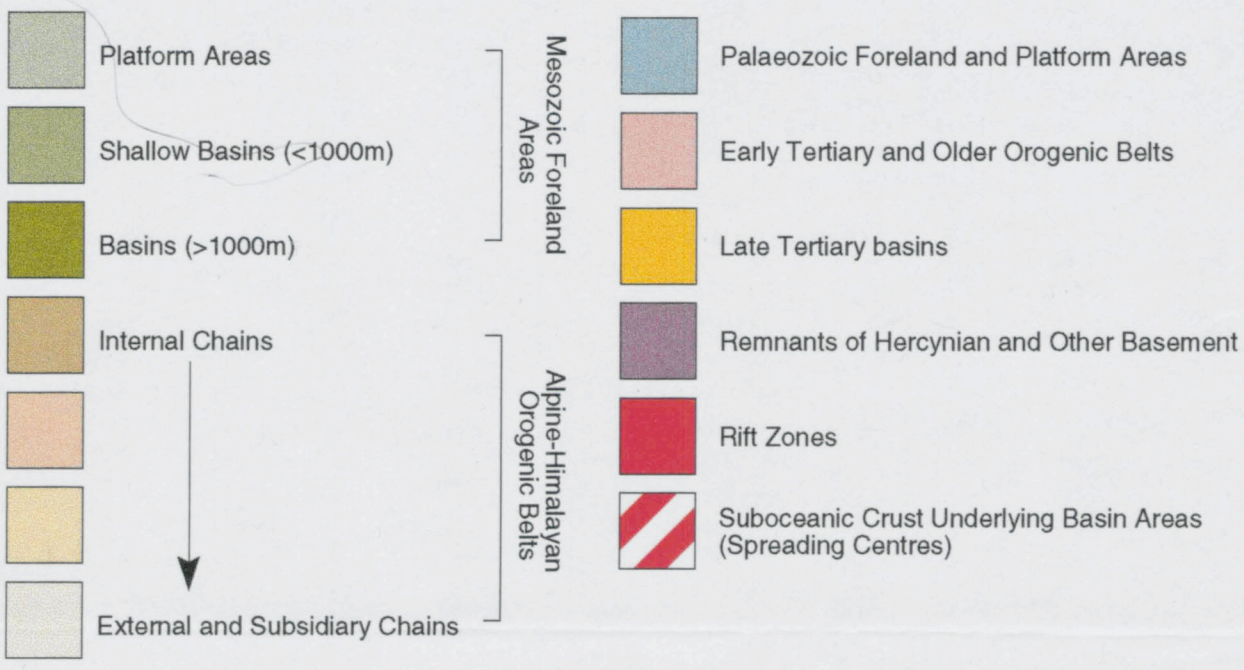


Scale 1:3,000,000



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MEDITERRANEAN AREA

Enclosure 1

Principal Tectonic Elements In The Mediterranean Region

