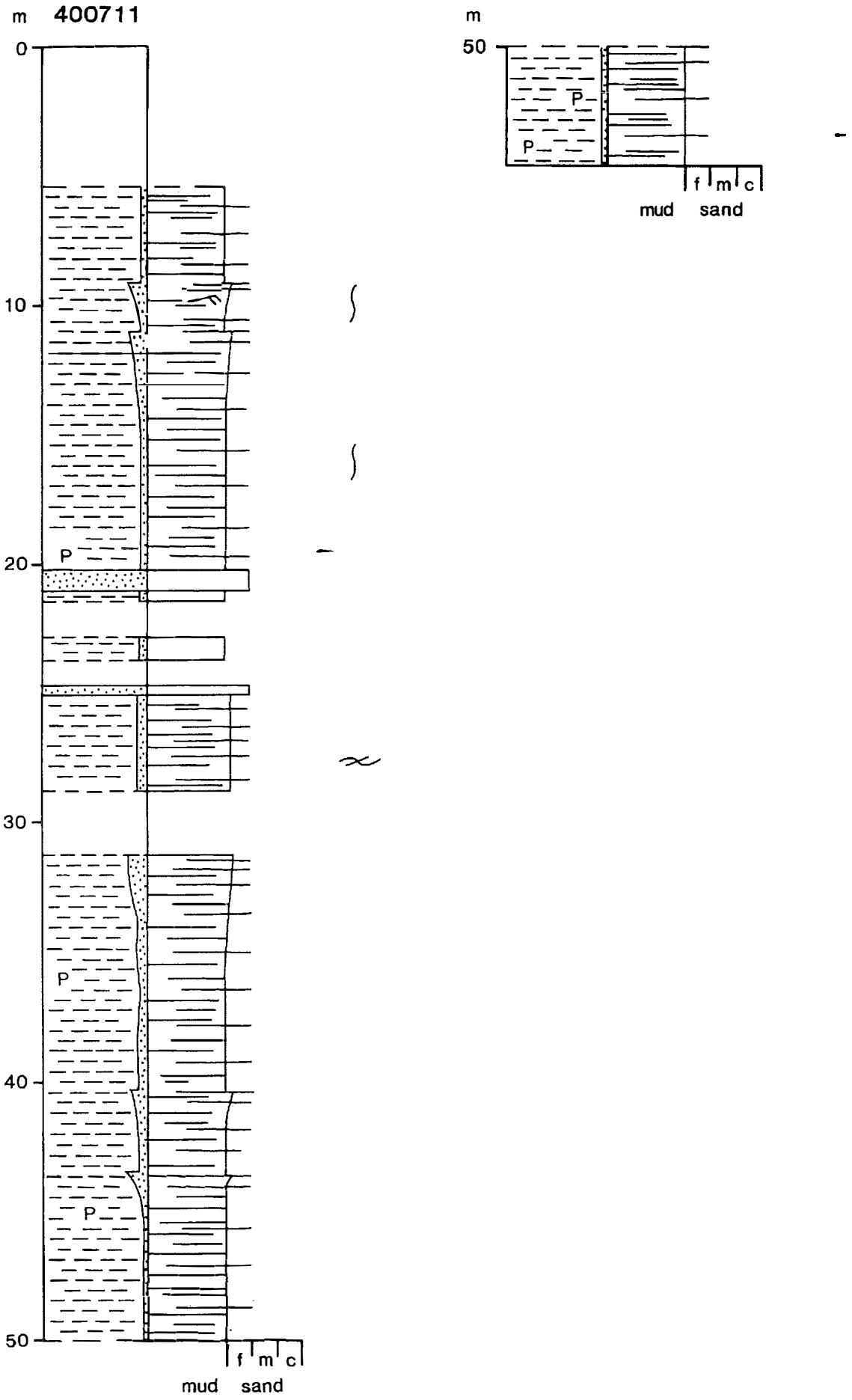

Fig. 15. Log of GGU 400711.

