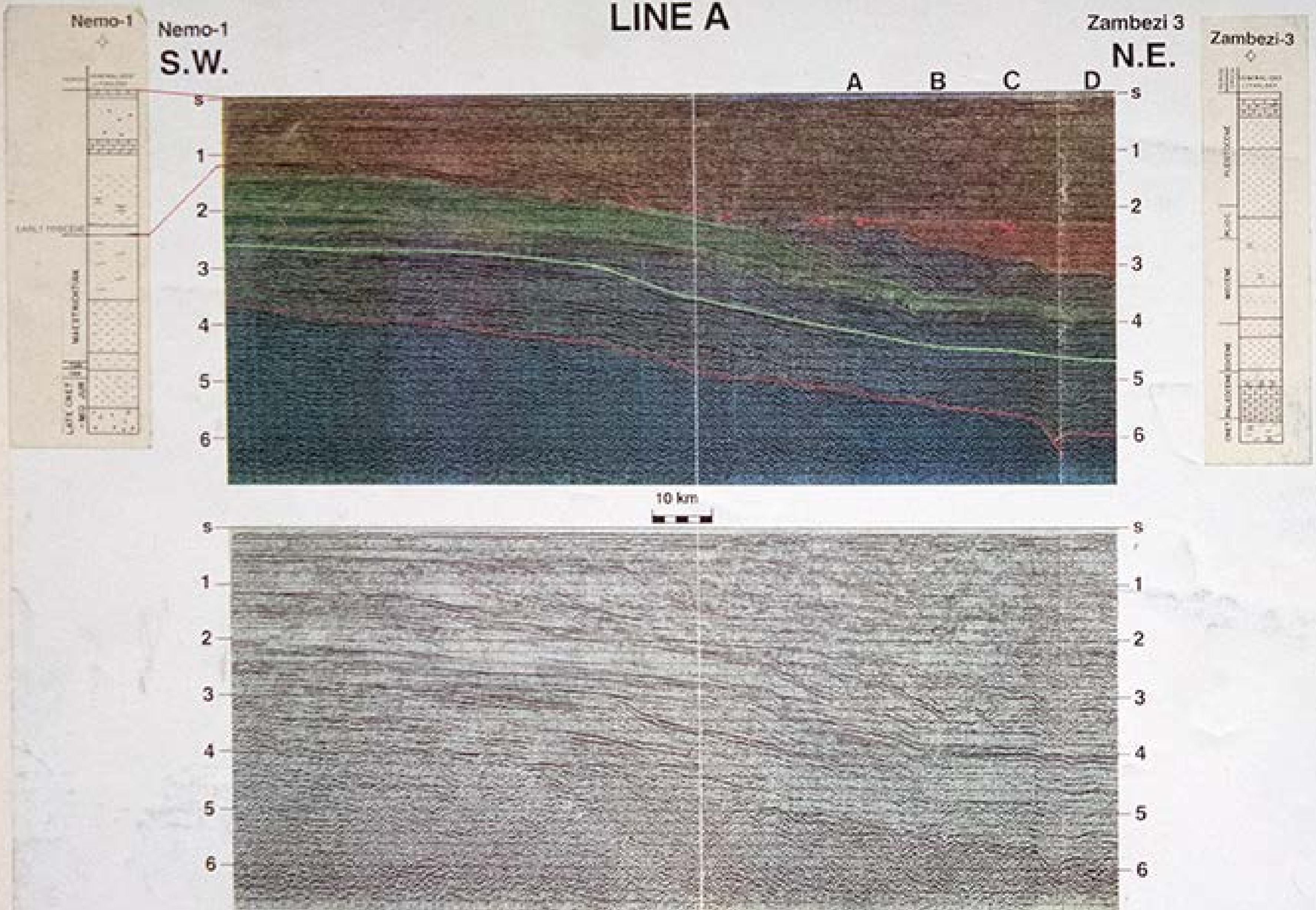
ABSTRACT

During the Neogene and Quaternary, Mozam Bieve shelf margin, close to the Zambezi river delta, prograded for distances of 75 to over 100 km into the Indian Ocean. A regional seismic grid shows numerous unconformities and correlative conformities in the platform shelf, slope and deeper basinal areas. Based on downward shifts of reflection terminations and onlaps at or below shelf edge offlap break, more than 25 sequences have been identified. Within the gross Neogene package, the basal section is characterized by aggradation, followed by rapid and significant (oblique) progradation, which is then followed by numerous aggradational-progradation and progradation packages in the upper, younger sections. From recognition of aggradation-progradation patterns and from well information, it appears that the first, significant and rapid progradation occurred after Mid-Miocene. The earliest of the Neogene sequences appears thicker towards the south and thinner towards the north. Subsequently, more progradation occurred in the north for sometime, compensating for the earlier lesser progradation in that region. On the whole, the depocenters, mainly shelf edge prograding wedge complexes, deposited during relative lowstands, shifted in position back and forth in the region. The number of sequences, their modes of stacking and thickness distributions, reflect relative sea-level changes, the points of sediment input as the river inputs shifted in position, and the depositional topography.

The Mozambique passive continental margin near the Zambezi Delta, located in the Indian Ocean Basin, is a stable platform as opposed to the unstable continental margins off the Mississippi, McKenzie and Niger deltas and is geographically far from the stable margins which were the basis of the Haq, et. al. cycle-chart (1987). Thus, the Mozambique continental margin provides and independent test case for verification of eustatic cycles and for the evaluation of allogenic (eustatic) vs autogenic (subsidence and delta switching) effects on depositional systems and systems tracts.

LINE A



Poster Set-Up

First Board: One typical dip seismic section and several strike seismic sections showing the sequences and their identified boundaries are displayed. Biostratigraphic information from two wells utilized in the study is also shown. The methodology of seismic sequence analysis, identification of systems tracts, and of digitizing and making isochron, time-structure, and offlap break maps from a 3D-transformed data grid is briefly described.

Second Board: Results of digitizing dip and strike lines, the distribution offlap breaks, time-structure and isochron maps are displayed and briefly discussed.

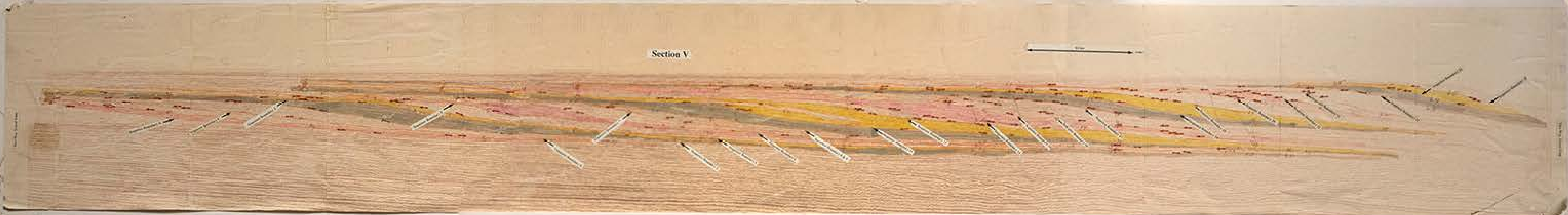
Third Board: Several examples of systems-tracts identified are shown.

FIRST BOARD

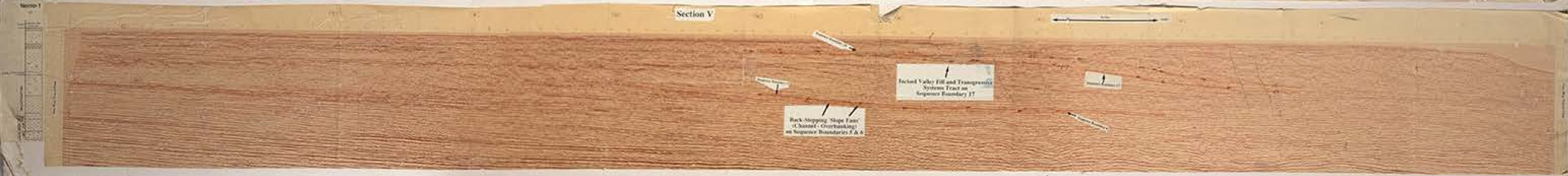
The sedimentary section studied here has been deposited since early Miocene. Utilizing a grid of multi-channel seismic lines, seismic sequence analysis of this sedimentary section has been carried out on the basis of downward shift of onlap reflection terminations, usually below the offlap break (shown by red arrows) for the 25+ sequences identified and tied. It is apparent from this analysis that shelf margin progradation off Mozambique occurred mainly during the relative lowstands of sea level (see the schematic). Highstand progradation played a minor role in building out the margin. There may have been several episodes with different rates of progradation and progradation-aggradation, depending upon the relationship between eustasy, subsidence and sediment supply.

Incised valleys, canyons and channels or slump scars (colored blue) are shown on the seismic sections. These features are identified on the basis of abrupt stratal/reflection terminations, abrupt seismic facies change and reflection cycle skipping. These features are caused by subaerial erosion on platform (shelf) and submarine processes basinward of the offlap breaks.

Because we did not have access to the digital data, the interpretation of sequence boundaries was done on the paper seismic sections. The typical paper seismic sections displayed show the resulting sequence interpretation. Within each sequence, systems-tracts have been identified; a few examples are given on the first and third boards.