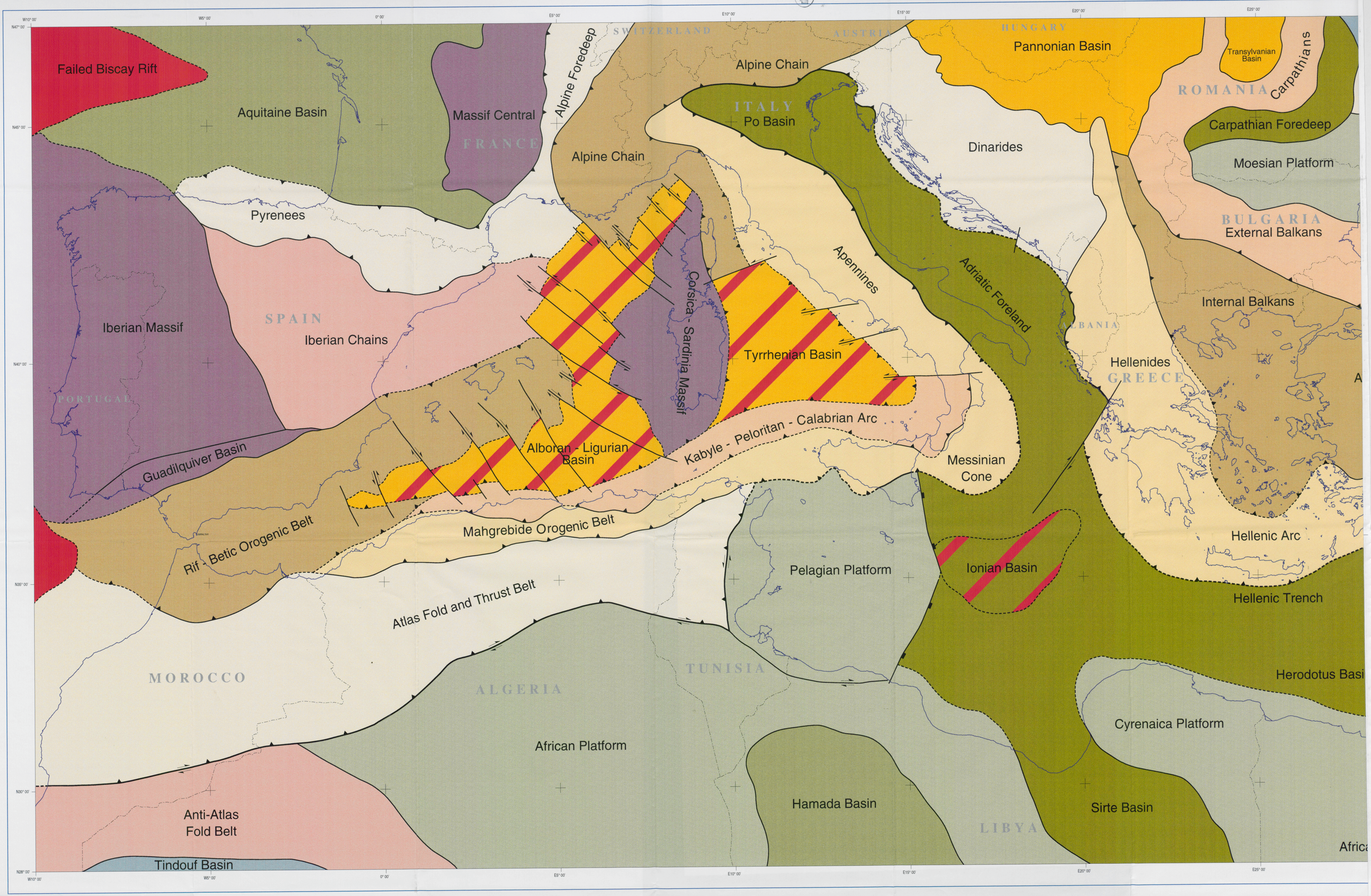
B. Philps

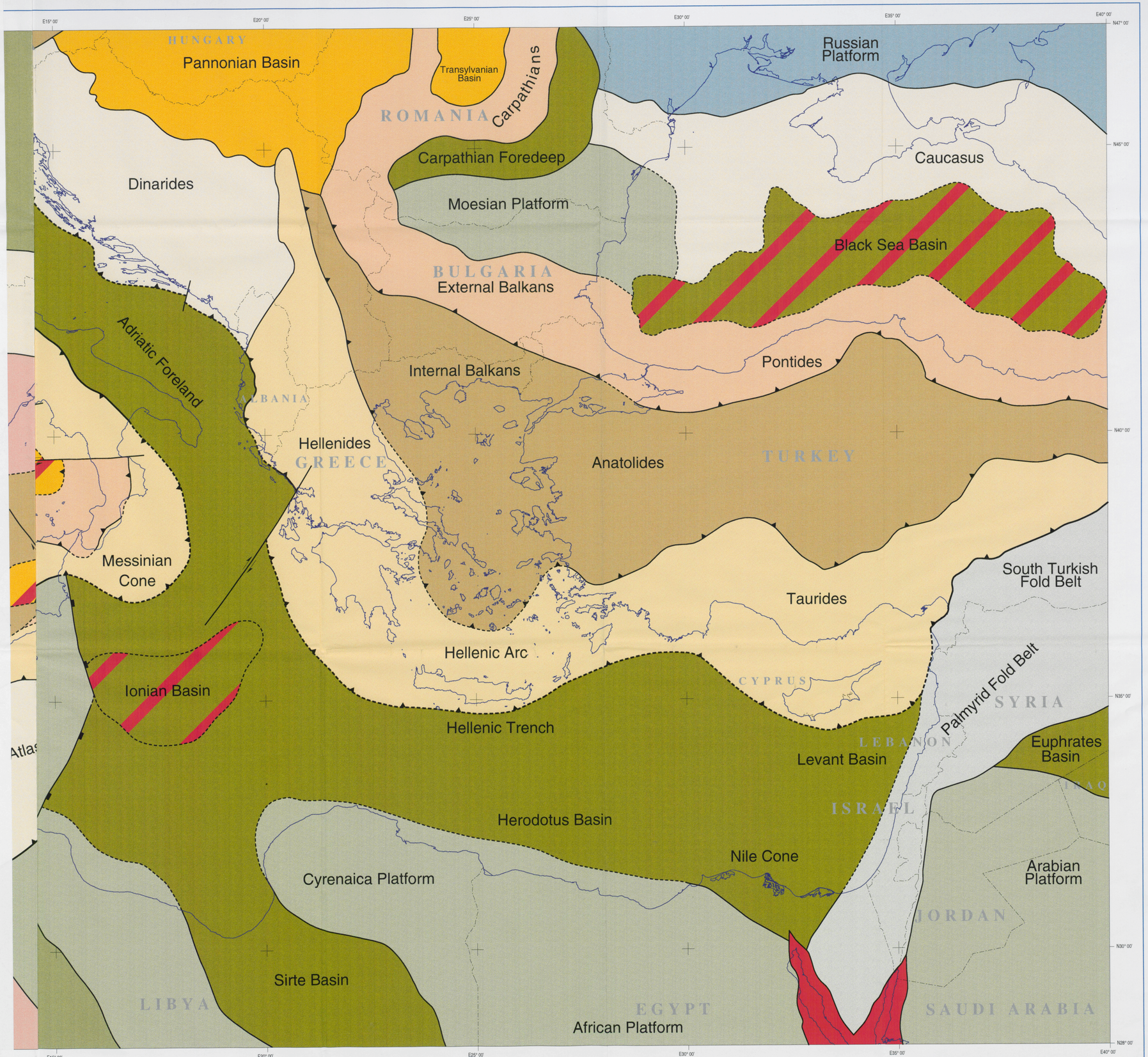
August 2001

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BIBL. LONDON UNIV.


