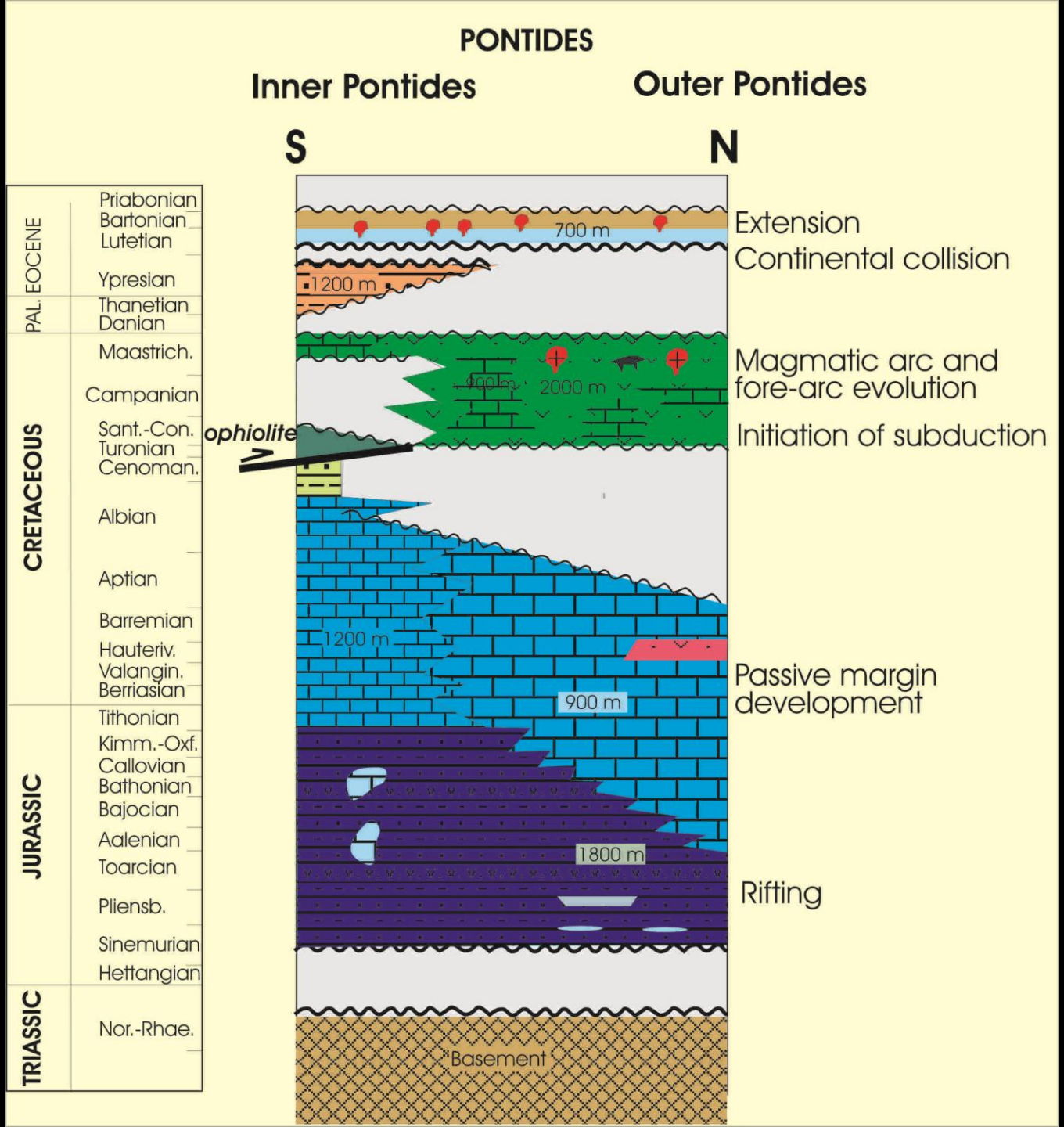
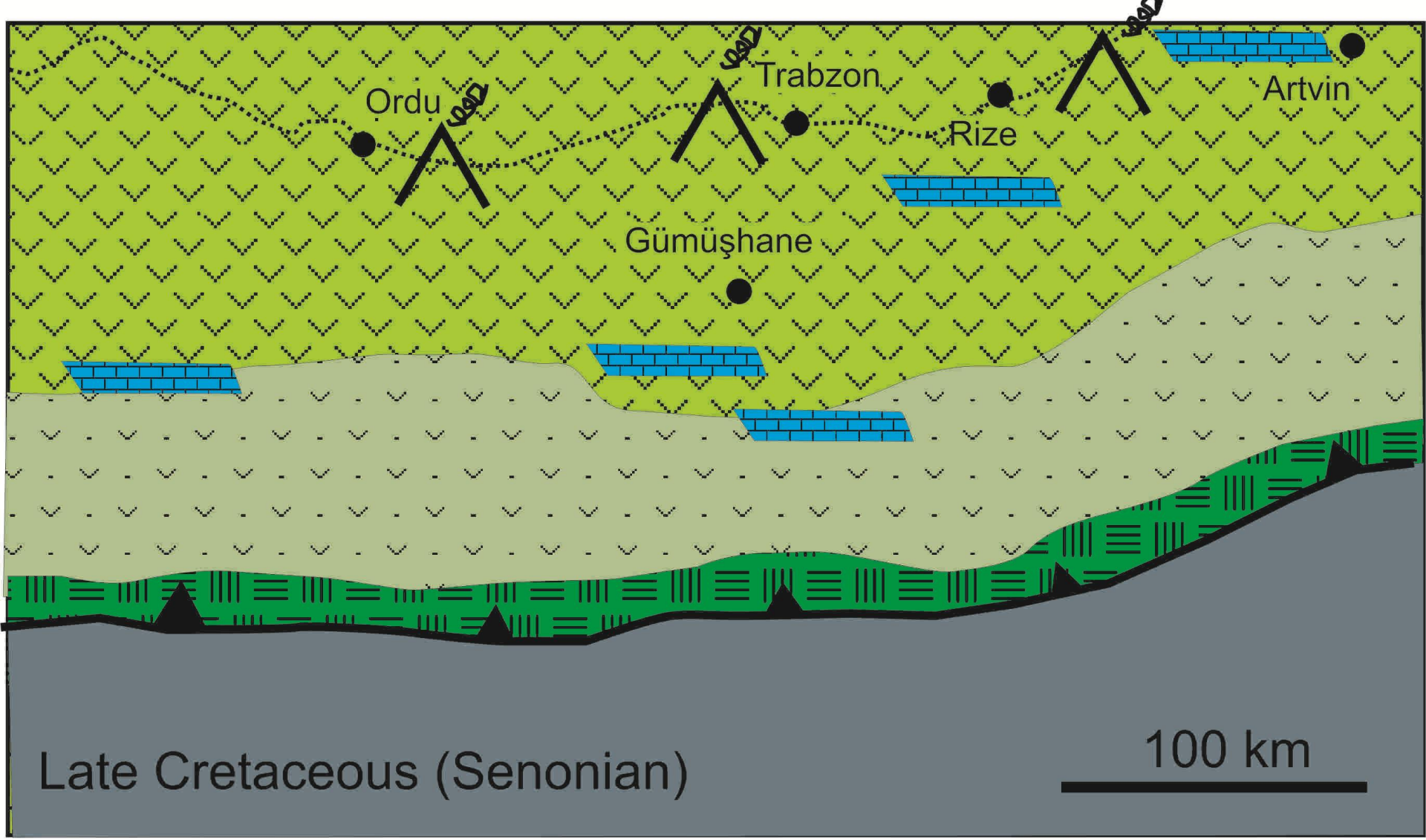
