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AUSTRALIAN GEOLOGICAL
SURVEY ORGANISATION

AUSTRALIAN PETROLEUM SYSTEMS

PAPUAN BASIN MODULE

VOLUME 3

BY

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APPENDIX 10 : SUMMARIES FROM OPEN FILE GEOCHEMICAL REPORTS

Petroleum Geochemical Analyses of Sediment Samples from Barikewa 1, Iehi 1, and Omati 1 - by: Kingston, E.E., 1988 BHP Research, PNG Archive F2/R/88-333

i) Seven samples were taken from three wells and were analysed for extract yields and saturate fraction biomarkers.

ii) Three samples from Barikewa (7196 ft), Iehi (10032 ft) and Omati (10825 ft) showed pristane/nC17 ratio > 0.9 which is usually associated with low maturity sediment extracts. These samples also showed low values for %Ts parameter an indicator for lower maturity levels.

iii) The %C29NOR sterane parameter is used as an indicator on the relative maturity levels of the source sample. The sterane parameter reaches a value of about 30-40 % at the onset of oil generation and continues to increase to an equilibrium value of about 56%. All seven samples show values of greater than 35%. Equilibrium values were observed for three samples indicating higher level of maturity such as Iehi 1(8556 ft and 8562 ft) and Omati (14240 ft -14250 ft). In general, all seven samples appear to have entered the present day oil window.

iv) All seven samples show saturate GC traces with significant levels of waxy normal alkanes (>C22) and most of the samples show Carbon Preference Index (CPI) values > 1.0 These characteristics indicate a terrestrially-derived organic matter input into these sediments.

v) C27/C29 sterane parameter is used as an indicator of organic matter type. Values of 0.4 or less indicate a predominantly terrestrially derived organic source while values of 1.0 or greater indicate predominantly aquatic (marine) organic source. Samples in Iehi 1 (8556 ft and 8562 ft) show C27/C29 ratio of 0.3. In Barikewa 1 (7196 ft) and Omati 1 (10825 ft), the C27/C29 ratio value > 1.0. In Iehi 1 (10032 ft) and Omati 1 (14240 ft - 14250 ft) showed ratio values indicating organic matter type derived from both environments. The deepest Omati sample (14307 ft - 14320 ft) may be contaminated with cavings.

Geochemical Evaluation of Mananda 3X Oil (8115 ft - 8145 ft) and Juha 1X Condensate (10488'-10583') - by: Thompson, S., 1986 Robertson Research for Chevron Overseas Petroleum Inc. PNG Archive F1/R/86-9

The Mananda 'oil' is considered to be more of a condensate that has lost a large proportion of its volatile (gasoline range) components after entrapment. The volatilise may have been lost due to either selective leakage of gas and gasoline or by water washing. It is genetically similar to the Juha condensate. Most Papuan oils and condensates belong to a single family, probably the Jurassic gas-prone source rocks, rich in terrestrial organic matter and low in preserved planktonic remains (organic facies C & B-C). Of the source rock extracts analysed as part of the Robertson Research study, only Iviri 1 (3219.5m-3221.0m Maril Shale) is almost unaffected by migrant hydrocarbons and gives a good correlation to the Mananda oil in terms of both carbon isotope ratios and biomarkers. The remainder either contain 18a(H) oleanane and/or are possibly attributable to migrant hydrocarbons.

Results from geochemical analysis show that the Mananda oil is a light oil (46 deg API gravity) which does not contain a biodegraded residue (demethylated hopanes are absent, little or no unresolved mixture of branched/cyclic hydrocarbons). The oil has been severely water washed, and was originally a condensate (C4 to C14 hydrocarbons have been severely depleted with respect to the C15+ hydrocarbons, volatile content - 10.5% is low with respect to the low density - 46 deg API). Oil has been generated by a source apparently containing a mixture of marine algal and land plant derived organic matter which is middle to late mature.

Results from geochemical analysis show that the Juha condensate (53 deg API) has not been affected by alteration processes (60% of the hydrocarbons are lost by topping, no unresolved mixture of branched/cyclic hydrocarbons is present, isoprenoid/n-alkane ratios are very low, only unresolved traces of biomarkers are present).

The Mananda 'oil' and Juha condensate have been generated by a similar source rock type. Geochemical parameter such as carbon isotope ratios, gasoline hydrocarbon composition, pristane/phytane ratios show similar characteristics. Other parameters indicate different characteristics which may have resulted from water washing in Mananda 'oil'.

Mananda oil and Juha condensate have been generated at a similar level of middle to late maturity. Mananda oil does not contain (ie absent or not detected) these biomarkers: 18a(H) oleanane, resin derived components, C28 bionorhopane, moretanes, demethylated hopanes.

Geochemical Interpretation of the Iagifu-2x, Juha-1x, Juha -2x, Juha-3x, and Mananda 3x Wells Papua New Guinea - by: Pecten Niugini Co. 1989. PNG Archive F/R/89-196

Geochemical analysis showed limited source potential for oil was in the Cretaceous and Jurassic samples. Source richness and pyrolysis yields were generally low.

Visual kerogen analyses suggest a mixed lipid-humic kerogen composition (about 50:50). Much of the visually identified lipid material may have been oxidised and have only limited oil generating potential. This was further supported by the low sulphur contents associated with the Jurassic/Cretaceous samples and is consistent with the observed low pyrolysis yields. Maturity determinations from vitrinite reflectance measurements suggest that the Cretaceous and Jurassic sections have reached early to late maturities for oil generation.

Total Organic Content (TOC) and Non-Carbonate Carbon (NCC) contents averaged less than 1% with the richest intervals occurring in the lower part of the Ieru Formation in Mananda 3x. Pyrolysis yields are also very low (less than 0.3 wt %). The highest recorded yields ranging from 0.31% to 0.35 wt% were found in the lower part of the Ieru Formation in Mananda 3x.

Vitrinite reflectance data from Iagifu and Mananda wells suggest that the pre-Ieru intervals have been buried to sufficient depths for oil generation (Vr > 0.62%). Maturity data from the Juha wells indicate that the Ieru Formation through to the Imburu section has reached an early to late stage of maturity for oil generation (Vr 0.62 - 1.0). This suggests that the low richness and pyrolysis yields may have been affected by prior expulsion of hydrocarbons. It is also possible that oxidation may have diminished the oil potential prior to maturation.

Oil Geochemistry Iagifu-2x, Iagifu-3x, Hides-1, SE Hedinia-1x, SE Hedinia-2x - by: Pecten Niugini Co Ltd 1991, PNG Archive F1/R/91-271

Oils sampled from these wells have not been biodegraded. The high API gravities, low sulphur contents, smooth n-alkane profiles and low pristane/phytane (C17/C18) ratios indicate that the oils were generated from a mature source rock. Some samples from Hides 1 and SE Hedinia 2x may have been affected by either evaporation or gas washing.

The oils sampled from Iagifu 3x and SE Hedinia 1x showed similar gasoline range hydrocarbon compositions but are distinguishable from oils in Hides 1. Based on whole oil GC profiles, significant contribution from landplant waxes are present in the Iagifu-3x and SE Hedinia 1x samples. However, no oleanane was identified in either sample.

The oil samples from Hides 1 showed low concentrations of higher carbon number compounds. This is partly due to their higher maturities (53-55 deg API gravity). The samples also contain oleanane (landplant biomarker).

The differences between the Iagifu-SE Hedinia oils and the light oils/condensates from Hides may be due to facies changes within a single source rock horizon, a petroleum charge from two different source rock horizons, or from hydrocarbon mixing due to re-migration and secondary charge.

The Geochemistry of Sediments, Condensates, Gases and Water from Well Angore 1A ST, PPL27, Onshore Papua New Guinea - by: Baylis, S.A., BP Research 1991, PNG Archive F1/W/90-383-7

The sediments intersected in Angore 1A ST are bordering on thermal maturity, the conventional oil generation threshold is interpreted to be at about 3650m.

Both the Jurassic Imburu Formation sediments and the basal cretaceous Toro Formation show very lean source potential. The Cretaceous Ieru Formation is also predominantly lean with occasional intervals showing some potential. A thin coal at 3402m shows high potential but its maturity is low. It may also represent caved material as the sample shows heterogenous characteristics.

Gas and condensate were produced from the Toro Formation. The condensate can be classified as sourced by gymnosperm dominated higher land plant material. The distinction between angiosperm-dominated and gymnosperm-dominated source is based on the percentage of saturated compounds which is not a clear distinction in a condensate. Therefore the possibility of an angiosperm dominated or a mixed source cannot be ruled out. The land plant nature of the source is demonstrated by the high pristane-phytane ratio and the predominance of C29 steranes in the C27/C29 sterane distribution. Both hopane and sterane isomerisation reactions have reached equilibrium suggesting palaeotemperatures in excess of 130^{o}C to 140^{o}C.

The gases are formed by oil to gas cracking at 160^{o}C with a contribution from non-associated gas. The maturity of the gas gives an indication of the maximum palaeotemperatures reached by the source rock.

It is unlikely that the gas condensate produced in Angore 1A was sourced by any of the sediments analysed.

The Geochemistry of Sediments, Condensates and Gases from Well Elevala 1, PPL 81, Onshore Papua New Guinea - by: Baylis, S.A., BP Research 1990, PNG Archive F2/W/90-318-13

Vitrinite reflectance and spore colour indices showed that the sediments intersected in the well are thermally immature. Maturity data indicate that the oil generation threshold might occur at 3000m. Sediment extract from 2130m was analysed by GCMS. The hopane and sterane isomerisation reactions have not reached equilibrium and indicate maximum paleotemperatures of 90°C.

The Recent Orubadi Formation consists of very rich but immature source horizons with potential for gas. Visual kerogen analysis indicates a non-marine/freshwater depositional environment.

The older sediments penetrated by the well are of lean source potential and immature. The Darai Limestone was deposited in an inner shelf sedimentary environment. Soluble extract at 1101m shows characteristics of a marine paleoenvironment but with a significant input from a terrestrial source. the high pristane-phytane ratio supports the presence of land plant material in the source.

A gas condensate and associated gas were analysed to determine their source and thermal maturity. The distribution of the C27/C29 steranes suggests a marine algal source deposited in a clastic environment. However, the pristane - phytane ratio is anomalously high for a marine source. The molecular maturity parameters for the gas condensate contain several contradictory indicators. The stable carbon isotope Galimov curve is characteristic of high maturity and is a more reliable assessment of the maturity of the condensate.

In general, it appears that the gas and gas condensate were probably generated from a lean source with low expulsion efficiency at temperatures of 140°C and 155°C to 160°C respectively. The gas is probably due to minor cracking to oil. It seems likely that one or more late gas charge(s) were added to less mature hydrocarbons, the gas (condensate) now mainly being present.

Organic richness of the Pliocene to Recent section is considered to be moderate to good. However, the sequence is thermally immature to early mature and so cannot be considered as potential source rocks.

Headspace gas analysis revealed high concentrations of C1 to C4 gas. The wetness of this gas however, is very low and so the gas is not considered related to oil accumulations. This gas could either be sourced from mature sediments at greater depths, such as from within the gas prone Mesozoic section or alternatively be of biogenic origin produced in situ.

The organic richness of the Eocene to Miocene section is considered to be poor to fair. The sequence is considered to be thermally early mature. Kerogen typing of a sample at 3153m reveals that the organic matter present is dominated by Type III vitrinite and Type III/IV inertinite, with only 25% of the organic matter being oil-prone type I/II kerogen.

The organic richness of the Middle Jurassic section is considered to be moderate but its oil generation potential is considered to be poor to fair. This poor generation potential is due to the kerogen within the sequence being predominantly gas prone Type III vitrinite and Type III/IV inertinite.

The Type III gas prone vitrinite constitutes up to 70% of total kerogen content. The combined vitrinite content and the inertinite(Type III/IV) content constitute between 55% and 95% of the kerogen assemblage. Type I/II oil-prone liptinitic macerals are present between 10% and 20% of the kerogen content. Type I oil prone alginite is also present in some samples at up to 15% of the content. Visual kerogen data from this interval indicates the predominance of terrestrially derived organic matter deposited in an oxidising marginal marine/fluviomarine or deltaic environment.

Maturity parameters (vitrinite reflectance, Tmax, TAS) indicate that the sequence is early mature to mature, with deeper sections being well within the main zone of oil generation. It is therefore likely that the Mesozoic sequence has generated hydrocarbons but due to the nature of the organic material, the generated hydrocarbons will almost certainly be dry gas. This gas will subsequently have migrated out of the Mesozoic section since only very low concentrations of free hydrocarbons are present in the sequence.

Gobe 1x Geochemical Data Interpretation - by: Cassa, M.R., 1989 Chevron Overseas Petroleum Inc. PNG Archive F1/W/89-54-4

The well was geochemically logged from 3200 ft to 7900 ft. The sampled interval contains mostly Type III to IV kerogen that has poor to no significant hydrocarbon source potential. Based on vitrinite reflectance and Rock Eval Tmax values, the top of the oil window occurs at about 6700 ft. The maturation gradient is consistent with erosion on the order of 4000 ft to 6000 ft since Pliocene times.

Consistent background S1 levels and high productivity index values are probably the result of drilling mud additives. High S2 values in the lower portion of the Ieru Formation in the straight hole was probably related to increasing concentrations of volatilise during the period of stuck pipe. No significant shows were encountered.

Hedinia 1x Geochemical Data Interpretation - by: Cassa, M.R., 1989 Chevron Overseas Petroleum Inc. PNG Archive F1/W/88-256-6

The 1x well and the sidetrack were geochemically logged from 4350 ft to 8490 ft. The sampled interval contains mostly Type III to IV kerogen that have poor to no significant oil source potential.

A thin interval in the lower Ieru Formation (6548 ft - 6750 ft) contains Type II/III degraded kerogen and had S2 yields up to 4.32 g hydrocarbon/ g rock. This type of kerogen is capable of generating mostly gas with small quantities of liquid hydrocarbons.

Based on vitrinite reflectance and Rock-Eval Tmax values, the onset of generation is reached at about 7000 ft. The lower Ieru Formation and the Imburu Formation are marginally mature.

Oil and gas with condensate were recovered from tests (DSTs 2-6) in the Imburu Formation in Hedinia 1x. Gas was recovered from DST 1 in the Toro Sandstone in Hedinia 1x. However, oil and gas were recovered at much higher flow rates from tests in the Toro Sandstone in Hedinia 1x ST.

Oil characterisation and correlation of an oil sample and two condensate samples indicate lateral continuity between Hedinia 1x and Iagifu 2x condensates but is isolated from the SE Hedinia 1x condensate reservoir. The reservoirs are laterally discontinuous among the oils from Hedinia 1x, SE Hedinia 1x and Iagifu 2x.

Iagifu 2x Geochemical Report - by: Huizinga, B.J., & Callens, P.J., 1986 Chevron Overseas Petroleum Inc. PNG Archive F1/W/86-62-15

Analyses of sidewall cores and solvent extracted cutting samples indicate that the penetrated sequence contains Type III to IV organic matter and has poor to no significant source potential.

Sporadic cutting samples that show elevated hydrogen indices and S2 potential's on the geochemical log are probably impregnated by well additive contaminants (asphalt). However, following solvent extraction, the S2 responses are extremely low.

The vitrinite reflectance data indicates that the penetrated sequence in Iagifu 2x is mature at depths below 7000 ft. Although many Tmax values must be influenced by the presence of asphalt, the predominant Tmax trend suggests that the rocks become mature below 9500 ft. If any source potential exists below the penetrated section, it most likely has experienced at least the onset of petroleum generation.

The high S1 values and production indices that occur in cutting samples from 8080 ft - 8170 ft and core samples from 8058 ft - 8260 ft are caused by the presence of reservoired oil. However, the elevated S1 responses and production indices that are apparent in cutting samples from 4360 ft - 4420 ft must represent an organic well additive because the log responses over this interval do not support the existence of a likely reservoir.

Petroleum samples recovered from the following; DST 1 (8038-8134ft), DST 2 (8038-8354ft), DST 3 (7979-7998ft), DST 4 (8287-8320ft), DST 5 (8230-8320ft) and DST 6 (8125-8168ft) were geochemically analysed. The fluids from DSTs 4,5, and 6 are virtually identical according to PTC analysis, sulphur content and carbon isotopes. These samples come from the same vertically continuous column of light oil (43.4 to 45.1 API).

Sample recovered from DST 1 consist of a mixture of fluids from the oil column and the gas cap, and are therefore geochemically different from samples in DSTs 3-6. Reservoir pressure data suggest that the column of light oil tested in DSTs 4-6 may be in vertical communication with the DST 1 and DST 3 intervals.

Mananda 3 Geochemical Report - by: Huizinga, B.J., & Callens, P.J., 1986 Chevron Overseas Petroleum Inc. PNG Archive F1/W/86-14-10

Well was geochemically logged from 4460 feet (1359.3m) to 8600 feet (2621.1m). Jurassic rocks, which are believed to be the primary source of petroleum were not encountered in this well.

The penetrated sequence contains Type II-III to Type IV kerogen and shows fair to insignificant S2 yields. Several samples displayed elevated S1 responses and production indices therefore samples may also show anomalously enhanced source characteristics (eg TOC%, HI's, S2 yields)

The vitrinite reflectance data show that the sequence penetrated in Mananda 3x is immature. Histograms of vitrinite reflectance measurements display a bi-modal distribution. The maturation interpretation is based on R1 population in all samples and the R2 population is interpreted to represent reworked material.

A normal maturation relation occurs down the well with no apparent breaks in the maturity trend. This suggests that there are no major unconformities or faults over this interval. Tmax values also indicate that the penetrated sequence is immature.

Biomarkers: Based on biomarker analysis, DST 3 is a mixture of 78+/-2% diesel fluid and 22+/-2% native light oil, which is present in the uncontaminated core. This is also confirmed by carbon-isotope data. By gas-chromatographic analysis, the fluid extracted from the 8139.8 feet (2480.9m) core displays characteristics typical of a light oil rather than a condensate.

A Petroleum Geochemical Evaluation of The 2460m to 3990m Interval of the OPIC Morigio 1 Well Drilled in the Gulf of Papua, Papua New Guinea - by: Jeffrey, A., 1989 Robertson Utama Indonesia for OPIC. PNG Archive F3/W/90-35-5

Spore colour index maturity profile indicates that the well section is early mature between 2460m to 3300m, and middle mature between 3300m to 3990m. Profile indicate that the well section may have reached its maximum depth of burial.

Vitrinite reflectivity maturity profile indicates that the well section is early mature for hydrocarbon generation between 2460m to 3990m. Maturation predicted from SCI is higher.

Pyrolysis Tmax values can be used to indicate the level of maturity if the dominant kerogen types are known and samples are free of contaminations. Changes in the dominant kerogen type can cause variations in the pyrolysis Tmax values unrelated to maturity.

Humic kerogen, composed of vitrinite, is the dominant type of kerogen throughout the interval, so the Tmax values should reflect maturity within the interval. The transition from early to middle maturity, conventionally identified by a Tmax value of 440o C occurs at approximately 3600m which is similar to the maturity estimates based on spore colourations.

Interval 2460m-2560m (Ieru Fm) comprises siltstones deposited in a marine environment with moderate to strong terrestrial influence. Siltstone from 2460m-2465m has a fairly high HI (388) and pyrolysis potential yield (6.41 kg/tonne). The high HI and abundant rusty contamination raise the possibility that oil staining or contamination has affected the pyrolysis results. Interval 2560m-2620m (Toro Fm) comprises rusty fibrous contamination.

No source rocks were observed. Interval 2620m-3264m (Imburu Fm) comprises siltstones and sandstones laid down in a marine environment with strong terrestrial influence. Siltstones have generally fair to average (0.87%-1.15%) TOC contents, but low pyrolysis potential yields (<2.1 kg/tonne) indicating little hydrocarbon source potential.

Kerogen is composed predominantly of vitrinite, although minor amounts of liptinitic material (spores, cuticle, algae) were identified in this formation, and in the underlying Koi-lange Fm. A minor content of waxy kerogen was also interpreted. The liptinitic material may contribute minor oil or wet gas potential.

Pyrolysis production indices are >0.1, which may indicate that these source rocks have generated oil or may be due to the presence of migrant hydrocarbons.

Interval 3624m-3990m (Koi-lange Fm) comprises siltstones with subordinate amounts of sandstones deposited in a marine environment with strong terrestrial influence from 3264m to 3343m, and in marginal marine to non marine environment from 3343m to 3820m.

Siltstones are middle mature for hydrocarbons generation, and pyrolysis data are less reliable for assessing original hydrocarbon potential as some of the potential may already have been generated. Siltstones in this formation have higher pyrolysis potential yields (2.4-3.6 kg/tonne), indicating fair residual hydrocarbon source potential. The low HI (<211) indicate gas as the major product. This is consistent with the predominantly vitrinitic (gas-prone) content of the kerogen. Small amounts of liptinitic material may contribute minor oil or wet gas potential.

Pyrolysis production indices are >0.1, which may indicate that these source rocks have generated oil or may be due to the presence of migrant hydrocarbons.

Orie 1 Geochemistry Report - by: Geoservices 1976 for PNG Petroleum Pty. Ltd. PNG Archive F1/W/76-25

The reflectivity values for indigenous vitrinitic phytoclasts in the six cuttings samples fall in the range of 0.5% to 0.55%. These values suggest that the interval 2380-2800 metres in Orie 1 is transitional mature to mature with respect to gas prone organic material (humic matter).

Cutting samples from 2380 and 2465 metres were observed to be richer in liptinitic material. Sporinite and cutinite, with rare resinite are the main liptinite/exinite components (ie terrestrial sapropelic constituents). Alginite, the principal sapropelic constituents of marine environments was not observed.

Cuttings samples between 2550-2800m appear to contain a relatively low content of liptinite/exinite with respect to vitrinite and inertinite. As such these samples may represent an interval of gas prone organic material.

Pandora 1 Geochemistry Report - by: Chow, Y.C., & Darlington, C., 1988 Robertson Research Pte. Ltd. for International Petroleum Inc. PNG Archive F3/W/88-259

Spore colour indices increases from 2.5 to 3.0 at 2260 feet (688.8m) and 4.5 at 4640 feet (1414.2m). This indicates that the interval 3500 feet to greater than 4640 feet is early mature for oil generation but not within the main oil generating window. Reworked Cretaceous and some Jurassic palynomorphs noted throughout section (thus giving higher SCI values).

Visual kerogen typing shows that organic matter is typically 80-100% vitrinite and minor-20% inertinite. Oil prone organic matter is very rare. Most samples are calcareous mudstones with an average TOC of 1% (2260-4640 feet). Vitrinite reflectivity shows an increase from 0.32% at 2260 feet to 0.41% at 4560 feet. Samples were analysed by oil show analyser and not by Rock Eval pyrolysis, hence the low S2 values.

Wabuda 1 Geochemistry Report - by: Mills, B. 1991 PNG Archive F2/W/92-105

A total of 72 sidewall plugs were obtained for palynology, geochemistry and petrological studies. A shallow core hole which penetrated lower Pliocene sediments showed good levels of extracted organic matter which by analysis appears to represent migrated thermally mature oil. GCMS analysis was performed on bitumen extracts to type the oil.

A total of 23 SWC's were used for geochemical analysis with the following analysis performed: TOC determination, Rock Eval Pyrolysis, Headspace gas analysis, vitrinite reflectance and kerogen typing, GCMS on extracts from basal part of the well and spore colour analysis.

Conclusions are:

(i) the top of the main generative oil window has been placed at about 2980 metres. Geothermal gradient of about 2.7 deg C per 100 metres is calculated from the extrapolated bottom hole temperature of 109 deg C.

(ii) the only zone capable of generating significant amounts of liquid hydrocarbons appears to be the Oxfordian perforans zone below 2725 metres. Kerogen types I and II were identified in this zone.

(iii) small amounts of oil have been generated locally as indicated by the ratio of extracted bitumen to TOC from just above the projected oil window.

Extracts from the shallow borehole and the Oxfordian perforans showed some similarities but GCMS work suggests that the shallow migrated oils were not sourced from the Oxfordian sediments.

No fluorescence or significant gas peak was recorded during the drilling of Wabuda 1. The average background gas remained at less than 0.3%. Trip and connection gas were never seen during drilling, however a trip made during electrical logging showed trip gas (total gas=1.6%, C1=0.95%, C3=0.005%). No fluorescence or hydrocarbon gas of any significance was recorded from the Toro sandstones (max C1=0.23%).

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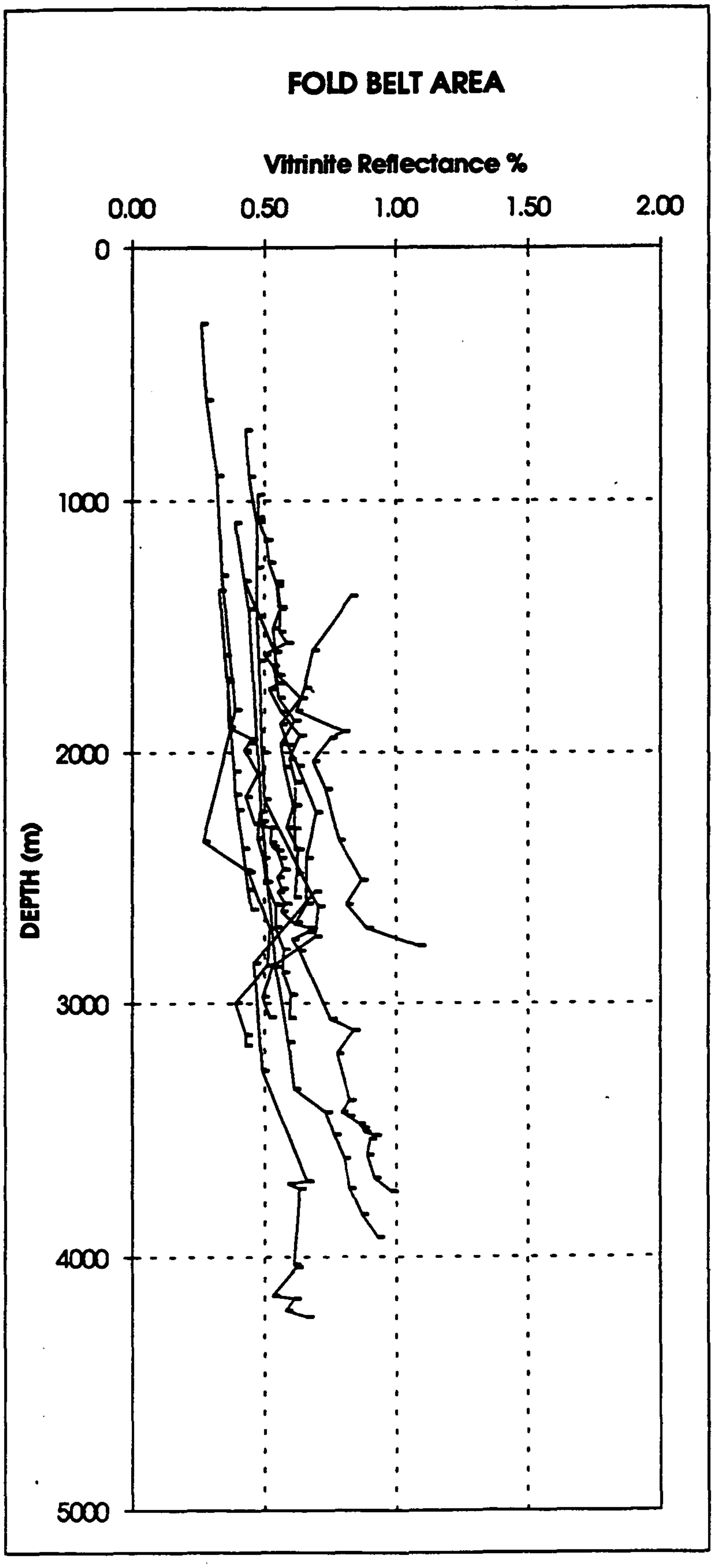
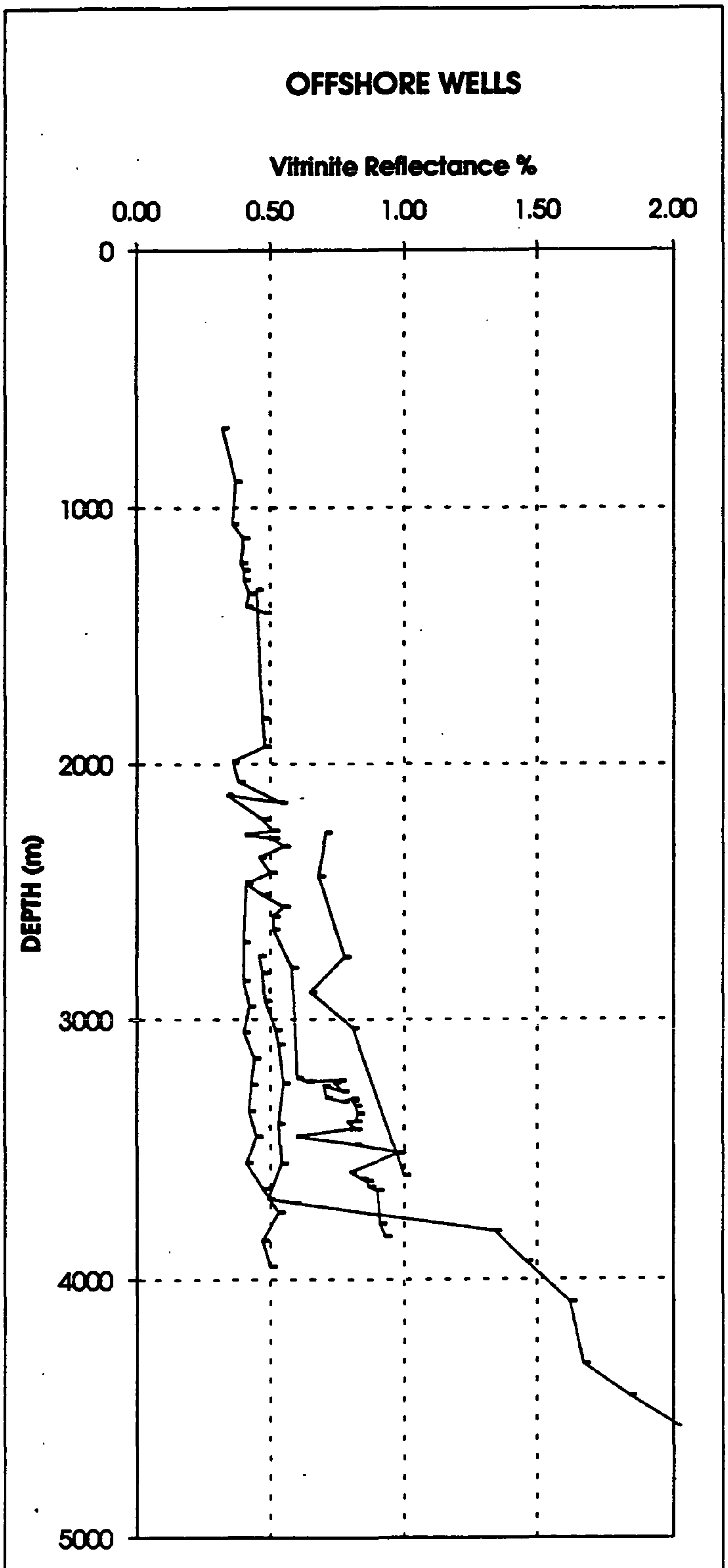
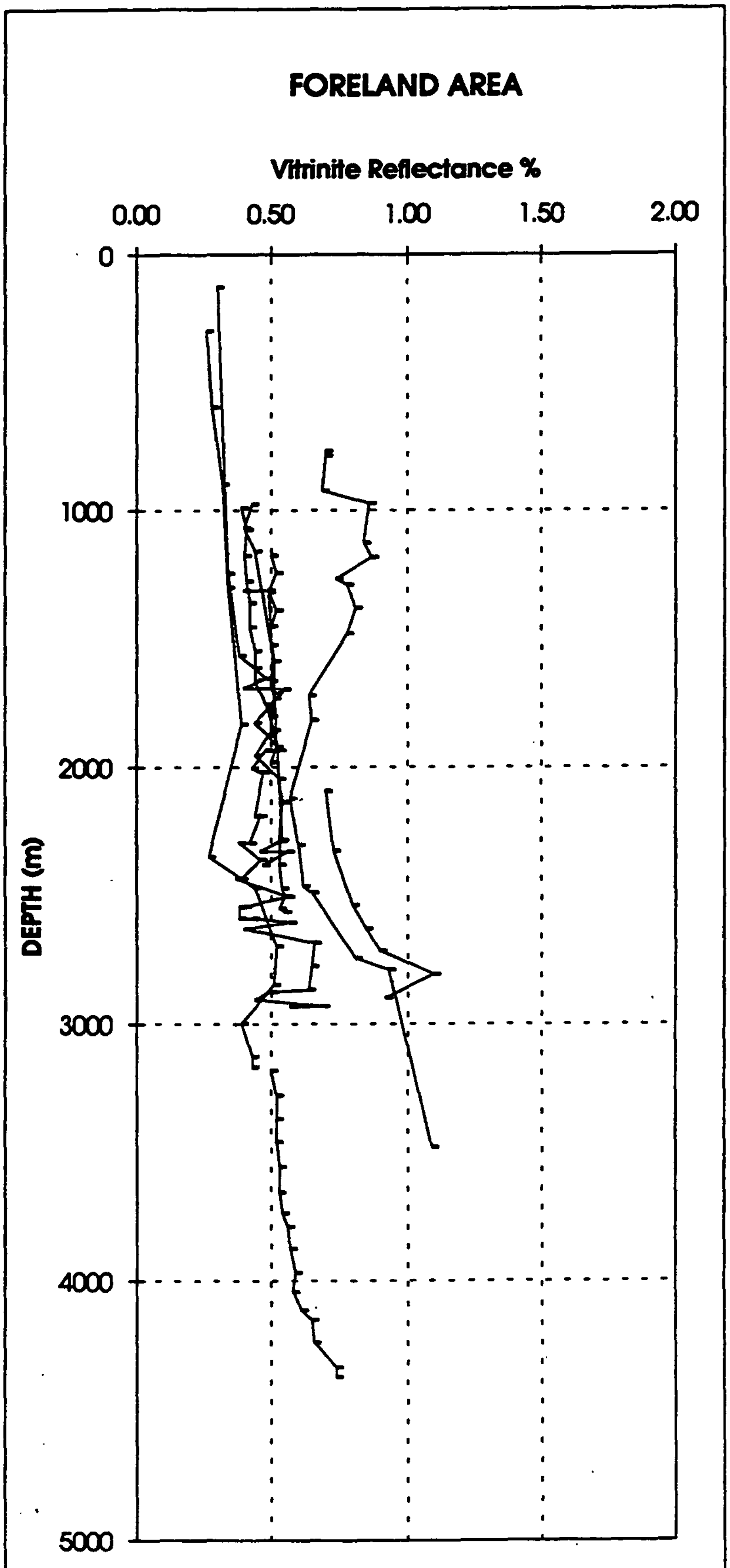
PAPUAN BASIN MODULE

APPENDIX 11 : VITRINITE REFLECTANCE PROFILES


FOLD BELT AREA
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0
1000
2000
3000
4000
5000
DEPTH (m)


OFFSHORE WELLS
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0
1000
2000
3000
4000
5000
DEPTH (m)


FORELAND AREA
Vitrinite Reflectance %
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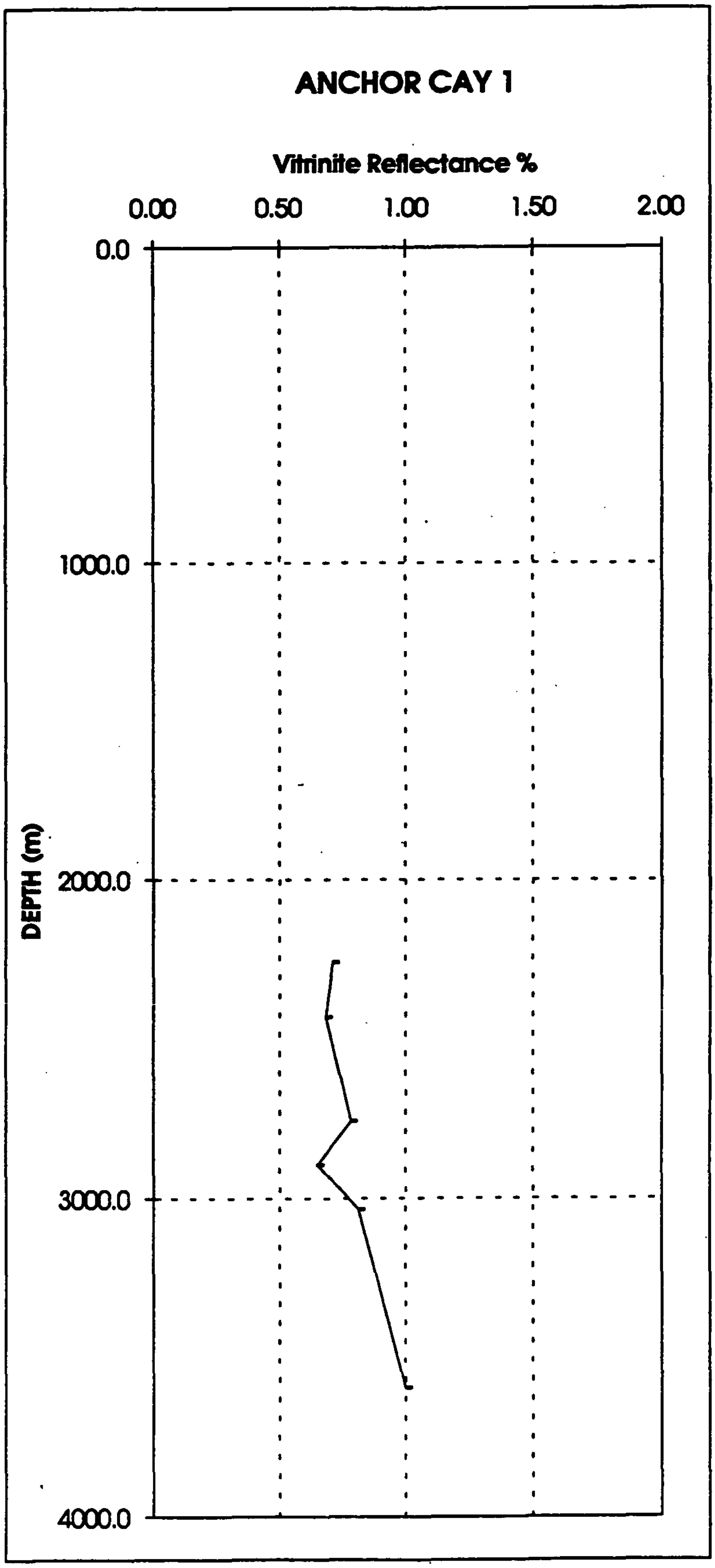
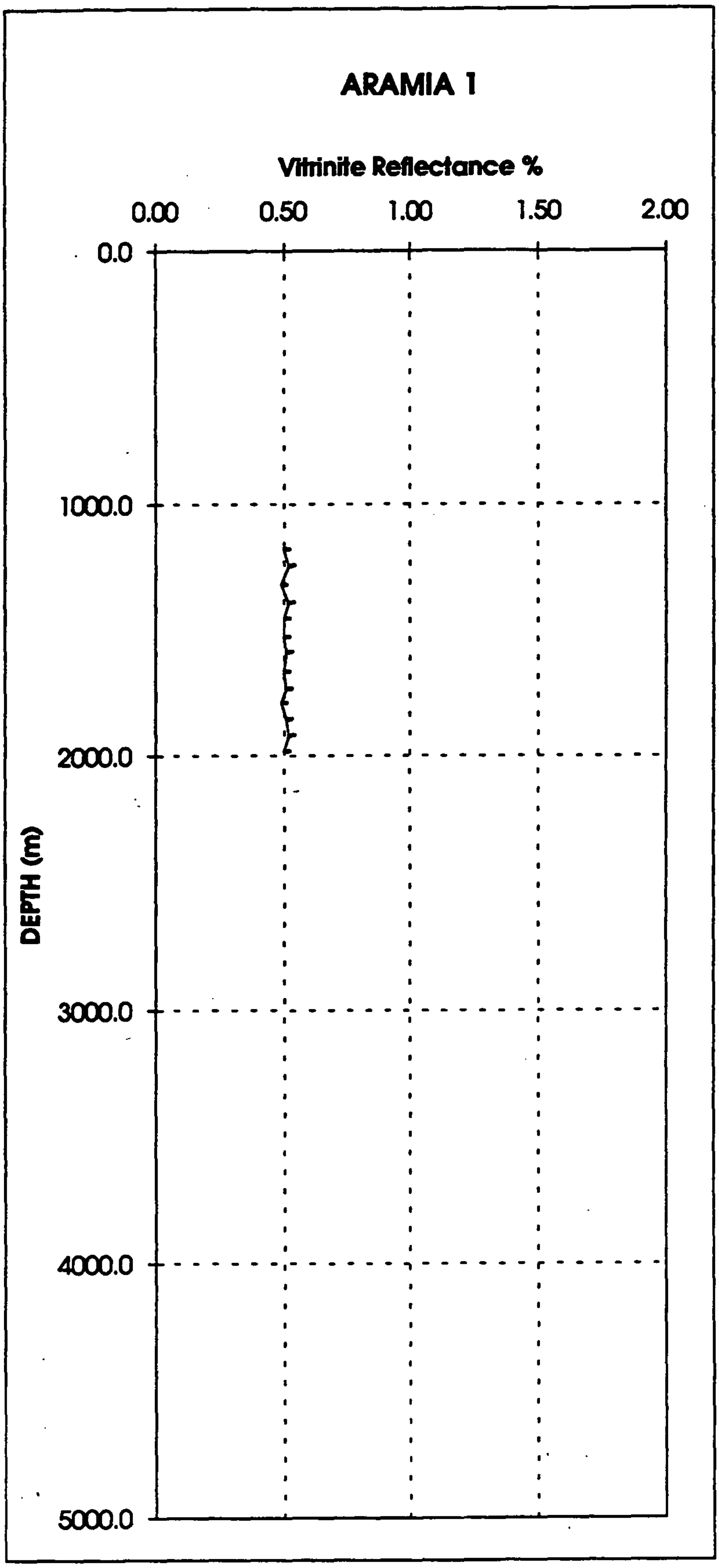
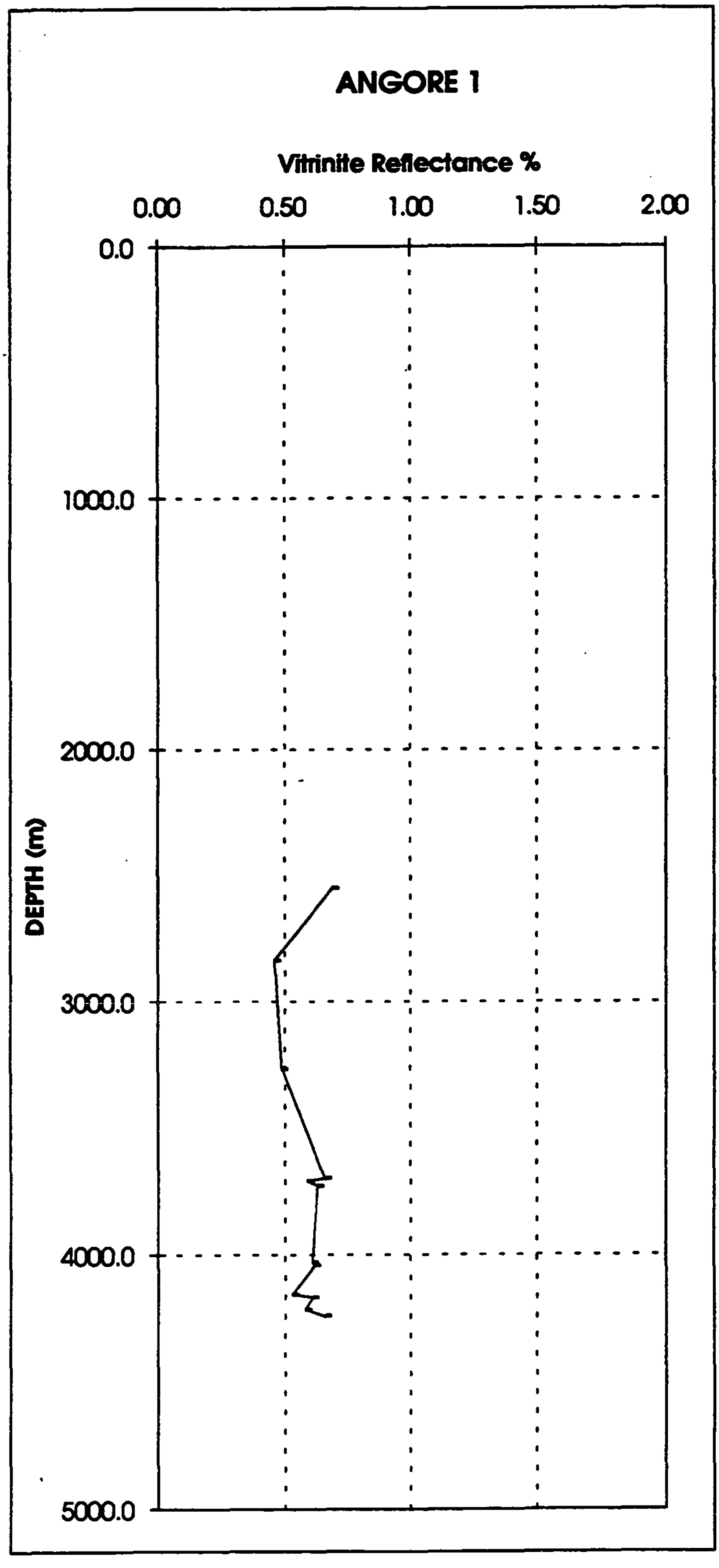
0.50
1.00
1.50
2.00
0
1000
2000
3000
4000
5000
DEPTH (m)



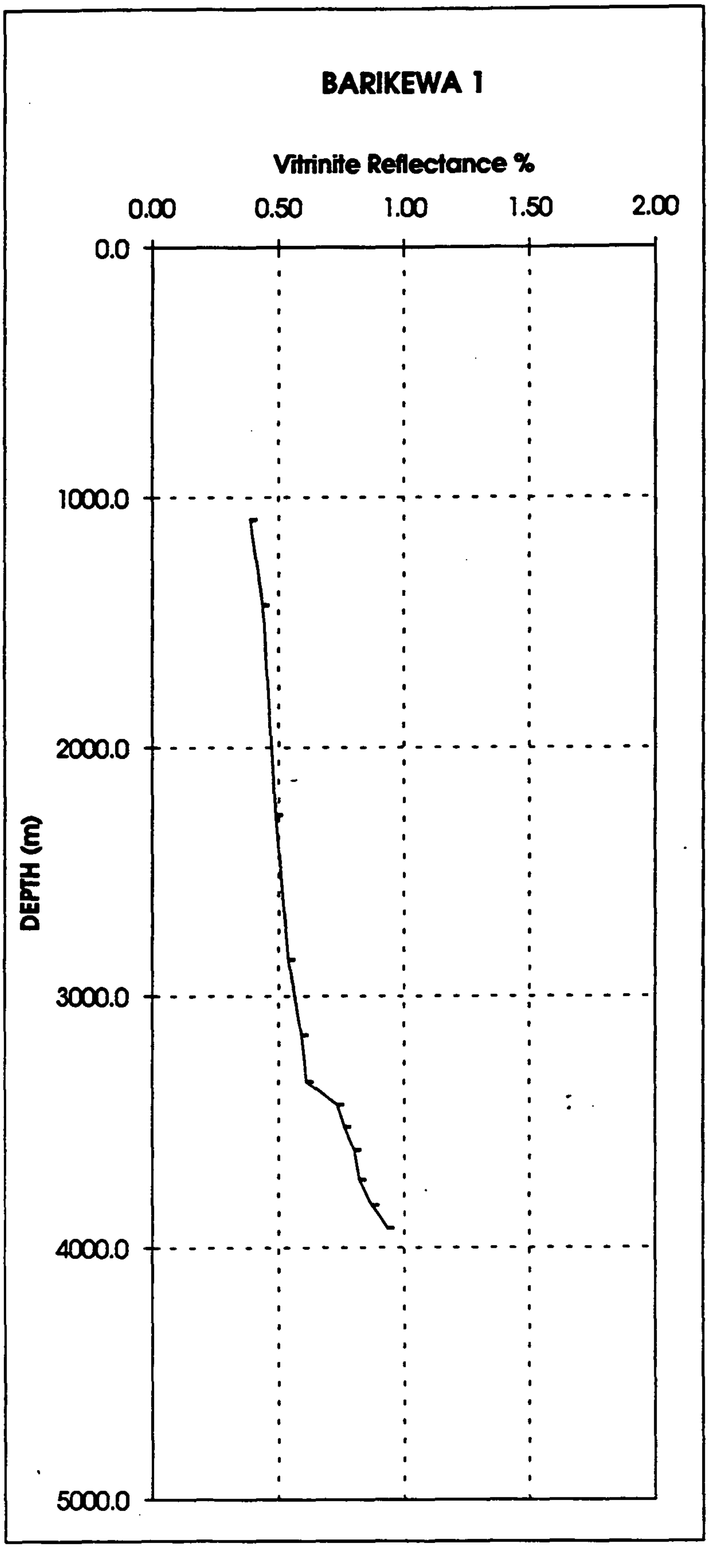
ANCHOR CAY 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
DEPTH (m)



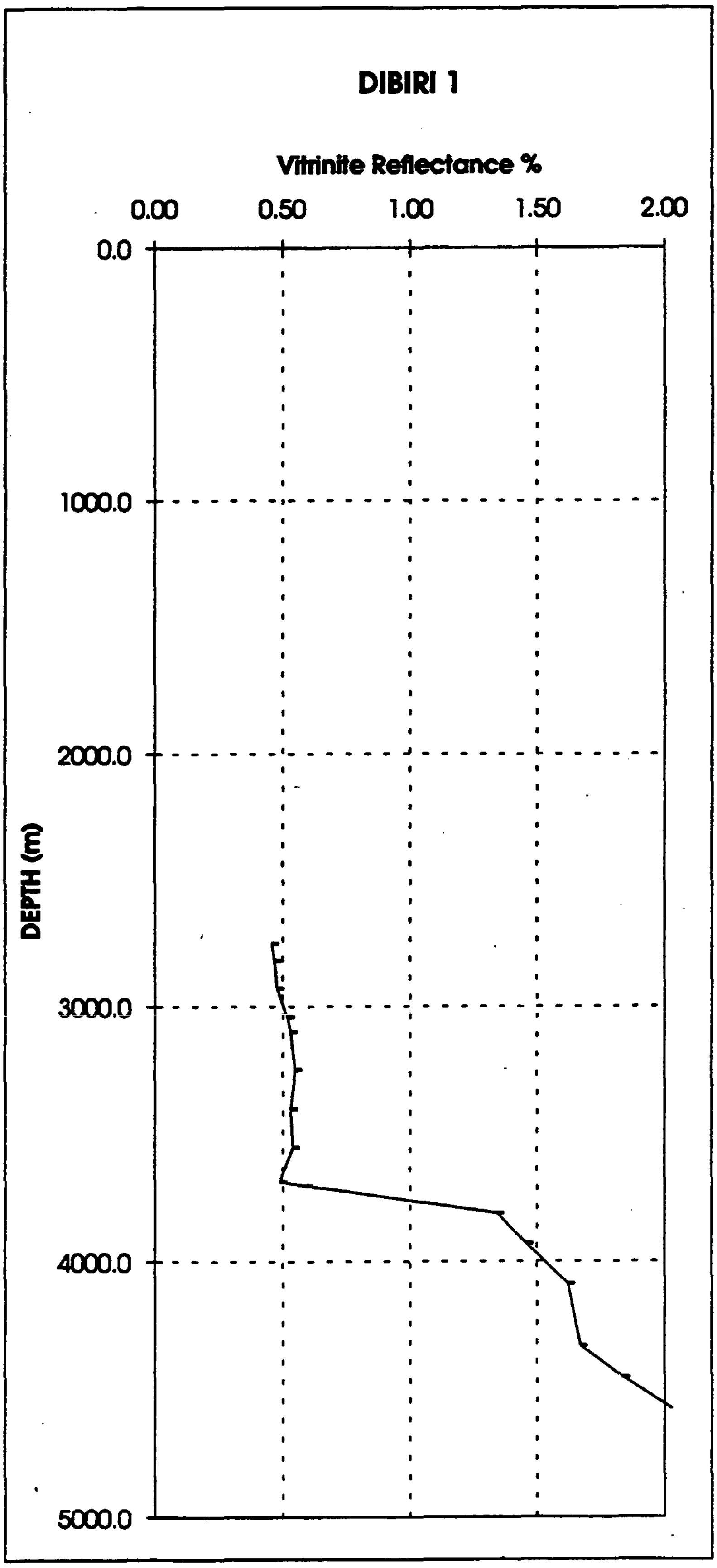
ARAMIA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



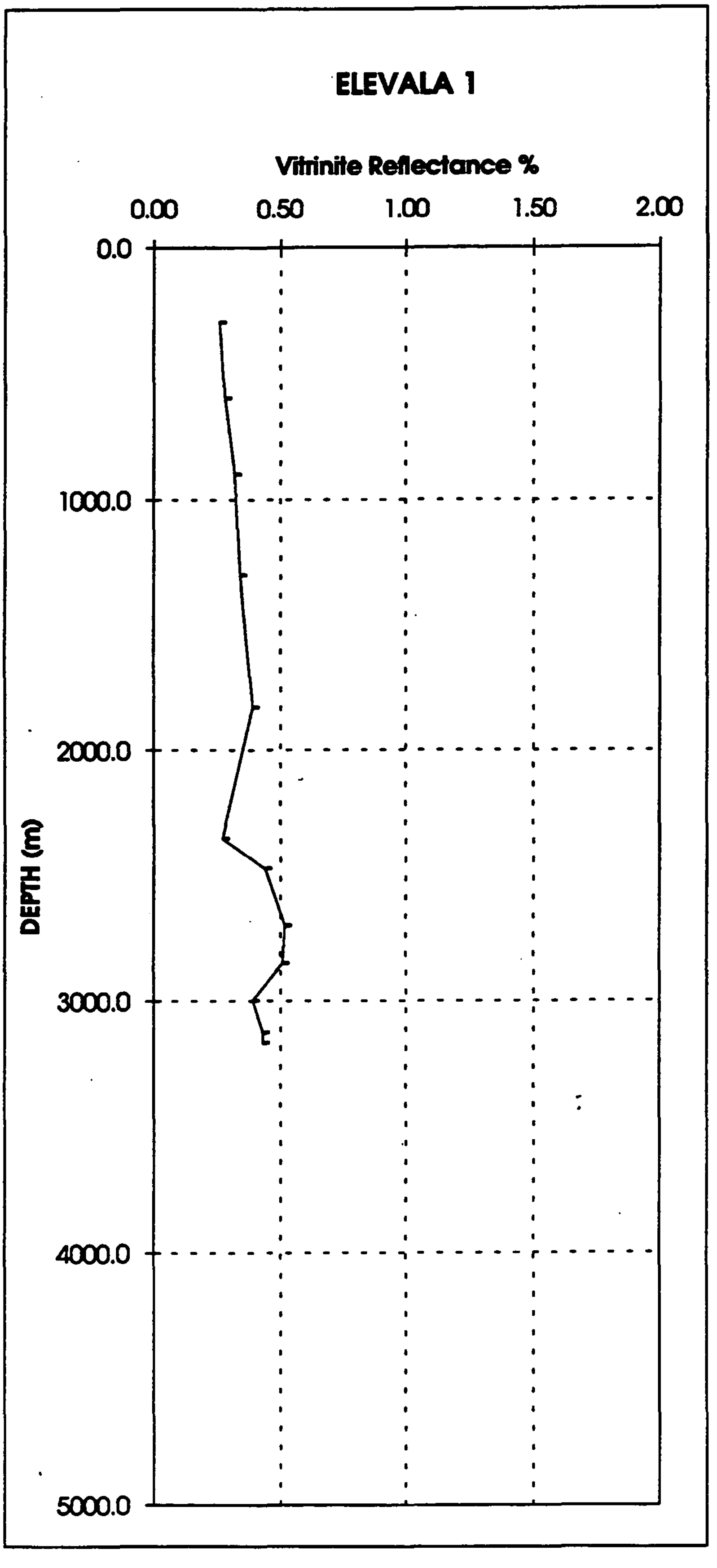
ANGORE 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

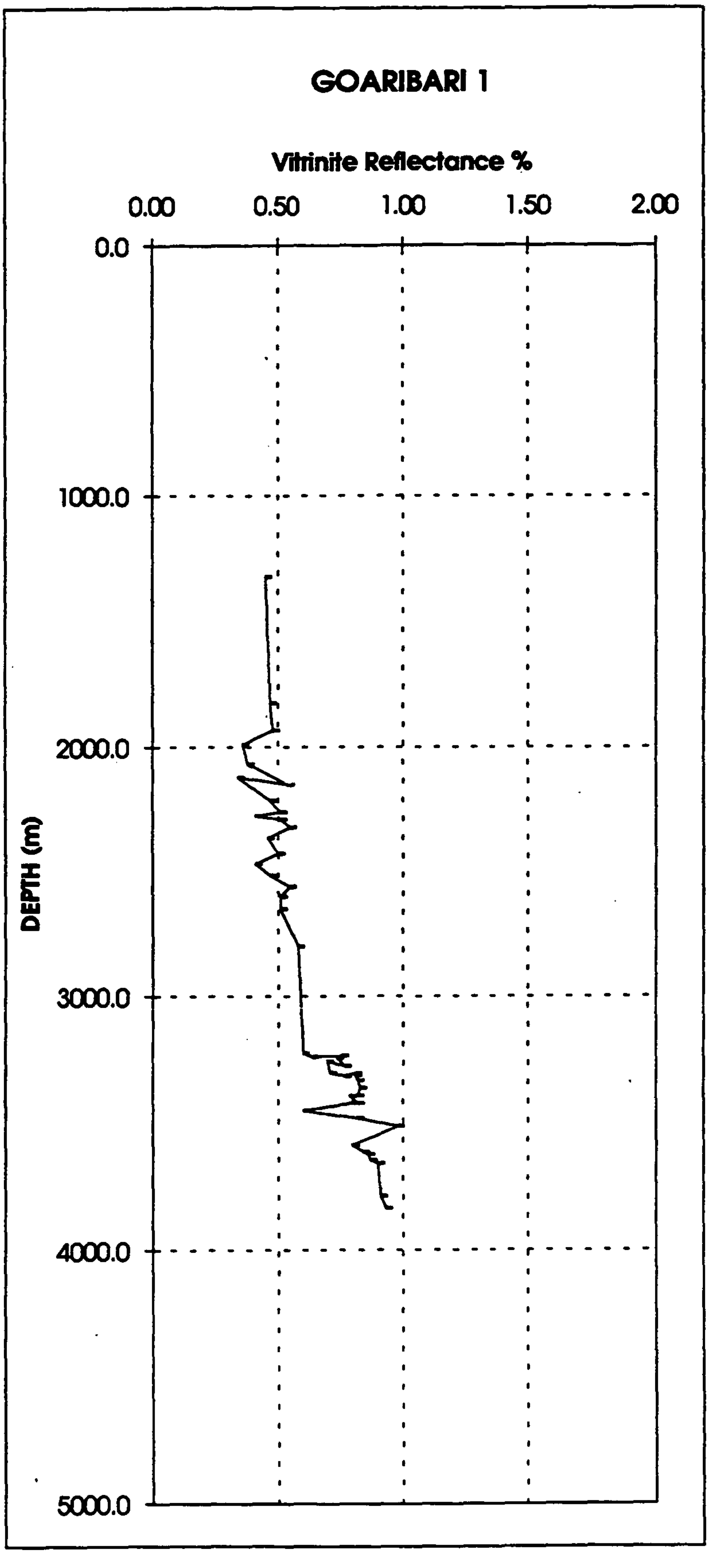


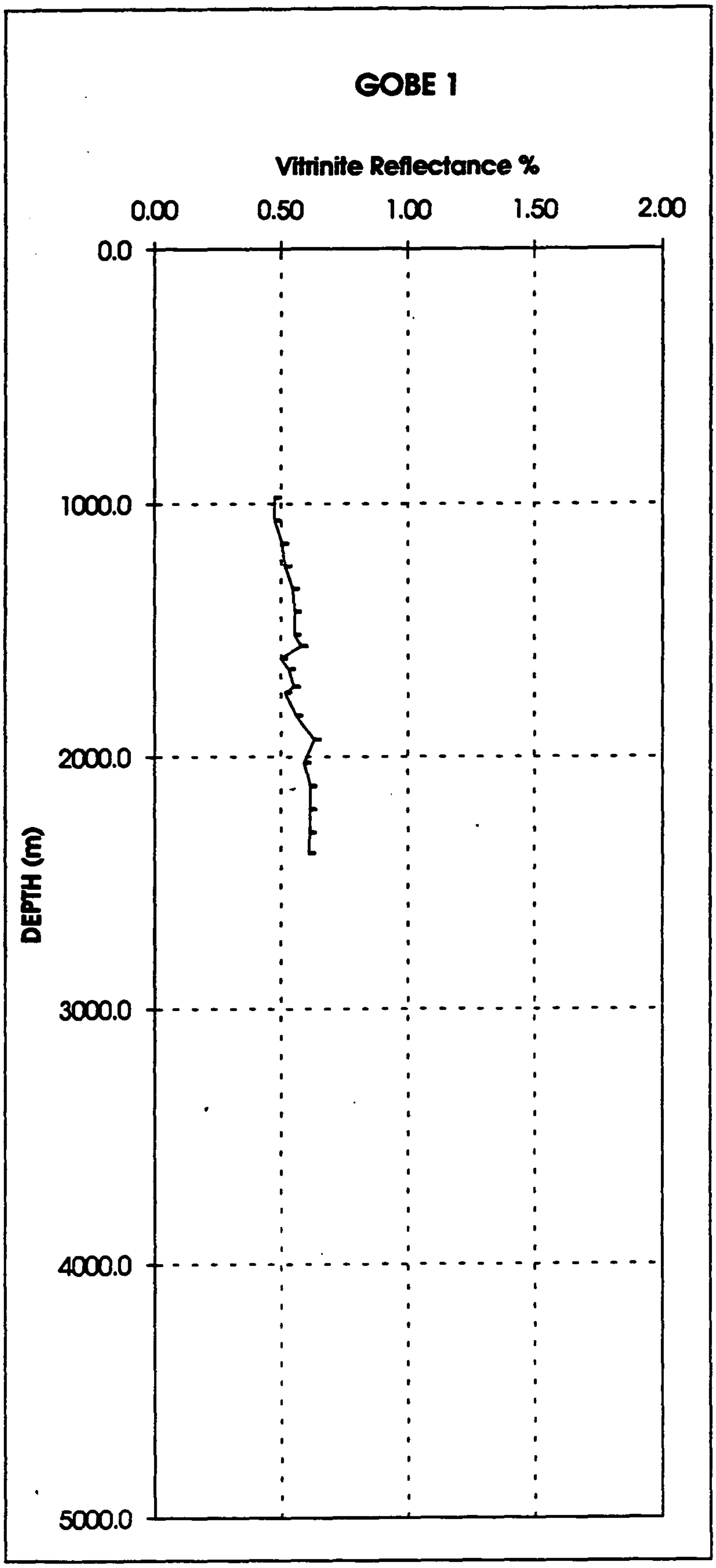
BARIKEWA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

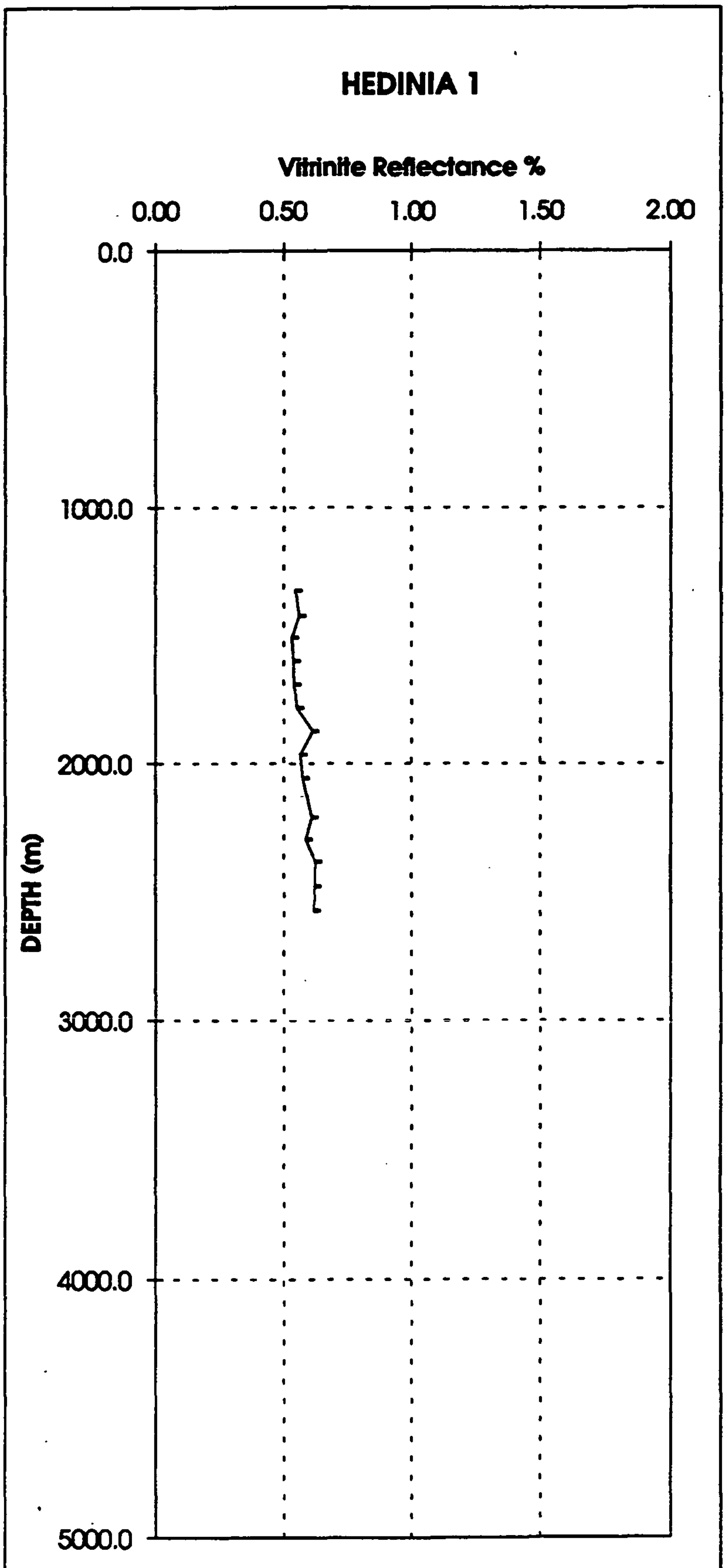


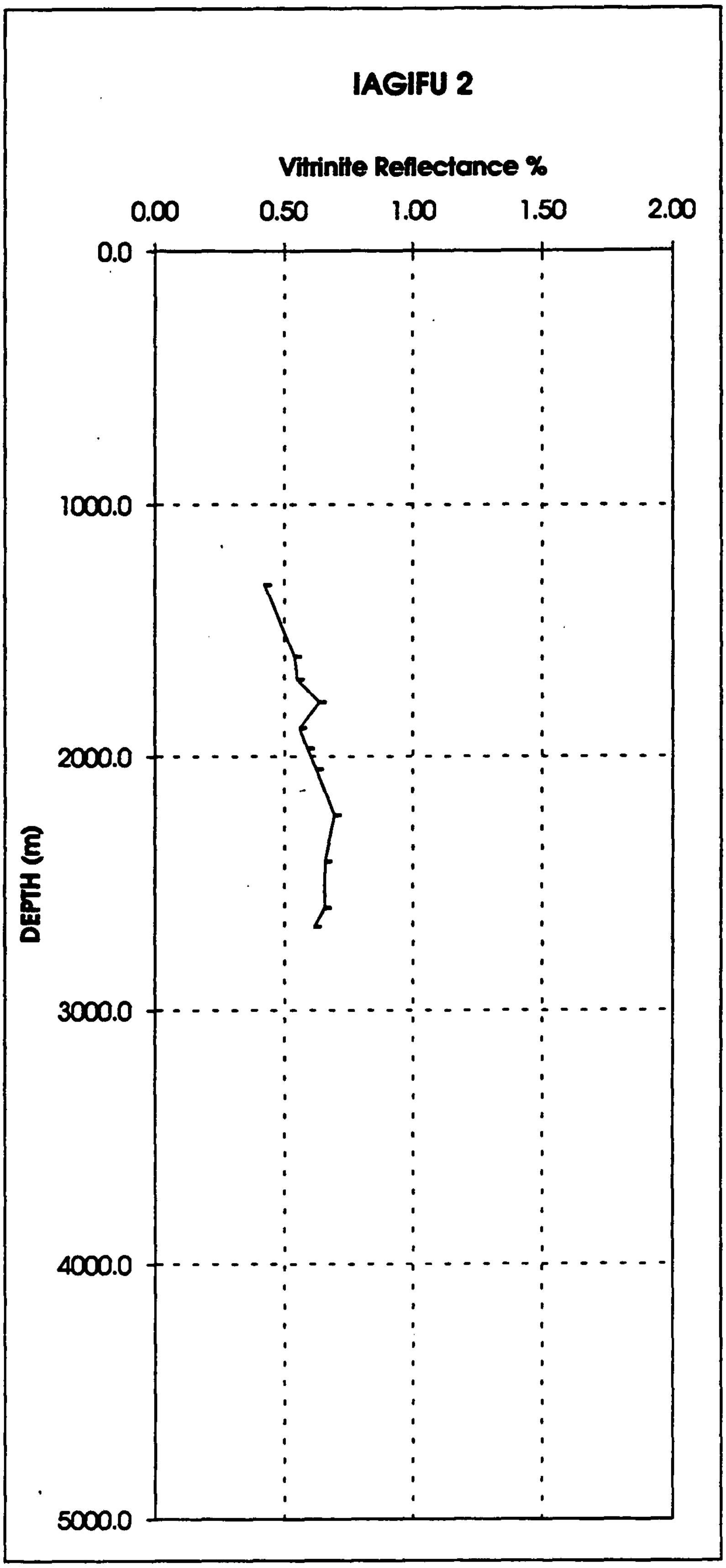
DIBIRI 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

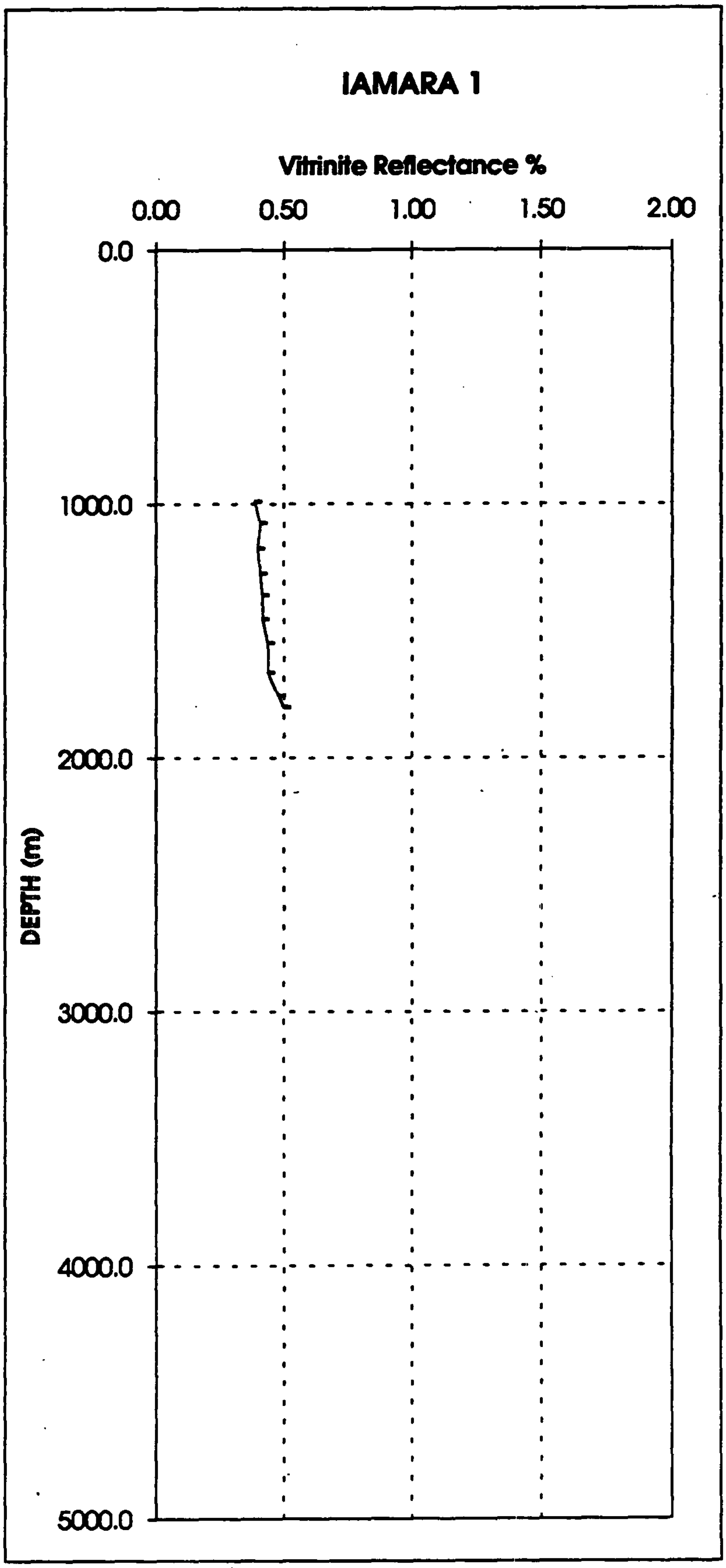

ELEVALA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0


GOARIBARI 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

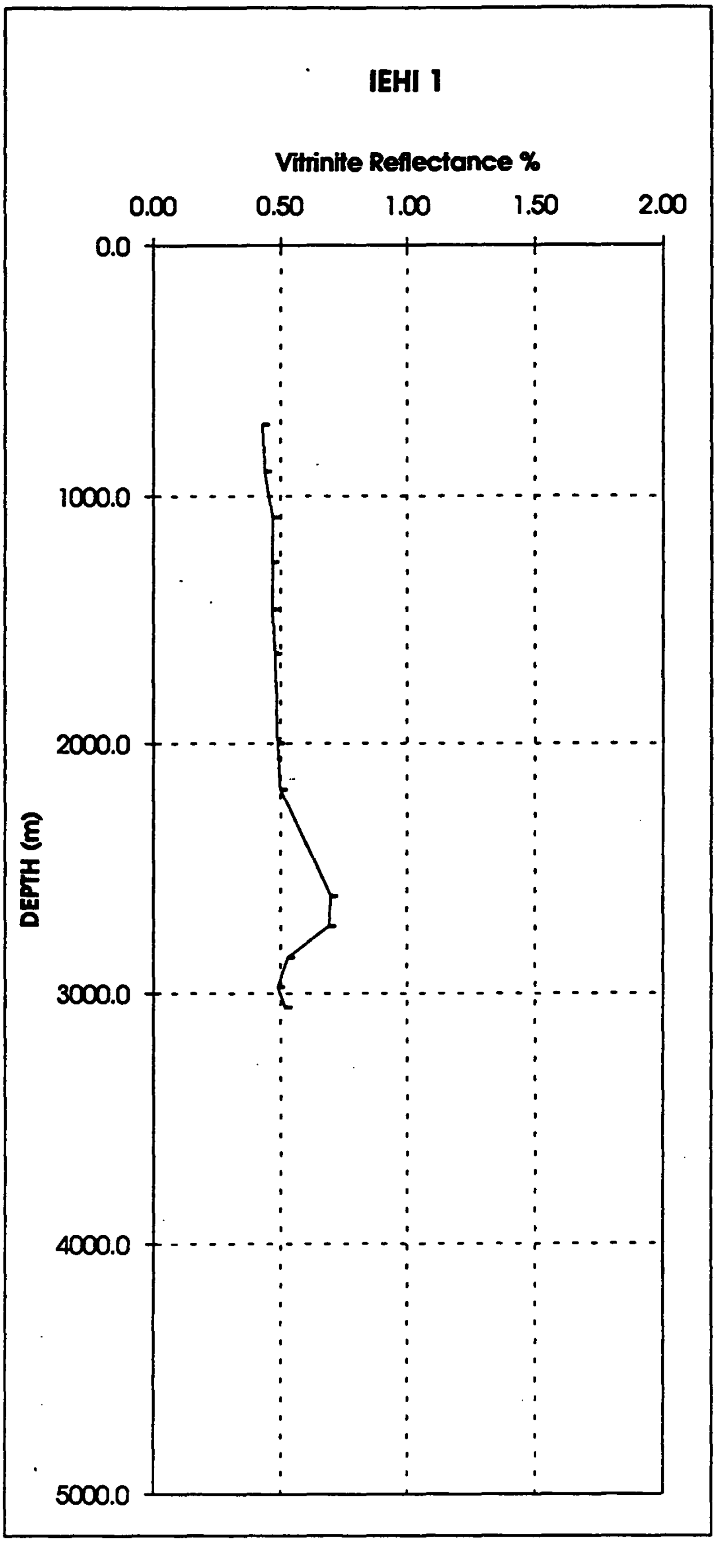

GOBE 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


HEDINIA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

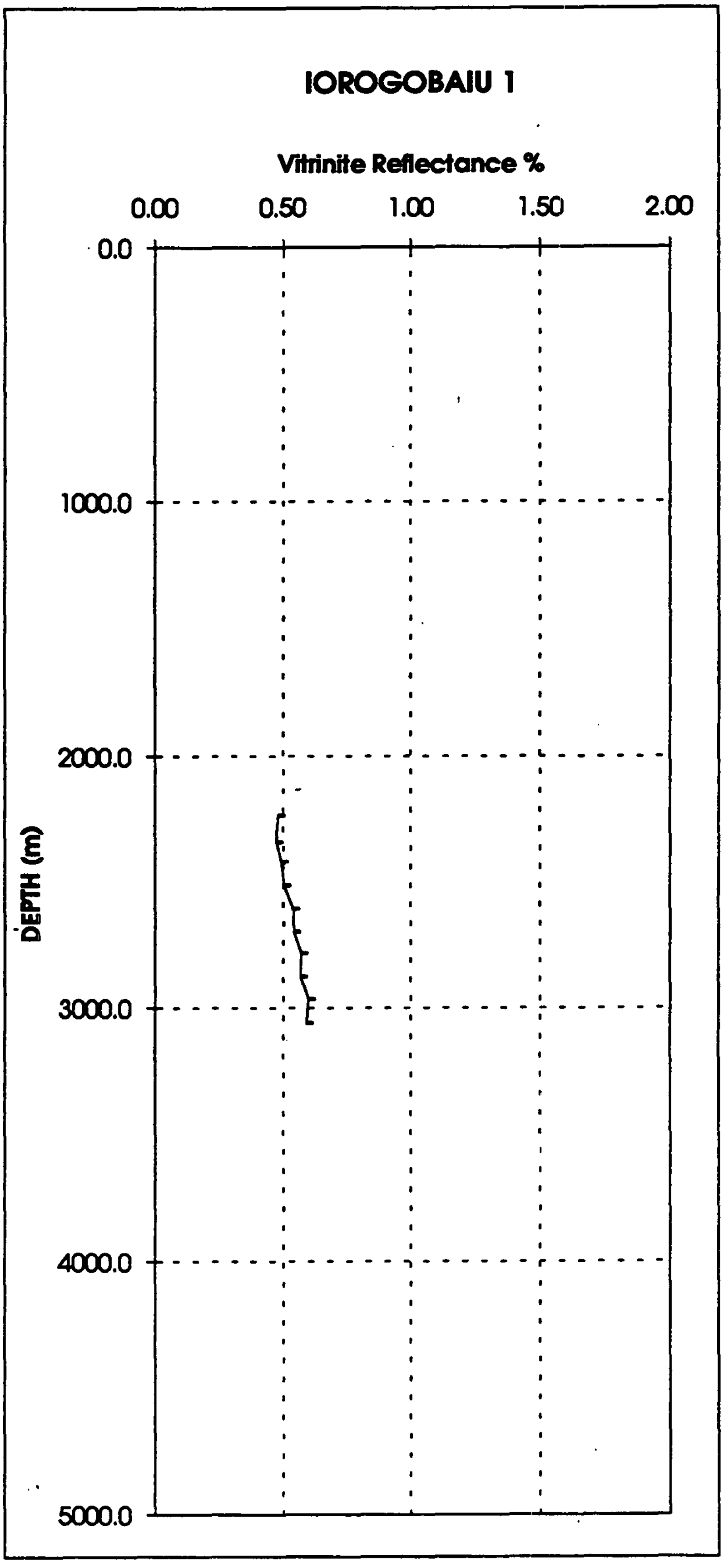

IAGIFU 2
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



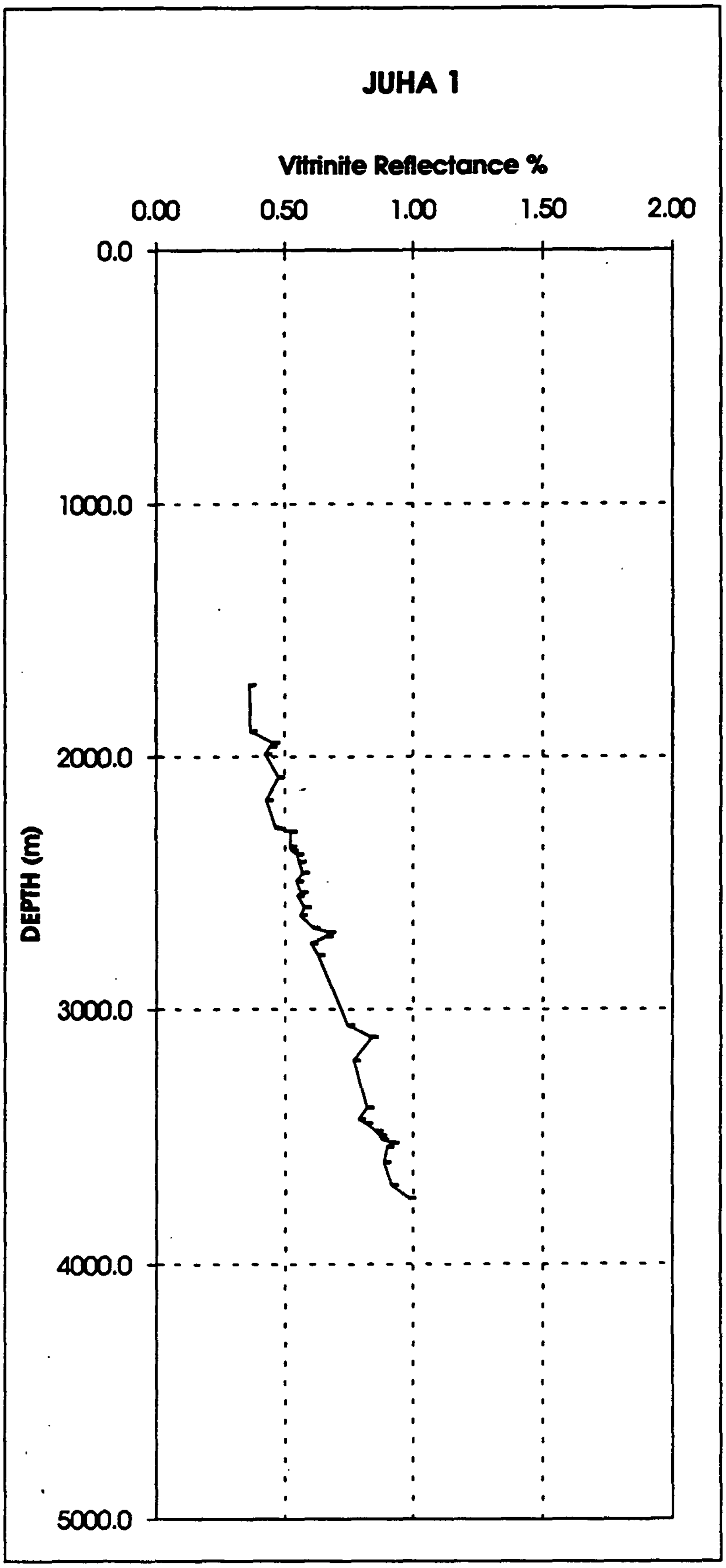
IAMARA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