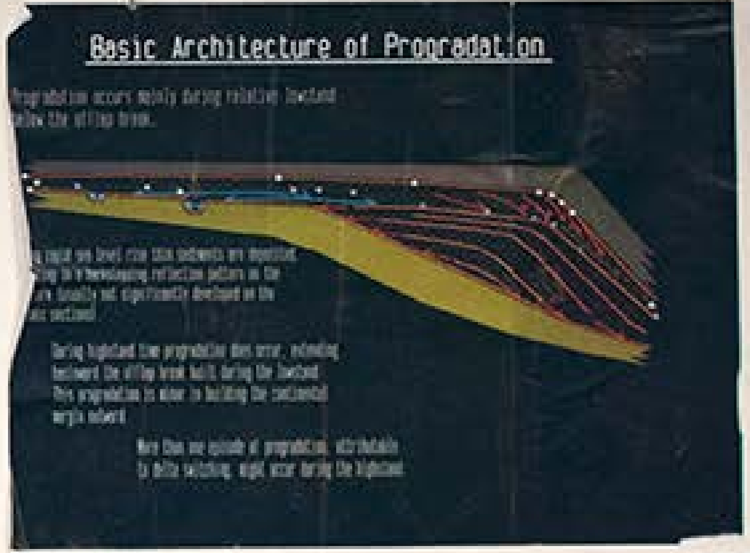


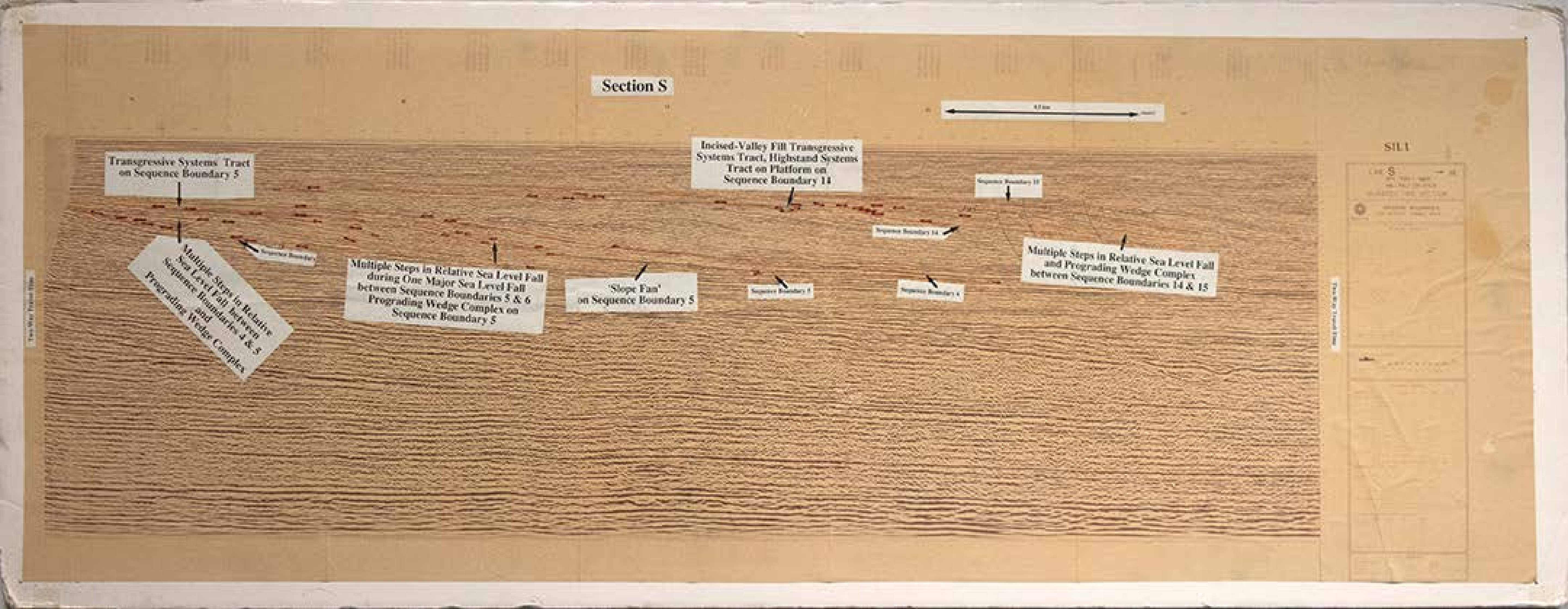
Section V

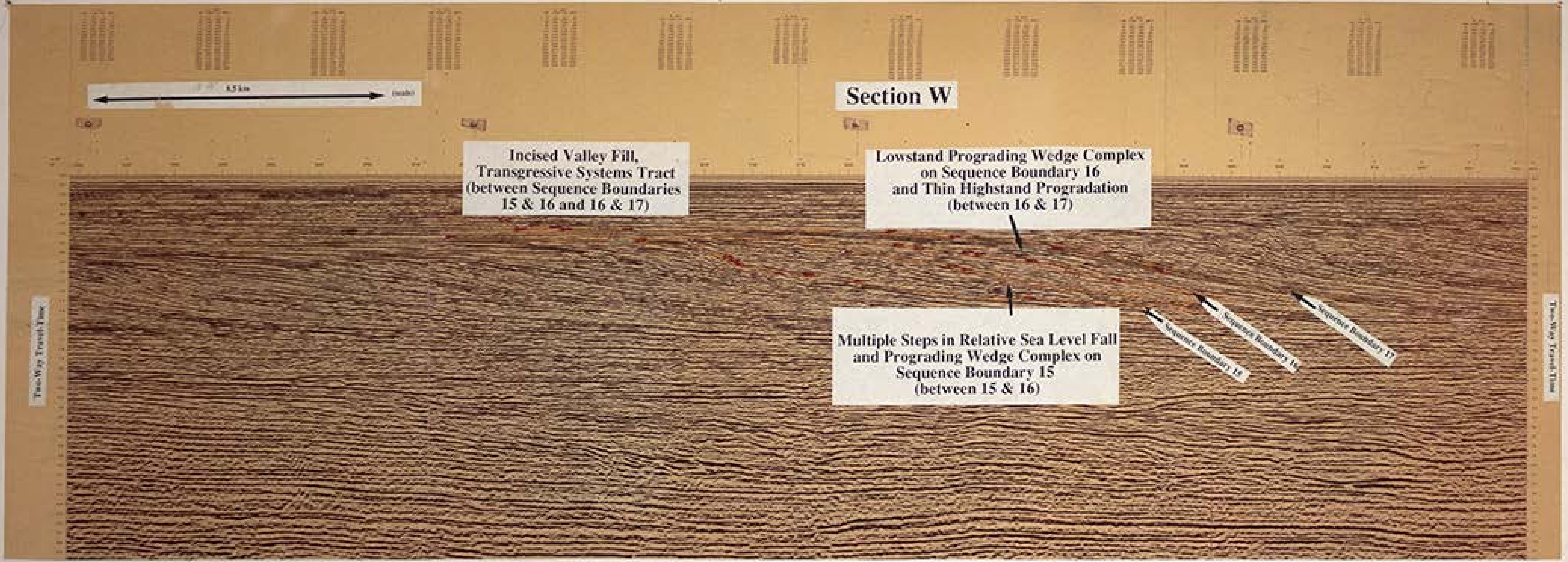


Section V
Incised Valley Fill and Transgressive
Systems Tract on
Sequence Boundary 17
Back-Stepping 'Slope Fans'
(Channel - Overbanking)
on Sequence Boundaries 5 & 6


Section E


Basic Architecture of Progradation
Progradation occurs mainly during relative lowstand
below the offlap break.
During highstand time progradation does occur, extending
backward the offlap break built during the lowstand.
This progradation is minor in building the continental
margin outward
More than one episode of progradation, attributable
to delta switching, might occur during the highstand.


Section S
Transgressive Systems Tract
on Sequence Boundary 5
Multiple Steps in Relative
Sea Level Fall between
Sequence Boundaries 4 & 5
and
Prograding Wedge Complex
Sequence Boundary
Multiple Steps in Relative Sea Level Fall
during One Major Sea Level Fall
between Sequence Boundaries 5 & 6
Prograding Wedge Complex on
Sequence Boundary 5
'Slope Fan'
on Sequence Boundary 5
Incised-Valley Fill Transgressive
Systems Tract, Highstand Systems
Tract on Platform on
Sequence Boundary 14
Sequence Boundary 14
Multiple Steps in Relative Sea Level Fall
and Prograding Wedge Complex
between Sequence Boundaries 14 & 15
SIL1


Section W
Incised Valley Fill, Transgressive Systems Tract (between Sequence Boundaries 15 & 16 and 16 & 17)
Lowstand Prograding Wedge Complex on Sequence Boundary 16 and Thin Highstand Progradation (between 16 & 17)
Multiple Steps in Relative Sea Level Fall and Prograding Wedge Complex on Sequence Boundary 15 (between 15 & 16)
Sequence Boundary 15
Sequence Boundary 16
Sequence Boundary 17
Two-Way Travel-Time
Two-Way Travel-Time

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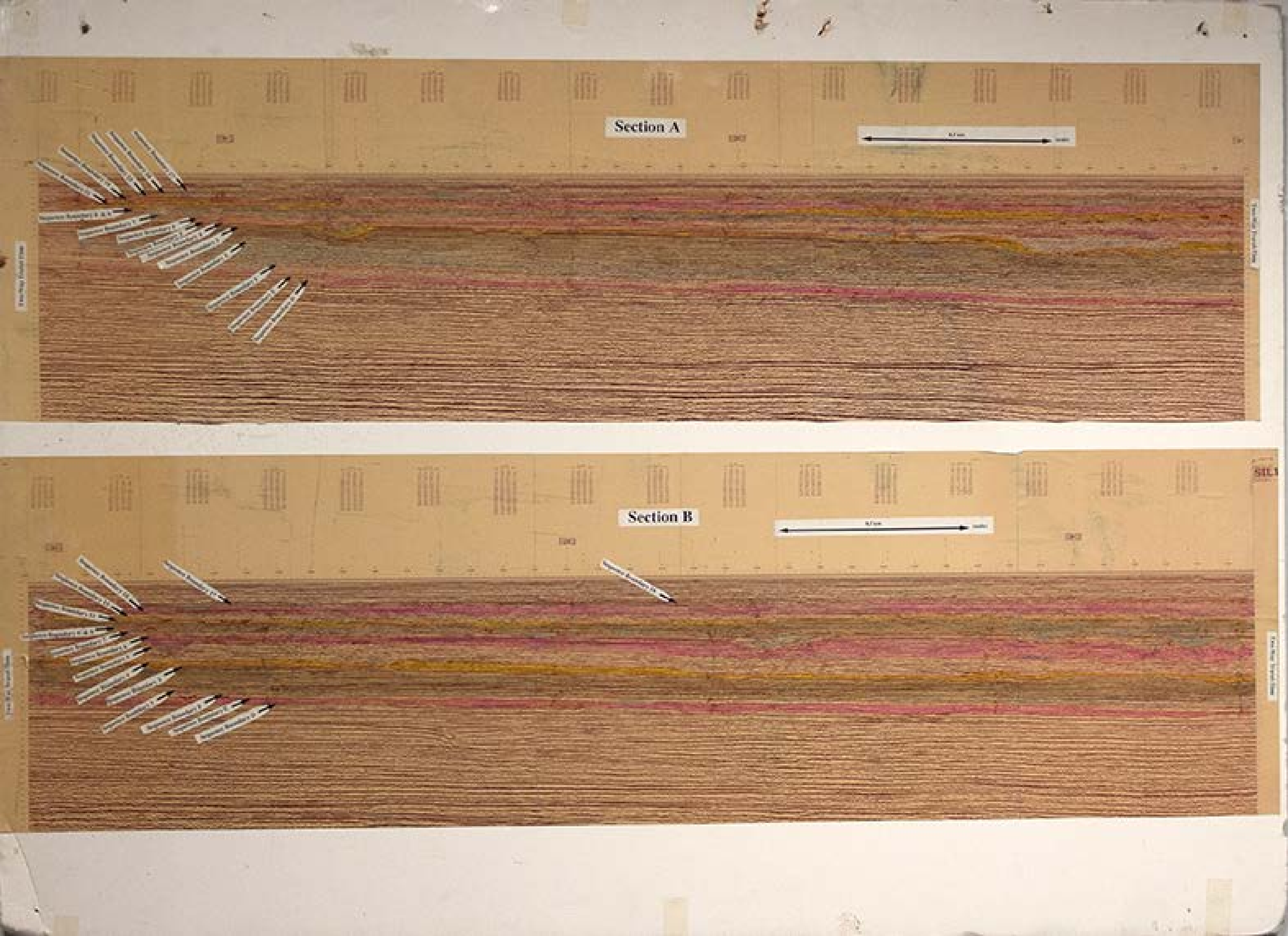
Section A
Section B

Procedure of Interactive Analysis

All sequence boundaries have been digitized from the paper seismic interpretation using a Landmark RT based Voyager Workstation. Once the boundaries were digitized a series of maps were generated. Since the data is from a regional 2d seismic survey the boundaries were digitized into a 2d project named MOZA. Triangulated surfaces were made for boundaries: d, e, f, 1, 3, 4, 5, 6, 7, 8 & 9, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 22A, 23, 24, and 25.

The (X,Y) limits of the area interpreted were identified and a grid established over this area. Each grid cell is 1 km on a side. After moving the 2d horizon file into a new subdirectory, the grids were used to define the project definition file and MOZA became a 3d project.

The triangulated surfaces made when MOZA was a 2d project were written into the 3d grid as horizon files. These horizons were then smoothed with an 11x11 operator to create the time structure maps. From these maps isocrons, dips maps, azimuth maps, and dip of dip maps (second derivative maps) were generated.

In addition, contour maps for the shelf break and for the maximum dip of progradation (downdip from the shelf break) were generated. Using these contour maps and cross-sections through the data volume a horizon was picked showing the movement of the shelf break as aggradation and progradation occurred. The more vertical this horizon is the more the aggradation and the more horizontal the more the progradation.

SECOND BOARD

During the Neogene and Quaternary, 75 km to 100 km of shelf margin progradation occurred off Mozambique, near the Zambezi River Delta (see the offlap distribution and isochron maps). In a gross sense, during the early Miocene, more progradation occurred towards the southern part of the region studied (see the offlap map). Subsequently, more progradation occurred in the north, for some time, compensating for the earlier lesser progradation in that region. In detail, several depocenters existed, especially at shelf margin during the deposition of each sequence, indicating several point sediment-sources. Some of these shelf margin depocenters are more strike-oriented and some more dip-oriented. These shelf margin depocenters consist of relative lowstand prograding wedges, deposited basinward of previous offlap breaks. The shifting of successive depocenters with time during each lowstand occurred as if to compensate for the previous depositional topography. The sediments on the platform are usually thin, often deposited during relative rise and high stands of sea levels.

There is an excellent correspondence between the thickness of shelf margin depocenters (see isochron maps) and the distance of progradation as indicated by offlap breaks. Thus, as expected, the amount or distance of progradation is directly proportional to the thickness of depocenters (see offlap distribution and isochron maps).

From an examination of isochron and structure maps, several sediment pathways from the platform (shelf) to the slope and base-of-slope can be defined. Significant deep-water sediment transport occurred and deep-water depocenters were often established opposite shelf edge prograding-wedge depocenters. Relative high-relief paleo drainage on the platform, as indicated by dip-oriented isochrons, appears to have developed more during the deposition of younger sequences (see isochron maps.)

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THIRD BOARD

Examples of Systems-Tracts

Section Q:
- Transgressive systems tract on sequence boundary 4.
- Prograding wedge complex on sequence boundary 4 (between sequence boundaries 4 & 5).
- Back-stepping "slope fan" (channel-overbank complex) on sequence boundary 4.
- Transgressive systems tract and incised valley fill on sequence boundary 14.
- Lowstand prograding wedge complex on sequence boundary 14 (between 14 & 15) shows multiple steps in relative sea-level fall during one cycle of major sea-level fall.
- Transgressive systems tracts with incised valley or channel fills on sequence boundaries 20 & 21 on platform.
- Lowstand prograding wedge (PWC) on sequence boundary 20; highstand progradation overlying on lowstand PWC.
- Suspected small channels & levees (Z) on delta-plain of platform.

Section S:
- Transgressive systems tract on sequence boundary 5.
- Multiple steps in relative sea-level fall between sequence boundaries 4 & 5, and prograding wedge complex.
- Multiple steps in relative sea-level fall during one major sea-level fall and prograding wedge complex on sequence boundary 5.
- "Slope fan" on sequence boundary 5.
- Incised-valley fill, transgressive systems-tract, highstand systems tract on platform on sequence boundary 14.
- Multiple steps in relative sea-level fall and prograding wedge complex between sequence boundaries 14 & 15.

Section V:
- Back-stepping "slope fan" on sequence boundaries 5 & 6.
- Incised-valley fill and transgressive systems-tract on S.B. 17

Section W:
- Incised-valley fill, and transgressive systems-tract between sequence boundaries 15 & 16, and 16 & 17.
- Lowstand prograding wedge complex on sequence boundary 16 and thin highstand progradation between sequence boundaries 16 & 17.
- Multiple steps in relative sea-level fall and prograding wedge complex between sequence boundaries 15 & 16.