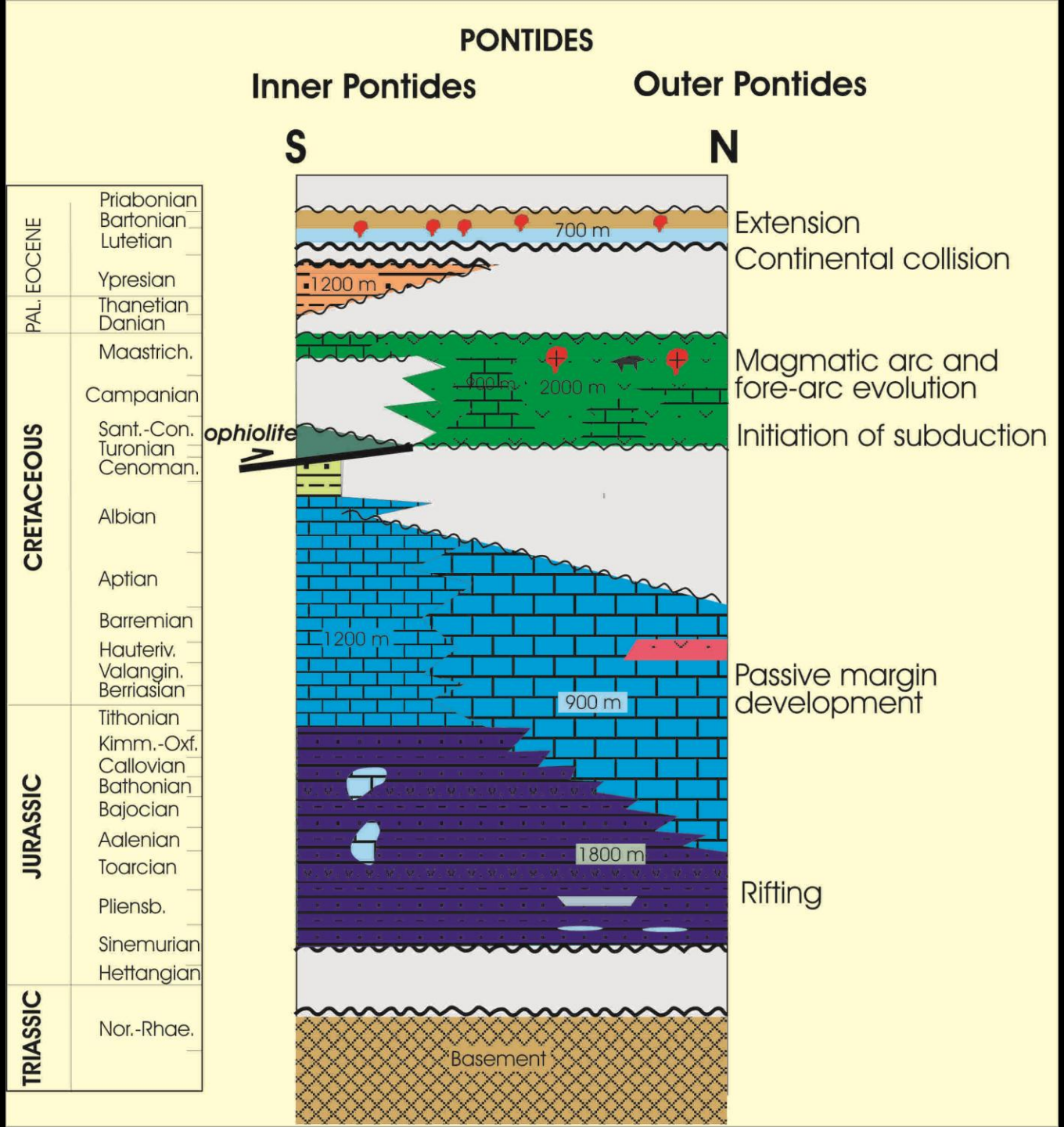
DIŞ DOĞU PONTIDLER'DE SENONİYEN –