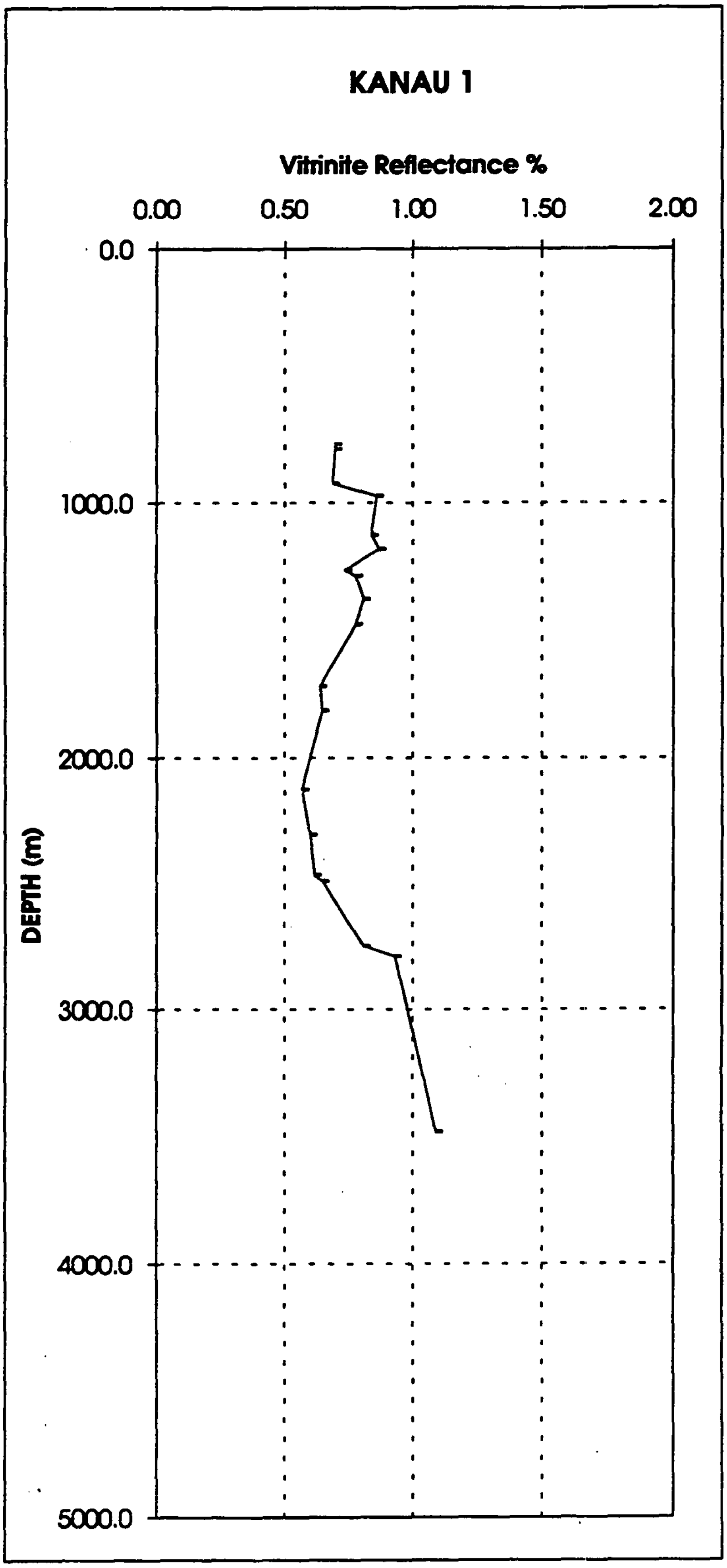
IEHI 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



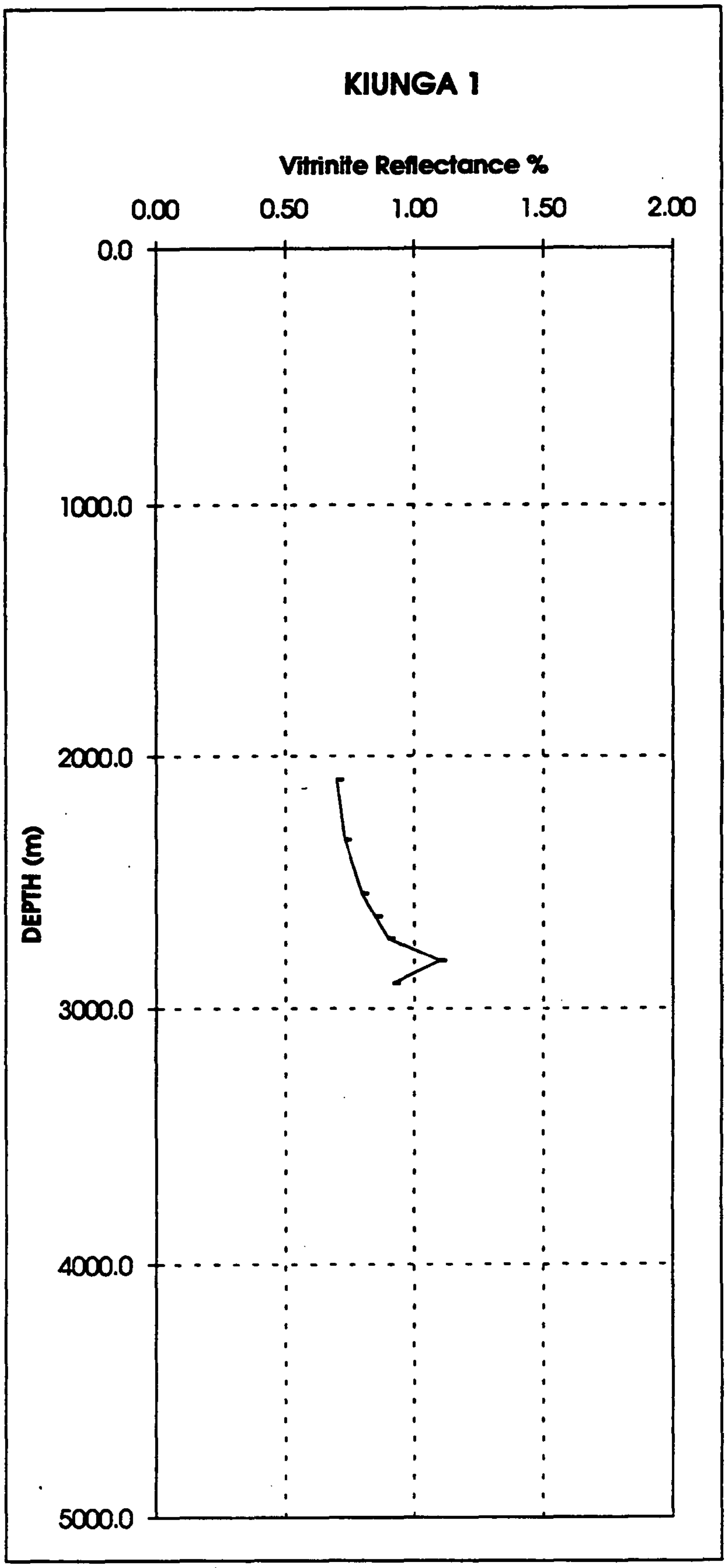
IOROGOBAIU 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

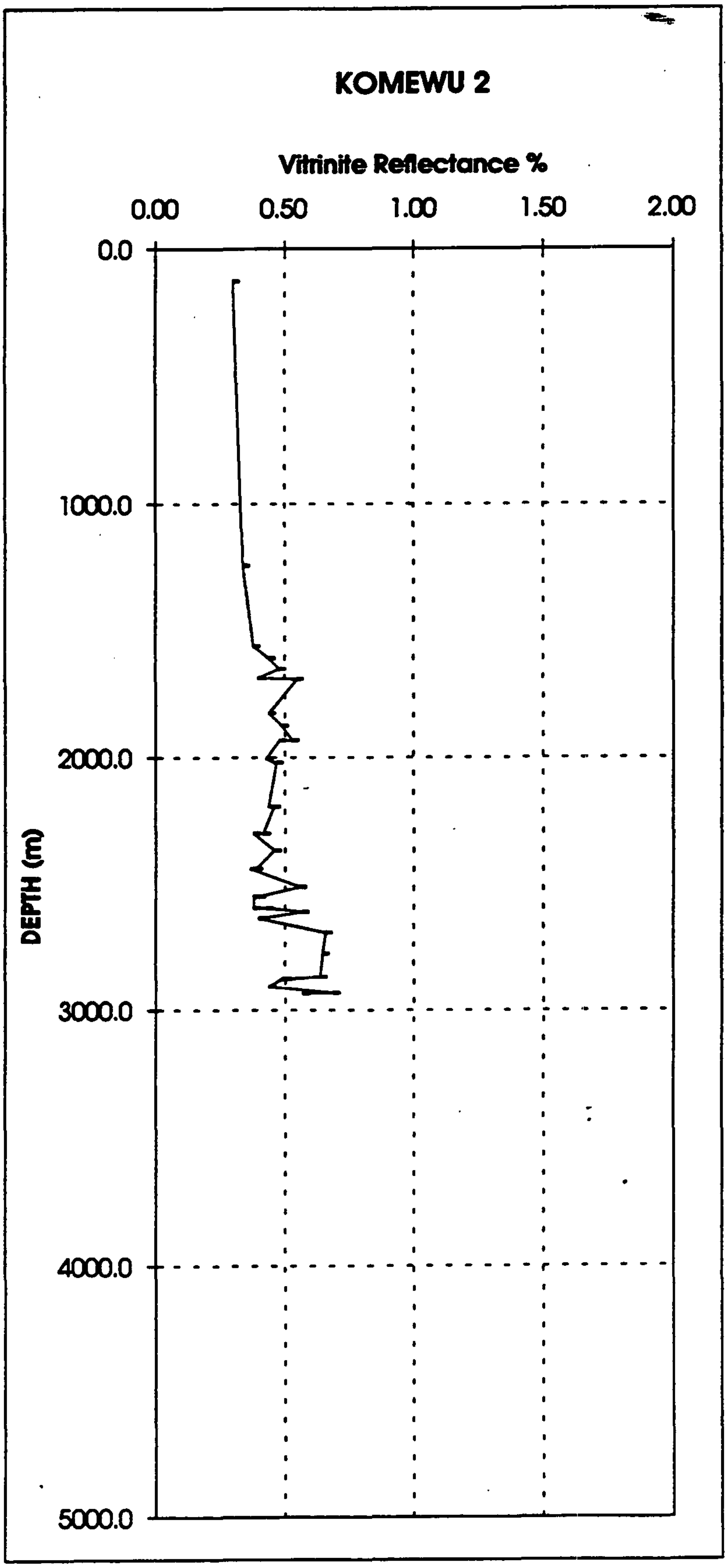


JUHA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

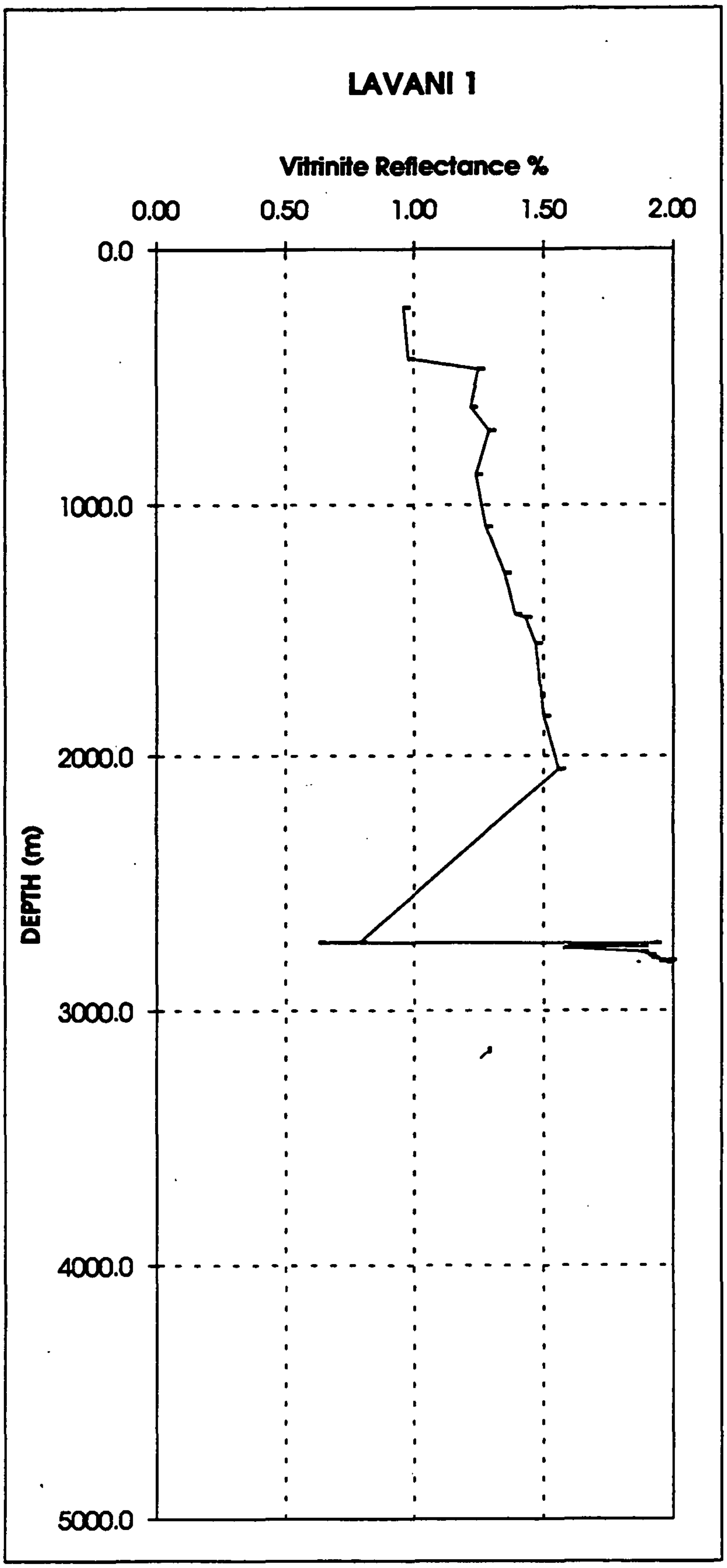


KANAU 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

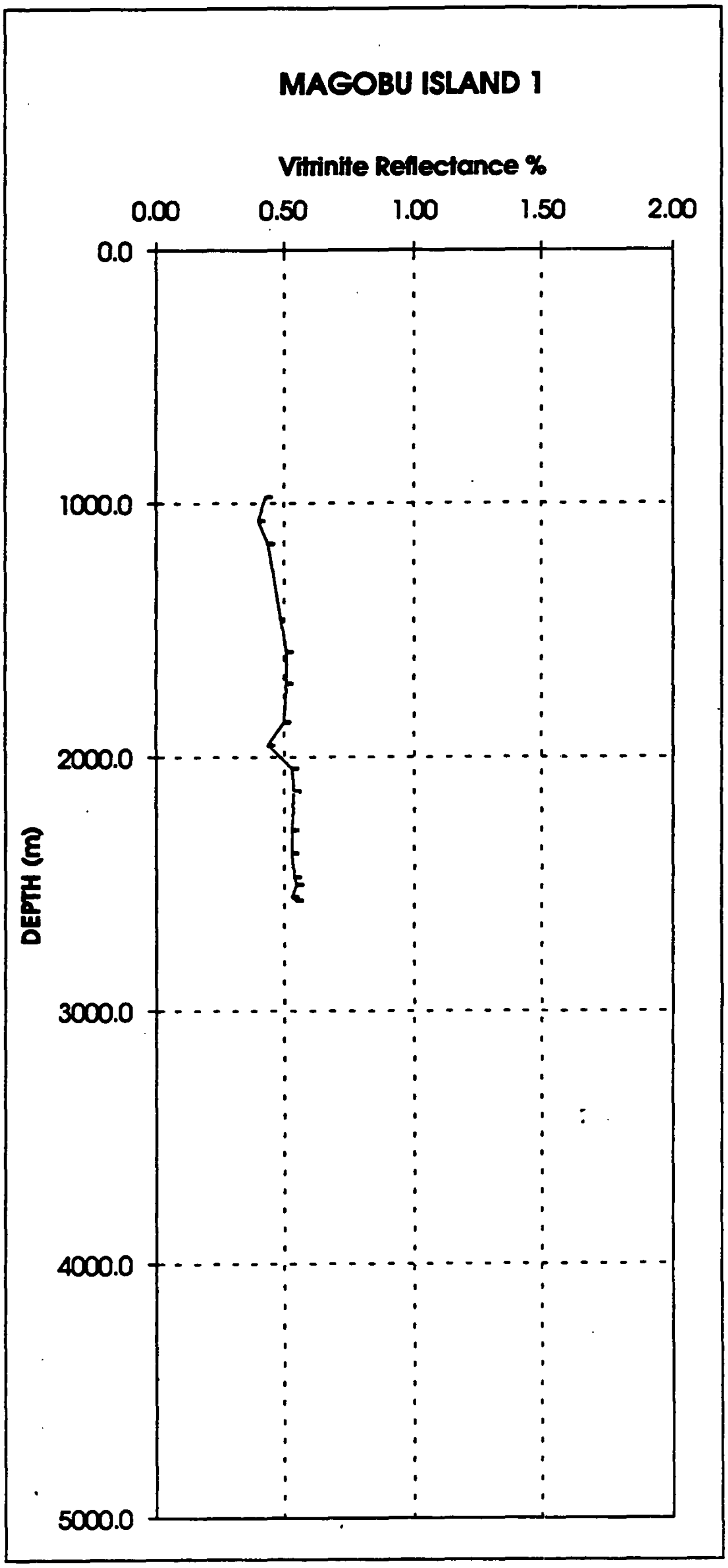

KIUNGA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

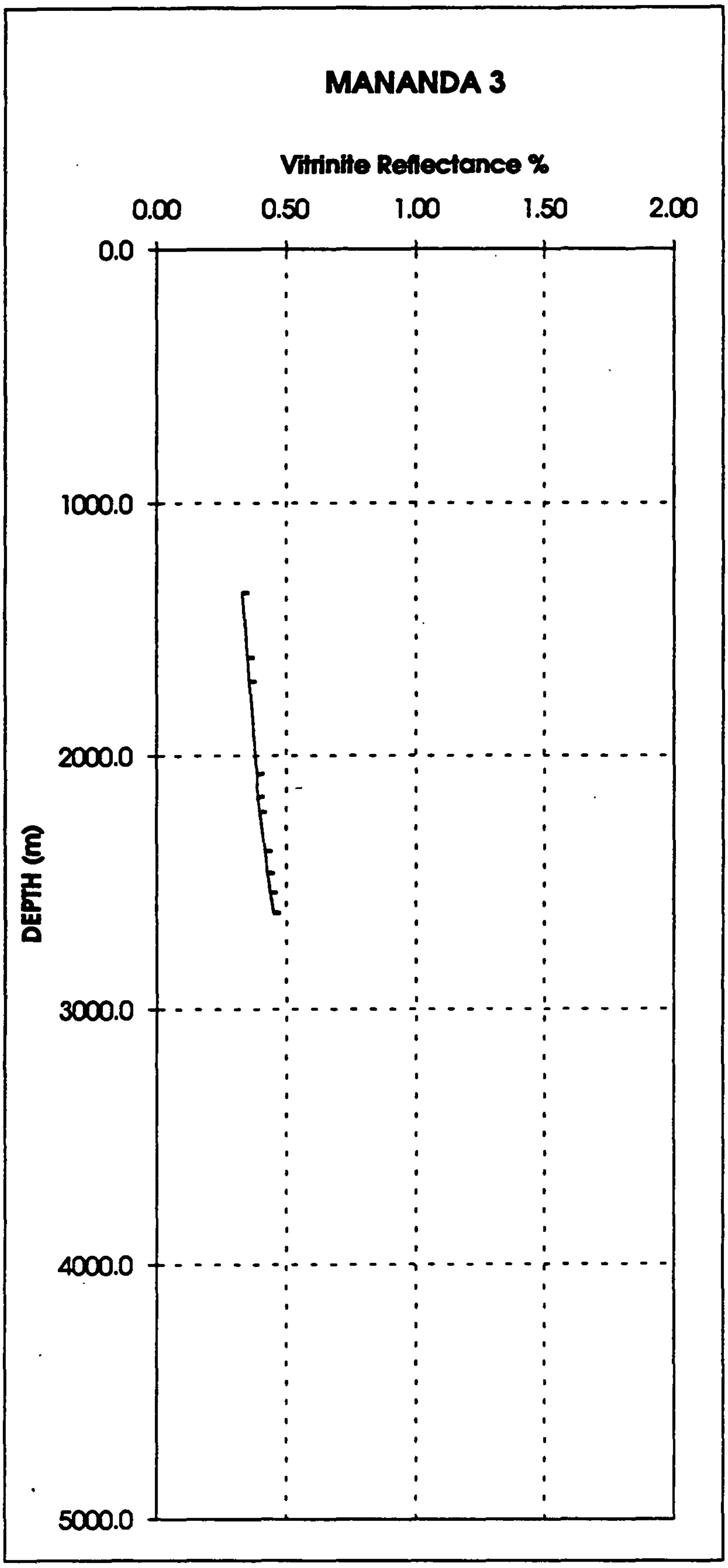


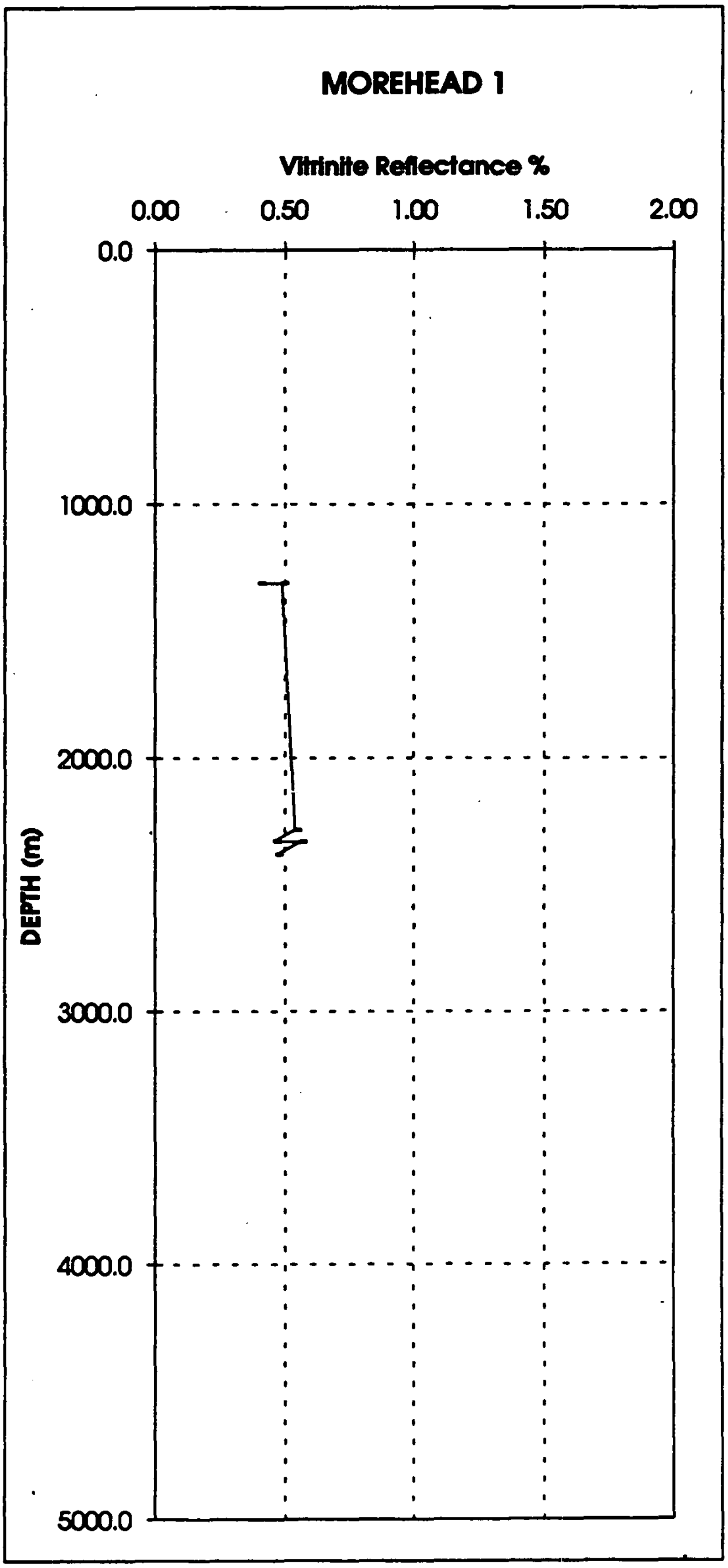
KOMEWU 2
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



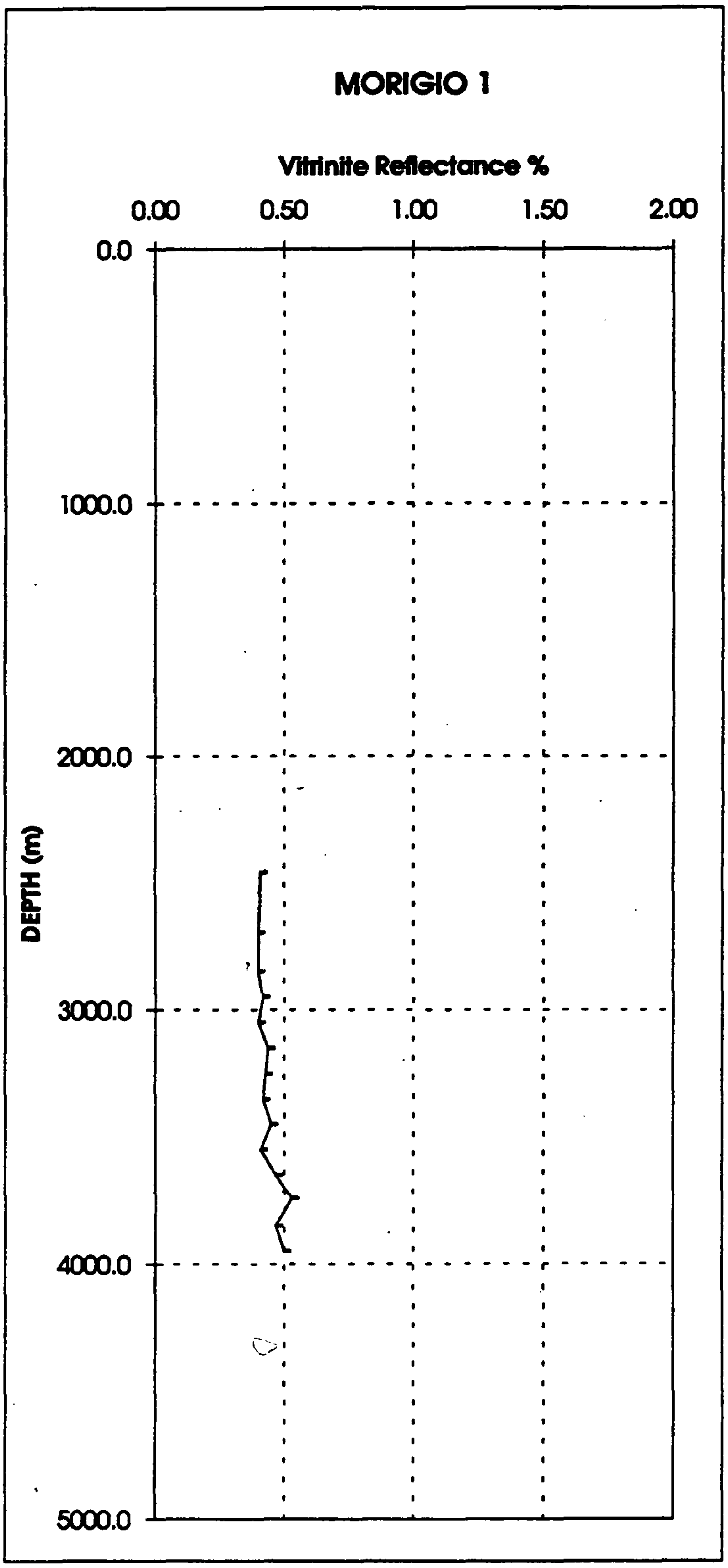
LAVANI 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

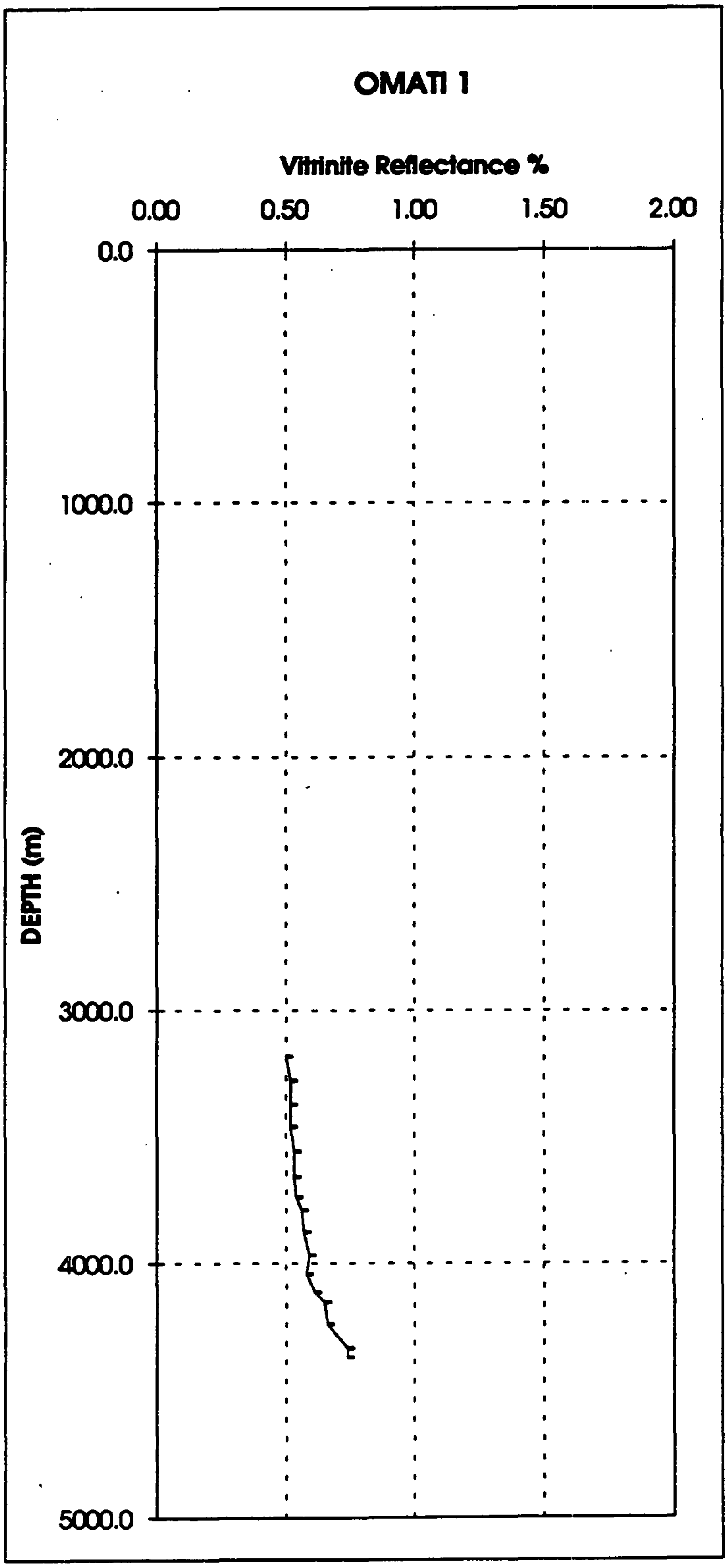

MAGOBU ISLAND 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MANANDA 3
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

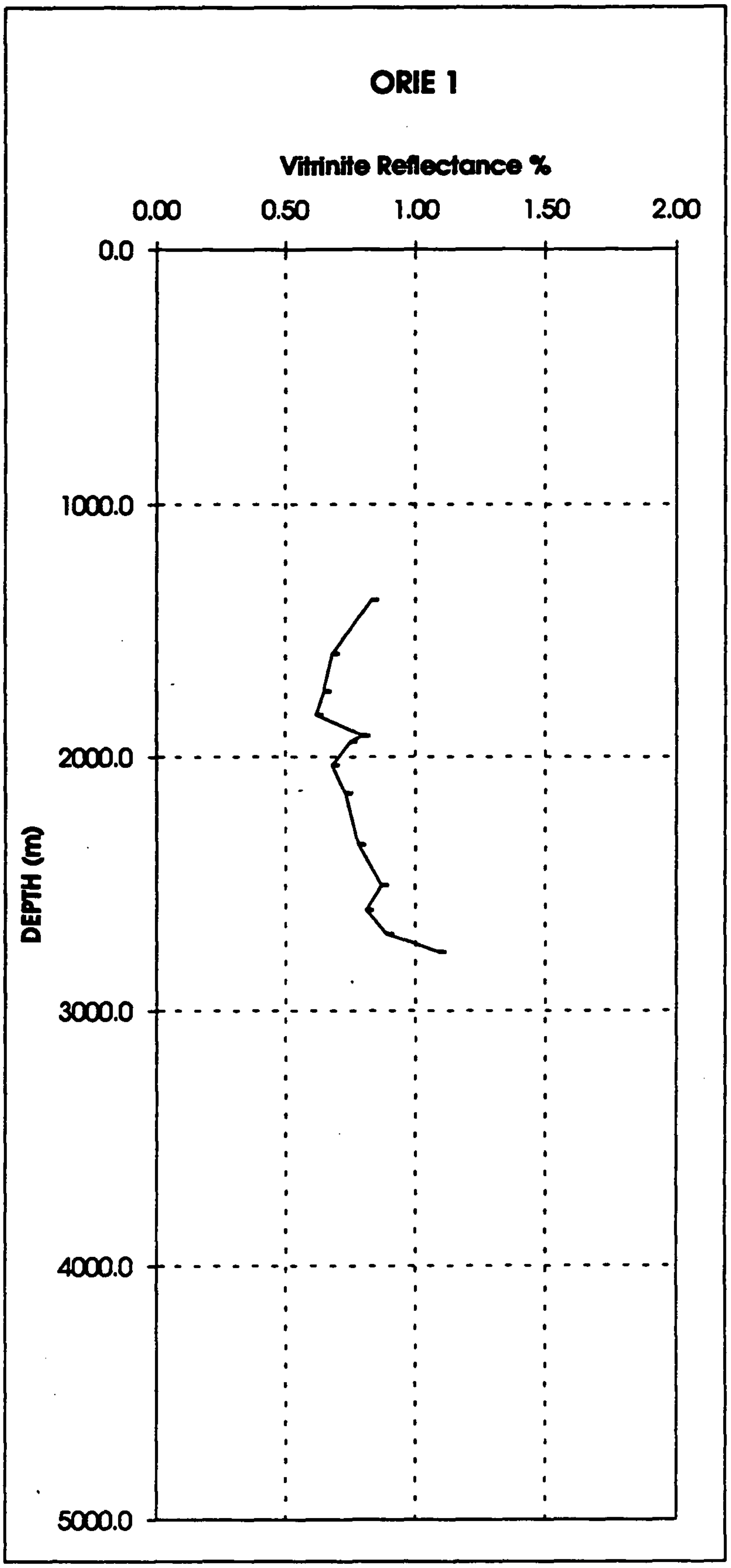


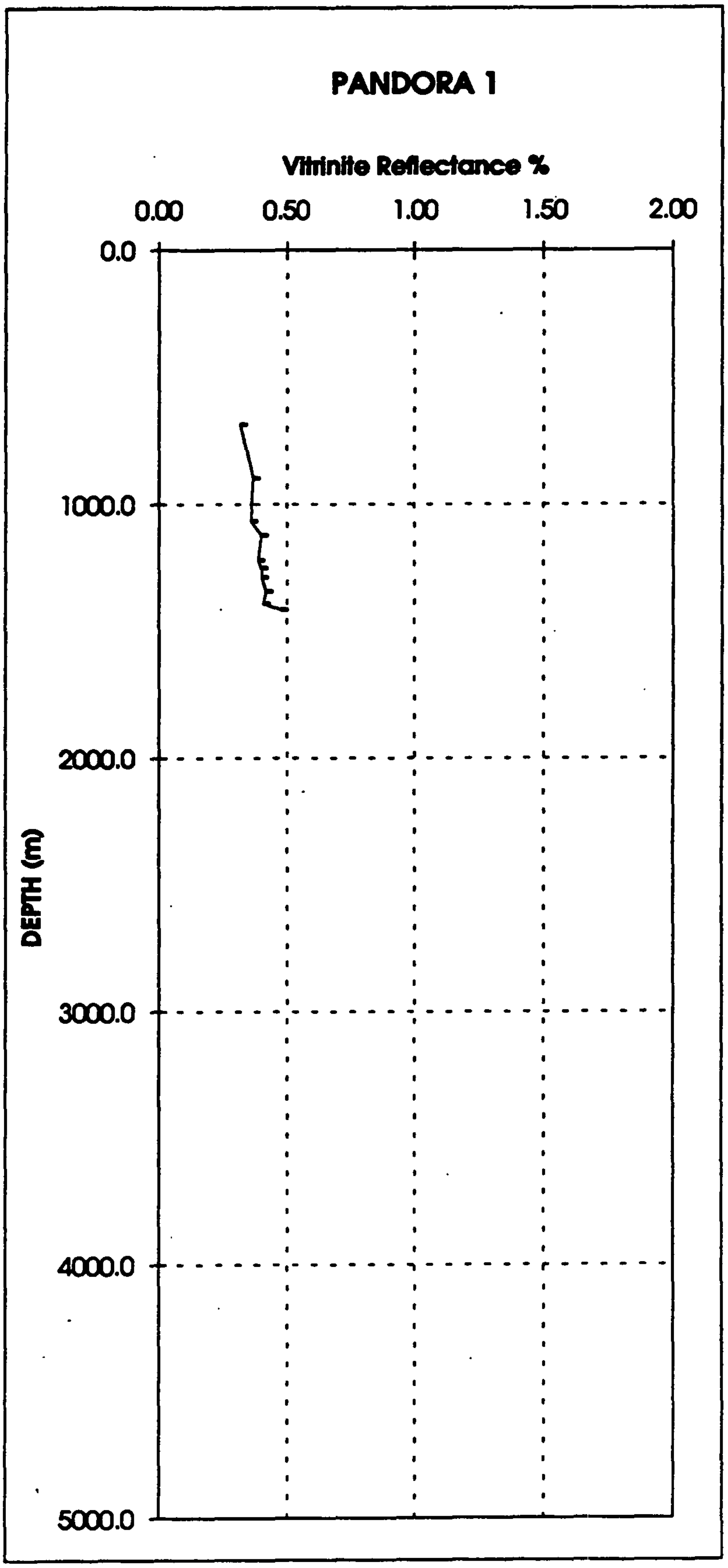
MOREHEAD 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MORIGIO 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



OMATI 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


ORIE 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


PANDORA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
2.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

AGSO

AUSTRALIAN GEOLOGICAL
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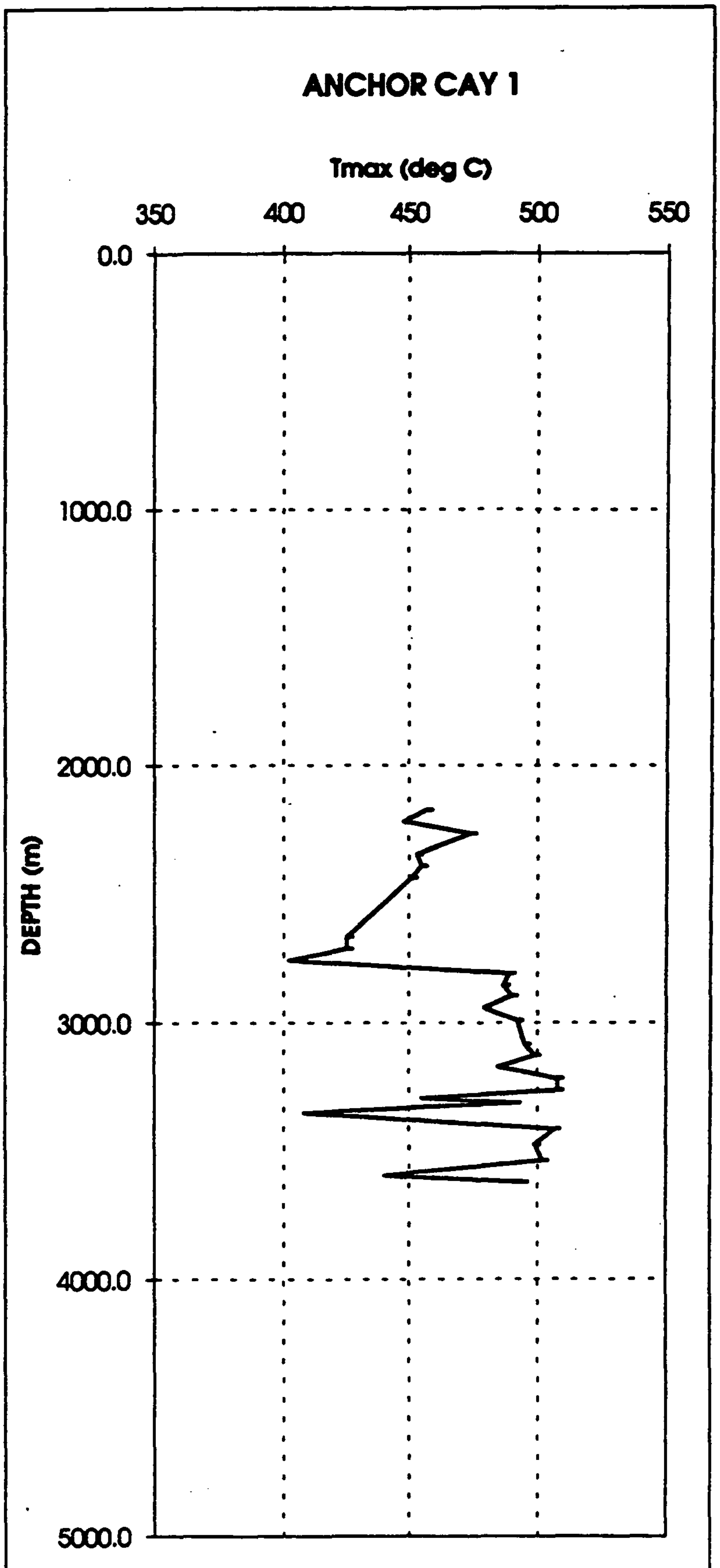
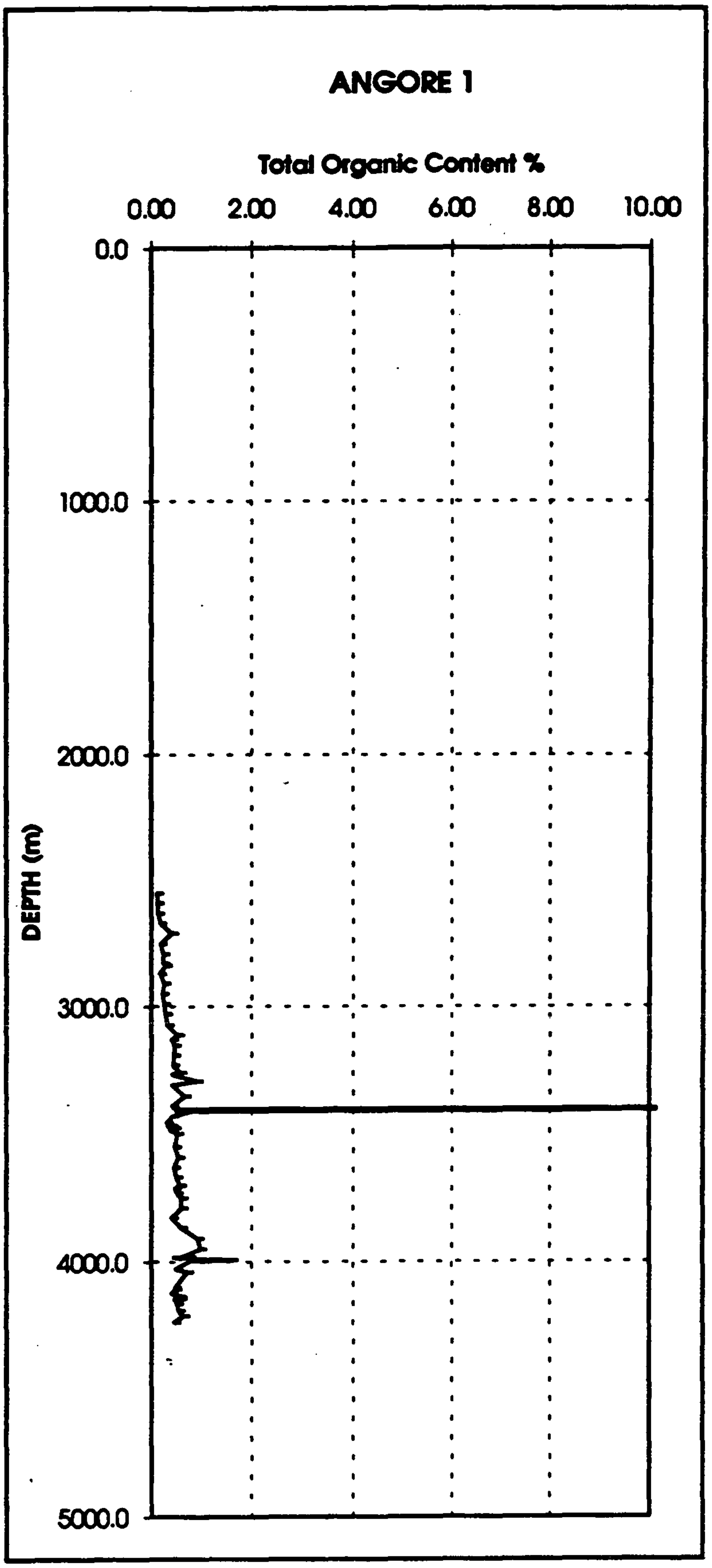
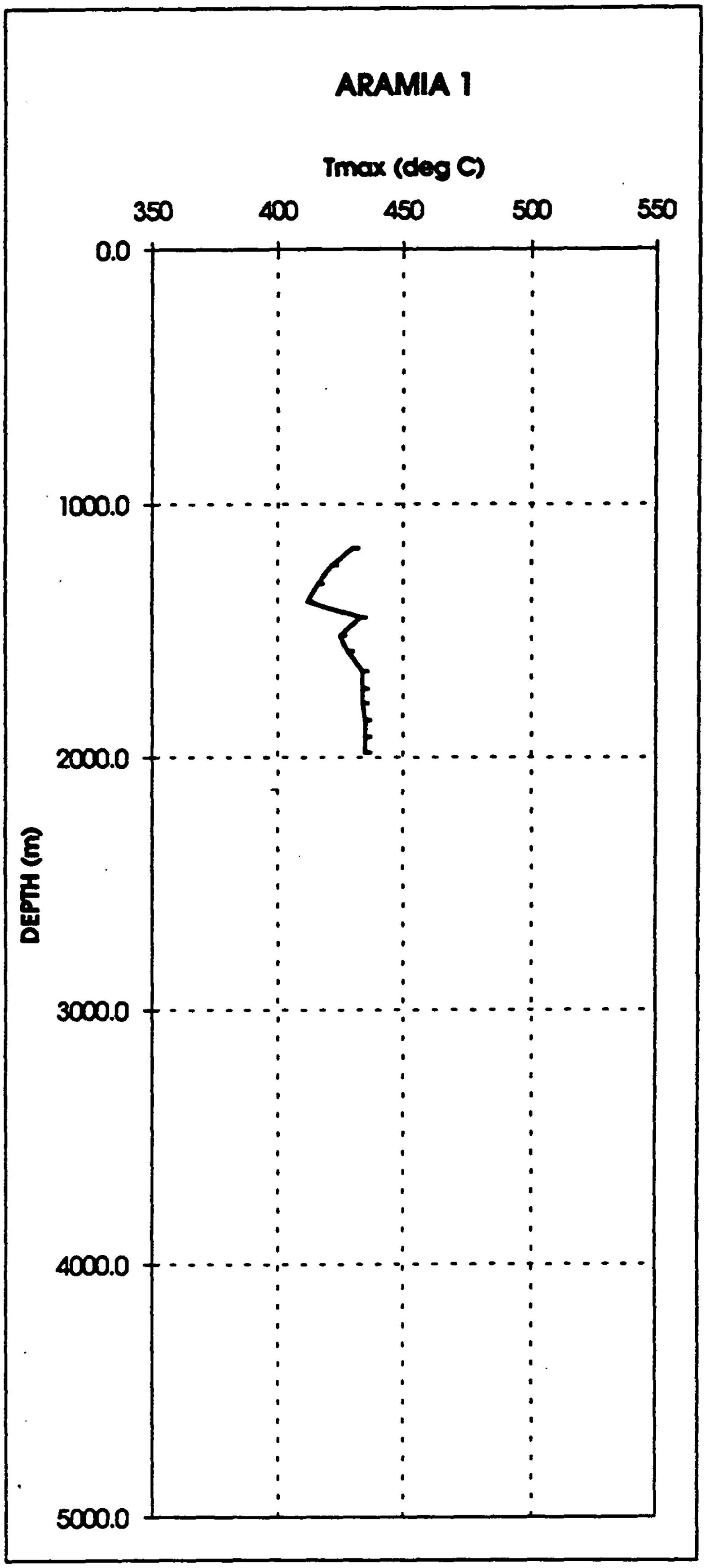
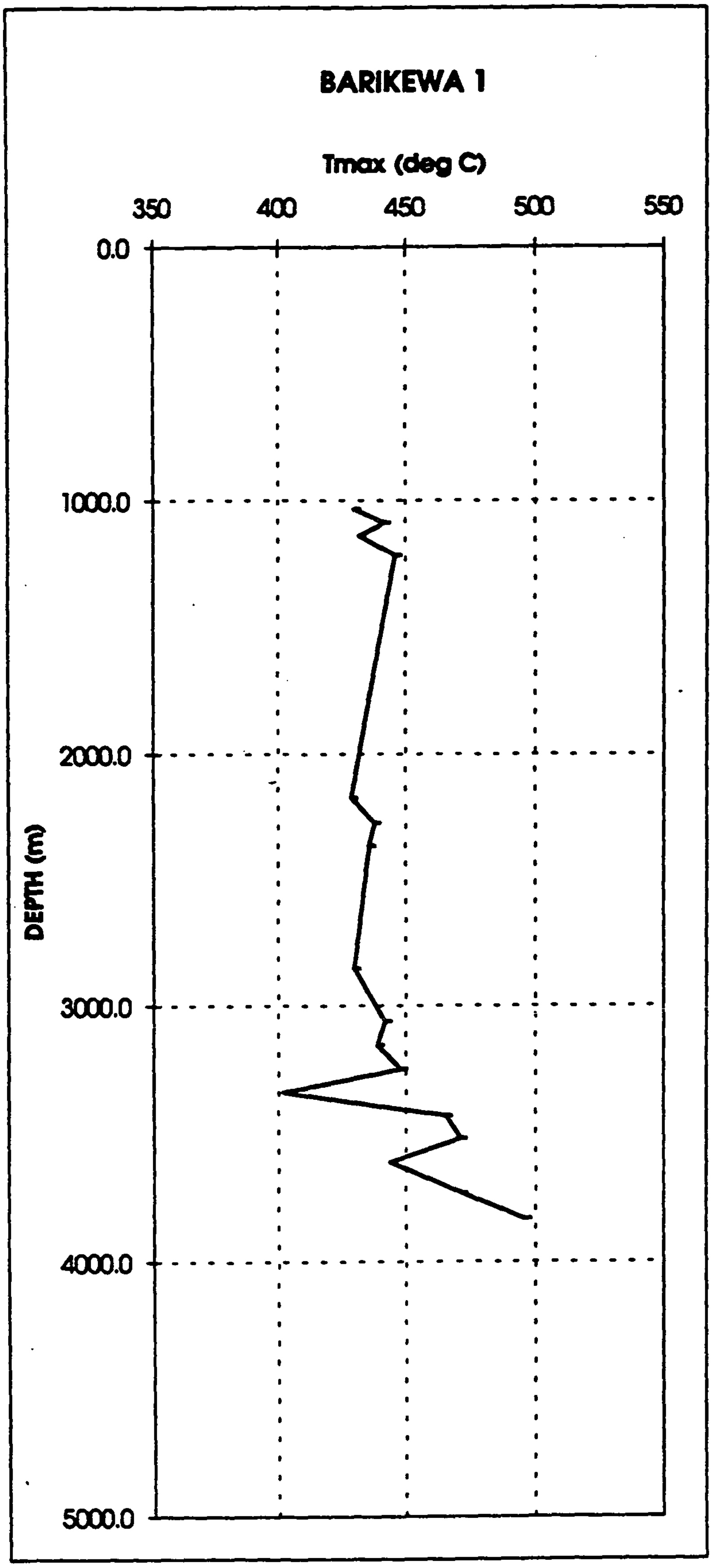
APPENDIX 12 : TMAX PROFILES



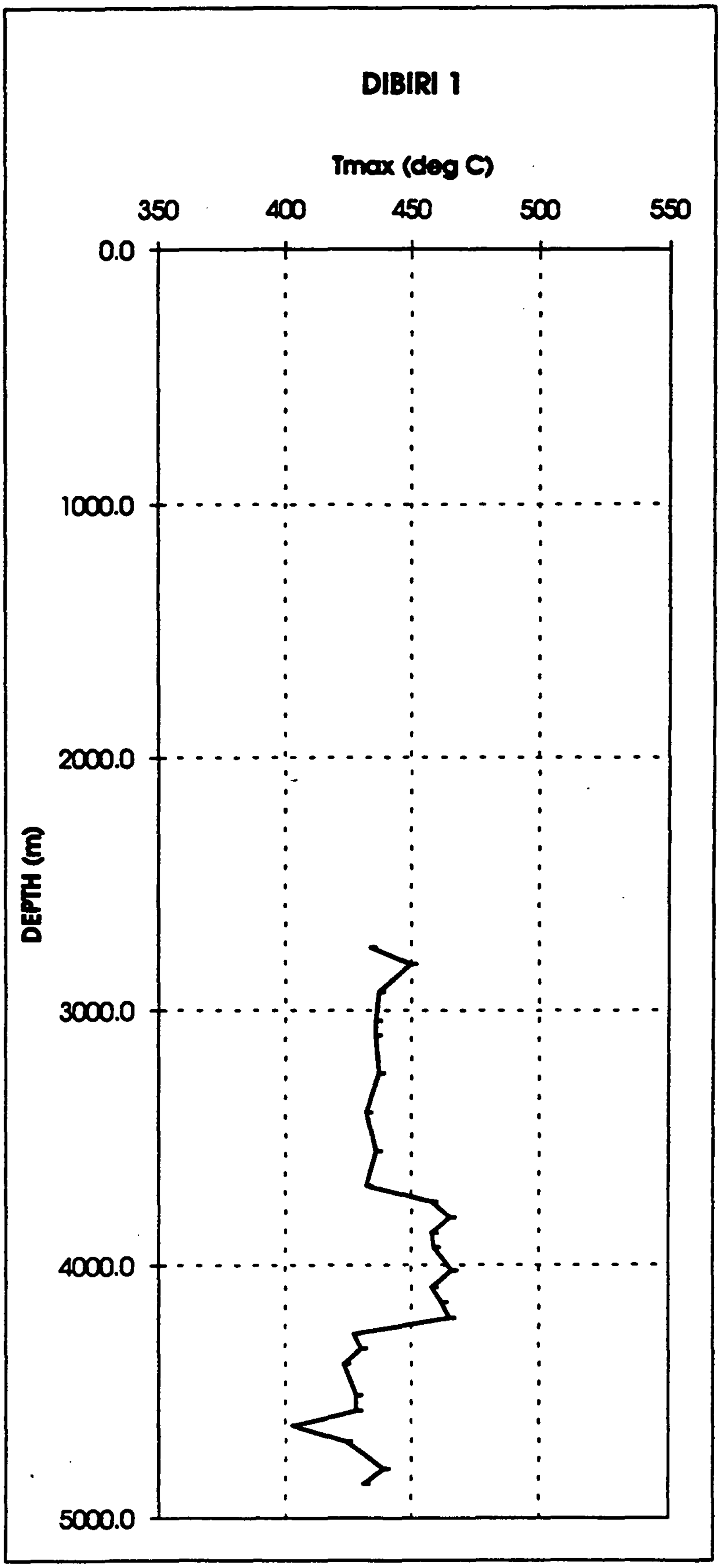
ANCHOR CAY 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


ANGORE 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

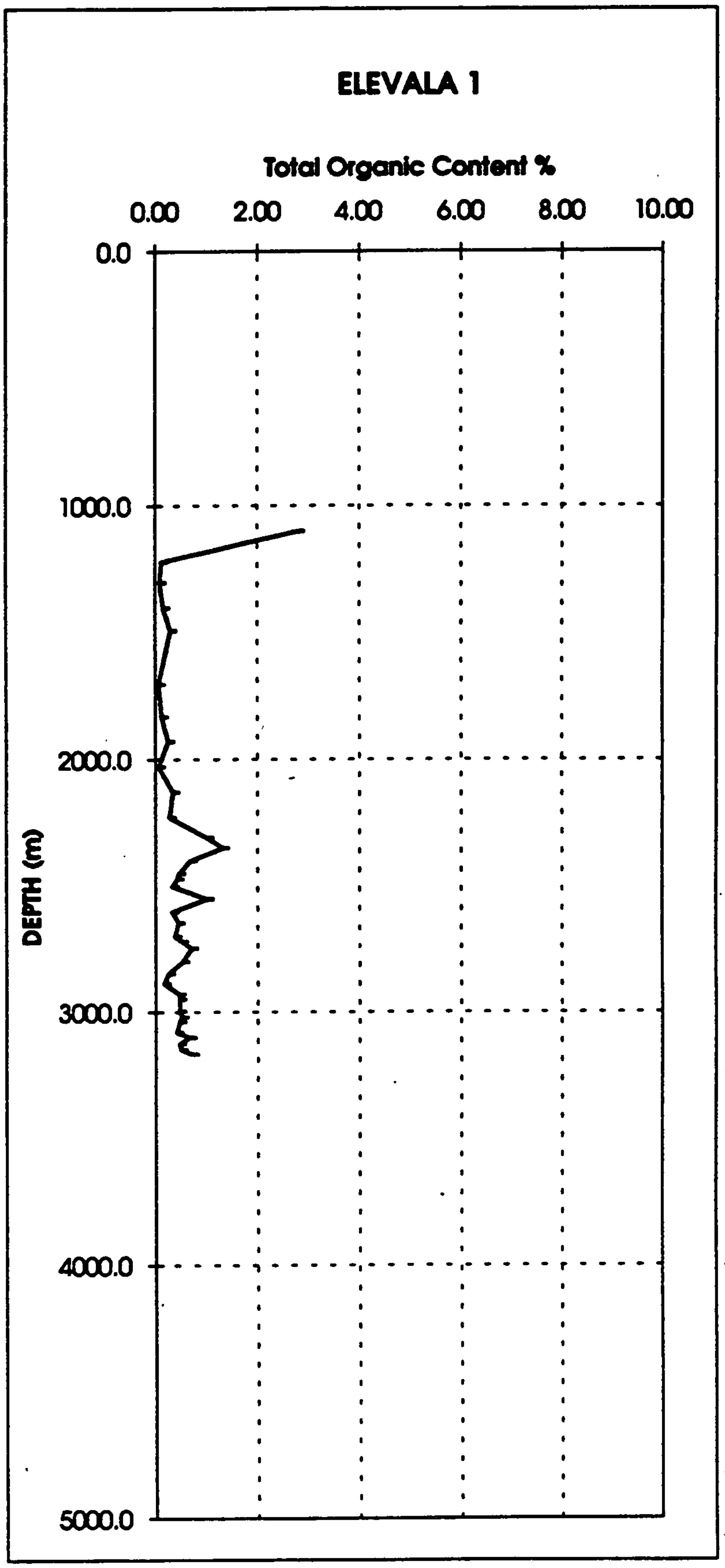

ARAMIA 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

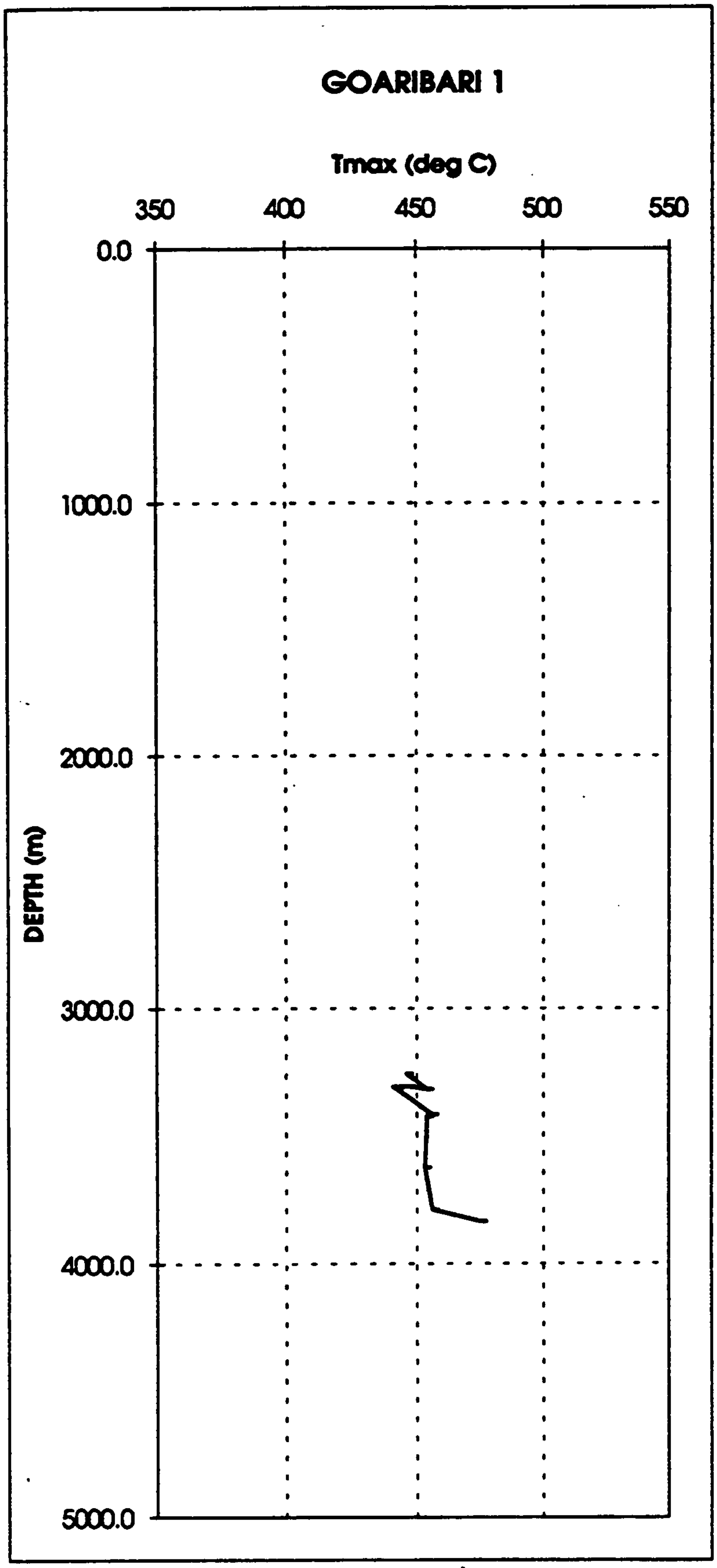


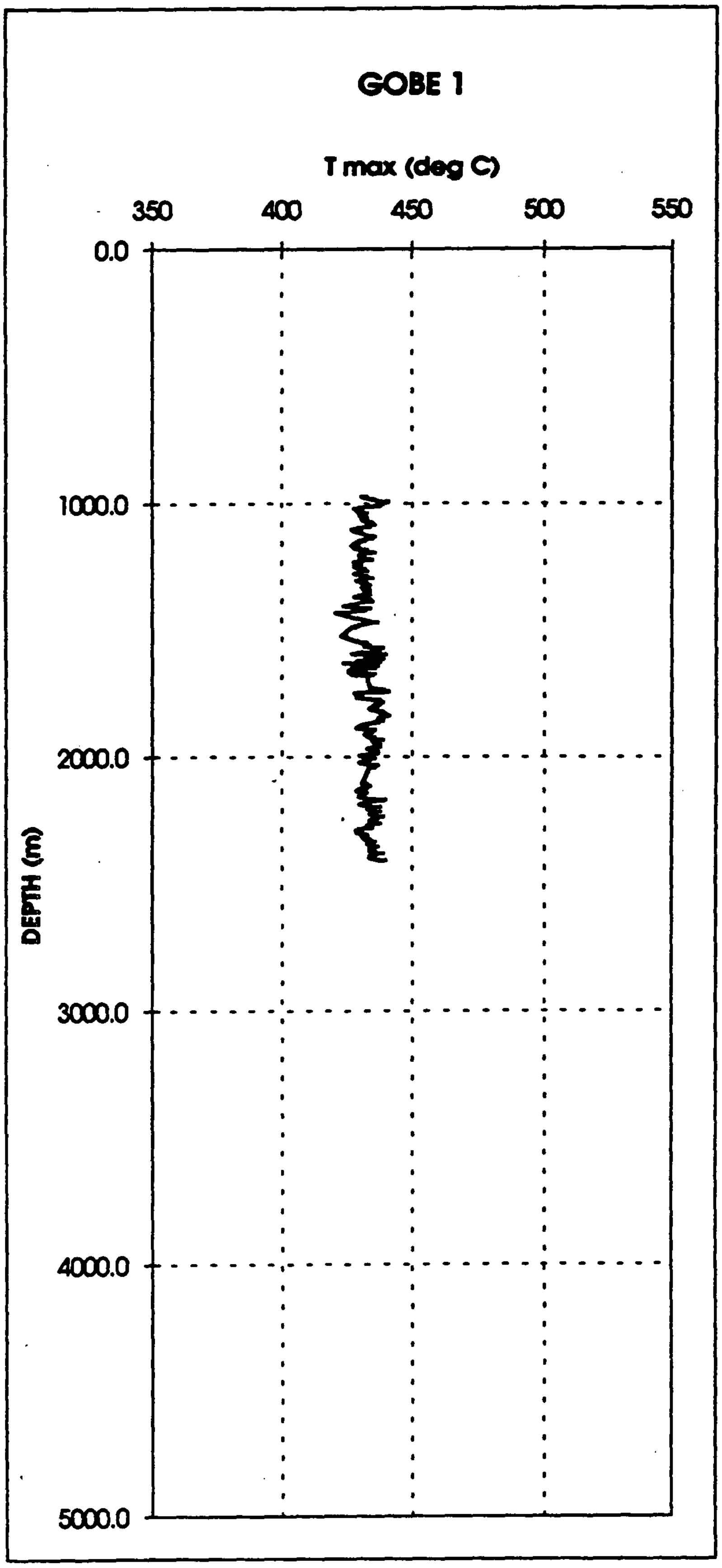
BARIKEWA 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

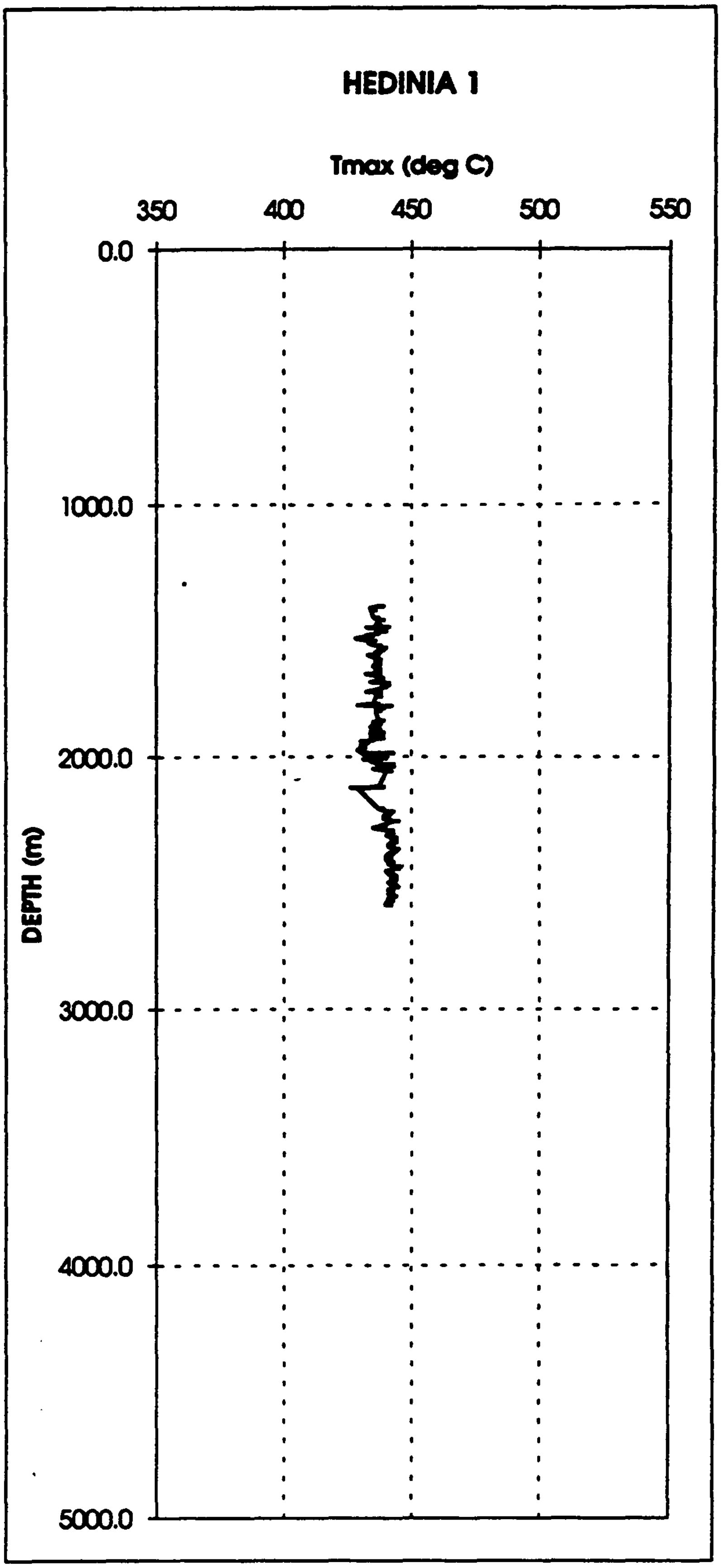


DIBIRI 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

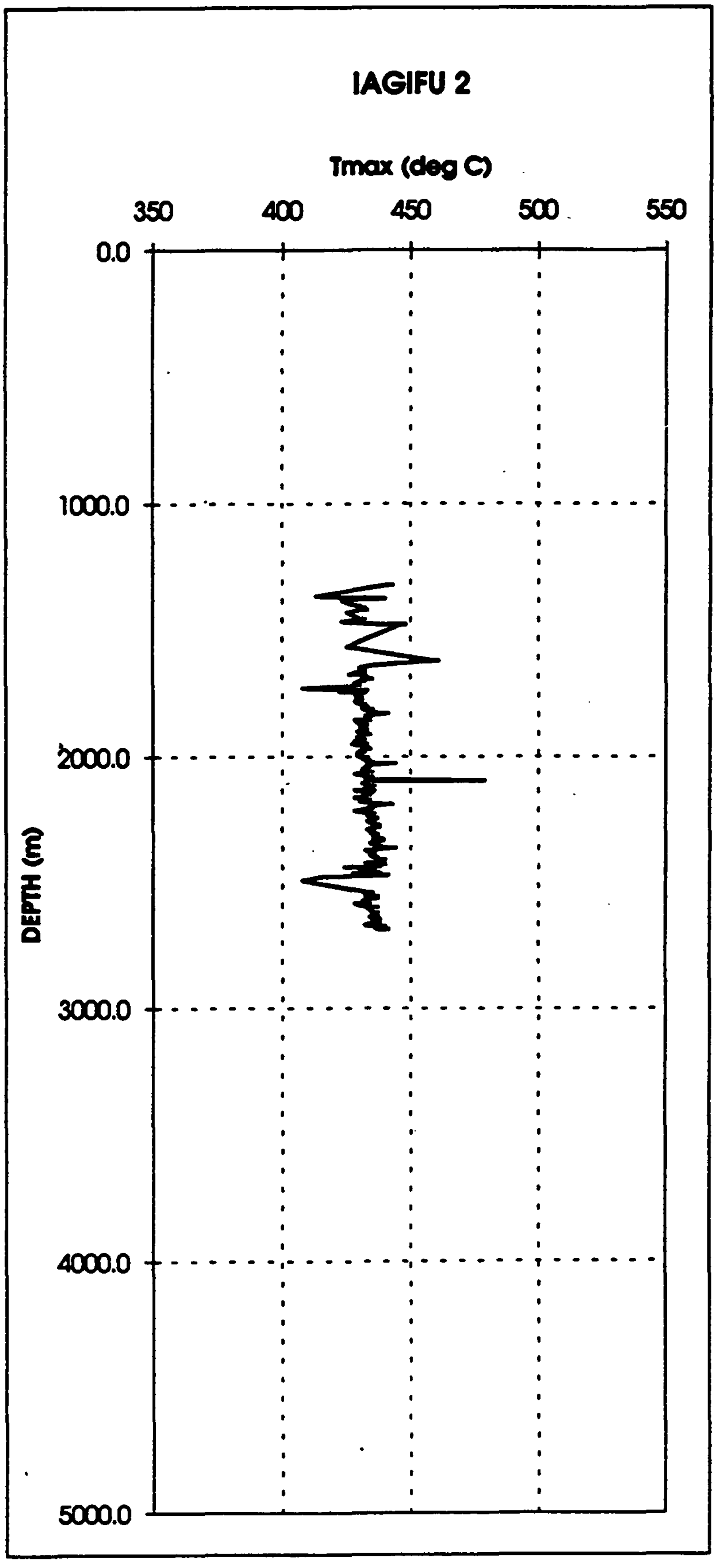

ELEVALA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


GOARIBARI 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

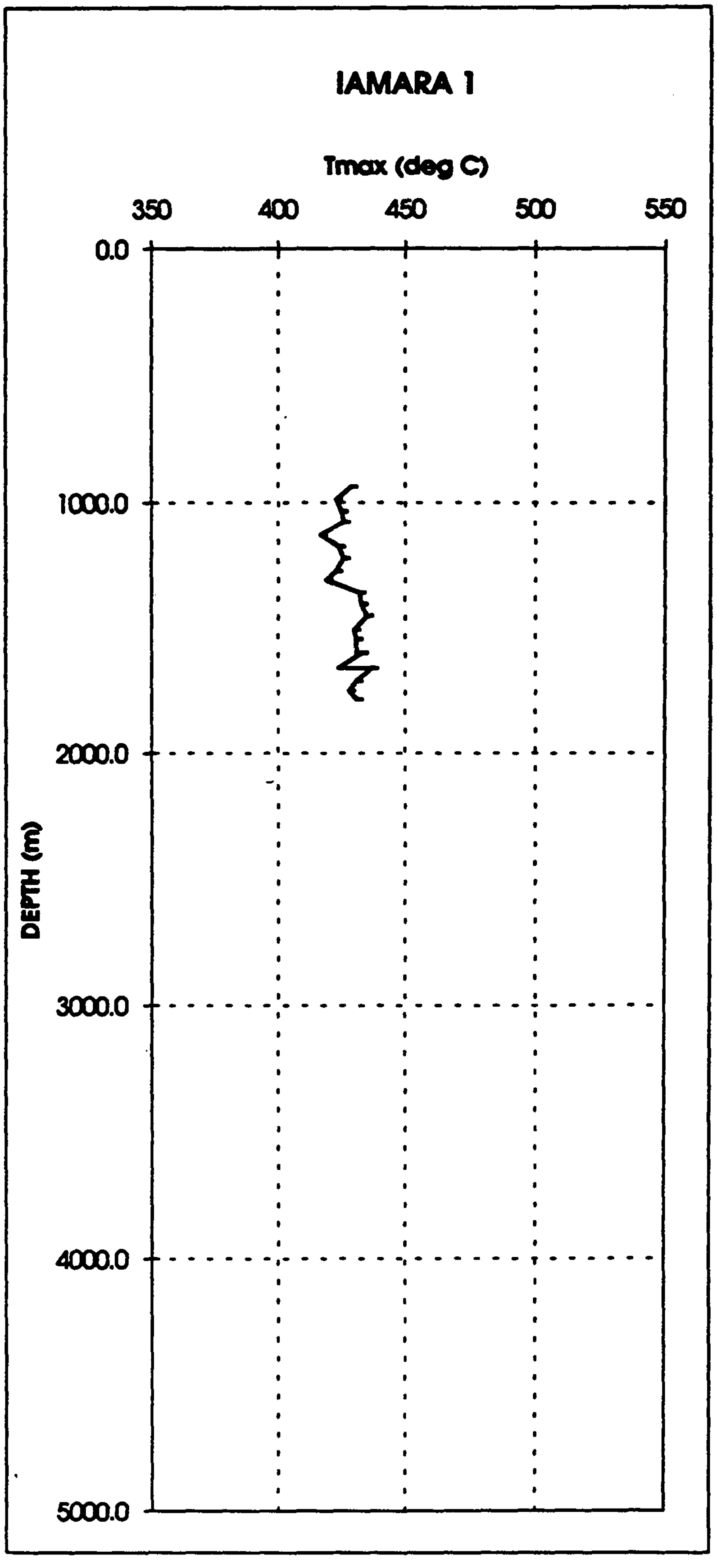

GOBE 1
T max (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



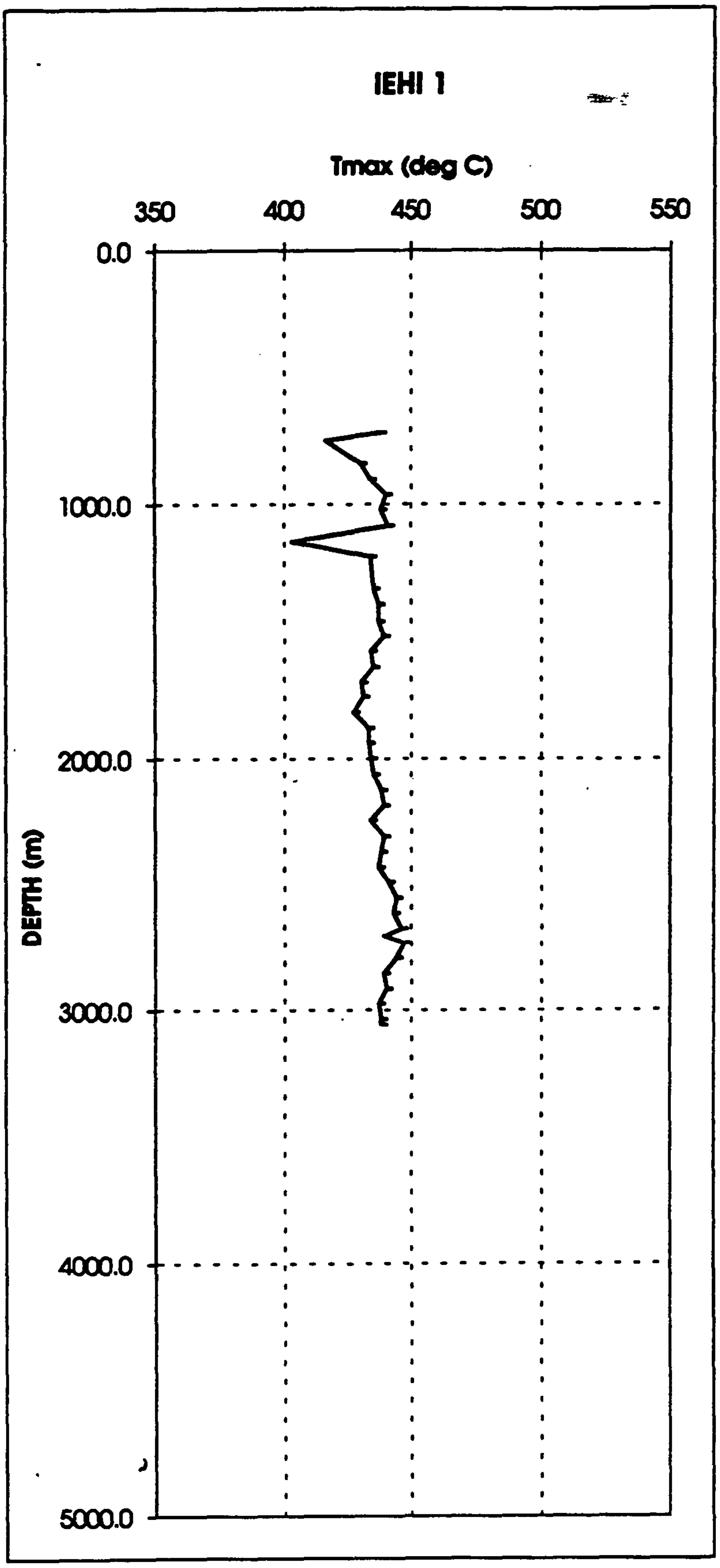
HEDINIA 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



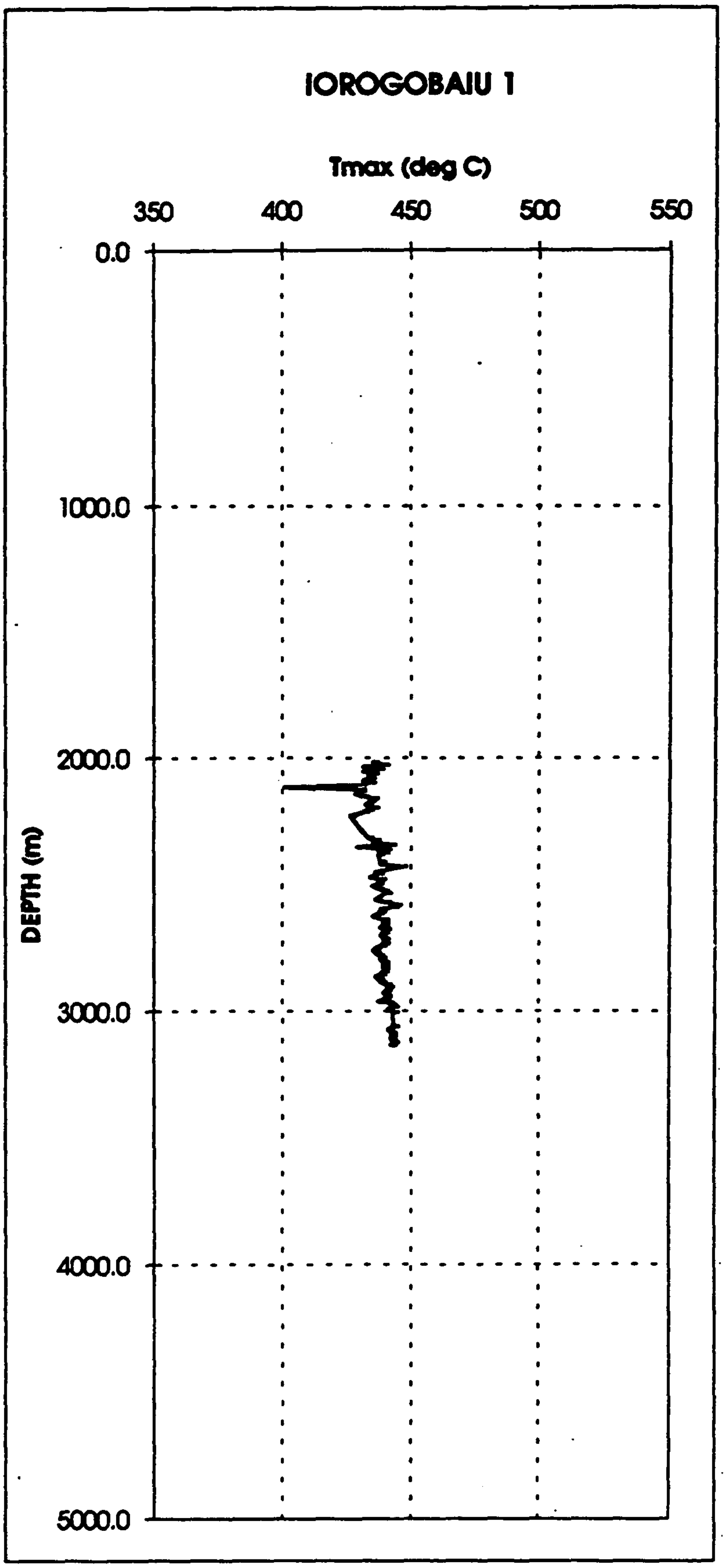
IAGIFU 2
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