CONCLUSIONS

1. Mozambique shelf margin (near Zambezi River delta) prograded 75 km to over 100 km during the Neogene and Quaternary.
2. The progradation occurred mainly during the relative lowstands of sea level. Relative highstand progradation played only a minor role in building out the Mozambique continental margin.
3. Depocenters consisted of mainly prograding wedges at or below shelf edge (offlap break) and continually switched in place during each relative lowstand as if to compensate for previous depositional topography.
4. Several sediment pathways from platform (shelf) through slope to base-of-slope can be defined. Deep-water depocenters were often established opposite the main shelf-edge prograding depocenters.
5. Paleo-drainage on the platform of the region studied appears to have developed more relief during the deposition of younger sequences.
6. The Mozambique continental margin is a stable passive margin and provides an independent test case to document the importance of relative lowstands of sea level in building out the continental margin.
7. We believe that the controversy whether condensed sections (maximum flooding surfaces, downlap surfaces) or the unconformity surface with regional onlaps of strata is more important in packaging the sedimentary section is unnecessary and unproductive. In sequence stratigraphy, both surfaces are generally considered essential to properly package the sedimentary section and understand the depositional systems. However, depending upon the variety, quality and quantity of data available, one of the surfaces is used initially more than the other although both have to be used ultimately. In our study, unconformity surfaces defined by regional onlaps of strata (reflections) are definitely essential to initially break the section in the sequences.
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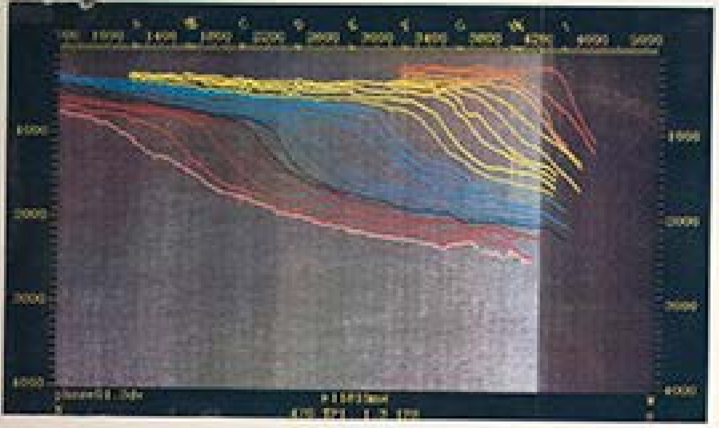
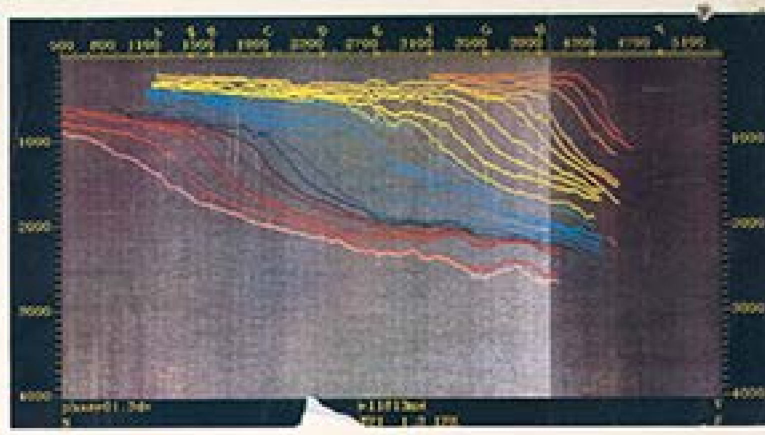
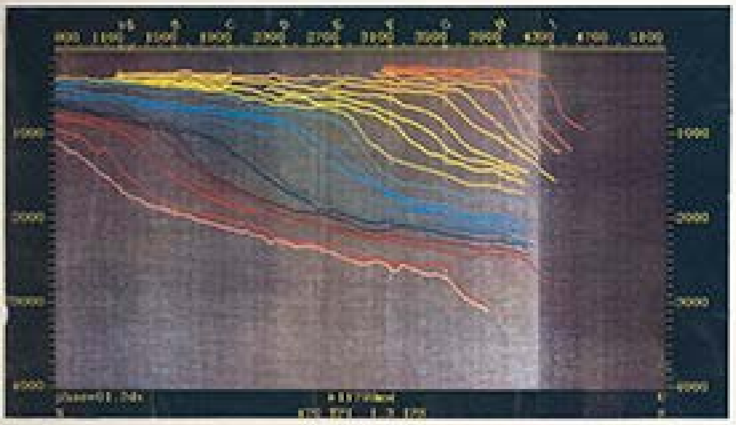
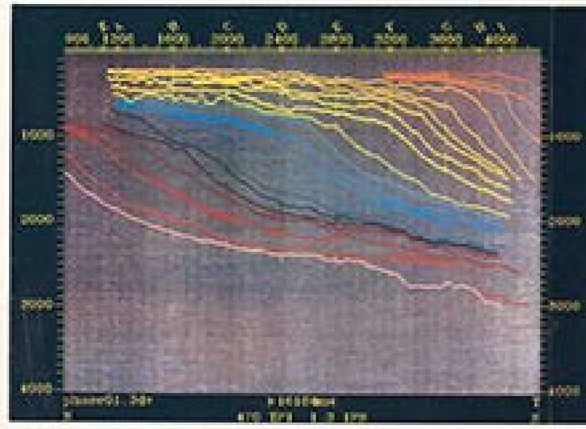
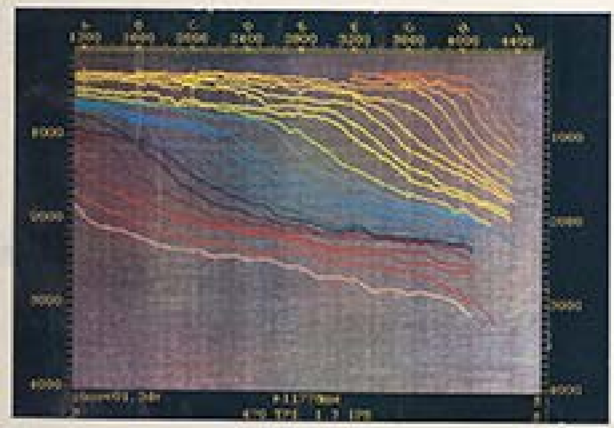
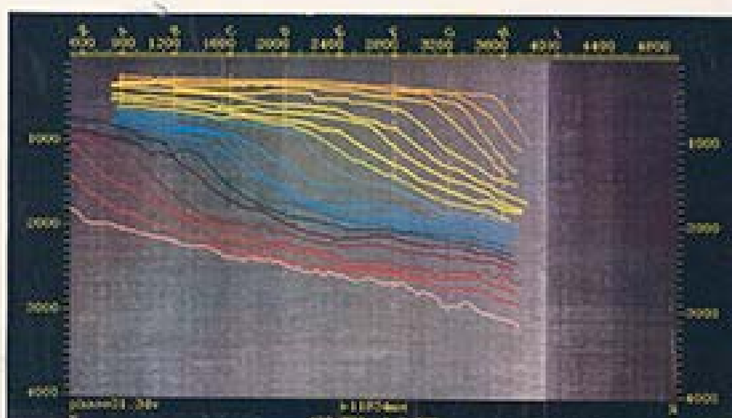
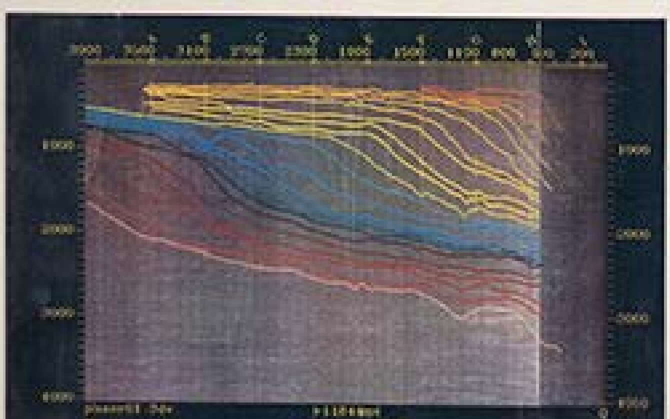
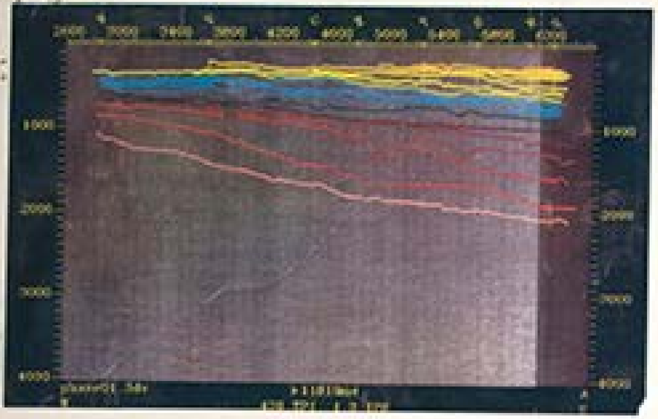
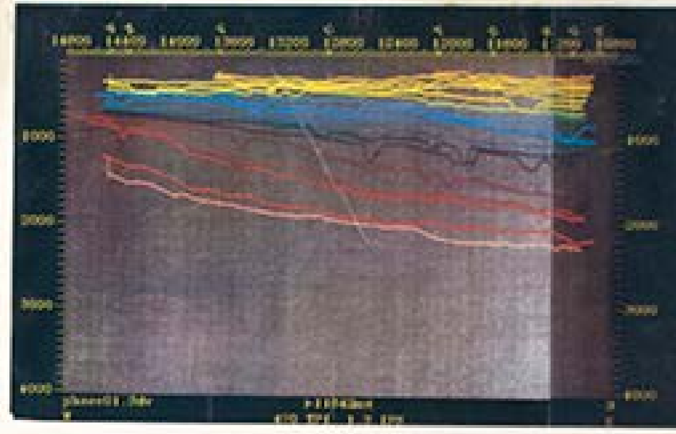
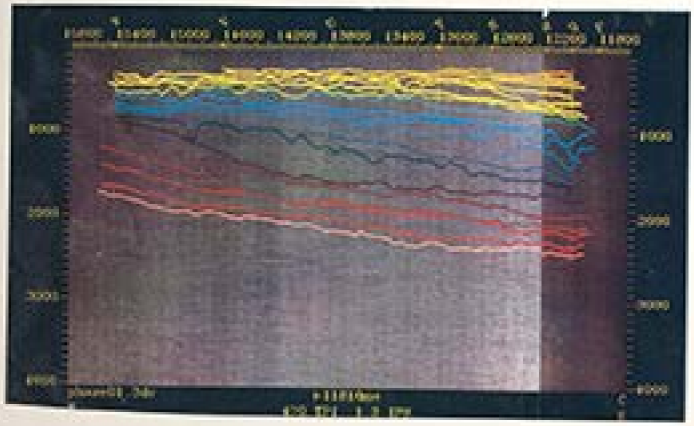
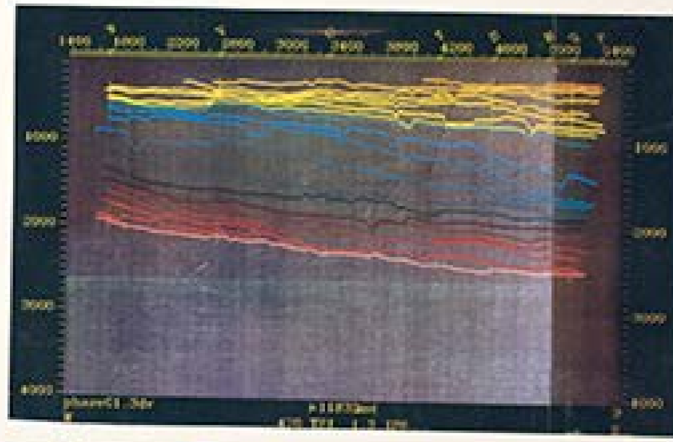
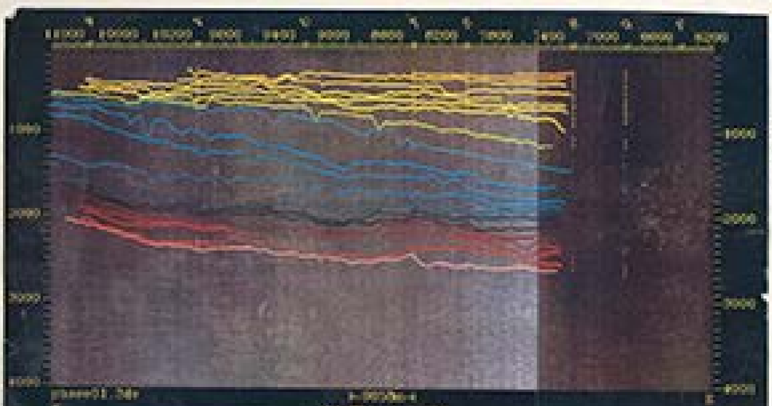
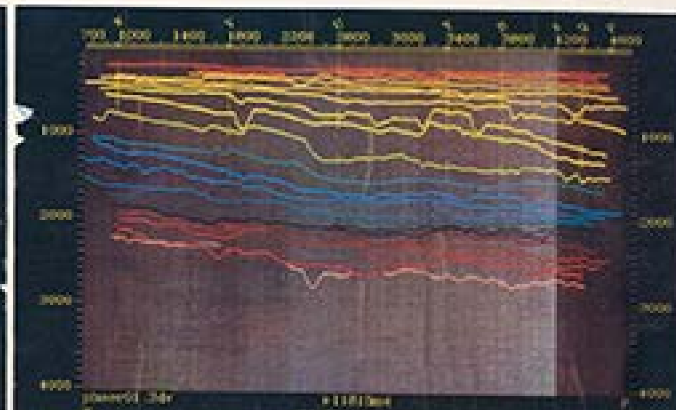
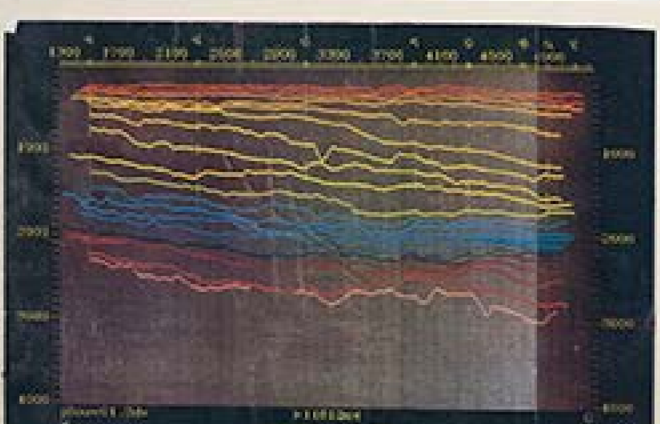
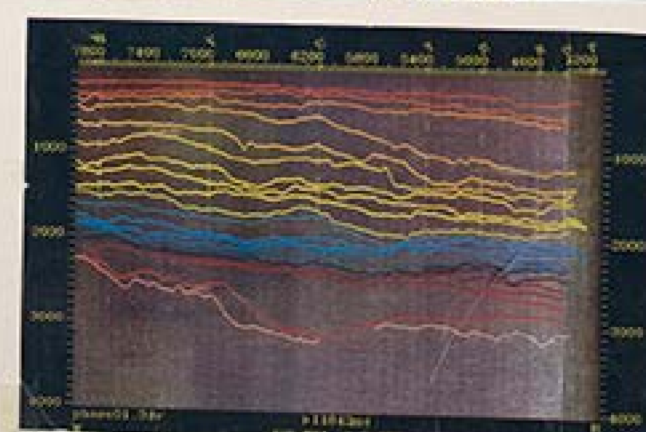
ACKNOWLEDGEMENTS

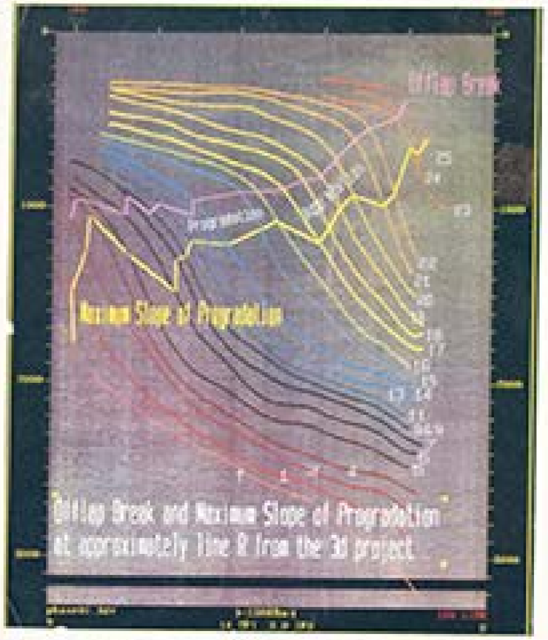
We would like to acknowledge permission from Geco Exploration Services to utilize their seismic data in our research project. Although a complete set of references has not been compiled we recognize the work of M. De Buyl and G. Flores (The Southern Mozambique Basin: The Most Promising Hydrocarbon Province Offshore East Africa) from which we derived the generalized lithology and our tie to available well data.