MAGMATİK YAYIN GELİŞİMİ


PONTIDES
Inner Pontides
Outer Pontides
S
N
PAL. EOCENE
Priabonian
Bartonian
Lutetian
Ypresian
Thanetian
Danian
CRETACEOUS
Maastrich.
Campanian
Sant.-Con.
Turonian
Cenoman.
Albian
Aptian
Barremian
Hauteriv.
Valangin.
Berriasian
JURASSIC
Tithonian
Kimm.-Oxf.
Callovian
Bathonian
Bajocian
Aalenian
Toarcian
Pliensb.
Sinemurian
Hettangian
TRIASSIC
Nor.-Rhae.
700 m
1200 m
900 m
2000 m
ophiolite
1200 m
900 m
1800 m
Basement
Extension
Continental collision
Magmatic arc and
fore-arc evolution
Initiation of subduction
Passive margin
development
Rifting


Ordu
Trabzon
Rize
Artvin
Gümüşhane
Late Cretaceous (Senonian)
100 km
Dacitic, rhyolitic, andesitic, basaltic lava, agglomerate, tuff
Volcanoclastic sandstone, basaltic, andesitic agglomerate, tuff
Pelagic limestone
Accretionary complex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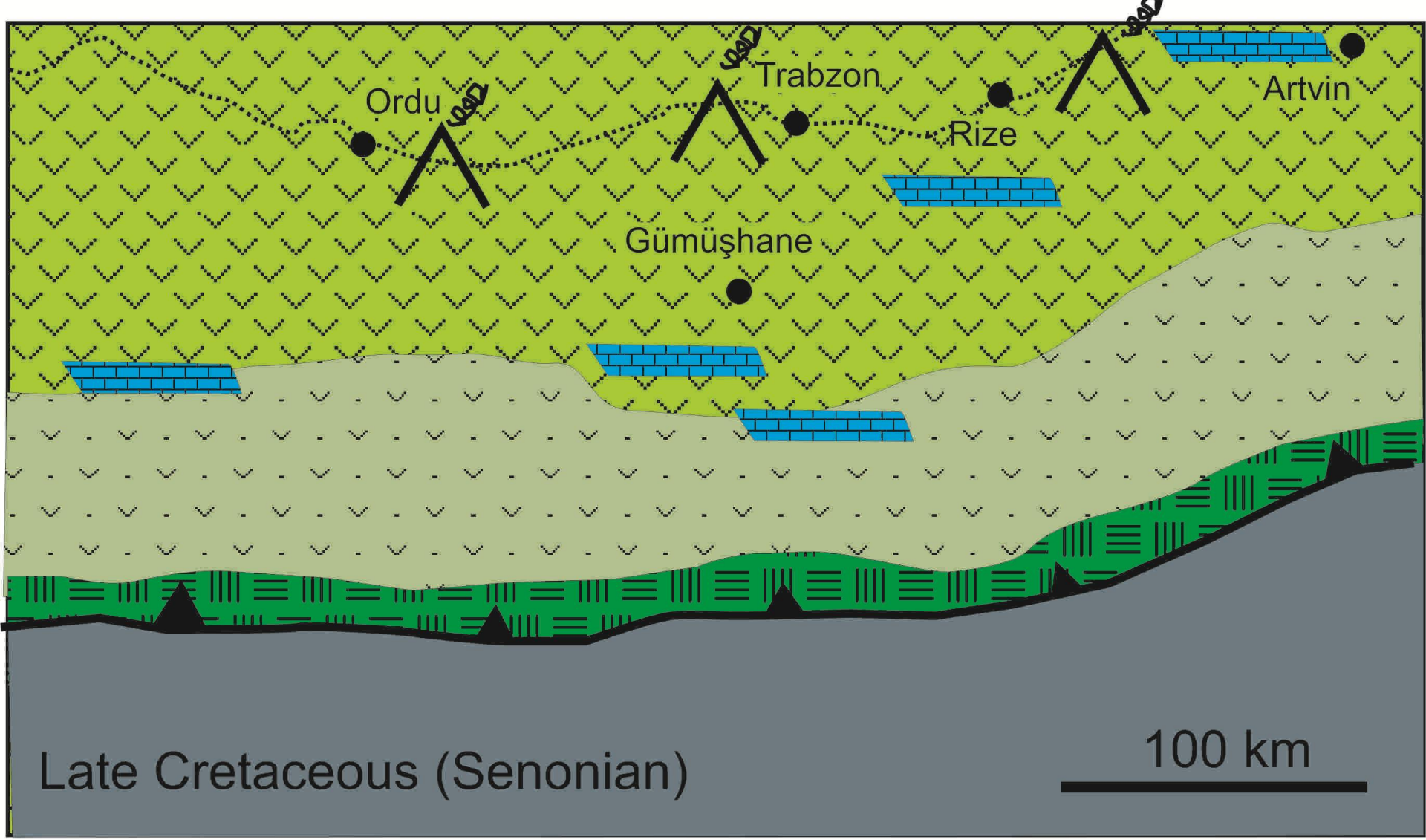
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Trabzon
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Artvin
Gümüşhane
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100 km
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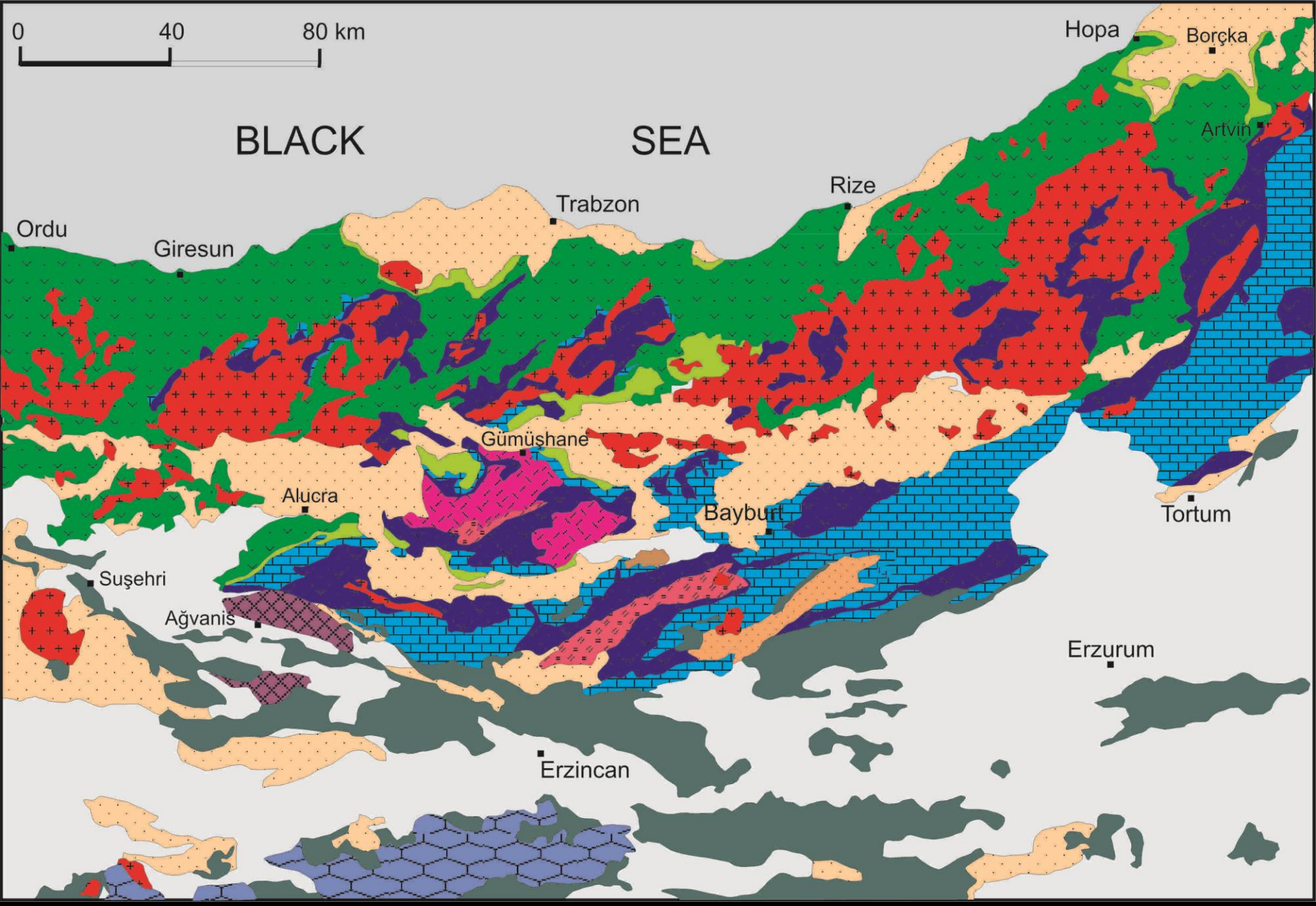
Volcanoclastic sandstone, basaltic, andesitic agglomerate, tuff
Pelagic limestone
Accretionary complex