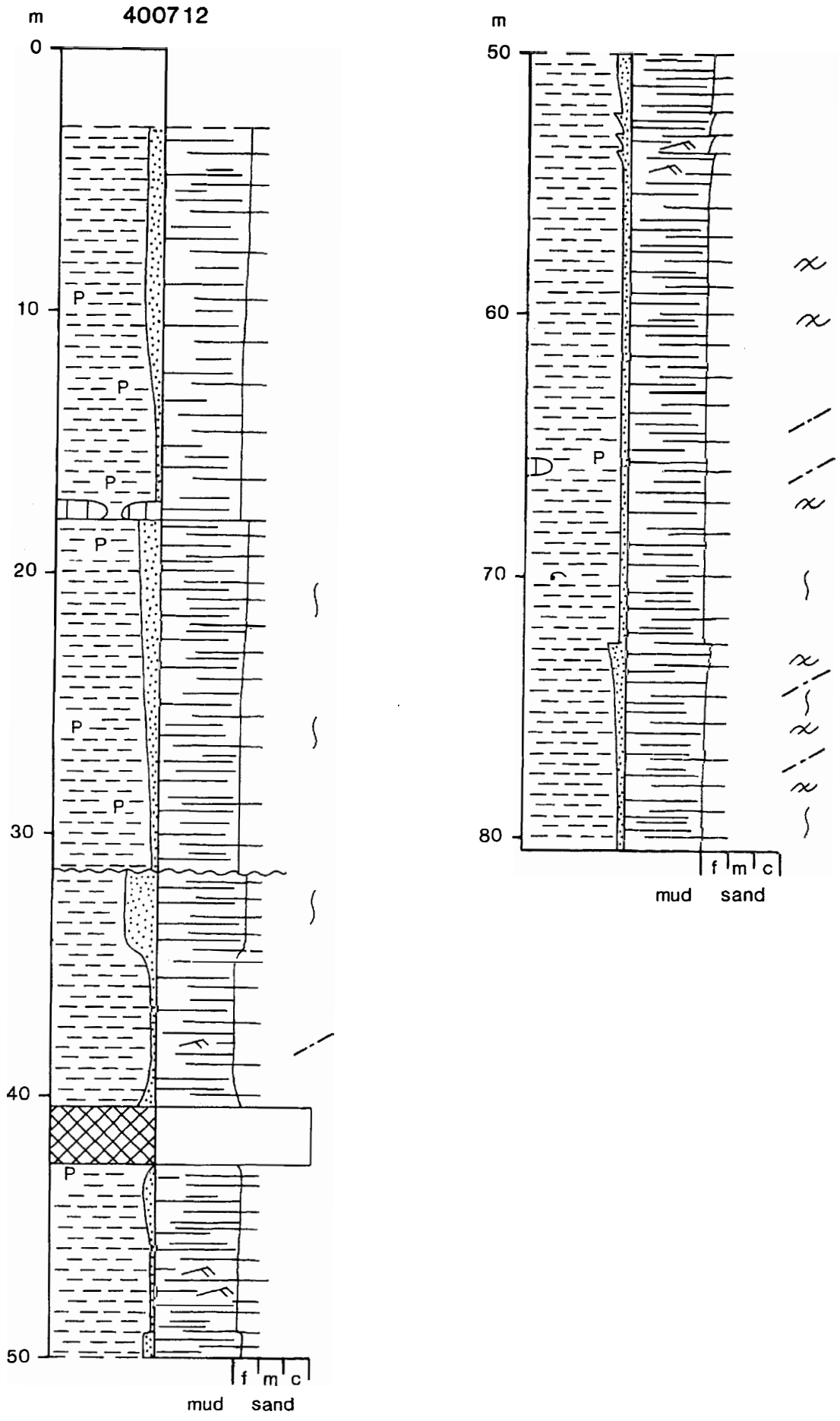

Fig. 16. Log of GGU 400712.

References

Birkelund, T. 1965: Ammonites from the Upper Cretaceous of West Greenland. *Bull. Grønlands geol. Unders.* **56**, 192 pp.

Christiansen, F. G. 1993: Disko Bugt Project 1992, West Greenland. *Rapp. Grønlands geol. Unders.* **159**, 47-52.

Christiansen, F. G., Dam, G., McIntyre, D. J., Nøhr-Hansen, H., Pedersen, G. K. & Sønderholm, M. 1992: Renewed petroleum geological studies onshore West Greenland. *Rapp. Grønlands geol. Unders.* **155**, 31-35.