Failed Biscay Rift
Aquitaine Basin
Massif Central
FRANCE
Alpine Foredeep
SWITZERLAND
AUSTRIA
Alpine Chain
ITALY
Po Basin
HUNGARY
Pannonian Basin
Transylvanian Basin
ROMANIA
Carpathians
Carpathian Foredeep
Moesian Platform
BULGARIA
External Balkans
Dinarides
Alpine Chain
Pyrenees
Iberian Massif
SPAIN
Iberian Chains
Corsica - Sardinia Massif
Apennines
Adriatic Foreland
Tyrrhenian Basin
Internal Balkans
ALBANIA
Hellenides
GREECE
Peloritan - Calabrian Arc
Kabyle - Peloritan - Calabrian Arc
Alboran - Ligurian Basin
Messinian Cone
Guadilquiver Basin
PORTUGAL
Rif - Betic Orogenic Belt
Mahgrebide Orogenic Belt
Hellenic Arc
Pelagian Platform
Ionian Basin
Hellenic Trench
Atlas Fold and Thrust Belt
MOROCCO
ALGERIA
TUNISIA
Herodotus Basi
African Platform
Cyrenaica Platform
Hamada Basin
Sirte Basin
LIBYA
Anti-Atlas Fold Belt
Tindouf Basin
W10° 00'
W5° 00'
0° 00'
E5° 00'
E10° 00'
E15° 00'
E20° 00'
E25° 00'
N47° 00'
N45° 00'
N40° 00'
N35° 00'
N30° 00'
N28° 00'



Kilometres
0 50 100 150 200 250 300
0 50 100 150 200
Miles
Scale 1:3,000,000

- Platform Areas
- Shallow Basins (<1000m)
- Basins (>1000m)
- Internal Chains
- External and Subsidiary Chains
- Palaeozoic Foreland and Platform Areas
- Early Tertiary and Older Orogenic Belts
- Late Tertiary basins
- Remnants of Hercynian and Other Basement
- Rift Zones
- Suboceanic Crust Underlying Basin Areas (Spreading Centres)

Mesozoic Foreland Areas
Alpine-Himalayan Orogenic Belts

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MEDITERRANEAN AREA

Enclosure 1

Principal Tectonic Elements In The Mediterranean Region

B. Philps

August 2001

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Kilometres
0 50 100 150 200 250 300
0 50 100 150 200
Miles
Scale 1:3,000,000

- Platform Areas
- Shallow Basins (<1000m)
- Basins (>1000m)
- Internal Chains
- External and Subsidiary Chains

Mesozoic Foreland Areas

Alpine-Himalayan Orogenic Belts

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CENTRAL MEDITERRANEAN

Enclosure 2

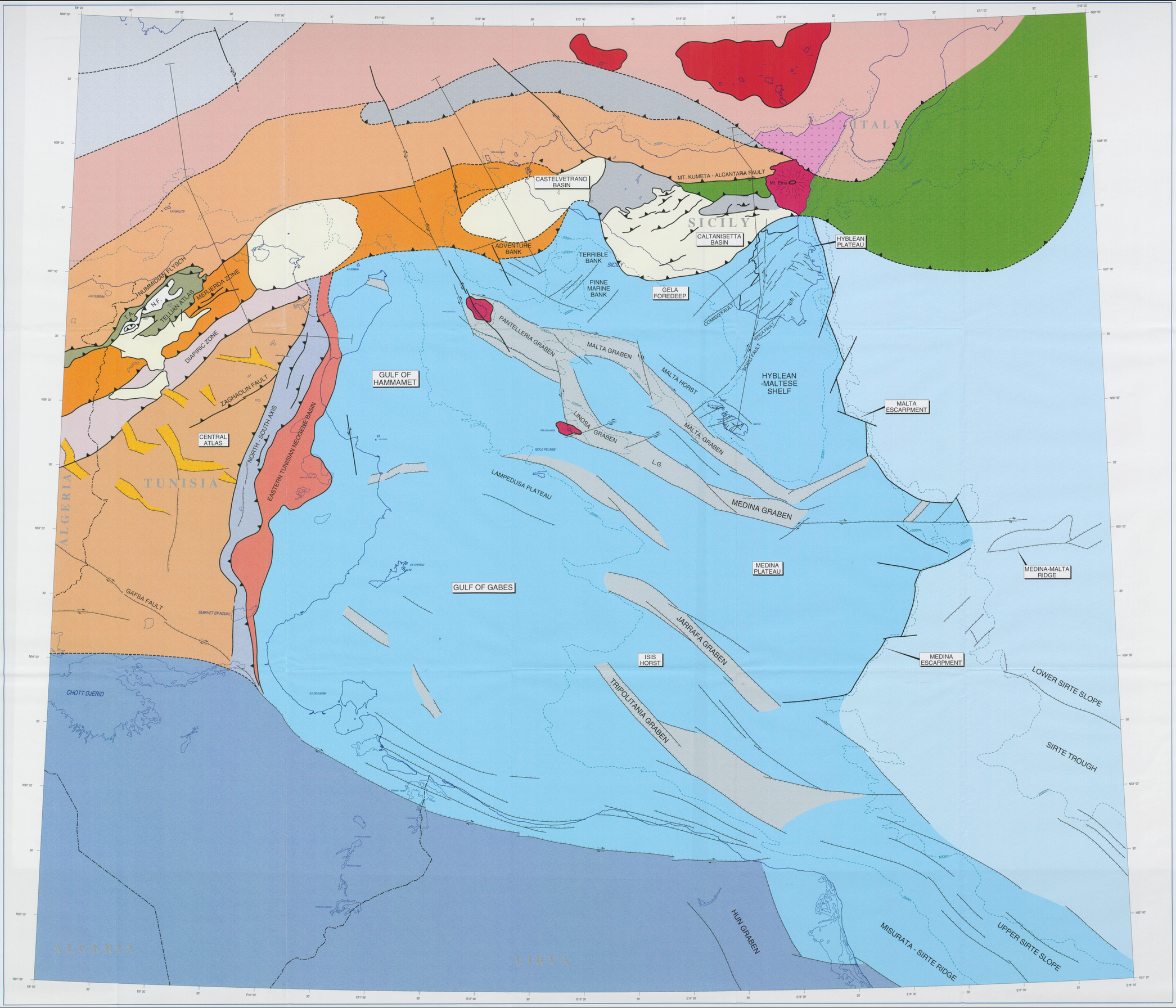
Principal Tectonic Elements in the Central Mediterranean