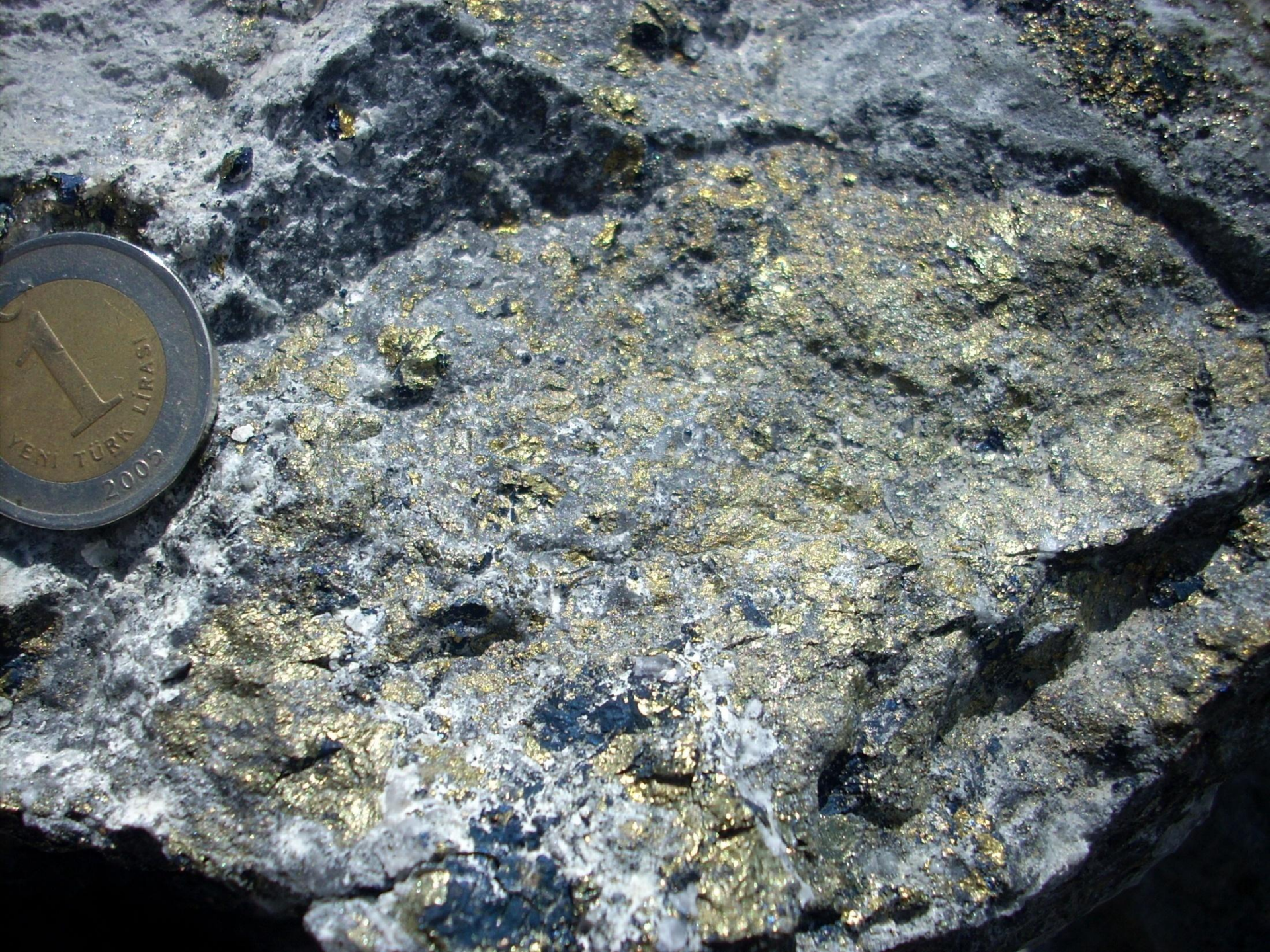
KURUKO TİPİ VOLKANİK MASSİF SÜLFİD YATAKLARI

MURGUL, ÇAYELİ vb.


0
40
80 km
BLACK
SEA
Hopa
Borçka
Artvin
Rize
Trabzon
Ordu
Giresun
Gümüşhane
Alucra
Bayburt
Tortum
Suşehri
Ağvanis
Erzurum
Erzincan