Kalsbeek, F. & Christiansen, F. G. 1992: Disko Bugt Project 1991, West Greenland. *Rapp. Grønlands geol. Unders.* **155**, 36-41.

Nøhr-Hansen, H. 1994a: Dinoflagellate cyst biostratigraphy of the Upper Cretaceous black mudstones on Svartenhuk Halvø, West Greenland. *Open File Series, Grønlands geol. Unders.* **94/9**, 77 pp.

Nøhr-Hansen, H. 1994b: Dinoflagellate cyst biostratigraphy of the Upper Cretaceous black mudstones in central Nuussuaq, West Greenland. *Open File Series, Grønlands geol. Unders.* **94/12**, 65 pp.

Nøhr-Hansen, H. 1994c: Dinoflagellate cyst biostratigraphy of the Upper Cretaceous black mudstones between Niaqornat and Ikorfat on the north coast of Nuussuaq, West Greenland. *Open File Series, Grønlands geol. Unders.* **94/14**, 53 pp.

Appendix

Geochemical data

Table 1. LECO/ROCK-EVAL screening-data

GGU no	Depth m	TOC wt%	Tmax °C	S1 mgHC/g	S2 mgHC/g	HI mgHC/g	PI S1/S1+S2	PC 0.083(S1+S2)
400701-02	15.26	4.97	429	0.06	1.83	37	0.032	0.157
400701-03	29.11	4.91	427	0.06	1.92	39	0.030	0.164
400701-04	35.06	4.96	430	0.05	1.91	38	0.026	0.163
400701-05	42.21	4.24	425	0.05	1.71	40	0.028	0.146
400701-06	44.73	3.68	430	0.06	1.6	43	0.036	0.138
400702-07	5.31	8.63	430	0.07	3.14	36	0.022	0.266
400702-08	10.68	6.19	428	0.04	2.51	41	0.016	0.211
400702-10	16.27	5.63	425	0.03	2.15	38	0.014	0.181
400702-11	17.06	5.55	428	0.04	2.14	39	0.018	0.181
400702-12	21.45	6.13	422	0.05	1.49	24	0.032	0.128
400702-13	24.67	7.03	422	0.05	2.05	29	0.024	0.174
400702-14	24.96	5.45	432	0.02	1.56	29	0.013	0.131
400702-15	27.06	6.18	427	0.04	2.40	39	0.016	0.203
400702-16	35.60	6.85	429	0.04	2.71	40	0.015	0.228
400702-17	37.37	6.69	428	0.03	2.34	35	0.013	0.197
400702-18	42.66	6.26	429	0.04	2.27	36	0.017	0.192
400702-19	48.71	6.95	427	0.04	2.49	36	0.016	0.210
400702-20	56.68	5.83	427	0.03	2.10	36	0.014	0.177
400702-21	57.73	5.45	426	0.03	1.92	35	0.015	0.162
400702-22	64.14	7.73	421	0.07	3.94	51	0.018	0.333
400703-07	7.52	6.97	430	0.04	2.51	36	0.016	0.212
400703-08	15.47	5.87	433	0.04	2.01	34	0.020	0.170
400703-09	20.48	6.63	432	0.04	2.84	43	0.014	0.240
400703-10	25.29	15.16	433	0.04	3.86	25	0.010	0.324
400703-11	29.40	6.85	432	0.04	2.96	43	0.013	0.249
400703-12	36.97	6.37	432	0.04	2.35	37	0.017	0.198
400703-13	40.58	7.14	430	0.04	2.83	40	0.014	0.238
400703-14	47.08	5.15	431	0.02	1.56	30	0.013	0.131
400703-15	52.50	5.52	430	0.02	1.70	31	0.012	0.143
400703-16	54.00	6.45	433	0.02	2.03	31	0.010	0.170
400703-17	63.53	7.02	432	0.02	2.31	33	0.009	0.193
400703-18	65.45	8.15	434	0.05	3.02	37	0.016	0.255
400703-19	72.25	9.04	434	0.05	3.16	35	0.016	0.267
400704-07	6.73	5.53	435	0.02	1.38	25	0.014	0.116
400704-08	9.44	5.17	432	0.01	1.45	28	0.007	0.121
400704-09	15.32	4.99	431	0.04	1.44	29	0.027	0.123
400704-10	18.49	6.43	432	0.02	1.38	21	0.014	0.116
400704-11	27.00	7.55	430	0.03	2.43	32	0.012	0.204
400704-12	29.36	8.32	434	0.04	3.16	38	0.013	0.266
400704-13	36.14	8.20	433	0.04	2.35	29	0.017	0.198
400704-14	39.63	9.03	432	0.04	2.78	31	0.014	0.234
400704-15	44.26	10.63	431	0.08	3.93	37	0.020	0.333
400704-16	69.34	10.09	434	0.14	4.59	45	0.030	0.393
400704-17	70.86	12.95	427	0.19	11.21	87	0.017	0.946
400704-18	72.80	24.86	425	0.34	22.33	90	0.015	1.882
400704-19	81.35	5.82	433	0.02	1.52	26	0.013	0.128