B. Philps

August 2001

1635

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Kilometres
0 20 40 60 80 100 120
Miles
0 20 40 60 80
Scale 1:1,000,000

Map Sourced From:

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LV	LEVEL CONTENTS	On	Off	Ref	Revised
1	Legend	✓			
2	Left Long crosses		✓		
3	Grid				
4	Geological Boundaries				
5					
6					
7					
8					
9	Lakes	✓			
10	Colour Fill	✓			
11	ACI	✓			
12	Colour Fill				
13	Colour Fill				
14	Colour Fill				
15	Coastline	✓			
16	Rivers	✓			
17	Country Names	✓			
18	Faults	✓			
19	Fault throws	✓			
20	Fixed Fits Cliffdat				
21	Field Name				
22	Dig Symbols(Text	✓			
23	International Boundary Marine		✓		
24	International Boundary	✓			
25	Land Fill				
26	Left Long Trips(Text	✓			
27	Lease Boundary				
28	Lease Text				
29	Licence Operator				
30	Out Offshore Limits				

LV	LEVEL CONTENTS	On	Off	Ref	Revised
31	Platforms				
32	Pipelines				
33					
34	Quad Boundary				
35	Quad No.				
36	Sea Fill&Areas				
37	Town Names				
38	Wells				
39	Well No's				
40	Off/Sm Seeps				
41					
42					
43	Text Blocks	✓			
44	Bathymetry				
45	Bathy 0200m	✓	✓		
46	Bathy 1000m	✓	✓		
47	Bathy 2000m	✓	✓		
48					
49	Frame	✓			
50	Logo	✓			
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Enclosure 3

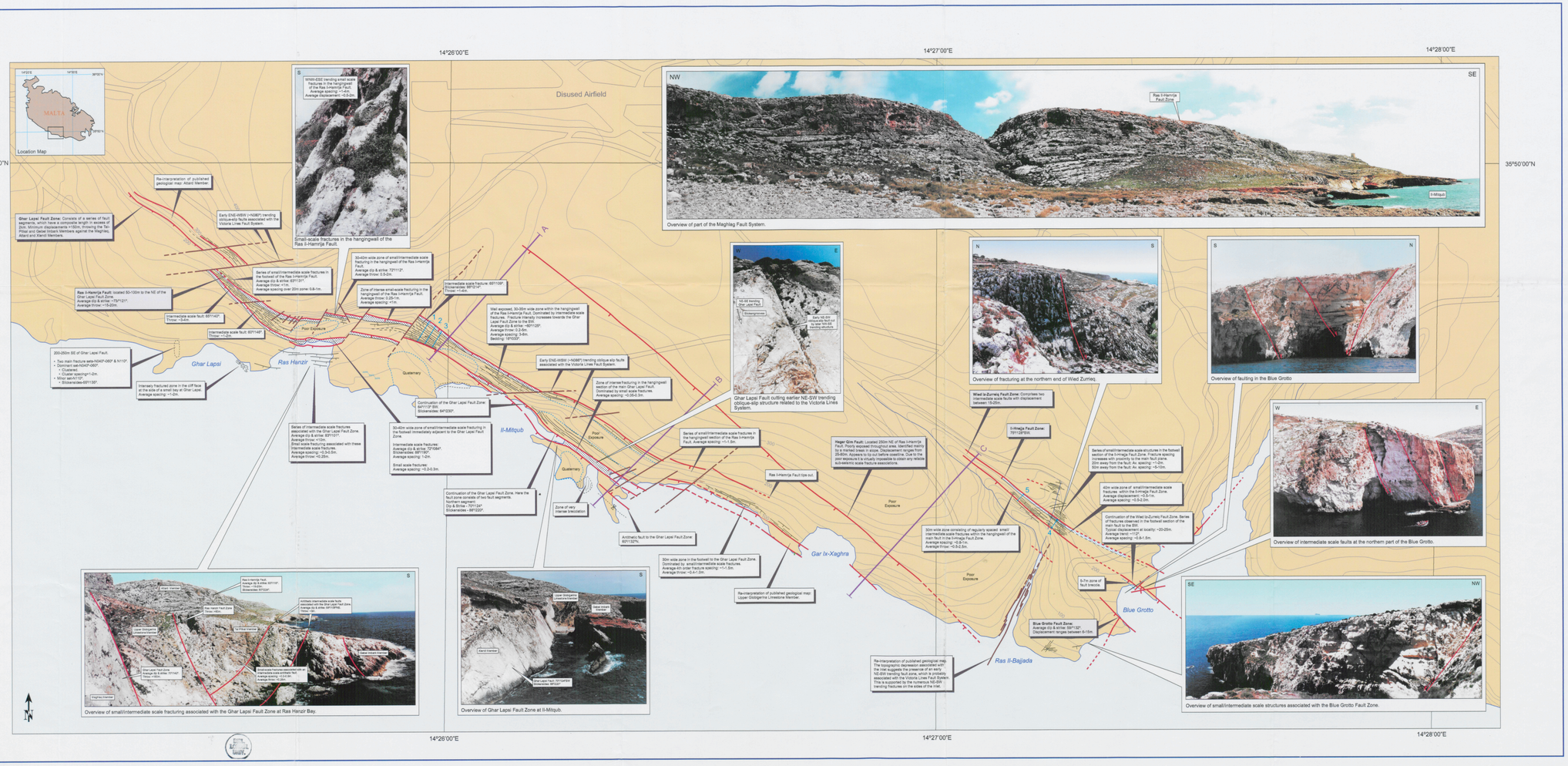
Main Structural Elements on the Pelagian Platform and Surrounding Areas

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LEGEND

- Roads
- Contours
- Seismic-Scale Faults/Fractures
- Sub-Seismic Scale Faults/Fractures
- Earlier NE - SW Trending Fault System
- Zone of Intense Fracturing (spacing < 1m)

Topographic contours are taken from Debono and Xerri (1993): Geological map of the Maltese Islands (Sheet 1) - Malta.