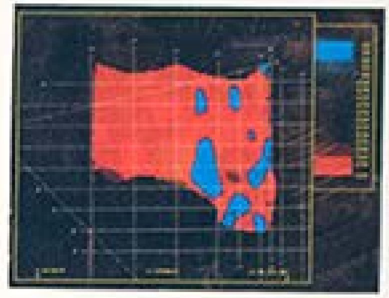
Elf Exploration, Inc. has kindly allowed V. Kolla to present this paper at the AAPG Meeting. Landmark/LGC and Landmark/ExploiTech supported digitization of the seismic sections and provided the workstation to do the interactive analysis. Thanks go to Gary Jones who created the offlap break map and to the Senior Management of Landmark Graphics Corporation for permission for Roice Nelson to assist in preparation and presentation of this paper.

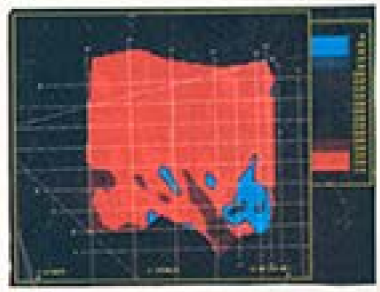








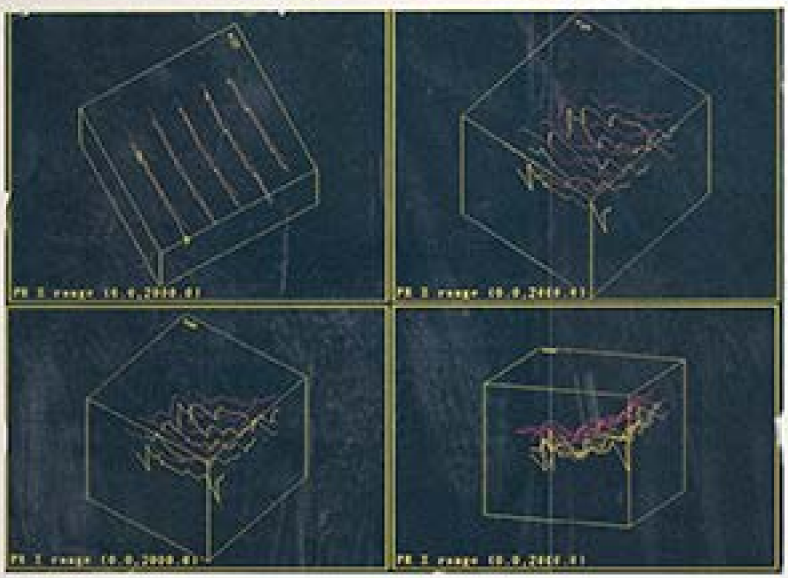










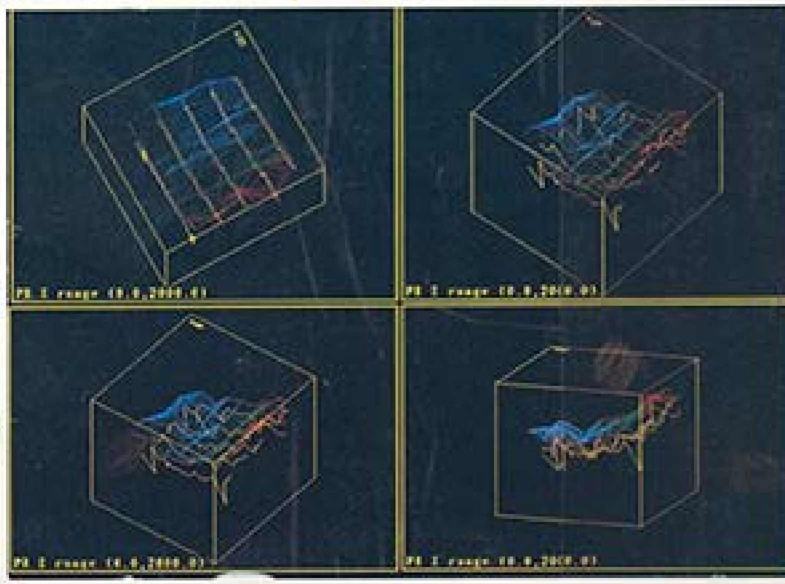

Offlap Break
Progradation
Maximum Slope of Progradation
Offlap Break and Maximum Slope of Progradation
at approximately line V from the 3d project.

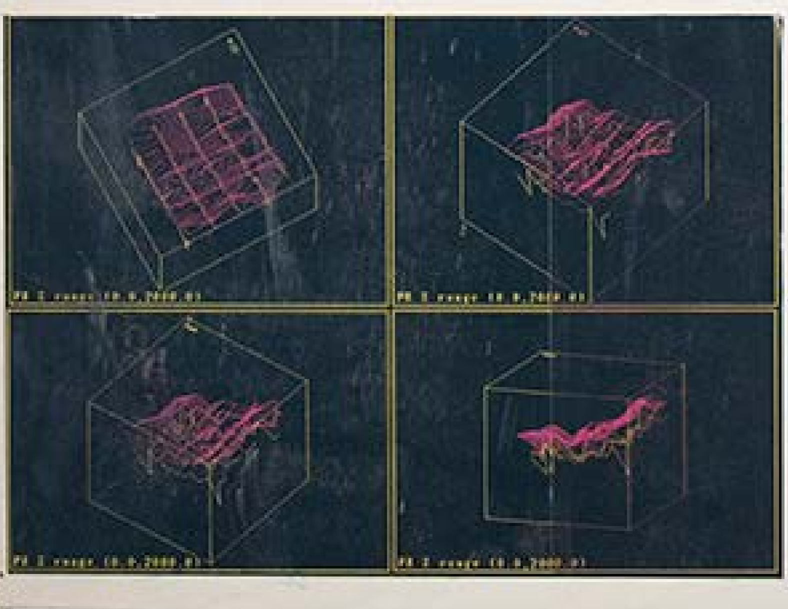

Offlap Break
Progradation
Maximum Slope of Progradation
Offlap Break and Maximum Slope of Progradation
at approximately line R from the 3d project.