GGU no	Depth m	TOC wt%	Tmax °C	S1 mgHC/g	S2 mgHC/g	HI mgHC/g	PI S1/S1+S2	PC 0.083(S1+S2)
400705-06	4.48	3.68	437	0.12	1.73	47	0.065	0.154
400705-07	11.91	4.33	436	0.10	1.69	39	0.056	0.149
400705-08	16.15	5.53	436	0.21	2.60	47	0.075	0.233
400705-09	22.93	5.56	440	0.32	4.15	75	0.072	0.371
400705-10	25.42	4.97	435	0.19	2.19	44	0.080	0.198
400705-11	33.24	5.93	440	0.26	3.75	63	0.065	0.333
400705-12	35.02	5.53	441	0.20	3.42	62	0.055	0.300
400705-13	43.02	4.35	442	0.21	2.51	58	0.077	0.226
400705-14	44.60	5.91	443	0.31	4.26	72	0.068	0.380
400705-15	47.00	4.46	442	0.26	2.80	63	0.085	0.254
400706-09	5.08	2.22	439	0.09	1.16	52	0.072	0.104
400706-10	17.36	6.67	440	0.58	6.06	91	0.087	0.551
400706-11	20.76	5.50	439	0.37	4.40	80	0.078	0.396
400706-12	28.73	4.78	442	0.26	2.86	60	0.083	0.259
400706-13	30.34	5.49	443	0.43	3.42	62	0.112	0.320
400706-14	35.81	5.27	404	0.40	0.31	6	0.563	0.059
400706-15	50.53	6.42	449	0.58	3.71	58	0.135	0.356
400706-16	51.35	2.10	444	0.14	0.92	44	0.132	0.088
400706-17	51.35	5.50	441	0.44	4.38	80	0.091	0.400
400707-18	5.17	7.99	444	0.59	7.75	97	0.071	0.692
400707-06	6.56	5.14	456	0.10	1.41	27	0.066	0.125
400707-07	11.40	7.73	436	0.39	4.70	61	0.077	0.422
400707-08	15.33	7.31	443	0.65	7.18	98	0.083	0.650
400707-09	21.03	8.82	445	0.60	6.55	74	0.084	0.593
400707-10	24.76	6.34	443	0.50	5.92	93	0.078	0.533
400707-12	35.67	7.36	444	0.64	6.68	91	0.087	0.608
400707-13	41.91	7.71	444	0.64	6.79	88	0.086	0.617
400707-11	42.43	5.14	446	0.39	3.42	67	0.102	0.316
400707-14	44.62	6.11	444	0.51	4.7	77	0.098	0.432
400707-15	52.01	8.58	443	0.78	8.07	94	0.088	0.735
400707-16	55.64	7.46	442	0.66	8.81	118	0.070	0.786
400707-17	61.73	5.08	445	0.46	4.33	85	0.096	0.398
400708-10	4.13	5.80	432	0.04	2.02	35	0.019	0.171
400708-11	11.18	5.96	432	0.04	3.12	52	0.013	0.262
400708-12	13.07	4.08	433	0.03	1.43	35	0.021	0.121
400708-13	19.25	5.52	431	0.04	2.02	37	0.019	0.171
400708-14	22.99	5.33	434	0.08	2.71	51	0.029	0.232
400708-15	28.81	5.44	434	0.05	2.25	41	0.022	0.191
400708-16	34.47	6.52	434	0.03	2.82	43	0.011	0.237
400708-17	40.34	4.39	432	0.06	1.84	42	0.032	0.158
400708-18	44.83	6.25	431	0.08	3.10	50	0.025	0.264
400708-19	47.24	5.98	431	0.08	3.23	54	0.024	0.275
400708-20	51.22	4.97	432	0.06	2.62	53	0.022	0.222
400708-21	55.46	2.11	428	0.01	0.83	39	0.012	0.067
400708-22	62.40	3.16	431	0.05	1.58	50	0.031	0.135
400708-23	65.97	4.02	432	0.06	1.89	47	0.031	0.162
400708-24	71.63	6.28	434	0.09	3.39	54	0.026	0.289
400708-25	77.75	4.83	431	0.05	2.62	54	0.019	0.222