0 100 200 300 400 500m

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Enclosure 4
Figure 8.6

General Overview of the Main Field Observations made along the Maghlaq Fault System.

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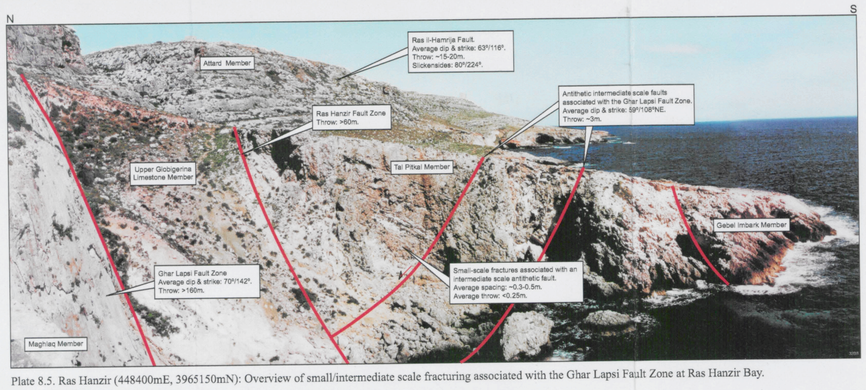


Plate 8.5. Ras Hanzir (448400mE, 3965150mN): Overview of small/intermediate scale fracturing associated with the Ghar Lapsi Fault Zone at Ras Hanzir Bay.

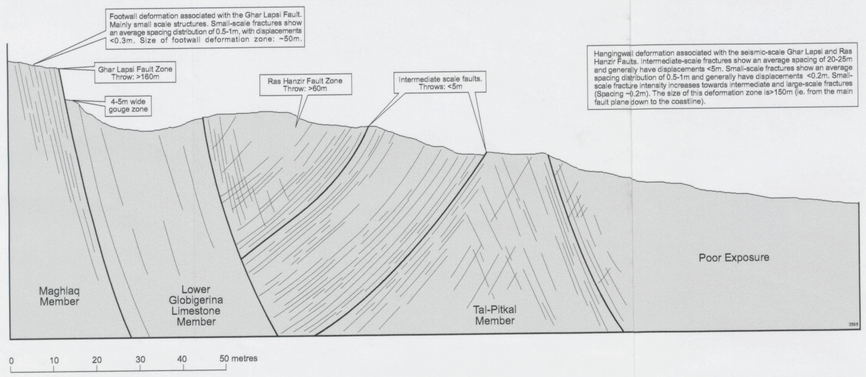
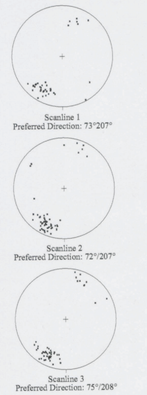


Fig. 8.9. Ras Hanzir (448400mE, 3965150mN): Field illustration summarising the style and intensity of sub-seismic scale deformation associated with the Ghar Lapsi Fault.



Plate 8.6. Wied Maghlaq (448900mE, 3965200mN): Overview of the hangingwall deformation zone associated with the Ras il-Hamrija Fault.



Equal Area
Stereographic Projections
showing poles to fractures/faults
for scanlines 1, 2 & 3

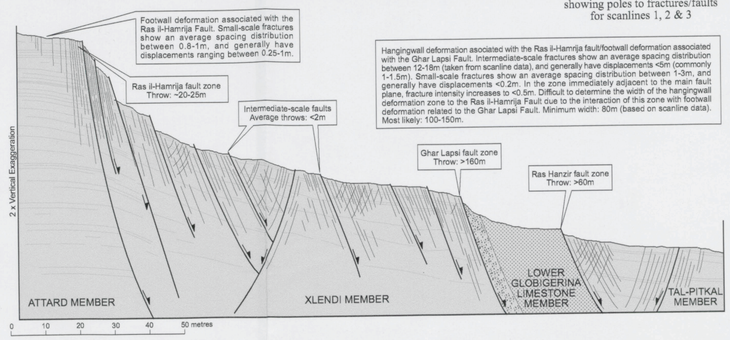


Fig. 8.11. Wied Maghlaq (448900mE, 3965200mN): Field illustration of the style and intensity of sub-seismic scale deformation associated with the Ras il-Hamrija Fault.



Plate 8.7. Blue Grotto (450900mE, 3964300mN): Overview of the hangingwall deformation zone associated with the Blue Grotto Fault.

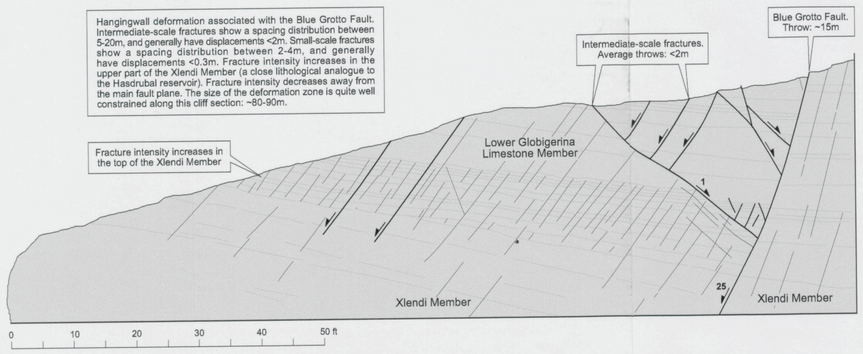
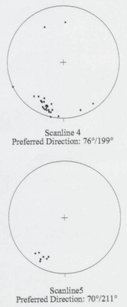


Fig. 8.14. Blue Grotto (450900mE, 3964300mN): Field illustration of the style and intensity of sub-seismic scale deformation associated with the Blue Grotto Fault.