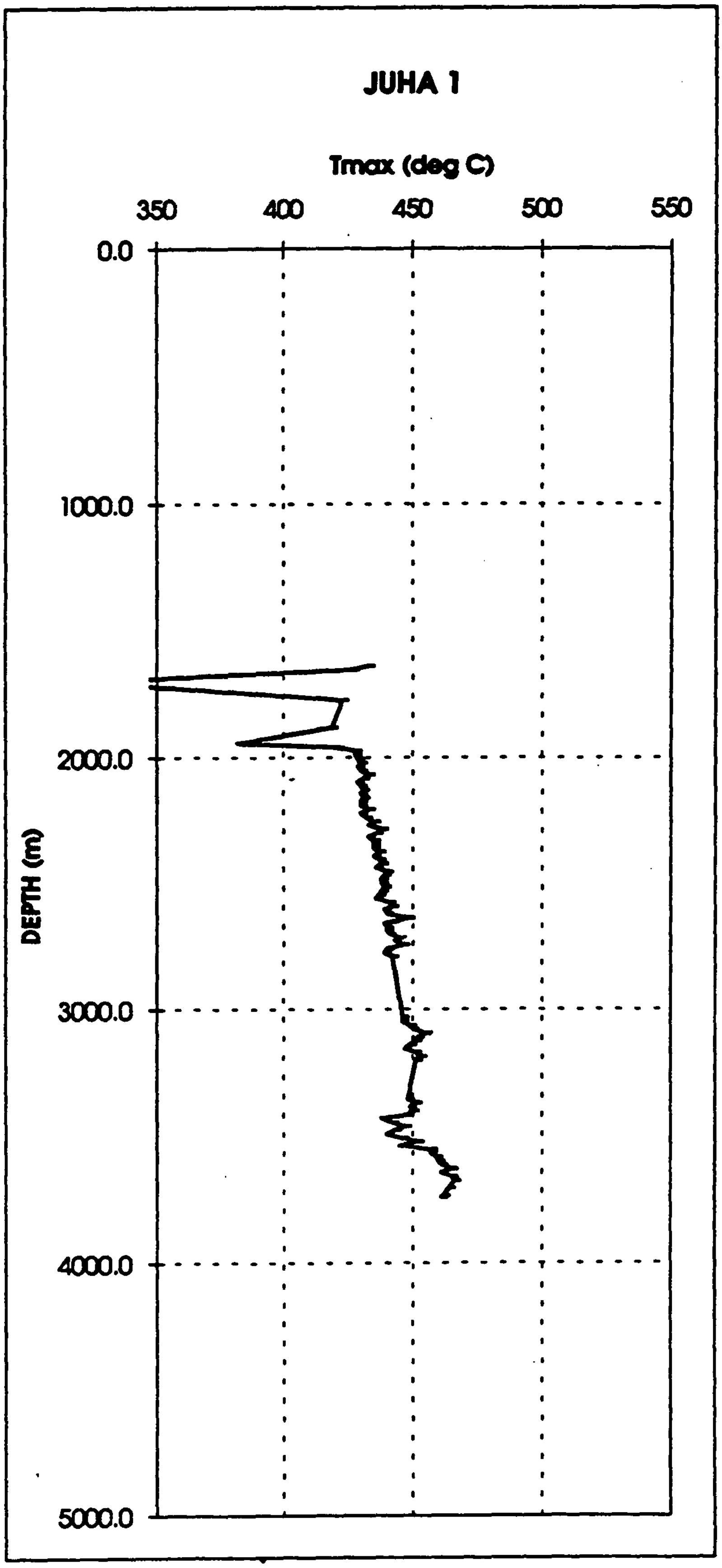


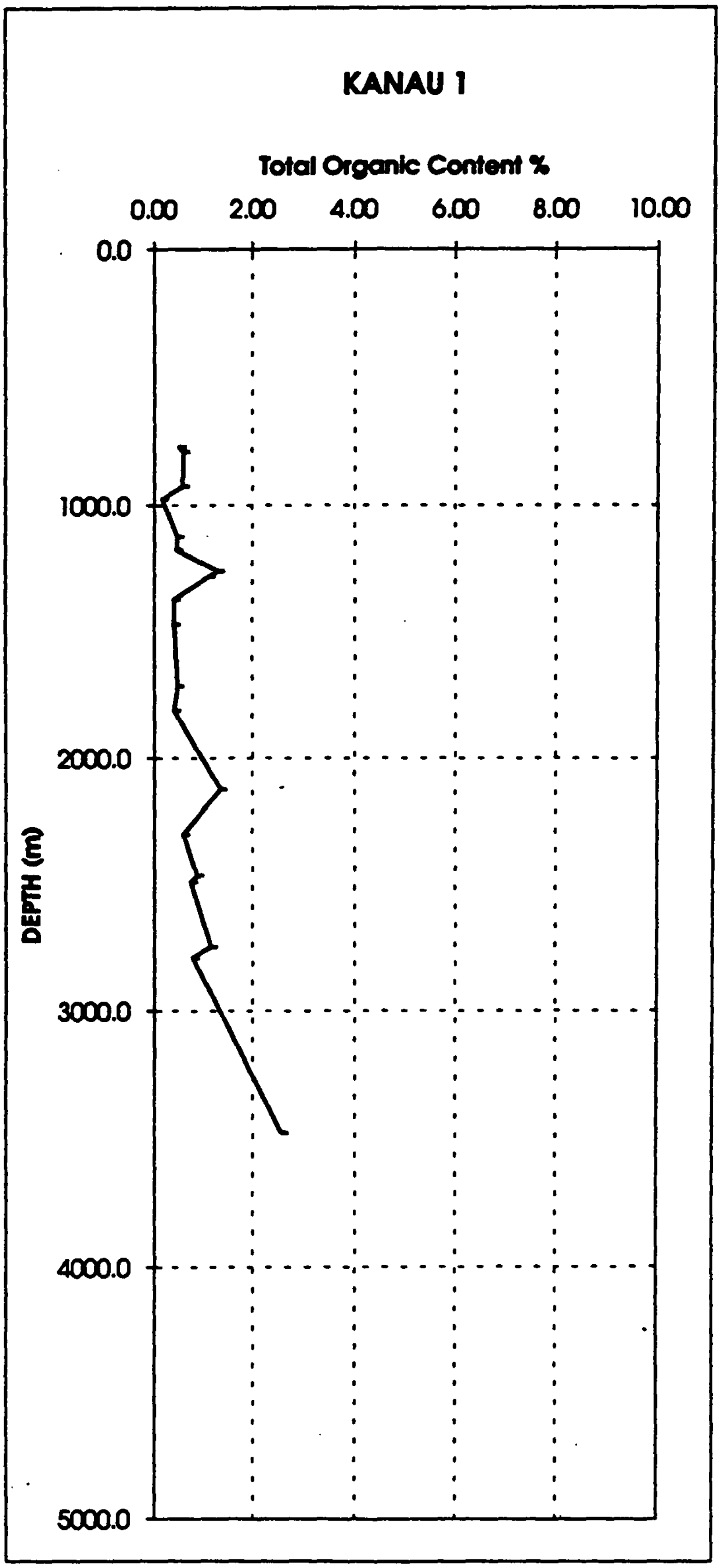
IAMARA 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

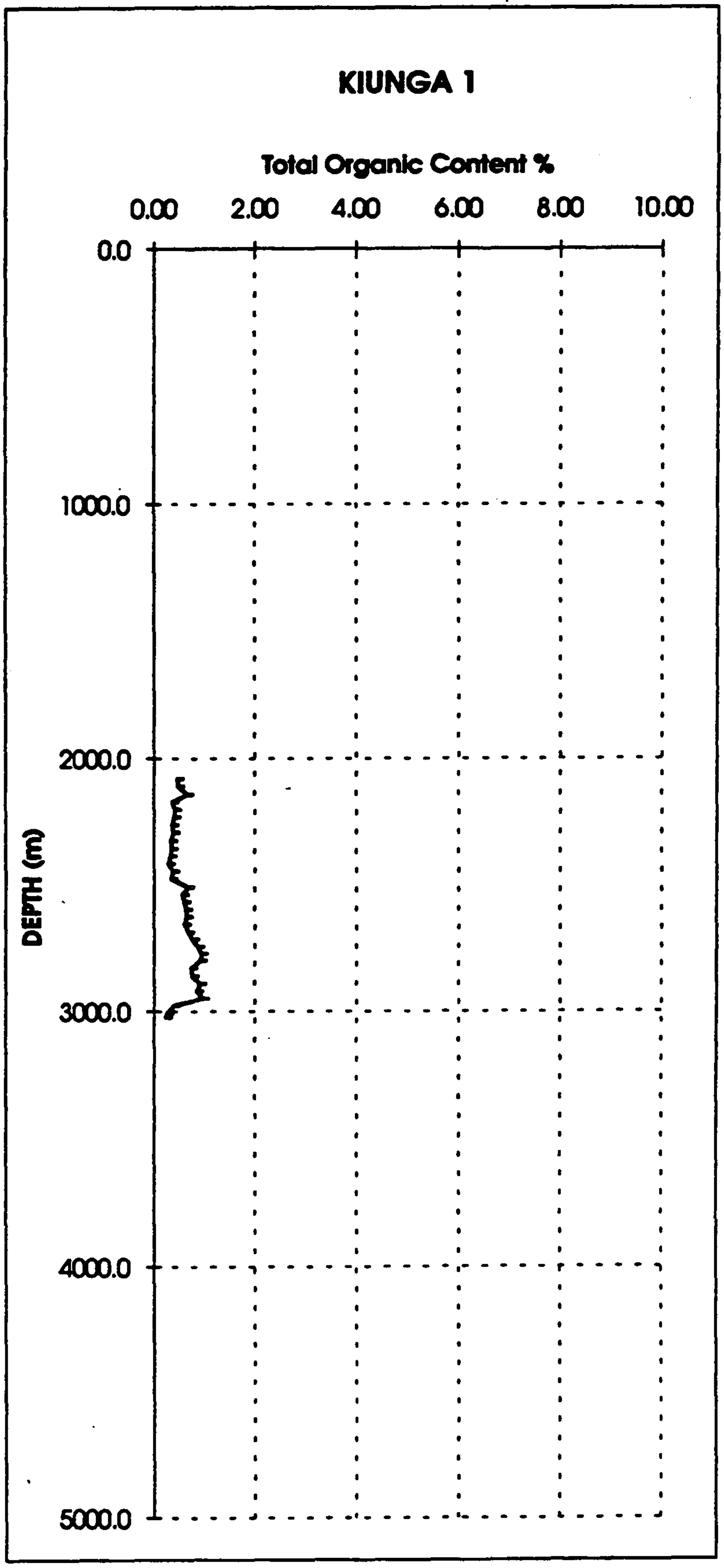


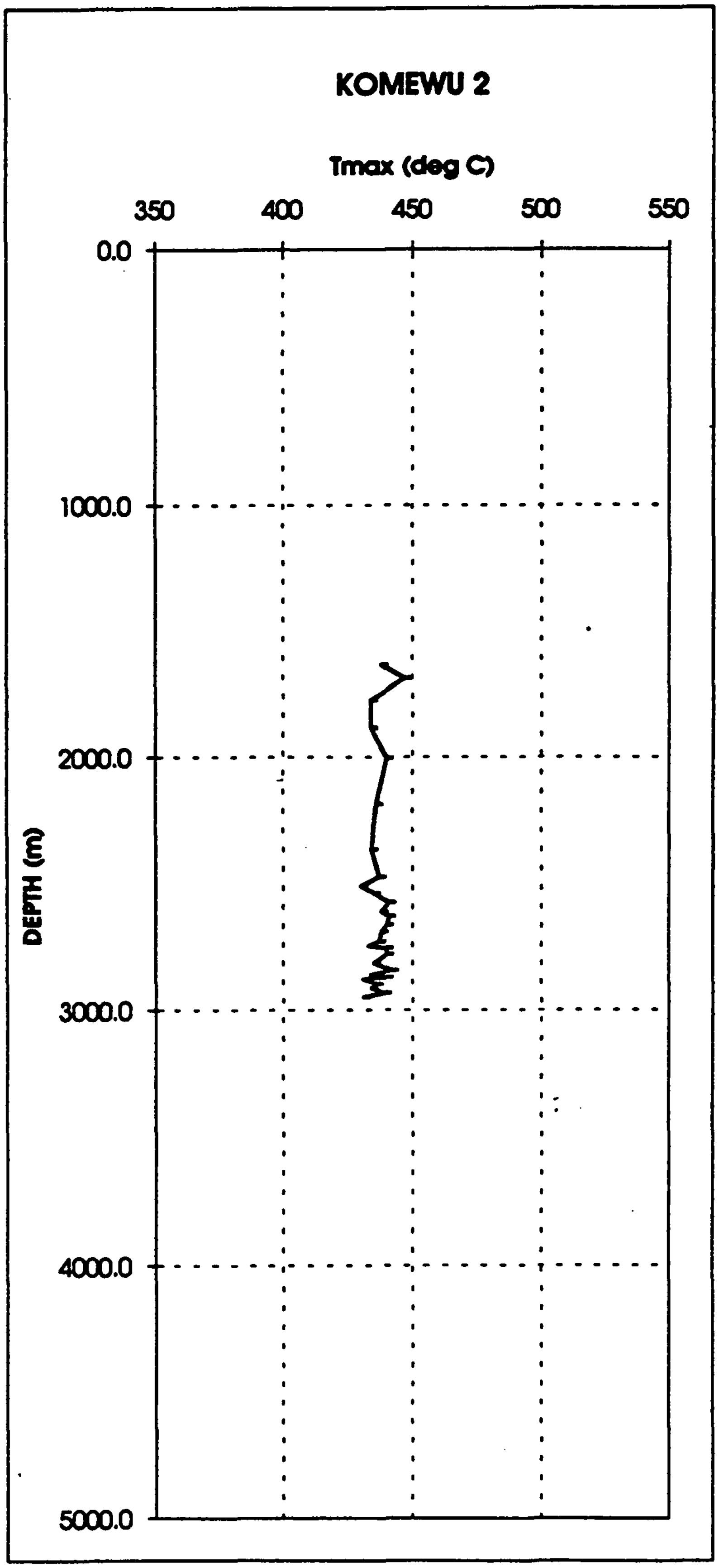
IEHI 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

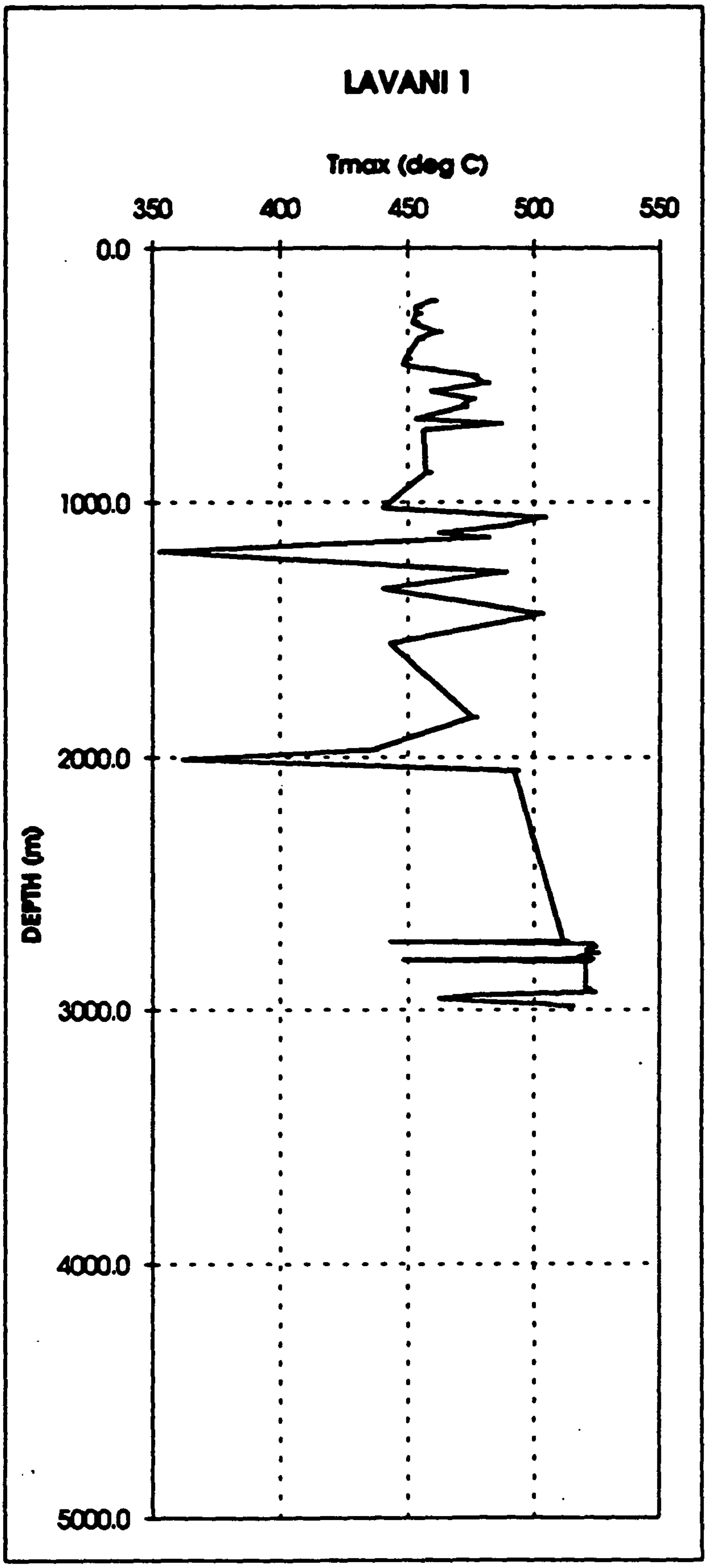

IOROGOBAIU 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

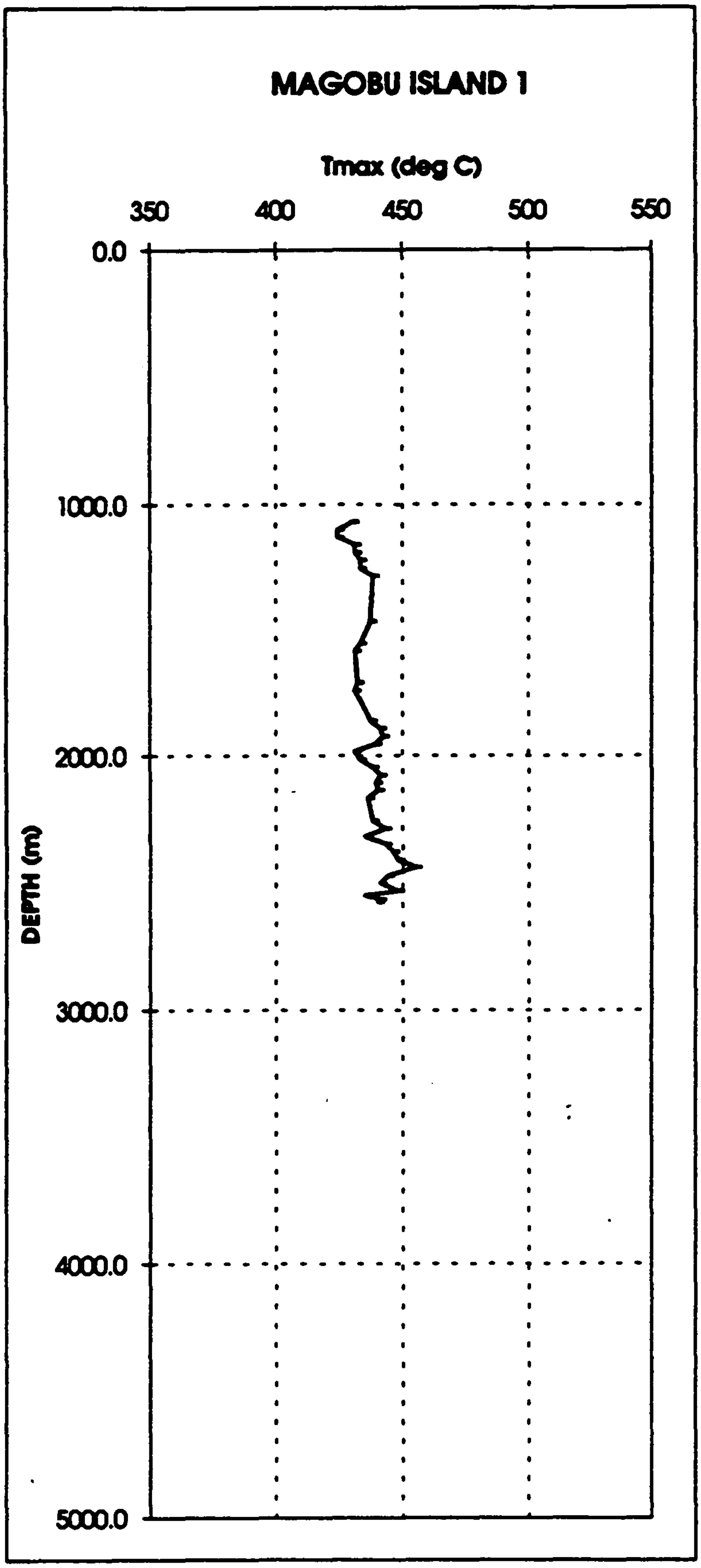

JUHA 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

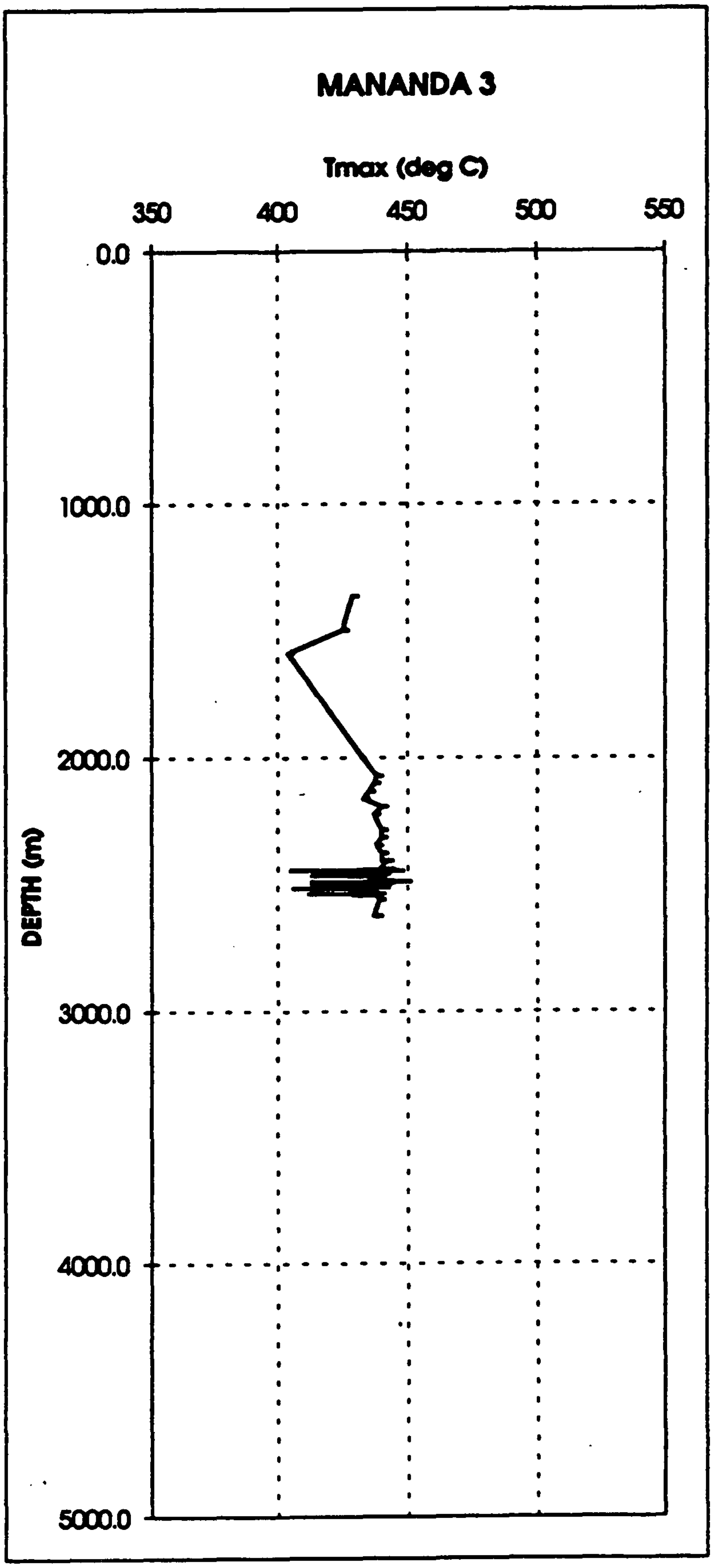

KANAU 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


KIUNGA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

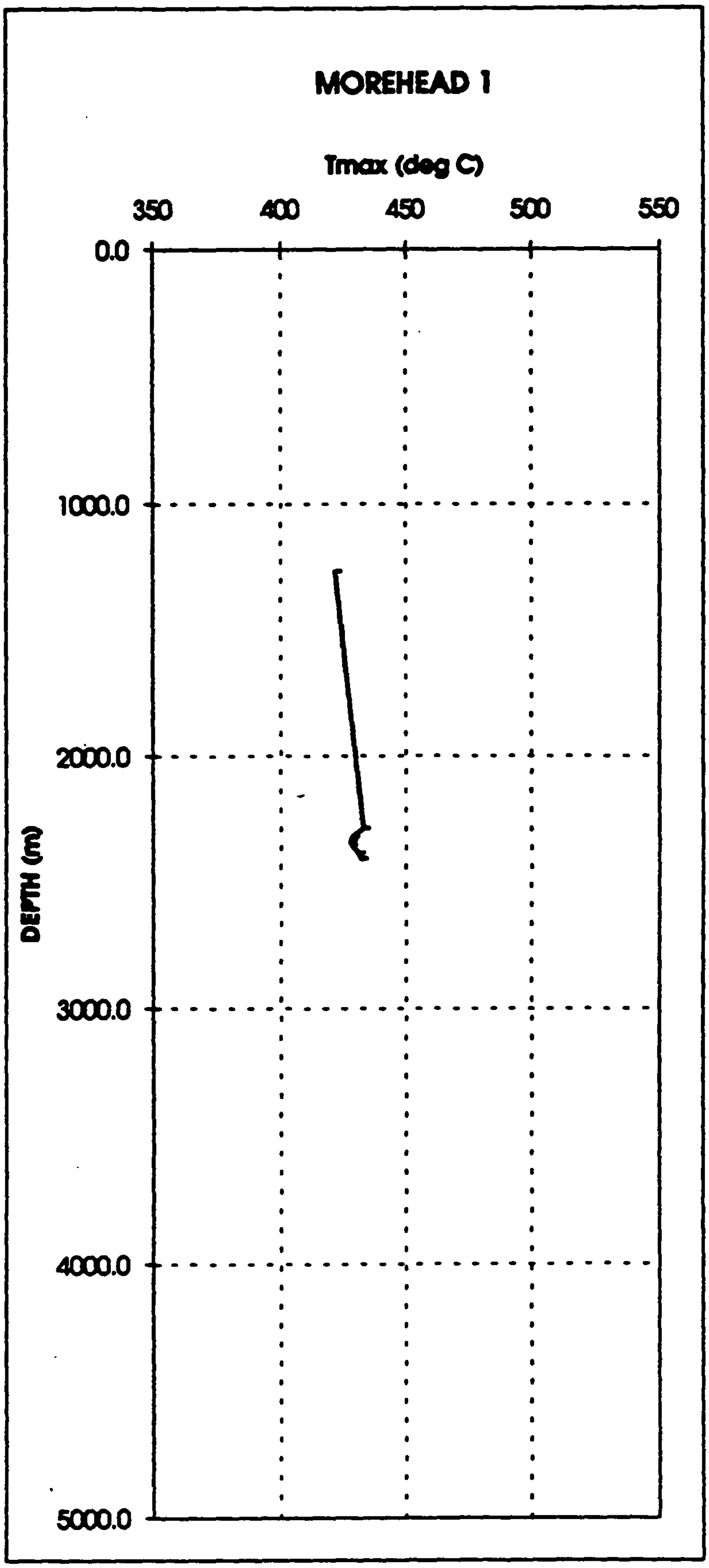

KOMEWU 2
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

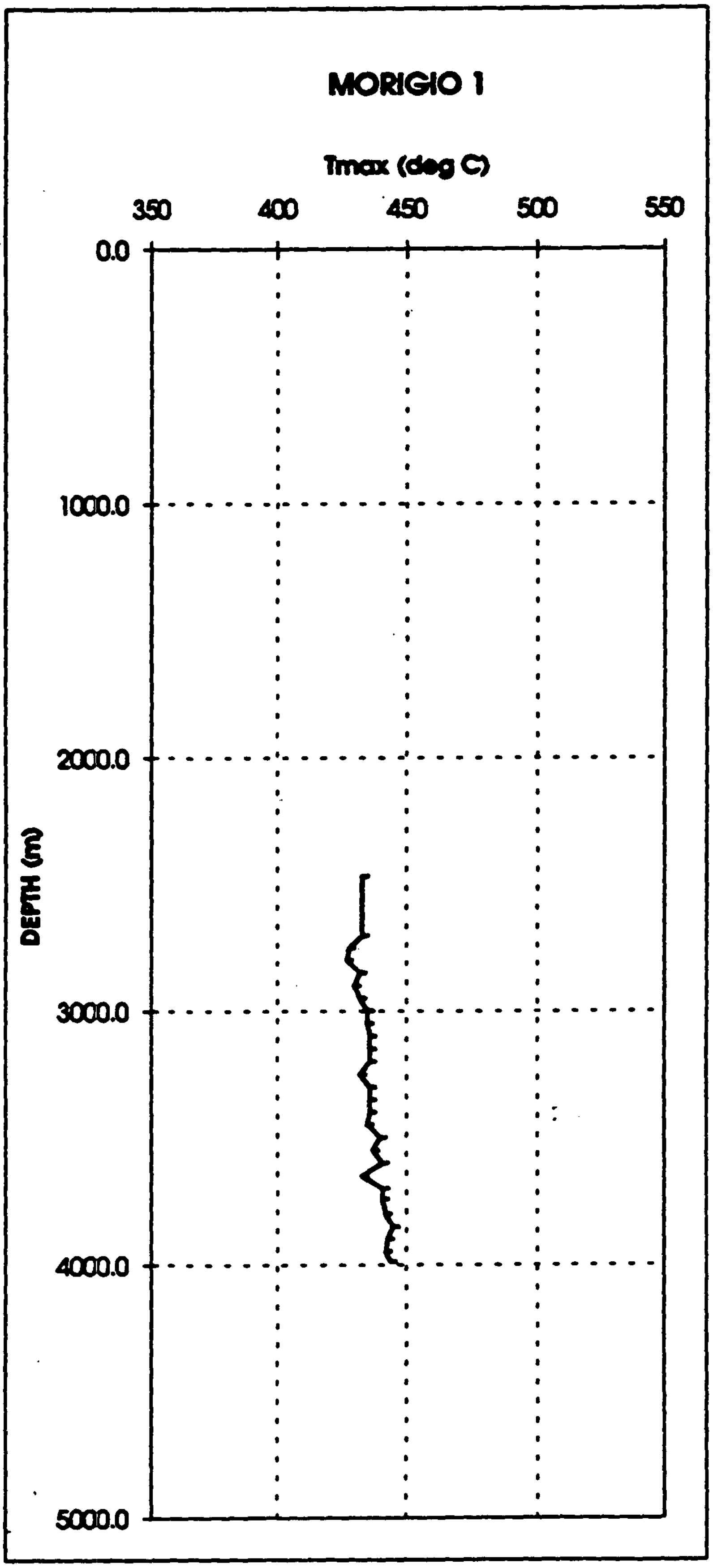

LAVANI 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

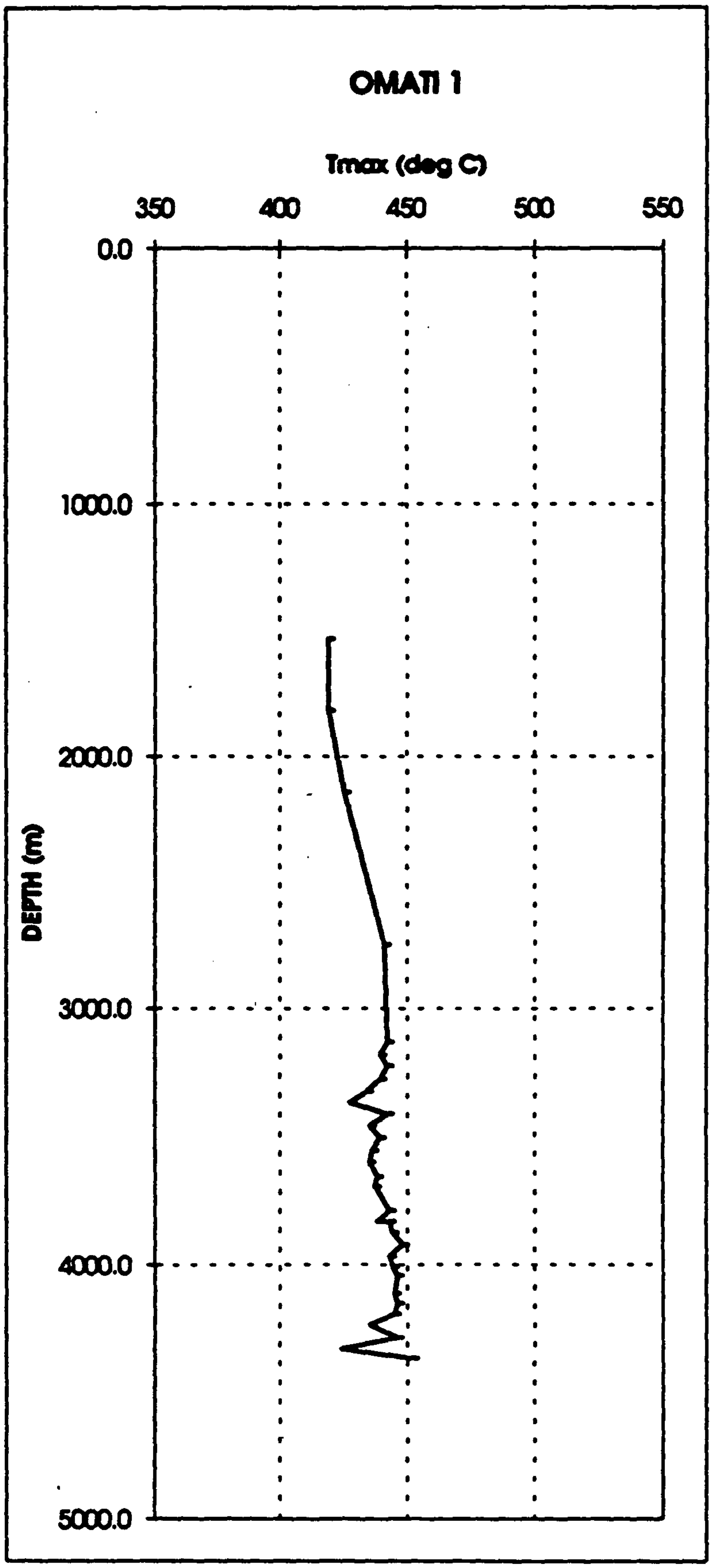

MAGOBU ISLAND 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

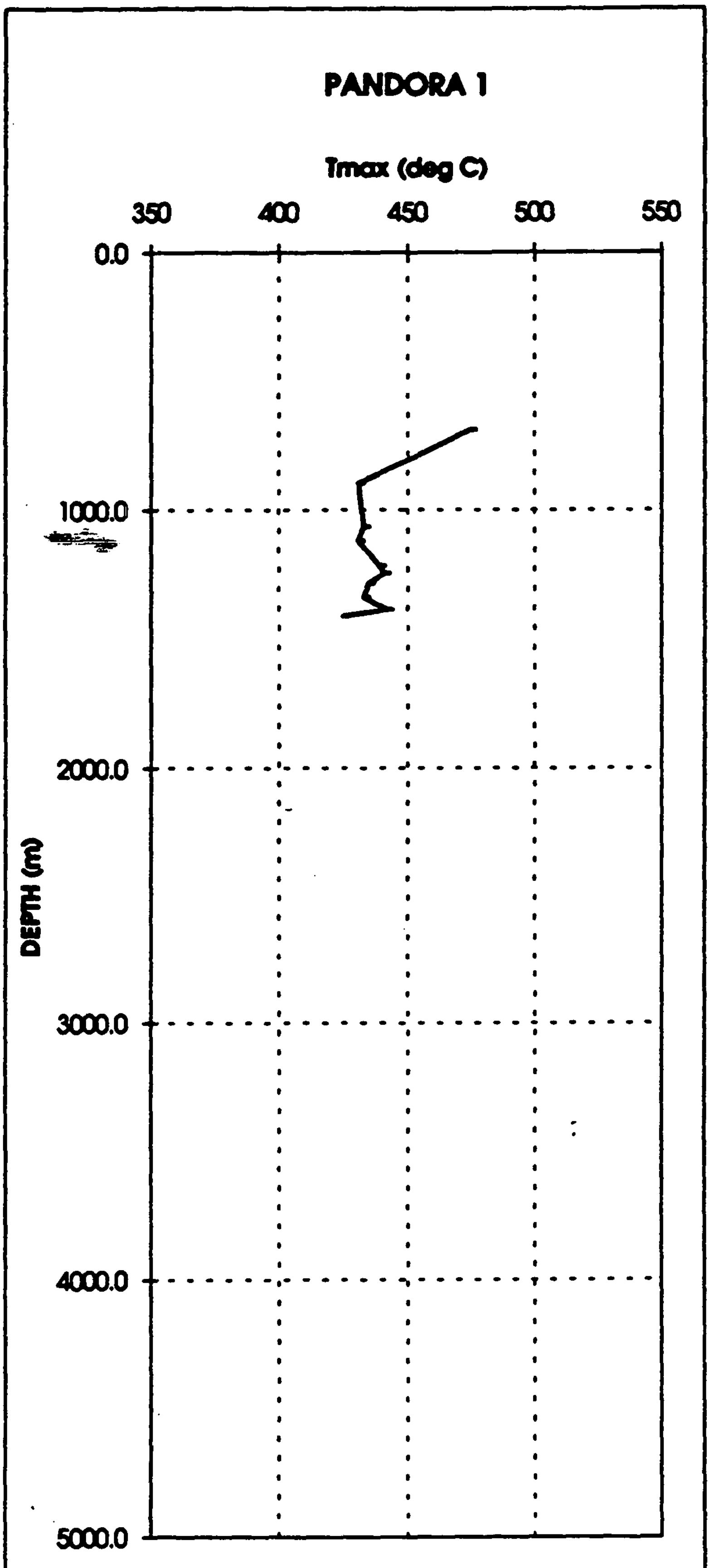


MANANDA 3
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MOREHEAD 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MORIGIO 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


OMATI 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



PANDORA 1
Tmax (deg C)
350
400
450
500
550
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

AGSO

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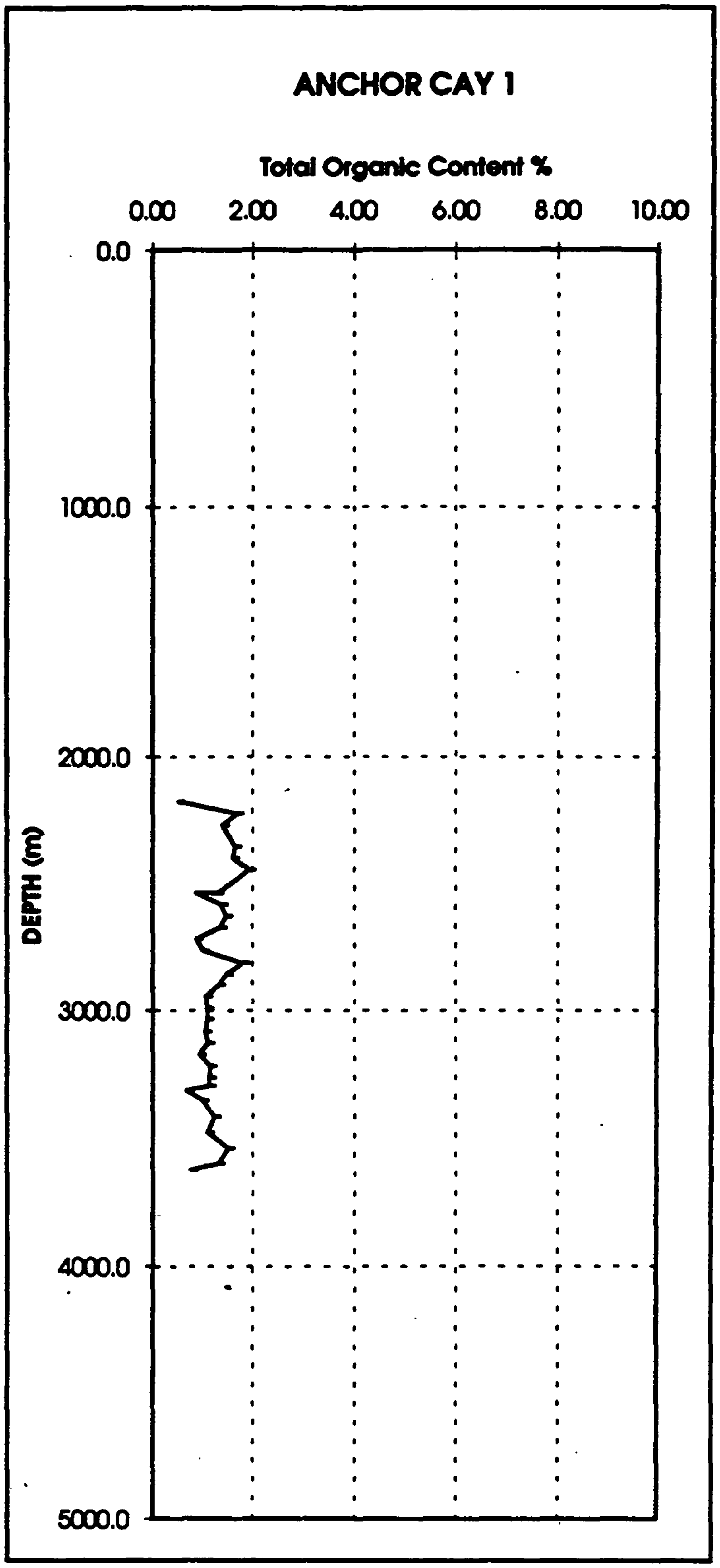
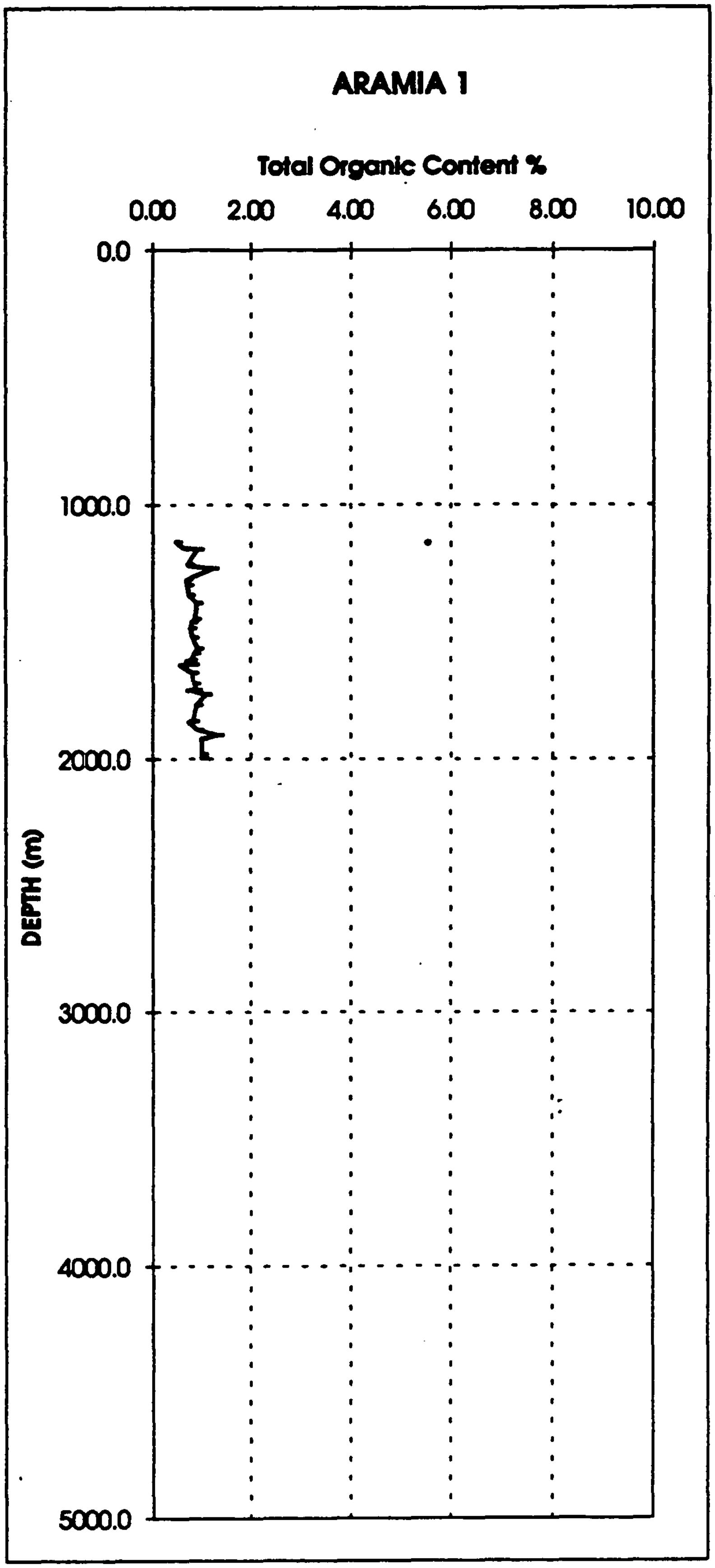
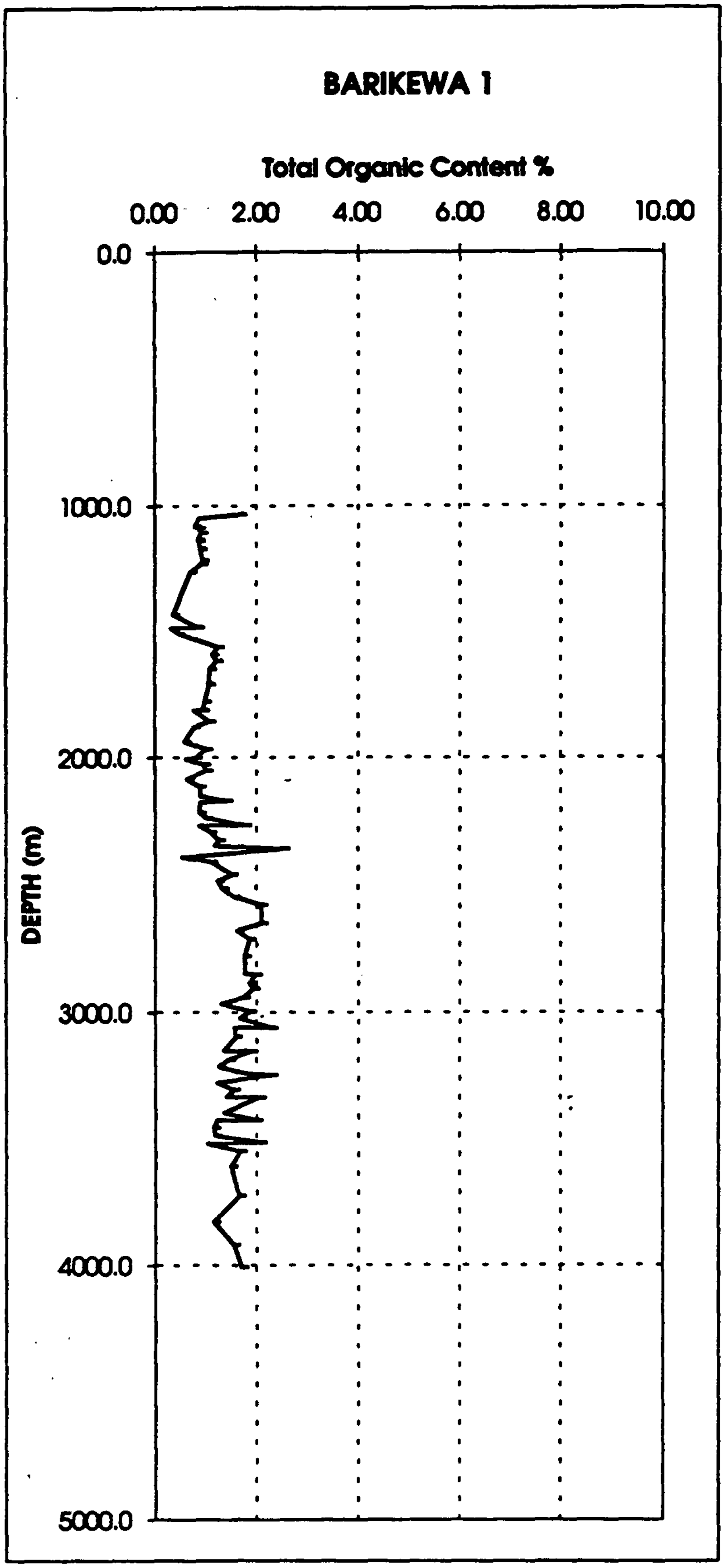
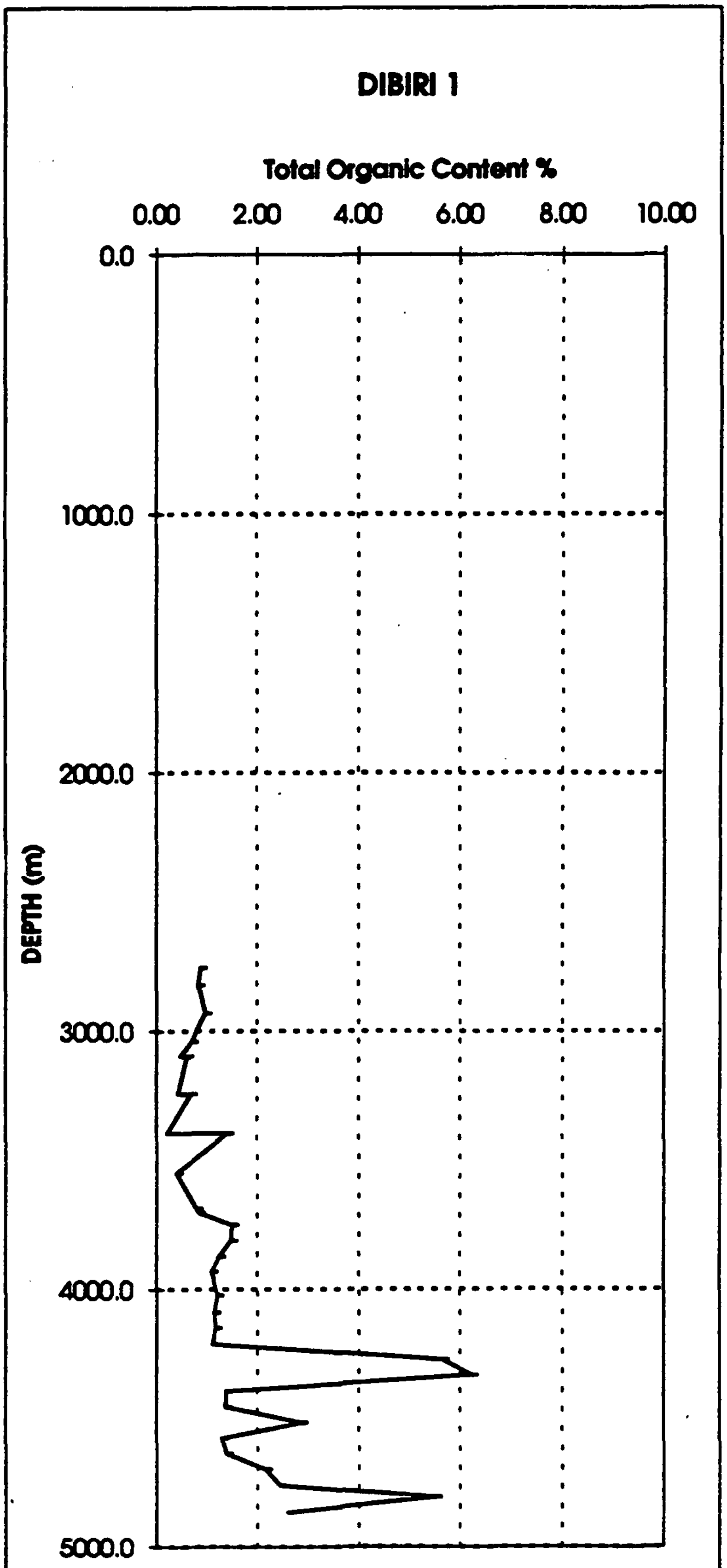
APPENDIX 13 : TOTAL ORGANIC CARBON CONTENT PROFILES

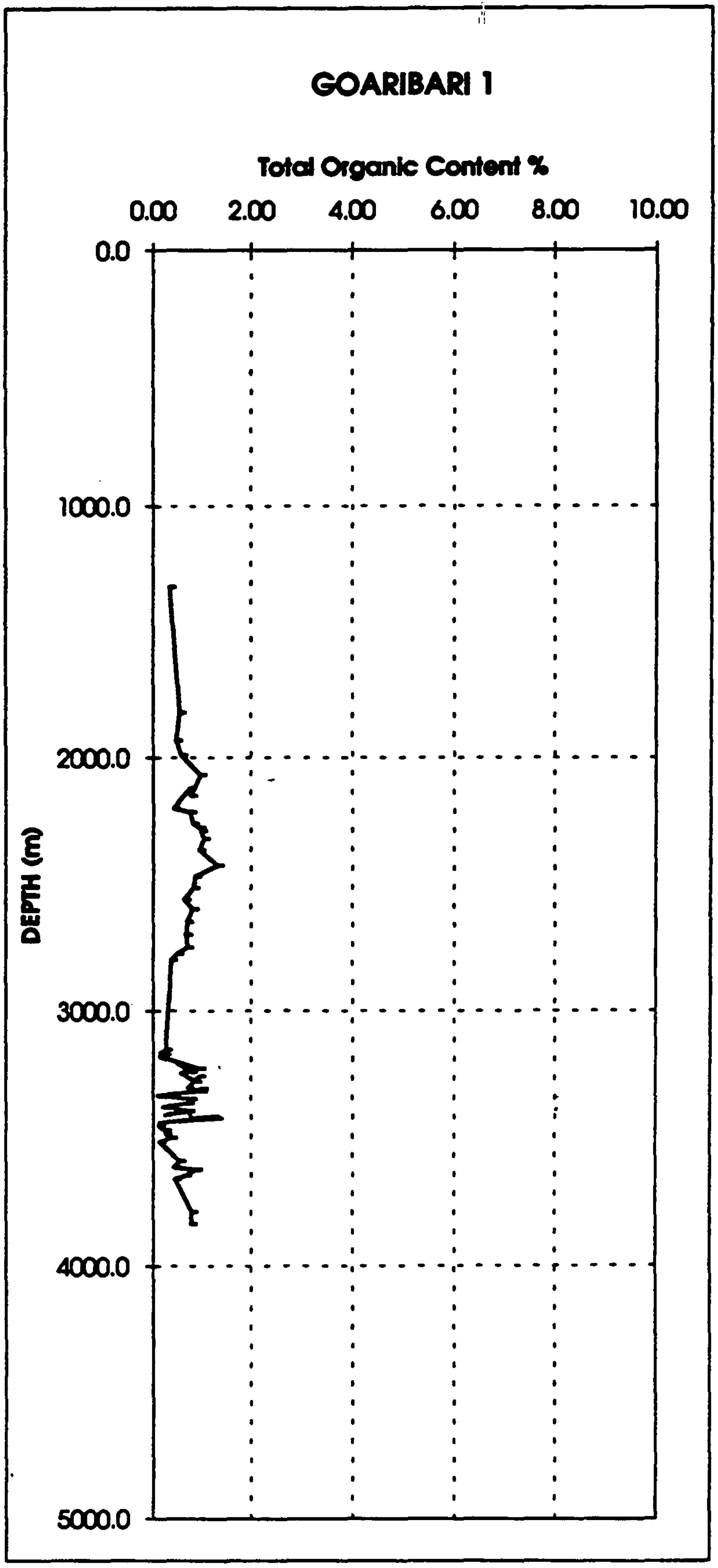

ANCHOR CAY 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

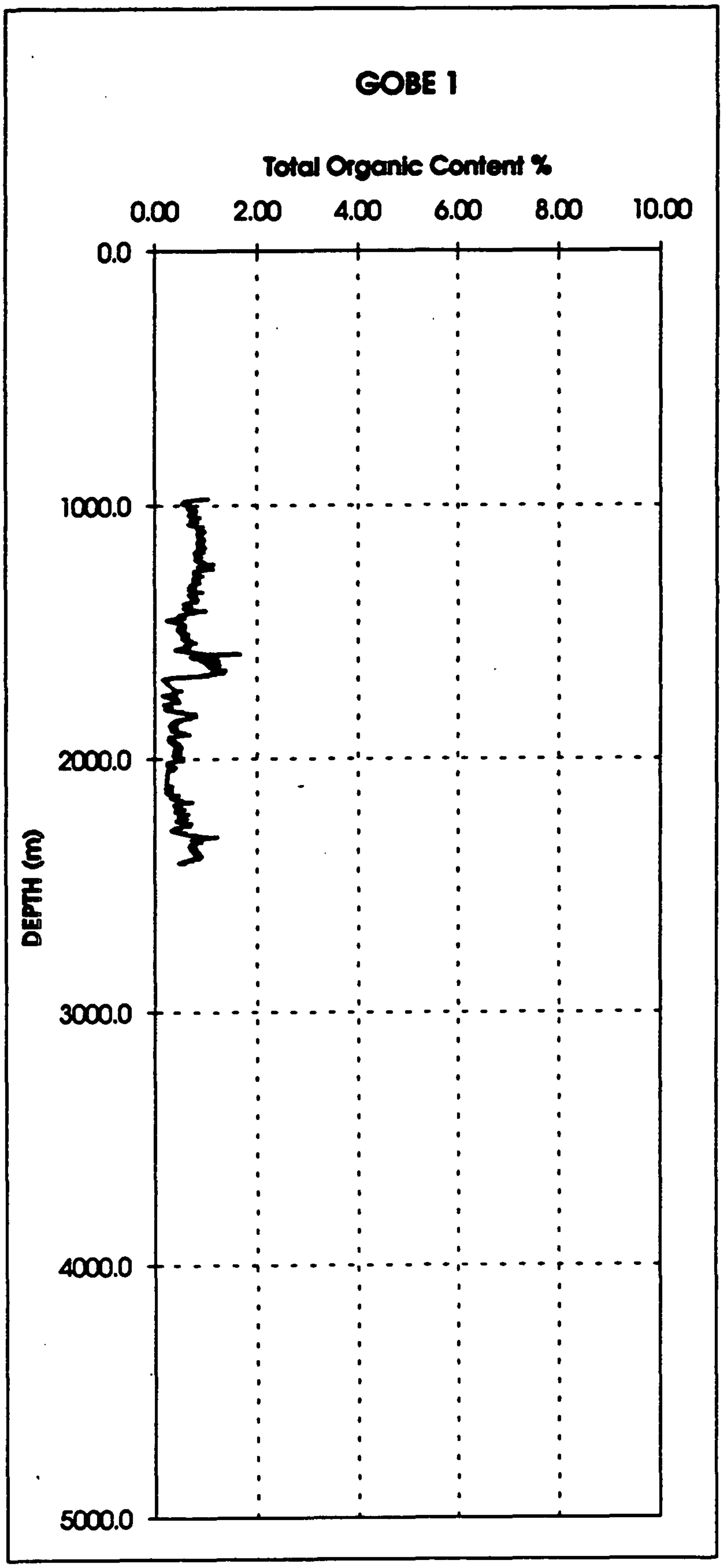

ARAMIA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

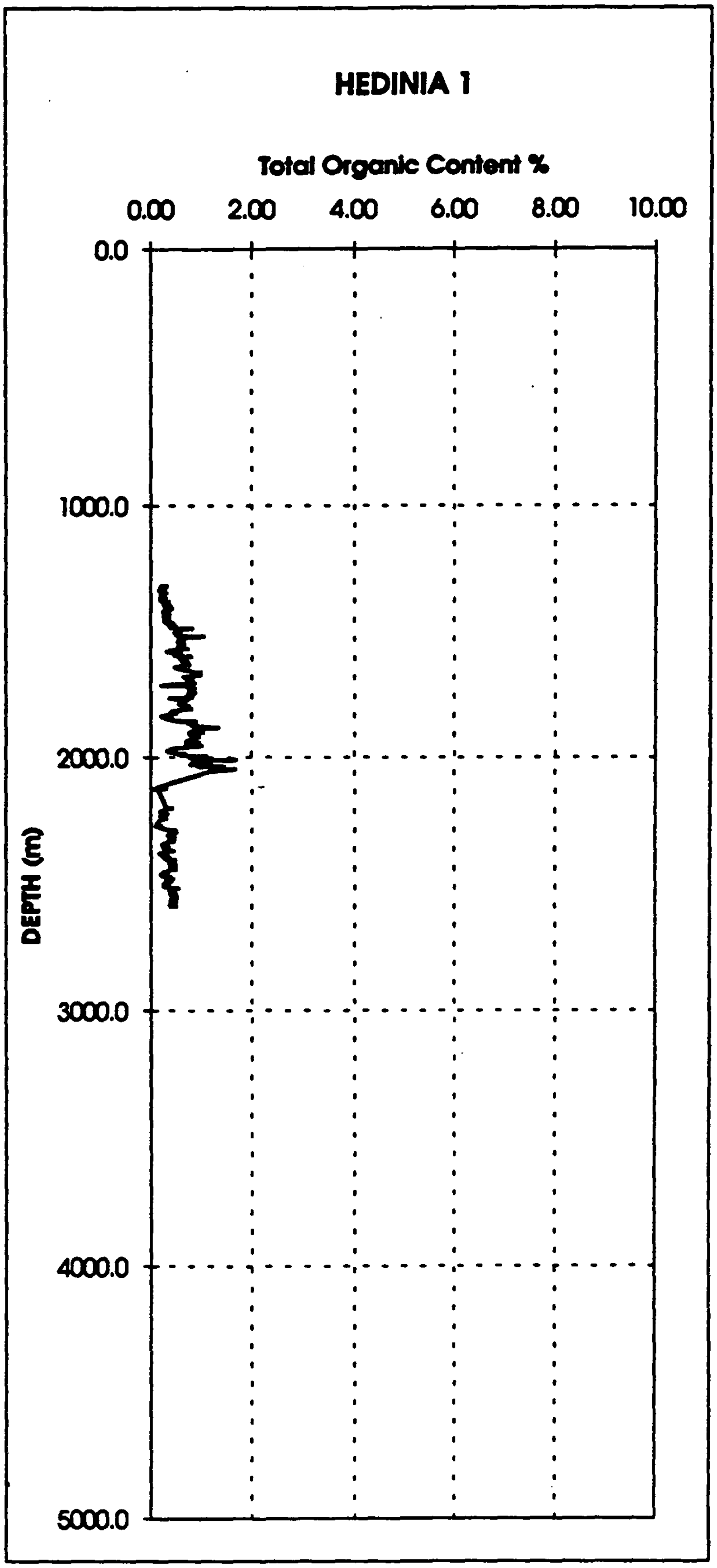


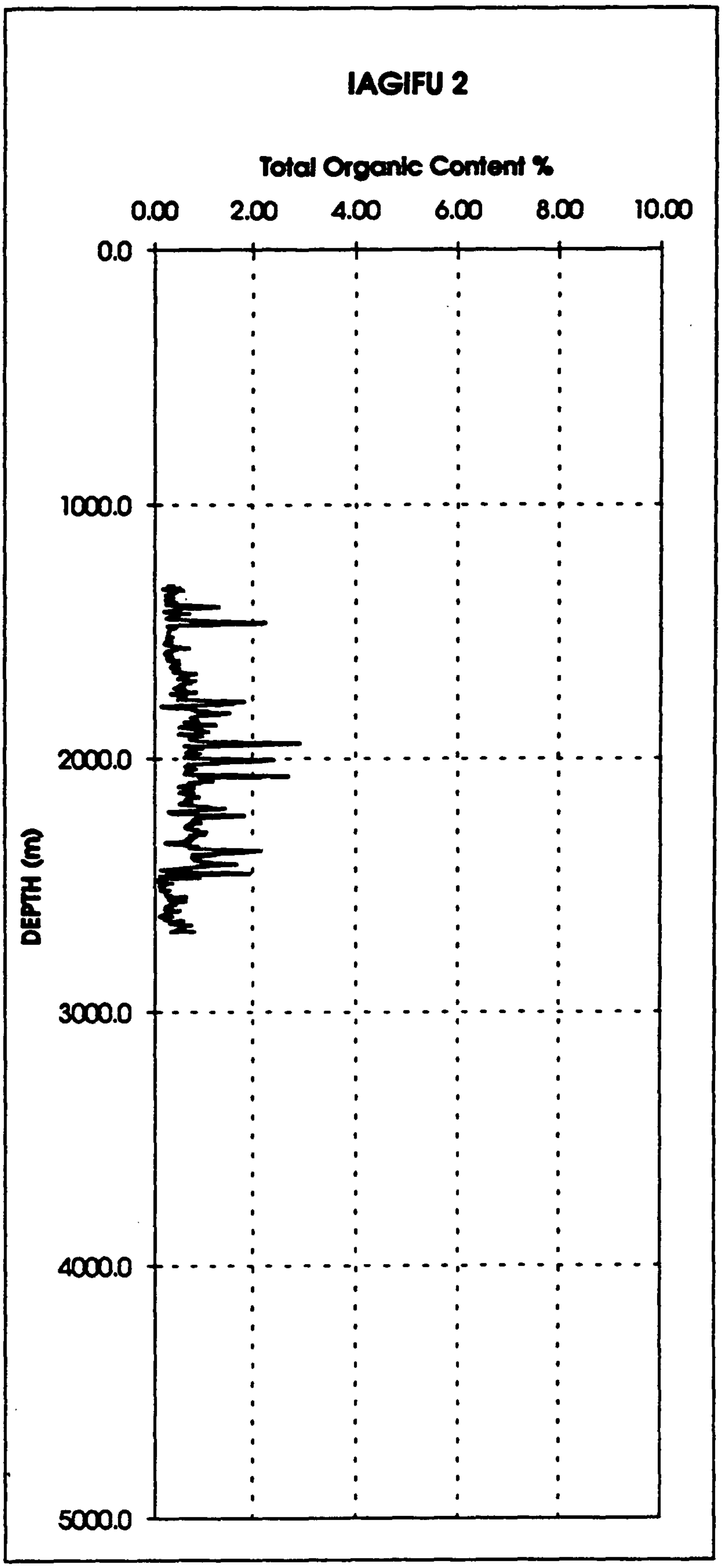
BARIKEWA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


DIBIRI 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

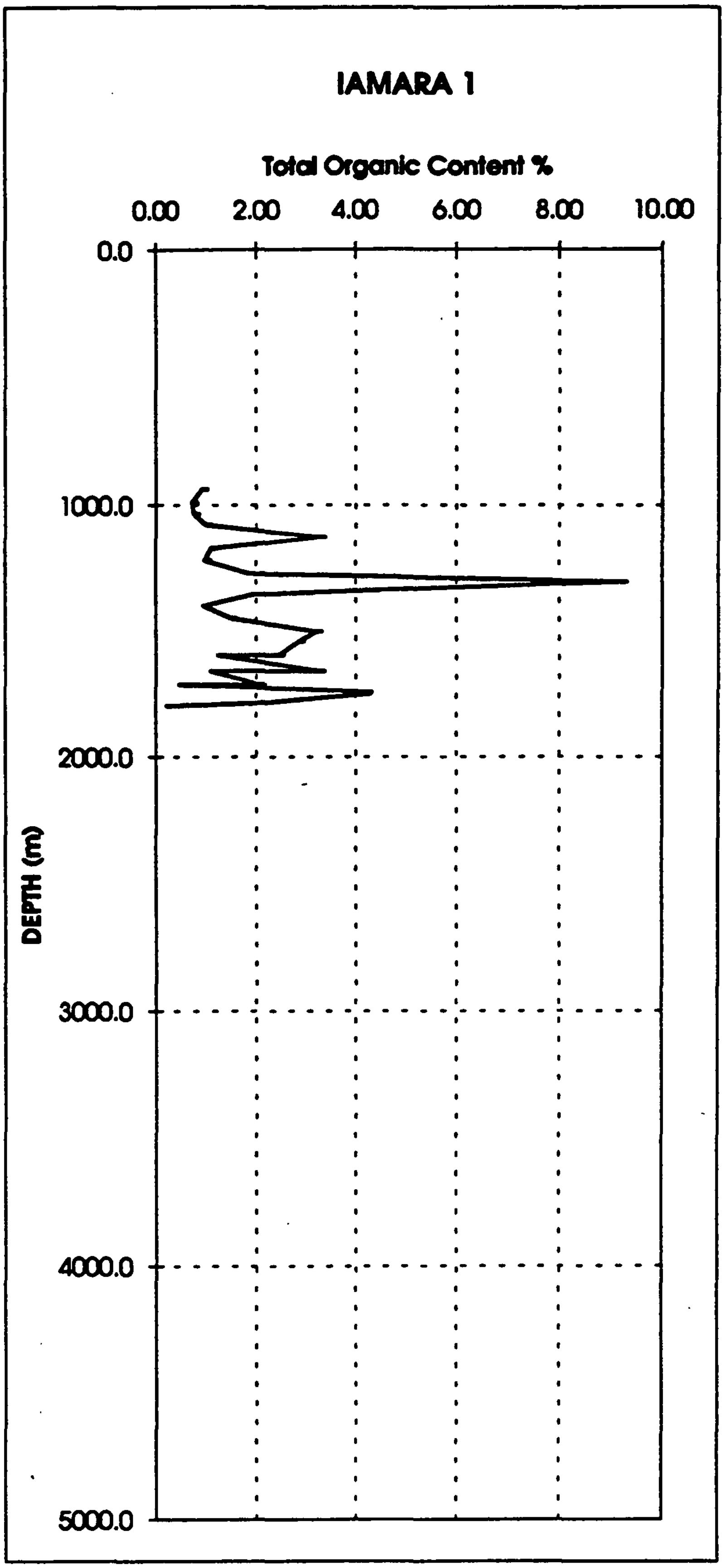

GOARIBARI 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


GOBE 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

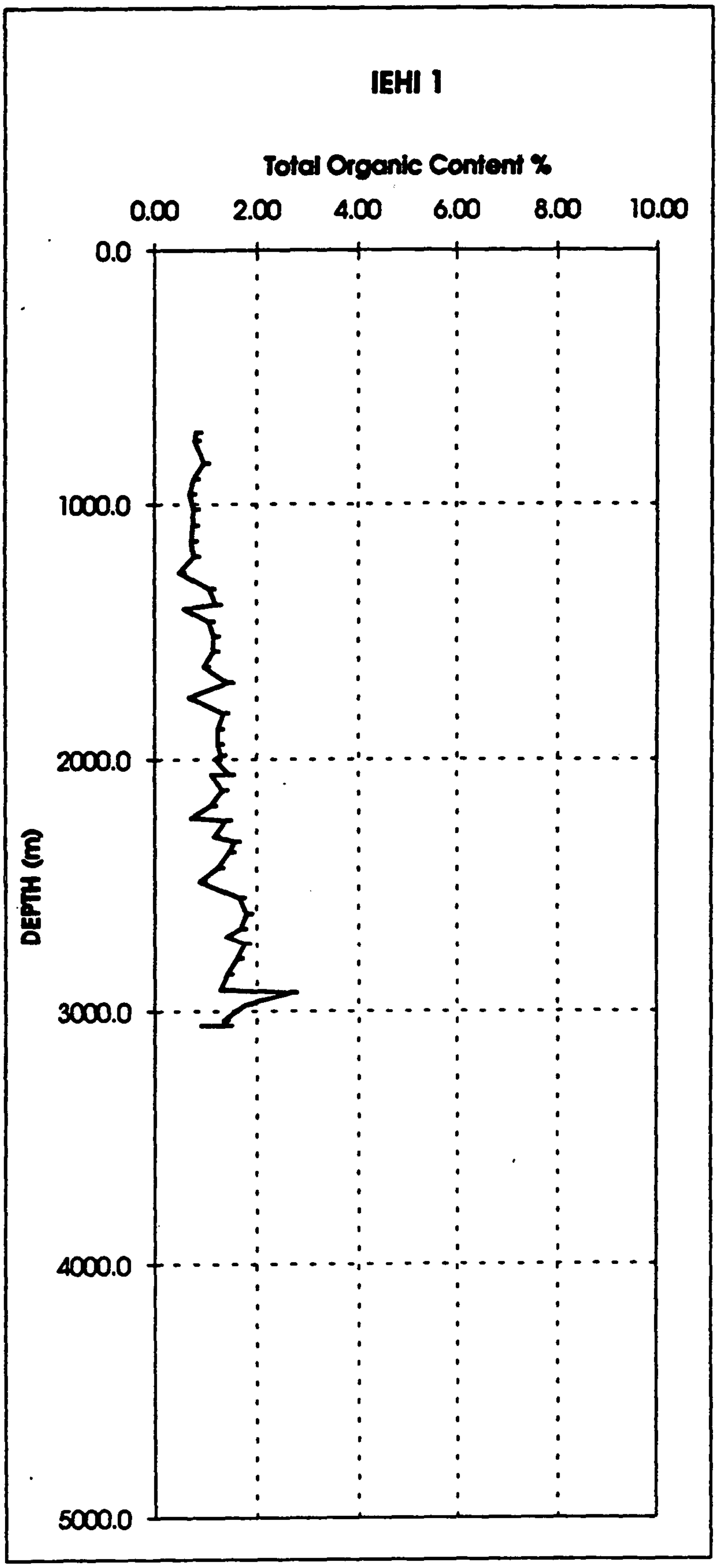

HEDINIA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

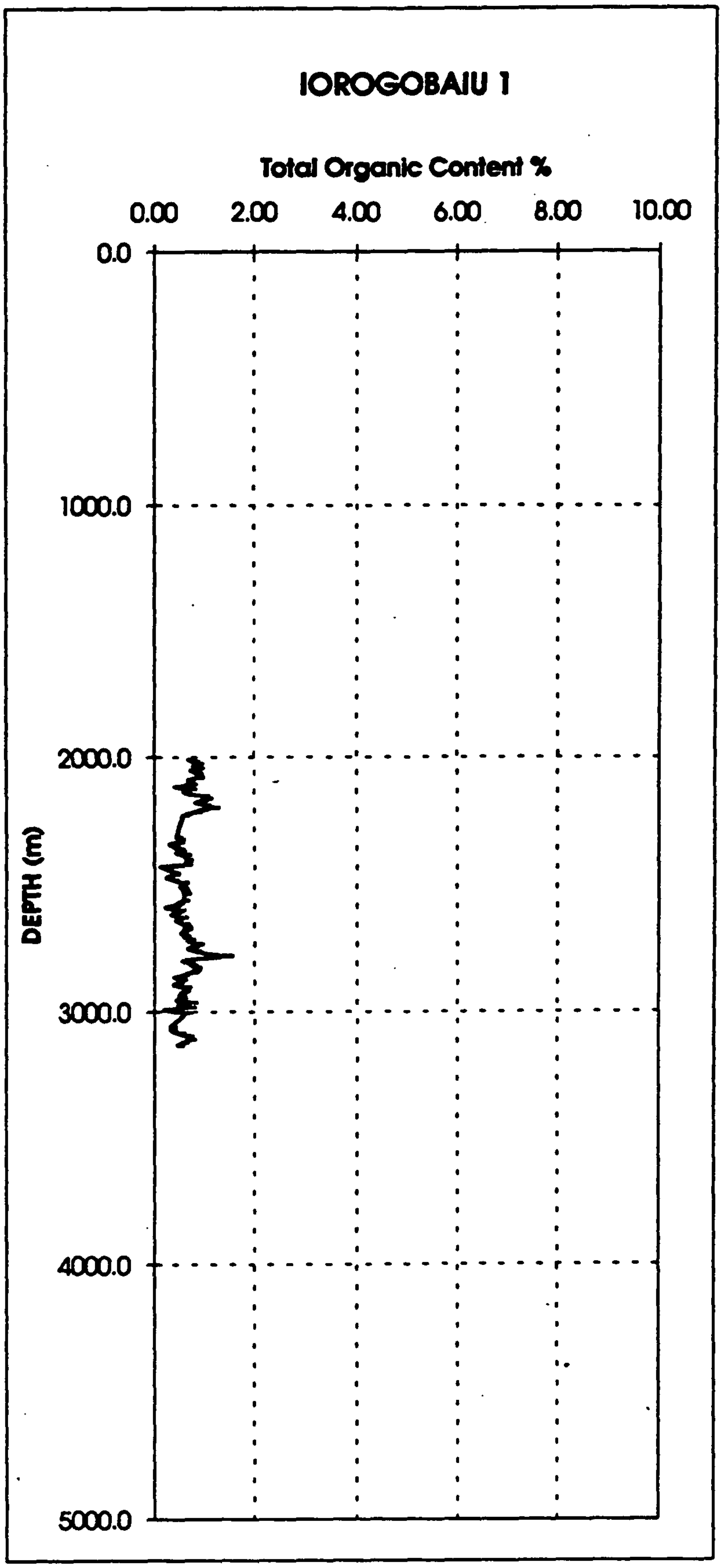


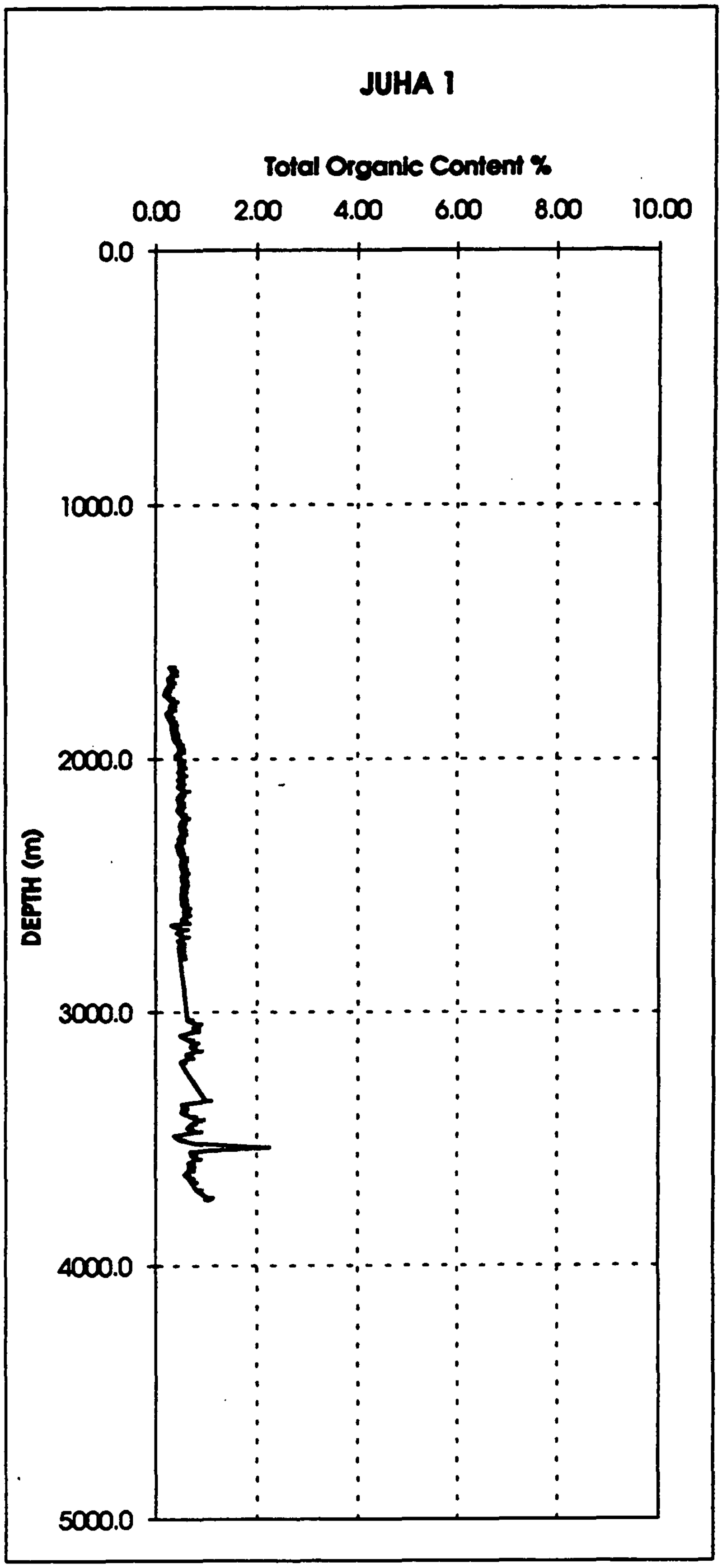
IAGIFU 2
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



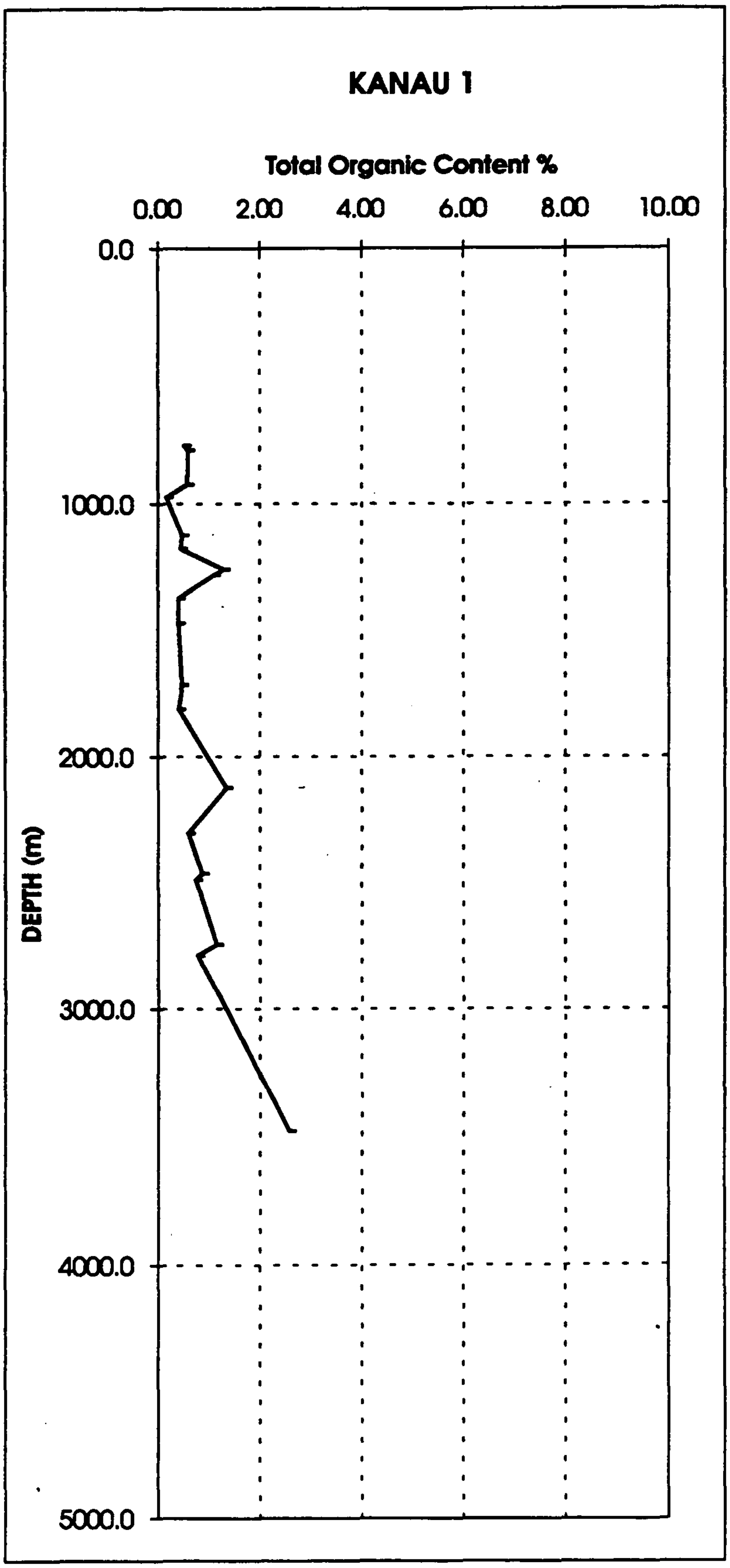
IAMARA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