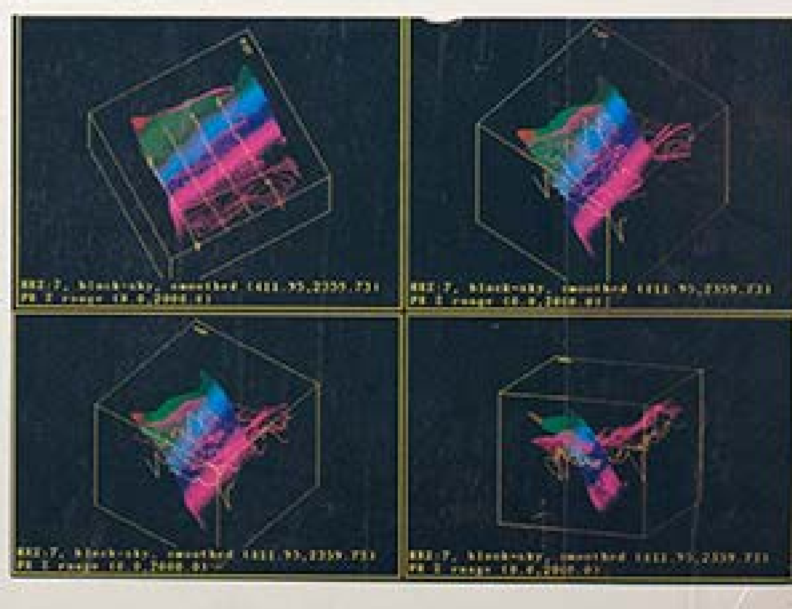


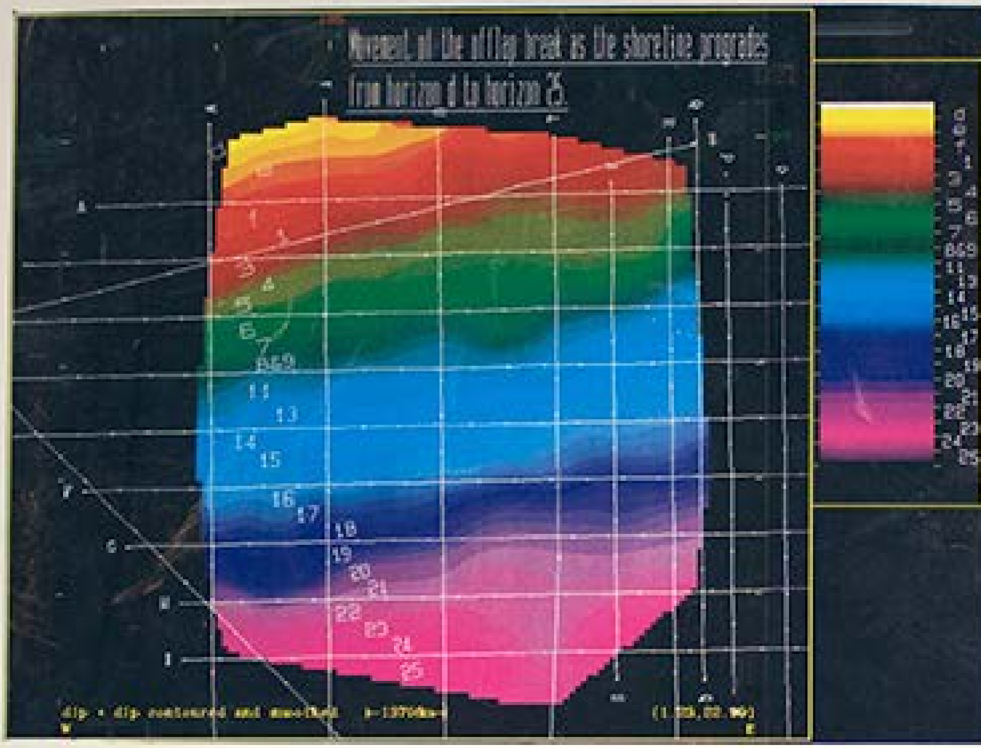


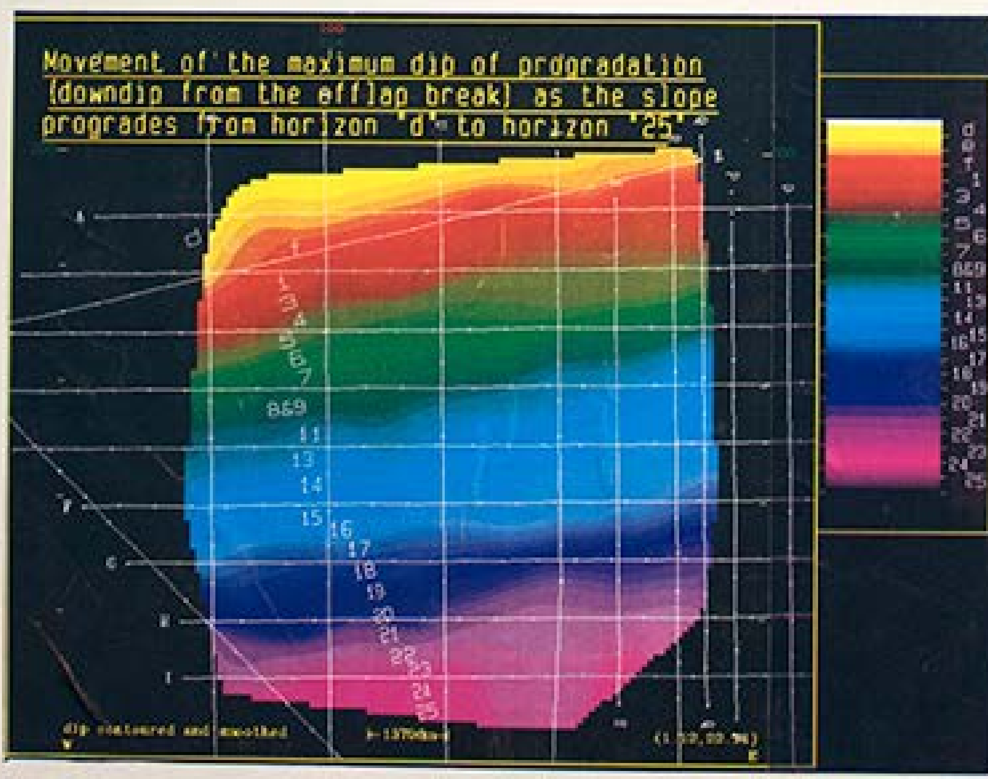


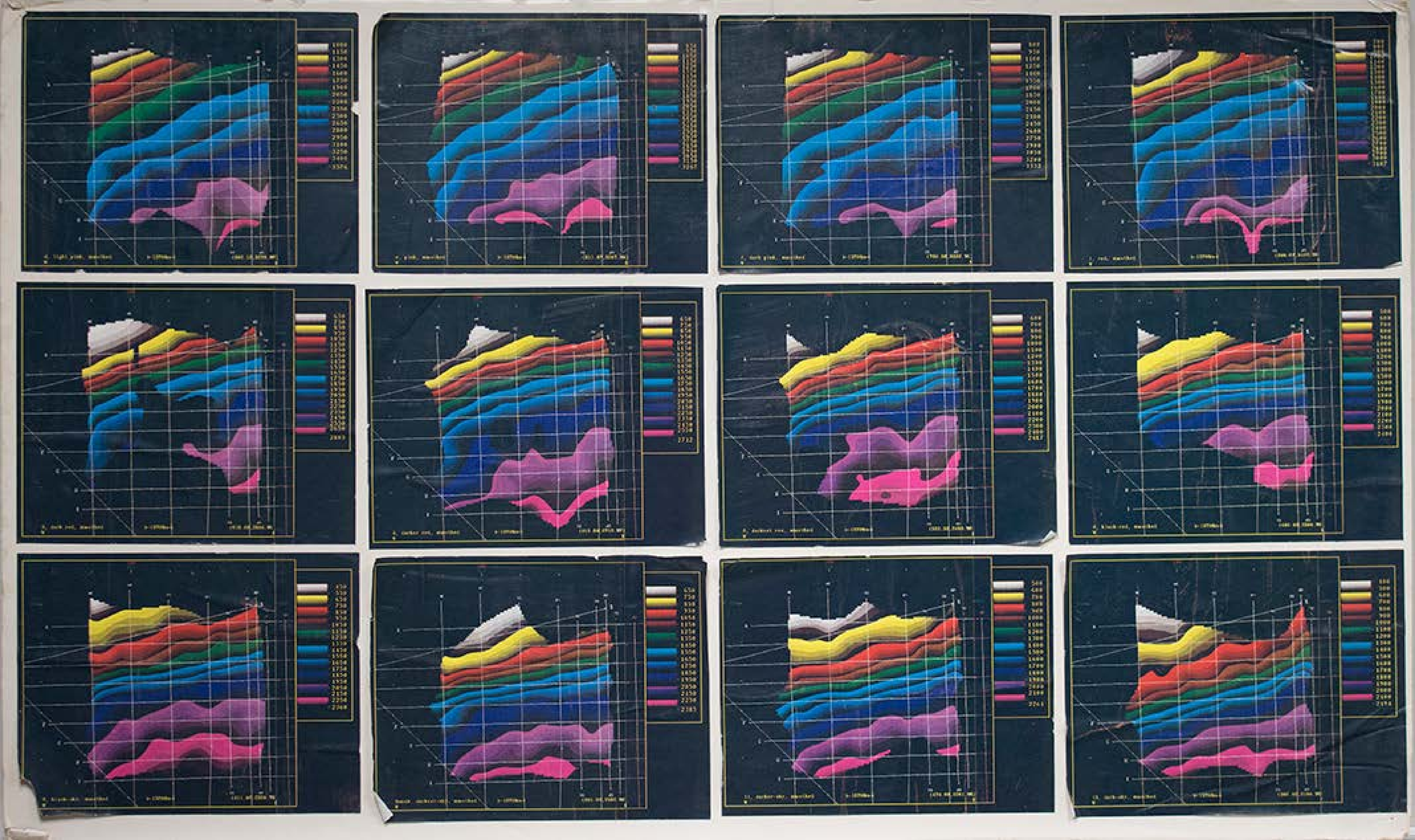


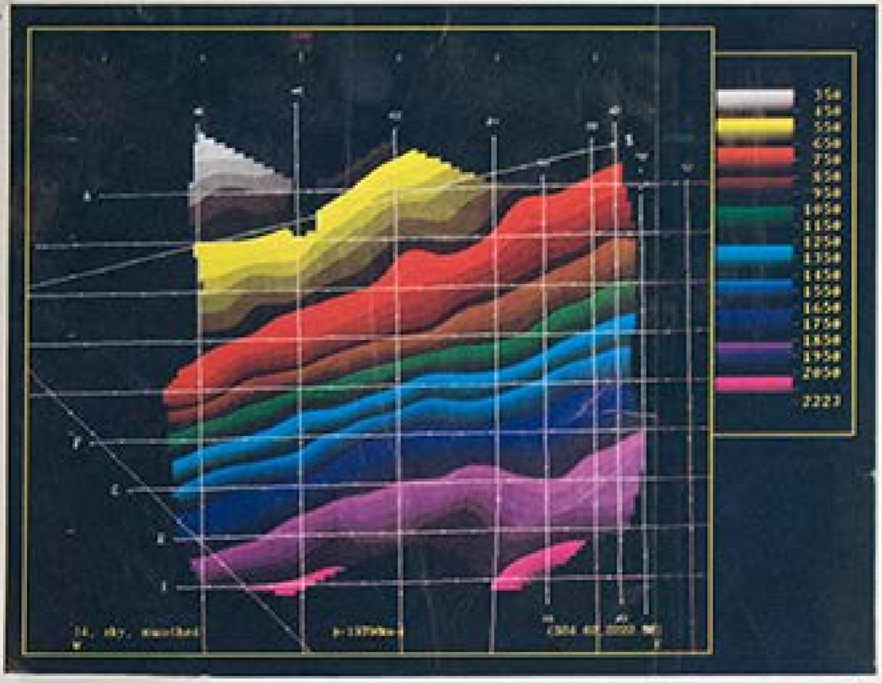





Movement of the offlap break as the shoreline progrades
from horizon d to horizon 25.


Movement of the maximum dip of progradation
(downdip from the offlap break) as the slope
progrades from horizon 'd' to horizon '25'




350
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550
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750
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950
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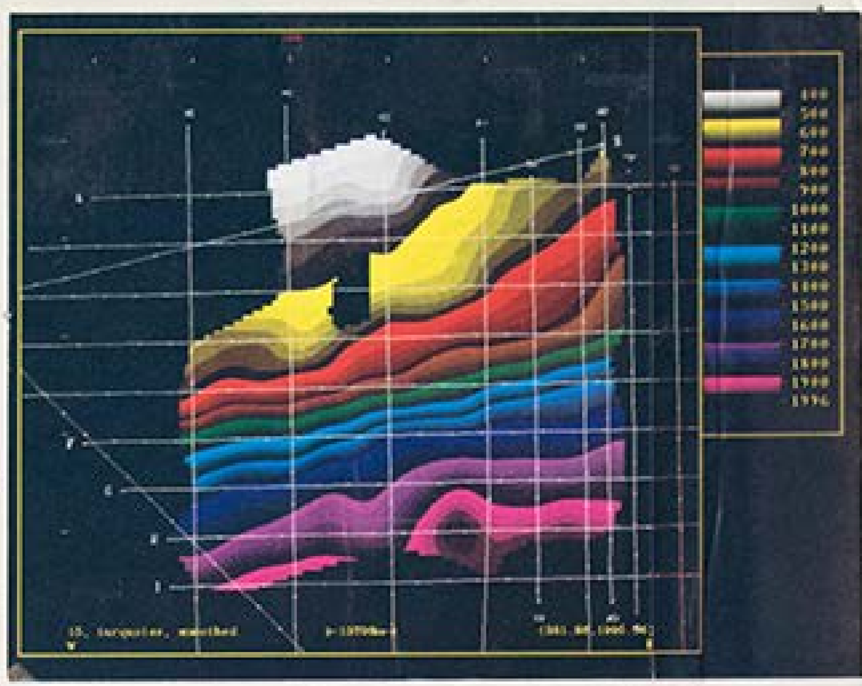
1150
1250
1350
1450
1550
1650
1750
1850
1950
2050
2223
sky, smoothed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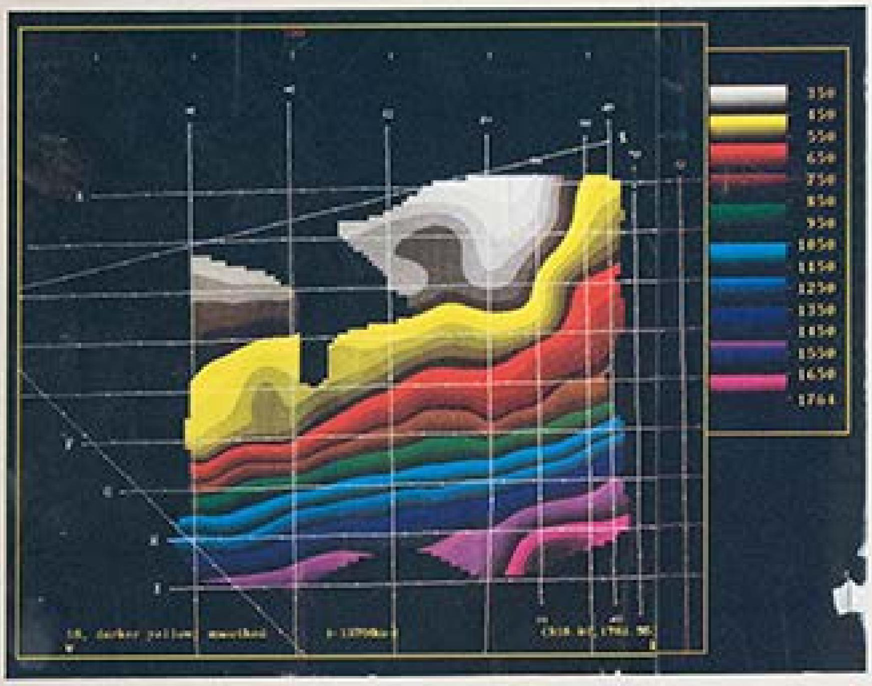
1996
turquoise, smoothed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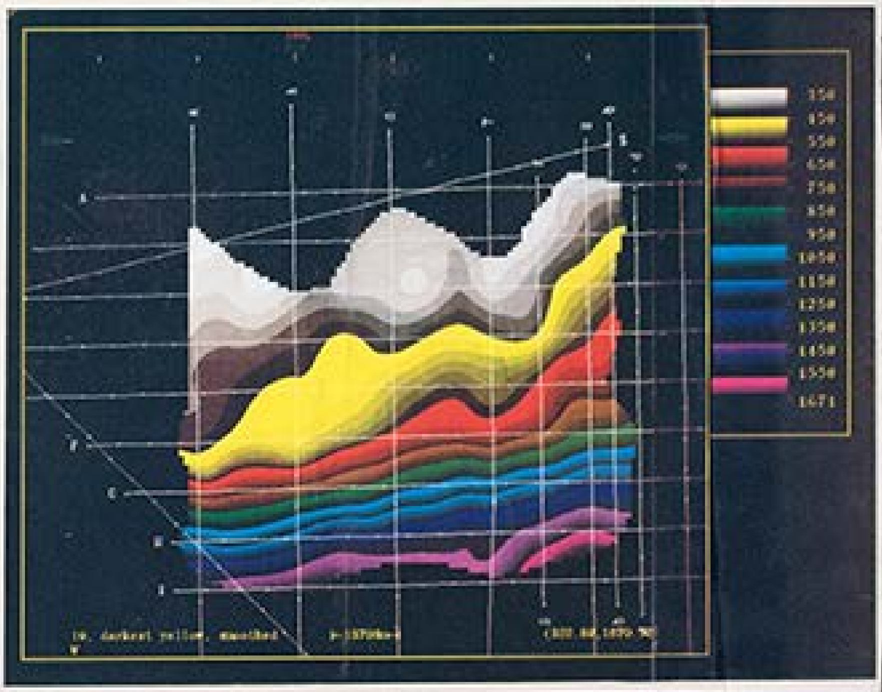
1650
1764
darker yellow, smoothed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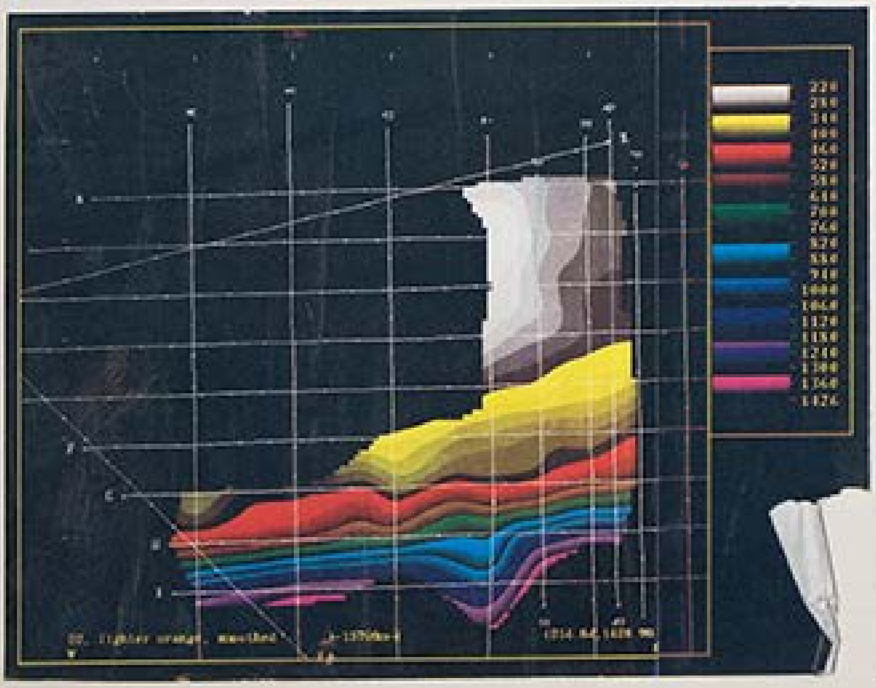
1671
darkest yellow, smoothed