Plate 8.8. Wied iz Zurreiq (450700mE, 3964600mN): Overview of the hangingwall deformation zone associated with the Il-Hnejja Fault.



Equal Area
Stereographic Projections
showing poles to
fractures/faults for
scanlines 4 & 5

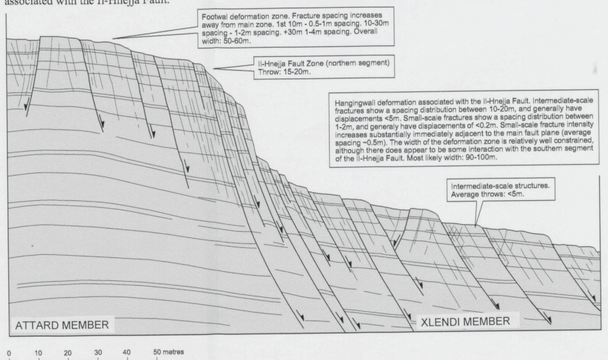


Fig. 8.16. Wied iz Zurreiq (450700mE, 3964600mN): Field illustration of the style and intensity of sub-seismic scale deformation associated with the Il-Hnejja Fault.

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Enclosure 5
Figures 8.9, 8.11, 8.14 and 8.16
Plates 8.5, 8.6, 8.7, and 8.8

Summary of Observations from Specific Localities along the Maghlaq Fault System

B. Philps

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Plate 8.9. Overview of the Ix-Xaqqh Quarry showing location of study areas.



Plate 8.11. Ix-Xaqqh Quarry (447400mE, 396600mN): Photomontage of hangingwall deformation associated with the Ix Xaqqa Fault

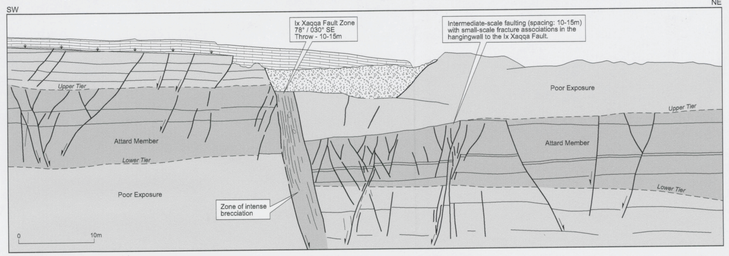


Fig. 8.19. Ix-Xaqqh Quarry (447400mE, 396600mN): Field illustration of hangingwall deformation associated with the Ix Xaqqa Fault



Plate 8.10. Ix-Xaqqh Quarry (447400mE, 3966000mN): Photomontage of footwall fracturing associated with the main fault zone shown to the south

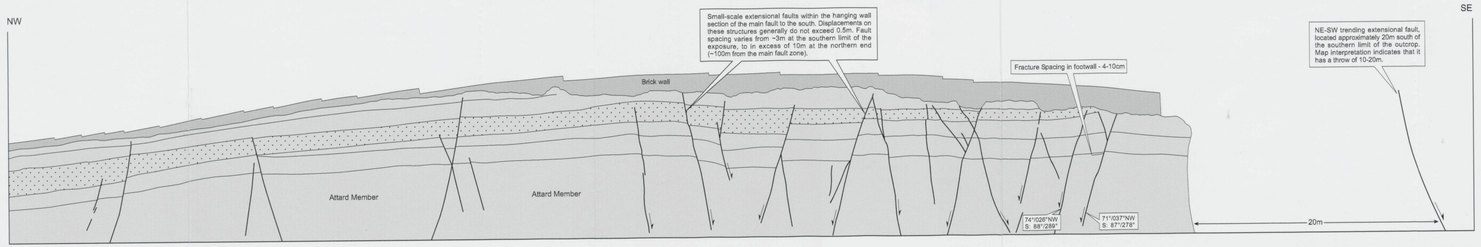


Fig. 8.18. Ix-Xaqqh Quarry (447400mE, 3966000mN): Field illustration of footwall fracturing associated with the main fault zone shown to the south.

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Enclosure 6
Figures 8.18 and 8.19
Plates 8.9, 8.10 and 8.11

Summary of Observations made in the Ix-Xaqqh Quarry

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Plate 8.12. Lapsi Quarry (448700mE, 3965400mN): Overview of Quarry.

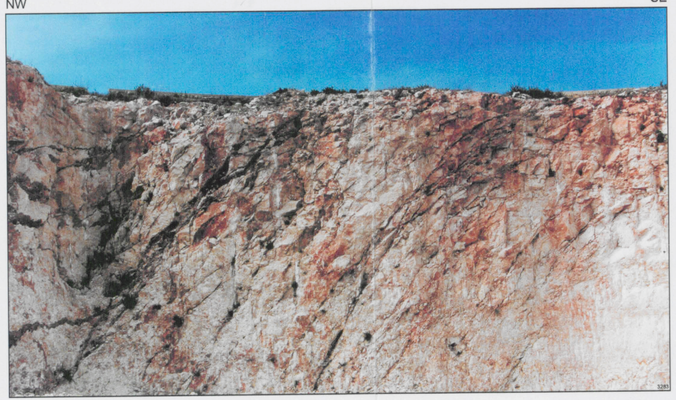


Plate 8.13. Lapsi Quarry (448700mE, 3965400mN): Overview of deformation associated with intermediate-scale structures within the Maghlaq Fault System.