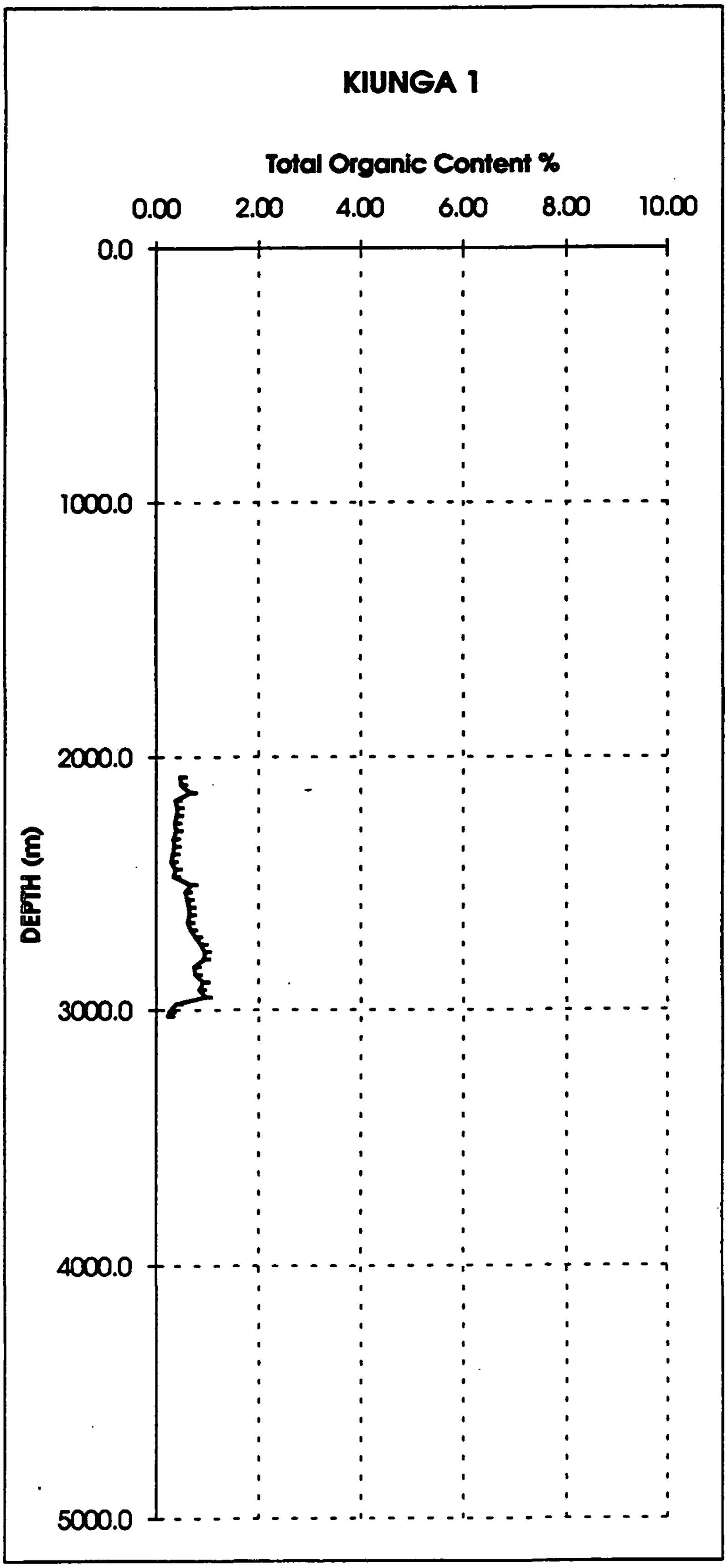

IEHI 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


IOROGOBAIU 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

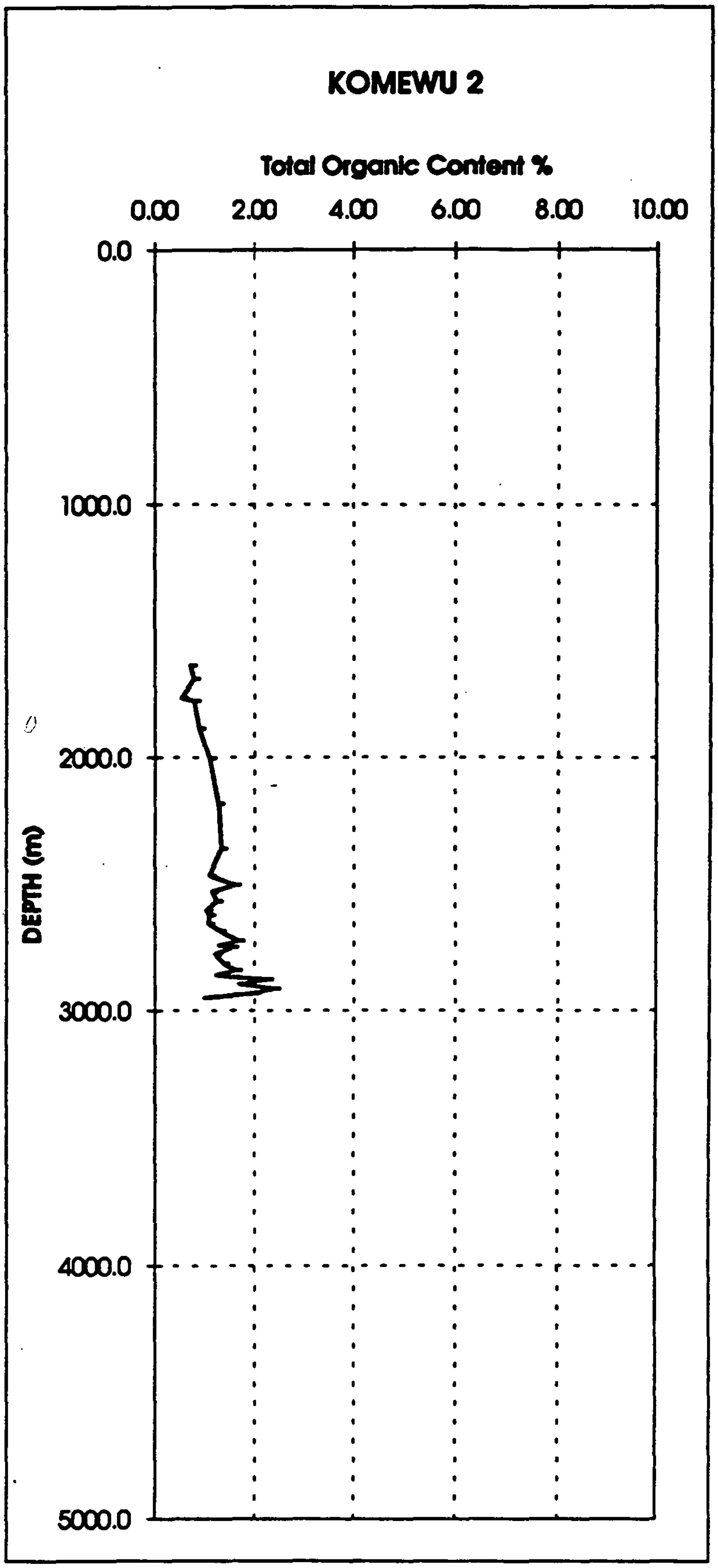


JUHA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

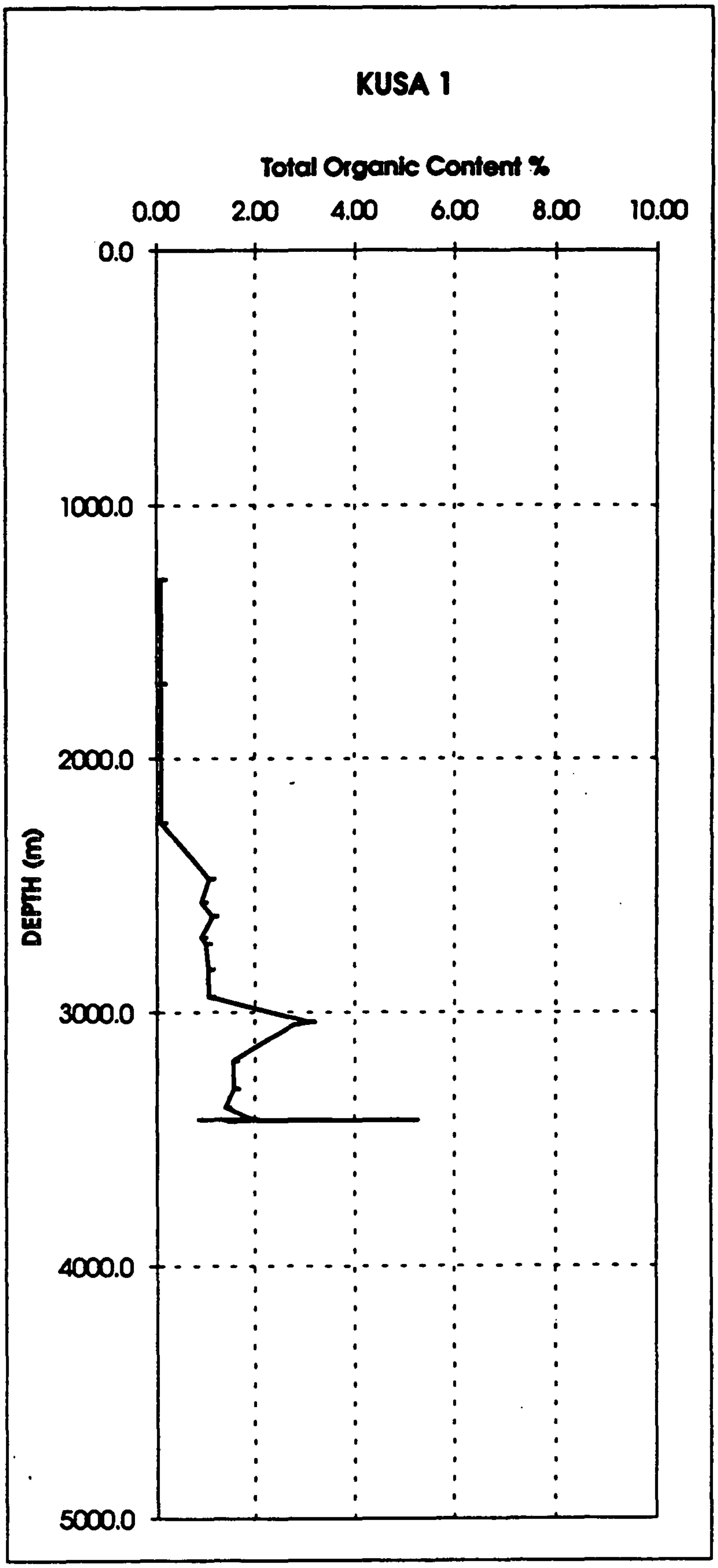

KANAU 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

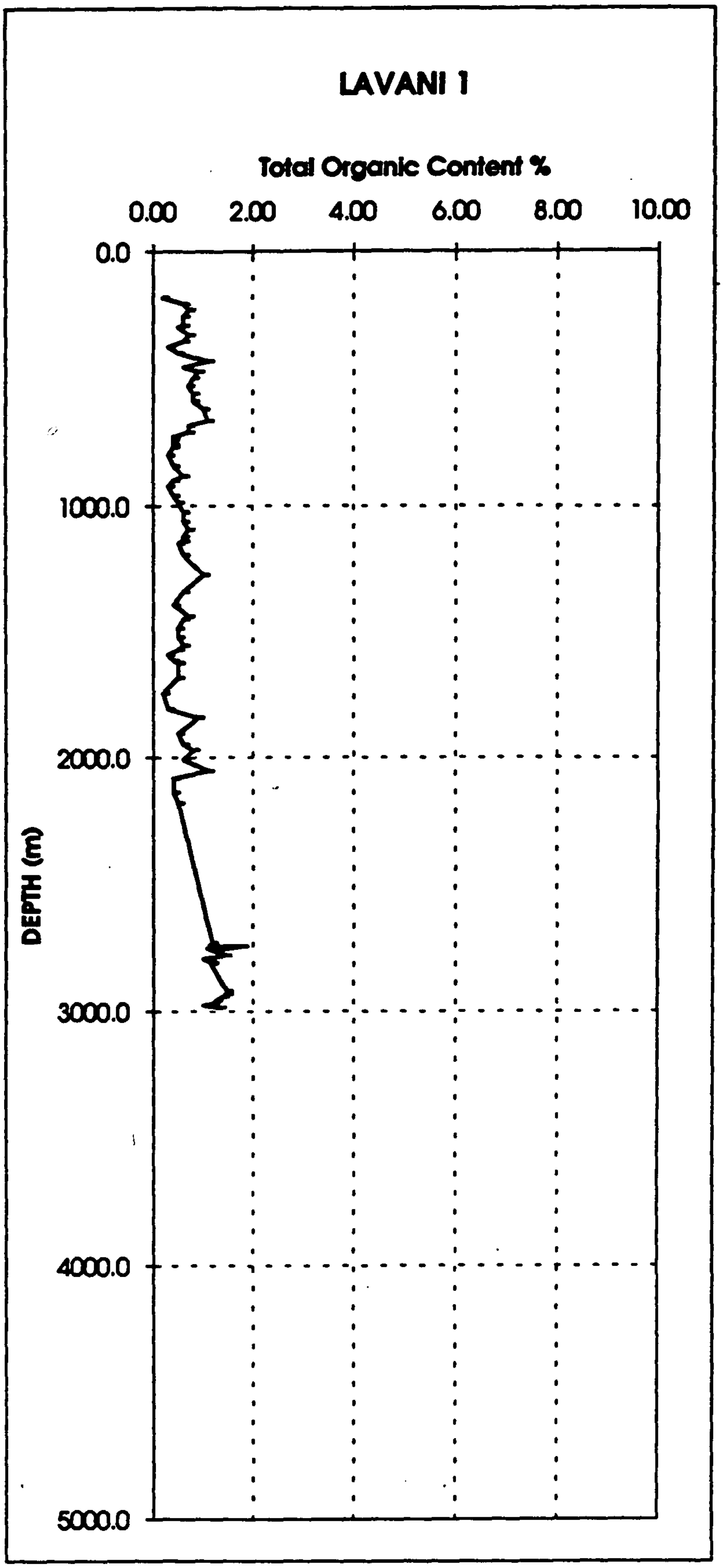


KIUNGA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

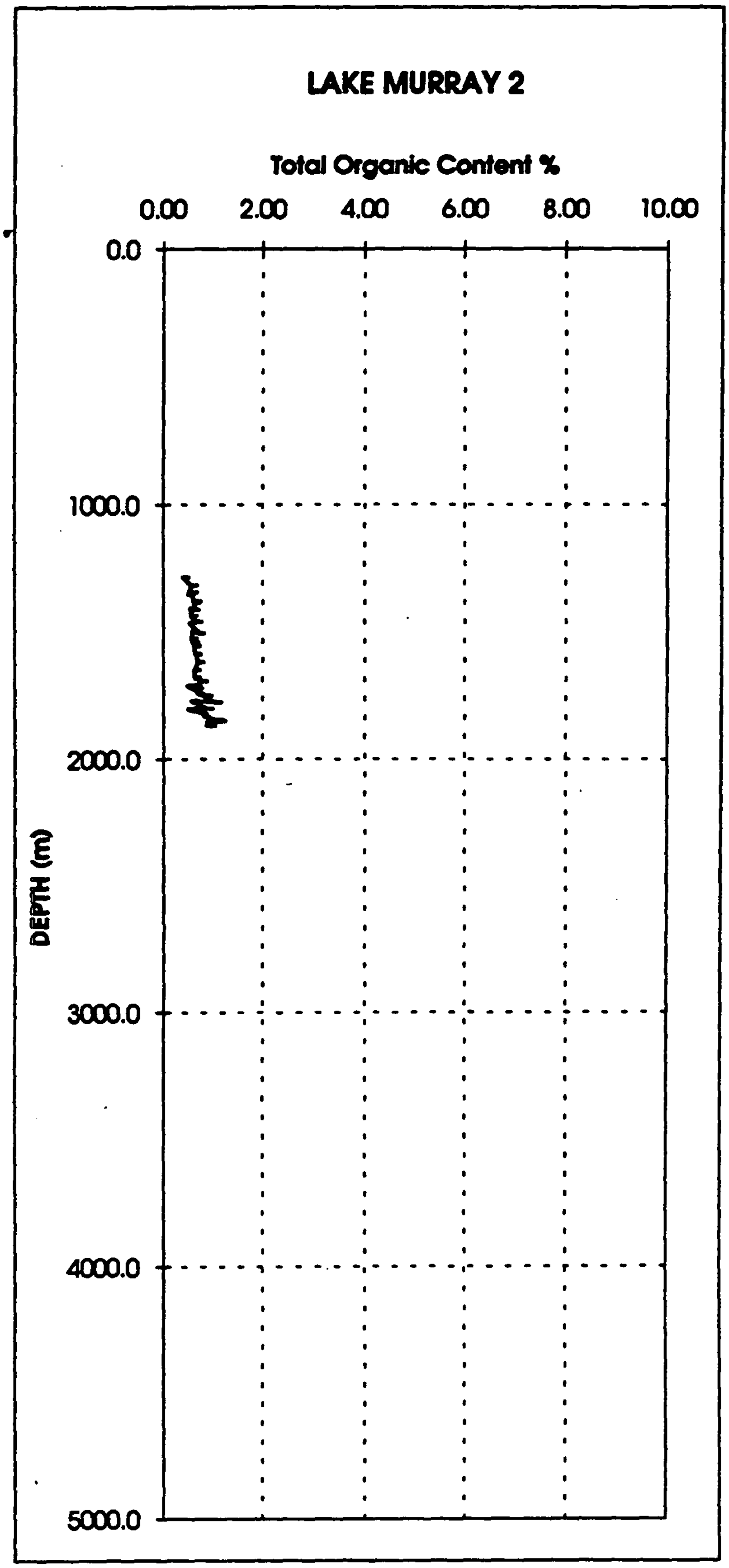


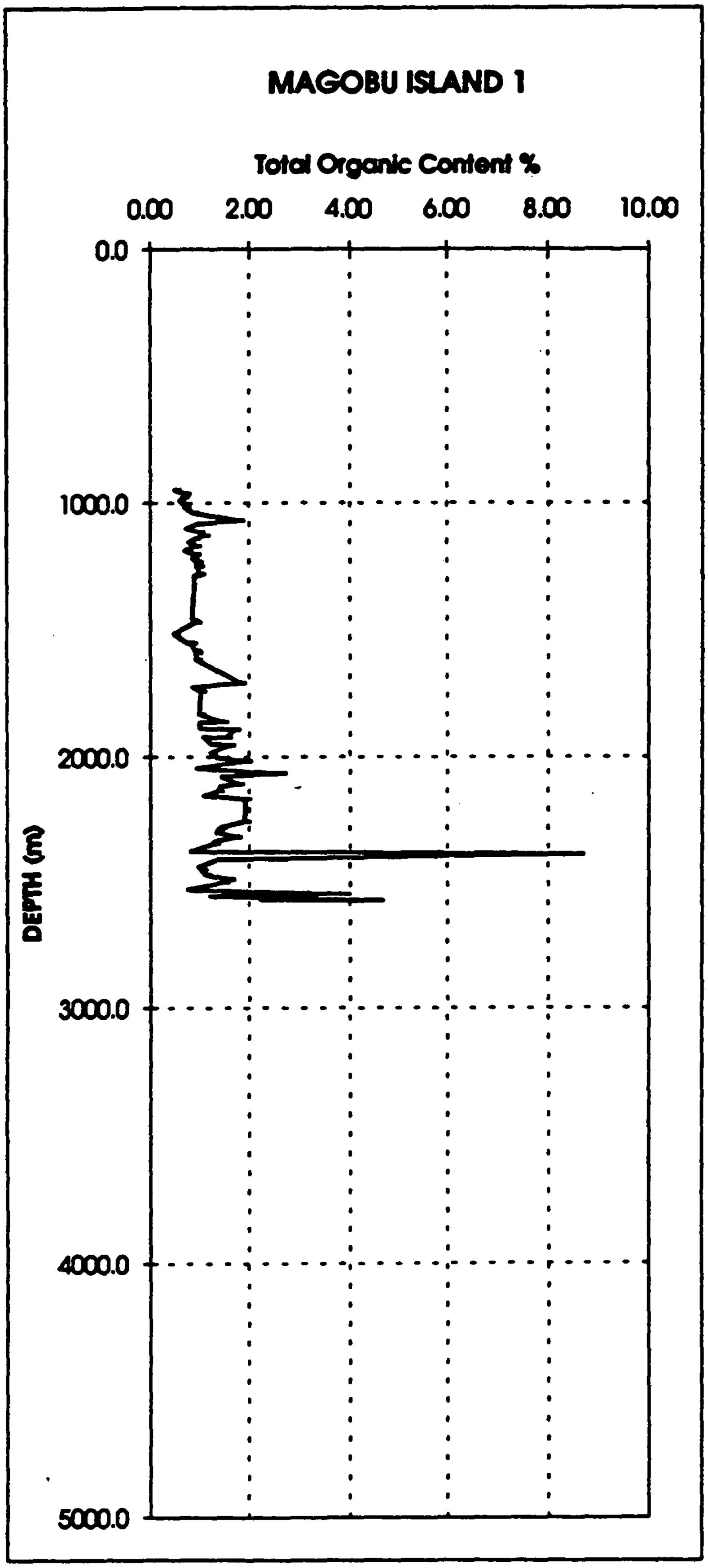
KOMEWU 2
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

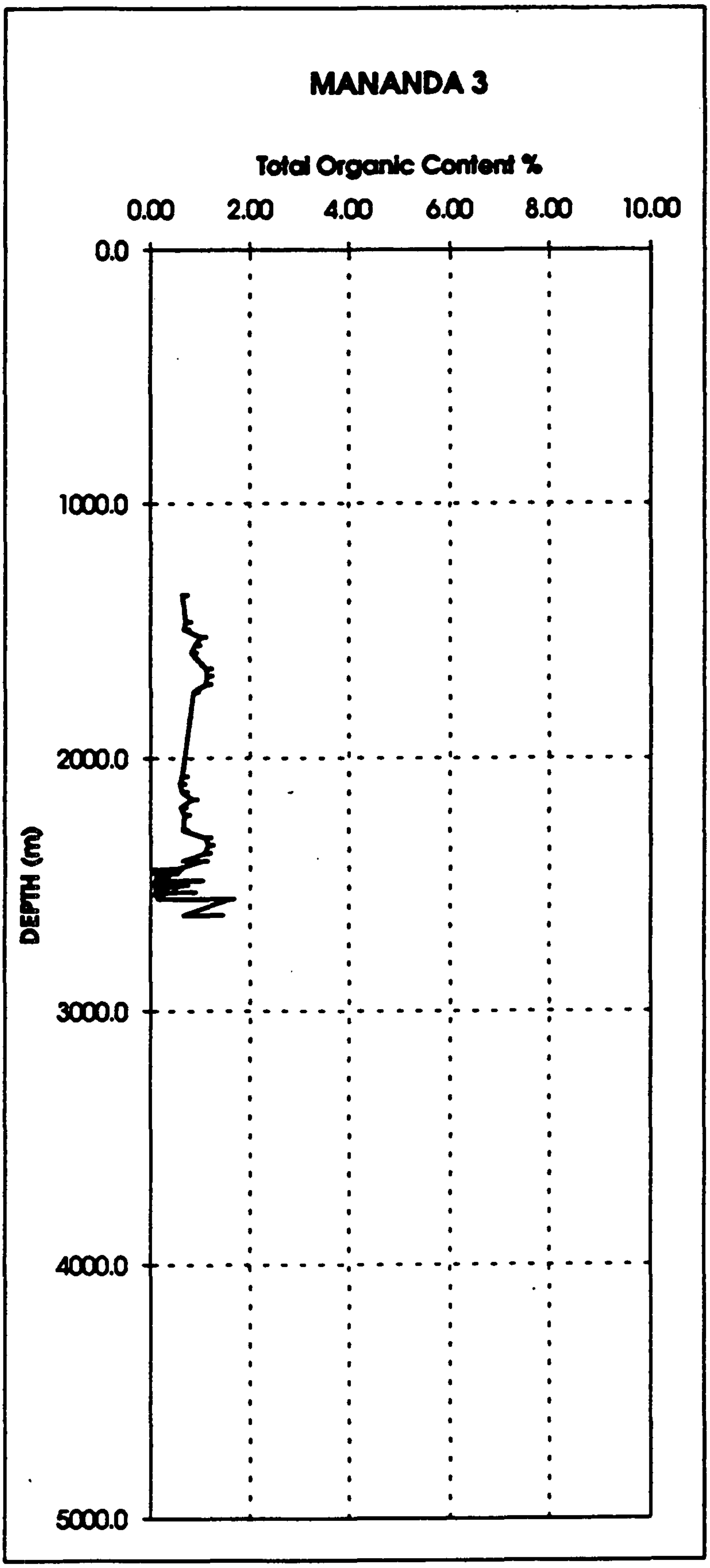

KUSA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

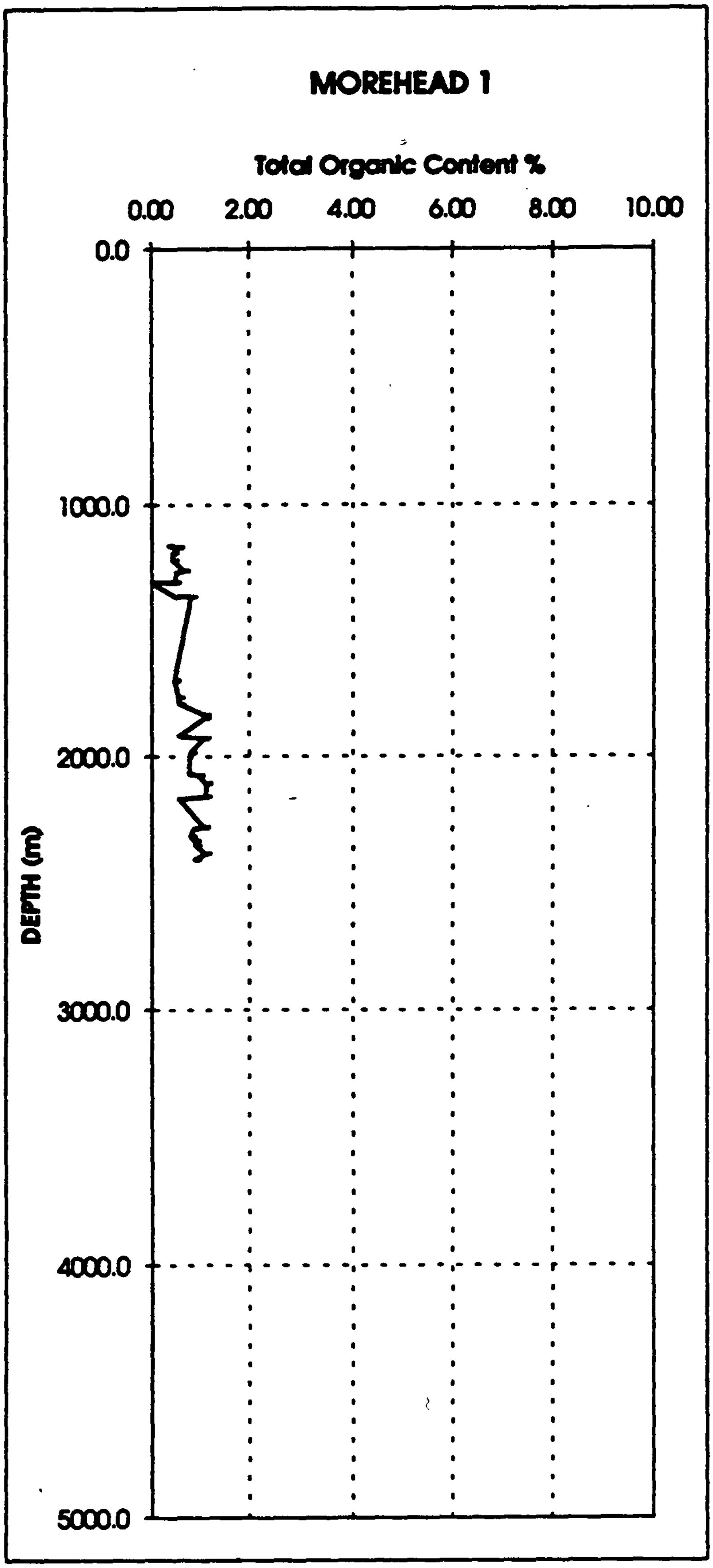


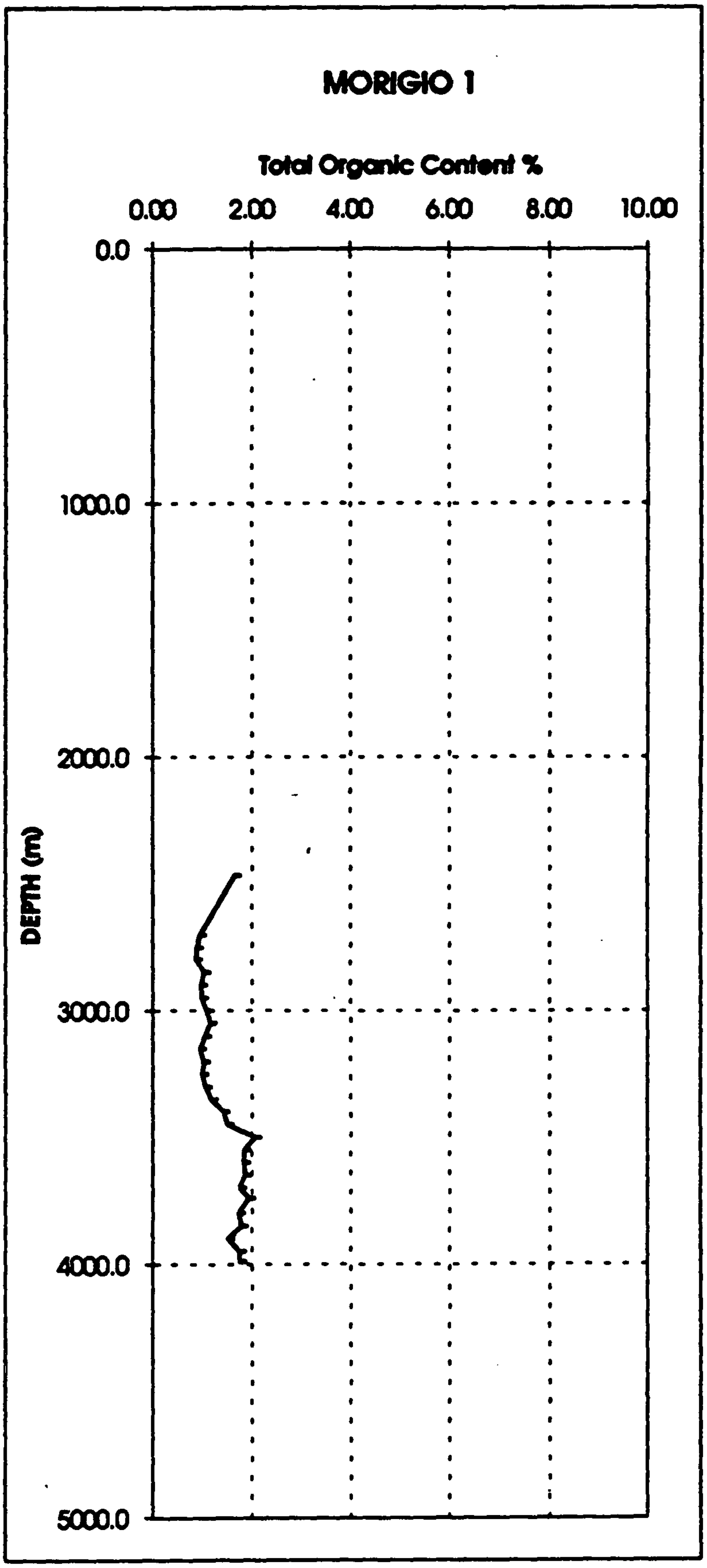
LAVANI 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


LAKE MURRAY 2
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

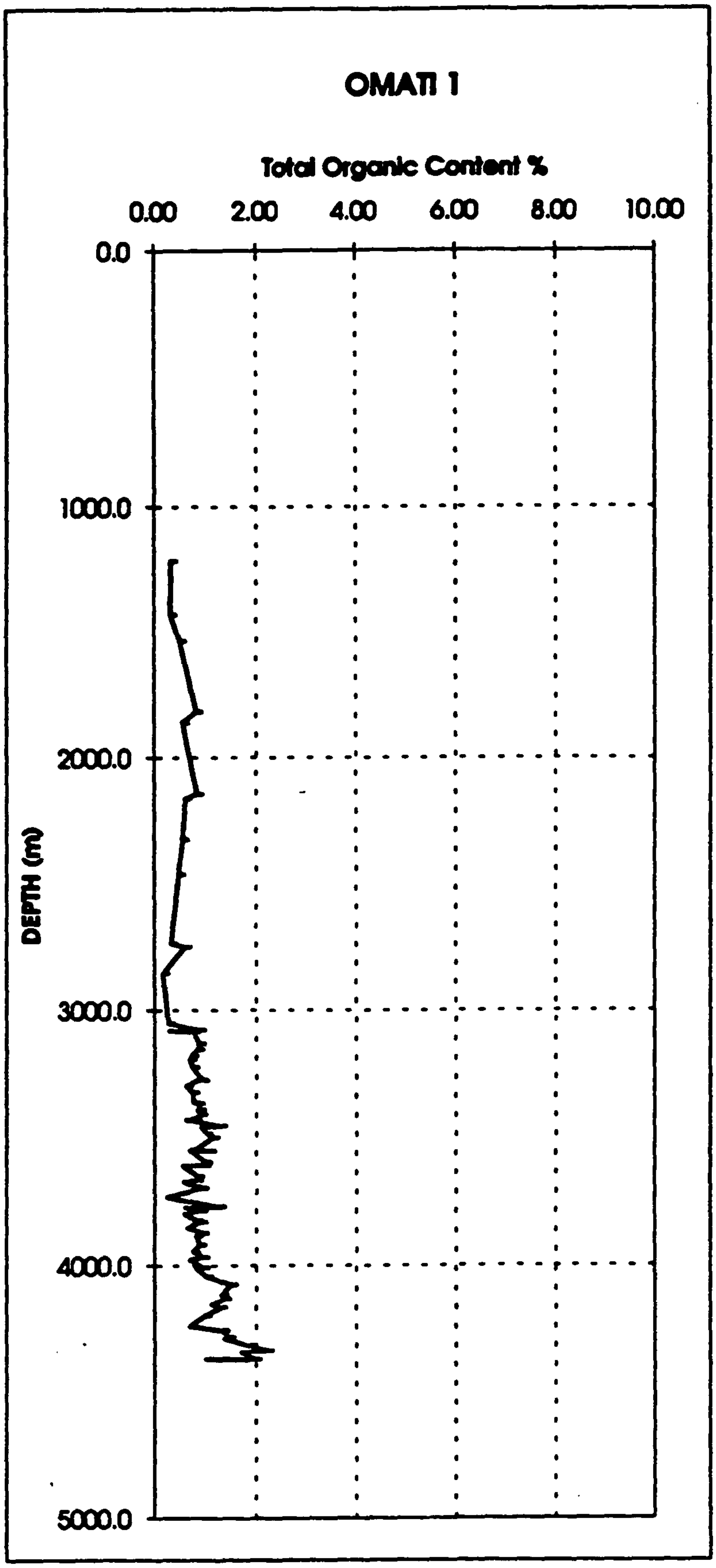

MAGOBU ISLAND 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

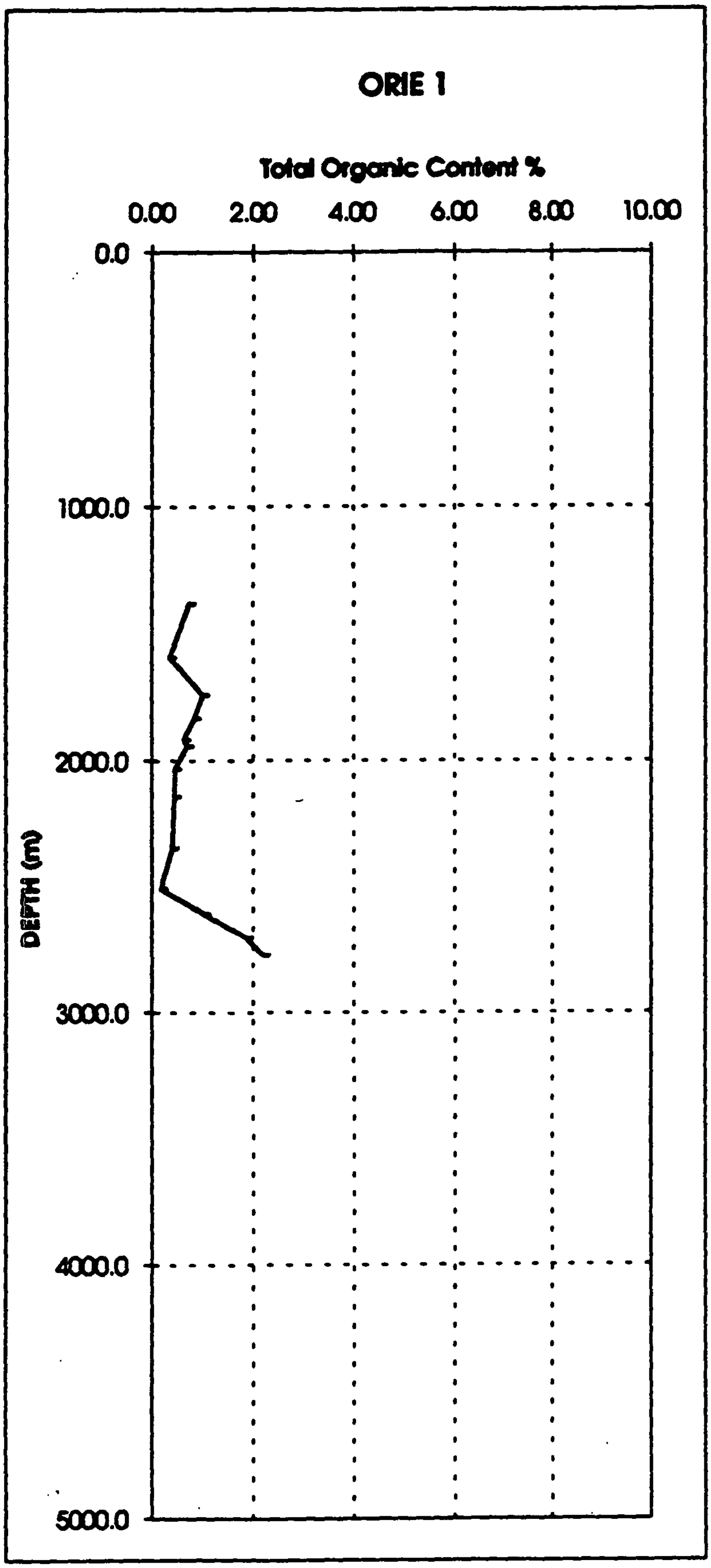

MANANDA 3
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MOREHEAD 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

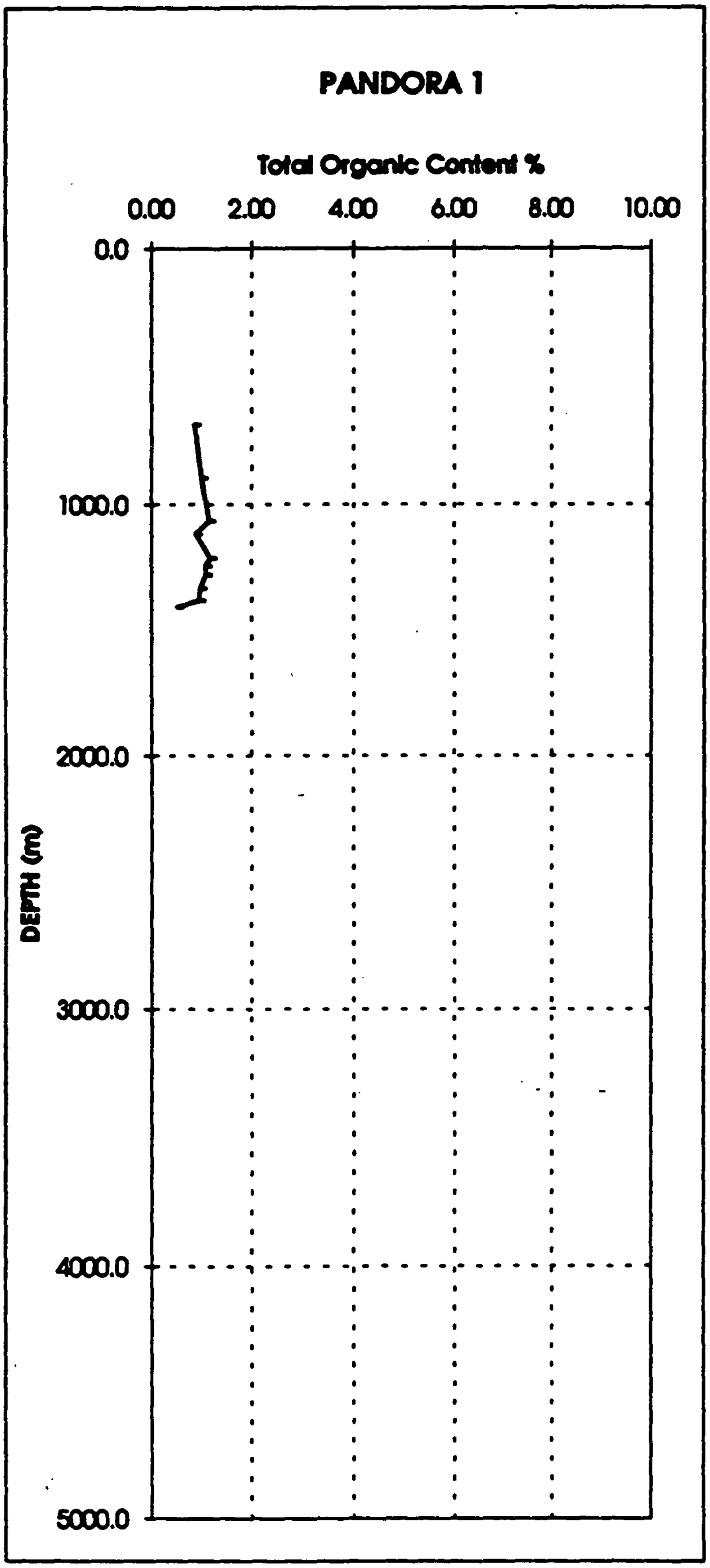


MORIGIO 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


OMATI 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



ORIE 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


PANDORA 1
Total Organic Content %
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

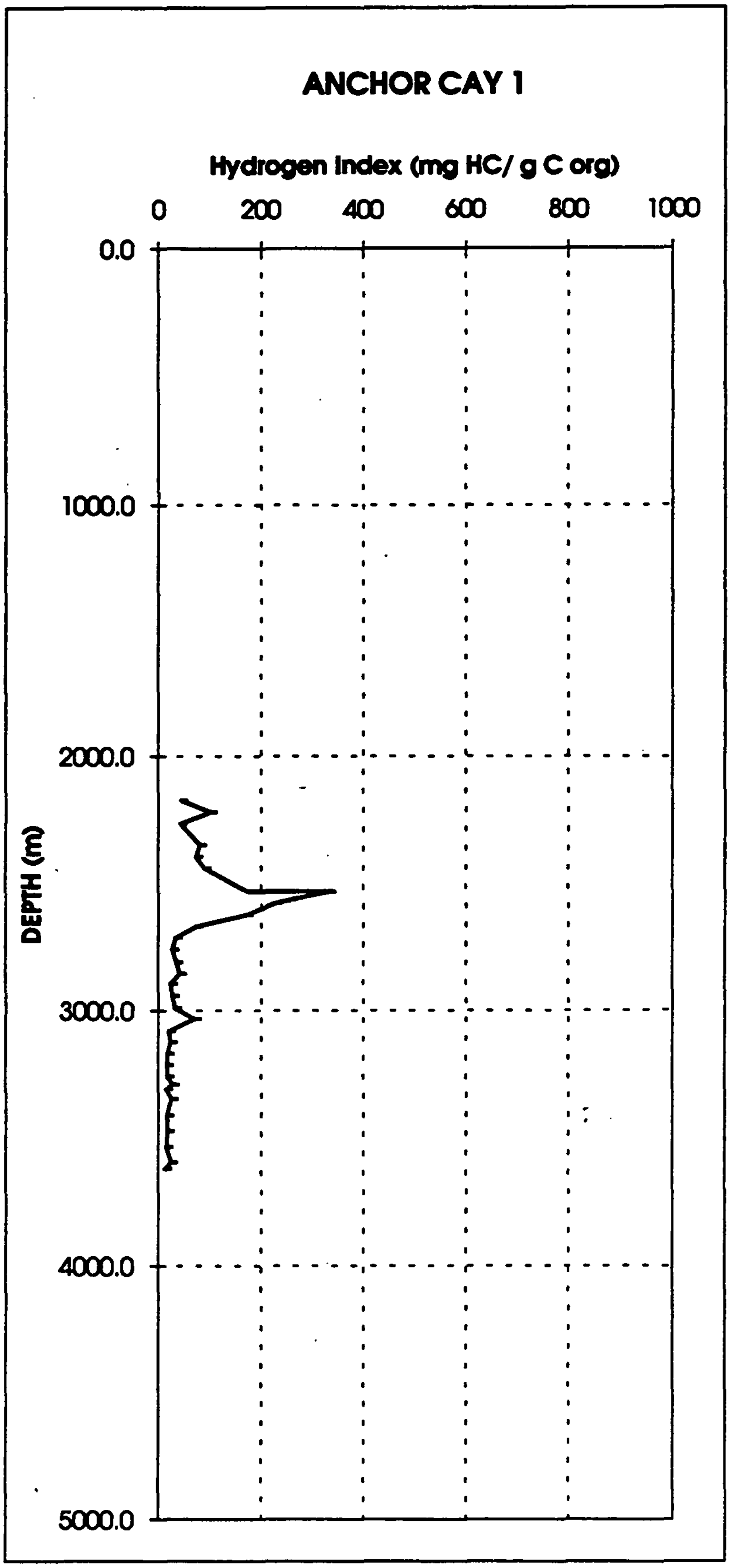
AGSO

AUSTRALIAN GEOLOGICAL
SURVEY ORGANISATION

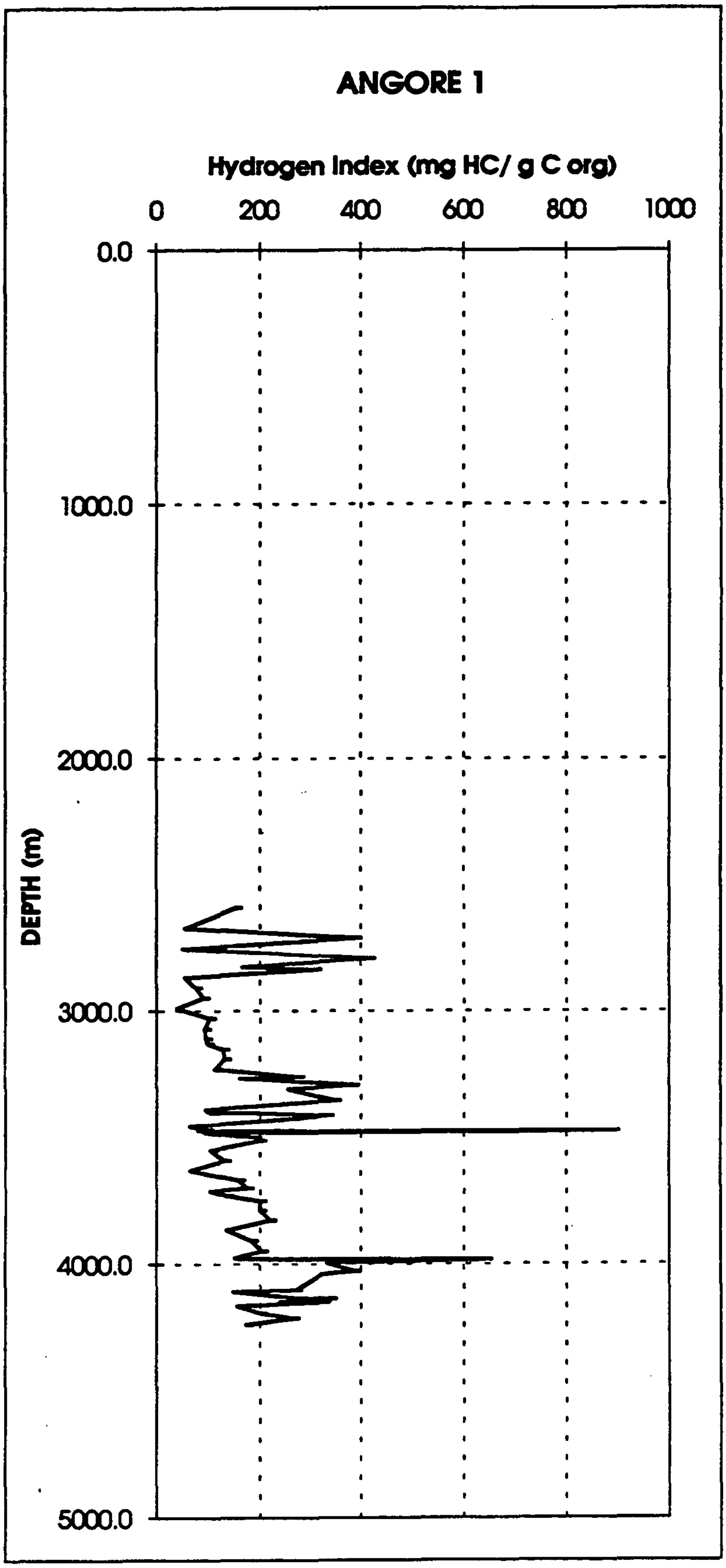
AUSTRALIAN PETROLEUM SYSTEMS PROJECT

PAPUAN BASIN MODULE

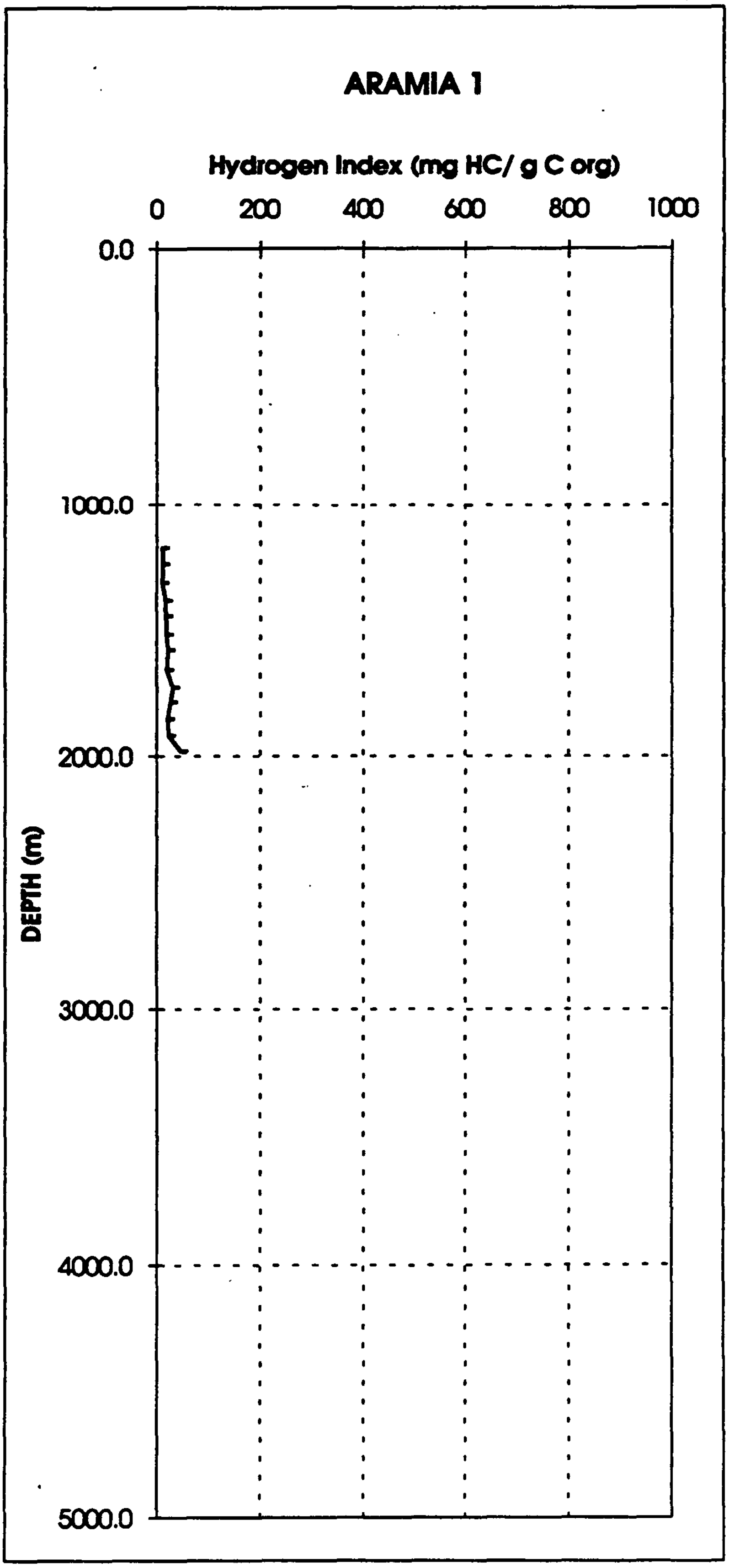
APPENDIX 14 : HYDROGEN INDEX PROFILES

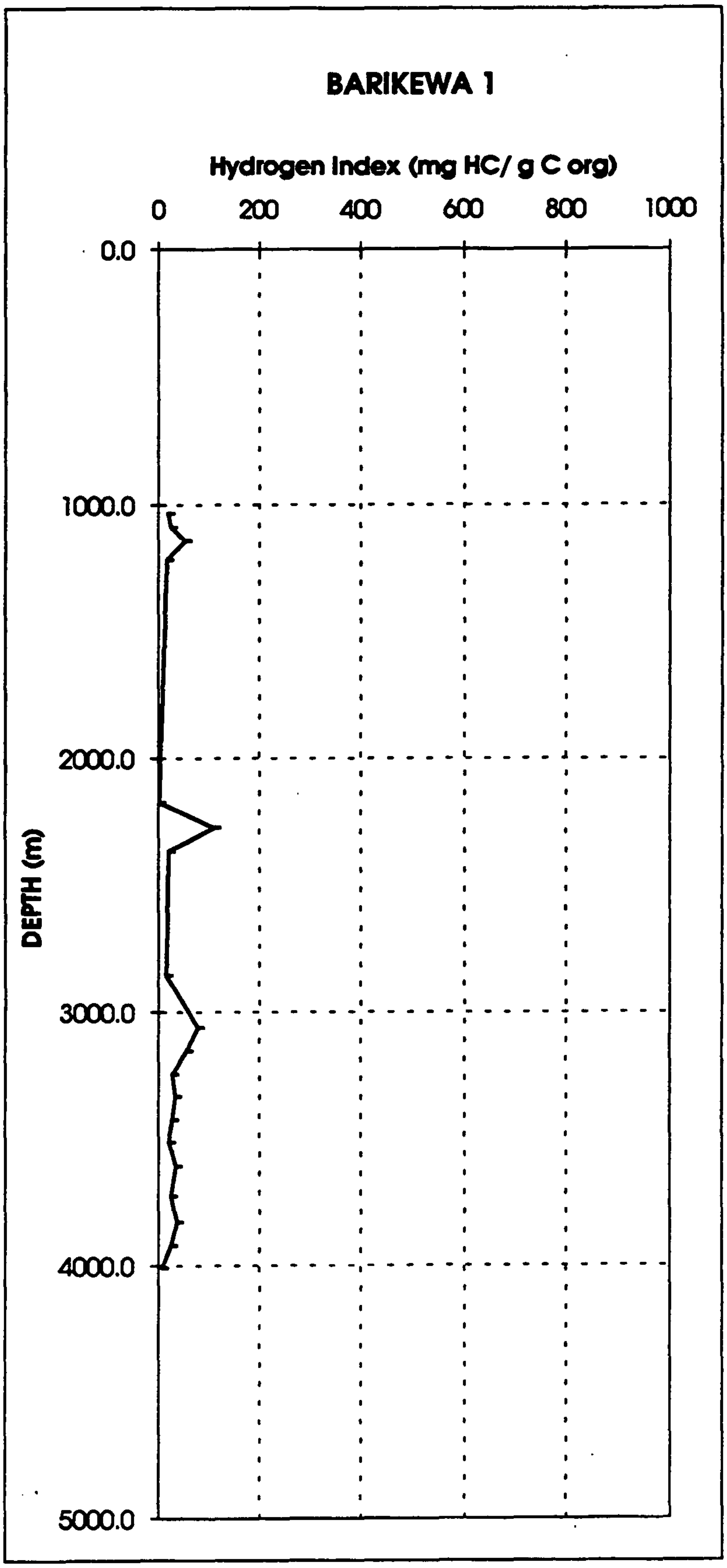


ANCHOR CAY 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

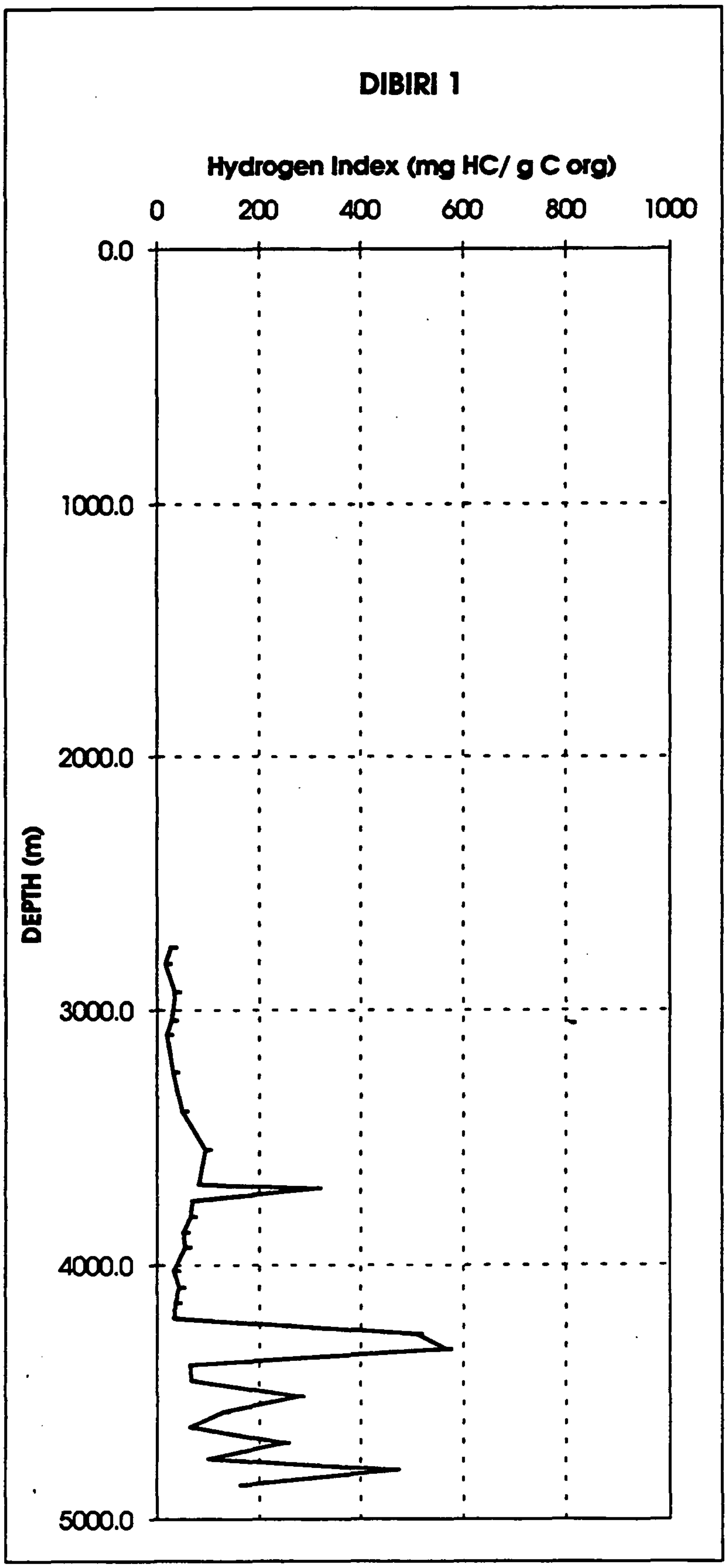


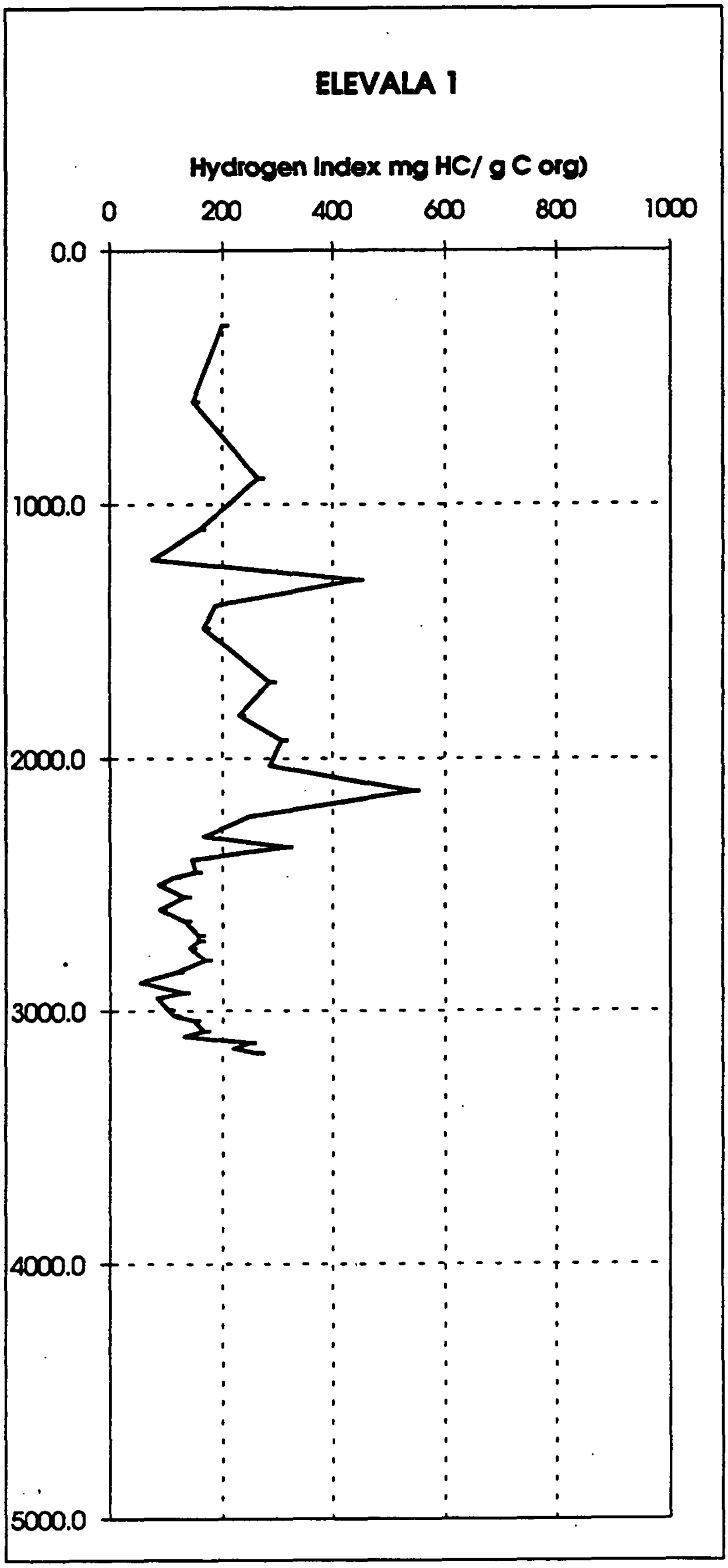
ANGORE 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

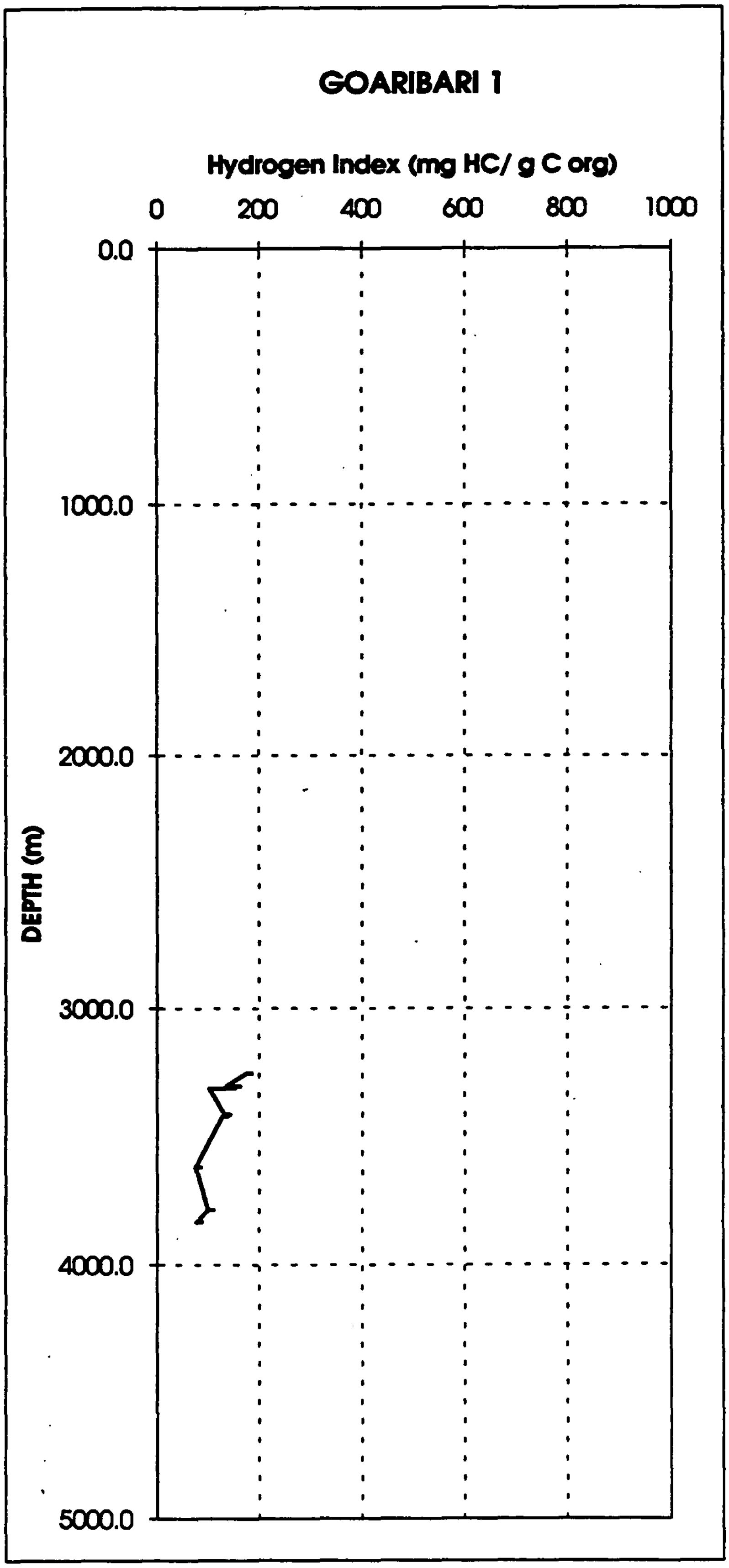

ARAMIA 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

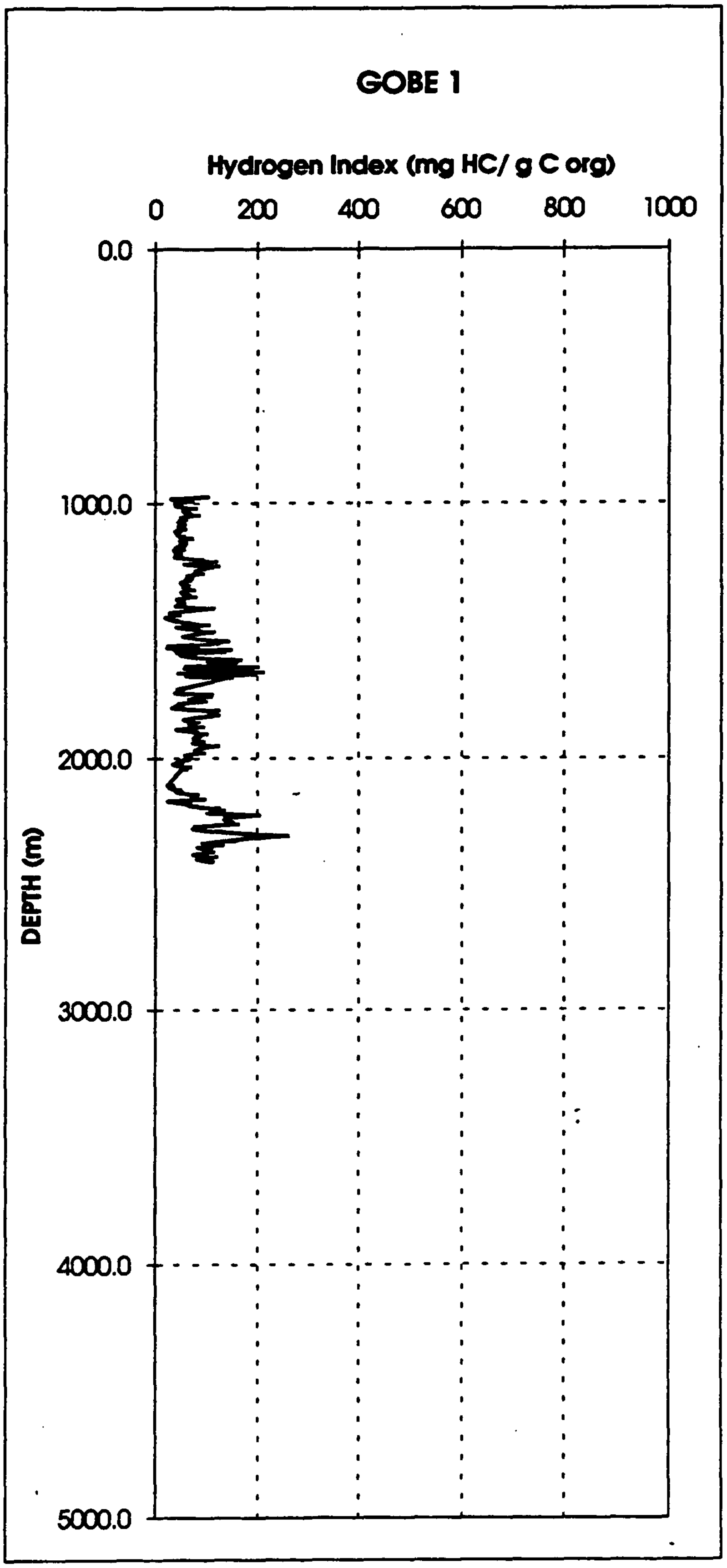


BARIKEWA 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

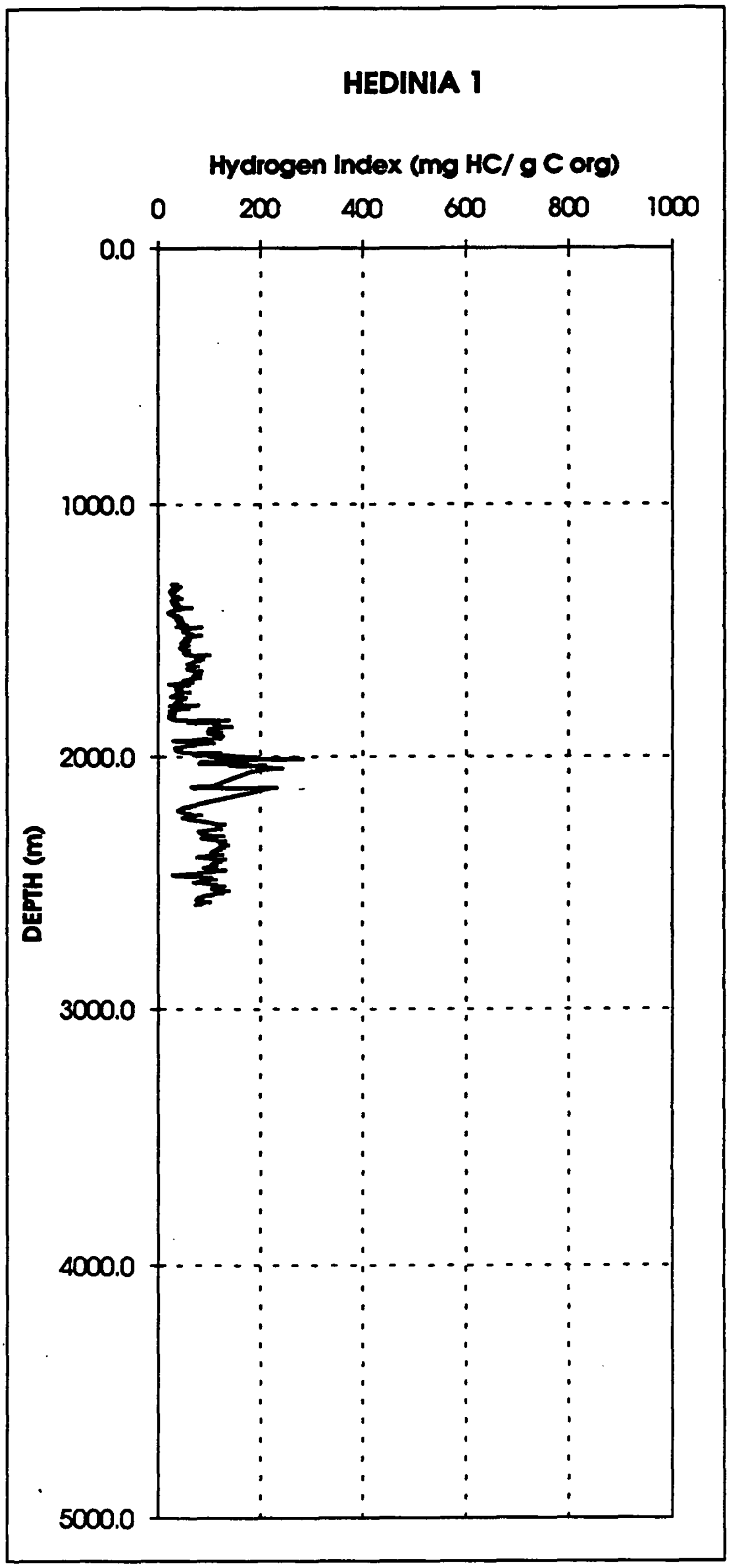

DIBIRI 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

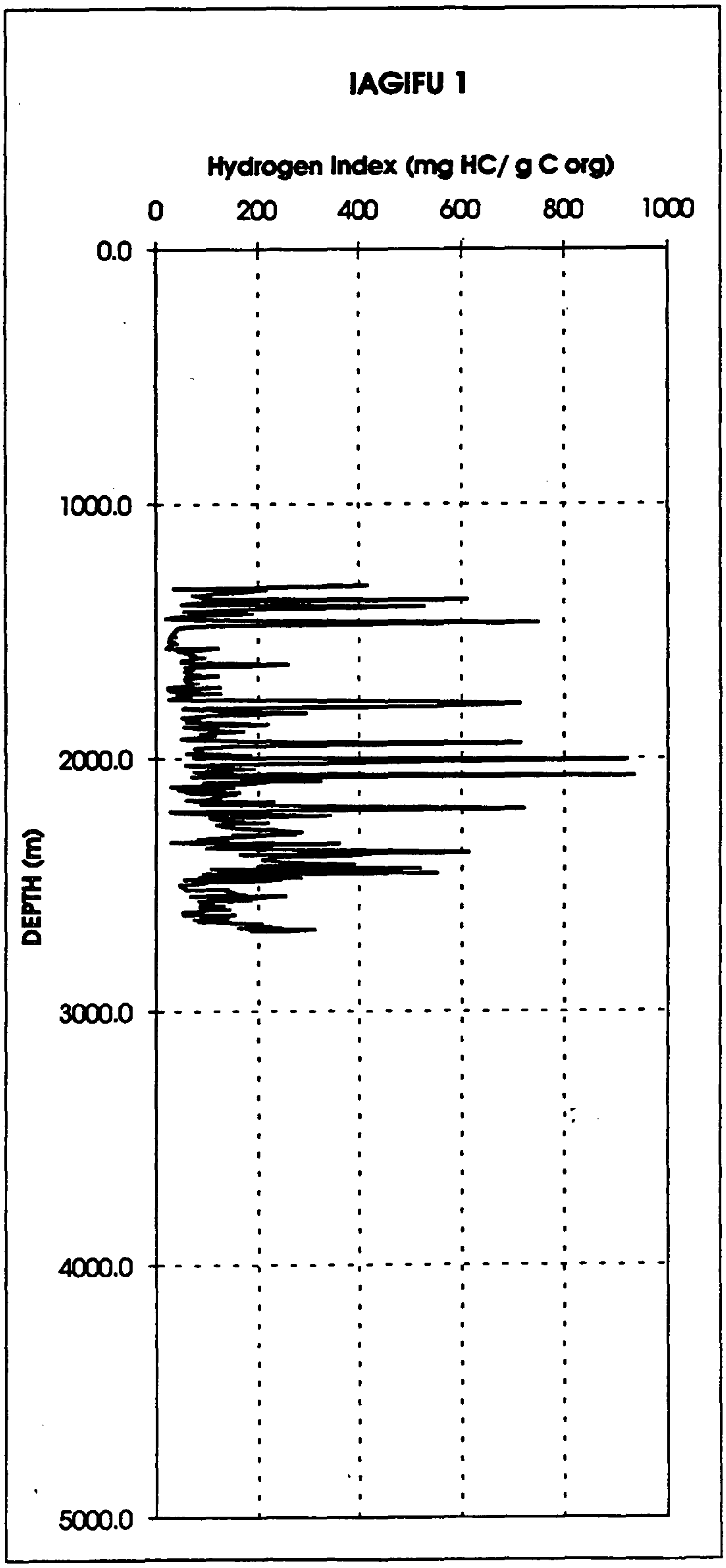

ELEVALA 1
Hydrogen Index mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0

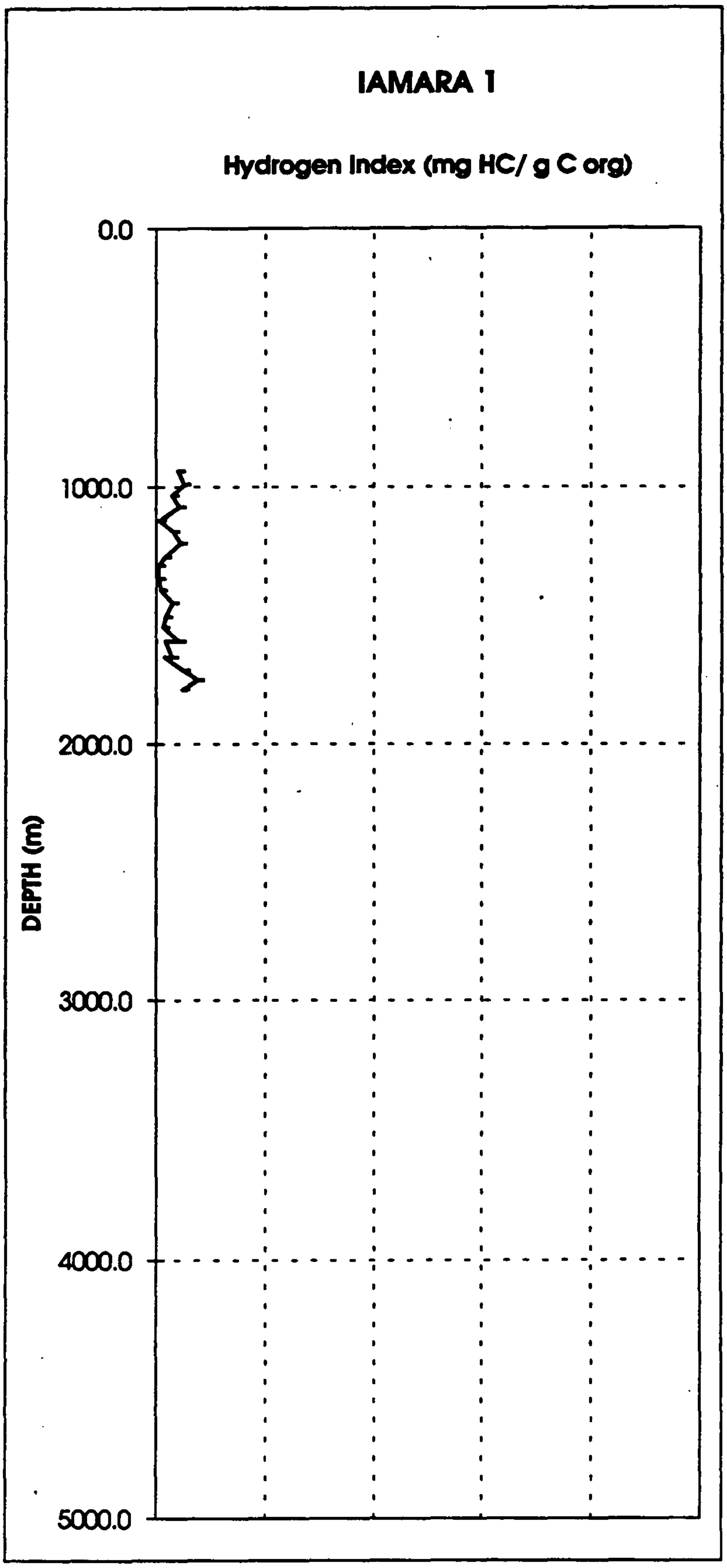

GOARIBARI 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

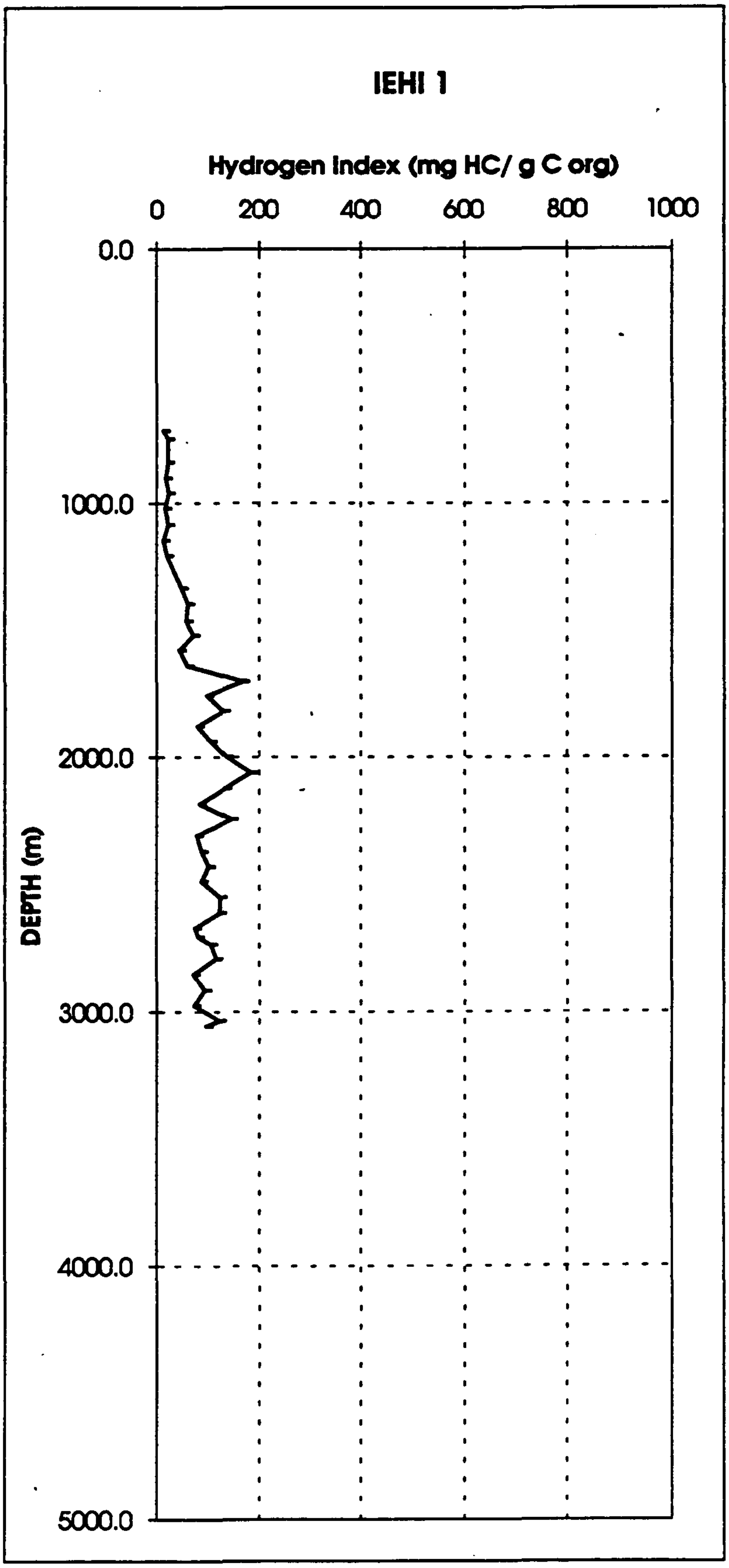


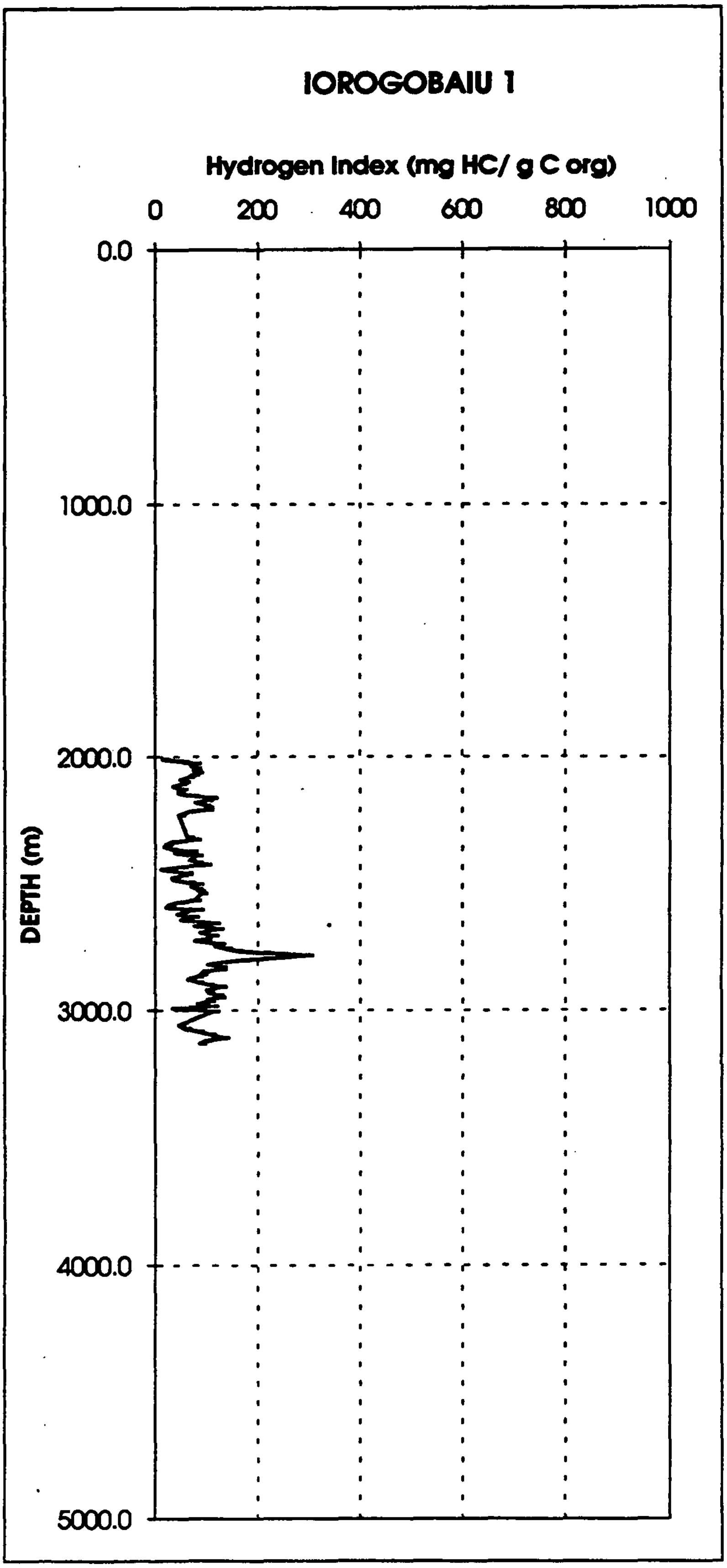
GOBE 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

