Area of onlapping reflectors
Figure 6.4
The Valanginian (K10) sequence palaeogeography of the west of Shetland Area.
Figure 6.6
The Hauterivian (K20) sequence palaeogeography of the west of Shetland Area.
Figure 6.7 The Barremian (K30) sequence palaeogeography of the west of Shetland Area.
Figure 6.9
The Albian (K50) sequence palaeogeography of the west of Shetland Area.

Legend
- Non Marine Pre Late Cretaceous Fault
- Slope/Marine Sandstone
- Intra Shelf Limestone
- Mid Shelf Conglomerate
- Outer Shelf
- Bathyal
- Did Not Penetrate U/C

N. McMahon
May 1995
The Cenomanian (K60) sequence palaeogeography of the west of Shetland Area.

Figure 5.00
K60 Cenomanian
Figure 6.6
The Aptian (K40) sequence palaeogeography of the west of Shetland Basin.
K10 Mid Berriasian to Near Top Valanginian

scale 1:2,000,000

May 1995

N. McMahon
K20 Near Top Valanginian to Base Late Hauterivian sequence palaeogeography along the western UKCS.

Legend:
- Shallow / Marginal Marine
- Sandstone
- Inner Shelf
- Limestone
- Mid Shelf
- Shale
- Outer Shelf
- Fault
- Limit of Data Interpretation
- Wells Used in Study With Extra Wells in The West Shetland Area (not shown)

Figure 6.20
The Valanginian to Late Hauterivian (K20) sequence palaeogeography along the western UKCS.

Source: N. McMahon
May 1995
Figure 6.21
The Late Hauterivian to Late Barremian (K30) sequence palaeogeography along the western UKCS.
Figure 6.22: The Aptian (K40) sequence palaeogeography along the western UKCS.
Figure 6.23
The Albian (K50) sequence palaeogeography along the western UKCS.

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Figure 6.24
The Cenomanian (K60) sequence palaeogeography along the western UKCS.
Figure 6.29
The subcrop pattern beneath the Early Turonian unconformity.
Base Turonian Unconformity Onlap

Figure 6.30
The onlap of the Early Turonian unconformity surface.

Location

Legend

Active Fault
Passive Continental Shelf
Intracontinental Fault
Base Turonian Unconformity Onlap

Atlantic Margin Turonian Project

N. McMahon

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Legend:
- Alluvial Plain
- Lacustrine
- Coastal/Deltaic non marine
- Marine Shelf
- Deep Basin
- Submarine Highs
- Ocean Floor
- Volcanic
- Deep Marine Clastics
- Sands
- Carbonates

Key Source rocks:
- Active Fault
- Change to

Figure 7.5 The Late Jurassic (Tithonian to Maastrichtian) palaeogeography for the N. Atlantic.

Plate Reconstruction
141 Million Years Ago - Late Jurassic

N. McMahon
January 1995

Active Faulting and Data Rich Areas Location Map

REFE9E'ICES USED
4. Cooke, S., et al. 1984 - based on coastal outcrops of Purbeck Hong the Dorset coast and well control in the Channel and Danish basins.
11. Lambe, A. J. et al. 1989 - good well penetration, however, an Early Cretaceous unconformity erodes our sonice ofthe section.
14. NP 5,900 - based on well and seismic data.
Figure 7.7
The Early Cretaceous (K10 Valanginian, 136Ma) plate reconstruction and palaeogeography for the N. Atlantic.

Plate Reconstruction 136 Million Years Ago – (K10) Berriasian/Valanginian

Plate Reconstruction 136 Million Years Ago – (K10) Berriasian/Valanginian

Scale 1:8,000,000

N. McMahon
January 1995
Plate Reconstruction 133 Million Years Ago – (K20) Hauterivian

Legend

- Active Faulting
- Data Rich Areas
- Location Map

Figure 7.8
The Early Cretaceous (K20 Hauterivian) plate reconstruction and palaeogeography for the N. Atlantic.
Plate Reconstruction 125 Million Years Ago – (K30) Barremian

Legend:
- Alluvial Plains
- Lagoons
- Coastal/Deltaic non marine
- Marine Shelf
- Deep Basin
- Subaqueous Highs
- Ocean Floor
- Volcanic
- Deep Marine Cliffs