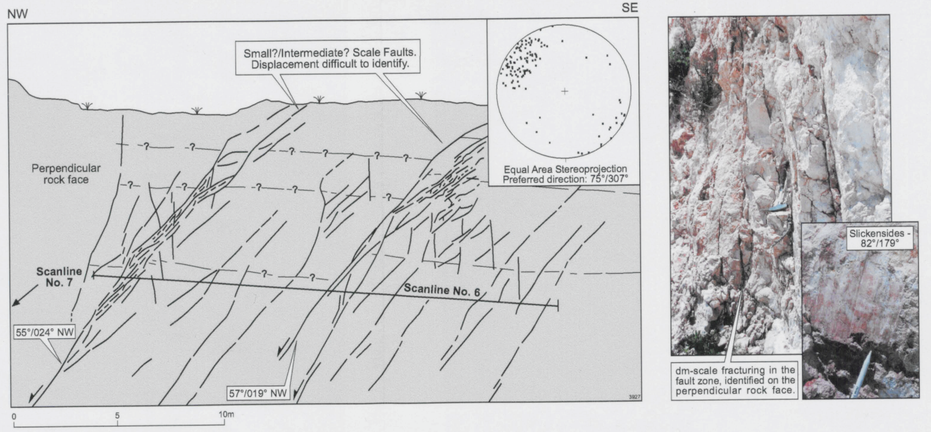


Fig. 8.21. Lapsi Quarry (448700mE, 3965400mN): Field illustration of the style and intensity of small-scale deformation associated with the intermediate-scale structures in Plate 8.9. Refer to Table 8.6 for spacing estimates from scanline data.

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Enclosure 7
Figures 8.21
Plates 8.12 and 8.13

Summary of Observations made in the Lapsi Quarry

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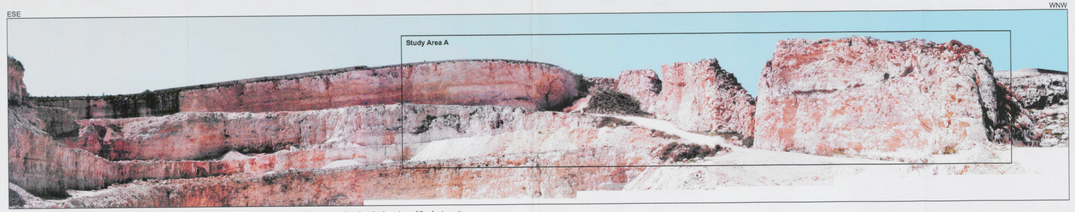


Plate 8.14. Naxxar Gap Quarries (448800mE, 3975700mN). Overview of the western part of the quarry showing the location of Study Area A.



Plate 8.15. Naxxar Gap Quarries (448800mE, 3975700mN). Overview of the eastern part of the quarry showing the Misrah Fault (64°/070° NW). Slickenside lineations show almost pure dip-slip throws (88°/328°). Displacement ~10m. Occasionally it is possible to identify dextral strike-slip overprinting, which is associated with the opening of the Straits of Sicily Rift Zone. Deformation in the hangingwall section is minimal at this locality.



Plate 8.16. Naxxar Gap Quarries (448800mE, 3975700mN). Overview of the eastern part of the quarry (Study Area B) showing the Misrah Fault (70°/040° NW). Slickenside lineations: 79°/331°. Deformation in the hangingwall section is characterised by a 4m wide zone of intense brecciation, followed by a series of small to intermediate scale structures showing average spacing of 2-3m. Average displacements on these structures are less than 0.5m.

3984

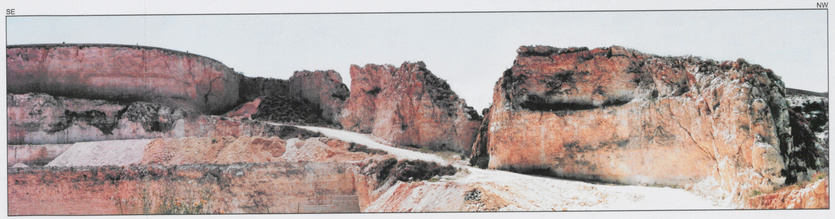


Plate 8.17. Naxxar Gap Quarries (448800mE, 3975700mN). Photomontage of Study Area A showing the nature of deformation within the footwall section of the Victoria Line Fault.

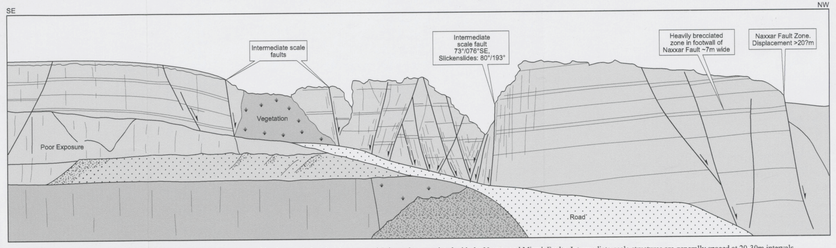


Fig. 8.23. Naxxar Gap Quarries (448800mE, 3975700mN). Field illustration of Study Area A showing the nature of deformation associated with the Naxxar and Misrah Faults. Intermediate-scale structures are generally spaced at 20-30m intervals. Refer to Plate 8.18 and Figure 8.22 for a detailed view of smaller scale fracture distributions.