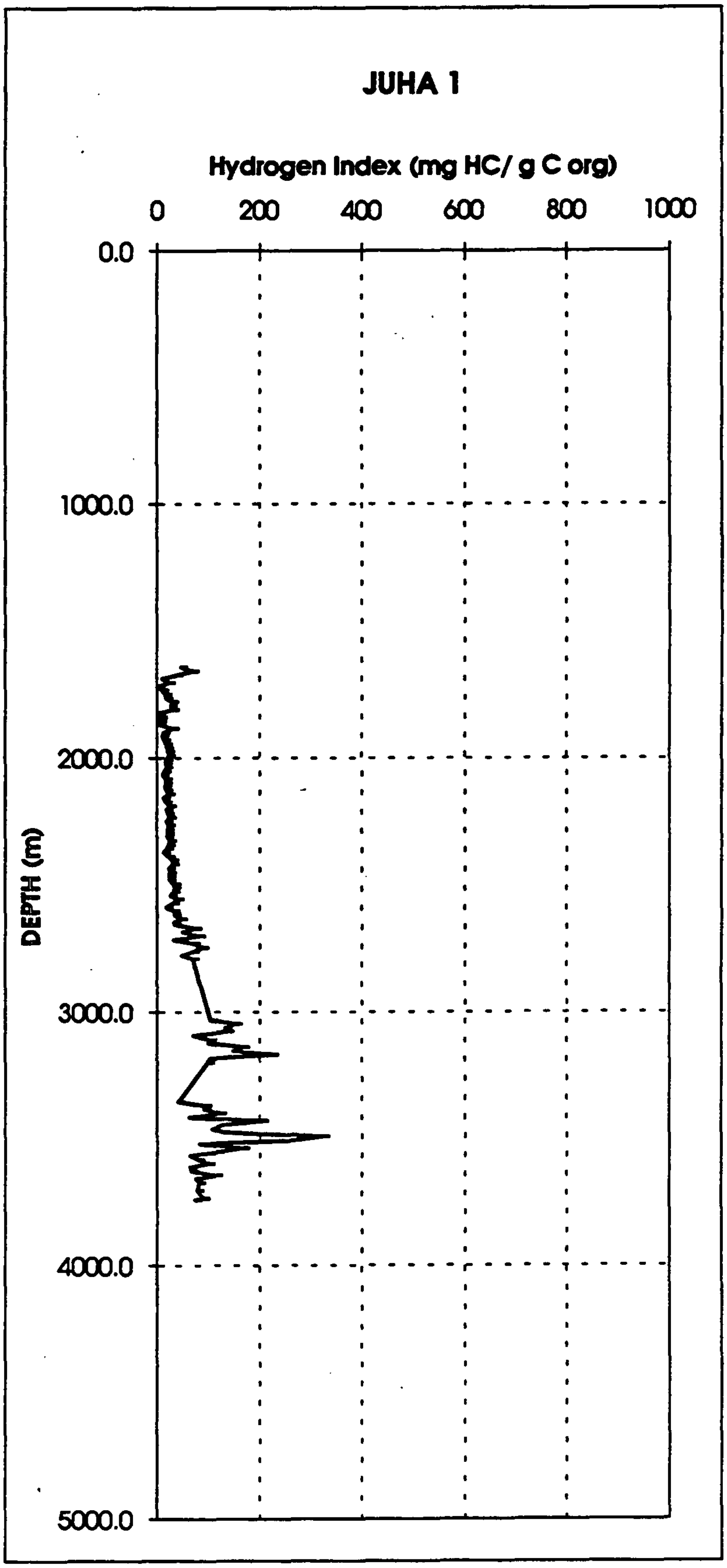

HEDINIA 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


IAGIFU 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

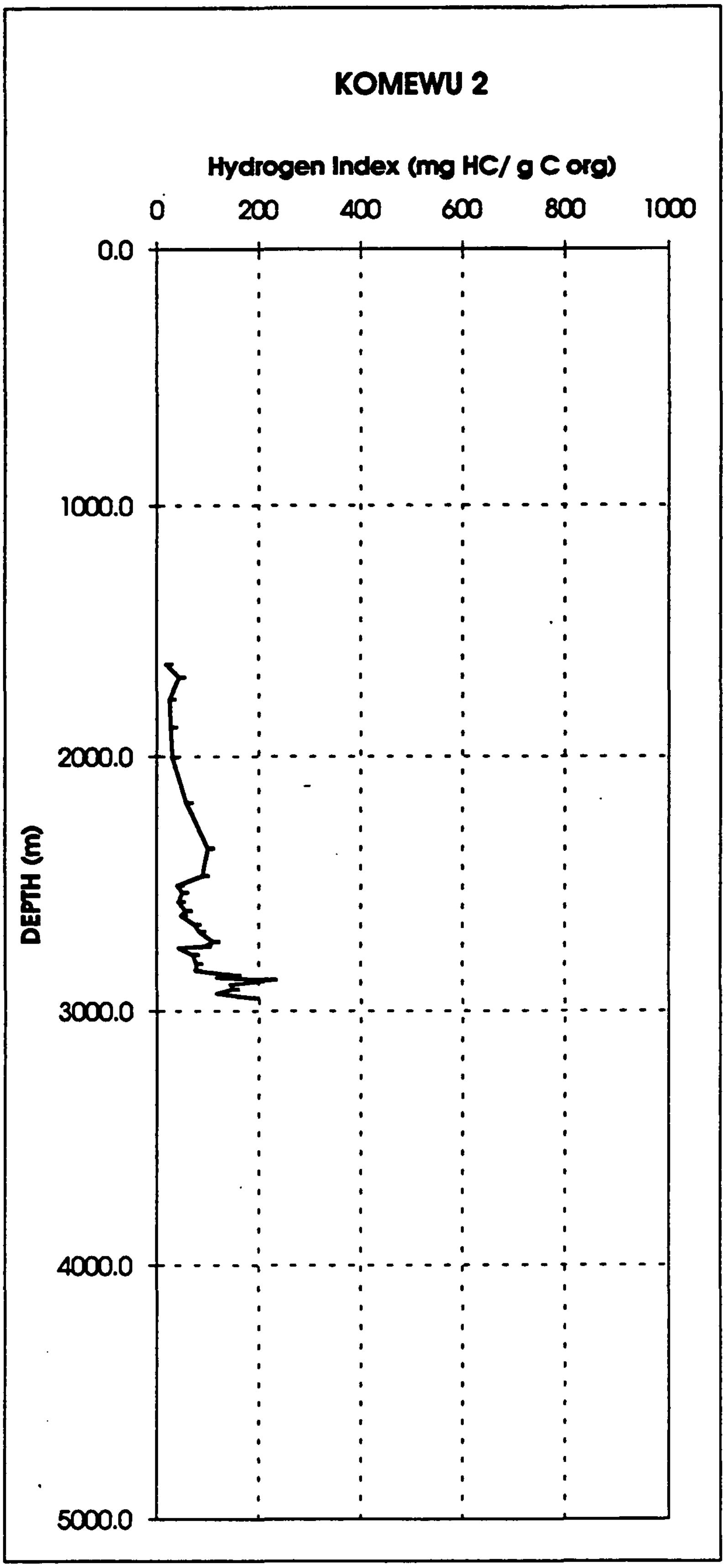

IAMARA 1
Hydrogen Index (mg HC/ g C org)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


IEHI 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

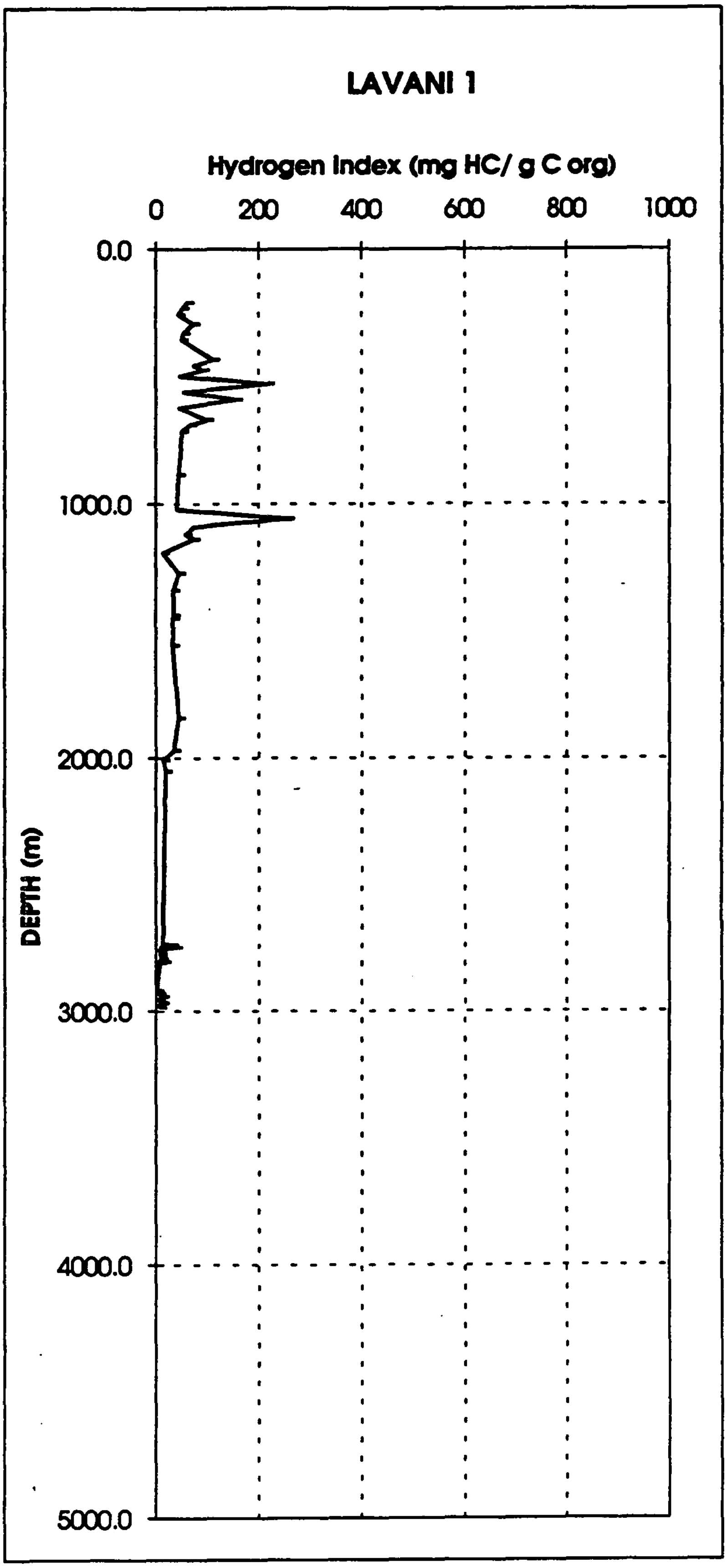

IOROGOBAIU 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



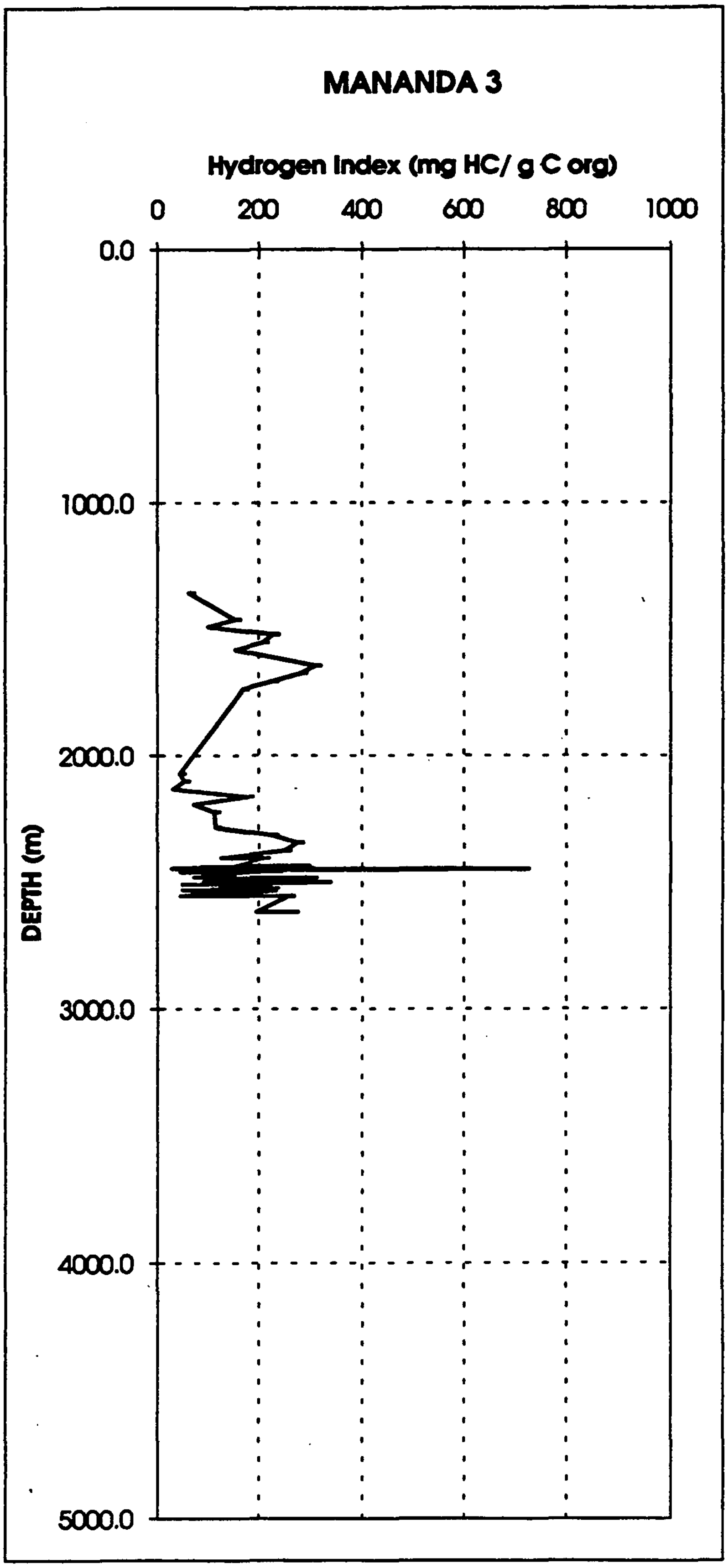
JUHA 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

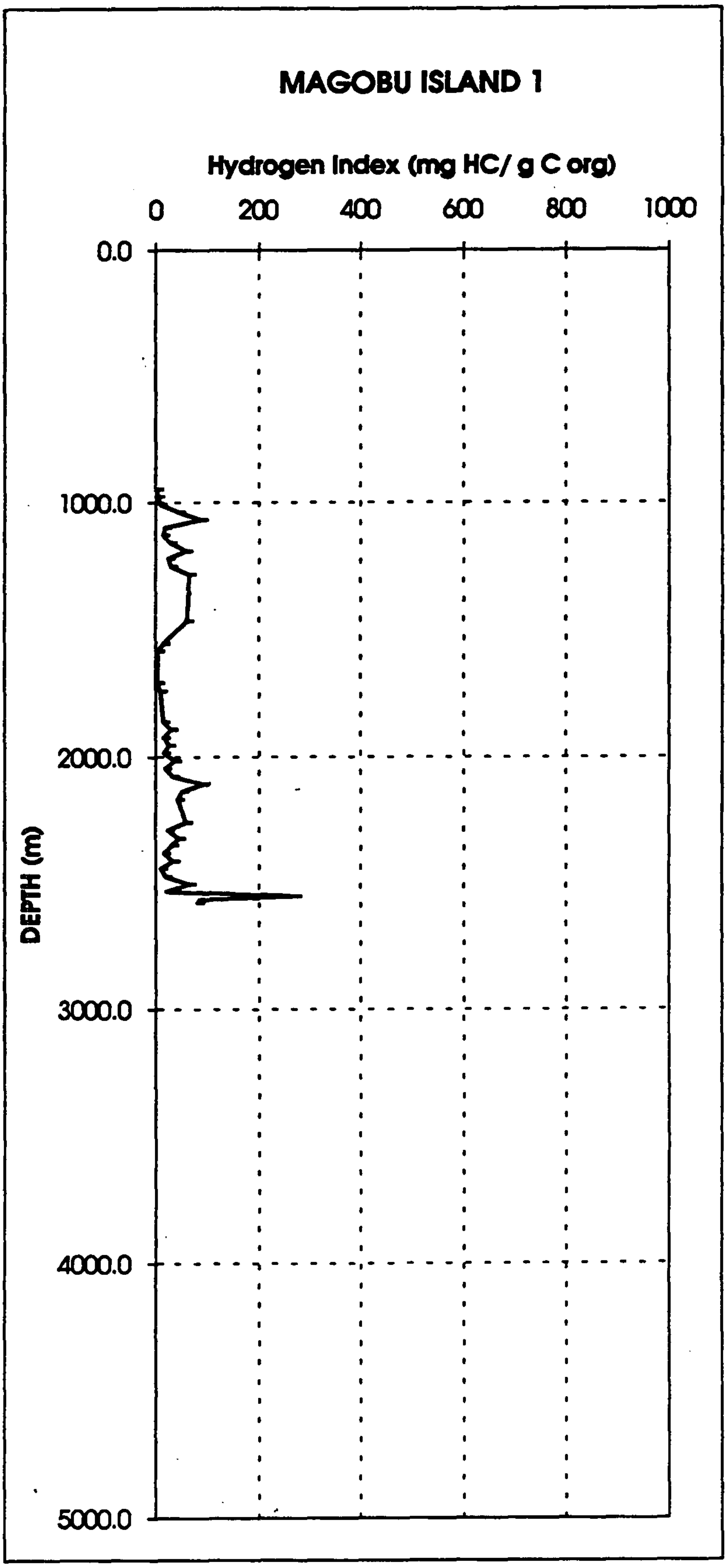


KOMEWU 2
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

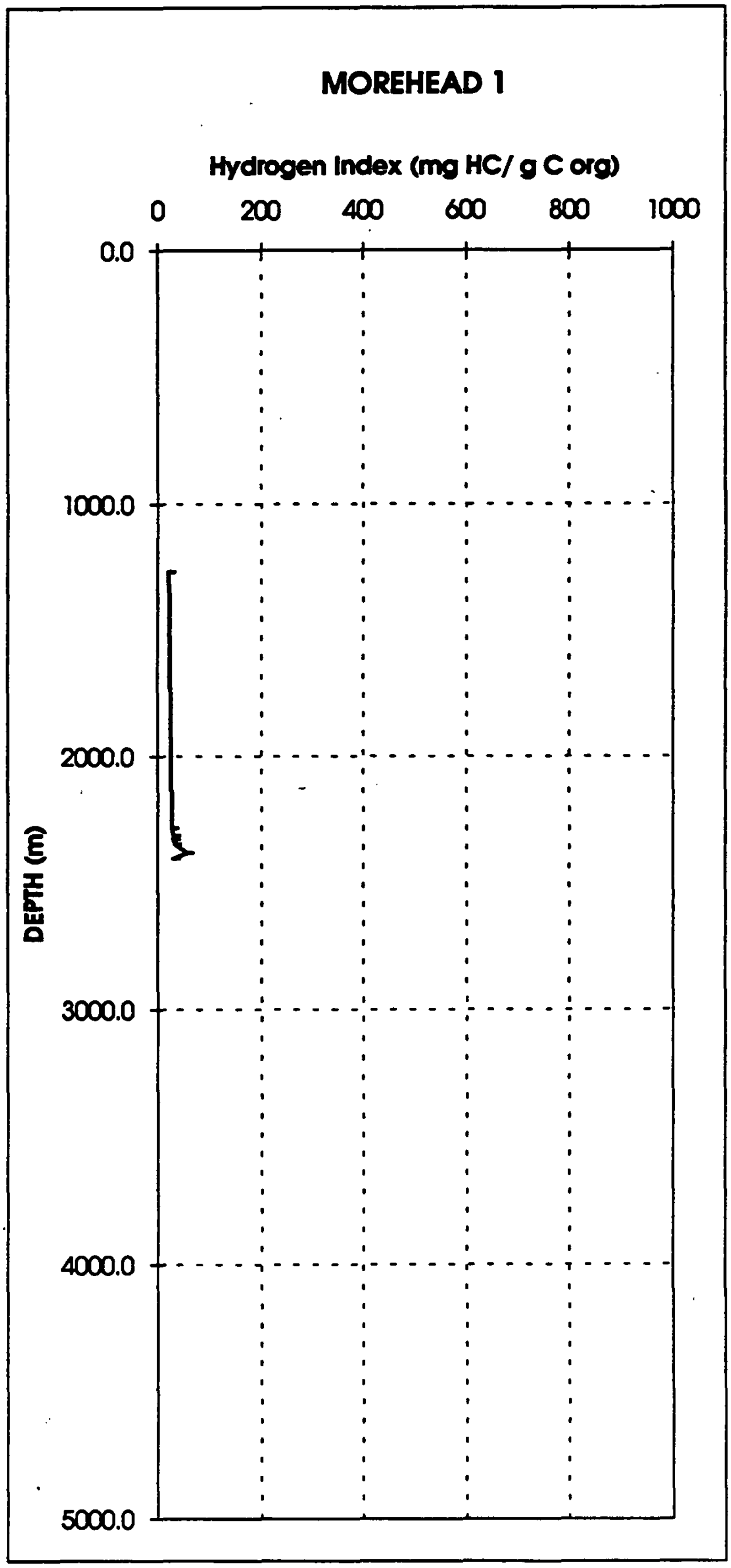


LAVANI 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

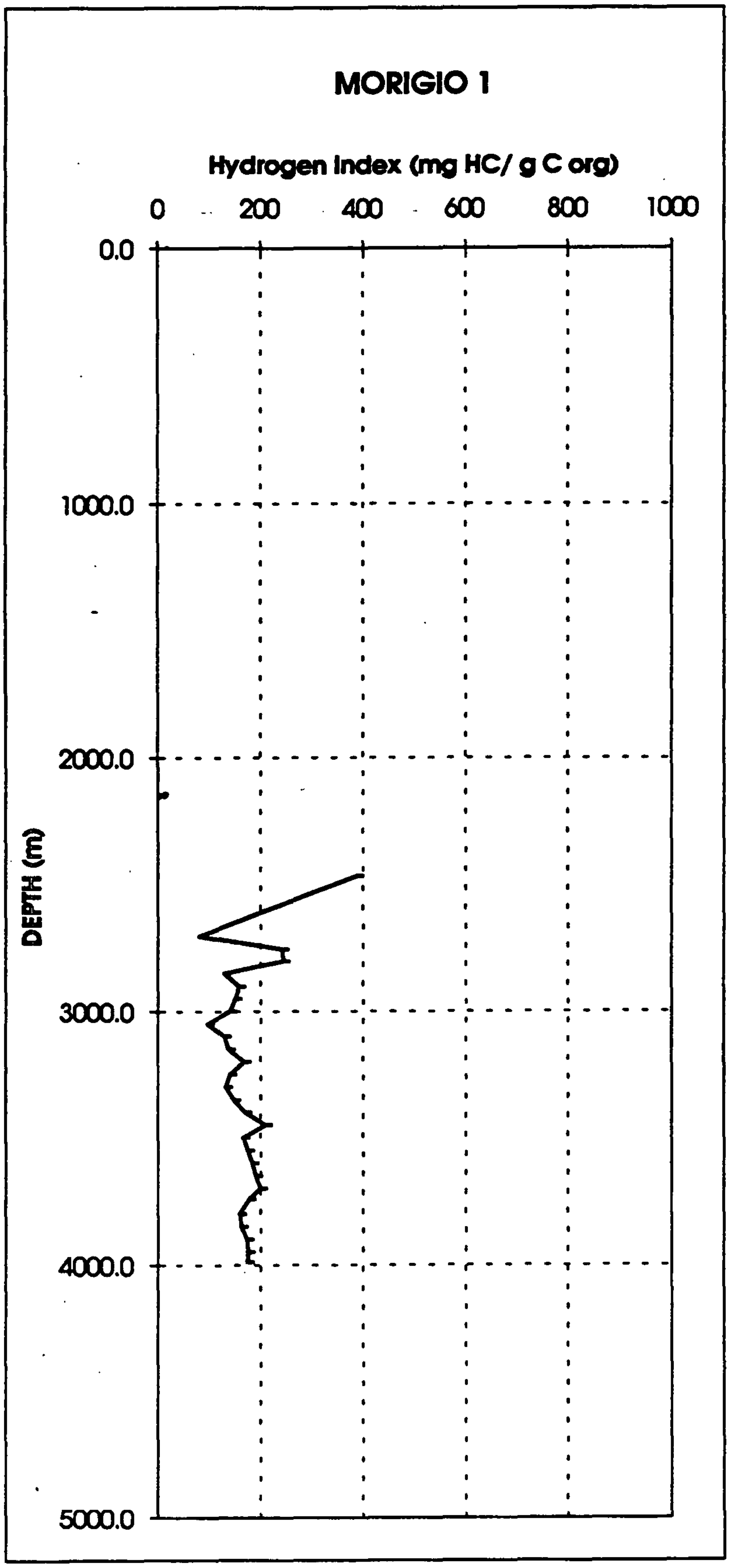

MANANDA 3
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



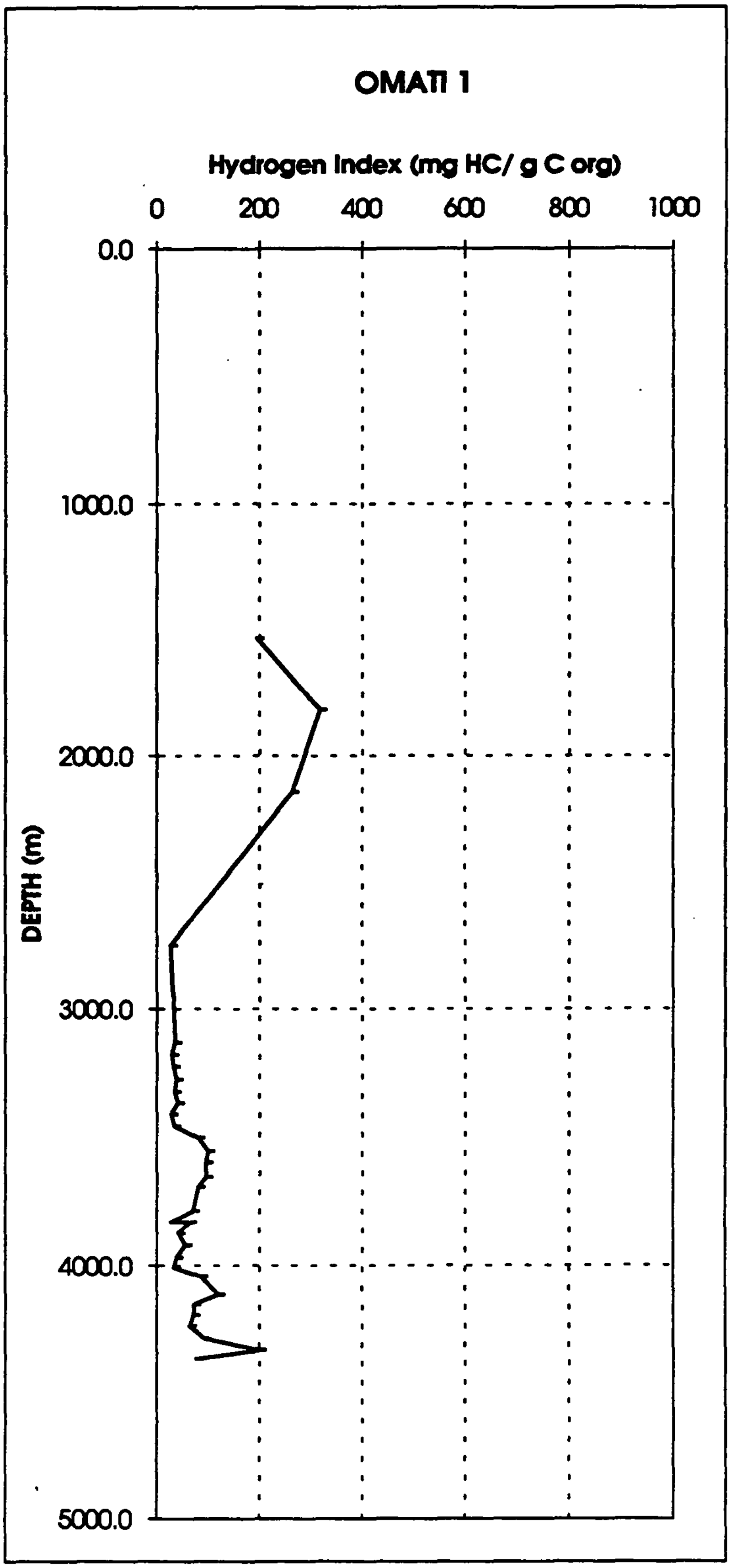
MAGOBU ISLAND 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

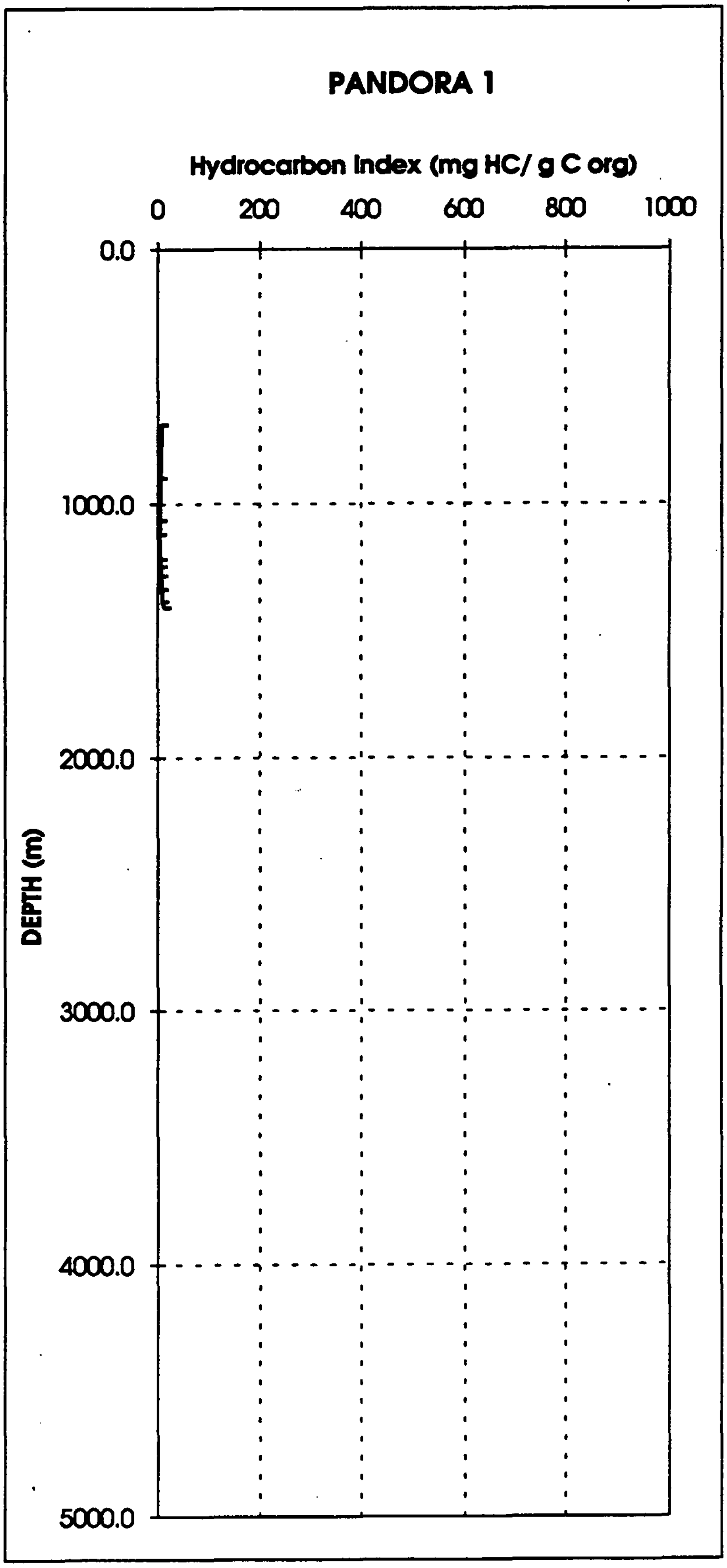


MOREHEAD 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



MORIGIO 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


OMATI 1
Hydrogen Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)



PANDORA 1
Hydrocarbon Index (mg HC/ g C org)
0
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

AGSO

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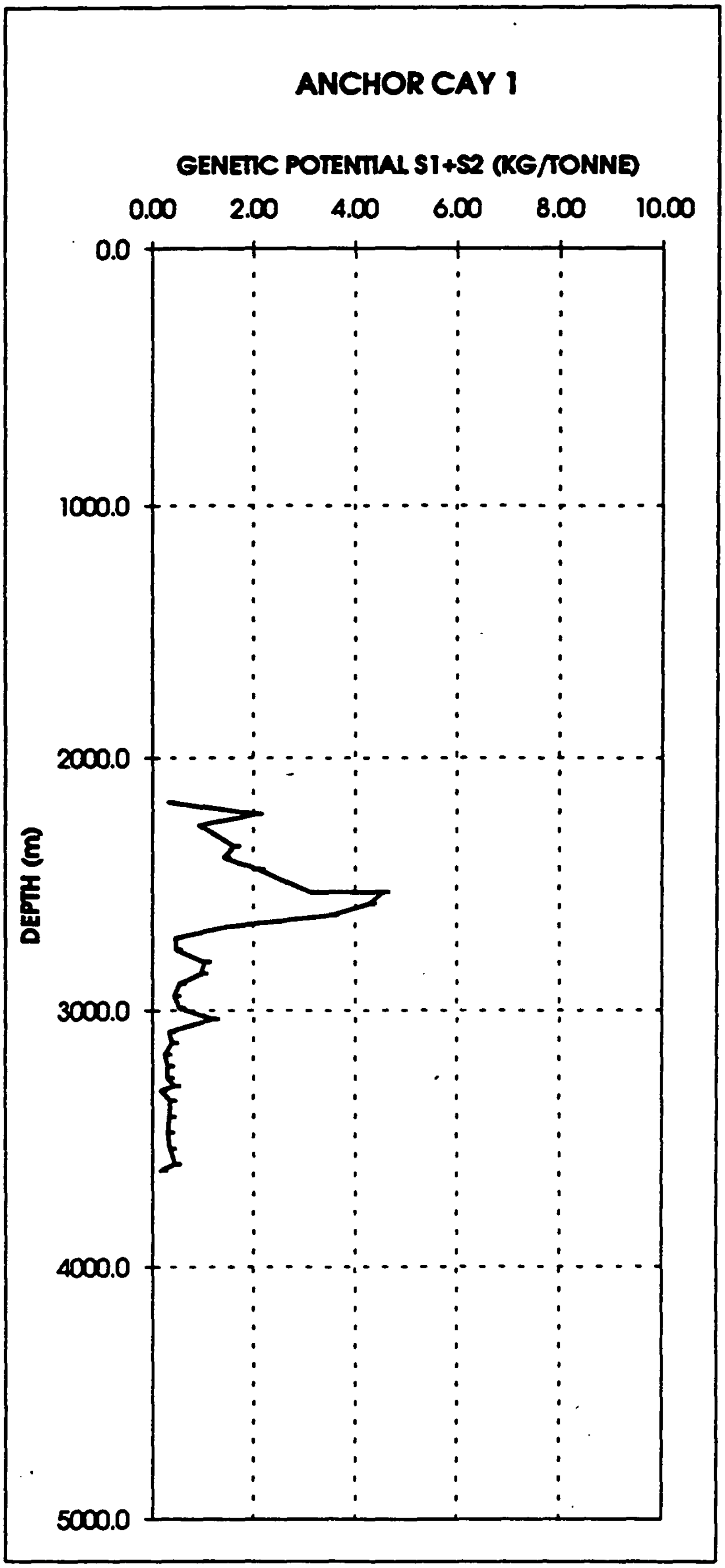
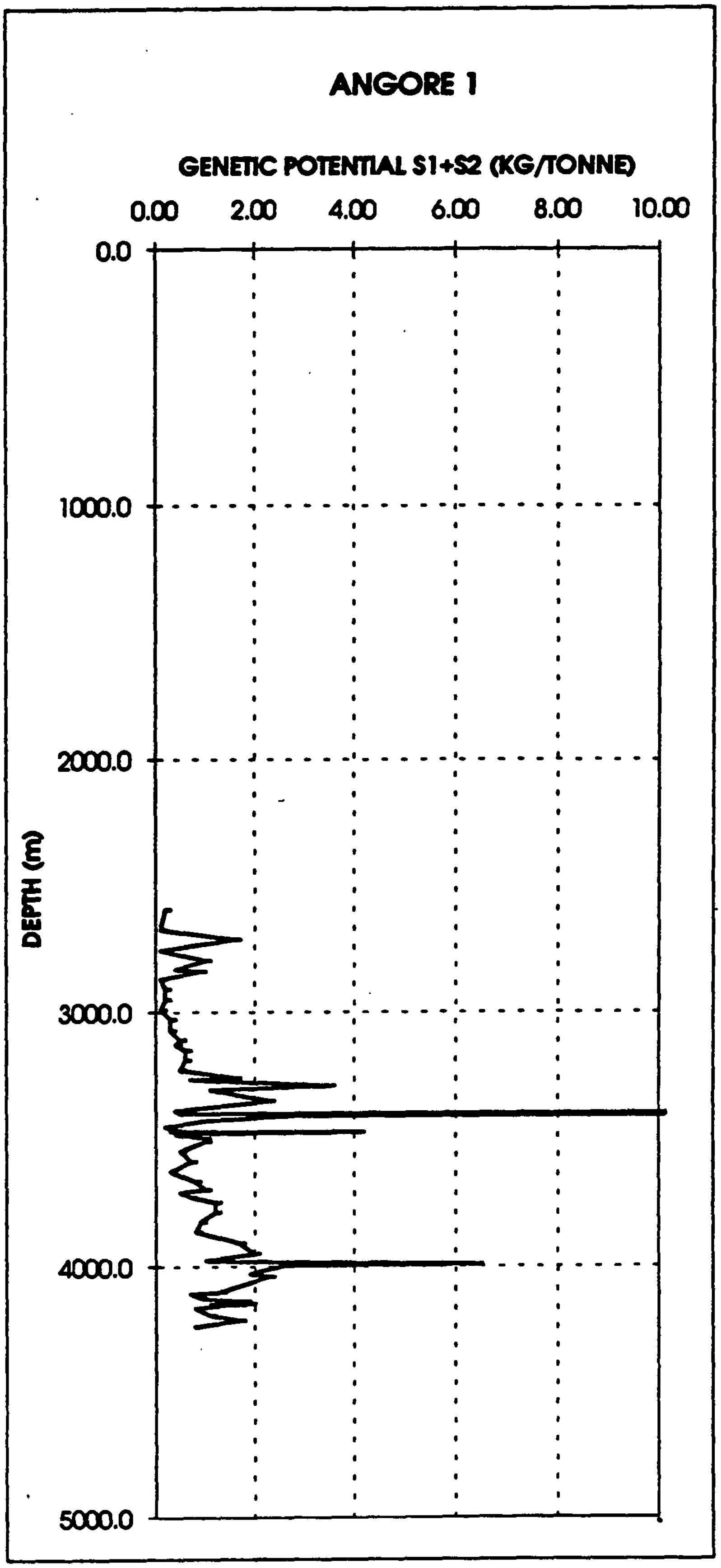
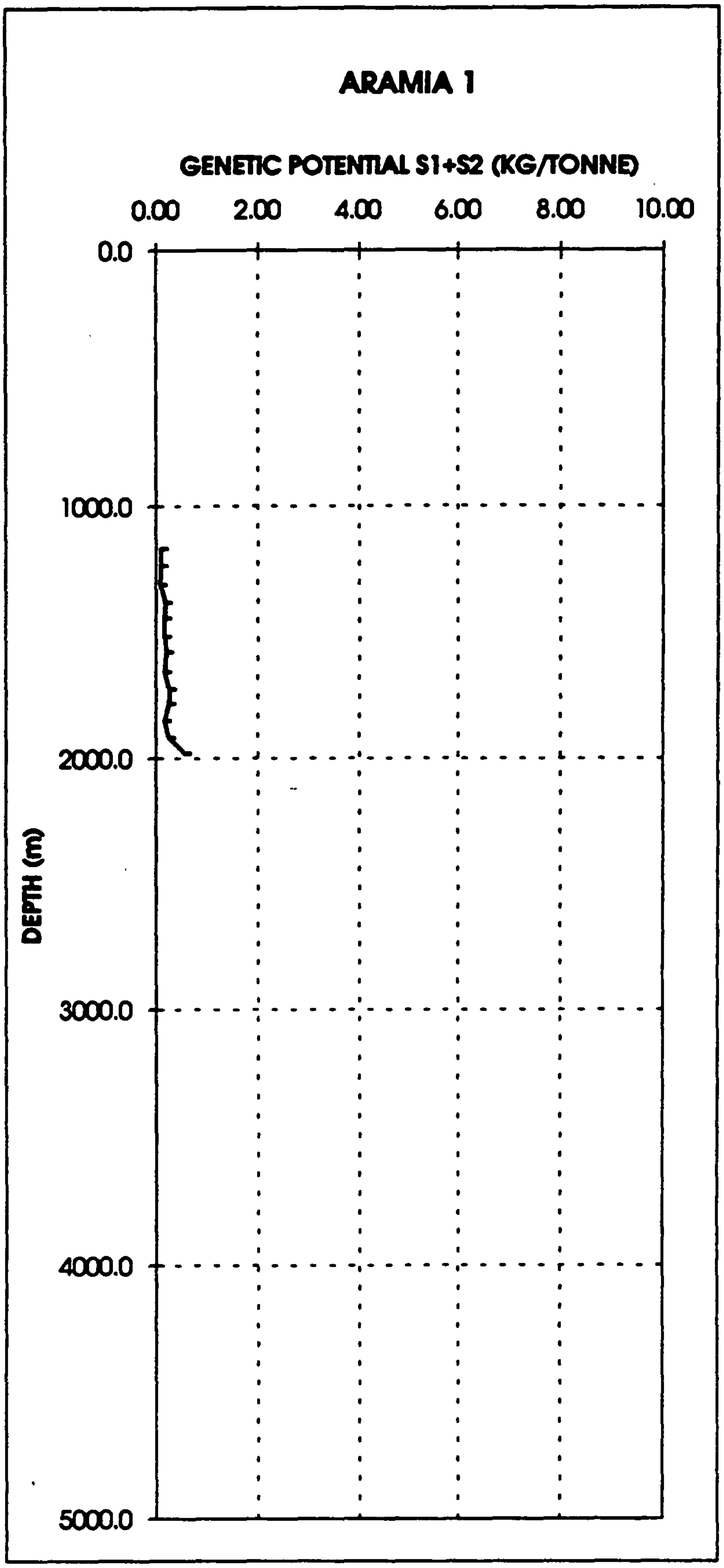
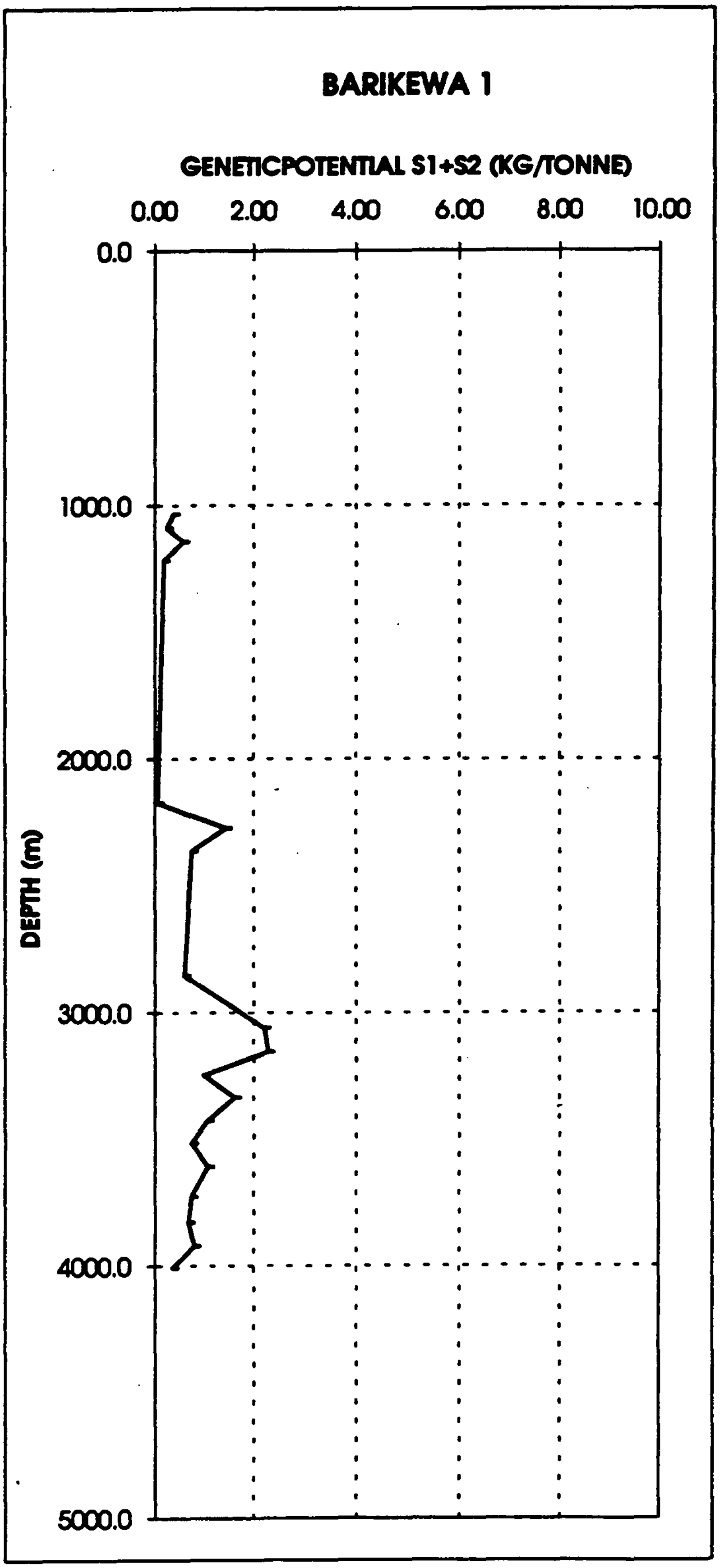
APPENDIX 15 : GENETIC POTENTIAL PROFILES



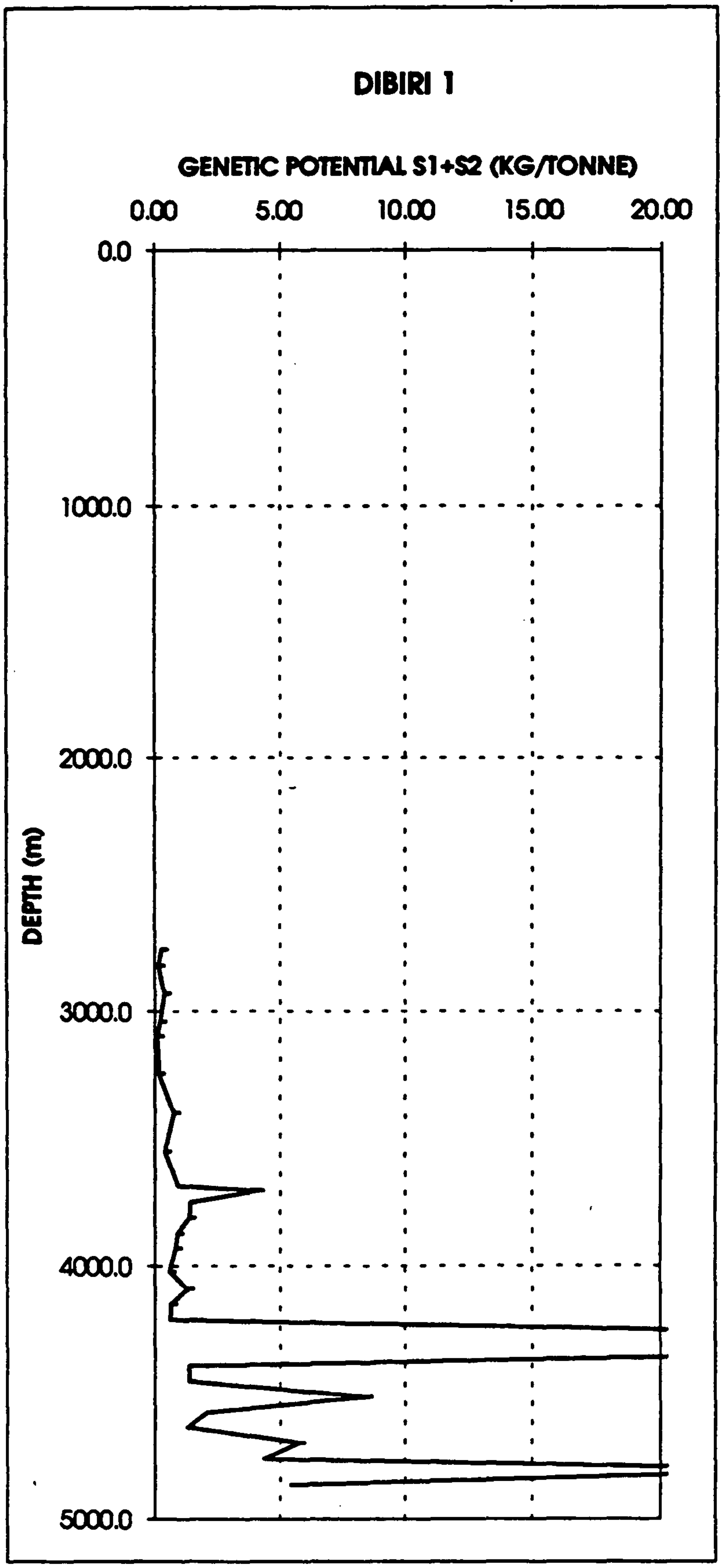
ANCHOR CAY 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

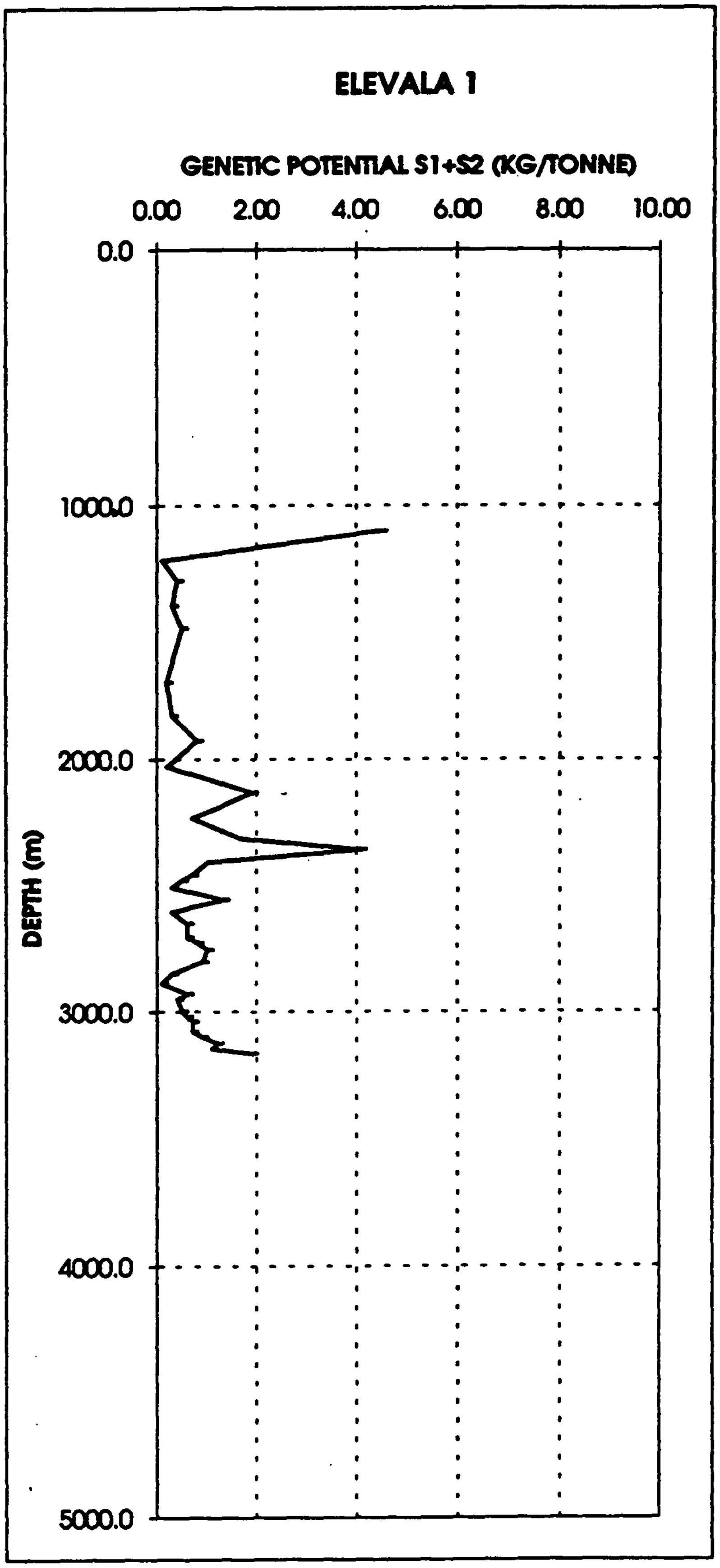

ANGORE 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

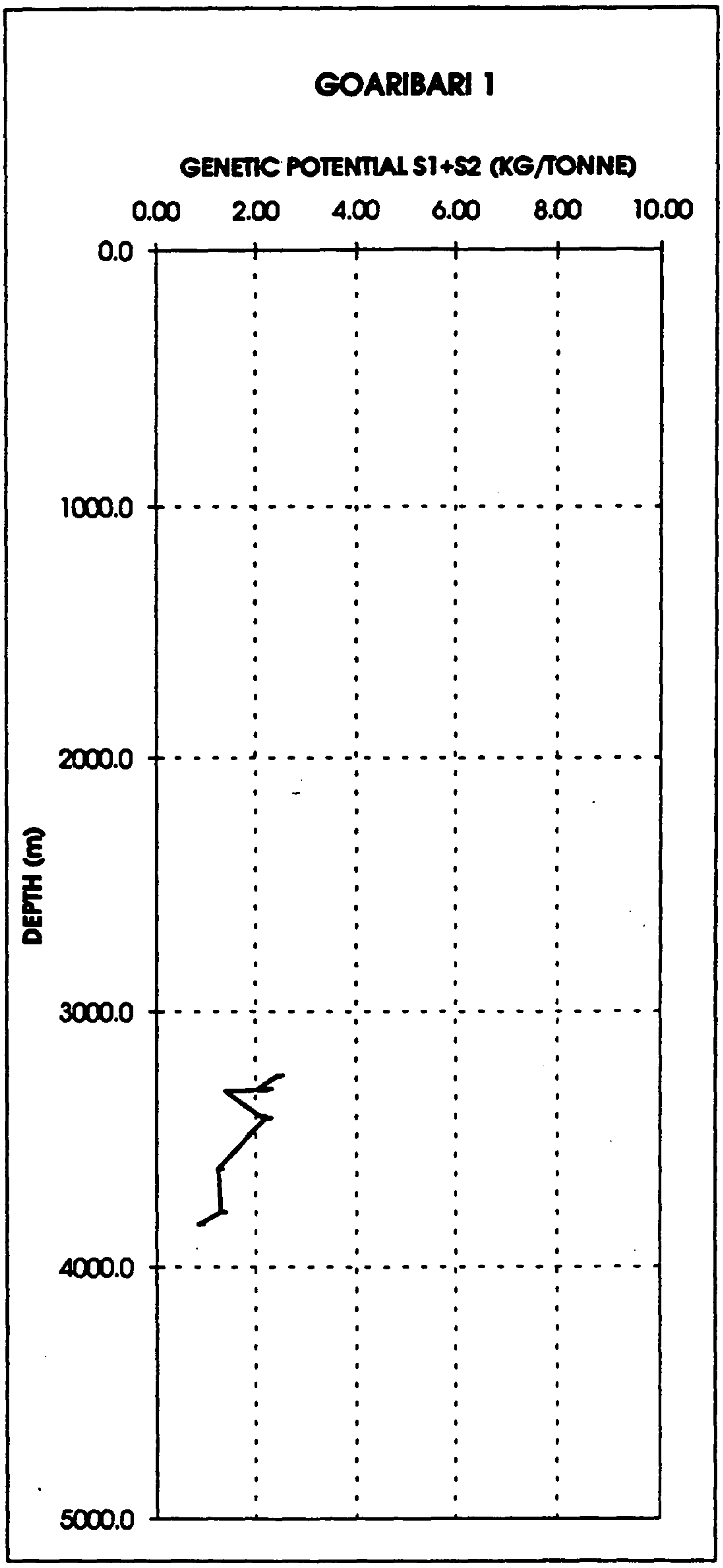

ARAMIA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

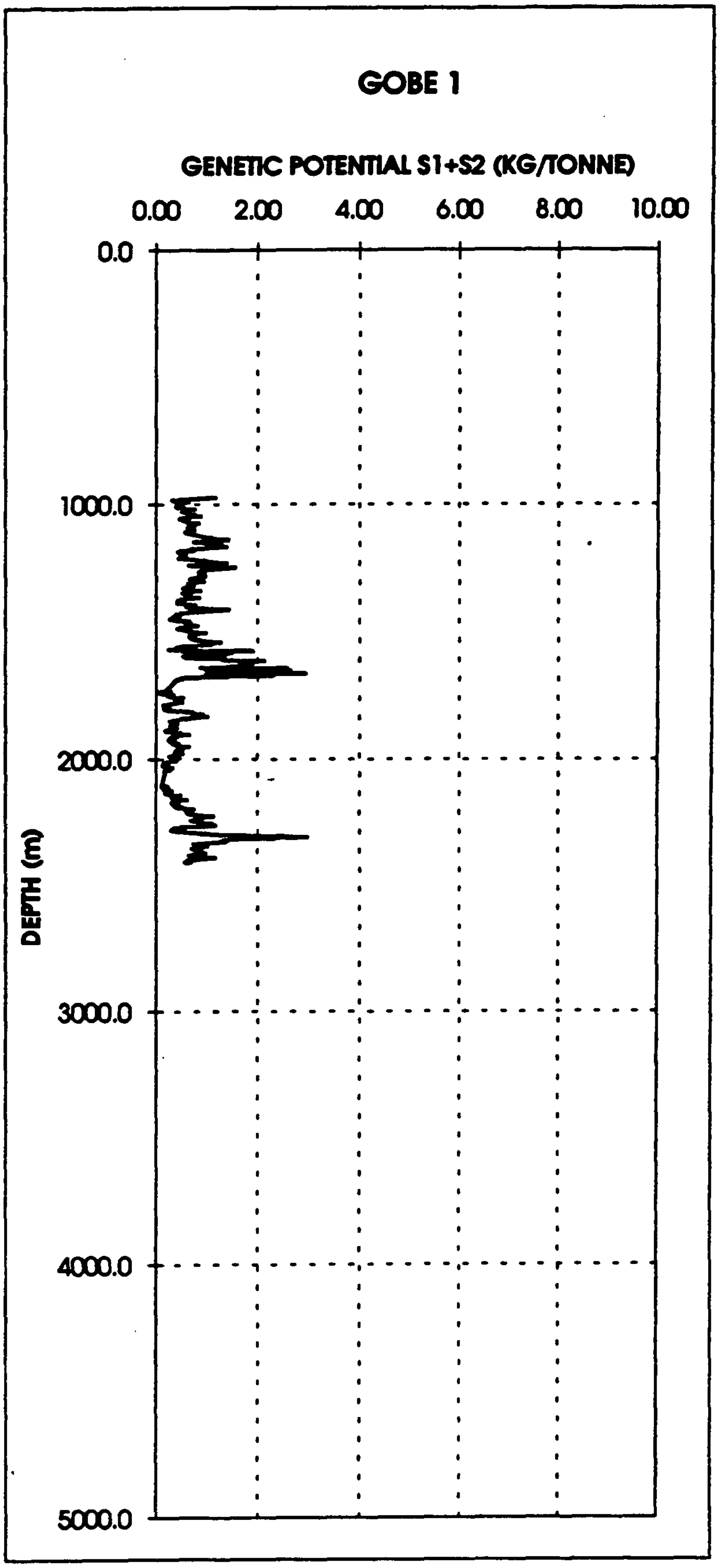


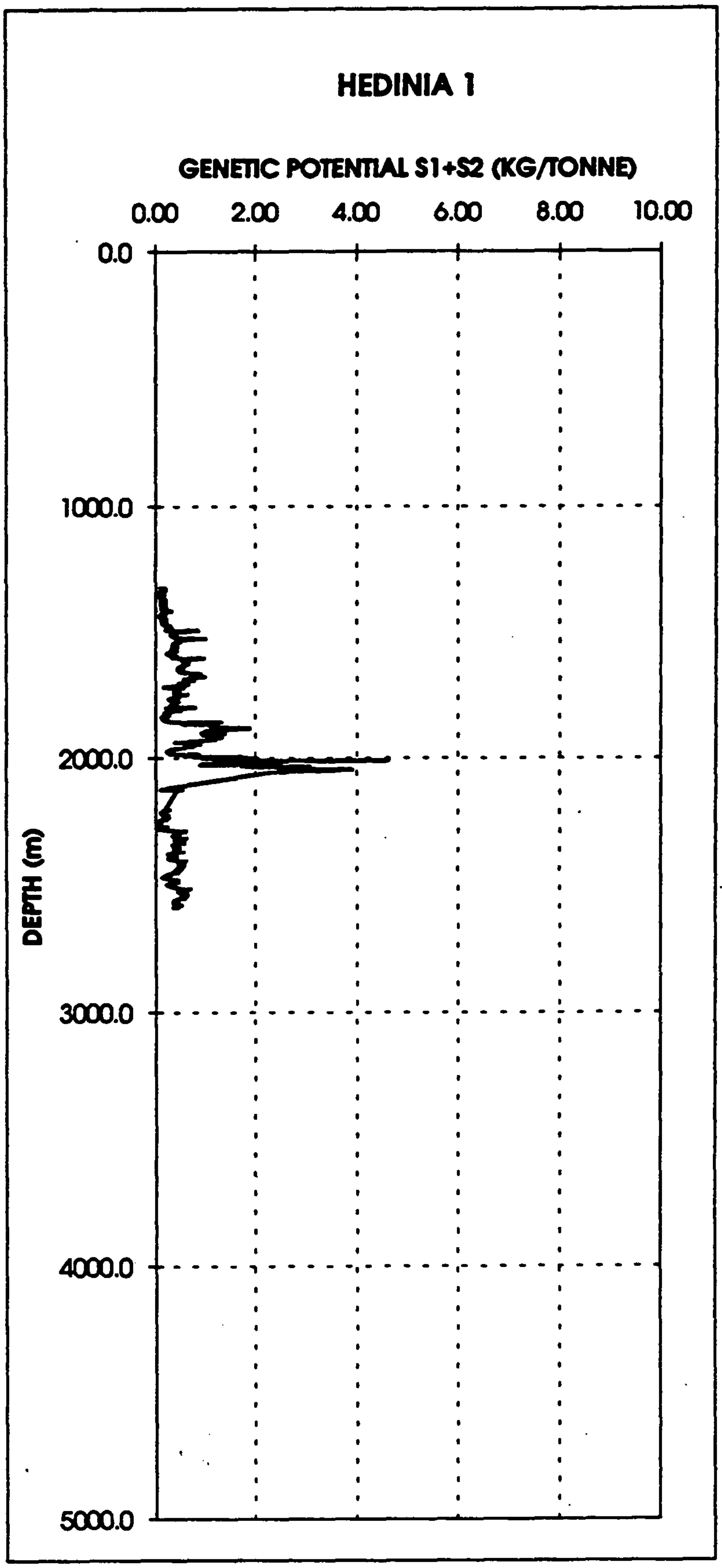
BARIKEWA 1
GENETICPOTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

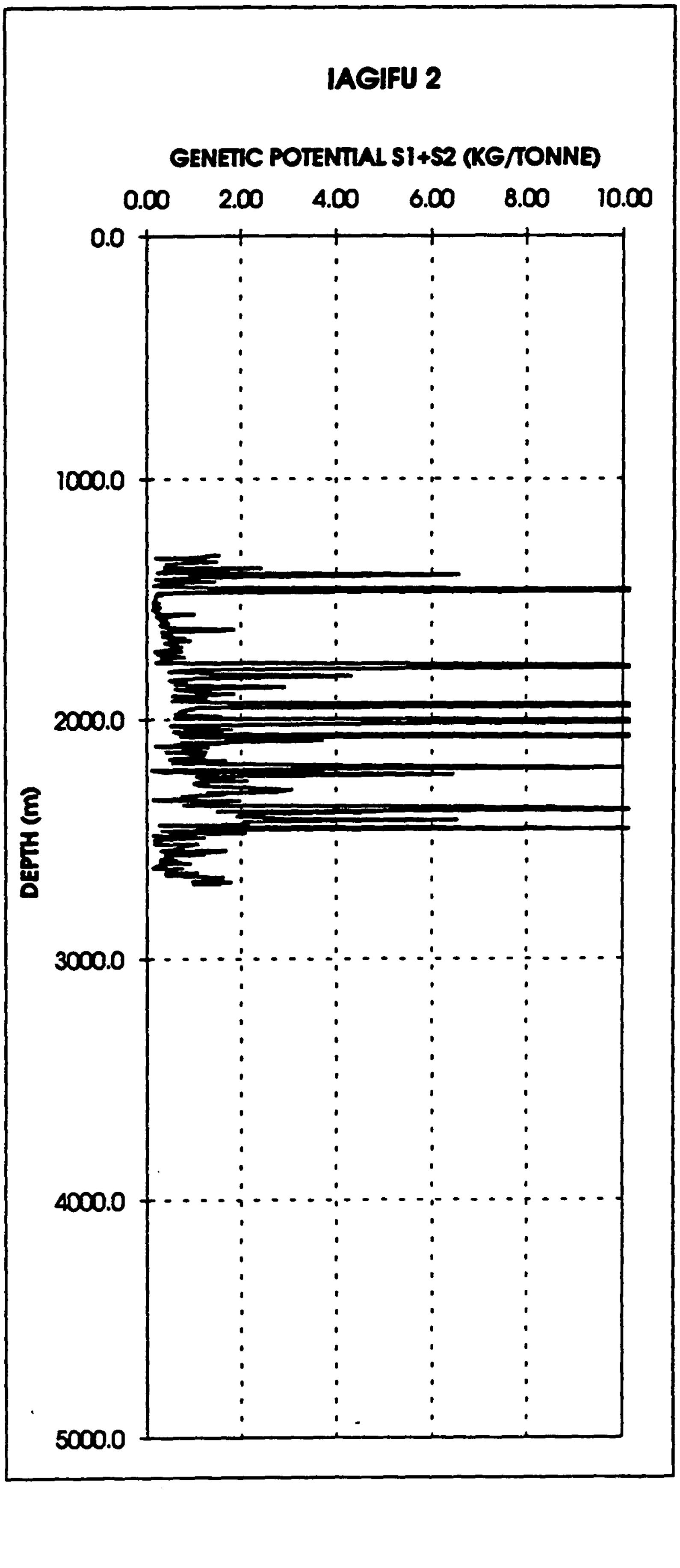

DIBIRI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
5.00
10.00
15.00
20.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