Active Faulting and Data Rich Areas Location Map

Data Rich Areas

Scale 1:8,000,000

N. McMahon

January 1995

References Used

BP Exploration

1. Orwyn 1994 ODE maps were seen and earth outcrop.
2. BP Deep Well Regional Group - 3D seismic data, based on well data.
3. Pilkey Mahan, N. 1994 - Regional work concentrated on West of Shetlands, 15 wells encountered.
6. Moodie et al. 1993 - Well control in the north Arctic boom - 000 and seismic coverage.
8. Soil et al. 1989 - Based on 3 ODP boreholes and dredge samples.
10. Garca-Medel, J. 1989 - Based on patchy outcrop and some well control.
12. Ballin & Hegall, F. D. 1994 - Very little information, based on 2 wells - most of the Crerere area due to extension.

Alluvial Plain
Lagoons
Coastal/Deltaic non marine
Marine Shelf
Deep Basin
Subaqueous Highs
Ocean Floor
Volcanic
Deep Marine Cliffs

Figure 7.9
The Early Cretaceous (K30) Barremian (125Ma) plate reconstruction and palaeogeography for the N. Atlantic.

BP EXPLORATION

PLATE TECTONIC SETTINGS
Major rifting between Flemish Cap and Greenland gave rise to the Porcupine Basin and abet the merging of the Labrador Sea.

PETROLEUM IMPACT
Fluorine propagation to the north of Senegal and across Europe and below the L51sesy sp1n allowed rifting to propagate to the north.

Deep water spreading between Newfoundland and Portugal. Propagation at the rifting into the South Arctic.

PLUTONIC Tectonic Setting

Active Faulting and Data Rich Areas Location Map

Data Rich areas

Scale 1:8,000,000

N. McMahon

January 1995
Plate Reconstruction 112 Million Years Ago – (K40) Aptian

REFERENCES USED

- SP 1991: New group of ODP samples based on data from wells.
- McMahon N. 1994: Western Shetland regional study based on 28 wells and additional BGS boreholes.
- Wilson A. C. L. 1989: Erosion has meant that a lot of the sector is missing – some outcrop and some well control.
- Aoillot S. 1989: 'a-' on 3 ODP horizons and dredge samples.
- Garcia Mondal J. 1989: Extensive outcrop and good well control in the basin.
- Connell T. et al. 1982: Good well penetration.
- Balkwill J. R. & Asgall F. S. 1989: Very little information, based on 2 wells – most of the Cretaceous is missing due to erosion.
- Tankard J. J. et al. 1989: Dead well control throughout basin.
- McMahon N. A. 1994: Regional outcrops and good well control.

Legend

- Alluvial Plain
- Locusts
- Coastal/Deltaic non marine
- Marine Shelf
- Deep Basin
- Submarine Hills
- Ocean Floor
- Volcanics
- Deep Marine Clastics

Figure 7.10: The Mid-Cretaceous (K40 Aptian) plate reconstruction and palaeogeography for the N. Atlantic.

Plate Reconstruction 112 Million Years Ago (K40) Aptian

January 1995

N. McMahon
Plate Reconstruction 97 Million Years Ago – (K50) Albian

Plate Reconstruction
97 Million Years Ago
(K50) Albian

scale 1:3,900,000

N. McMahon
January 1995
Plate Reconstruction 91 Million Years Ago – (K60) Cenomanian
Plate Reconstruction 89 Million Years Ago - Turonian

Legend
- Elluvial Plain
- Sands
- Lakes
- Carbonates
- Coastal/Deltic non marine
- Massifs/Highs may not be present
- Plateau
- Active Fault
- Epeiric Basin
- Plateau
- Active Fault
- shelf
- Active Fault
- Massifs/Highs
- Ocean Floor
- Epeiric Marine Clastics

Figure 1.3
The Late Cretaceous (Early Turonian 89 Ma) plate reconstruction and palaeogeography for the N. Atlantic.

BP EXPLORATION

Plate Reconstruction 89 Million Years Ago

January 1995

N. McMahon