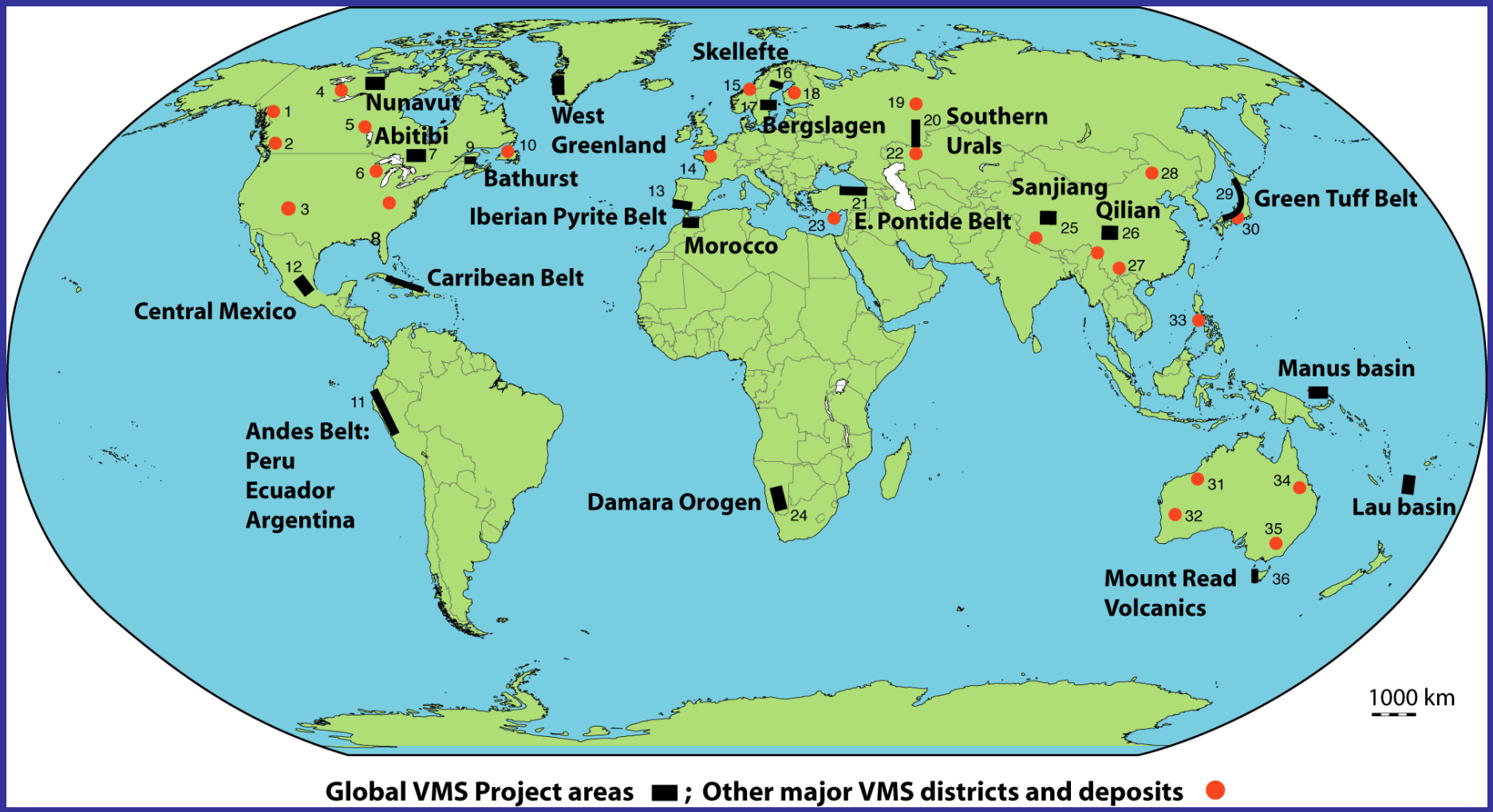

LAHANOS G25
1980
normet

ÇAYELİ

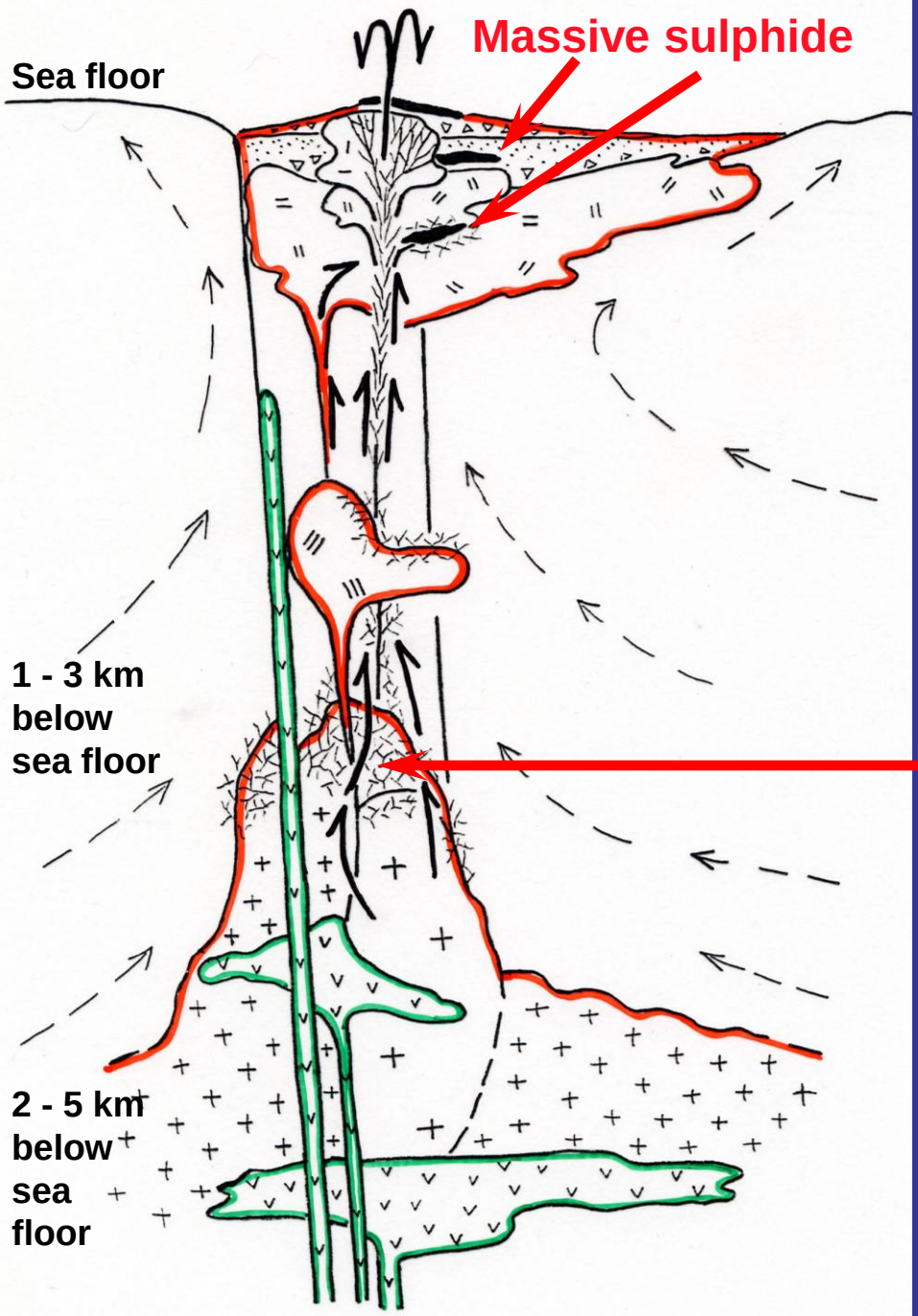

1
YENİ TÜRK LİRASI
2005

MURGUL

Global Comparison of VMS Districts: Project Study Areas



Model for rhyolite-hosted massive sulphide ores