GGU no	Depth	TOC	Tmax	S1	S2	HI	PI	PC
	m	wt%	°C	mgHC/g	mgHC/g	mgHC/g	S1/S1+S2	0.083(S1+S2)
400709-10	5.79	2.37	437	0.04	1.51	64	0.026	0.129
400709-11	10.71	2.39	438	0.04	1.63	68	0.024	0.139
400709-12	15.53	1.87	436	0.02	1.34	72	0.015	0.113
400709-13	22.19	1.63	437	0.01	1.25	77	0.008	0.105
400709-14	25.95	1.81	435	0.02	1.21	67	0.016	0.103
400709-15	31.88	1.74	436	0.02	1.23	71	0.016	0.104
400709-16	34.39	1.80	435	0.10	1.31	73	0.071	0.117
400709-17	42.51	1.69	436	0.04	1.23	73	0.031	0.105
400709-18	45.43	1.75	436	0.08	1.22	70	0.062	0.108
400709-19	52.19	1.65	435	0.04	1.08	65	0.036	0.093
400709-20	54.94	1.63	436	0.06	1.22	75	0.047	0.106
400709-21	58.54	1.53	436	0.06	1.04	68	0.055	0.091
400709-22	61.55	1.32	434	0.04	0.84	64	0.045	0.073
400709-23	67.61	1.50	434	0.04	0.92	61	0.042	0.080
400709-24	71.95	1.61	436	0.06	1.10	68	0.052	0.096
400709-25	73.53	1.58	434	0.03	0.95	60	0.031	0.081
400709-26	82.34	1.45	440	0.02	0.90	62	0.022	0.076
400709-27	83.08	1.57	436	0.04	1.00	64	0.038	0.086
400710-07	9.60	5.17	438	0.06	1.55	30	0.037	0.134
400710-08	14.75	4.58	432	0.10	2.32	51	0.041	0.201
400710-09	22.83	5.77	435	0.21	3.80	66	0.052	0.333
400710-10	29.28	4.74	436	0.20	2.28	48	0.081	0.206
400710-11	39.10	4.62	437	0.18	2.64	57	0.064	0.234
400710-12	42.15	7.19	437	0.24	4.88	68	0.047	0.425
400710-13	48.38	3.50	435	0.07	1.86	53	0.036	0.160
400710-14	51.68	5.86	434	0.26	5.16	88	0.048	0.450
400710-15	56.05	2.94	438	0.10	1.88	64	0.051	0.164
400710-16	61.41	3.47	438	0.13	2.22	64	0.055	0.195
400711-06	6.65	4.24	435	0.09	3.23	76	0.027	0.276
400711-07	14.61	3.41	438	0.10	2.41	71	0.040	0.208
400711-08	19.64	2.47	432	0.04	1.66	67	0.024	0.141
400711-09	26.39	2.04	434	0.02	1.27	62	0.016	0.107
400711-10	37.19	4.32	433	0.06	2.93	68	0.020	0.248
400711-11	44.38	4.05	437	0.10	3.87	95	0.025	0.330
400711-12	44.78	4.06	435	0.08	3.46	85	0.023	0.294
400711-13	52.25	3.62	436	0.13	3.15	87	0.040	0.272
400711-14	54.32	3.35	435	0.08	2.81	84	0.028	0.240
400712-12	9.53	3.76	433	0.13	3.15	84	0.040	0.272
400712-13	13.75	3.35	433	0.12	2.19	65	0.052	0.192
400712-14	16.75	3.91	434	0.17	3.84	98	0.042	0.333
400712-15	21.54	2.82	432	0.14	2.93	104	0.046	0.255
400712-16	25.31	3.67	435	0.20	4.78	130	0.040	0.413
400712-17	30.08	4.27	433	0.24	5.43	127	0.042	0.471
400712-21	39.66	3.90	585	0.52	0.30	8	0.634	0.068
400712-22	43.16	3.55	541	0.62	0.97	27	0.390	0.132
400712-23	44.41	4.03	438	0.35	4.61	114	0.071	0.412
400712-24	51.41	2.94	437	0.11	3.07	105	0.035	0.264
400712-25	54.59	2.78	436	0.13	2.47	88	0.050	0.216
400712-26	61.69	3.22	435	0.15	2.82	87	0.051	0.247
400712-27	64.35	3.38	436	0.15	2.64	76	0.054	0.232
400712-28	70.31	4.11	438	0.17	3.59	87	0.045	0.312
400712-29	74.80	2.82	440	0.10	2.44	87	0.039	0.211
400712-30	78.69	3.25	437	0.14	2.58	79	0.051	0.226
400712-31	80.39	3.18	435	0.20	2.92	92	0.064	0.259