220
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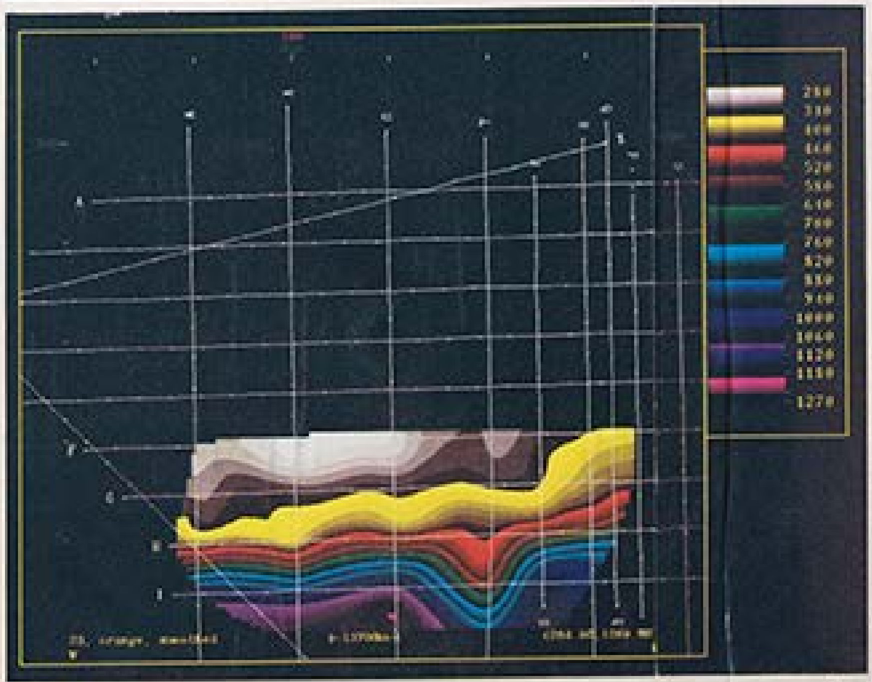
1180
1240
1300
1360
1426
lighter orange, smoothed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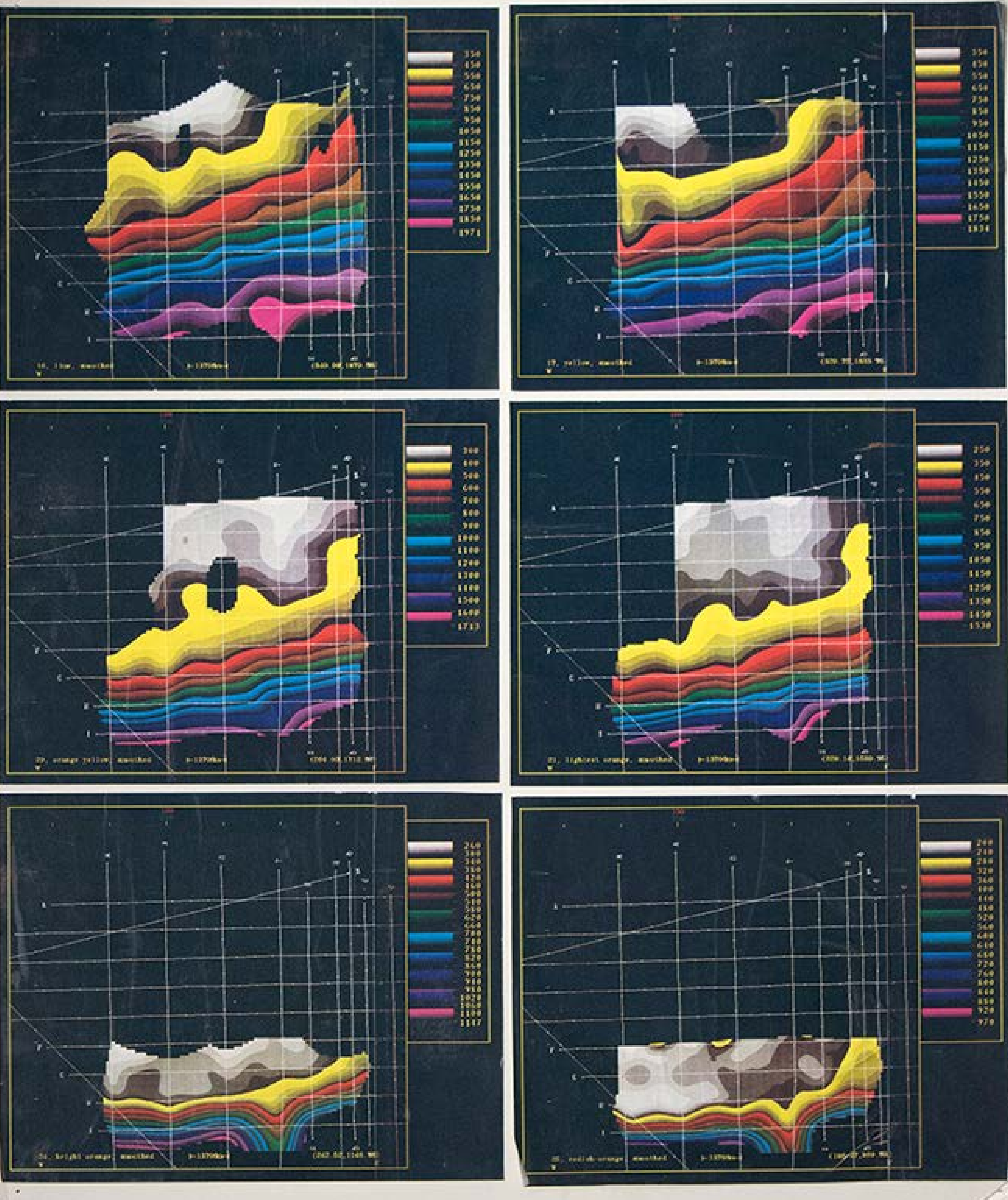
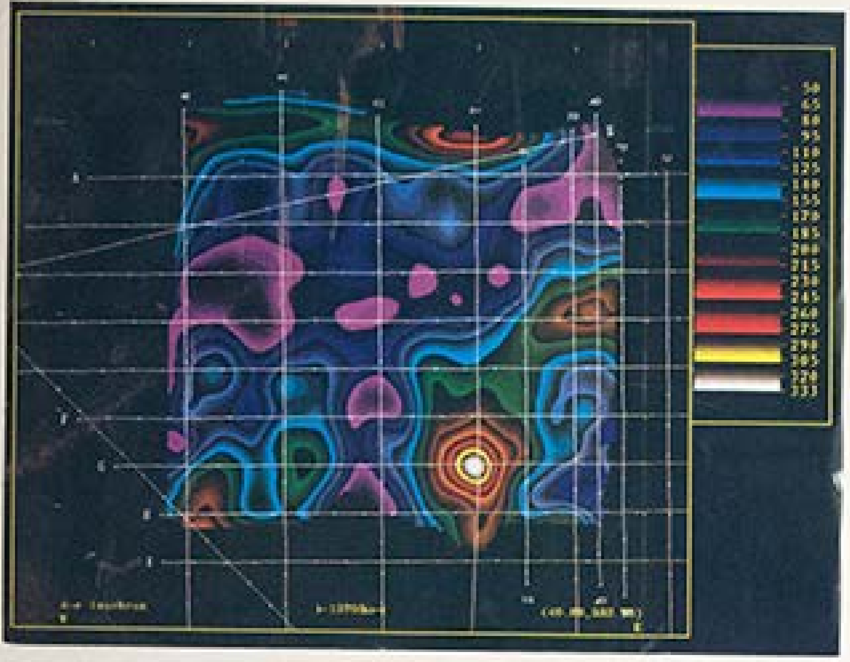
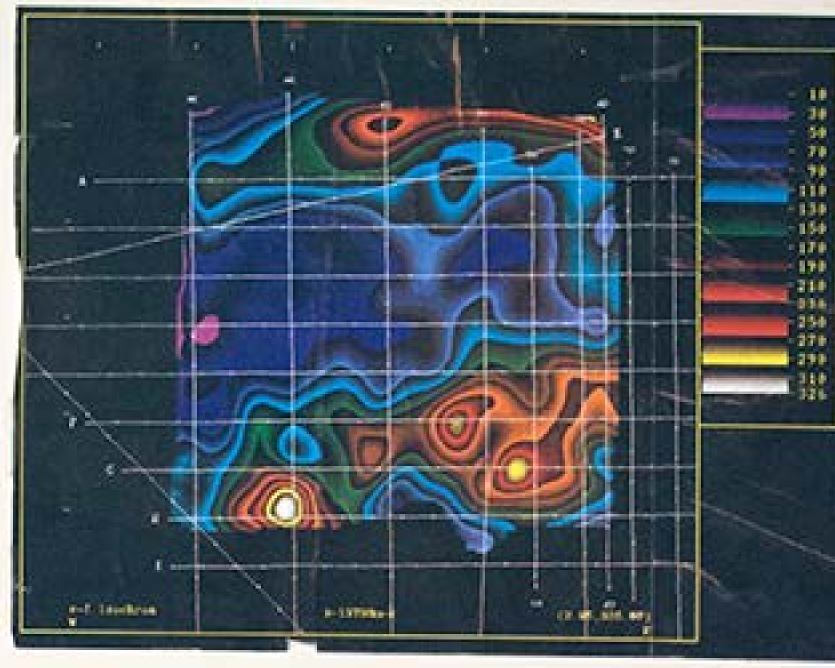
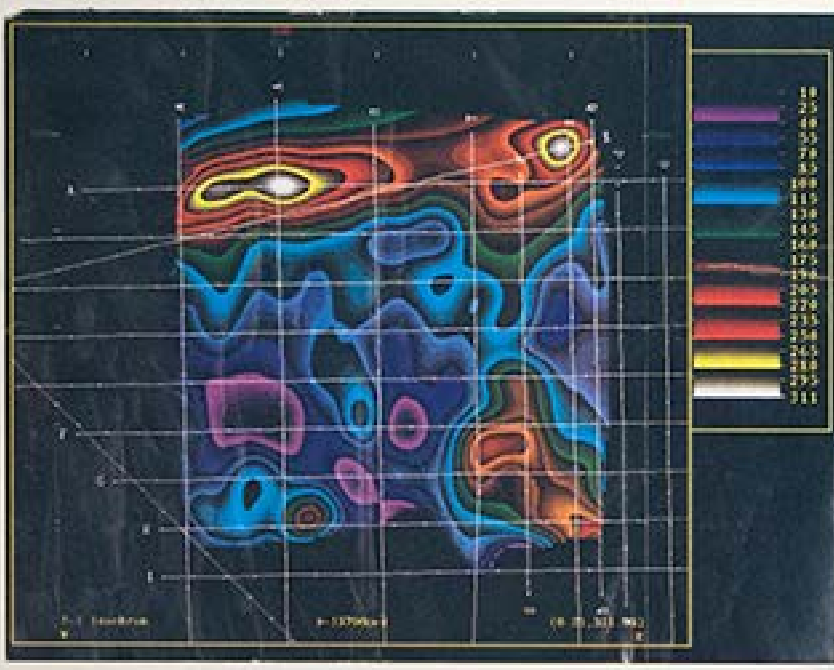
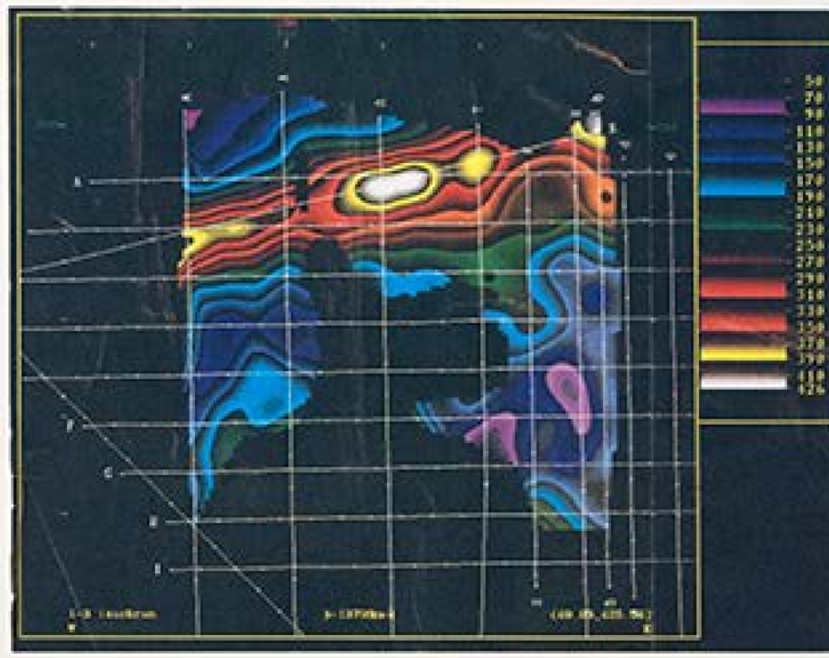
1270
orange, smoothed