Submarine rhyolite volcano

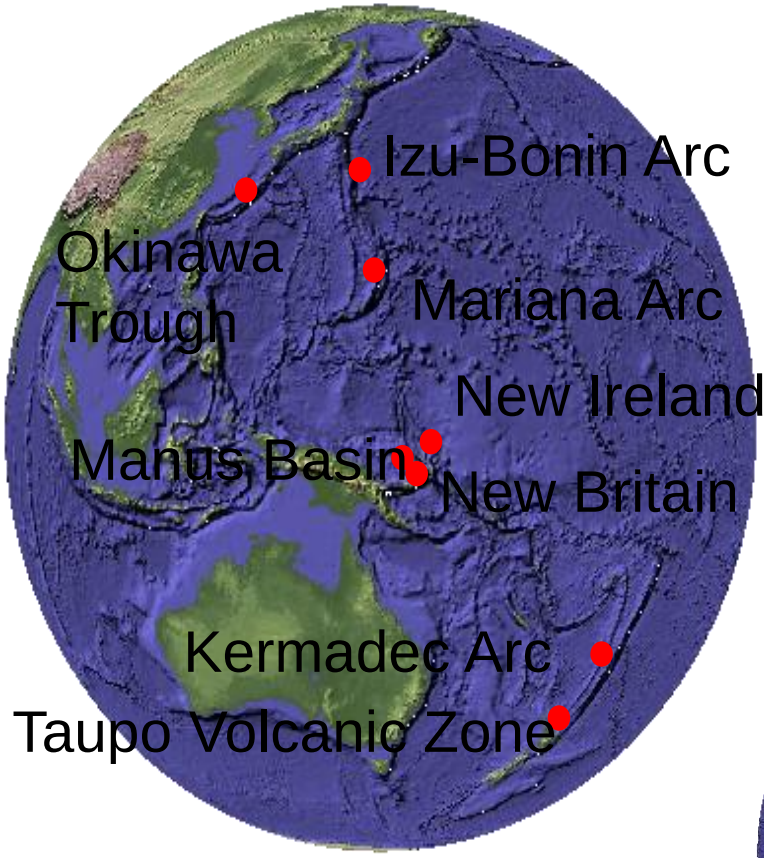
Regional convective sea water hydrothermal system (carries metals, causes alteration)

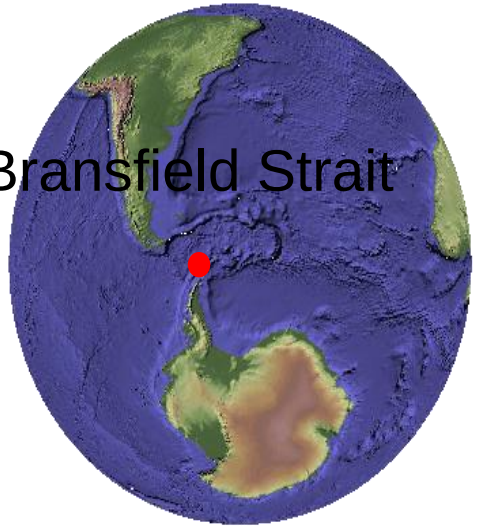
Magmatic hydrothermal system (carries metals, causes alteration