Table 2. GC extraction data

GGU no	Depth m	Asphaltenes %	Saturates %	Aromatics %	Polars %	Total SOM mg	Asphalt mg	Ali mg	Aro mg	NSO mg
400703-20	20.39	44.4	9.5	4.8	85.7	10.8	4.8	0.4	0.2	3.6
400705-16	22.83	56.5	7.7	2.6	89.7	17.7	10.0	0.3	0.1	3.5
400705-17	44.51	55.3	9.0	6.0	85.1	20.8	11.5	0.6	0.4	5.7
400706-18	18.04	47.2	13.9	9.7	76.4	26.9	12.7	1.0	0.7	5.5
400706-19	61.17	54.8	11.8	2.9	85.3	15.5	8.5	0.4	0.1	2.9
400707-19	6.42	36.0	24.6	1.6	73.8	22.5	8.1	1.5	0.1	4.5
400707-20	35.78	92.1	20.0	1.8	78.2	17.7	16.3	1.1	0.1	4.3
400707-21	64.36	31.6	15.8	7.0	77.2	20.6	6.5	0.9	0.4	4.4
400708-30	44.92	43.3	0.0	6.5	93.6	14.1	6.1	0.0	0.2	2.9
400708-31	71.53	47.7	2.4	2.4	95.1	12.8	6.1	0.1	0.1	3.9
400709-28	34.48	63.6	0.0	0.0	100.0	5.5	3.5	0.0	0.0	1.4
400709-29	72.04	71.1	10.0	10.0	80.0	4.5	3.2	0.1	0.1	0.8
400710-19	51.80	45.8	3.5	0.0	96.6	24.9	11.4	0.2	0.0	5.6
400710-18	22.74	51.4	4.8	2.4	92.9	22.0	11.3	0.2	0.1	3.9
400711-15	14.70	39.3	9.8	3.2	86.3	16.8	6.6	0.5	0.2	4.4
400711-16	52.15	45.4	6.1	2.0	91.8	15.2	6.9	0.3	0.1	4.5
400712-19	25.23	46.4	9.2	13.9	76.9	17.9	8.3	0.6	0.9	5.0
400712-20	30.19	43.4	8.5	4.2	87.3	20.5	8.9	0.6	0.3	6.2
400712-10	80.01	58.6	37.5	12.5	50.0	14.5	8.5	2.7	0.9	6.2