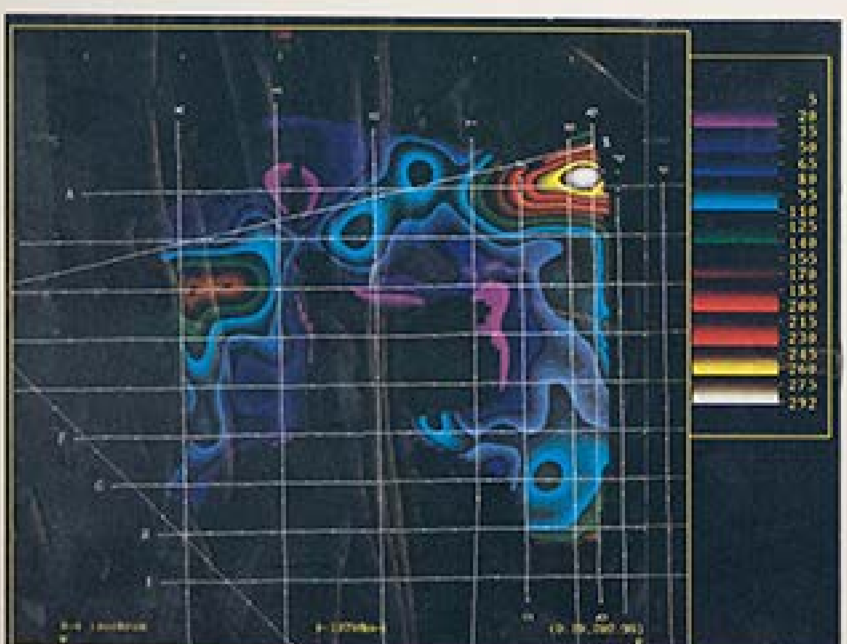


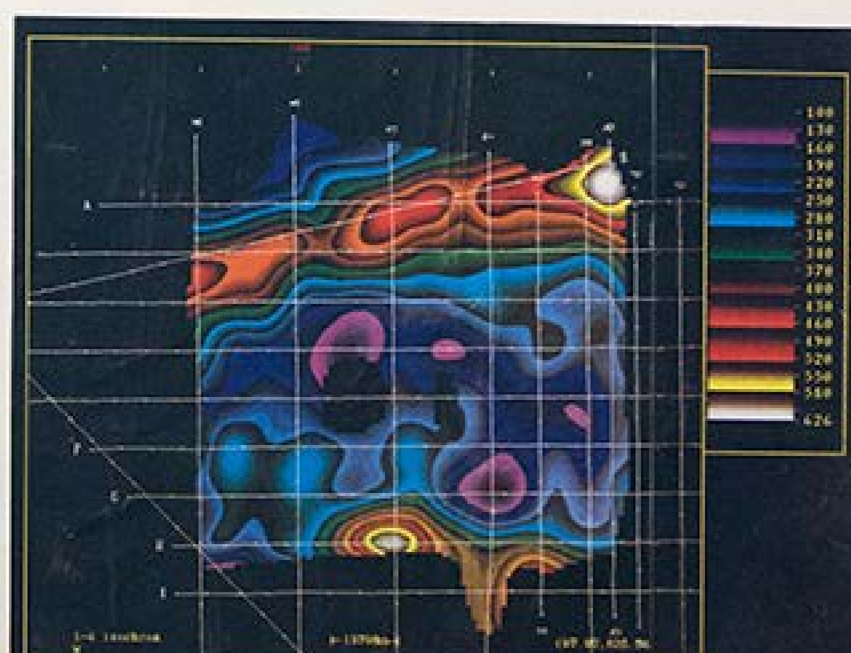


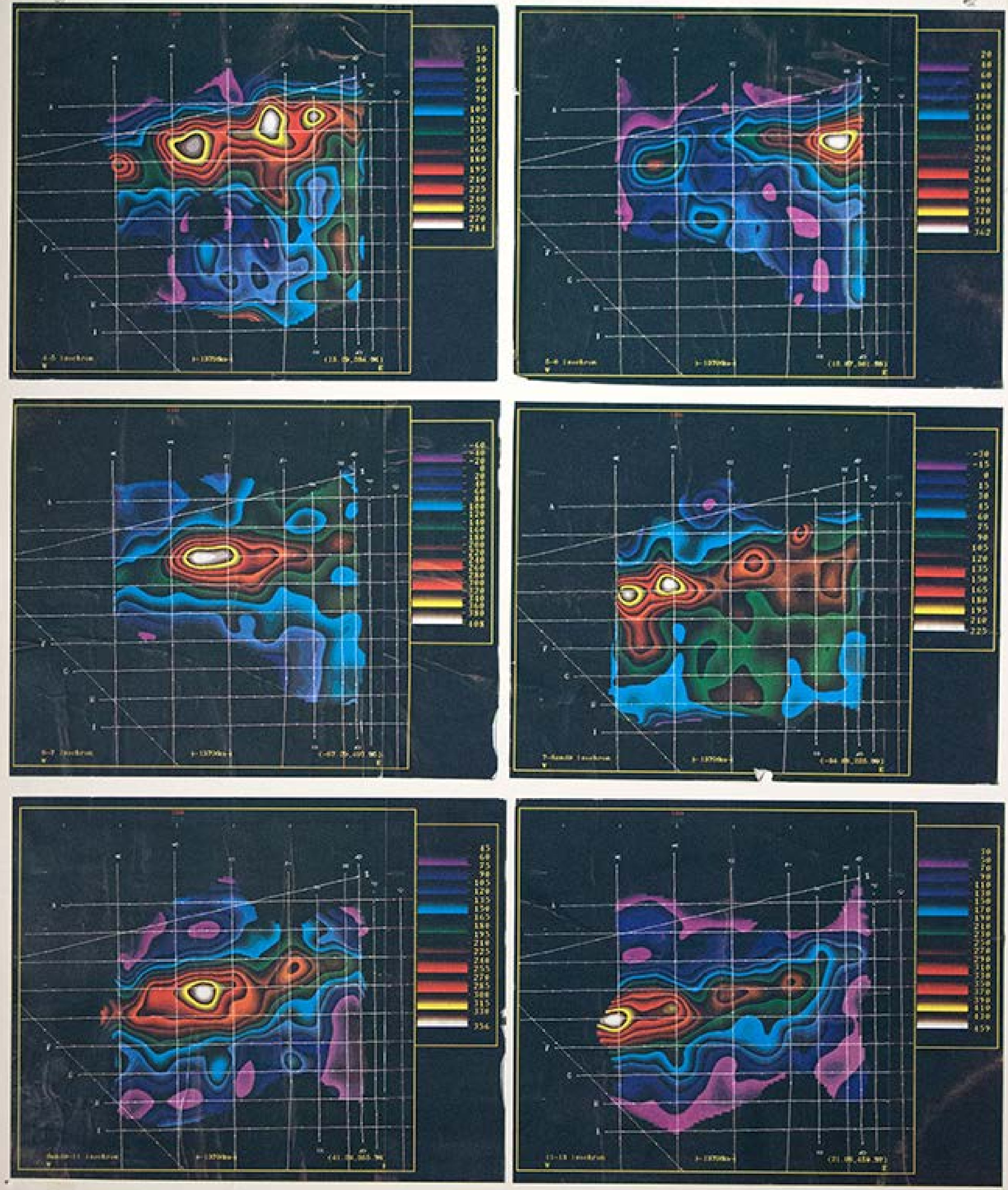


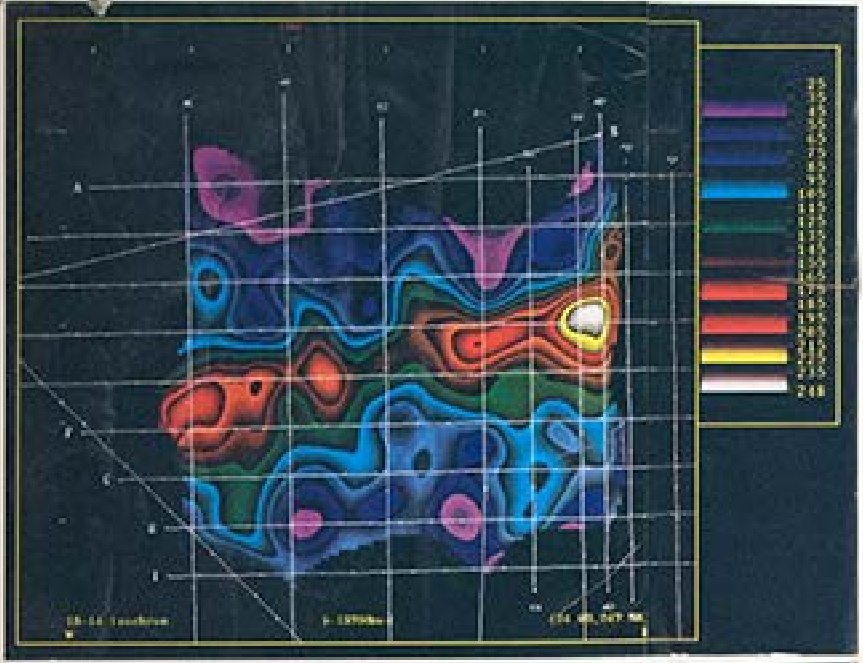


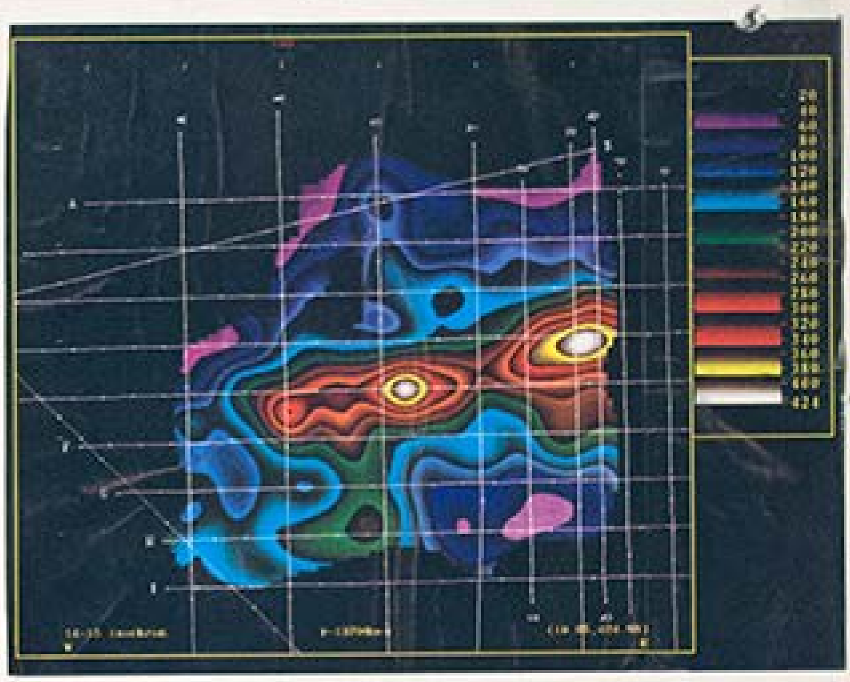


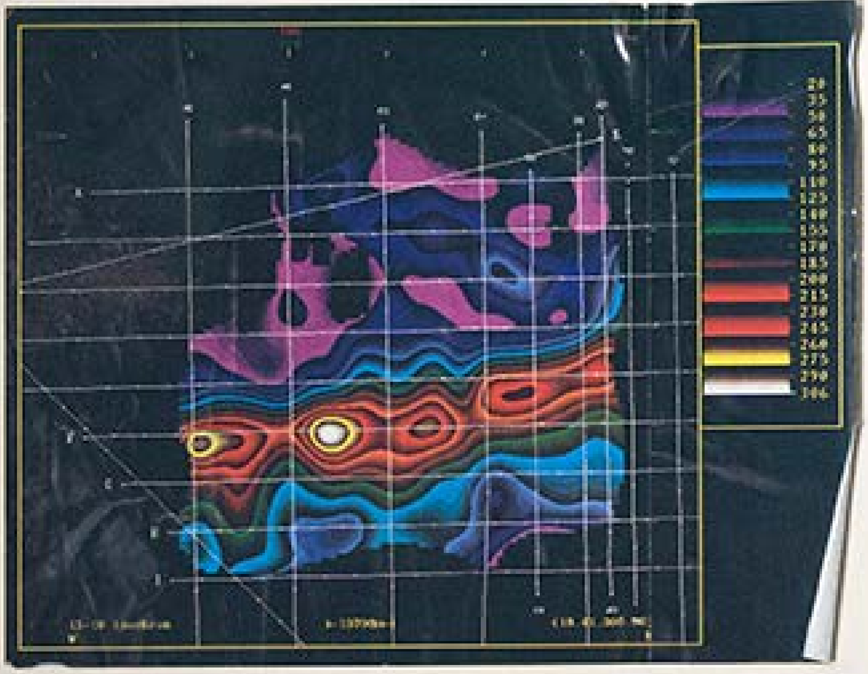


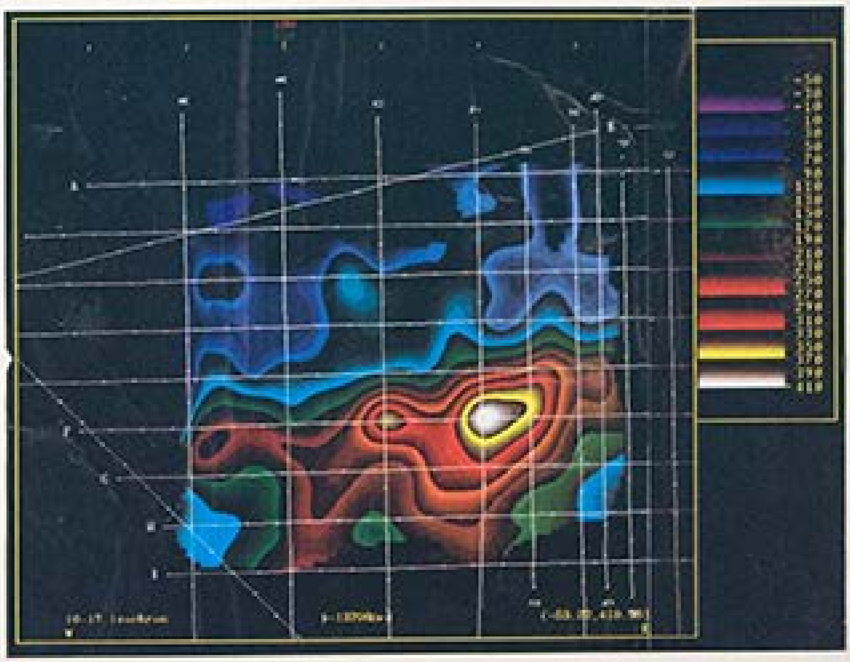


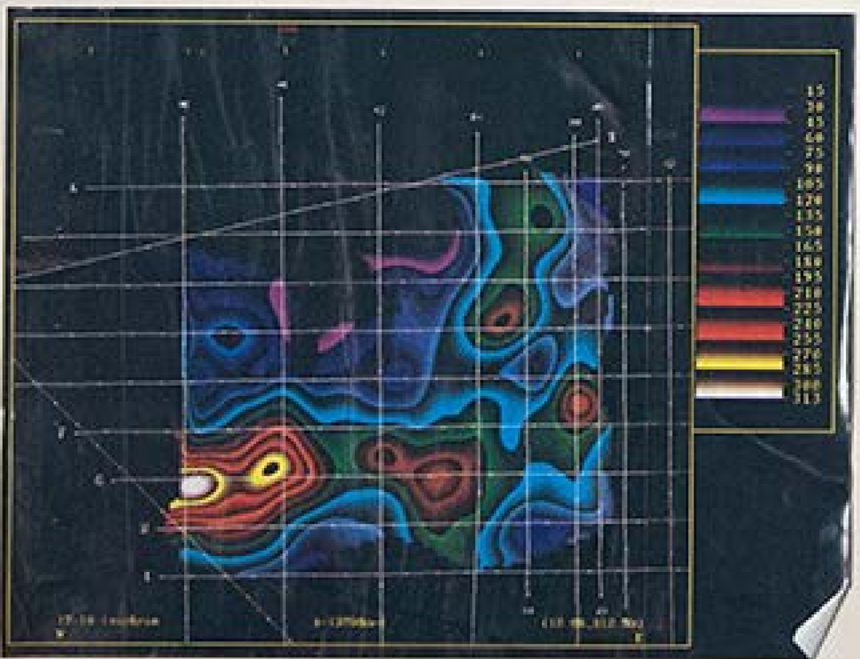


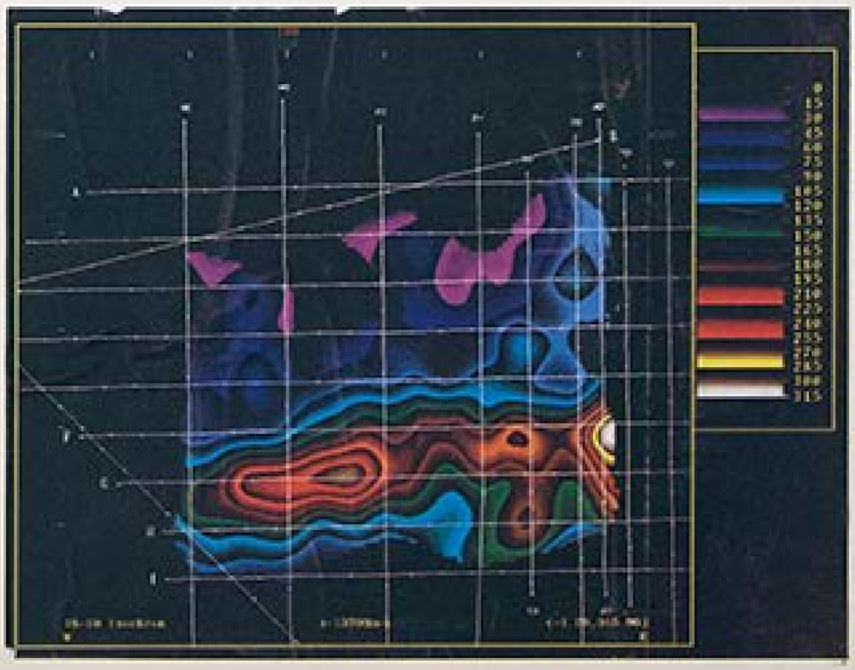












ACKNOWLEDGEMENTS

We would like to acknowledge permission from Geco Exploration Services to utilize their seismic data in our research project. Although a complete set of references has not been compiled we recognize the work of M. De Buyl and G. Flores (The Southern Mozambique Basin: The Most Promising Hydrocarbon Province Offshore East Africa) from which we derived the generalized lithology and our tie to available well data.