3934

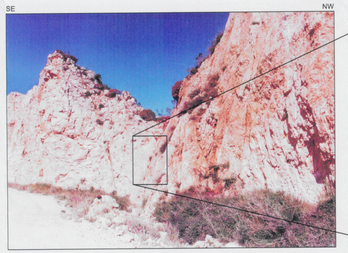
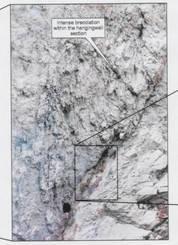


Plate 8.18. Naxxar Gap Quarries (448800mE, 3975700mN). Enlarged view of area indicated in Plate 8.17 showing main fault zone in the western part of the quarry.



Inset: Slickensided fault surface 63°/072°SE



Inset: Slickensides 52°/216°

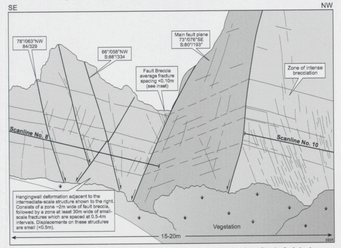


Fig. 8.24. Naxxar Gap Quarries (448800mE, 3975700mN). Field illustration of main fault in the western part of the quarry.



Inset: dm scale fracturing in the footwall of main fault zone.



Equal Area Stereographic Projection: Scanline 8
Preferred Direction: 85°/168°



Equal Area Stereographic Projection: Scanline 9
Preferred Direction: 84°/013°



Equal Area Stereographic Projection: Scanline 10
Preferred Direction: 85°/329°

3985



Plate 8.19. Naxxar Gap Quarries (448800mE, 3975700mN): Overview of Study Area B.



Inset: Dip-slip displacement.

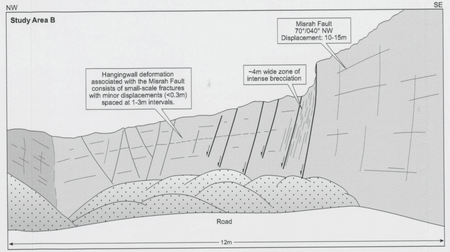


Fig. 8.25. Naxxar Gap Quarries (448800mE, 3975700mN): Field illustration of the style and intensity of fracturing associated with the Misrah Fault.

3987



Inset: Dextral strike-slip overprinting.

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Enclosure 8
Figures 8.23, 8.24 and 8.25
Plates 8.14, 8.15, 8.16, 8.17, 8.18 and 8.19

Summary of Observations made in the Naxxar Gap Quarries

B. Philps

August 2001

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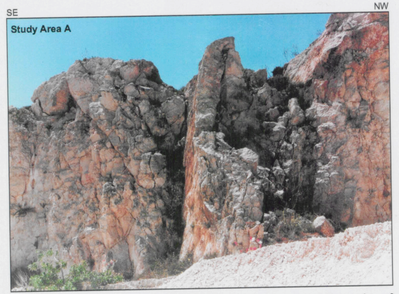


Plate 8.20. Attard Quarries (449200mE, 3971400mN): Study Area A - overview of fracturing associated with a NE-SW trending intermediate scale fault in the eastern part of the quarry.



Equal Area Stereographic Projection: Scanline 11
Preferred Direction: 73°/323°

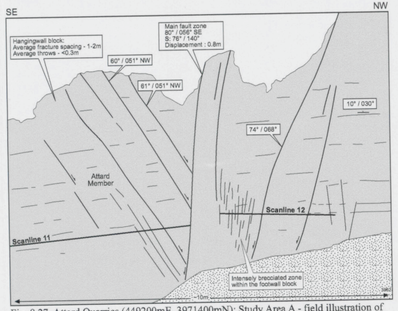


Fig. 8.27. Attard Quarries (449200mE, 3971400mN): Study Area A - field illustration of fracturing associated with the NE-SW trending intermediate scale fault shown in Plate 8.20.



Equal Area Stereographic Projection: Scanline 12.
Preferred Direction: 90°/159°



Plate 8.21. Attard Quarries (449200mE, 3971400mN): Study Area A - overview of fracturing associated with a NW-SE trending intermediate-scale fault (Incita Fault: 68°/140°) in the western part of the quarry. Displacement on this structure is probably ~1-2m.

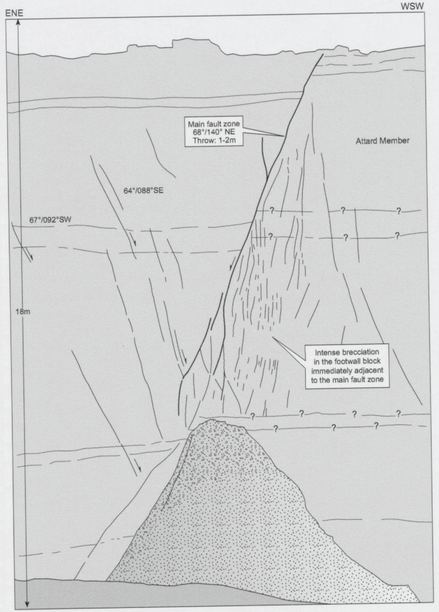


Fig. 8.28. Attard Quarries (449200mE, 3971400mN): Study Area B - field illustration showing the nature of deformation associated with the Incita Fault. Intense brecciation is identified in the footwall, immediately adjacent to the fault plane. However, in general the intensity of small-scale fracturing associated with this structure is only minor.

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Enclosure 9
Figures 8.27 and 8.28
Plates 8.20 and 8.21

Summary of Observations made in the Attard Quarries

B. Philps

August 2001

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