ELEVALA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

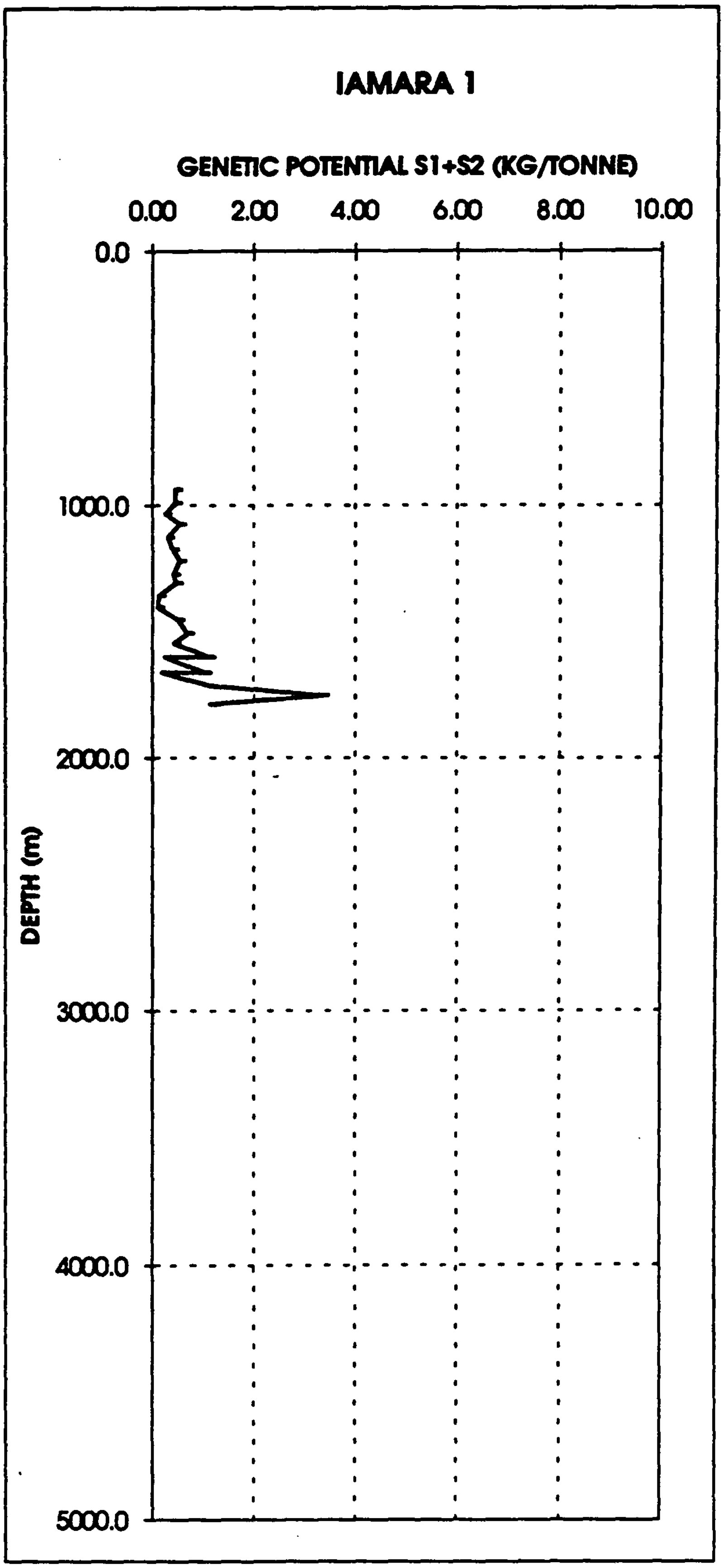

GOARIBARI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

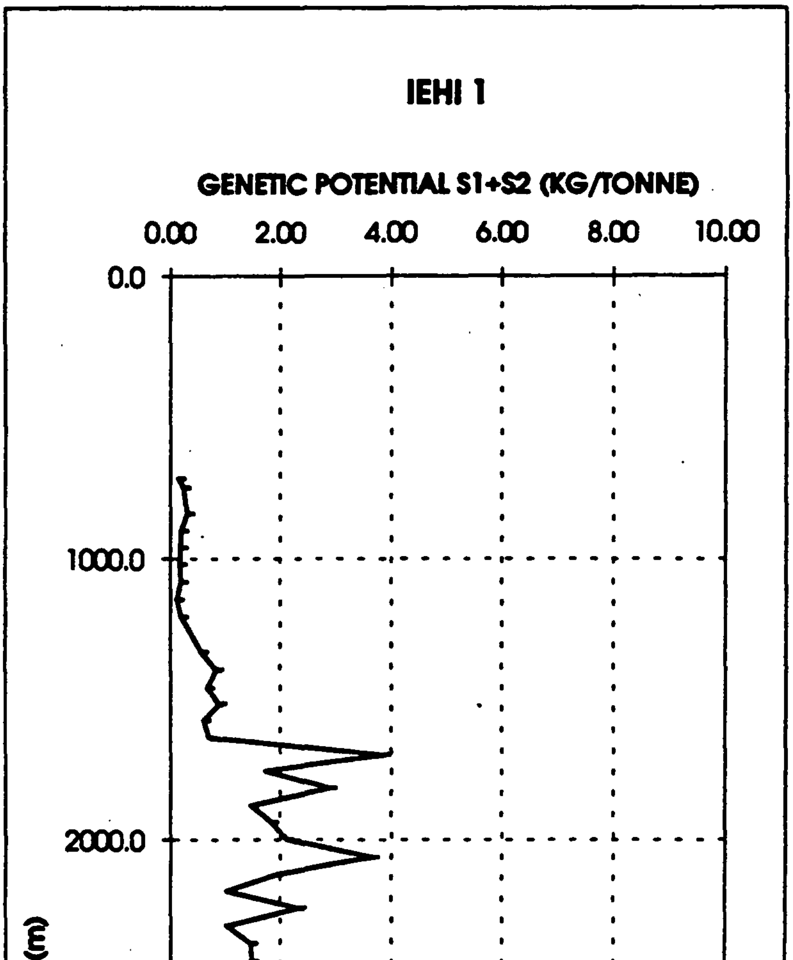

GOBE 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

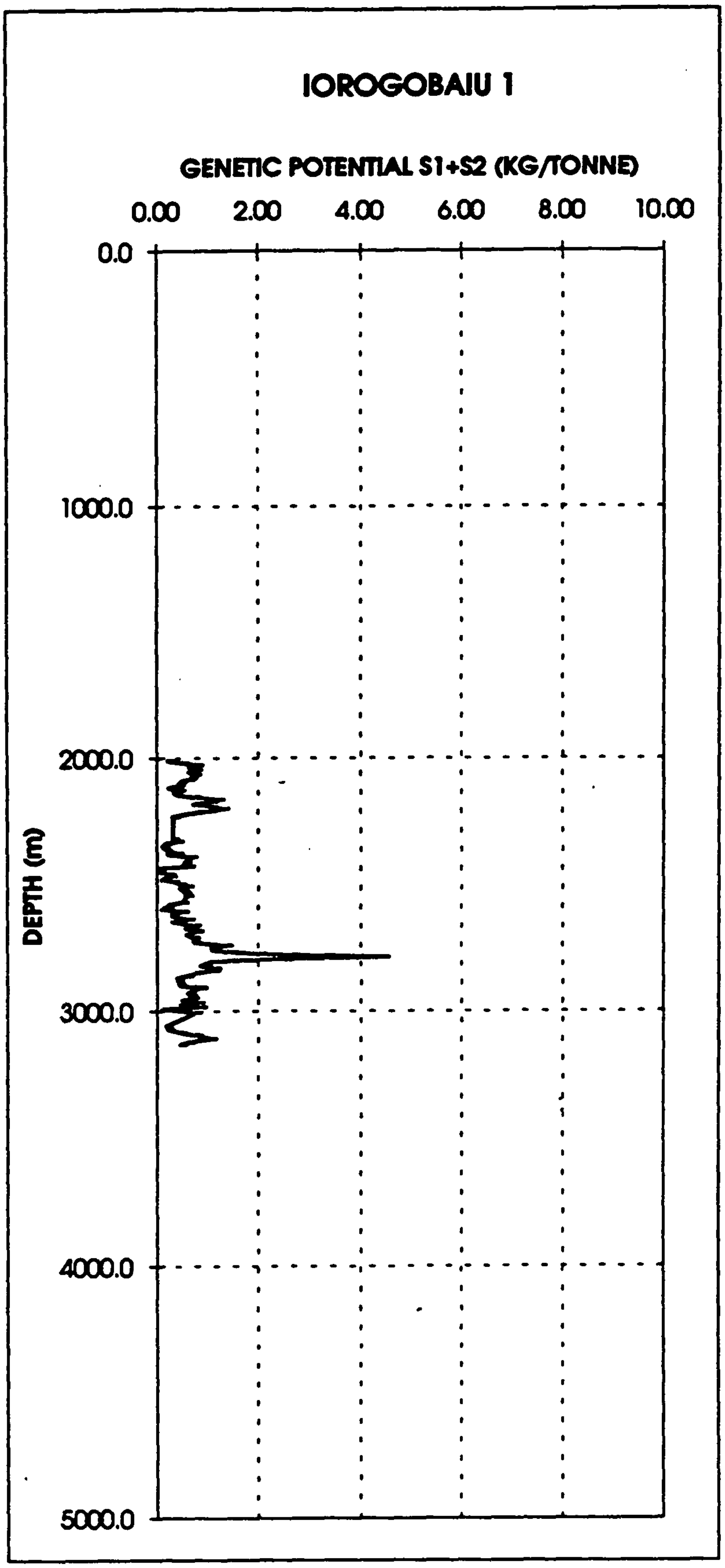

HEDINIA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

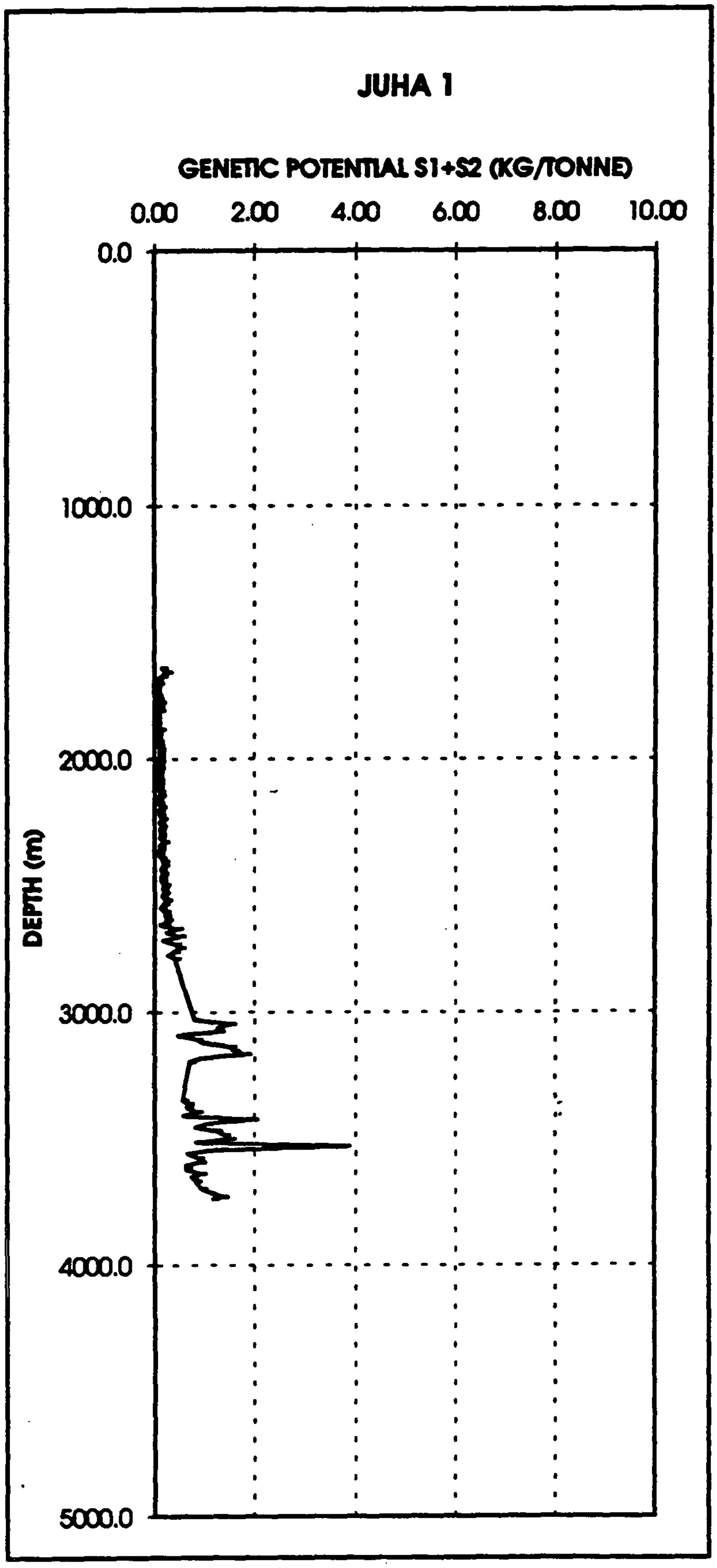


IAGIFU 2
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

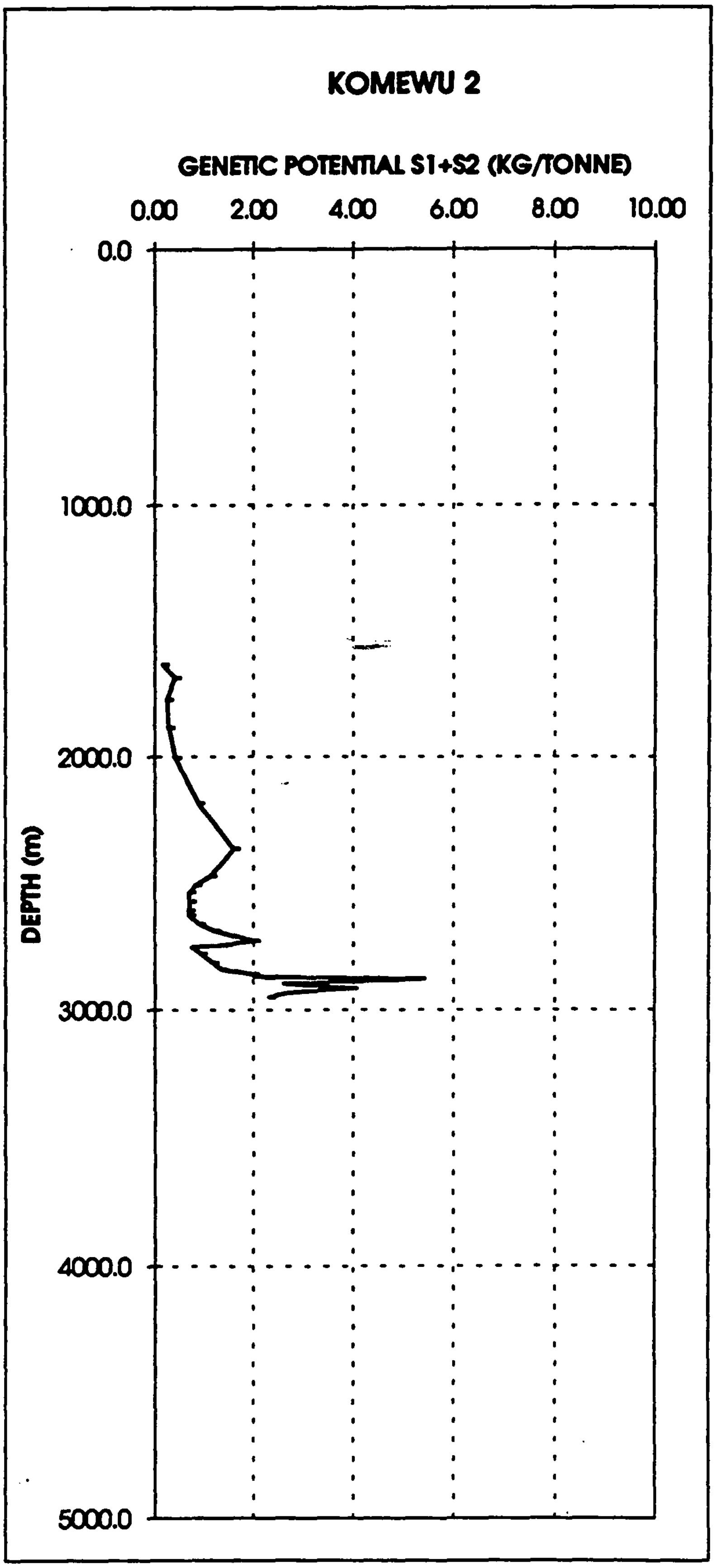

IAMARA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

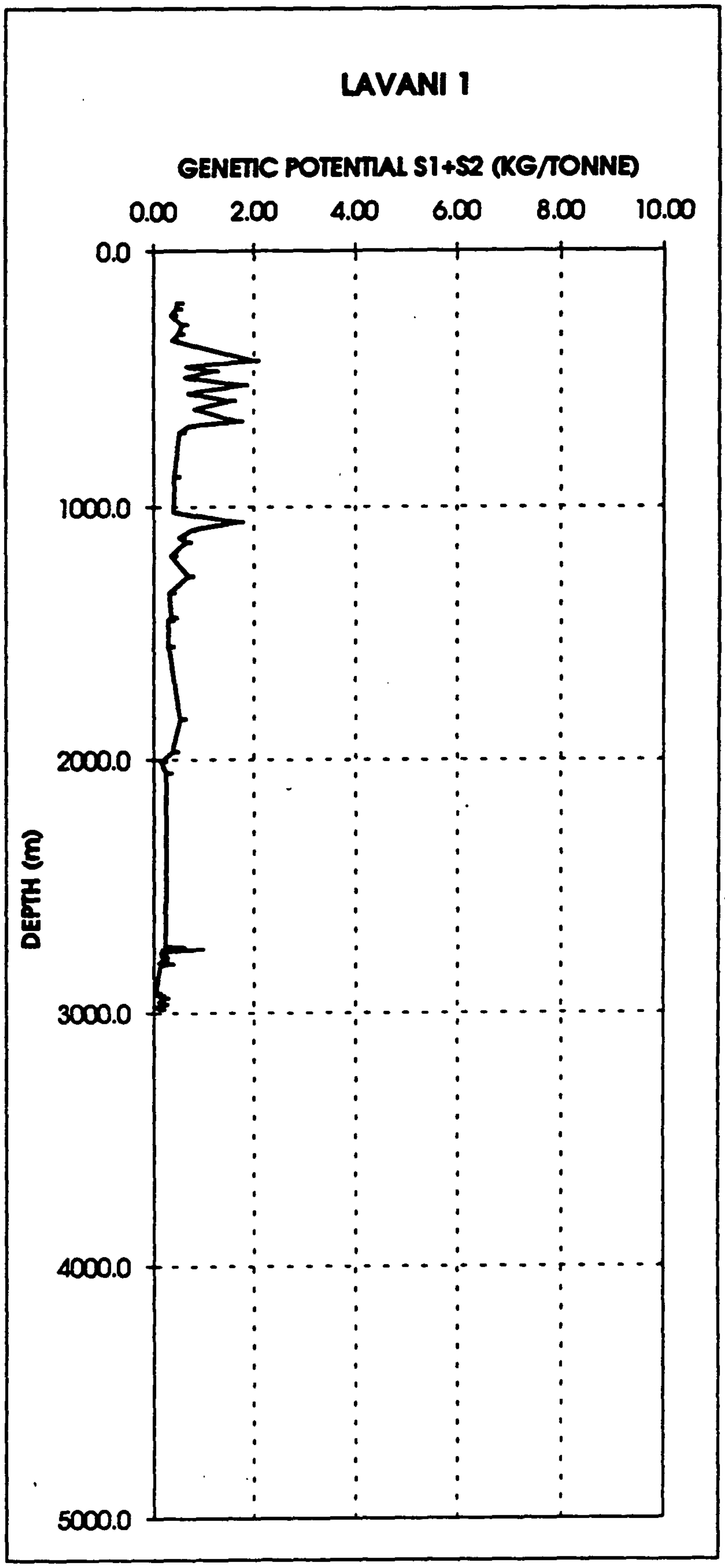

IEHI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


IOROGOBAIU 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

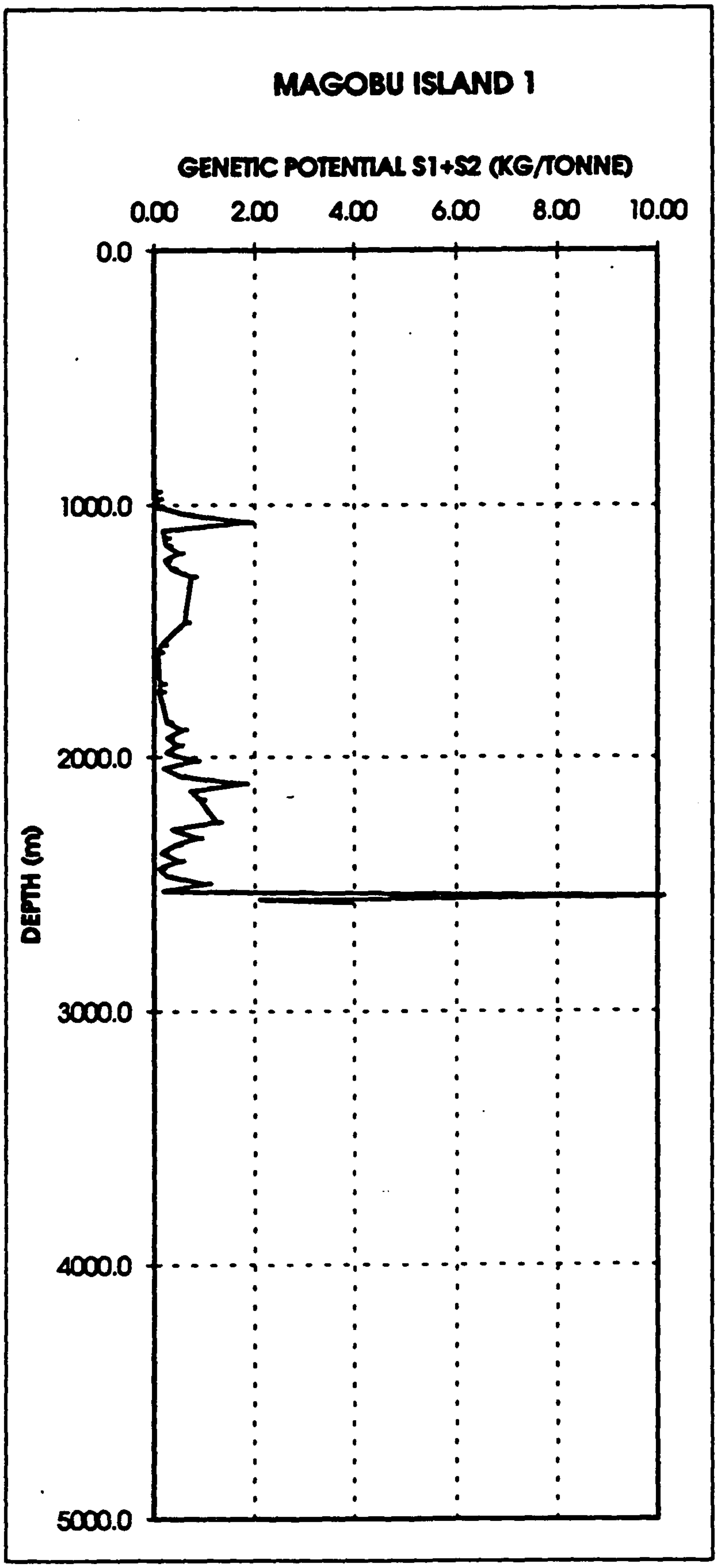


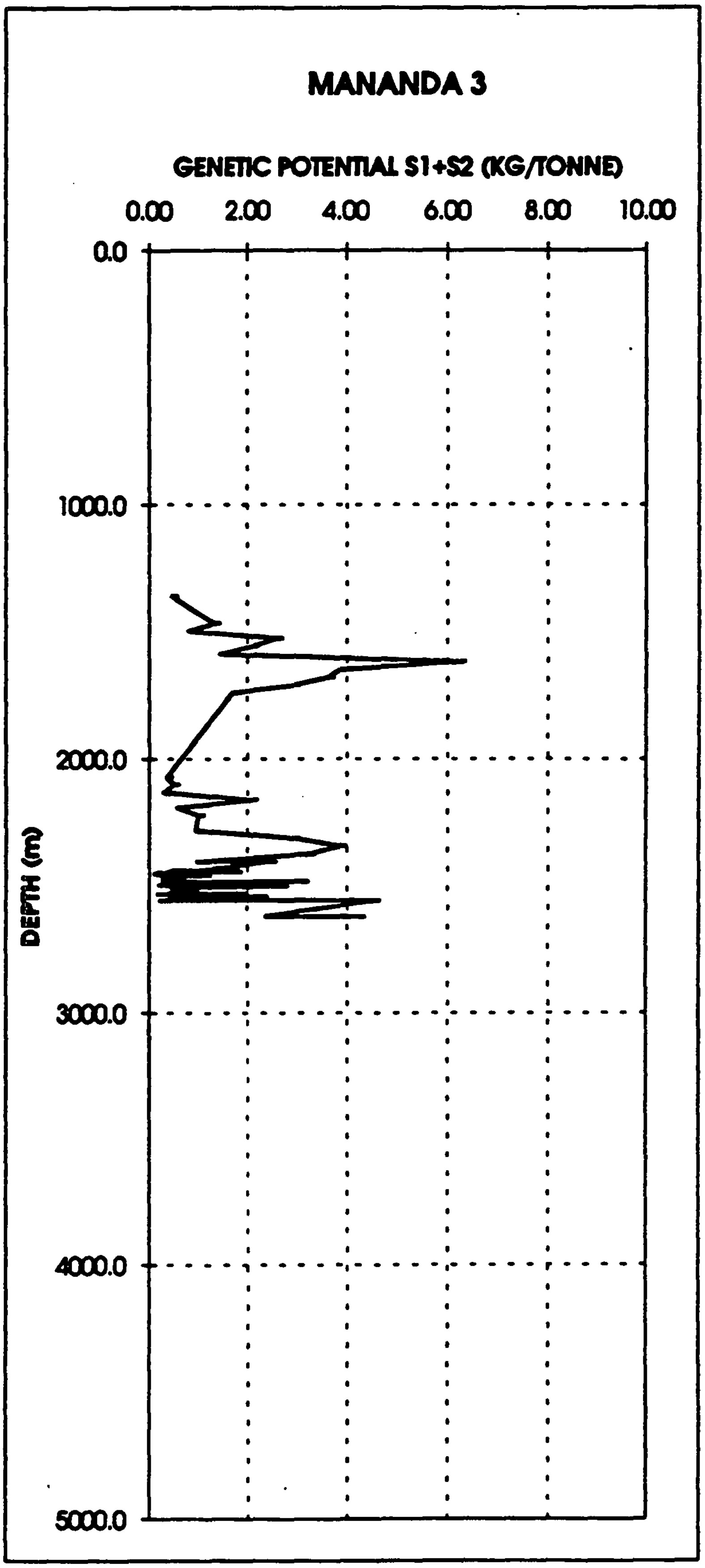
JUHA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

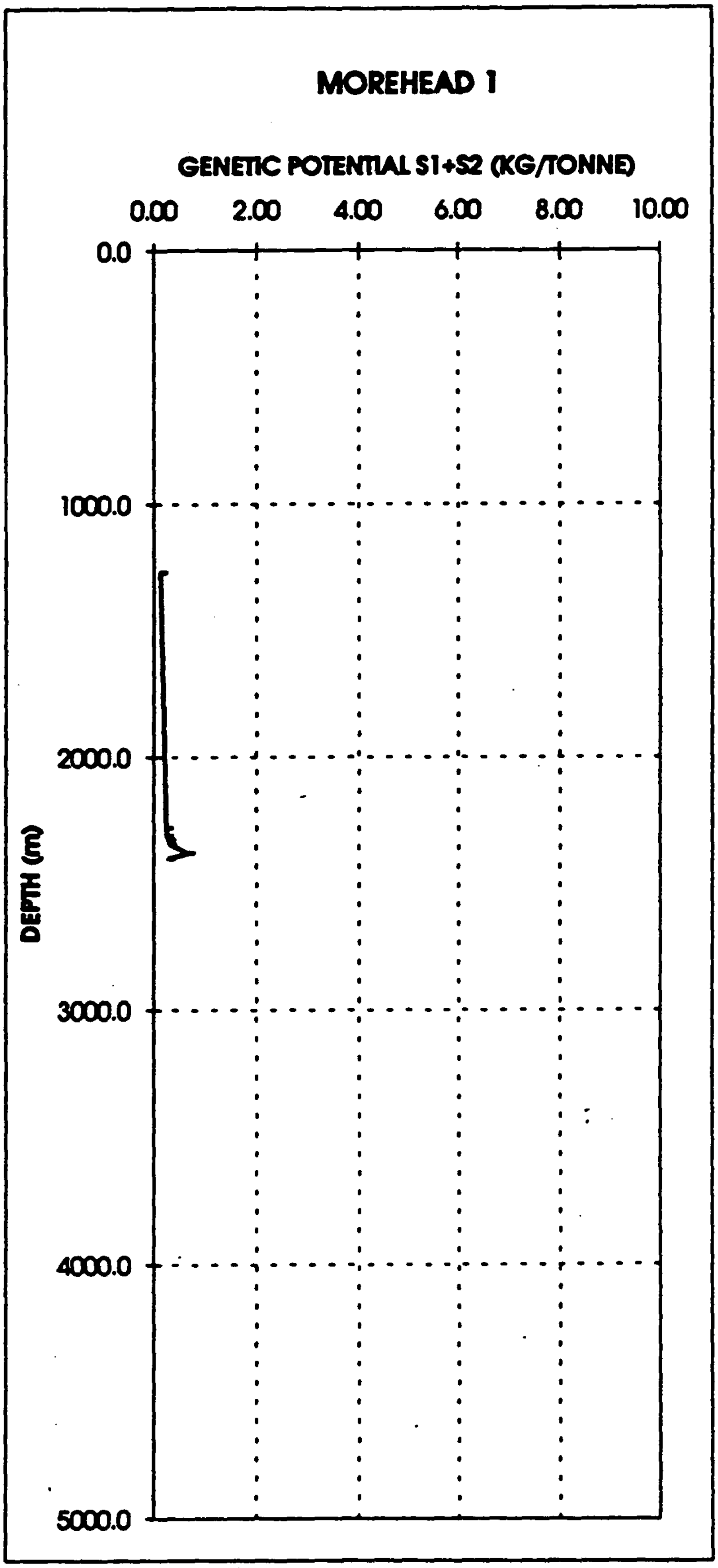

KOMEWU 2
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

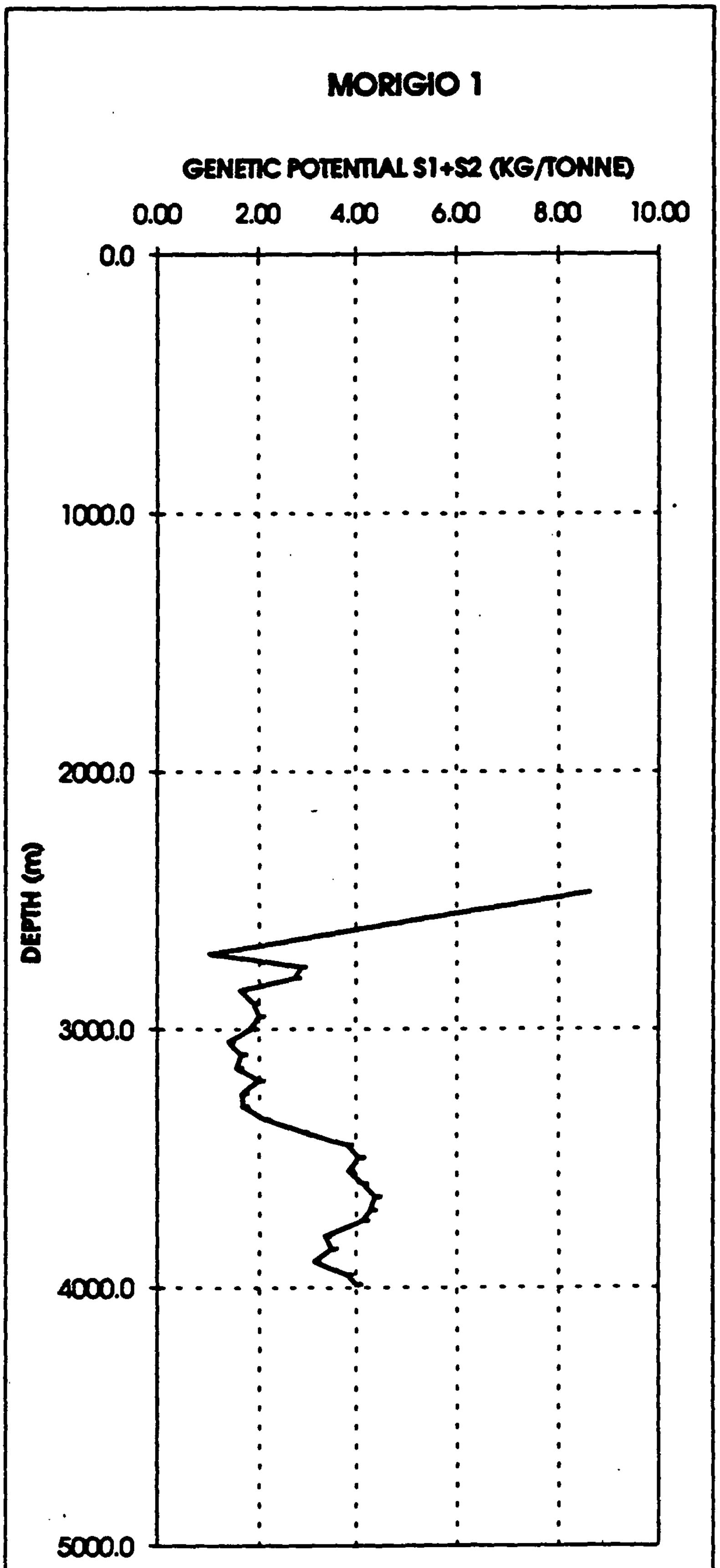


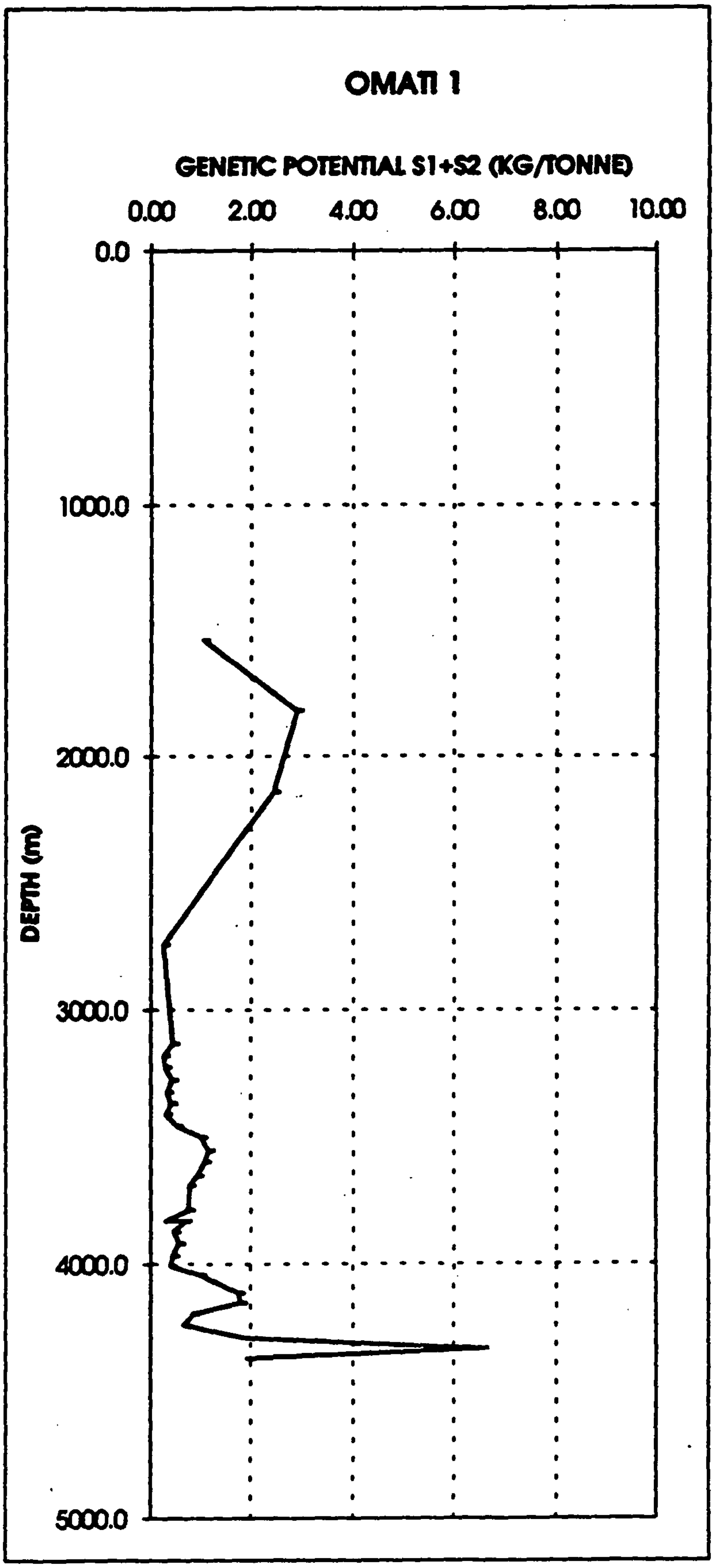
LAVANI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MAGOBU ISLAND 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MANANDA 3
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MOREHEAD 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


MORIGIO 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)


OMATI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
0.00
2.00
4.00
6.00
8.00
10.00
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)

AGSO

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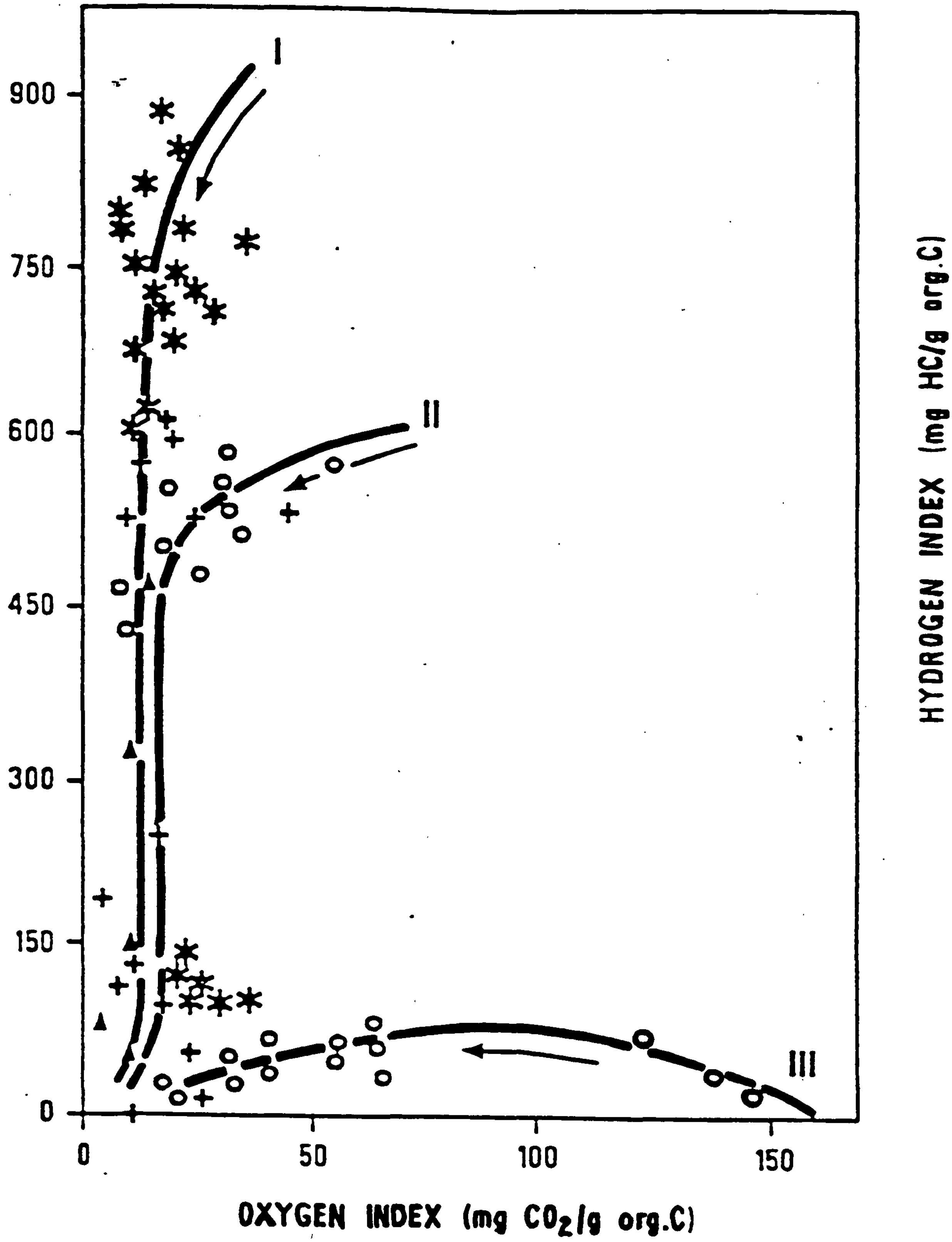
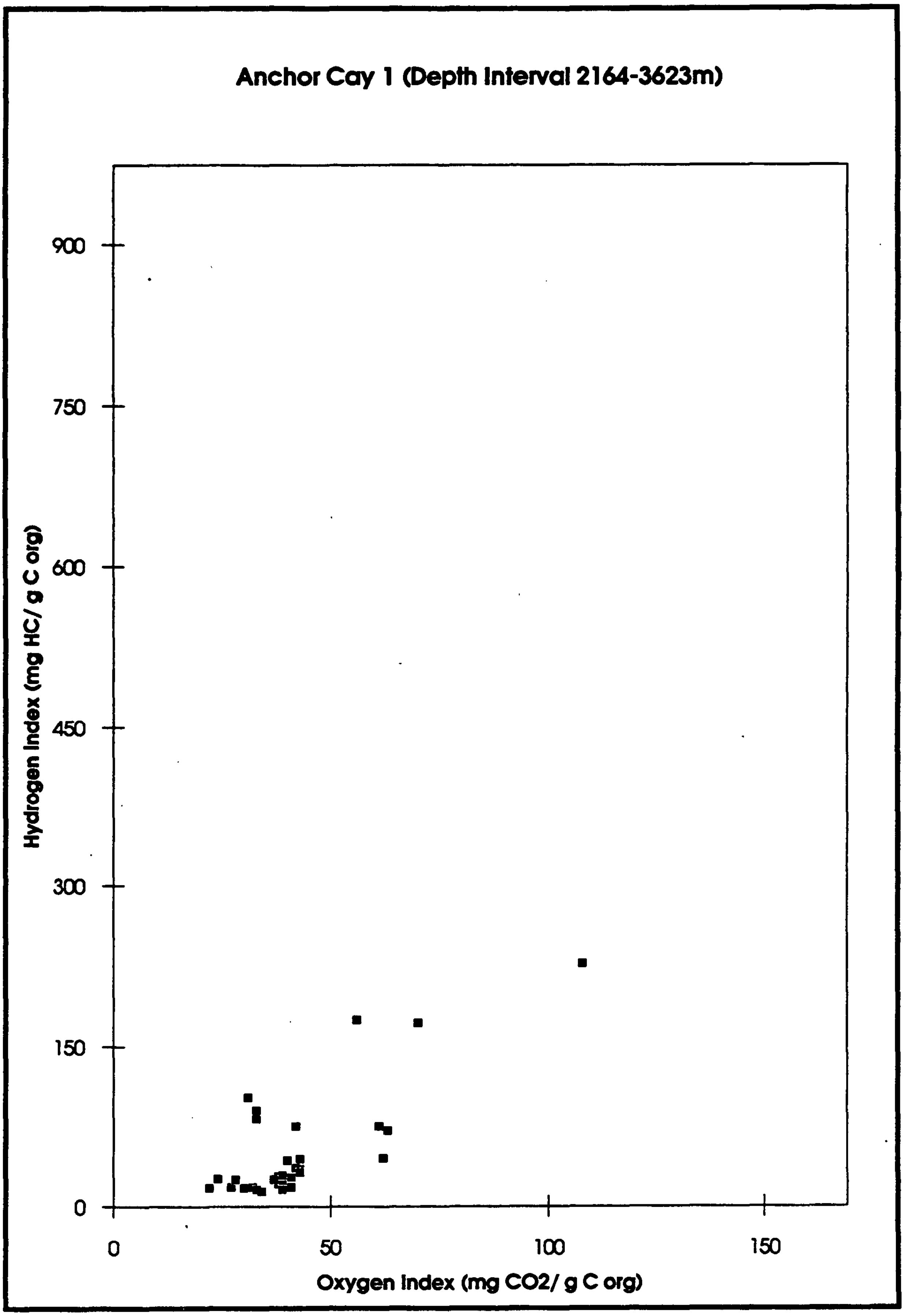
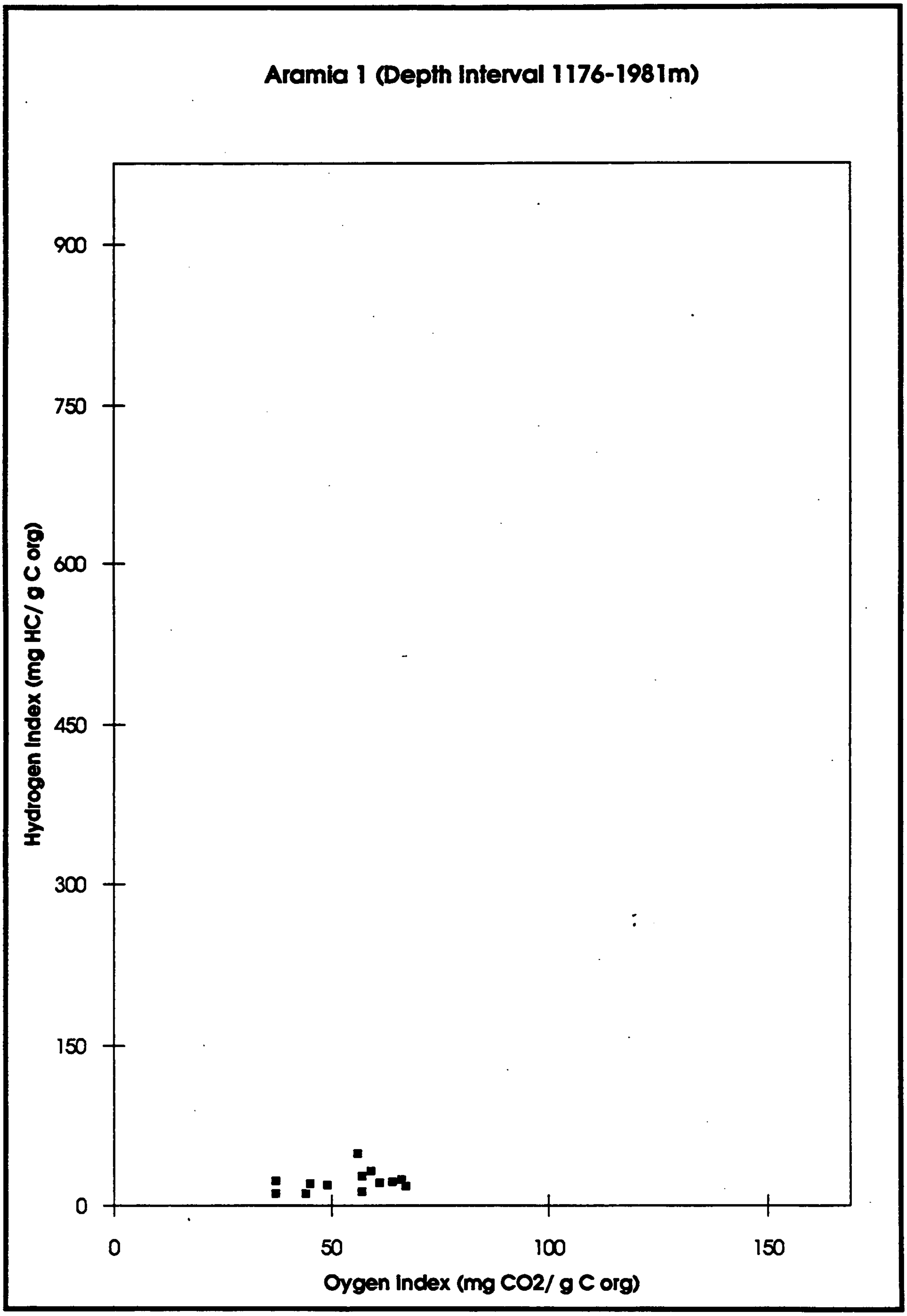
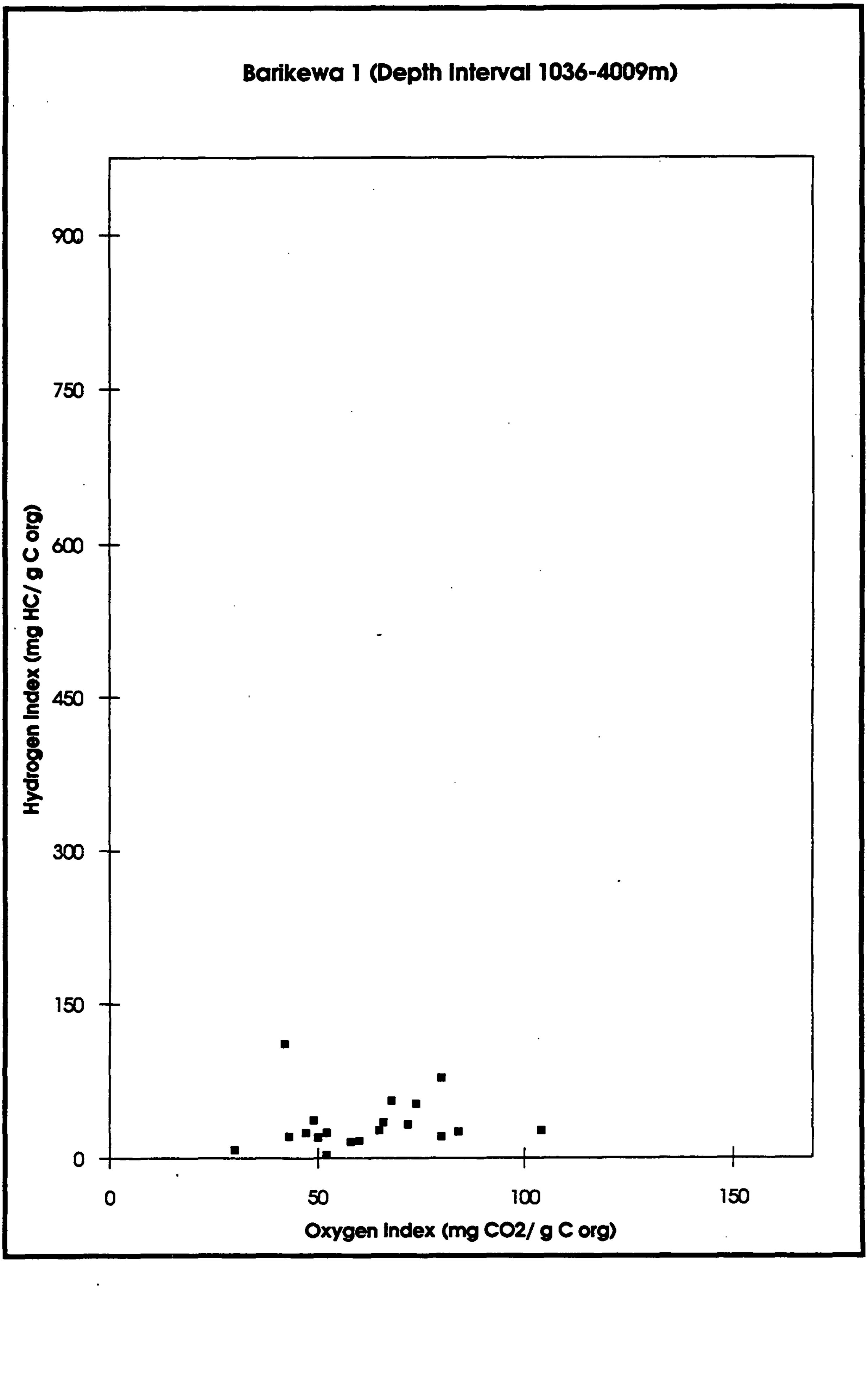
APPENDIX 16 : HYDROGEN INDICES vs OXYGEN INDICES



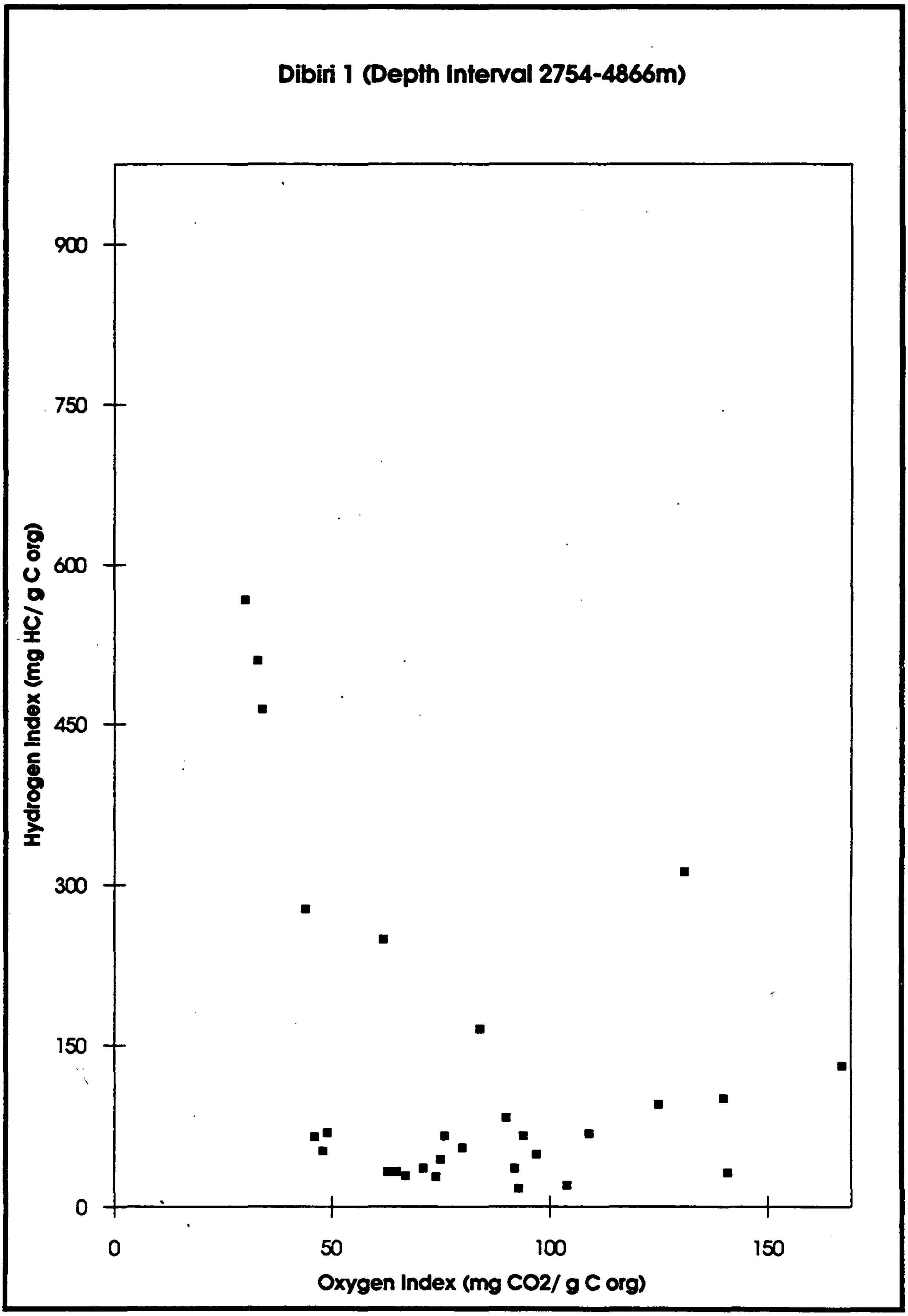
Classification of source rock types by using Hydrogen and Oxygen indices (Espitalie et al., 1977).

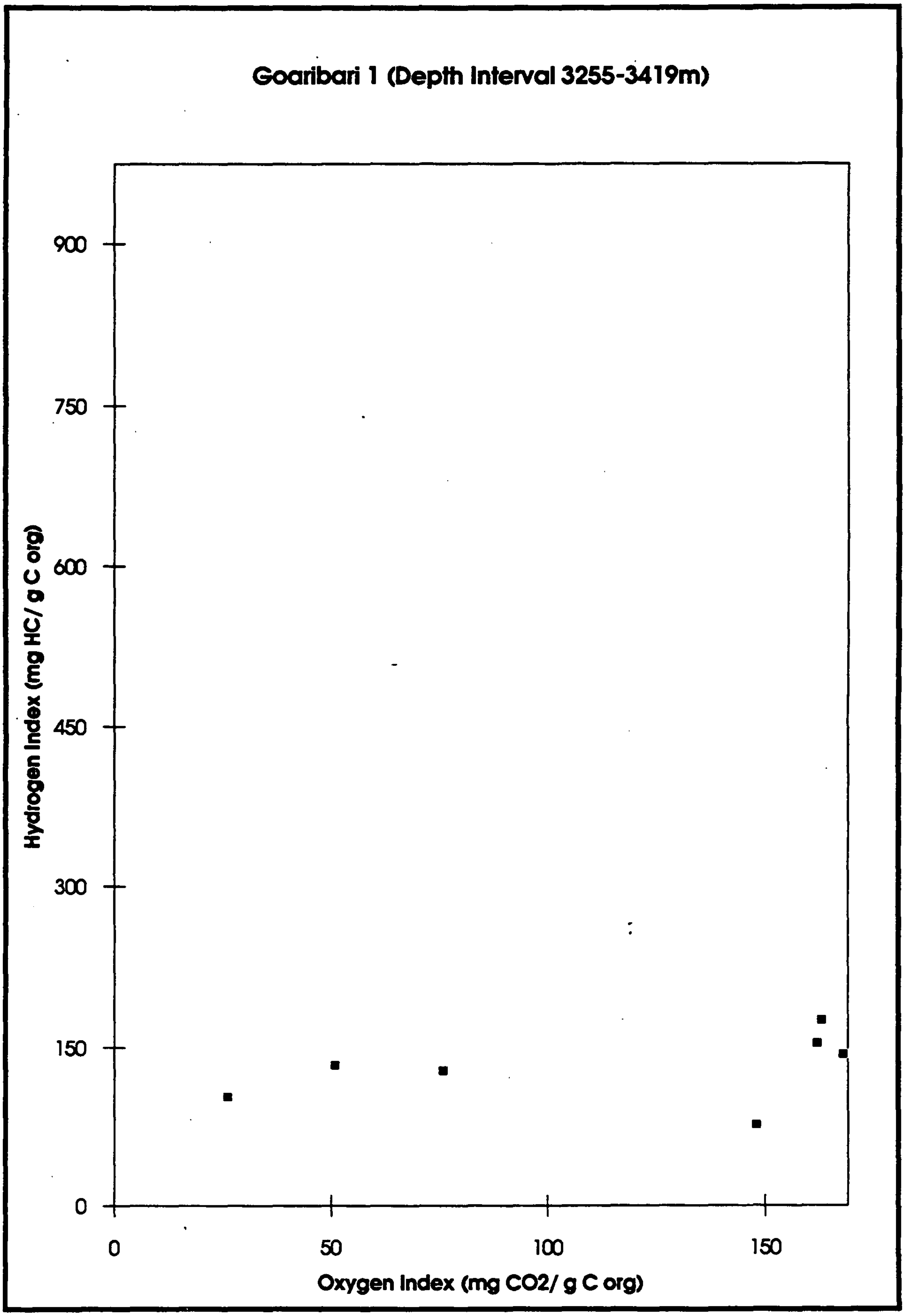

Anchor Cay 1 (Depth Interval 2164-3623m)
900
750
600
450
300
150
0
Hydrogen Index (mg HC/ g C org)
0
50
100
150
Oxygen Index (mg CO2/ g C org)


Aramia 1 (Depth Interval 1176-1981m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oygen Index (mg CO2/ g C org)

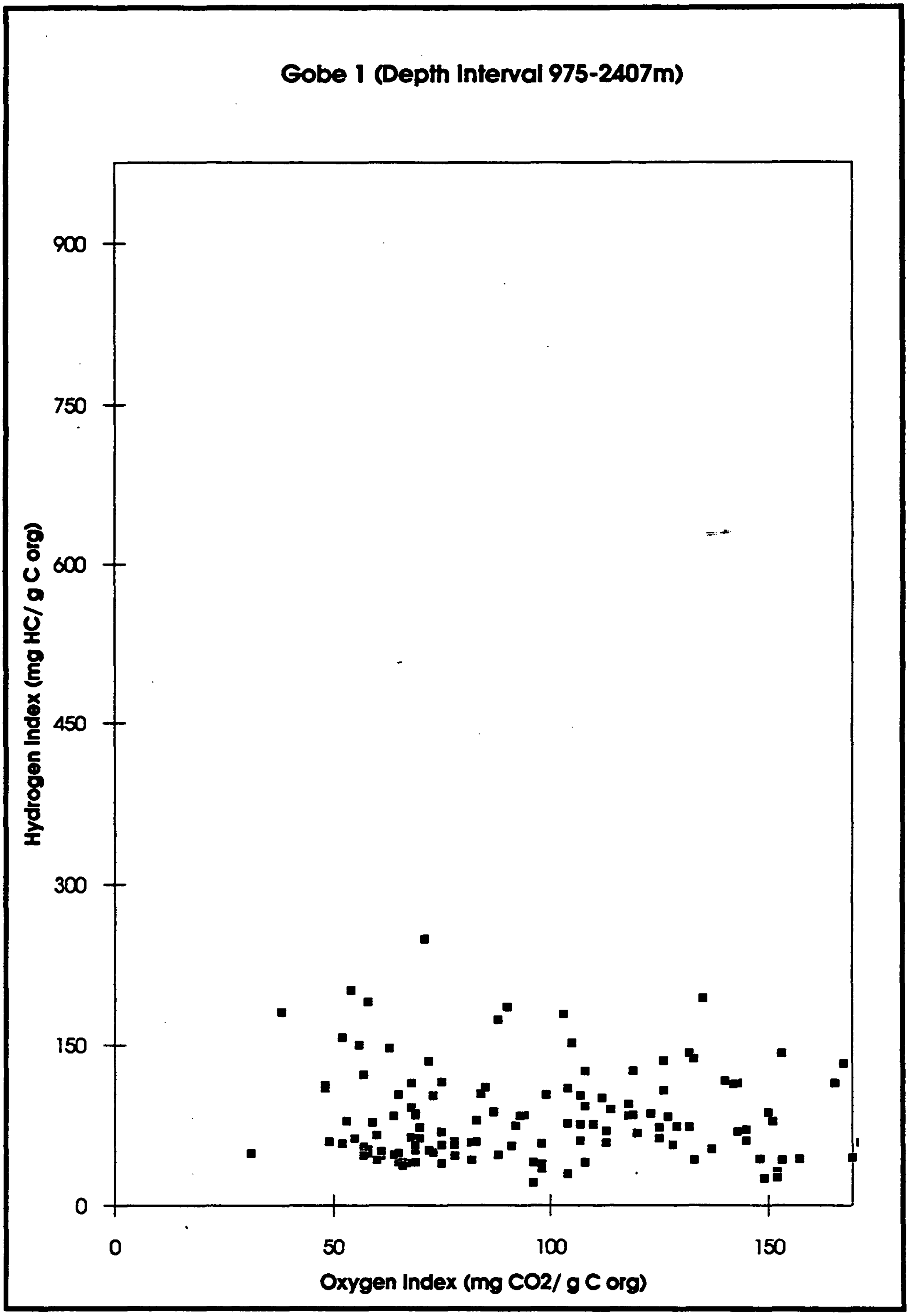


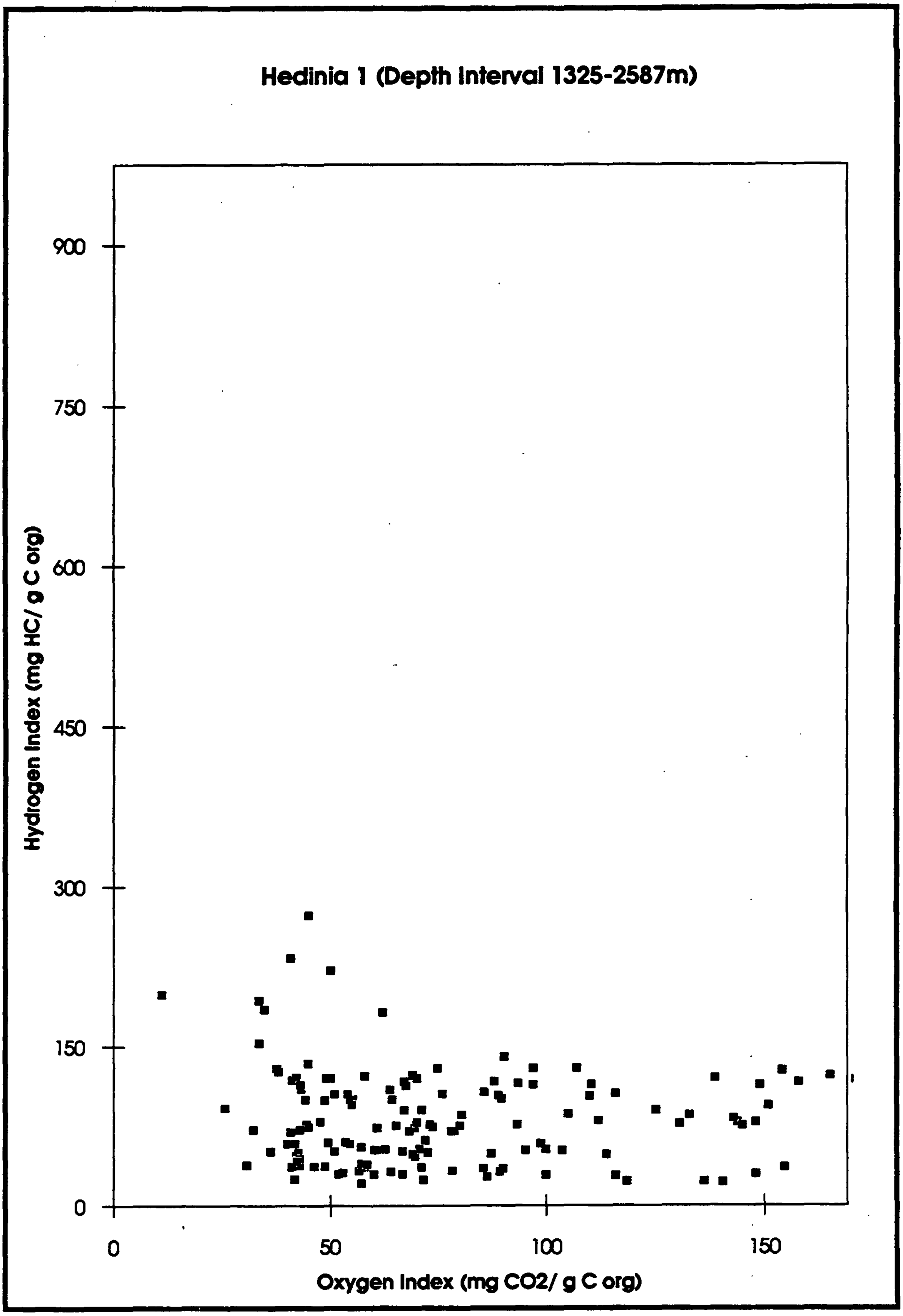
Barikewa 1 (Depth Interval 1036-4009m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)


Dibiri 1 (Depth Interval 2754-4866m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)

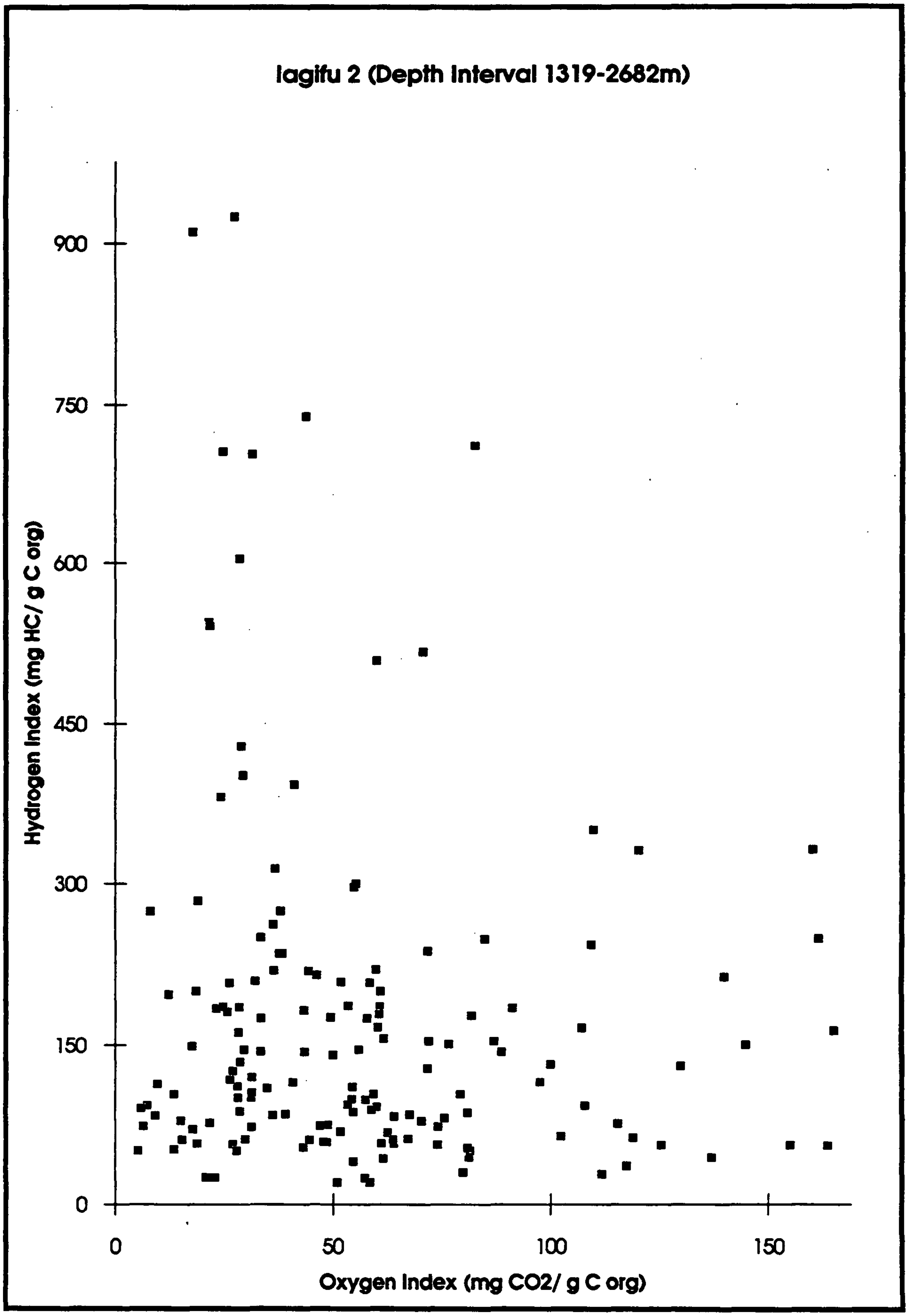


Goaribari 1 (Depth Interval 3255-3419m)
900
750
600
450
300
150
0
Hydrogen Index (mg HC/ g C org)
0
50
100
150
Oxygen Index (mg CO2/ g C org)

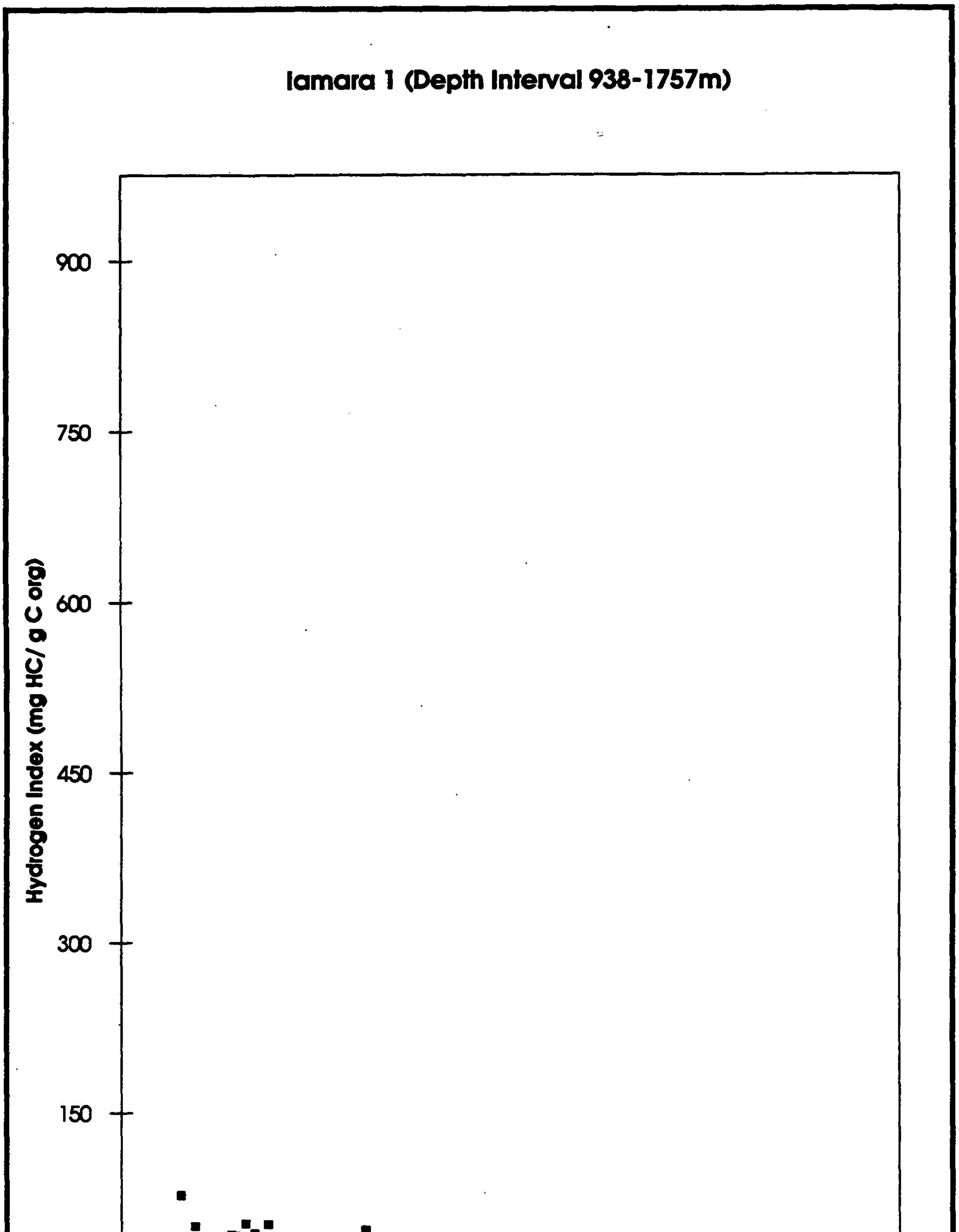

Gobe 1 (Depth Interval 975-2407m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)

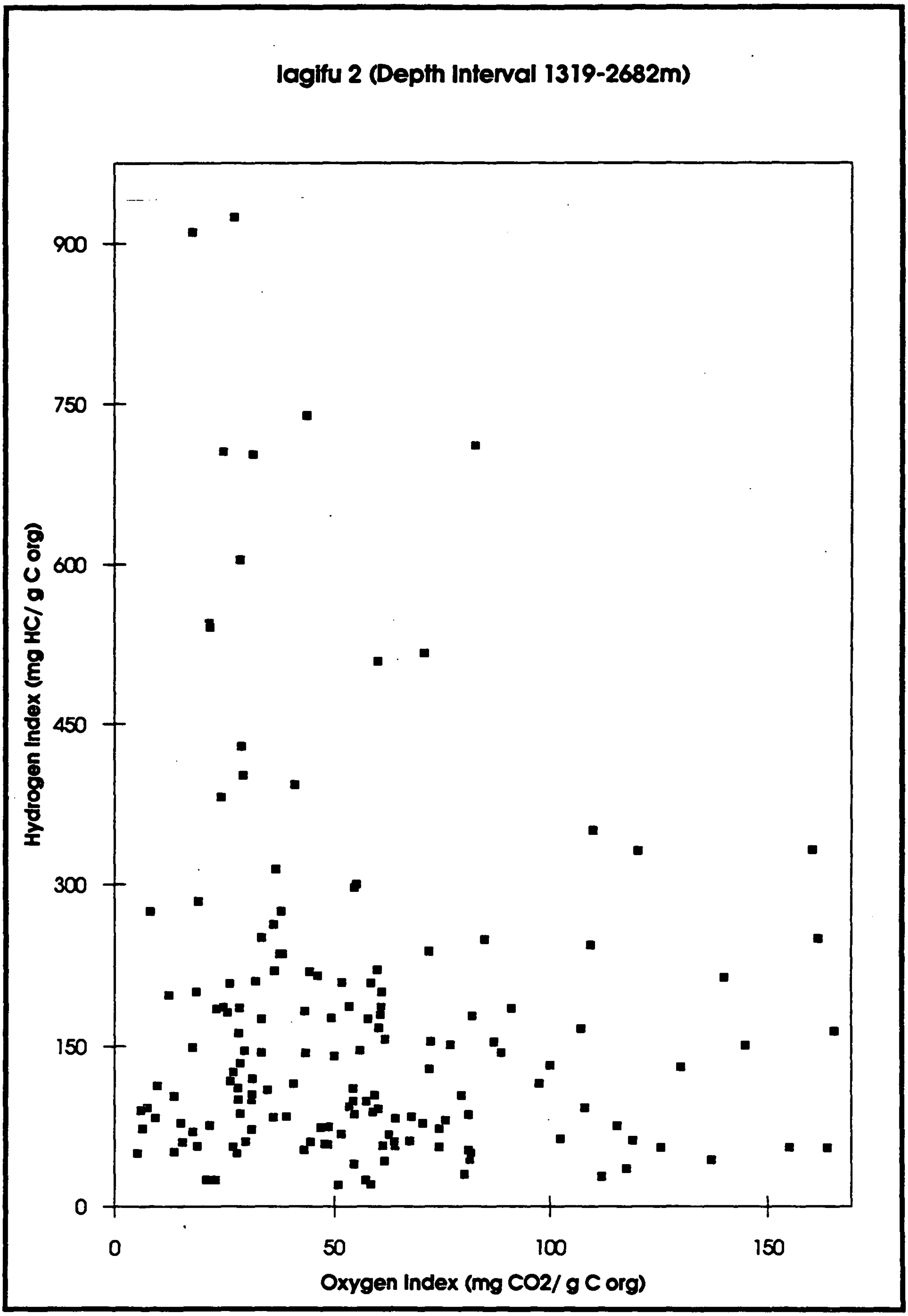


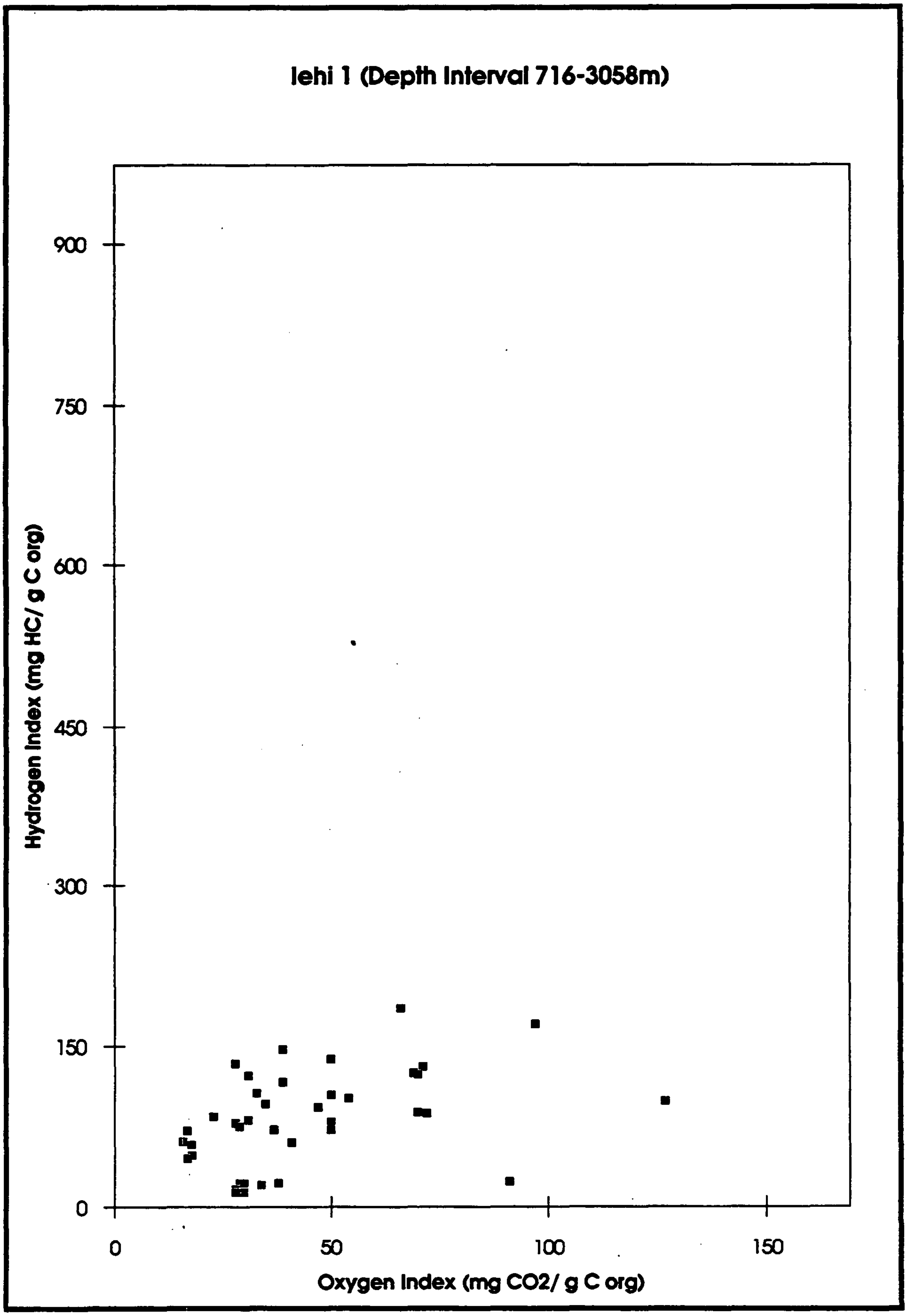
Hedinia 1 (Depth Interval 1325-2587m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)

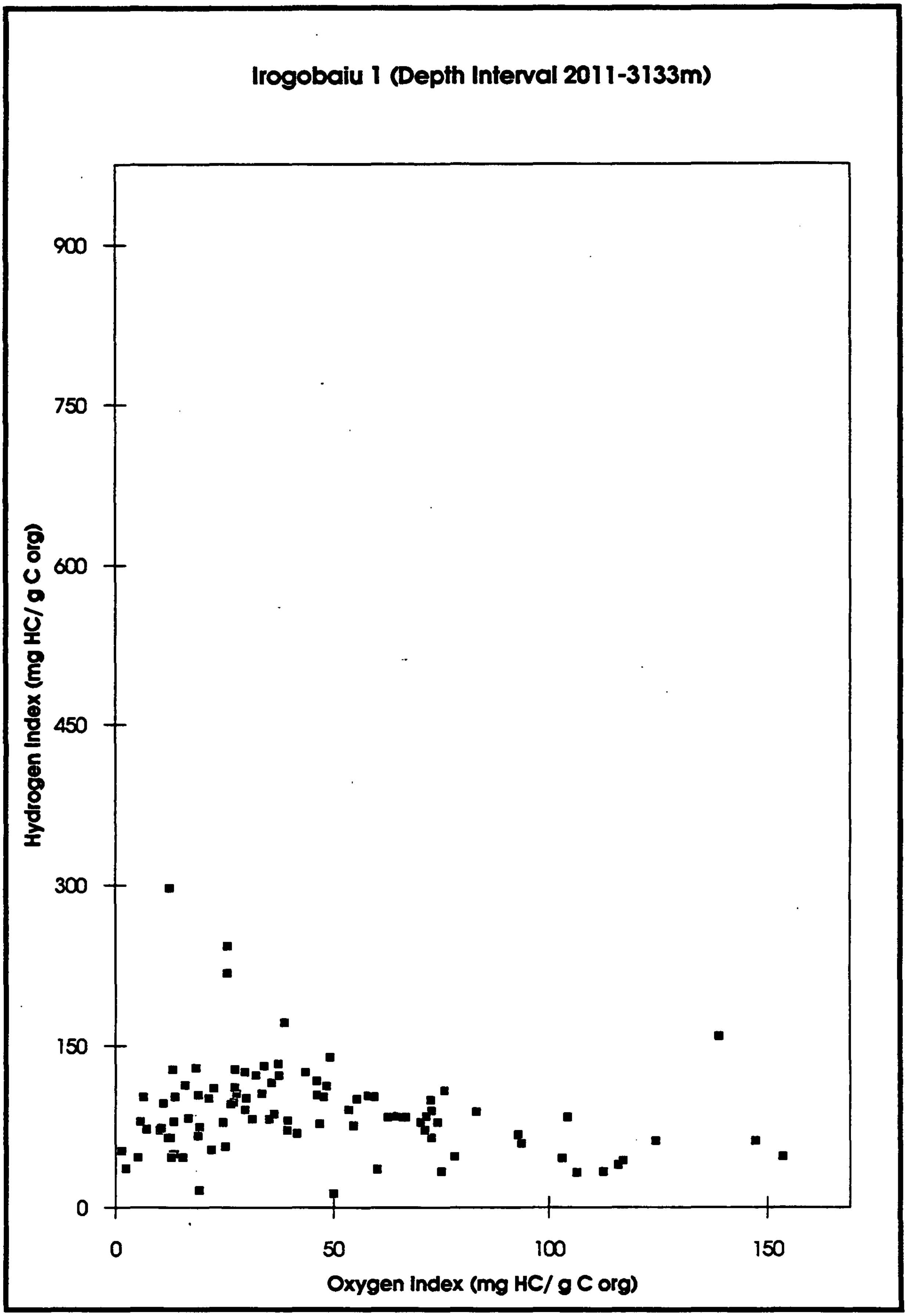


Iagifu 2 (Depth Interval 1319-2682m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)

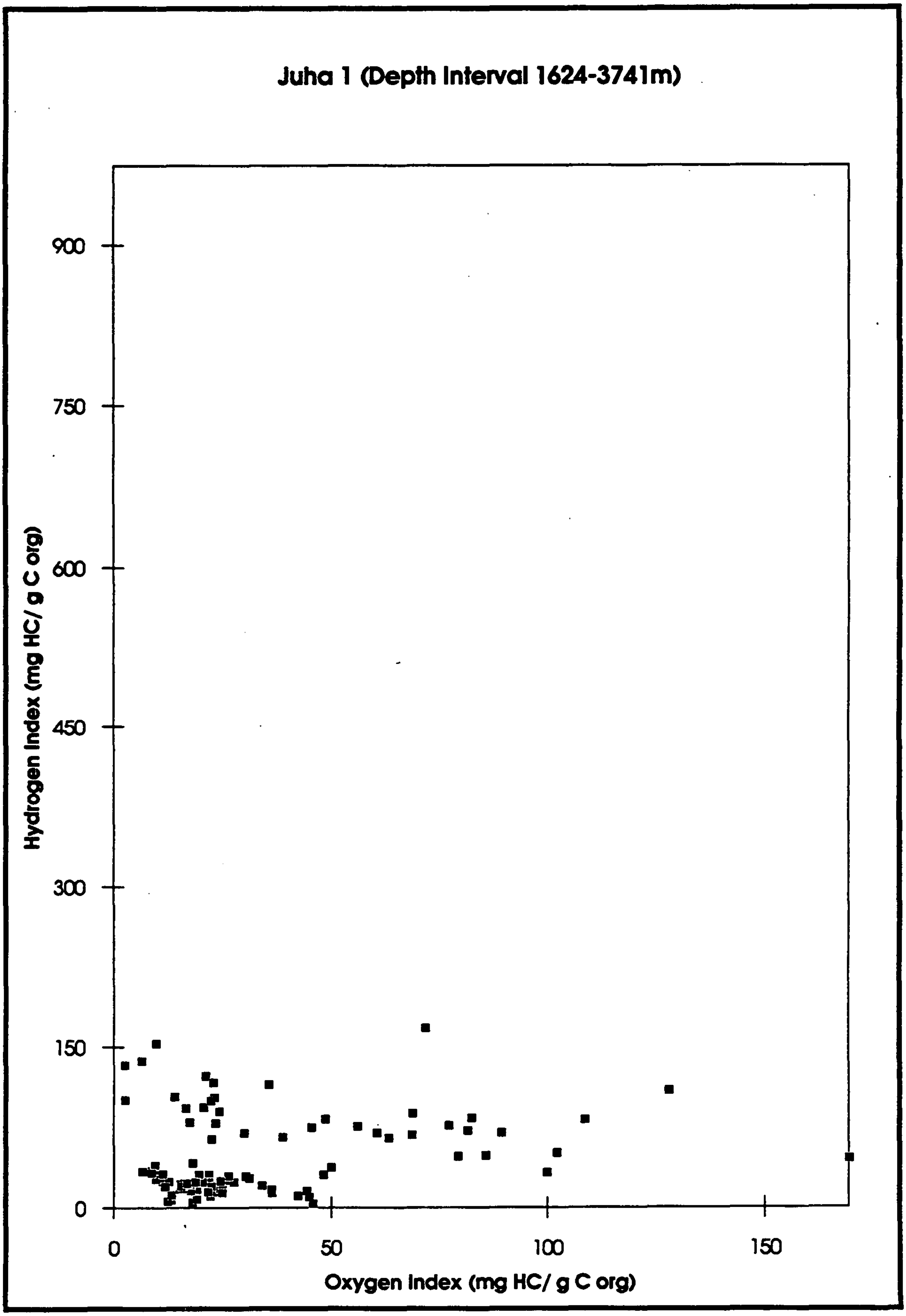

Iamara 1 (Depth Interval 938-1757m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)


Iagifu 2 (Depth Interval 1319-2682m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)

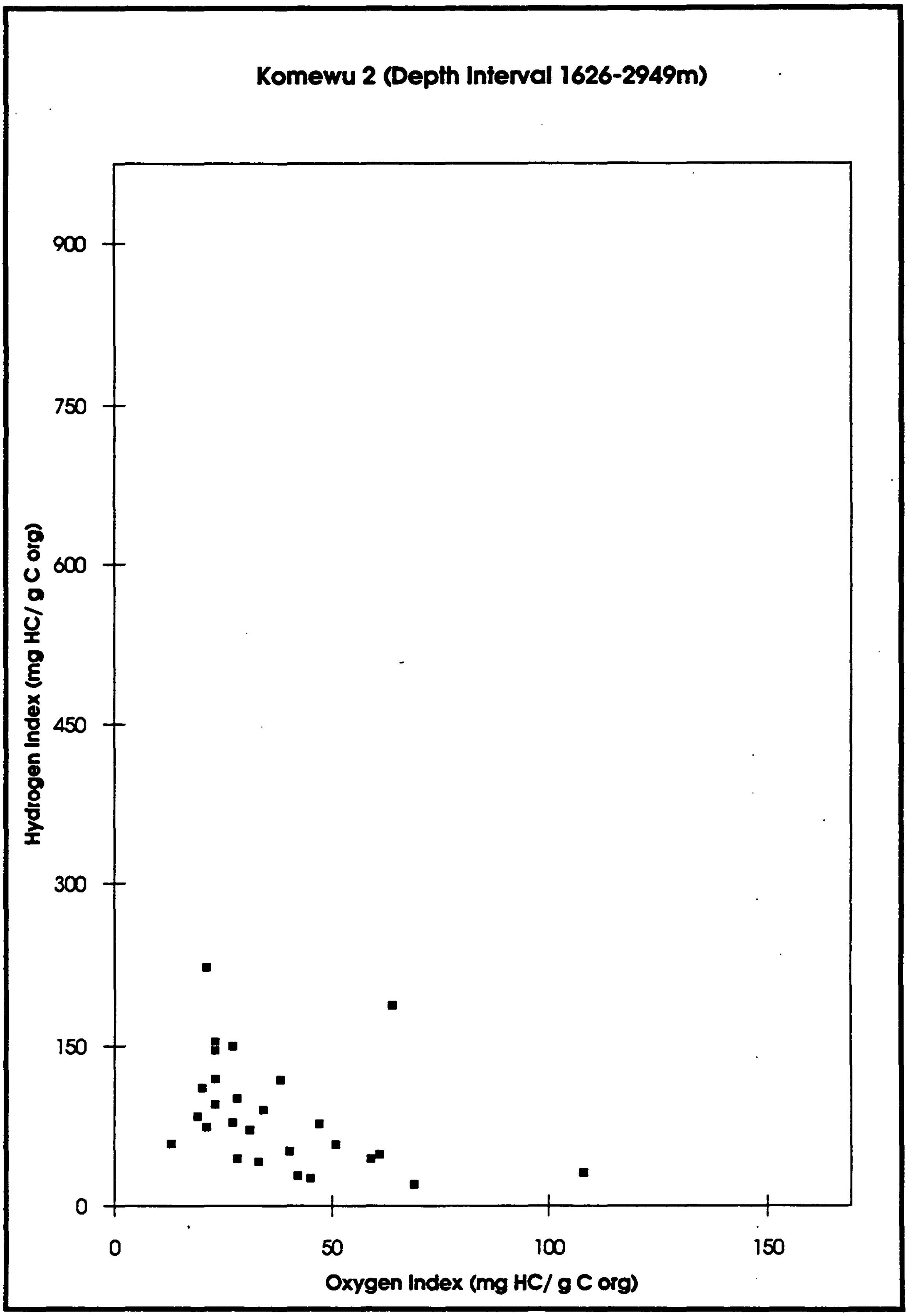

Iehi 1 (Depth Interval 716-3058m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)