Elf Exploration, Inc. has kindly allowed V. Kolla to present this paper at the AAPG Meeting. Landmark/LGC and Landmark/ExploiTech supported digitization of the seismic sections and provided the workstation to do the interactive analysis. Thanks go to Gary Jones who created the offlap break map and to the Senior Management of Landmark Graphics Corporation for permission for Roice Nelson to assist in preparation and presentation of this paper.

April 5, 1991

Attention: Brad Macurda

05 April 1991

Mr. George E. Smith III
Chevron USA

Fax No: 504-592-6742

Brad,

This is what has been mounted. Can change text if a major problem, but prefer not to. (2:00 this morning finished). Kola has a set of the figures for you except for some I did last night. Need two poster areas, but will cut or steal one.

Best Regards,

Ron

LANDMARK

333 CYPRESS RUN, SUITE 100 • HOUSTON, TEXAS 77094
(713) 579-4700 • FAX (713) 579-4814 OR (713) 579-8170

DATE: September 17

TO: Dr. Brad Macurda
% Forum Hotel 011-44-71-373-1448

FROM: Joice Nelson
713/579-4794

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Speaker's Name (family name first): Kolla, V. Office Telephone: (Area Code) (713)739-2164 Telex # PETRAKI HOUV 798-587

Affiliation (employer): ELF AQUITAINE Office FAX: (Area Code)

Address: 1000 Louisiana, Suite 380 Home Telephone: (Area Code) (713) 879-7090

City, State, Country, ZIP/Postal Code: Houston, Texas U.S.A. 77002

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SEQUENCE STRATIGRAPHY AND SYSTEMS TRACT ANALYSIS OF THE NEOGENE-QUATERNARY CONTINENTAL MARGIN OFF THE ZAMBEZI DELTA, MOZAMBIQUE

KOLLA, V., Elf Exploration, Inc., Houston, TX, D. BRADFORD MACURDA, JR., The Energists, Houston, TX, and H. ROICE NELSON JR., Landmark Graphics Corporation, Houston, TX

ABSTRACT

During the Neogene and Quaternary, the Zambezi River built a broad delta-platform from 75 to over 100 km into the Indian Ocean. A regional seismic grid shows numerous discontinuities in the delta platform, slope and deeper basinal areas. Based on downward shifts of reflection terminations and onlaps at or below shelf edge, more than 25 sequences have been identified. Within the gross Neogene package, the basal section is characterized by aggradation, followed by rapid and significant (oblique) progradation, which is then followed by numerous aggradational-progradation and progradation packages in the upper, younger sections. From recognition of aggradation-progradation patterns and from well information, it appears that the first, significant and rapid progradation occurred since Mid-Miocene. The earliest of the Neogene sequence appears thicker towards south and thinner towards north, opposite of the younger sequences. The number of sequences, their modes of stacking and thickness distributions reflect relative sea level changes and the points of sediment input as the Zambezi River shifted in position from south to north in time.

The Zambezi passive continental margin, located in the Indian Ocean basin, is a stable platform as opposed to the unstable continental margins off the Mississippi, McKenzie and Niger deltas and is far from the stable margins which were the basis of the Haq, et. al. cycle-chart (1987). Thus the Zambezi continental margin provides an independent test case for verification of eustatic cycles and for the evaluation of allogenic (eustatic) vs autogenic (subsidence and delta switching) effects on depositional systems and systems tracts.

A LOOK BACK
A LOOK FORWARD

American Association of Petroleum Geologists
An International Organization

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AAPG
APRIL 7-10, 1991
DALLAS

1991 AAPG
ANNUAL CONVENTION

Host: Dallas Geological Society

February 1991

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has been assigned Booth Number D3, Session Wed., on April 10 for the 1991 AAPG Annual Convention. Please refer to the enclosed, revised floor plan to locate your booth.

General Instructions for preparing, setting-up and displaying your poster were included in your Poster Kit sent earlier. Please read and follow the instructions.

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We are looking forward to meeting you in Dallas for the Diamond Jubilee Convention.

Rebecca Dodge, AAPG Poster Session Chairman
Bob Hopkins, EMD Poster Session Chairman
Bill Abbott, SEPM Poster Chairman

The Systems Tracts of the Zambezi Delta, Mozambique

by

V. Kolla, Elf Aquitaine
D. Bradford Macurda, Jr., The Energists
and H. Roice Nelson, Jr., Landmark Graphics Corporation

ABSTRACT

During the Neogene and Quaternary, Mozambique shelf margin, close to the Zambezi river delta, prograded for distances of 75 to over 100 km into the Indian Ocean. A regional seismic grid shows numerous unconformities and correlative conformities in the platform shelf, slope and deeper basinal areas. Based on downward shifts of reflection terminations and onlaps at or below shelf edge offlap break, more than 25 sequences have been identified. Within the gross Neogene package, the basal section is characterized by aggradation, followed by rapid and significant (oblique) progradation, which is then followed by numerous aggradational-progradation and progradation packages in the upper, younger sections. From recognition of aggradation-progradation patterns and from well information, it appears that the first, significant and rapid progradation occurred after Mid-Miocene. The earliest of the Neogene sequences appears thicker towards the south and thinner towards the north. Subsequently, more progradation occurred in the north for sometime, compensating for the earlier lesser progradation in that region. On the whole, the depocenters, mainly shelf edge prograding wedge complexes, deposited during relative lowstands, shifted in position back and forth in the region. The number of sequences, their modes of stacking and thickness distributions, reflect relative sea-level changes, the points of sediment input as the river inputs shifted in position, and the depositional topography.

The Mozambique passive continental margin near the Zambezi Delta, located in the Indian Ocean Basin, is a stable platform as opposed to the unstable continental margins off the Mississippi, McKenzie and Niger deltas and is geographically far from the stable margins which were the basis of the Haq, et. al. cycle-chart (1987). Thus, the Mozambique continental margin provides and independent test case for verification of eustatic cycles and for the evaluation of allogenic (eustatic) vs autogenic (subsidence and delta switching) effects on depositional systems and systems tracts.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

75th ANNIVERSARY

DIAMOND JUBILEE
AAPG
APRIL 7-10, 1991
DALLAS

A LOOK BACK —
A LOOK FORWARD

ANNUAL CONVENTION • DALLAS, TEXAS • APRIL 7-10, 1991
HOSTED BY THE DALLAS GEOLOGICAL SOCIETY

VEDNESDAY POSTER 4/10/91

.VEST EXHIBIT HALL

Poster Session from 8:30 a.m. to 5:00 p.m., authors in booths from 10:00 a.m. to 12:00 noon, and from 2:00 p.m. to 4:00 p.m. (Booth numbers to be assigned)

SEPM/AAPG VARIATIONS IN DEPOSITIONAL SYSTEMS WITHIN A SEQUENCE STRATIGRAPHIC FRAMEWORK: APPLICATION TO EXPLORATION—CARBONATE EXAMPLES PRESIDING: R. LOUCKS, R. SARG

R.K. Goldhammer, M.T. Harris, L.A. Hardie: Sequence Stratigraphy and Systems Tract Development of the Latemar Platform, Middle Triassic of the Dolomites: Outcrop Calibration Keyed by Cycle Stacking Patterns

R.K. Goldhammer, P.J. Lehmann, P.A. Dunn: Third-Order Sequences and Parasequence Stacking Patterns of Lower Ordovician Platform Carbonates of the El Paso Group, Franklin Mountains, West Texas

P.M. Harris, D.G. Bebout, C. Kerans: The Holocene Sequence—Implications for Correlating Parasequences and Reservoir Layers

M. Mutti: Stratigraphic Patterns, Sedimentology and Diagenesis of Capitan Backreef Strata, Permian, Guadalupe Mountains, New Mexico

W. Schlager: Sequence Stratigraphy and the Demise of Carbonate Platforms

S.D. Hovorka, C. Kerans: Moldic Porosity Beneath Bar Crests, Permian San Andres Formation, Algerita Escarpment, New Mexico

W.J. Clark, P.W. Choquette, E.E. Hiatt, T.R. Garfield, D.A. Budd, N.F. Hurley: Sequence Stratigraphy Interpretation of the Ervay Member (Permian, Park City Formation), West-Central Wyoming Paleoshelf

C.R. Handford, R.G. Loucks: Unique Signature of Carbonate Strata and the Development of Depositional Sequence and Systems Tract Models for Ramps, Rimmed Shelves, and Detached Platforms

A.E. Holmes: Late Devonian Carbonate-Conglomerate Association in the Canning Basin, Western Australia

S. Ferry, G. Dromart: Facies Variability of Transgressive and Regressive Systems of Gravity Deposits in Deep-Water Carbonates (Mesozoic, French Alps)

L.A. Yose, P. Littmann: Sequence Stratigraphy of Carbonate Buildups Developed in an Active Tectonic/Volcanic Setting: Triassic (Late Ladinian and Carnian) of the Dolomites, Northern Italy

W.G. Zempolich: The Dilemma of Gaps in Carbonate Stratigraphic Sequences: A Case History from the Jurassic of the Venetian Alps, Italy

B.H. Tew, E.A. Mancini, R.M. Mink: Sequence Stratigraphic Setting of Upper Smackover Carbonate Reservoirs in Southwestern Alabama

SEPM/AAPG VARIATIONS IN DEPOSITIONAL SYSTEMS WITHIN A SEQUENCE STRATIGRAPHIC FRAMEWORK: APPLICATIONS TO EXPLORATION—WORLD WIDE EXAMPLES PRESIDING: P. WEIMER, H.W. POSAMENTIER

R.E. Swarbrick: Geological Mounds and Their Seismic Expression

E.H.A. Jungslager: Combined Effect of Tectonism, Eustasy and Sediment Supply on the Depositional-Sequence History of the Western Offshore, South Africa

J.H.G. Keenan: Results of Recent Drilling of Specific Lowstand Systems Tracts Targets, the Implications to Future Exploration and the Seismic-Sequence Stratigraphic Model Pletmos Basin, Offshore South Africa

L.S. Teng: Neogene-Quaternary Eustacy and Collision Tectonism in Western Taiwan

SEPM/AAPG VARIATIONS IN DEPOSITIONAL SYSTEMS WITHIN A SEQUENCE STRATIGRAPHIC FRAMEWORK: APPLICATIONS TO EXPLORATION—WESTERN INTERIOR EXAMPLES PRESIDING: P. WEIMER, H.W. POSAMENTIER

B.A. Power, R.G. Walker: Allostratigraphy of Stacked Prograding Coastal Sediments in the Lea Park—Belly River Transition (Campanian) of Central Alberta

B. Klug, C.F. Vondra, P. Wurster*: Genetic Sequences and Unconformities in Shallow Marine to Fluvial Depositional Systems, Mesaverde Group, North-Central Wyoming

D.W. Valasek: Sequence Stratigraphic Framework of the Cretaceous Gallup and Tocito Sandstones, San Juan Basin, New Mexico

L.M. Liro: Sequence Stratigraphy and Tectonic Influences on a Fluvial-Deltaic Lacustrine System: Fort Union Formation, Wind River Basin, Wyoming

K.M. Wilson: Cretaceous "D" Sandstone Delta, Denver Basin, Colorado: Ancient Analog for Shallow Water Bayfill Sequences

G.E. Reinson: Depositional Facies Control of Reservoir Heterogeneity and Performance, Cretaceous Sandstone Reservoirs, South-Central Alberta Basin

D. Nummedal: Sequence Stratigraphy of Late Mesozoic Rocks of the Colorado Plateau

P.L. Templet, D. Nummedal: Depositional History of the Cretaceous Cliff House Sandstone, San Juan Basin, New Mexico

J.M. Holbrook: Sequence Stratigraphic Interrelationship of Lower Cretaceous Dakota and Purgatoire Formations in Northeast New Mexico/Southeast Colorado and Correlative Strata (Muddy Muddy Skull Creek, Plainview) of the Denver Basin

V. Kolla, D. B. Macurda, Jr., H.R. Nelson, Jr.: Sequence Stratigraphy and Systems Tract Analysis of the Neogene-Quaternary Continental Margin Off the Zambezi Delta, Mozambique

G. Kocurek, K.G. Havholm: Eolian Event Stratigraphy—A Conceptual Framework

M.C. Van Den Bold, S.R. Johnson, E.R. Gustason: Stratigraphy of the Lower Cretaceous Muddy Formation, and the Drainage Pattern of its Paleo-Valleys, Wind River Basin, Wyoming

SEPM/AAPG VARIATIONS IN DEPOSITIONAL SYSTEMS WITHIN A SEQUENCE STRATIGRAPHIC FRAMEWORK: APPLICATIONS TO EXPLORATION—GULF COAST EXAMPLES PRESIDING: P. WEIMER, H.W. POSAMENTIER

P. Weimer: Sequence Stratigraphy and Facies Variations within Neogene Turbidite Systems, Northern Deep Gulf of Mexico:

*Indicates speaker other than senior author.