Table 3. Analysis of light hydrocarbons

GGU no	Depth	CH_4	C_2H_6	C_3H_8	iC_4H_{10}	nC_4H_{10}	iC_5H_{12}	nC_5H_{12}
400702-02	19.29	7.2	0.44					
400702-06	59.53	5.6	5.50	1.42				
400703-02	39.24	31.2						
400703-06	71.96	11.7	0.78	0.14				
400704-02	31.64	9.6	0.29	0.27				
400704-06	78.29	18.4						
400705-02	19.38	14.7	0.65	44.2	9.3	22.0	4.05	4.54
400705-05	46.48	12.4	0.93	37.8	12.1	24.6	4.79	4.27
400706-02	14.27	41.7	0.58					
400706-05	58.27	25.0	134	86.9	4.86	9.6	1.45	1.99
400707-01	7.27	3.25						
400707-02	19.54	9.2	0.42	1.34	1.15	2.93		
400707-03	8.5	27.9	59	6.36	14.8	2.29	3.35	
400707-04	36.35	2.82	0.23	0.13				
400707-05	51.24	14.4	3.56	0.51				
400707-06	6.56	153.0	19.1	6.93	5.90	5.79	1.24	1.26
400708-04	31.30	65.7	0.41	0.20				
400708-05	39.18	22.6	0.68	2.60				
400708-06	49.79	28.3	0.22	*			1.03	0.75
400708-07	58.08	47.2	0.11	1.37				
400708-09	69.26	79.6	0.78	1.23				
400709-04	29.89	94.02						
400709-08	70.21	4.94	0.11	0.43				
400712-03	26.69	5.68	2.19	1.09				
400712-08	59.92	4.63		0.49				
400712-10	80.01	43.50	0.84	0.30				

Concentrations are in ppm volume.

Table 4. GC data

GGU no	Depth m	Iso/n-alk	Pr/Ph	Pr/C17	Ph/C18	Bias	Wax	CPI	Philippi	Npr %	Pr %	Ph %
400703-20	20.39	0.47	1.93	1.20	0.61	0.37	2.35	3.10	4.33	10.5	59.0	30.5
400705-16	22.38	0.27	0.44	0.21	0.46	1.09	0.15	1.29	1.72	40.9	18.0	41.1
400705-17	44.51	1.02	6.87	3.82	0.59	1.38	0.14	1.27	1.67	12.5	76.4	11.1
400706-18	18.04	0.95	5.91	3.48	0.59	0.96	0.10	1.41	2.05	11.8	75.4	12.8
400707-19	6.42	0.66	6.36	2.50	0.37	1.01	0.17	1.29	1.69	13.1	75.1	11.8
400707-20	15.51	0.58	5.83	2.13	0.35	1.08	0.14	1.28	1.65	13.7	73.7	12.6
400707-21	64.36	0.50	5.80	1.80	0.30	1.03	0.16	1.29	1.67	14.2	73.2	12.6
400709-28	34.48	0.34	3.02	1.09	0.35	1.09	0.28	1.59	2.19	11.2	66.7	22.1
400709-29	72.04	0.30	3.28	0.89	0.26	1.33	0.17	1.33	1.85	13.3	66.4	20.3
400710-18	22.74	0.74	6.04	1.85	0.60	1.66	0.59	1.59	2.32	14.7	73.2	12.1
400710-19	51.80	0.83	5.07	2.58	0.60	1.60	0.20	1.52	2.01	10.7	74.6	14.7
400711-15	14.70	1.02	3.56	3.03	1.02	1.09	0.38	1.68	2.42	9.5	70.6	19.8
400711-16	52.15	0.95	4.06	2.87	0.80	0.99	0.59	1.70	2.31	10.8	71.6	17.6
400712-19	25.23	1.09	3.99	2.65	1.11	2.19	0.19	1.35	1.90	11.2	71.0	17.8
400712-20	30.19	1.10	4.03	3.32	0.99	1.31	0.37	1.48	2.00	11.1	71.2	17.7
400712-10	80.01	0.88	5.04	2.70	0.62	1.05	0.68	1.53	2.20	12.1	73.3	14.6

Saturated EOM-fractions are analysed by capillary gas chromtography. The parameters listed in Table 4 are:

Pr/Ph: Pristane-phytane ratio
Pr/nC17: Pristane-heptadecane ratio
Ph/nC18: Phytane-octadecane ratio
Waxiness: nC31/nC29
Bias: ΣnC15-nC22/ΣnC23-30
CPI: 2×(nC23+nC25+nC27+nC29+nC31)/(2×(nC24+nC26+nC28+nC30)+nC22+nC32)
Philippi: 2×nC29/(nC26+nC30)

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