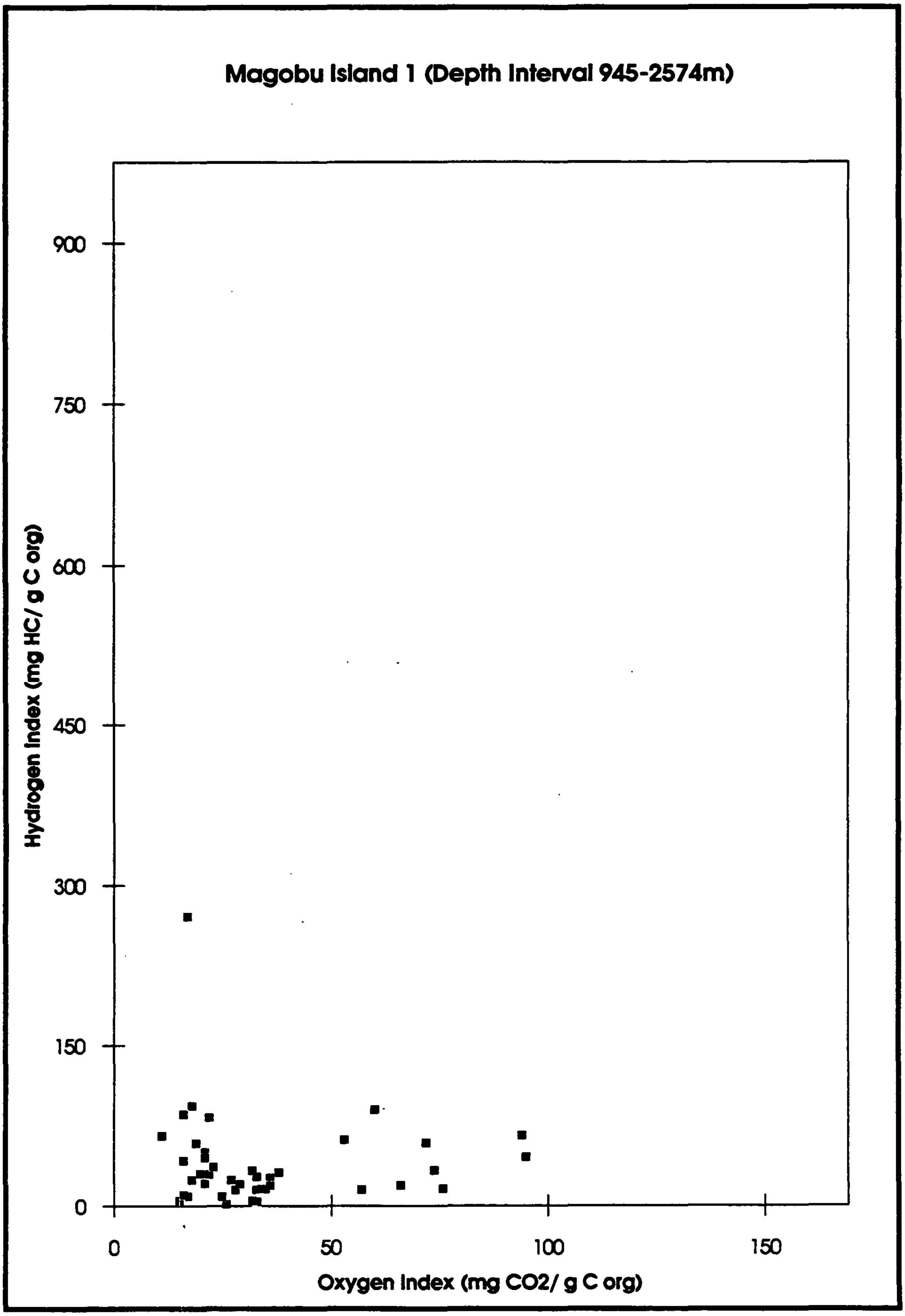


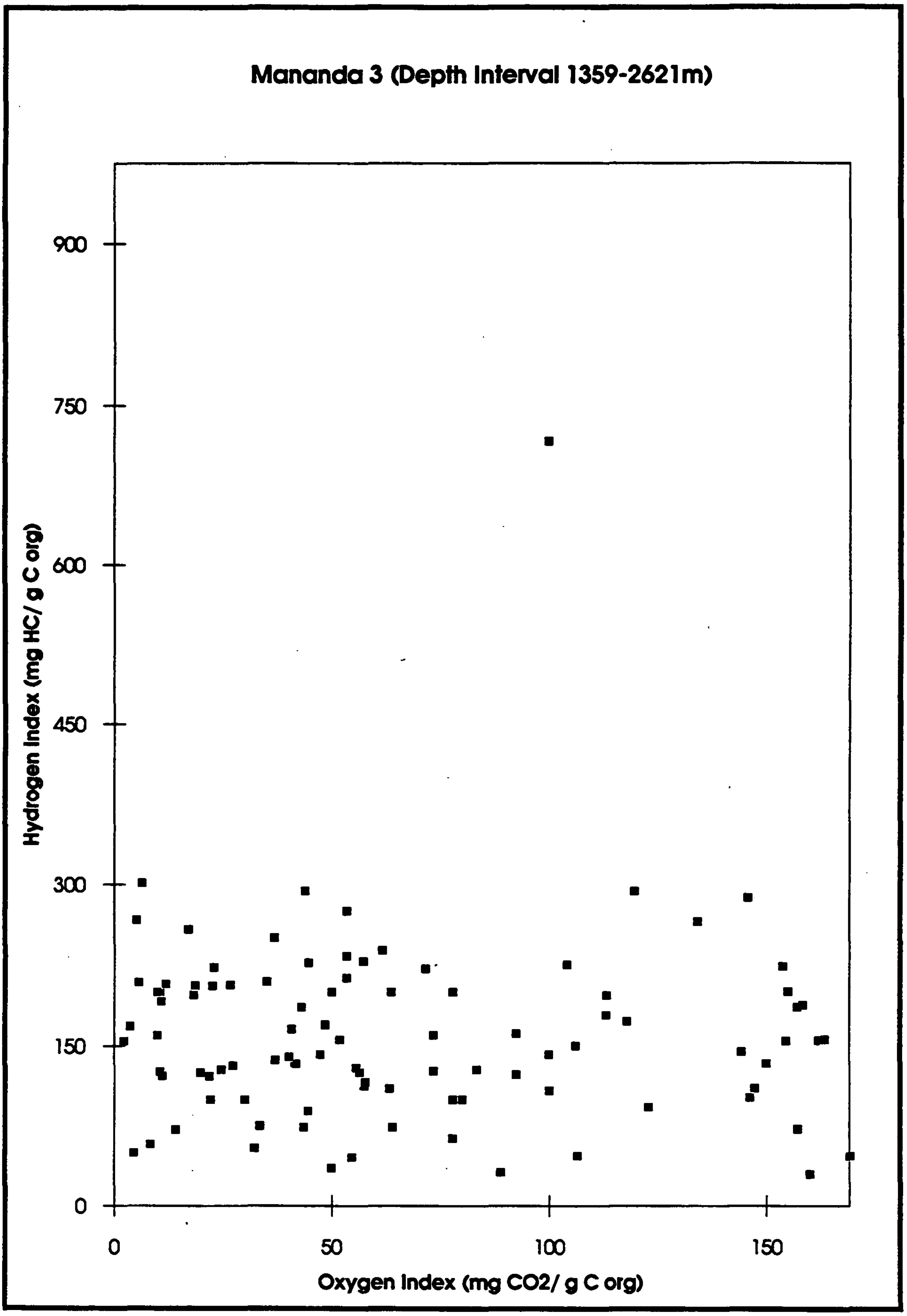
Irogobaiu 1 (Depth Interval 2011-3133m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg HC/ g C org)

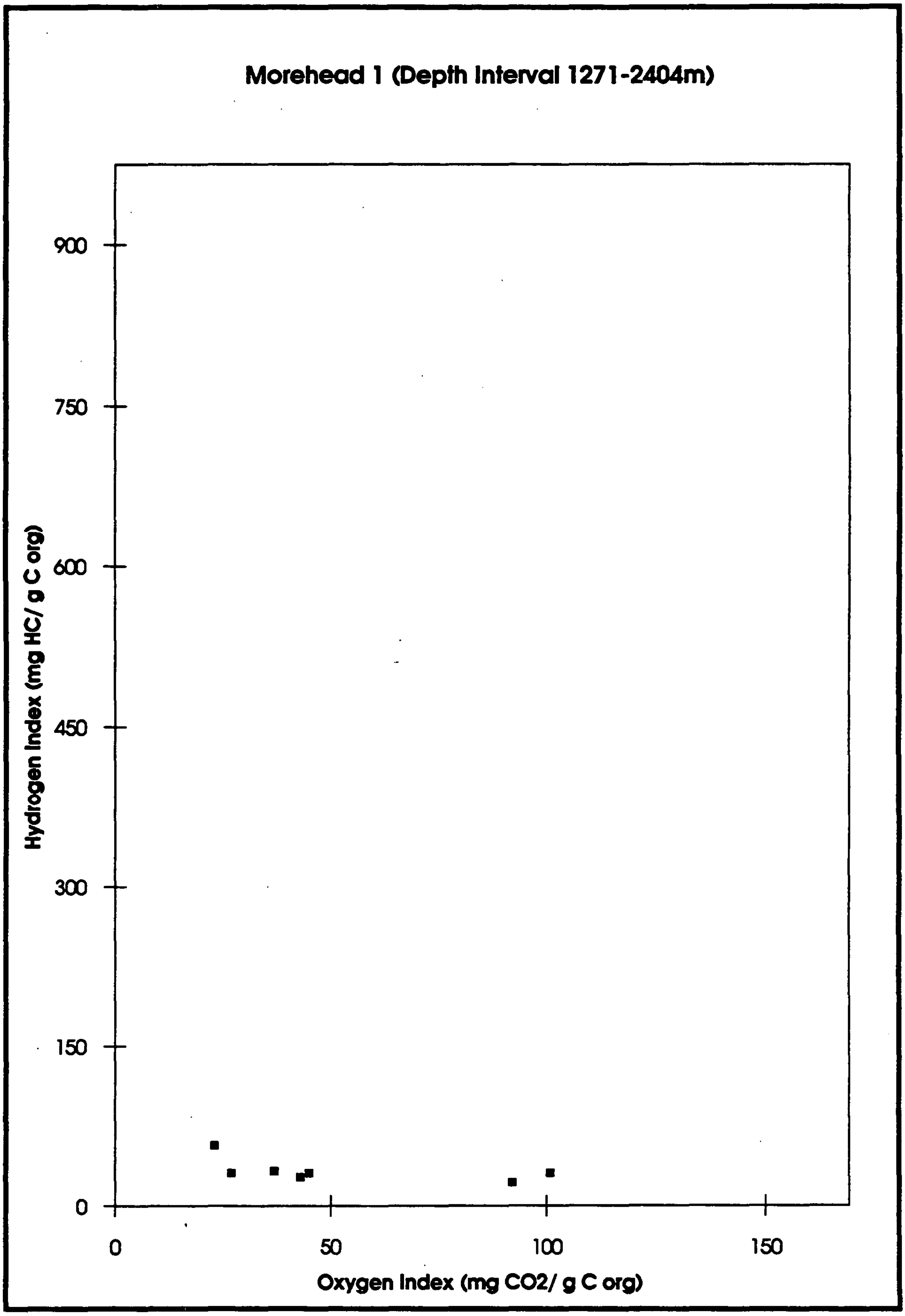


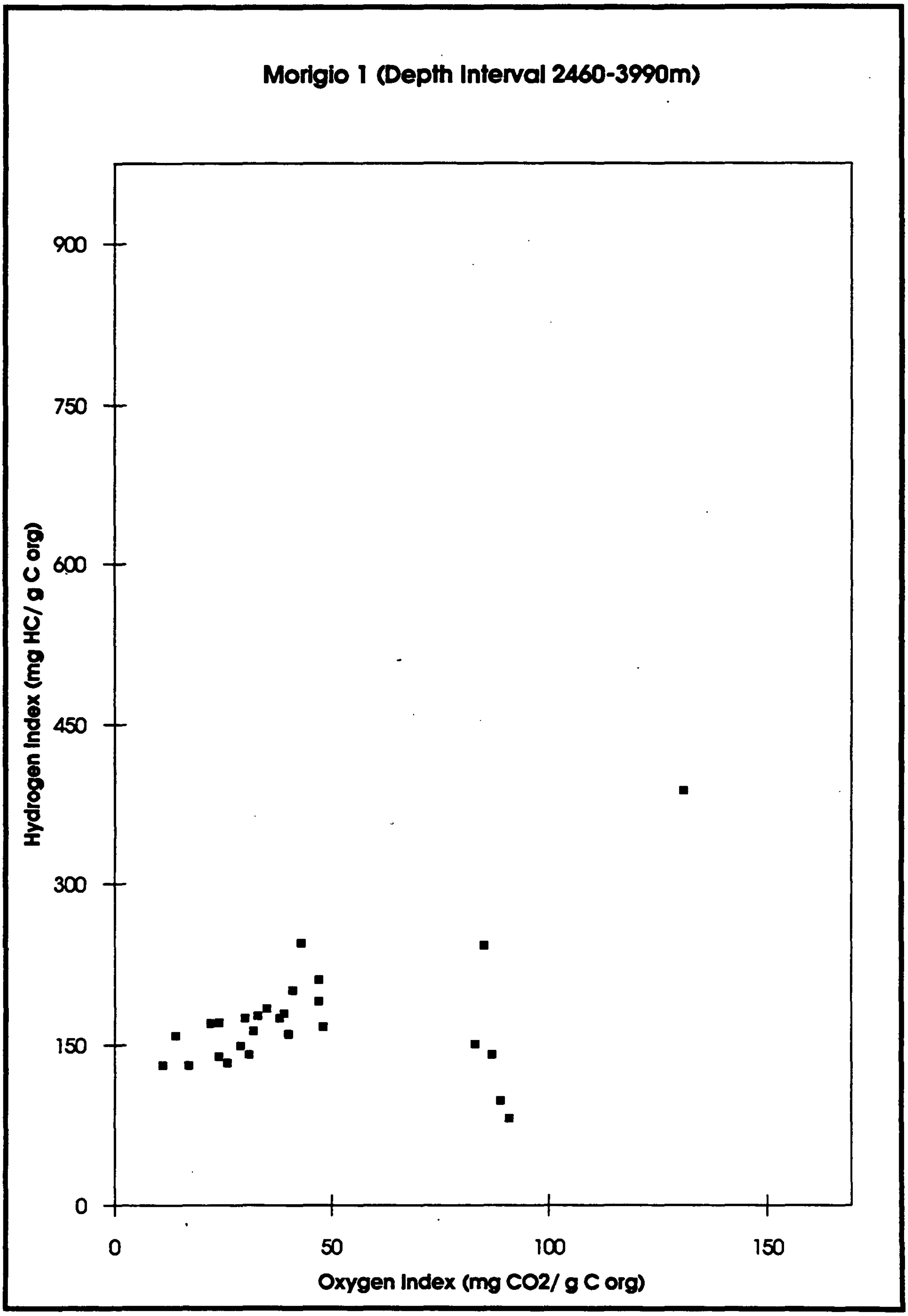
Juha 1 (Depth Interval 1624-3741m)
900
750
600
450
300
150
0
Hydrogen Index (mg HC/ g C org)
0
50
100
150
Oxygen Index (mg HC/ g C org)

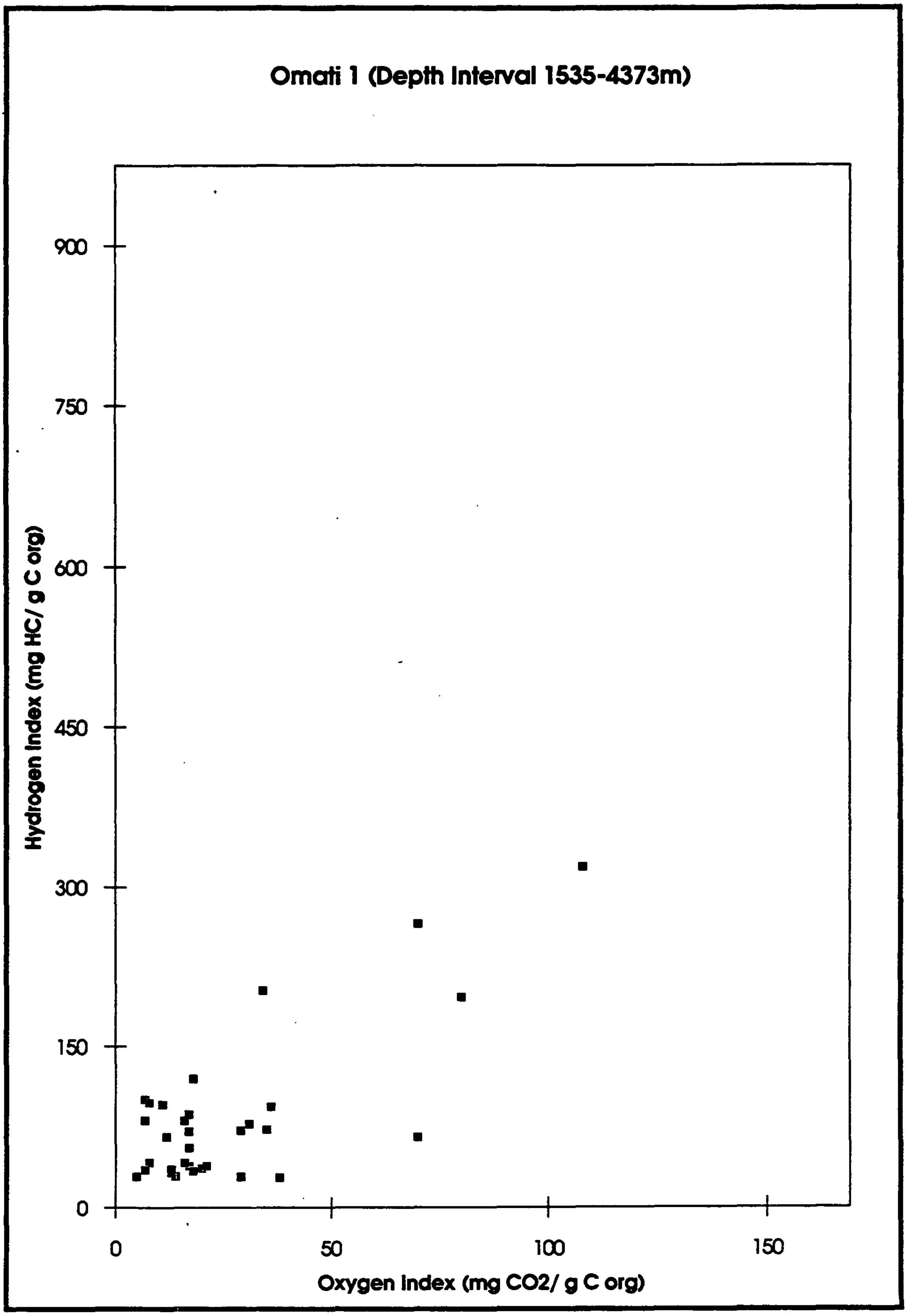

Komewu 2 (Depth Interval 1626-2949m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg HC/ g C org)


Magobu Island 1 (Depth Interval 945-2574m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)


Mananda 3 (Depth Interval 1359-2621m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)


Morehead 1 (Depth Interval 1271-2404m)
900
750
600
450
300
150
0
0
50
100
150
Hydrogen Index (mg HC/ g C org)
Oxygen Index (mg CO2/ g C org)


Morigio 1 (Depth Interval 2460-3990m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)



Omati 1 (Depth Interval 1535-4373m)
Hydrogen Index (mg HC/ g C org)
900
750
600
450
300
150
0
0
50
100
150
Oxygen Index (mg CO2/ g C org)

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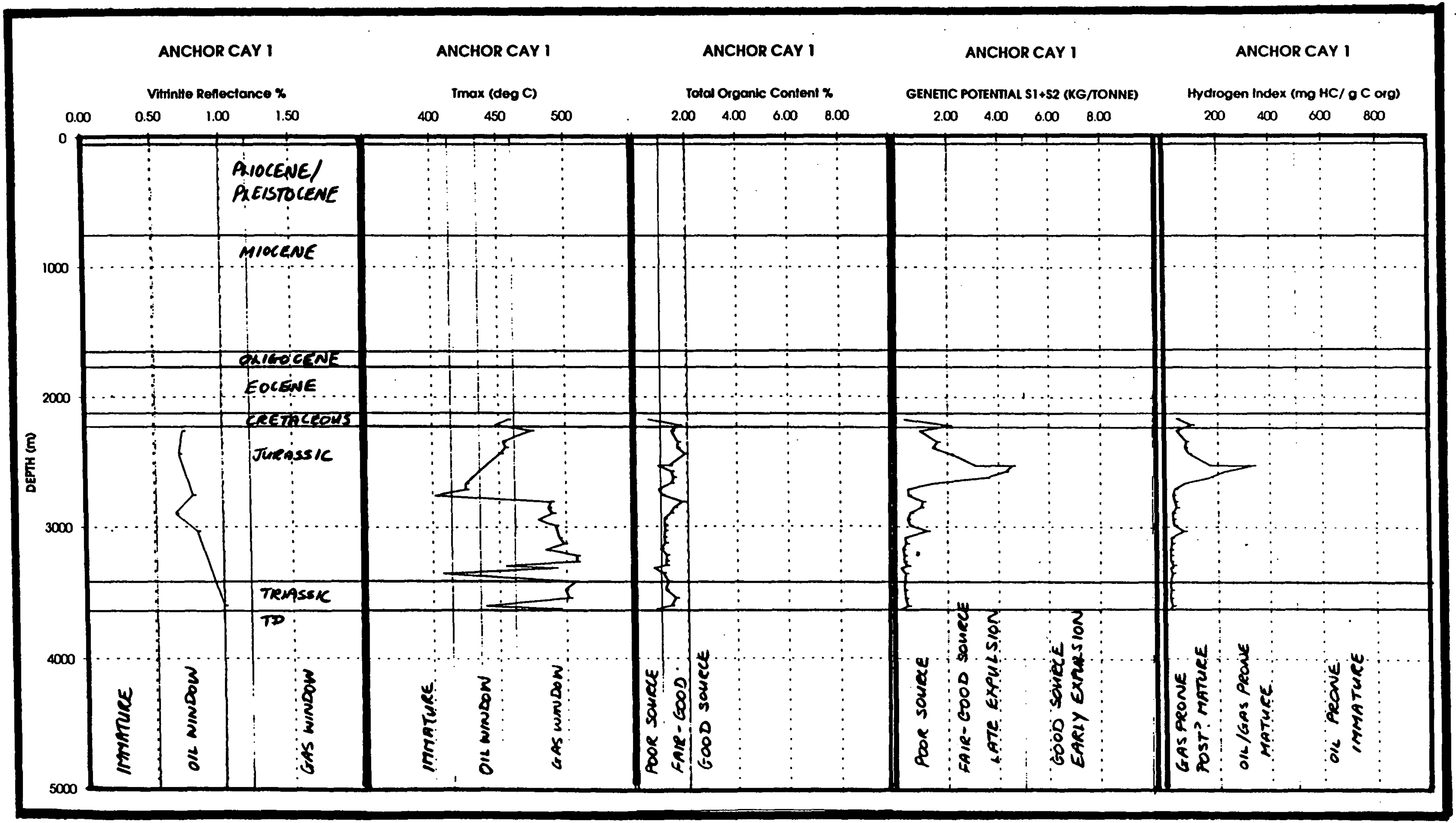
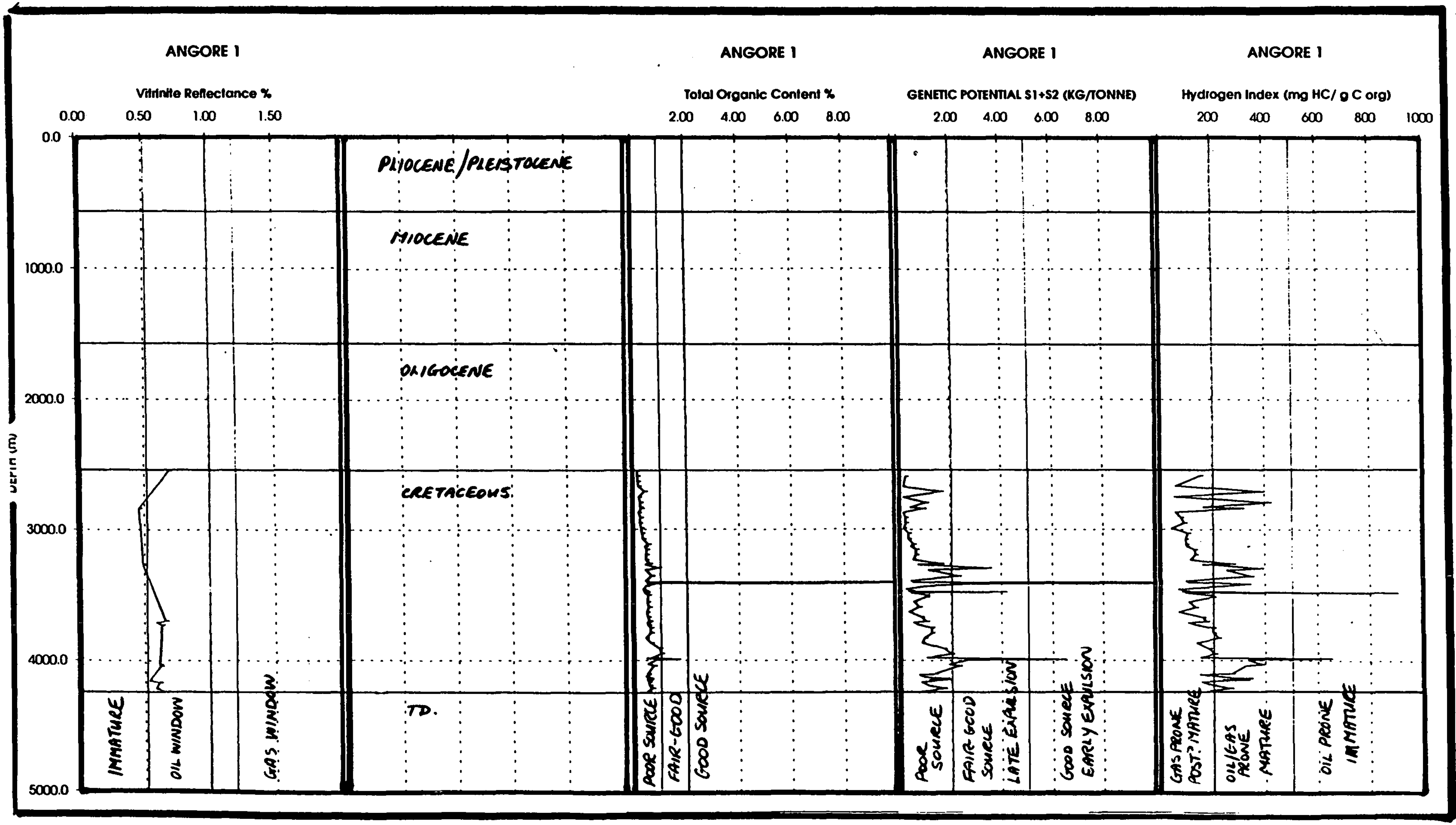
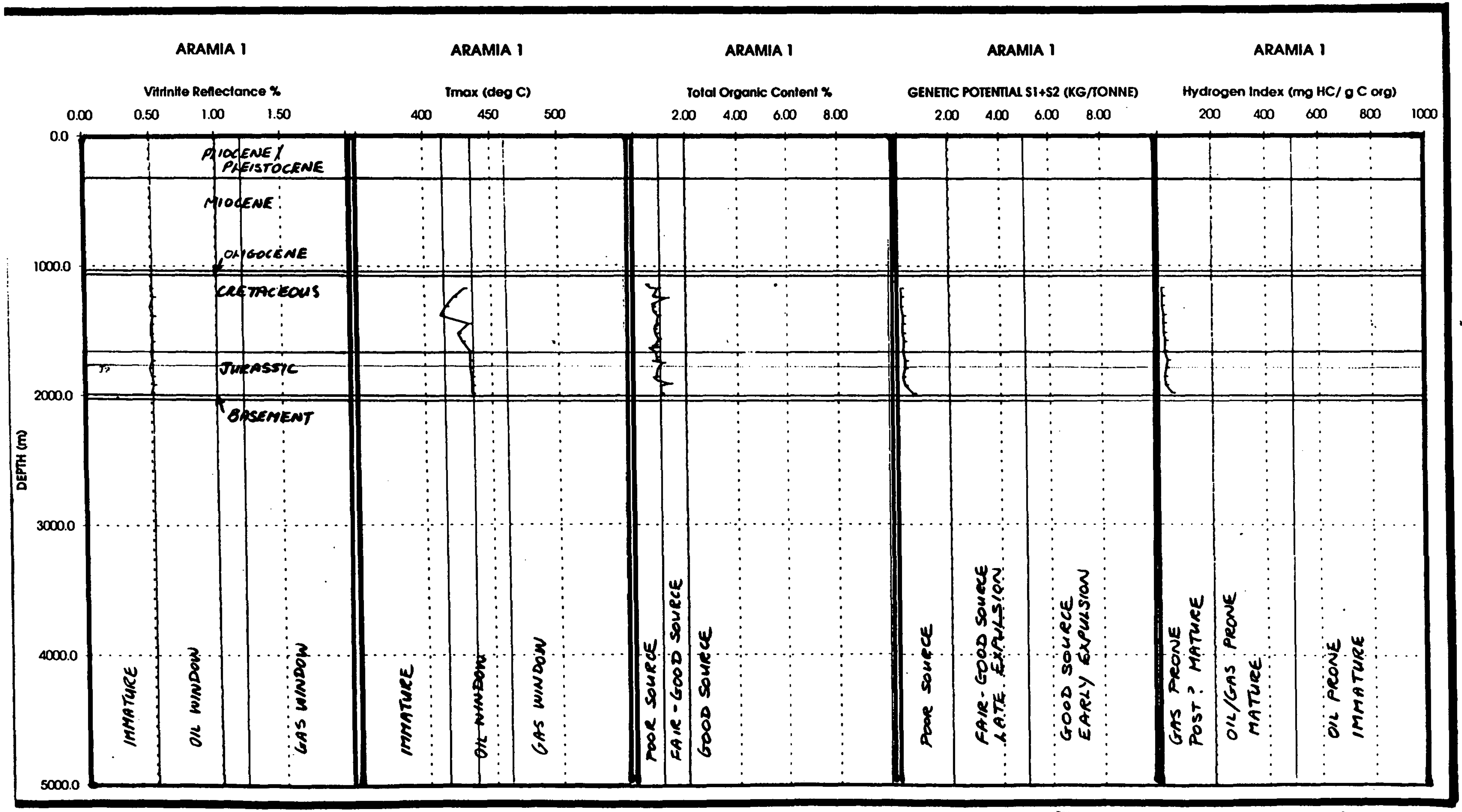
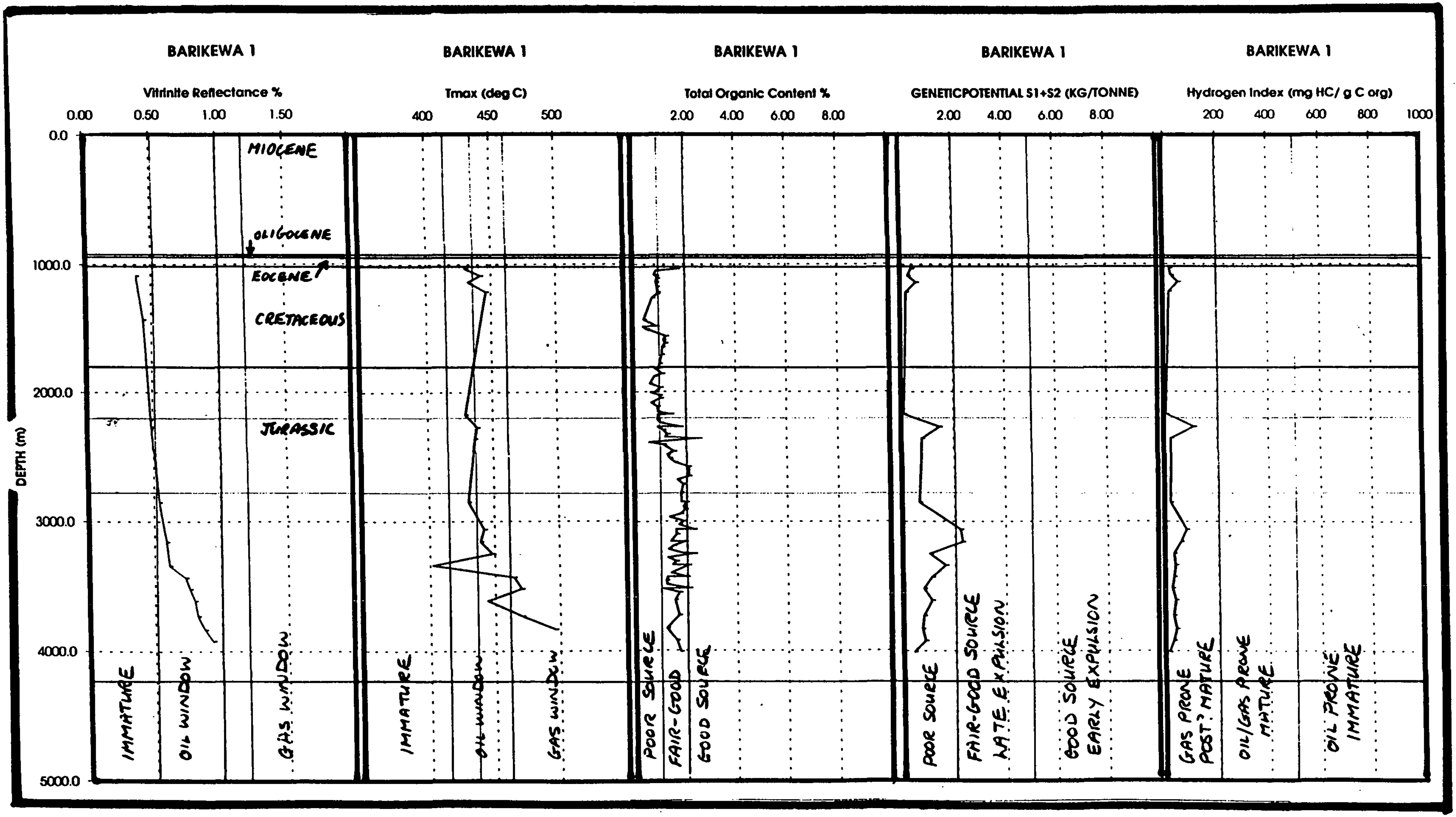
PAPUAN BASIN MODULE

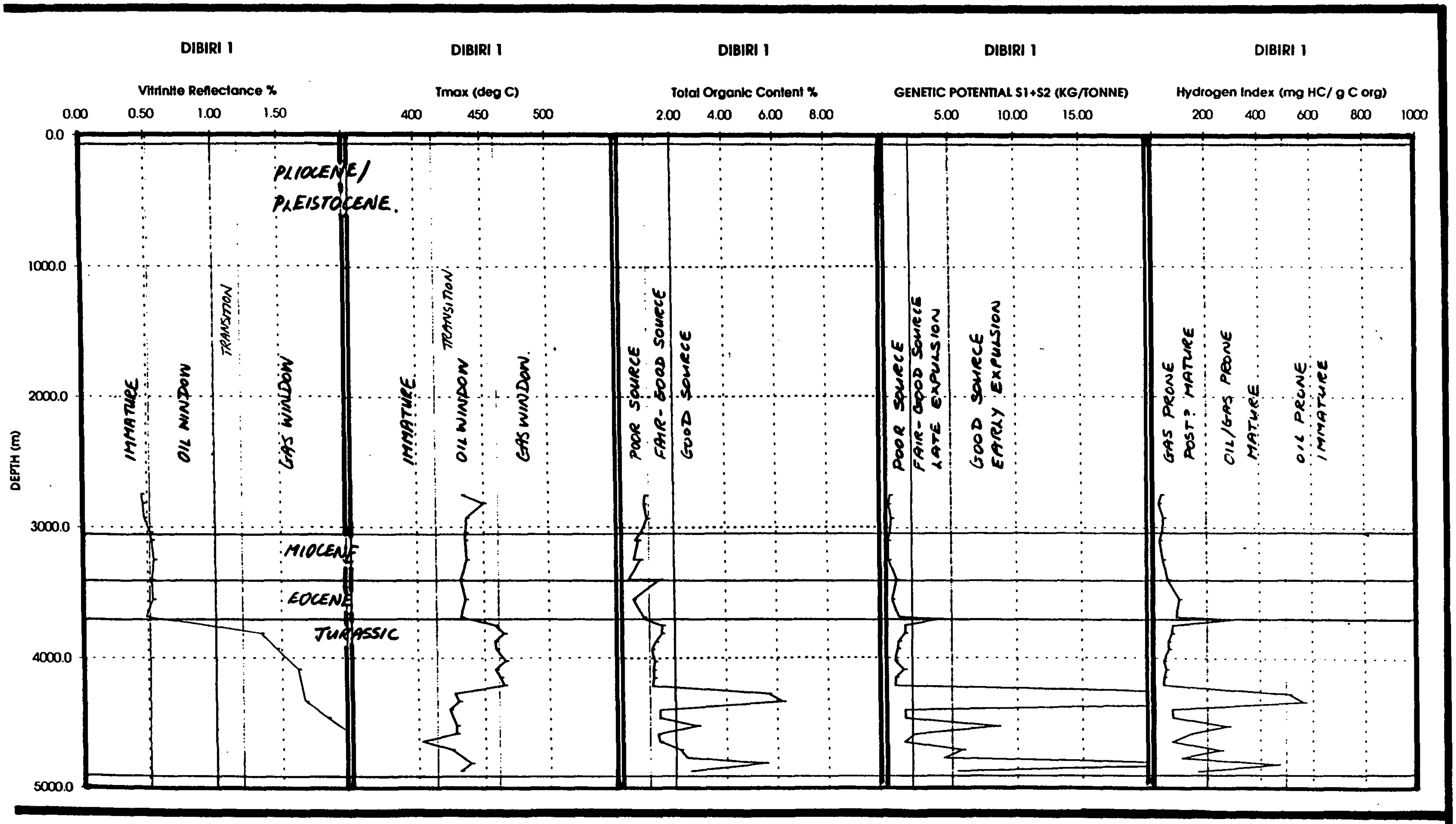
APPENDIX 17 : GEOCHEMICAL LOG COMPOSITES

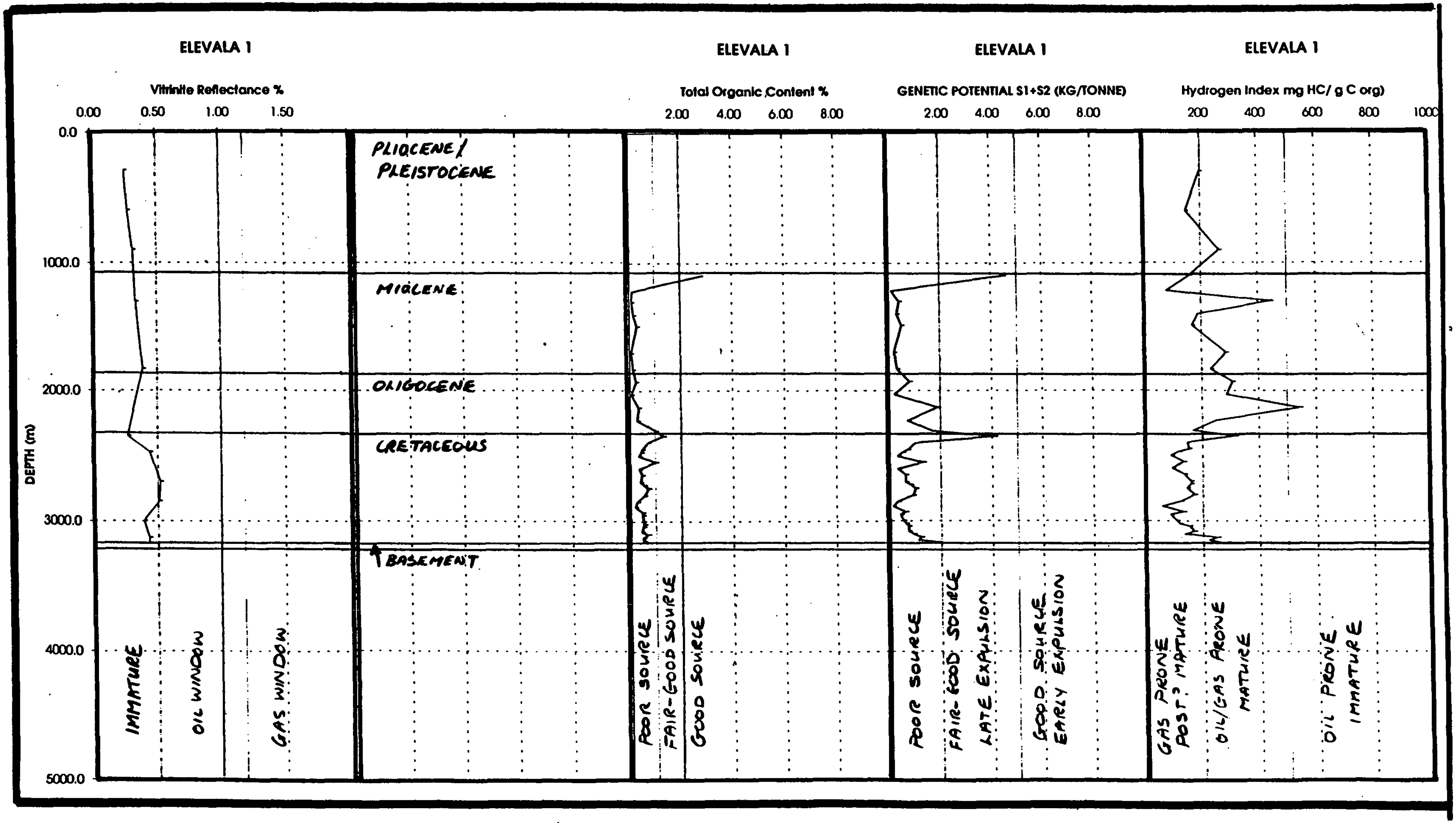

ANCHOR CAY 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
ANCHOR CAY 1
Tmax (deg C)
400
450
500
ANCHOR CAY 1
Total Organic Content %
2.00
4.00
6.00
8.00
ANCHOR CAY 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00
4.00
6.00
8.00
ANCHOR CAY 1
Hydrogen Index (mg HC/ g C org)
200
400
600
800
DEPTH (m)
0
1000
2000
3000
4000
5000
PLIOCENE/
PLEISTOCENE
MIOCENE
OLIGOCENE
EOCENE
CRETACEOUS
JURASSIC
TRIASSIC
TD
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE


ANGORE 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
ANGORE 1
Total Organic Content %
2.00
4.00
6.00
8.00
ANGORE 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00
4.00
6.00
8.00
ANGORE 1
Hydrogen Index (mg HC/ g C org)
200
400
600
800
1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/PLEISTOCENE
MIOCENE
OLIGOCENE
CRETACEOUS
TD.
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE EARLY EXPULSION
GAS PRONE POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE

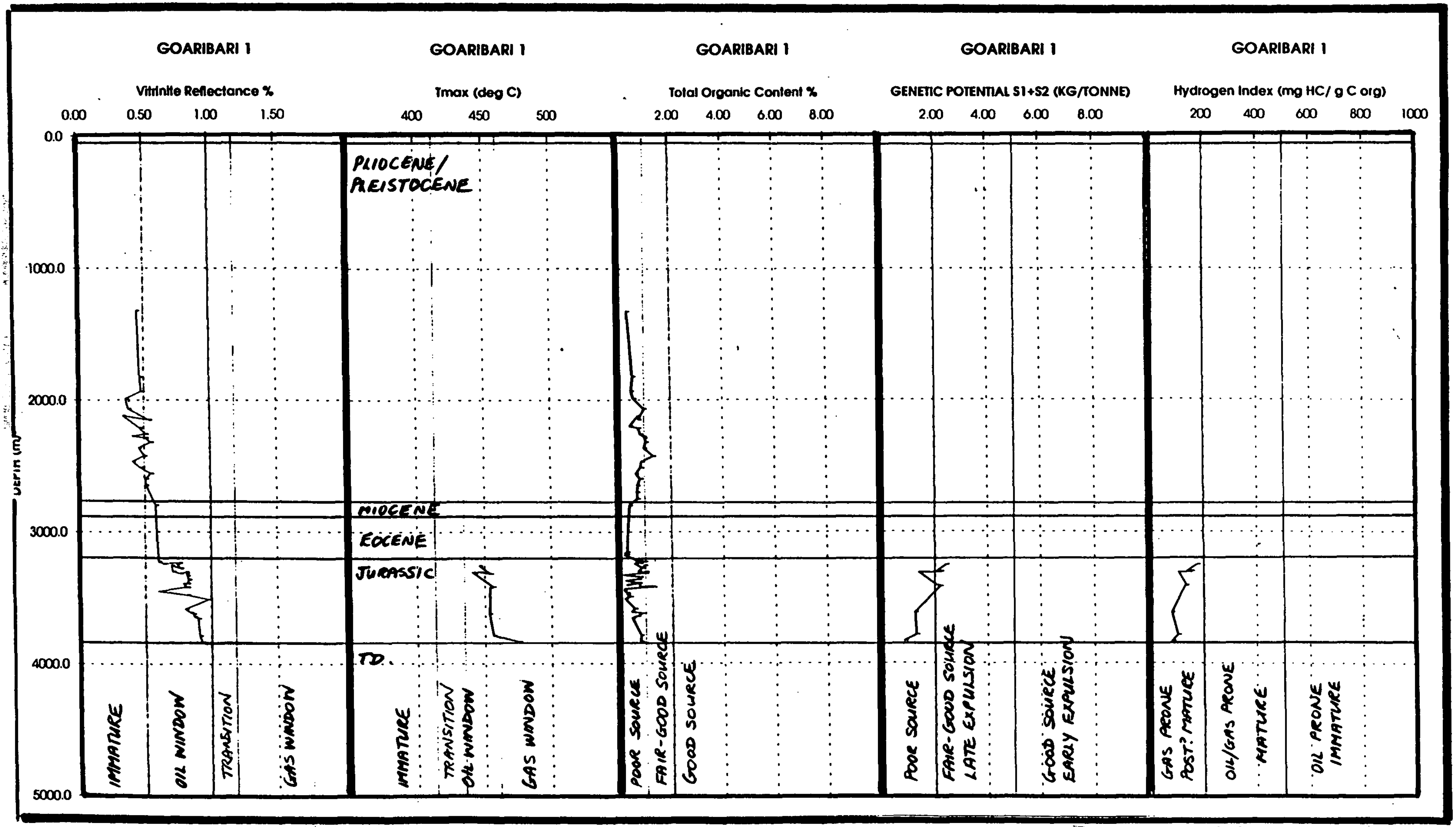

ARAMIA 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
ARAMIA 1
Tmax (deg C)
400
450
500
ARAMIA 1
Total Organic Content %
2.00
4.00
6.00
8.00
ARAMIA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00
4.00
6.00
8.00
ARAMIA 1
Hydrogen Index (mg HC/ g C org)
200
400
600
800
1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE / PLEISTOCENE
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
BASEMENT
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR - GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR - GOOD SOURCE LATE EXPULSION
GOOD SOURCE EARLY EXPULSION
GAS PRONE POST? MATURE
OIL/GAS PRONE MATURE
OIL PRONE IMMATURE


BARIKEWA 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
BARIKEWA 1
Tmax (deg C)
400 450 500
BARIKEWA 1
Total Organic Content %
2.00 4.00 6.00 8.00
BARIKEWA 1
GENETICPOTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
BARIKEWA 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
MIOCENE
OLIGOCENE
EOCENE
CRETACEOUS
JURASSIC
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE

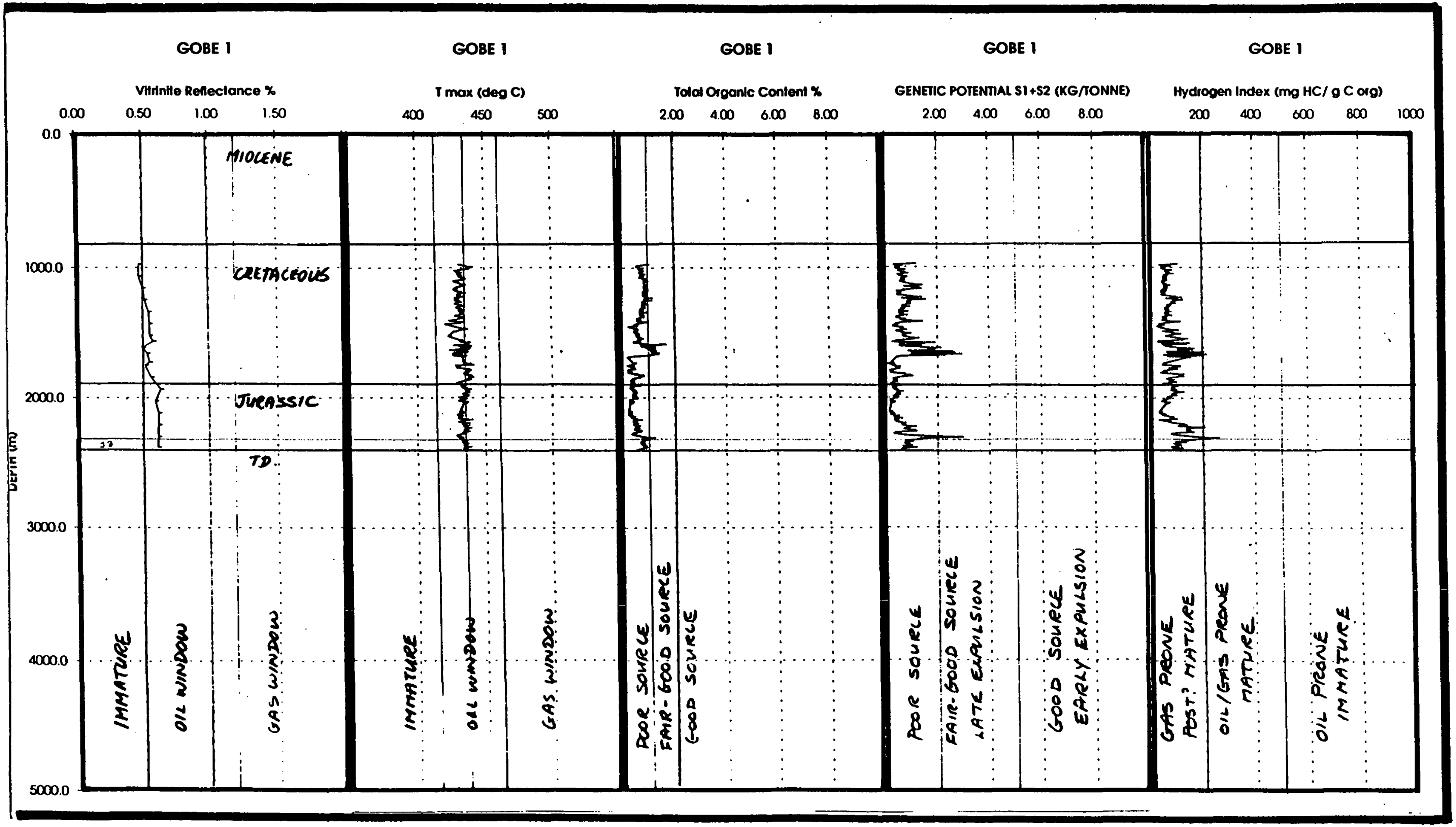

DIBIRI 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
DIBIRI 1
Tmax (deg C)
400 450 500
DIBIRI 1
Total Organic Content %
2.00 4.00 6.00 8.00
DIBIRI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
5.00 10.00 15.00
DIBIRI 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/
PLEISTOCENE.
MIOCENE
EOCENE
JURASSIC
IMMATURE
OIL WINDOW
TRANSITION
GAS WINDOW
IMMATURE
TRANSITION
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR- GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR- GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE



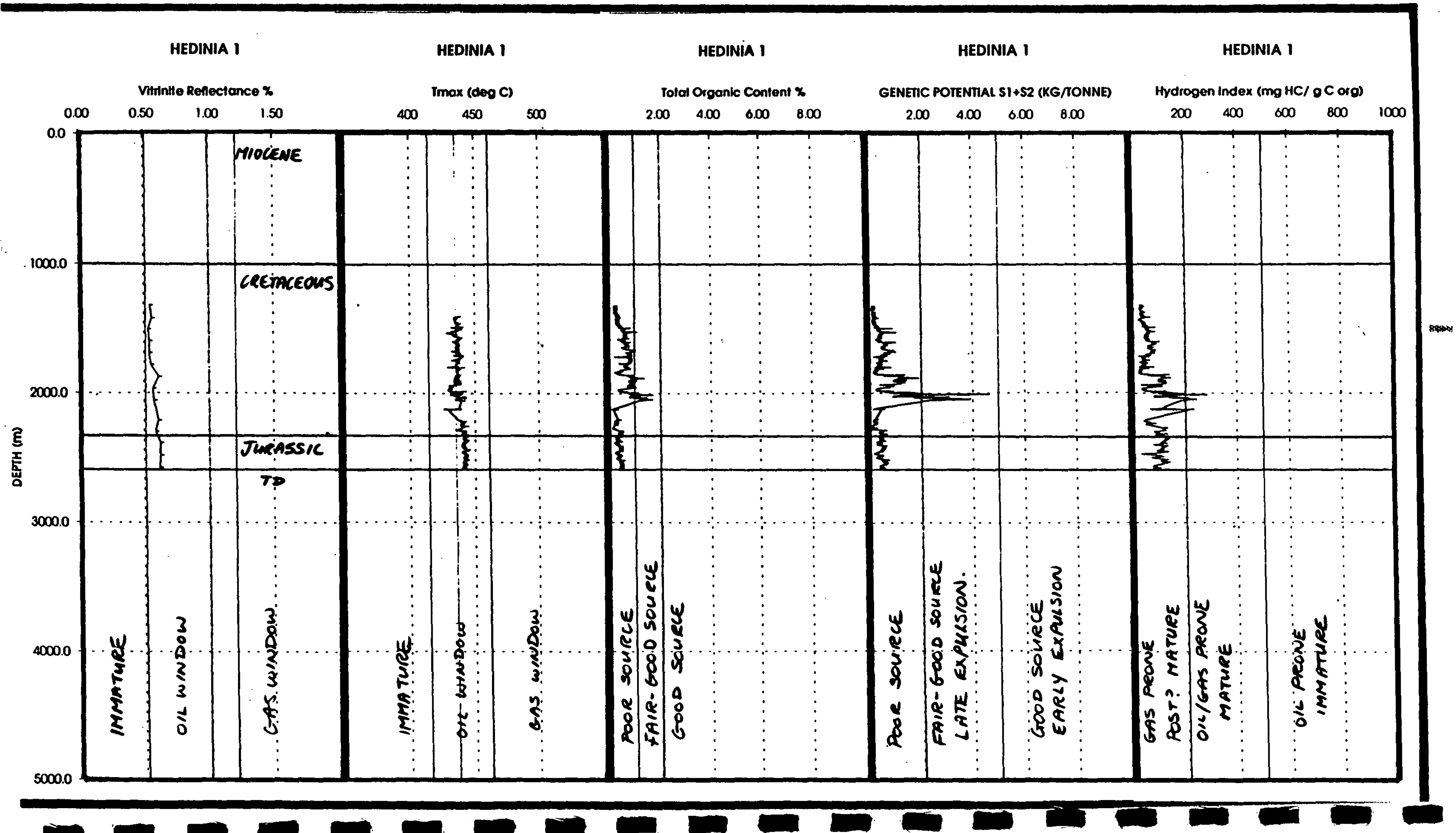
ELEVALA 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
ELEVALA 1
Total Organic Content %
2.00 4.00 6.00 8.00
ELEVALA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
ELEVALA 1
Hydrogen Index mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/ PLEISTOCENE
MIOCENE
OLIGOCENE
CRETACEOUS
BASEMENT
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE EARLY EXPULSION
GAS PRONE POST? MATURE
OIL/GAS PRONE MATURE
OIL PRONE IMMATURE


GOARIBARI 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
GOARIBARI 1
Tmax (deg C)
400 450 500
GOARIBARI 1
Total Organic Content %
2.00 4.00 6.00 8.00
GOARIBARI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
GOARIBARI 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/
PLEISTOCENE
MIOCENE
EOCENE
JURASSIC
TD.
IMMATURE
OIL WINDOW
TRANSITION
GAS WINDOW
IMMATURE
TRANSITION
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE

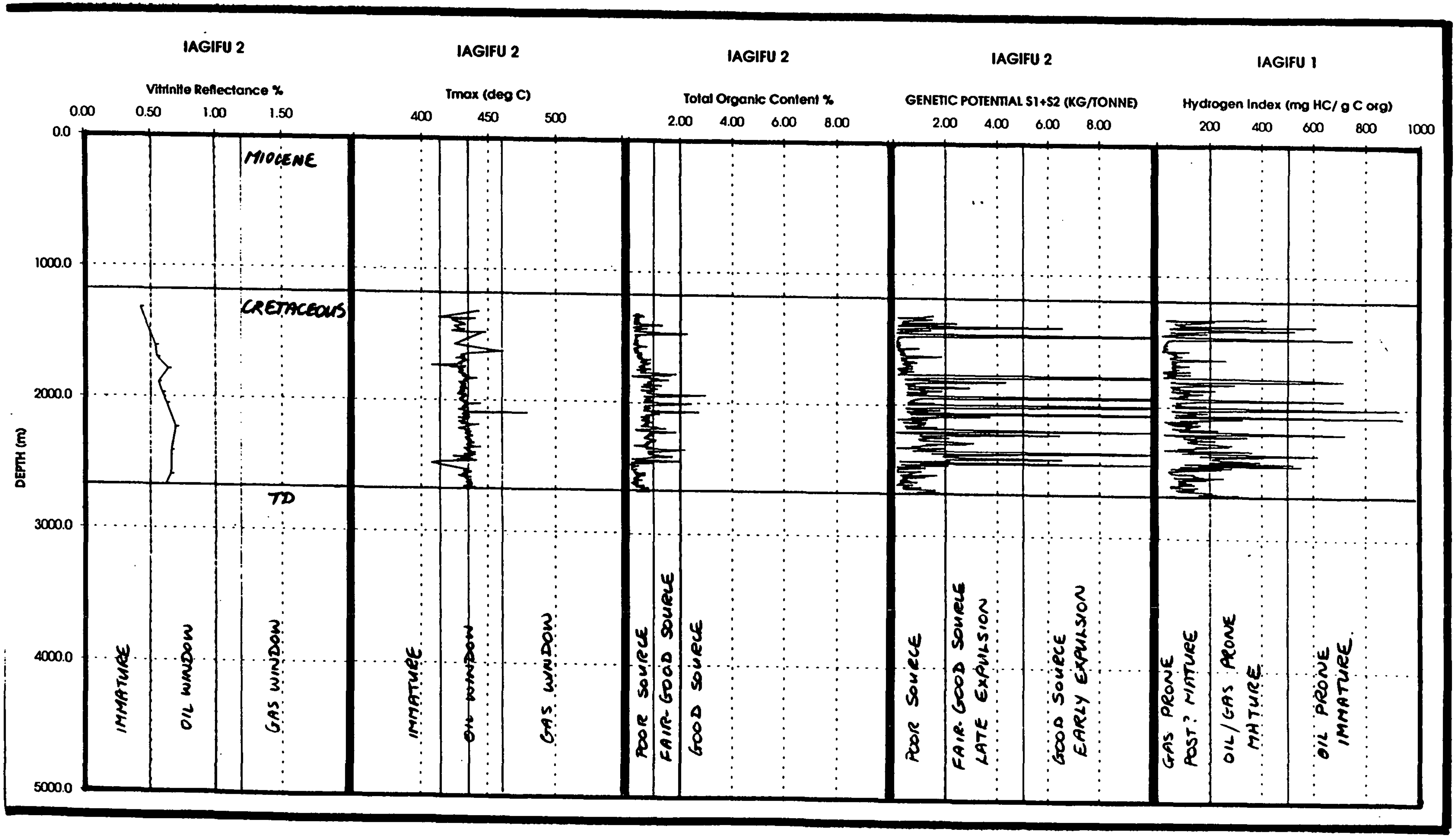
[redacted]

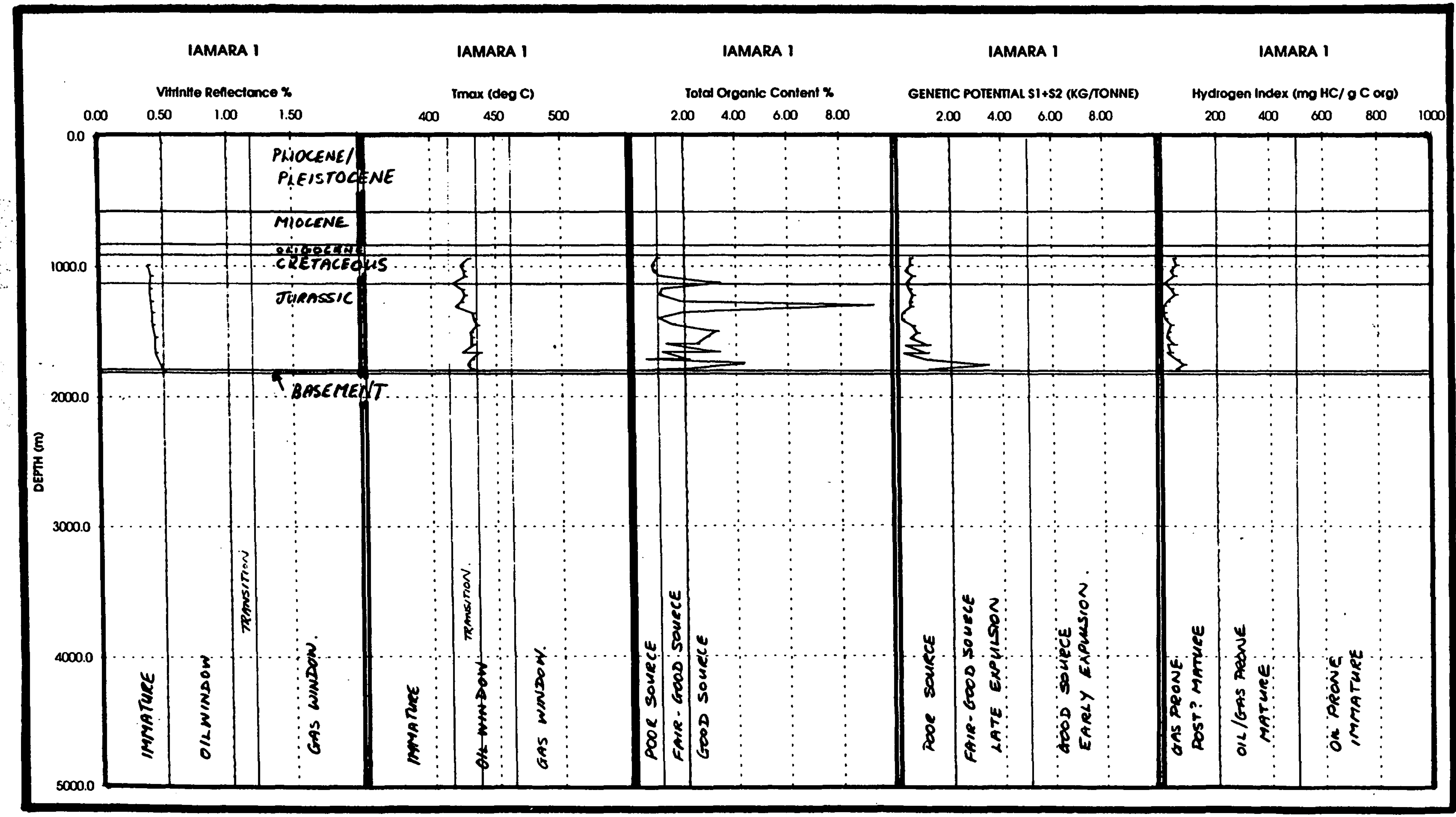


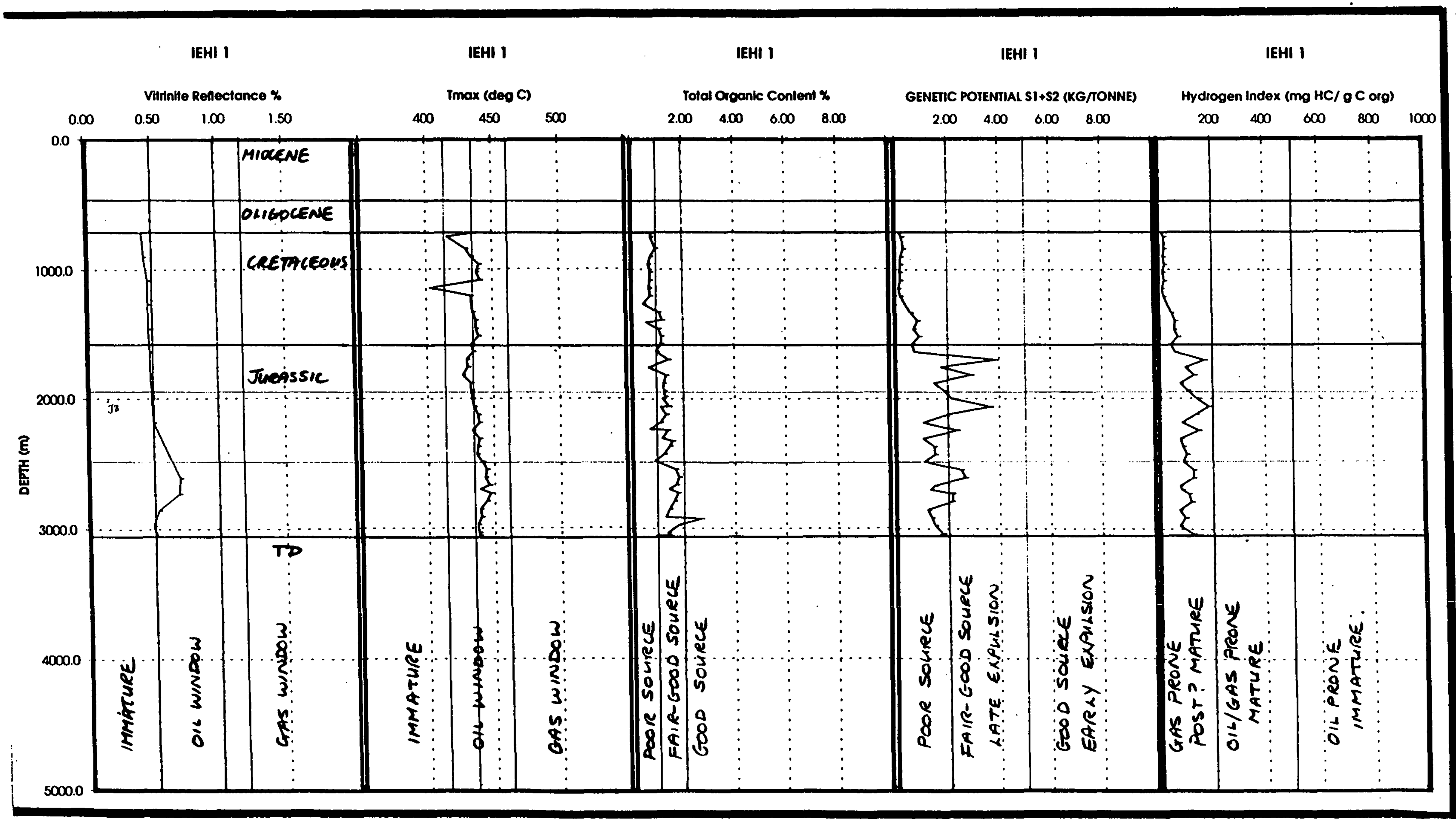
GOBE 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
GOBE 1
T max (deg C)
400 450 500
GOBE 1
Total Organic Content %
2.00 4.00 6.00 8.00
GOBE 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
GOBE 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
DEPTH (m)
MIOCENE
CRETACEOUS
JURASSIC
TD
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE



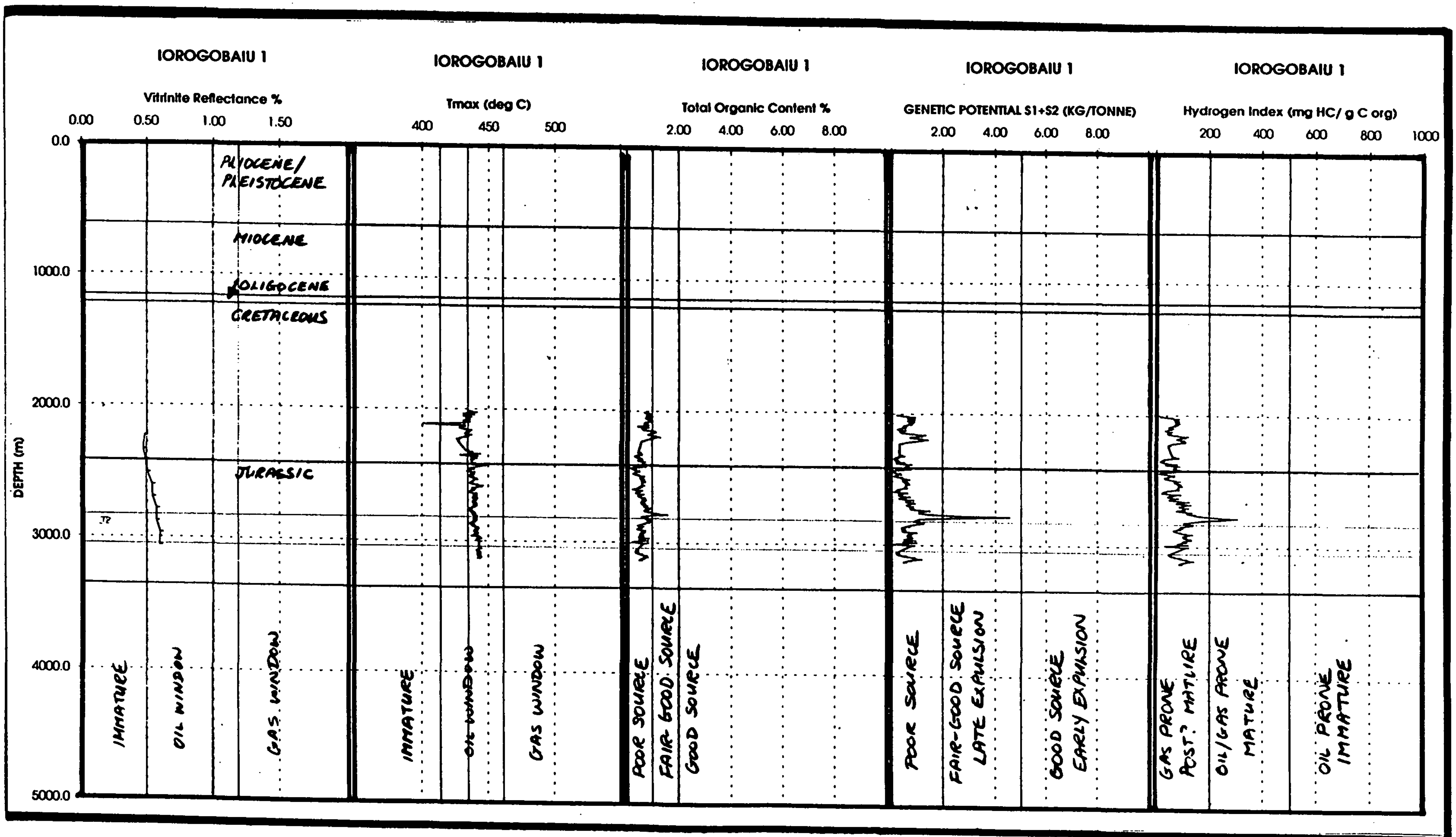
HEDINIA 1
Vitrinite Reflectance %
HEDINIA 1
Tmax (deg C)
HEDINIA 1
Total Organic Content %
HEDINIA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
HEDINIA 1
Hydrogen Index (mg HC/ g C org)
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
0.00 0.50 1.00 1.50
400 450 500
2.00 4.00 6.00 8.00
2.00 4.00 6.00 8.00
200 400 600 800 1000
MIOCENE
CRETACEOUS
JURASSIC
TD
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION.
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE


IAGIFU 2
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
IAGIFU 2
Tmax (deg C)
400 450 500
IAGIFU 2
Total Organic Content %
2.00 4.00 6.00 8.00
IAGIFU 2
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
IAGIFU 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
MIOCENE
CRETACEOUS
TD
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE LATE EXPULSION
GOOD SOURCE EARLY EXPULSION
GAS PRONE POST? MATURE
OIL/GAS PRONE MATURE
OIL PRONE IMMATURE

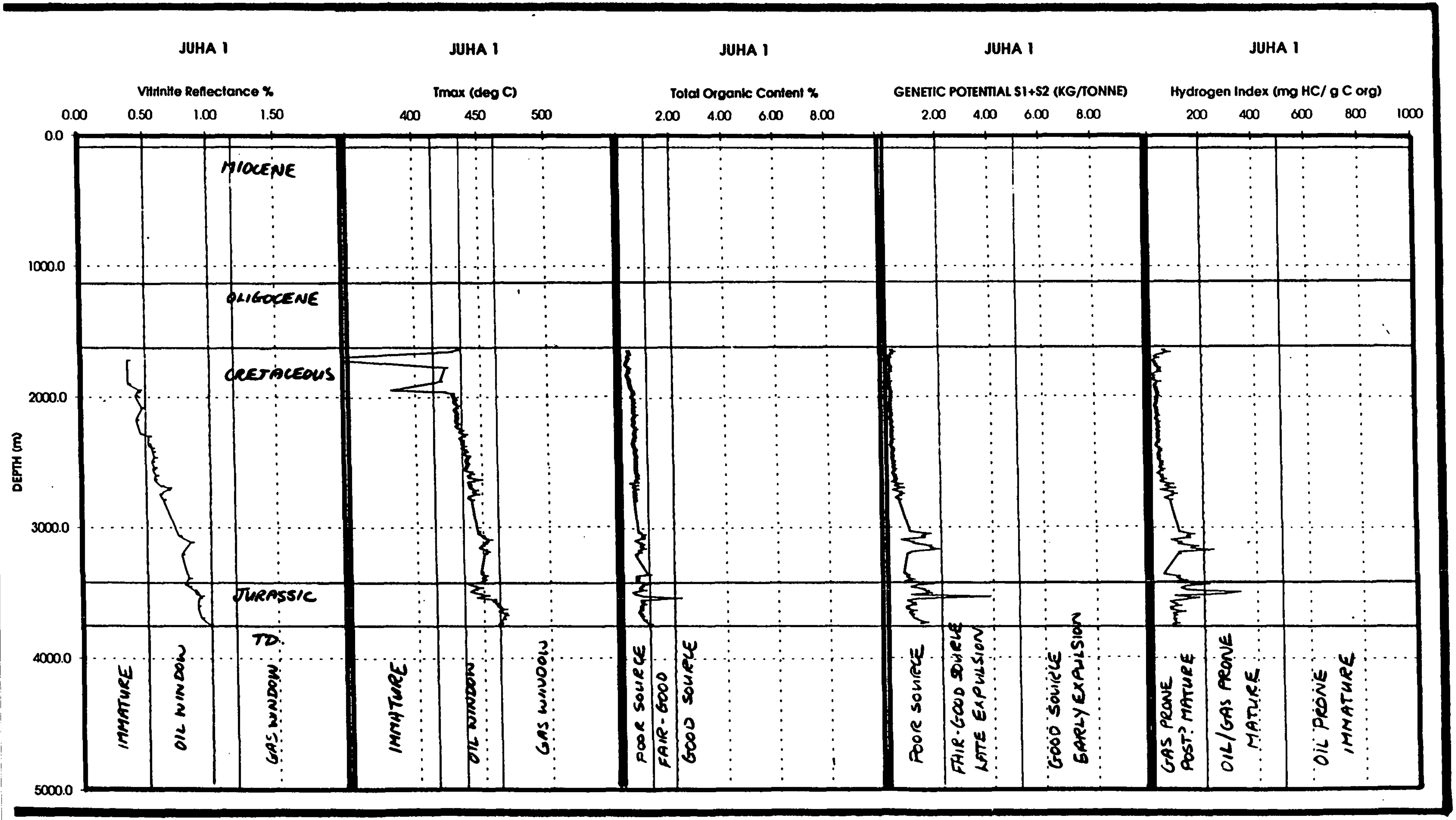

IAMARA 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
IAMARA 1
Tmax (deg C)
400 450 500
IAMARA 1
Total Organic Content %
2.00 4.00 6.00 8.00
IAMARA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
IAMARA 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/ PLEISTOCENE
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
BASEMENT
IMMATURE
OILWINDOW
TRANSITION
GAS WINDOW.
IMMATURE
TRANSITION.
OIL WINDOW
GAS WINDOW.
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION.
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE



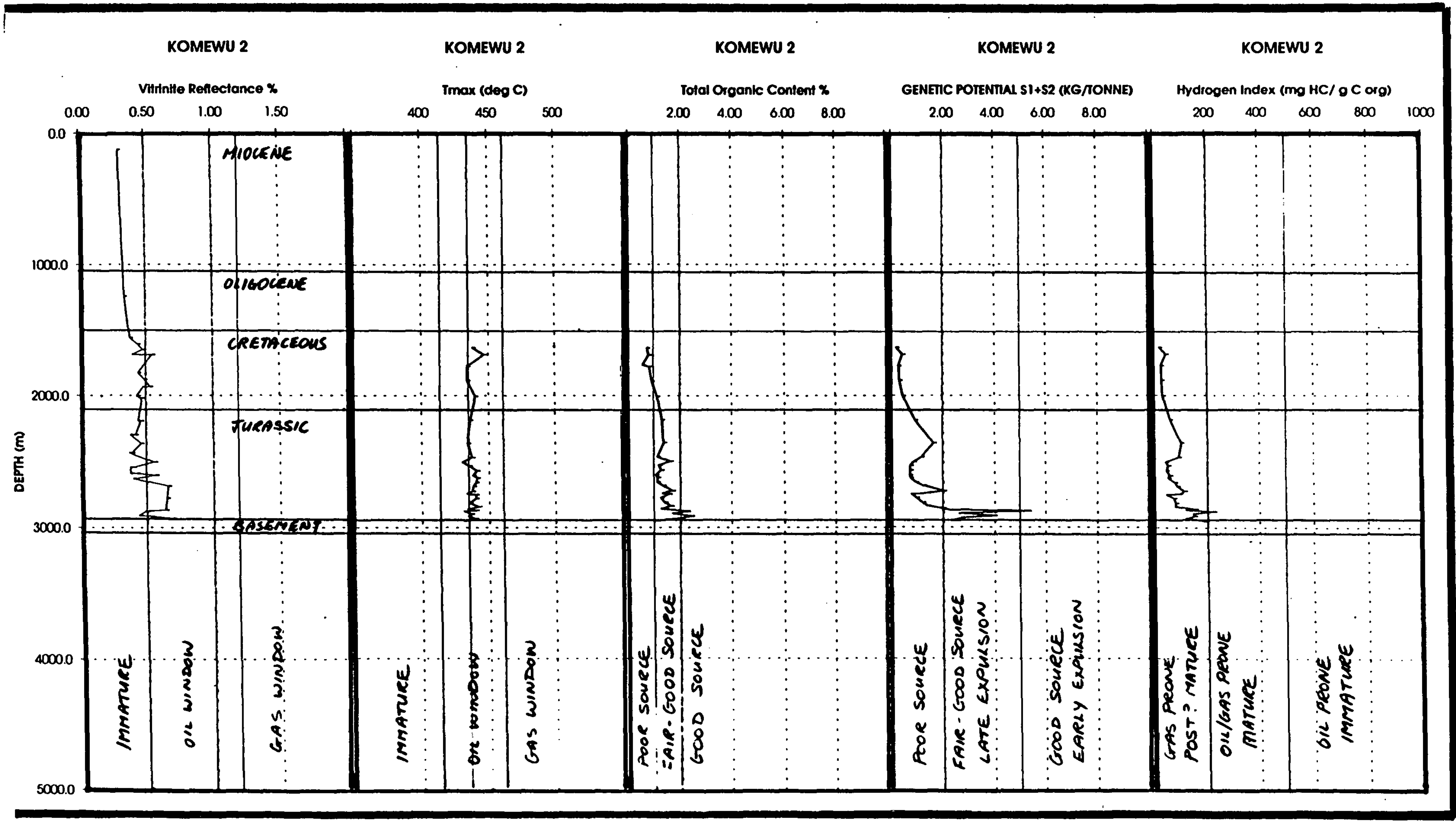
IEHI 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
IEHI 1
Tmax (deg C)
400 450 500
IEHI 1
Total Organic Content %
2.00 4.00 6.00 8.00
IEHI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
IEHI 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
TD
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE



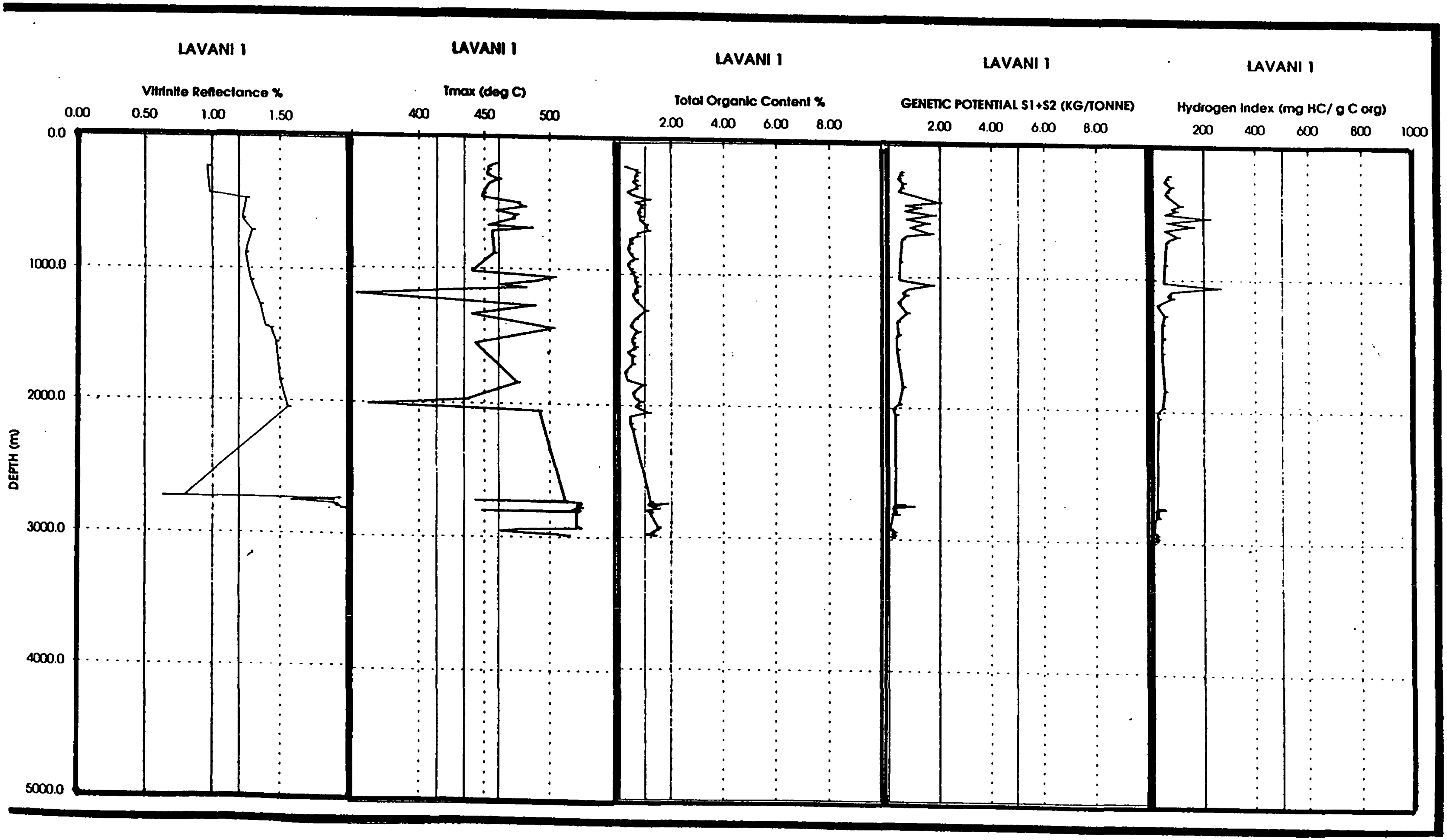
IOROGOBAIU 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
IOROGOBAIU 1
Tmax (deg C)
400
450
500
IOROGOBAIU 1
Total Organic Content %
2.00
4.00
6.00
8.00
IOROGOBAIU 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00
4.00
6.00
8.00
IOROGOBAIU 1
Hydrogen Index (mg HC/ g C org)
200
400
600
800
1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/
PLEISTOCENE
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
T?
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE



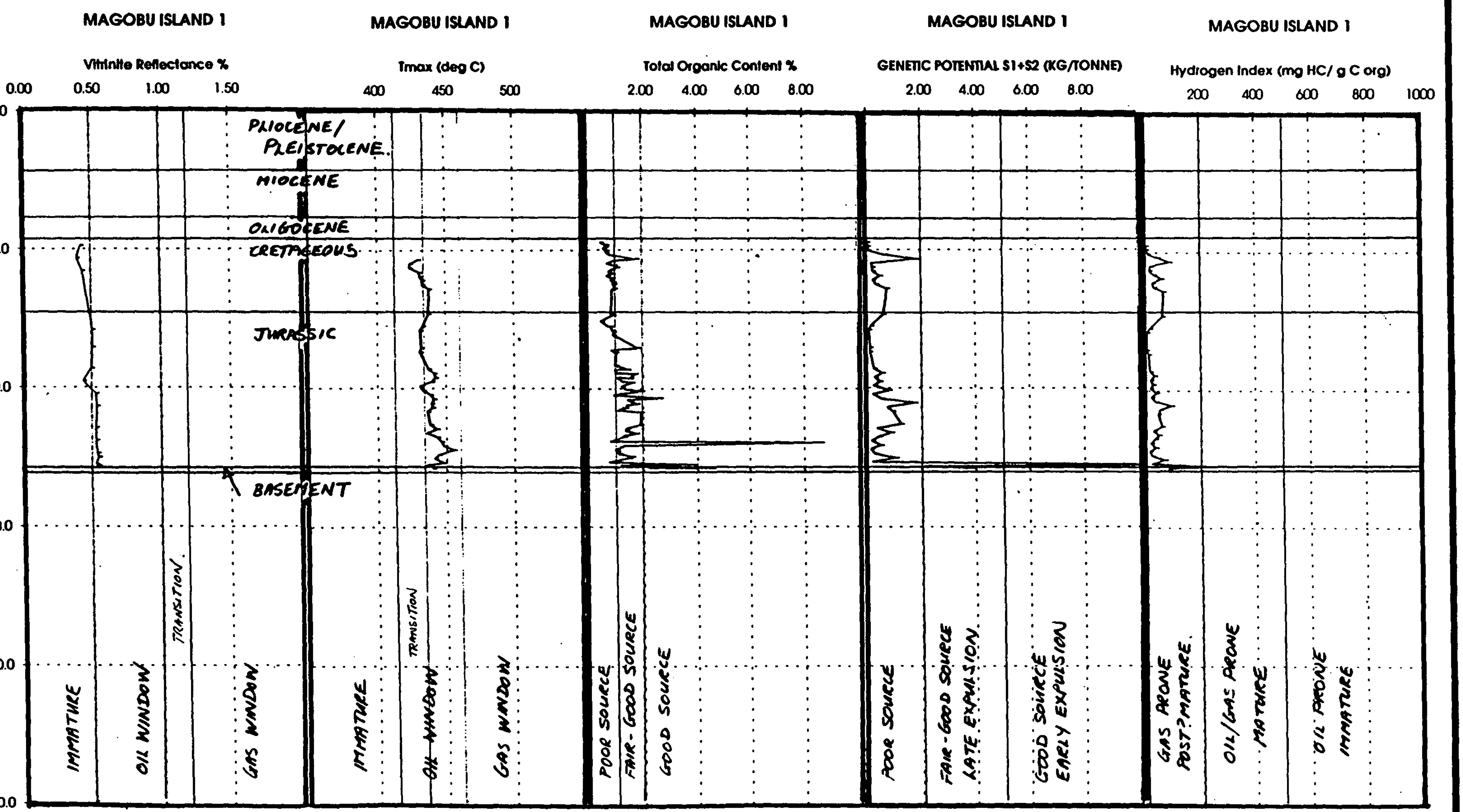
JUHA 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
JUHA 1
Tmax (deg C)
400 450 500
JUHA 1
Total Organic Content %
2.00 4.00 6.00 8.00
JUHA 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
JUHA 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
TD.
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE

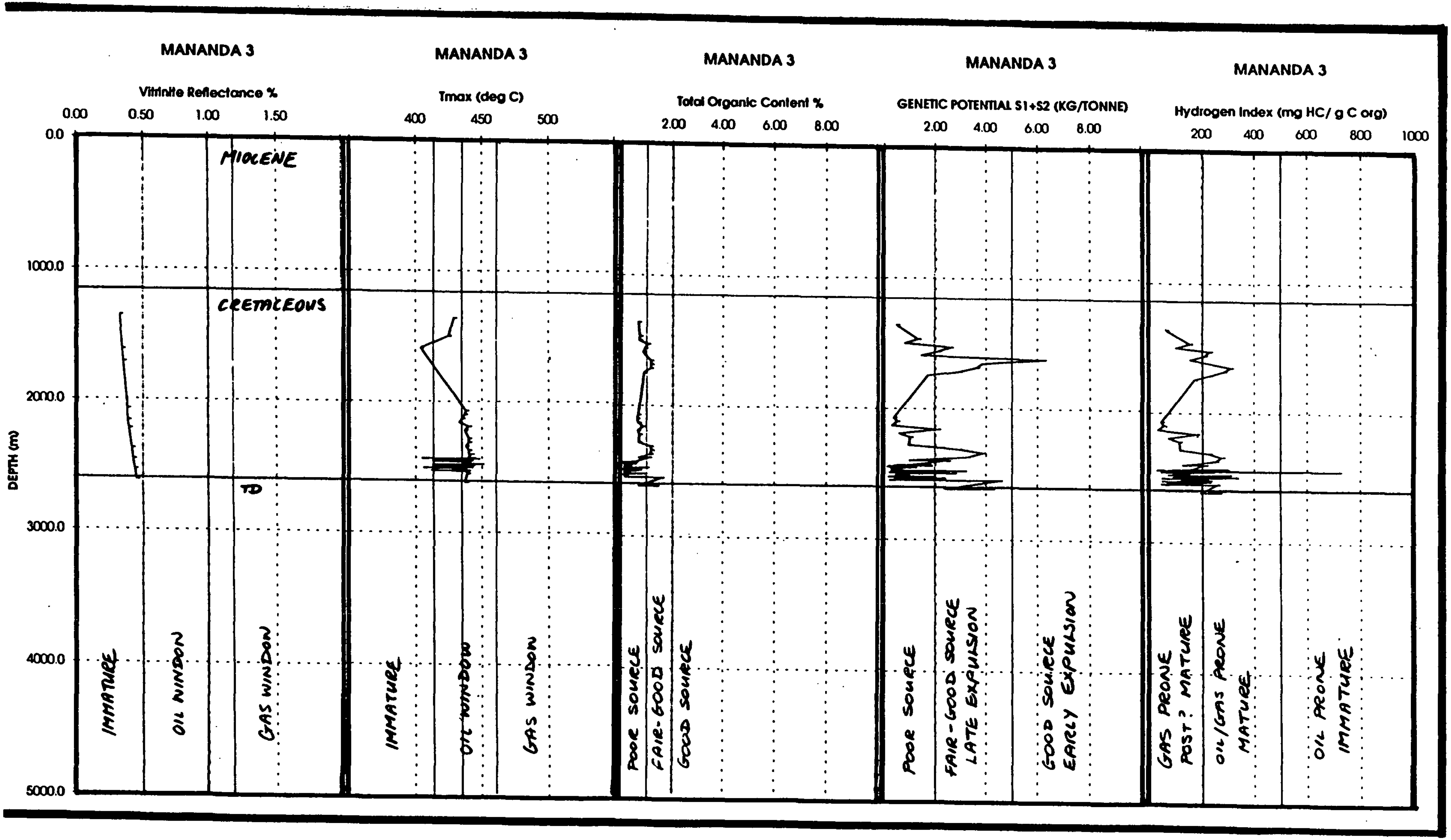


KOMEWU 2
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
KOMEWU 2
Tmax (deg C)
400 450 500
KOMEWU 2
Total Organic Content %
2.00 4.00 6.00 8.00
KOMEWU 2
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
KOMEWU 2
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
BASEMENT
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR - GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR - GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE

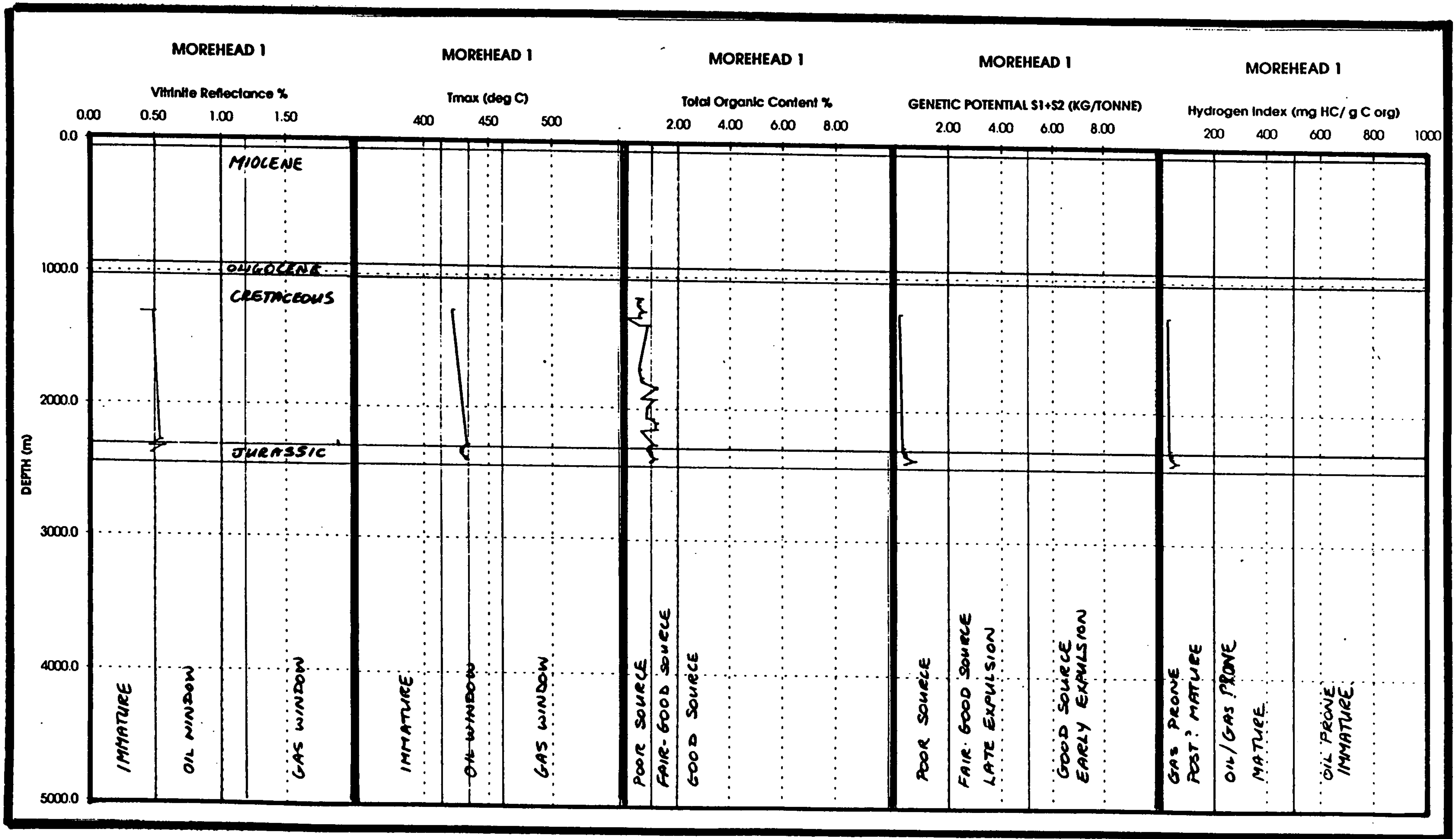


LAVANI 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
LAVANI 1
Tmax (deg C)
400 450 500
LAVANI 1
Total Organic Content %
2.00 4.00 6.00 8.00
LAVANI 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
LAVANI 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0

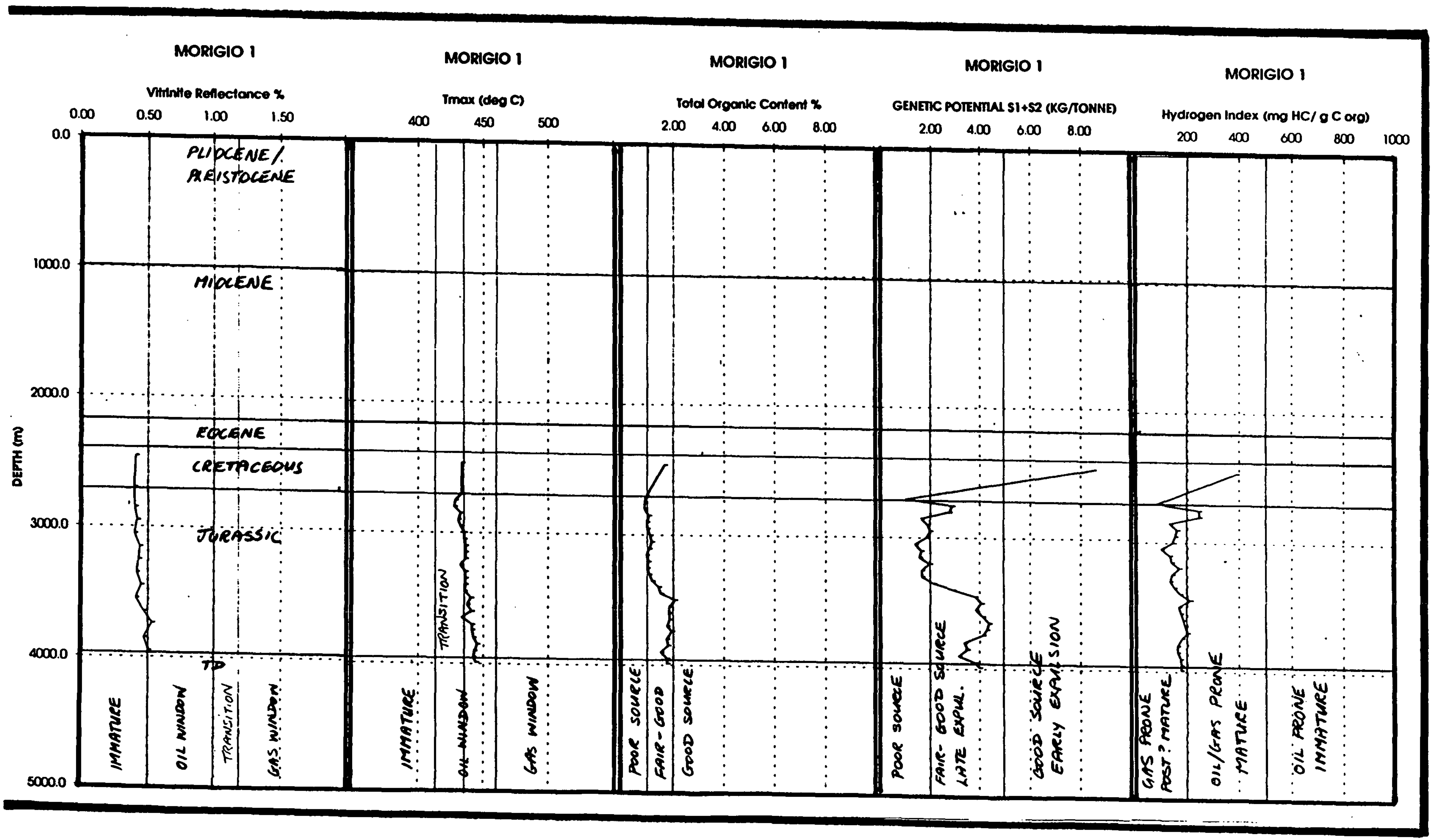

MAGOBU ISLAND 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
MAGOBU ISLAND 1
Tmax (deg C)
400 450 500
MAGOBU ISLAND 1
Total Organic Content %
2.00 4.00 6.00 8.00
MAGOBU ISLAND 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
MAGOBU ISLAND 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/ PLEISTOCENE
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
BASEMENT
IMMATURE
OIL WINDOW
TRANSITION
GAS WINDOW
IMMATURE
TRANSITION
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR - GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR - GOOD SOURCE LATE EXPULSION
GOOD SOURCE EARLY EXPULSION
GAS PRONE POST? MATURE
OIL/GAS PRONE MATURE
OIL PRONE IMMATURE



MANANDA 3
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
MANANDA 3
Tmax (deg C)
400 450 500
MANANDA 3
Total Organic Content %
2.00 4.00 6.00 8.00
MANANDA 3
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
MANANDA 3
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
MIOCENE
CRETACEOUS
TD
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE



MOREHEAD 1
Vitrinite Reflectance %
0.00
0.50
1.00
1.50
MOREHEAD 1
Tmax (deg C)
400
450
500
MOREHEAD 1
Total Organic Content %
2.00
4.00
6.00
8.00
MOREHEAD 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00
4.00
6.00
8.00
MOREHEAD 1
Hydrogen Index (mg HC/ g C org)
200
400
600
800
1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
MIOCENE
OLIGOCENE
CRETACEOUS
JURASSIC
IMMATURE
OIL WINDOW
GAS WINDOW
IMMATURE
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD SOURCE
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE
LATE EXPULSION
GOOD SOURCE
EARLY EXPULSION
GAS PRONE
POST? MATURE
OIL/GAS PRONE
MATURE
OIL PRONE
IMMATURE


MORIGIO 1
Vitrinite Reflectance %
0.00 0.50 1.00 1.50
MORIGIO 1
Tmax (deg C)
400 450 500
MORIGIO 1
Total Organic Content %
2.00 4.00 6.00 8.00
MORIGIO 1
GENETIC POTENTIAL S1+S2 (KG/TONNE)
2.00 4.00 6.00 8.00
MORIGIO 1
Hydrogen Index (mg HC/ g C org)
200 400 600 800 1000
DEPTH (m)
0.0
1000.0
2000.0
3000.0
4000.0
5000.0
PLIOCENE/ PLEISTOCENE
MIOCENE
EOCENE
CRETACEOUS
JURASSIC
TD
IMMATURE
OIL WINDOW
TRANSITION
GAS WINDOW
IMMATURE
TRANSITION
OIL WINDOW
GAS WINDOW
POOR SOURCE
FAIR-GOOD
GOOD SOURCE
POOR SOURCE
FAIR-GOOD SOURCE LATE EXPUL.
GOOD SOURCE EARLY EXPULSION
GAS PRONE POST? MATURE
OIL/GAS PRONE MATURE
OIL PRONE IMMATURE

AGSO

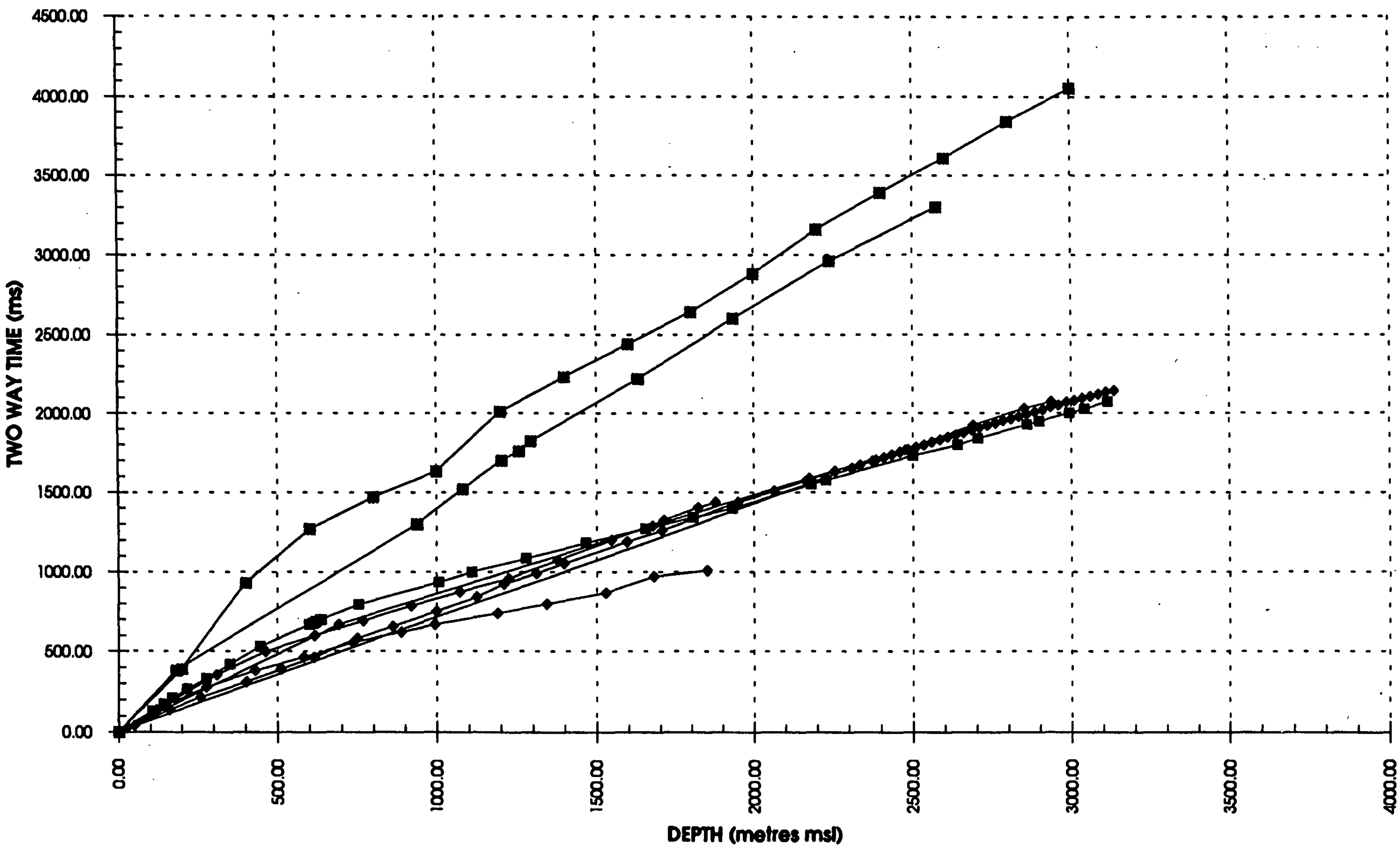
AUSTRALIAN GEOLOGICAL
SURVEY ORGANISATION

AUSTRALIAN PETROLEUM SYSTEMS PROJECT

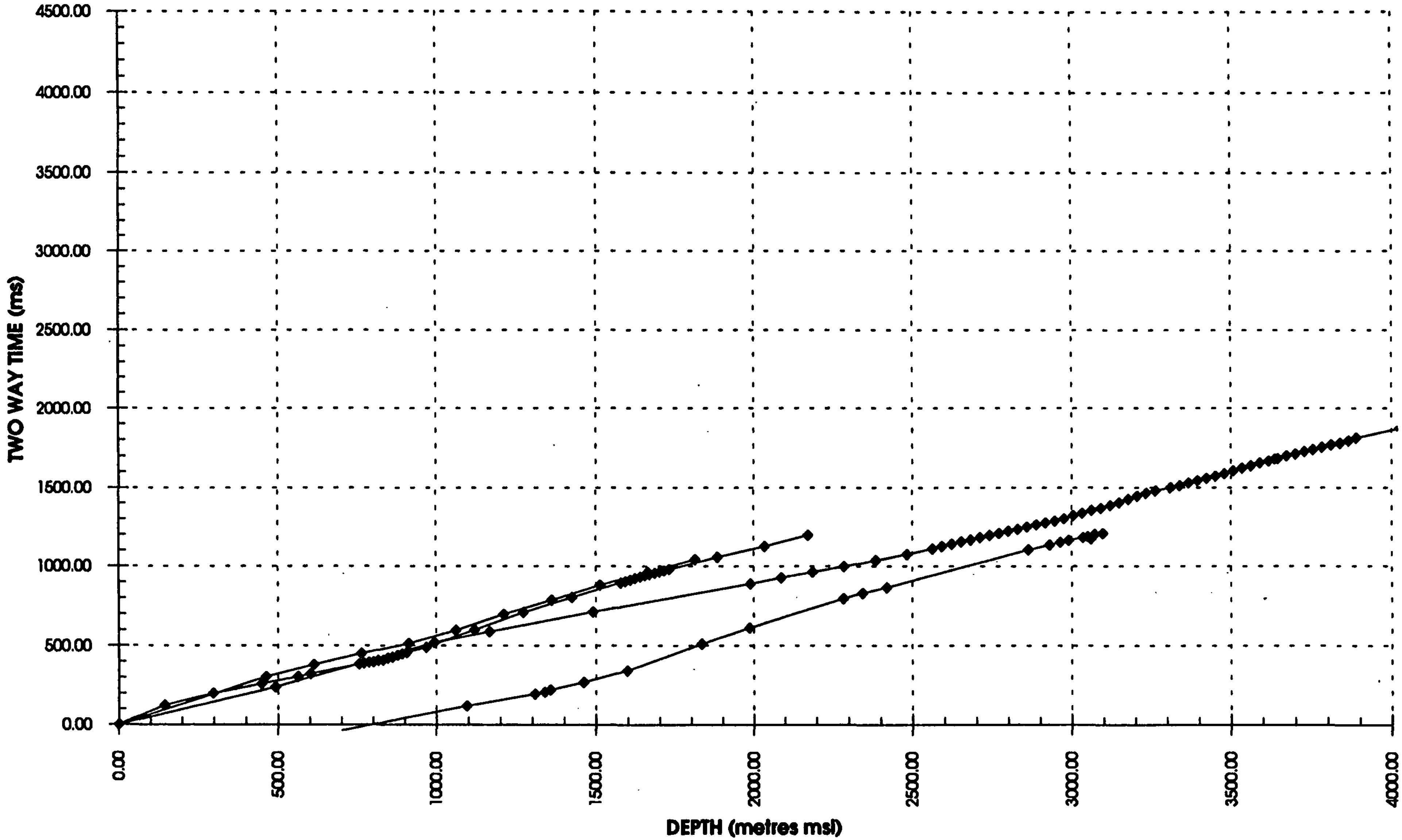
PAPUAN BASIN MODULE

APPENDIX 18 : VELOCITY CURVES

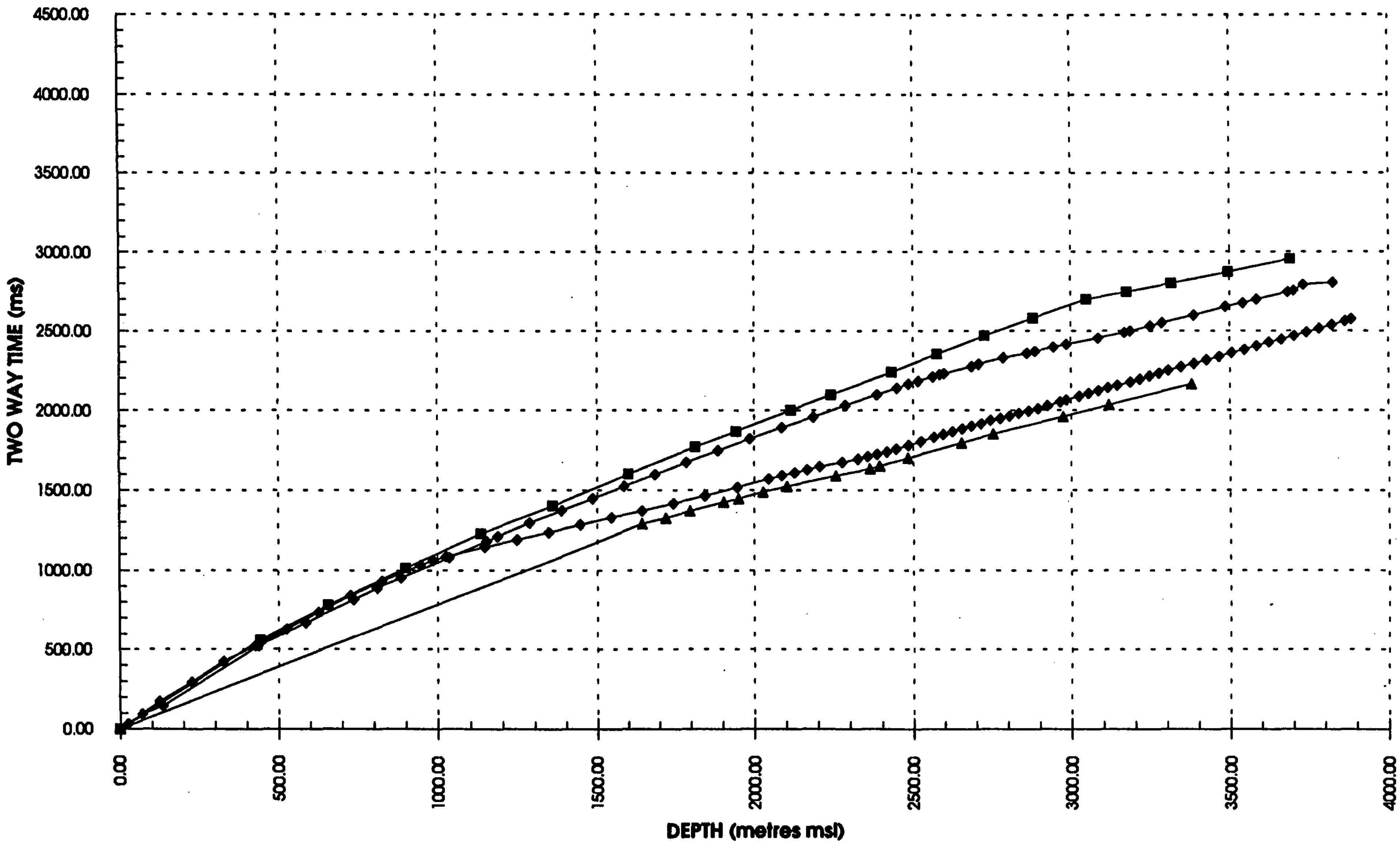
Foreland and Coastal wells



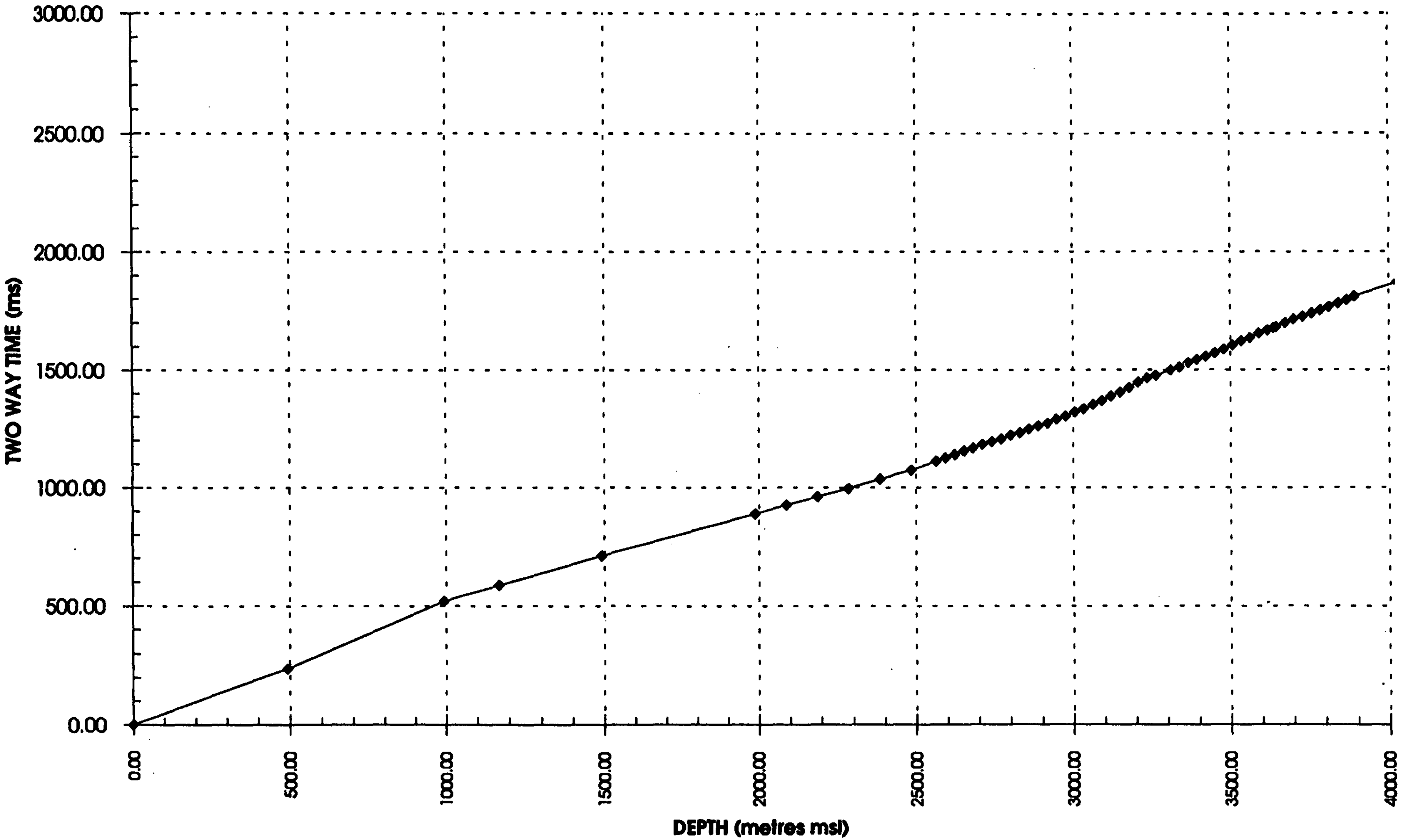
Fold Belt Area



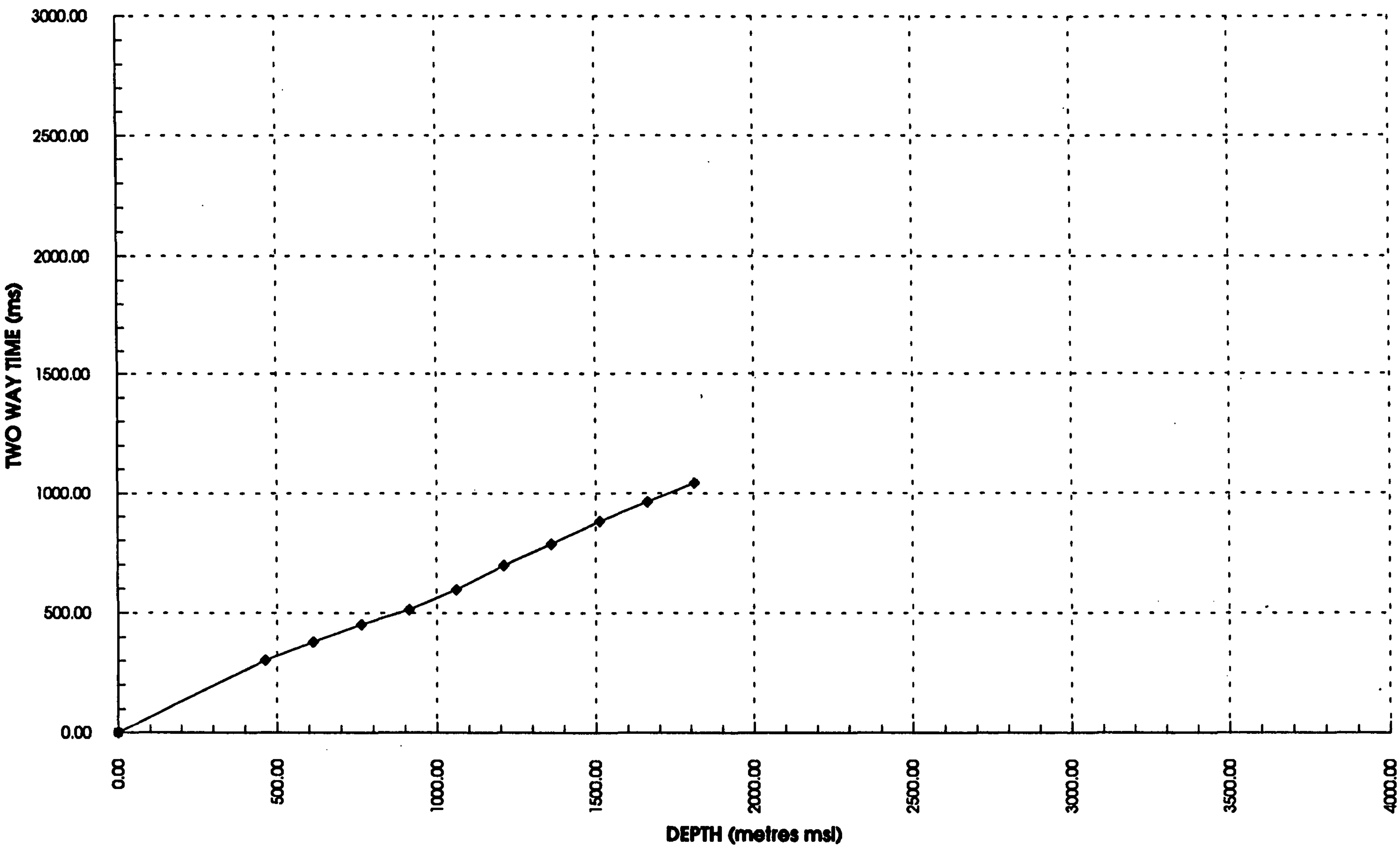
Offshore Wells



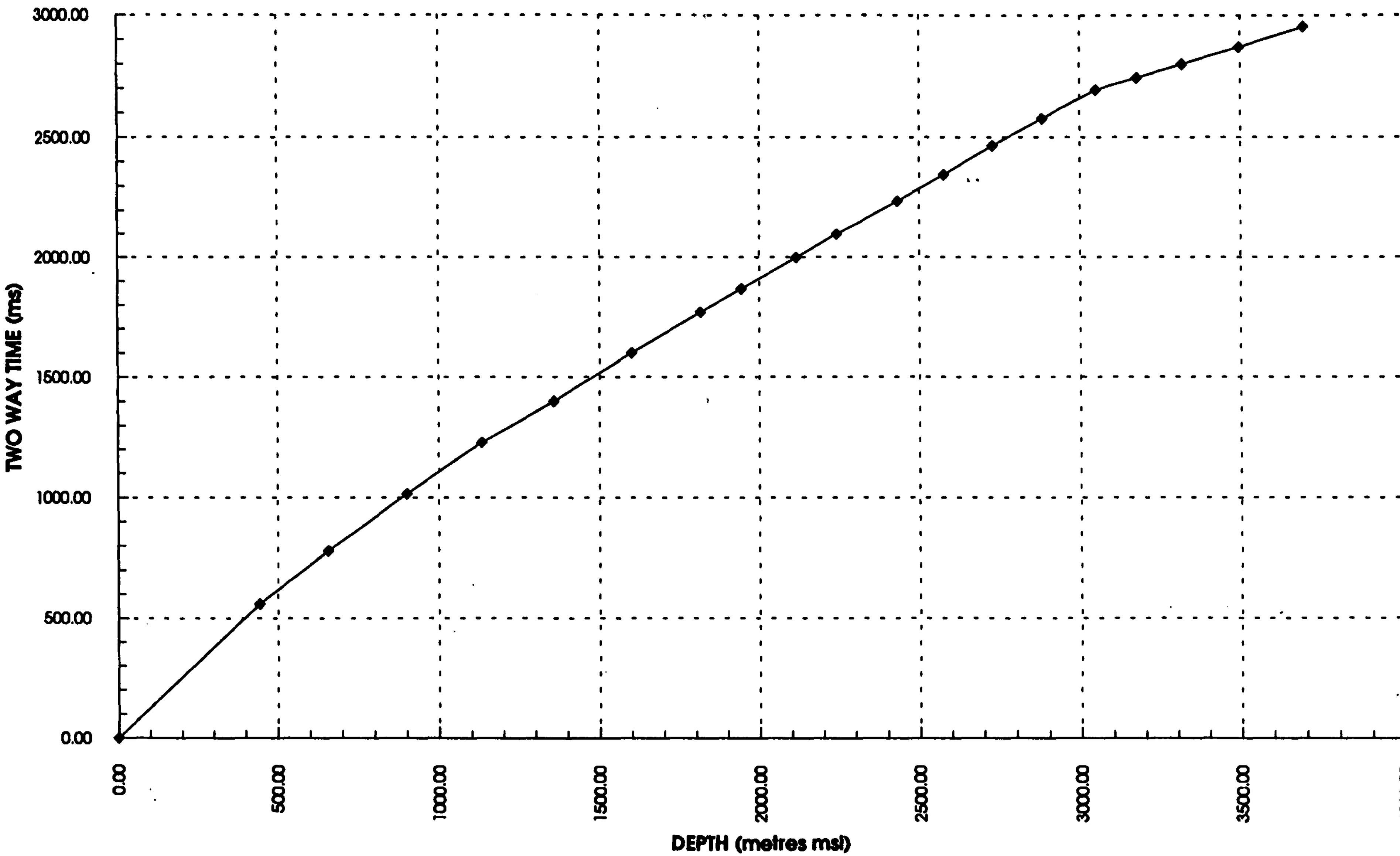
Angore 1 Well



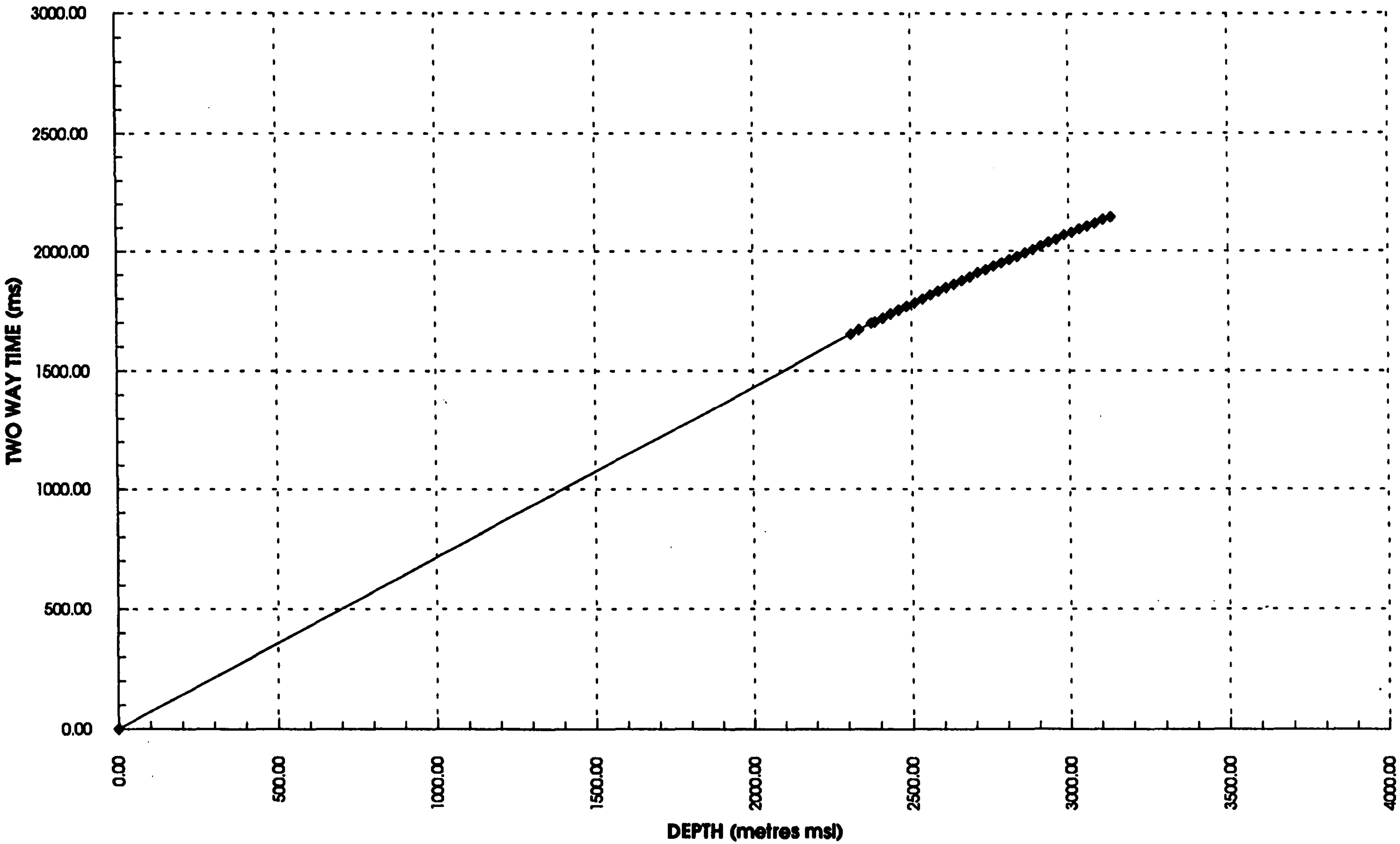
Barikewa 1 Well



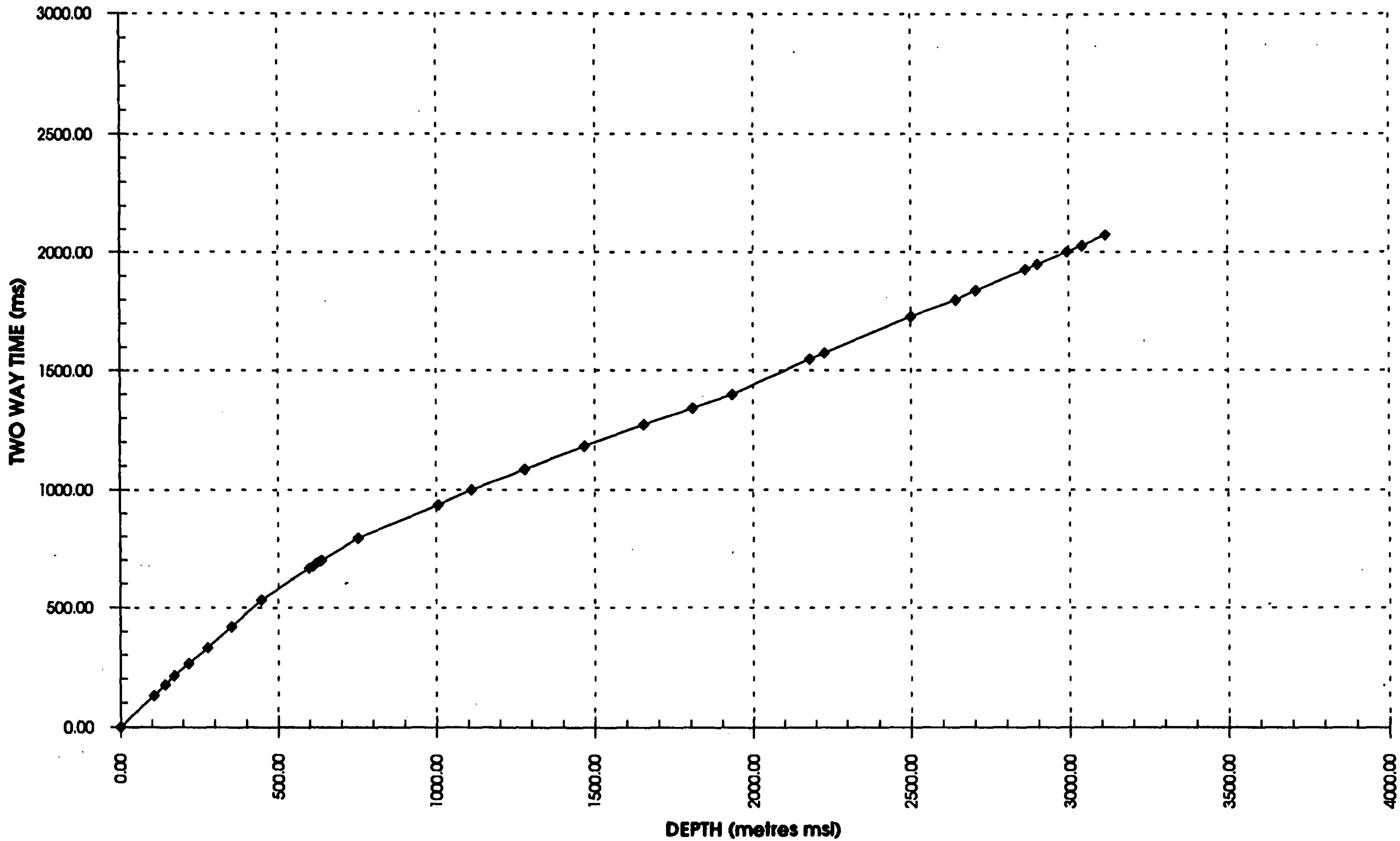
Dibiri 1A Well



Elevala 1 Well

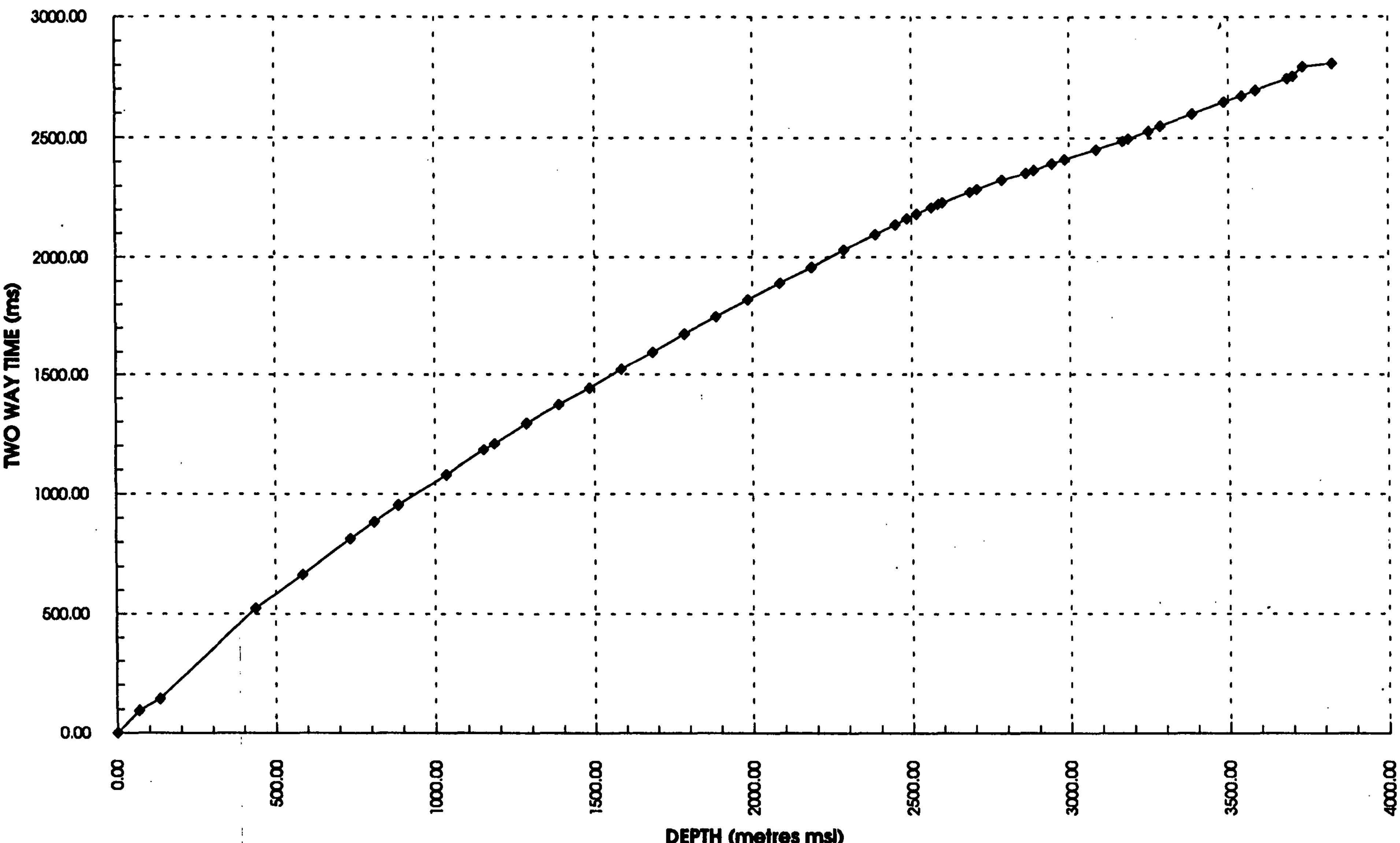


Goari 1 Well

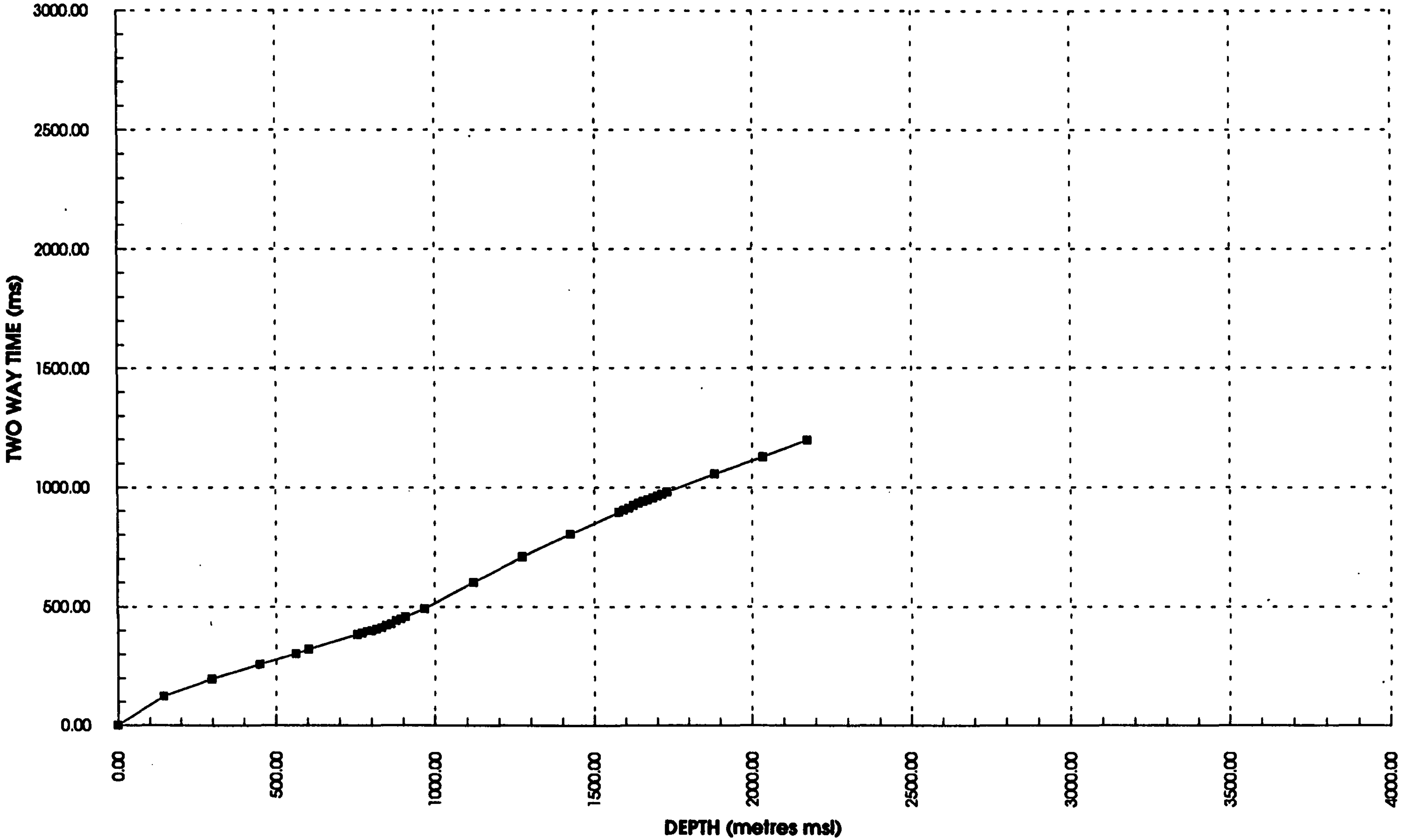


TWO WAY TIME (ms)
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
0.00
500.00
1000.00
1500.00
2000.00
2500.00
3000.00
3500.00
4000.00
DEPTH (metres msl)

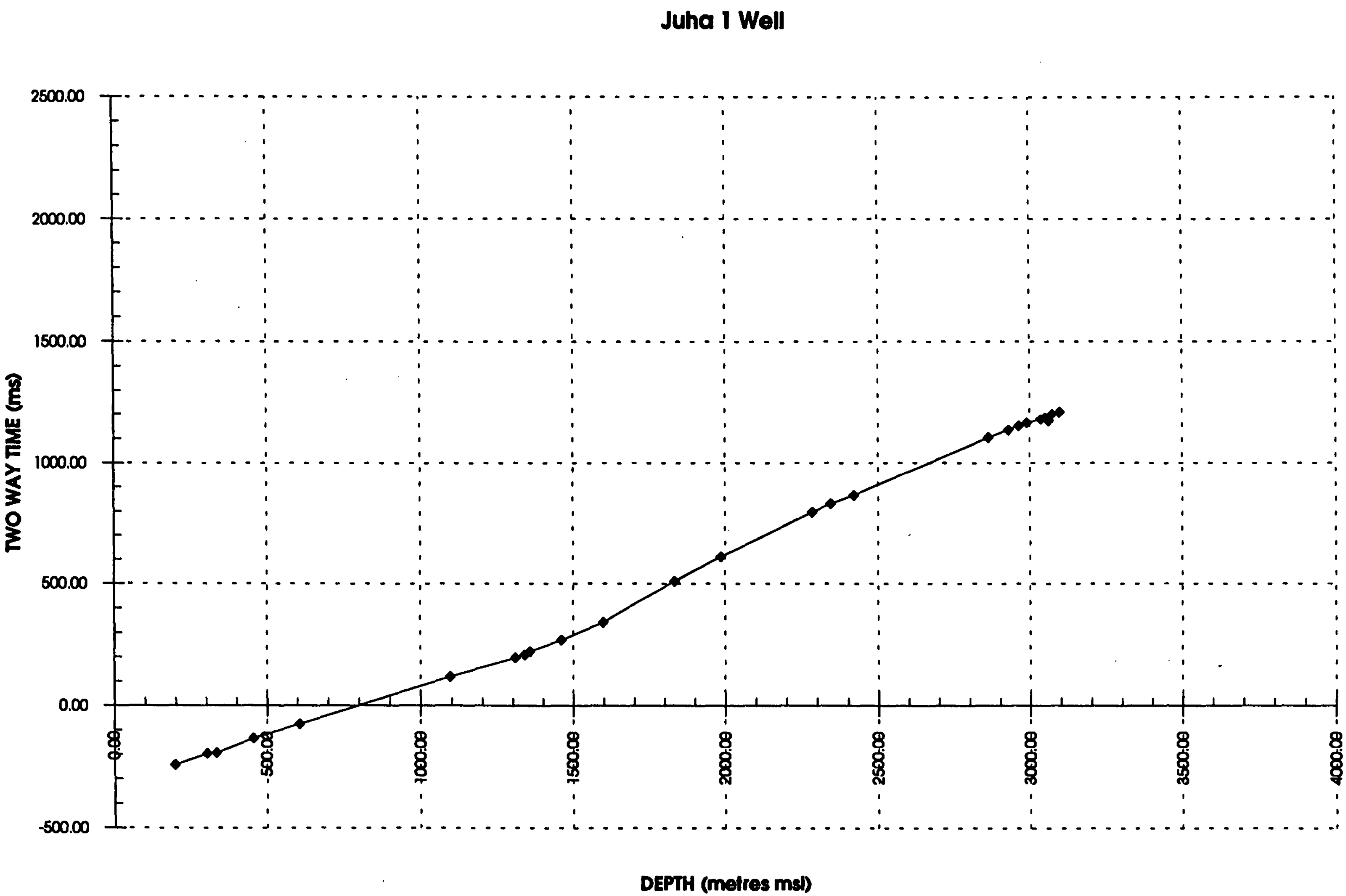
Goaribari 1 Well

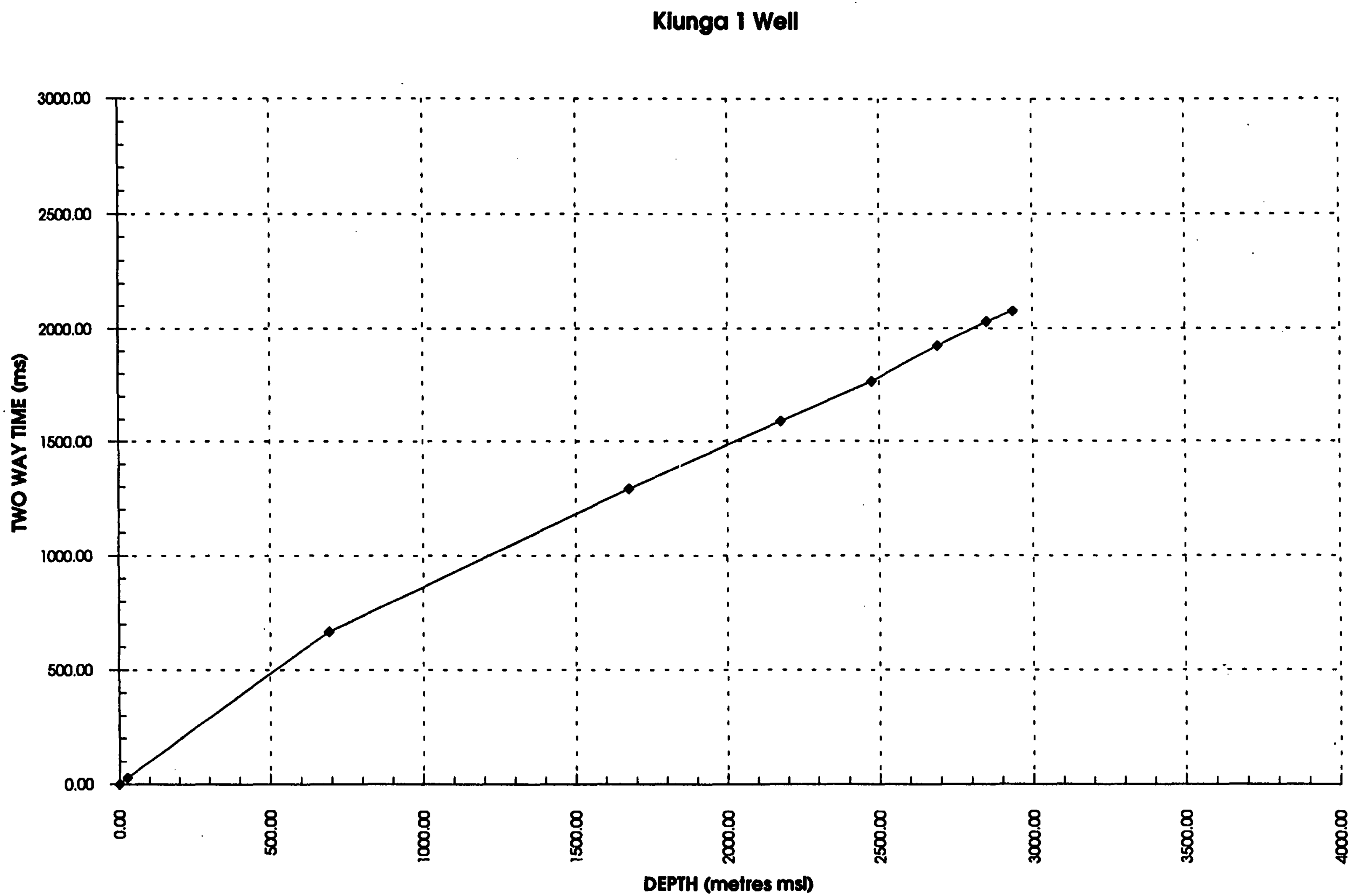


Gobe 1 Well

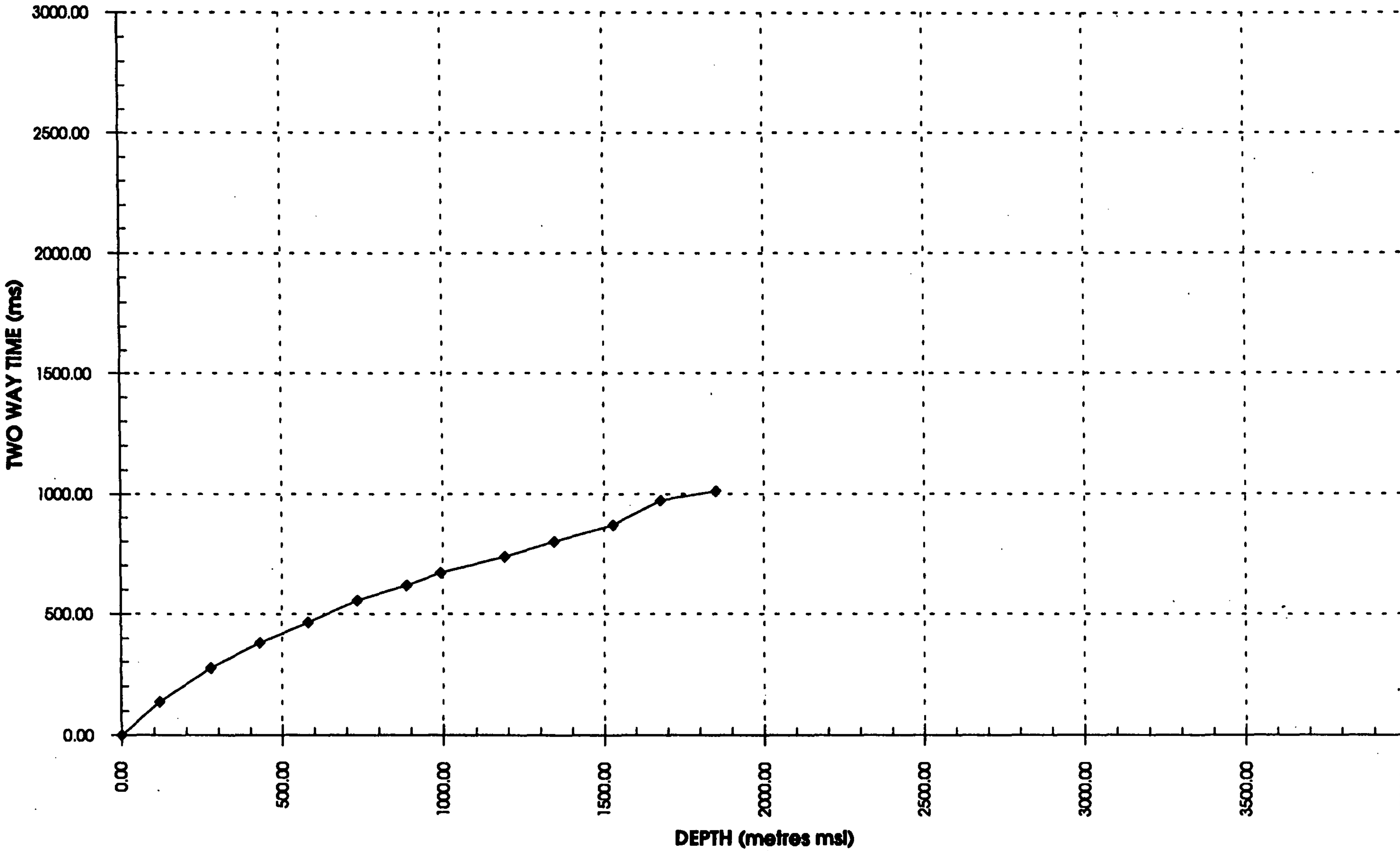


TWO WAY TIME (ms)
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
0.00
500.00
1000.00
1500.00
2000.00
2500.00
3000.00
3500.00
4000.00
DEPTH (metres msl)

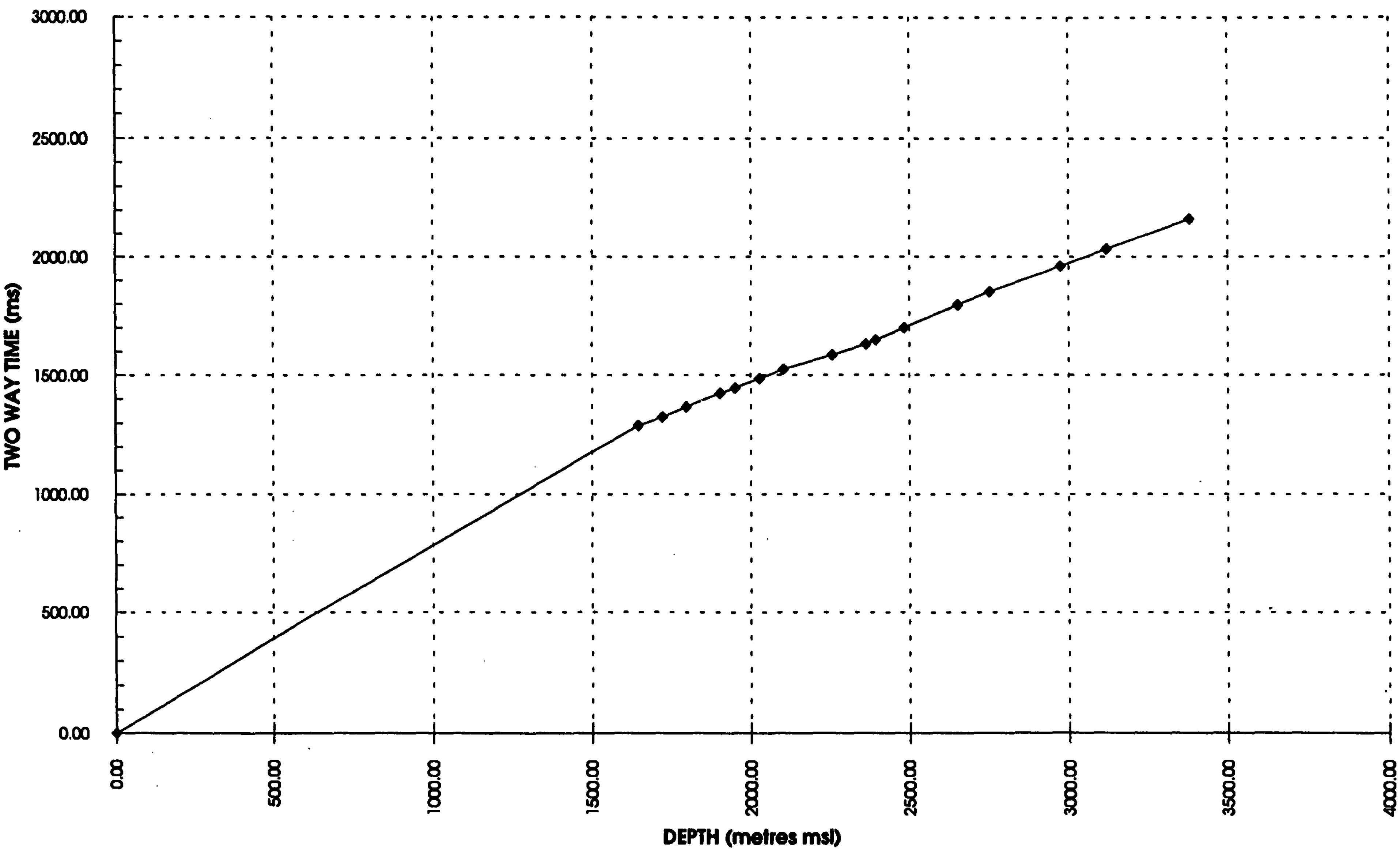

Juha 1 Well
TWO WAY TIME (ms)
2500.00
2000.00
1500.00
1000.00
500.00
0.00
-500.00
0.00
500.00
1000.00
1500.00
2000.00
2500.00
3000.00
3500.00
4000.00
DEPTH (metres msl)


Klunga 1 Well
TWO WAY TIME (ms)
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
0.00
500.00
1000.00
1500.00
2000.00
2500.00
3000.00
3500.00
4000.00
DEPTH (metres msl)

Komewu 1 Well

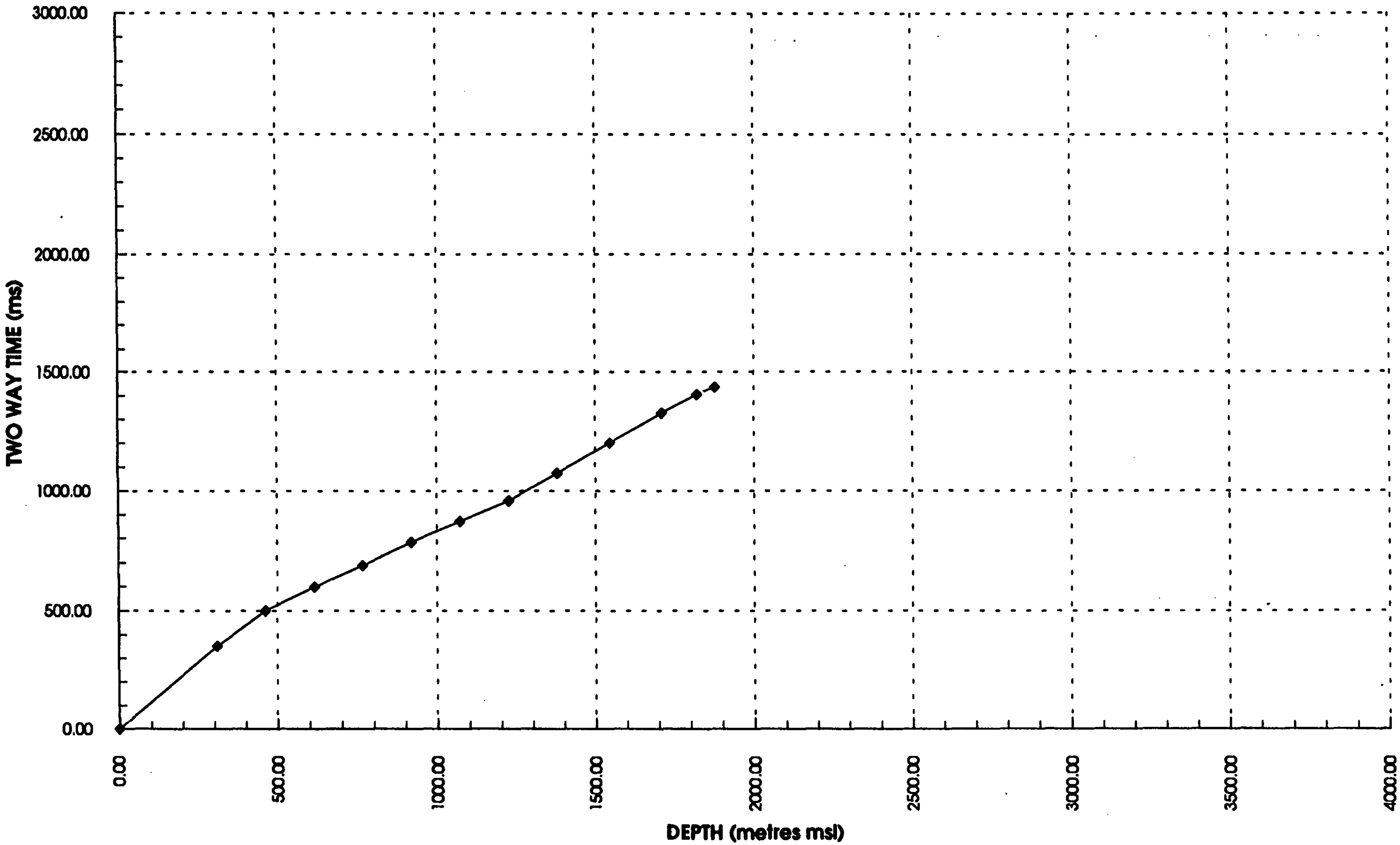


Kusa 1 Well

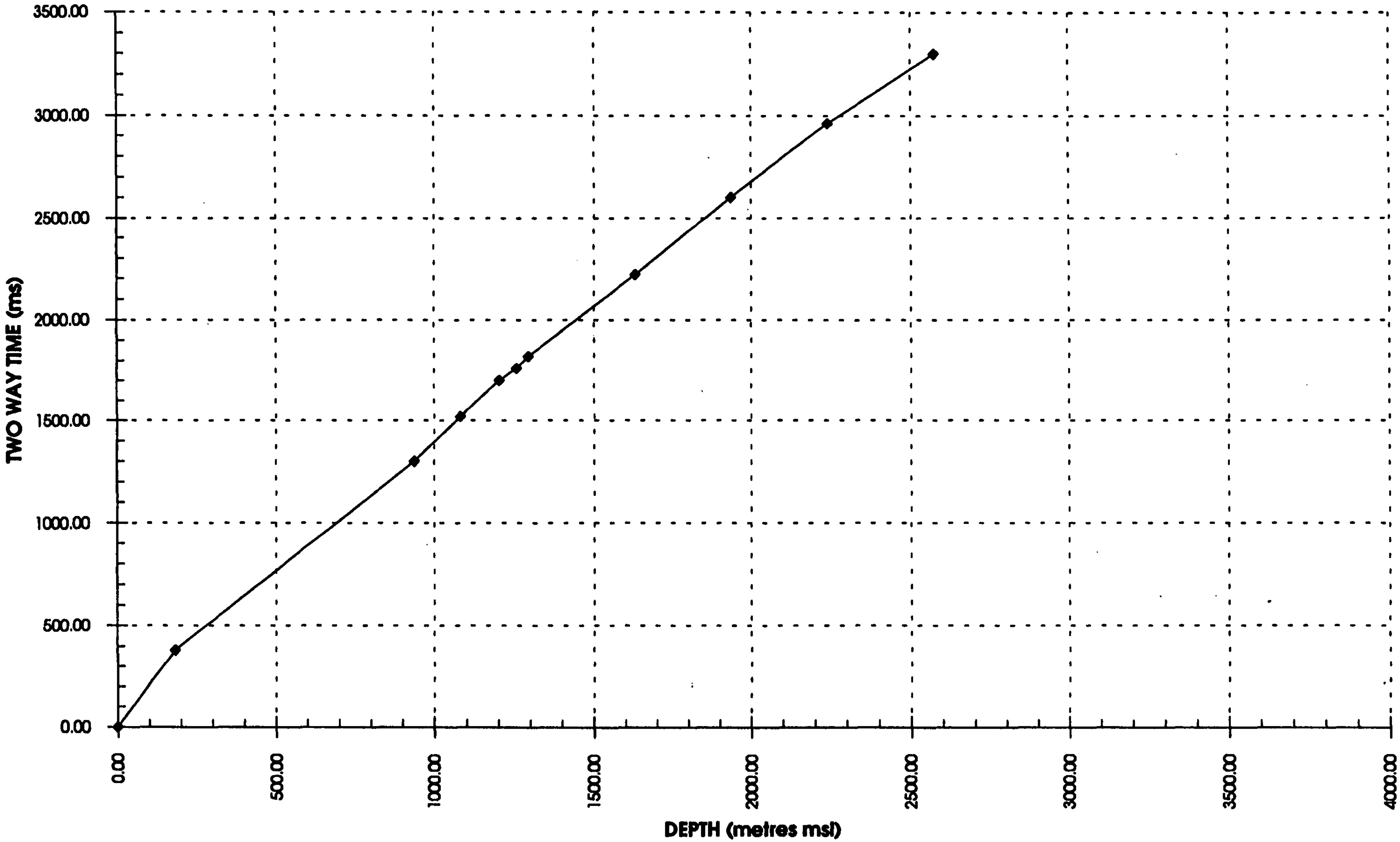


TWO WAY TIME (ms)
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
0.00
500.00
1000.00
1500.00
2000.00
2500.00
3000.00
3500.00
4000.00
DEPTH (metres msl)

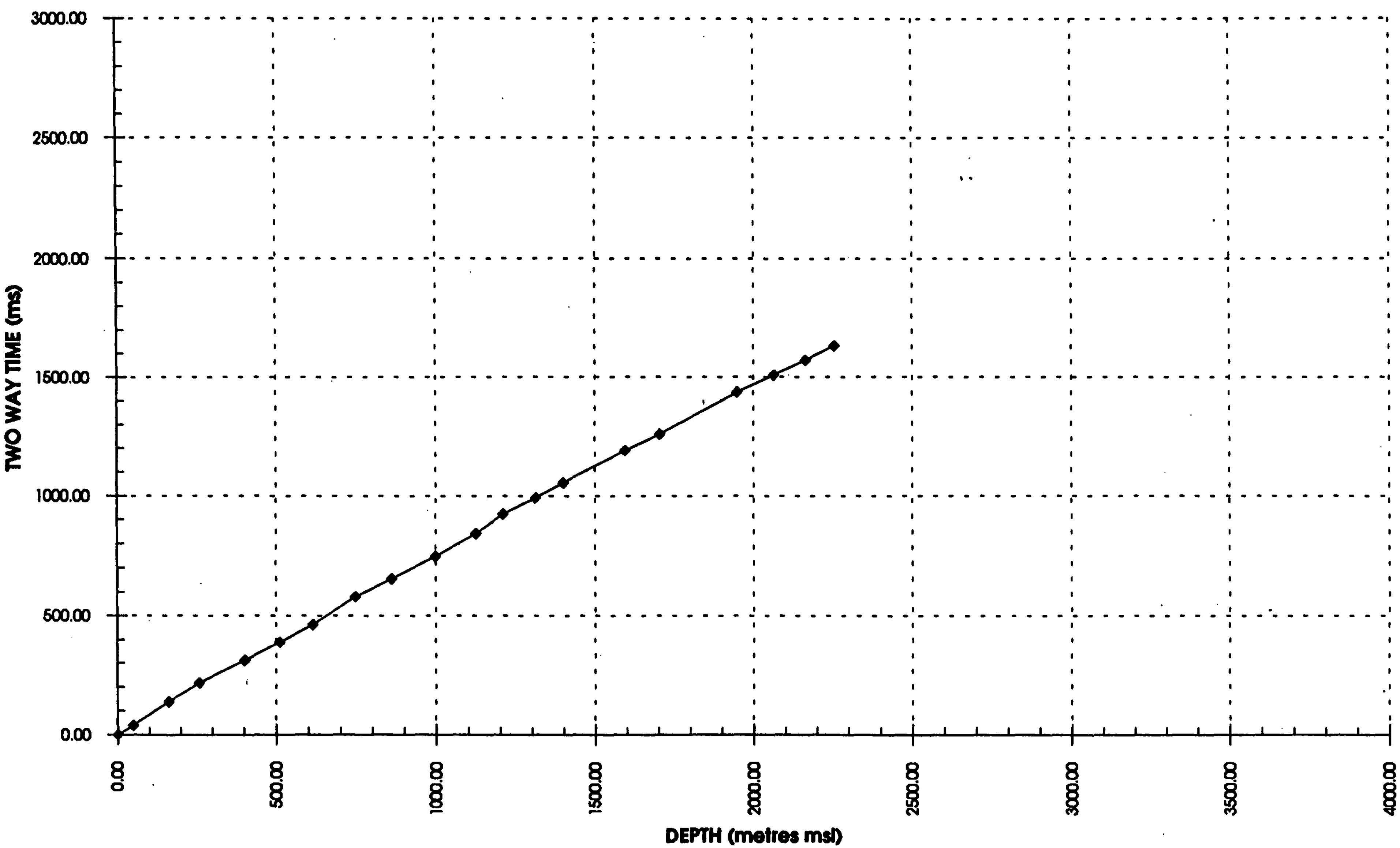
Lake Murray 2 Well



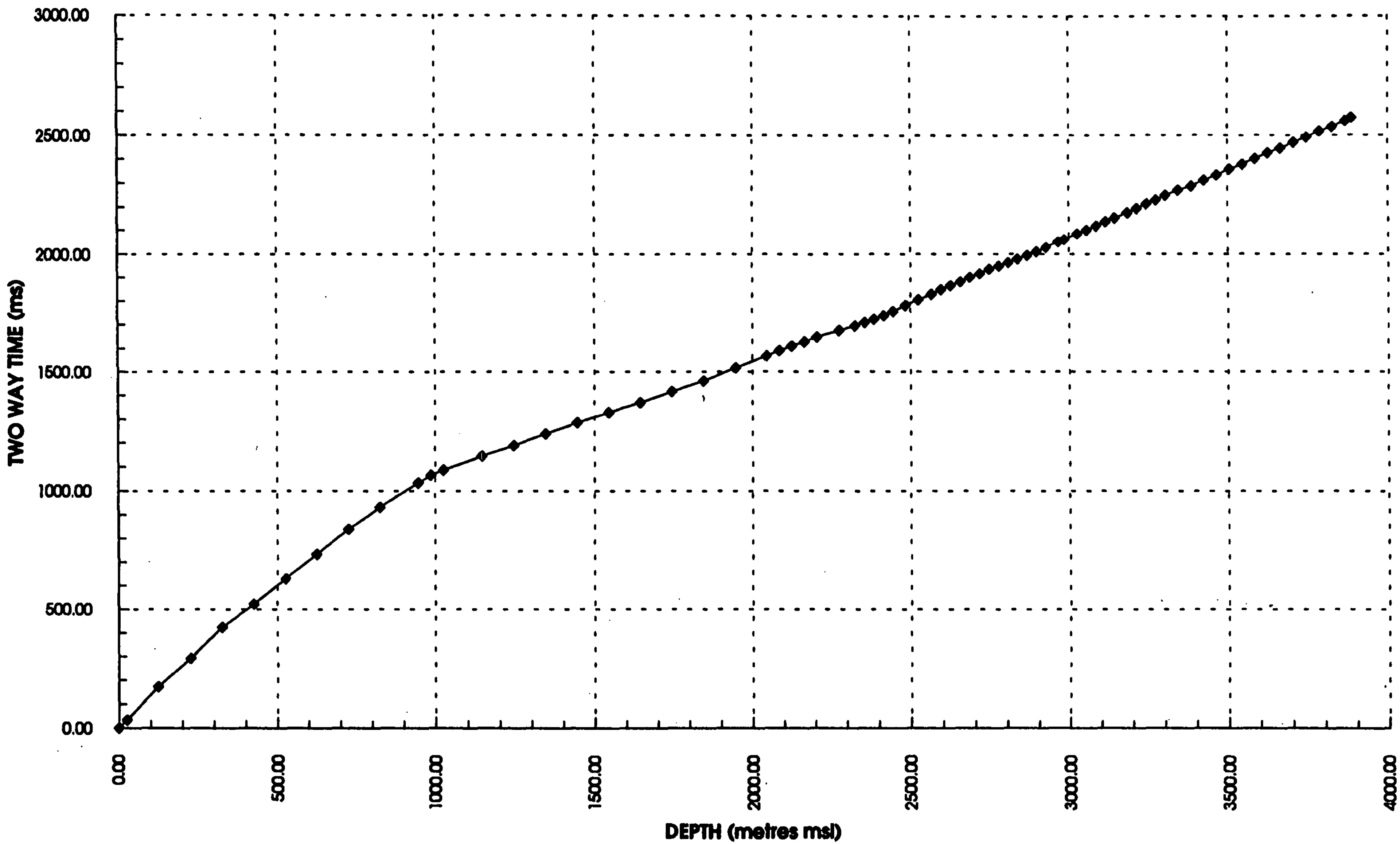
Magobu Island 1 Well



Morehead 1 Well



Morigio 1 Well



Wabuda 1 Well