Felsic subvolcanic intrusion

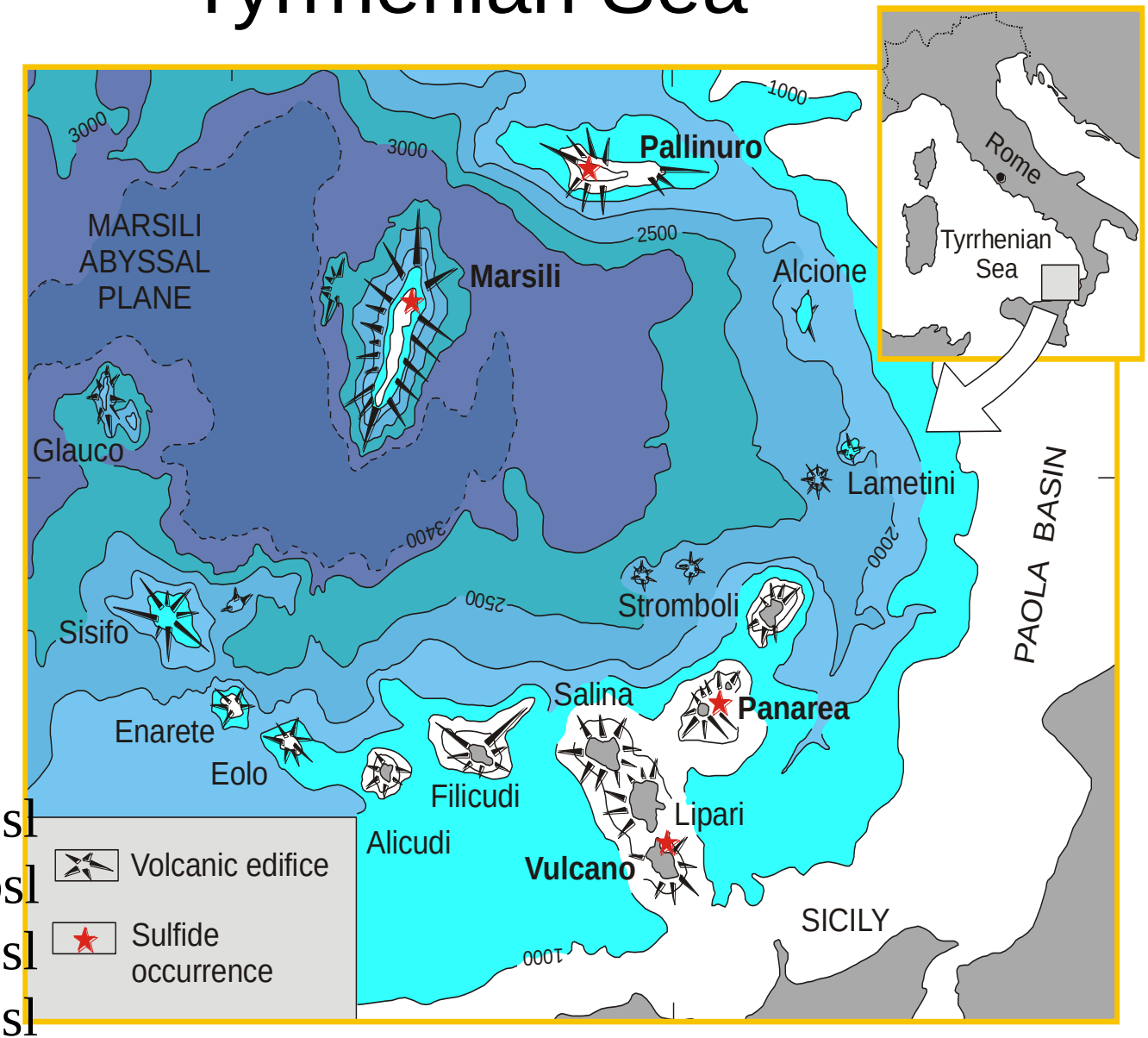
Mafic intrusions

Modern shallow marine systems



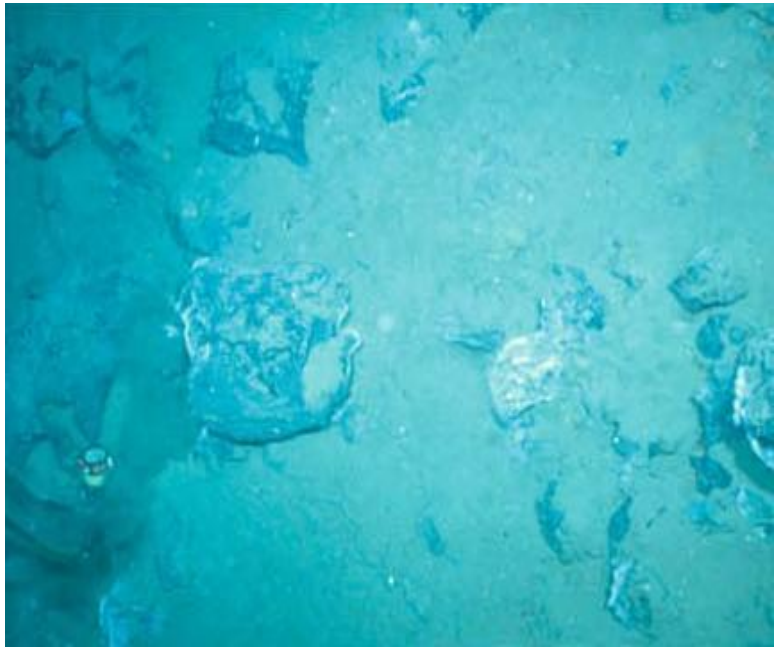


Tyrrhenian Sea

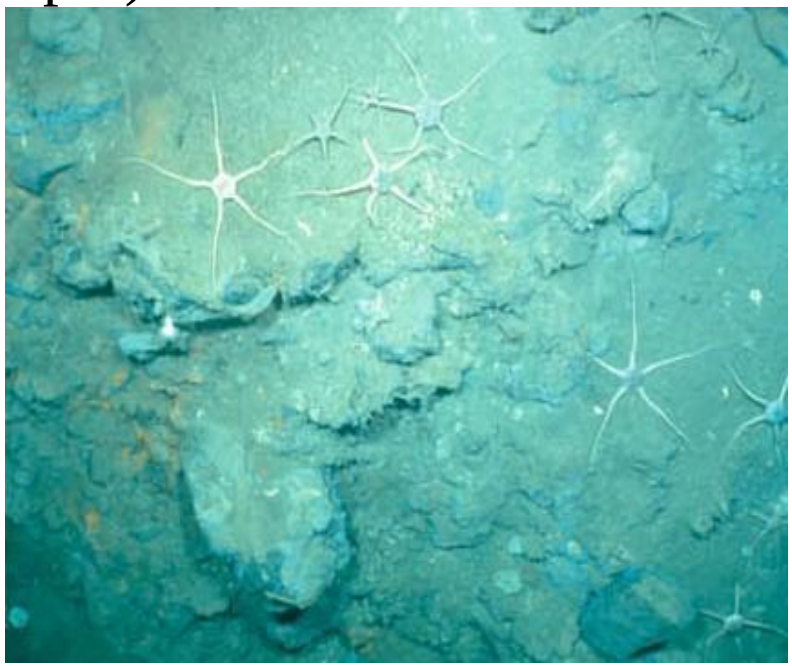


Vulcano: <15 mbsl
Panarea: 80 mbsl
Marsili: 500 mbsl
Palinuro: 600 mbsl

Beccaluva et al. (1985)



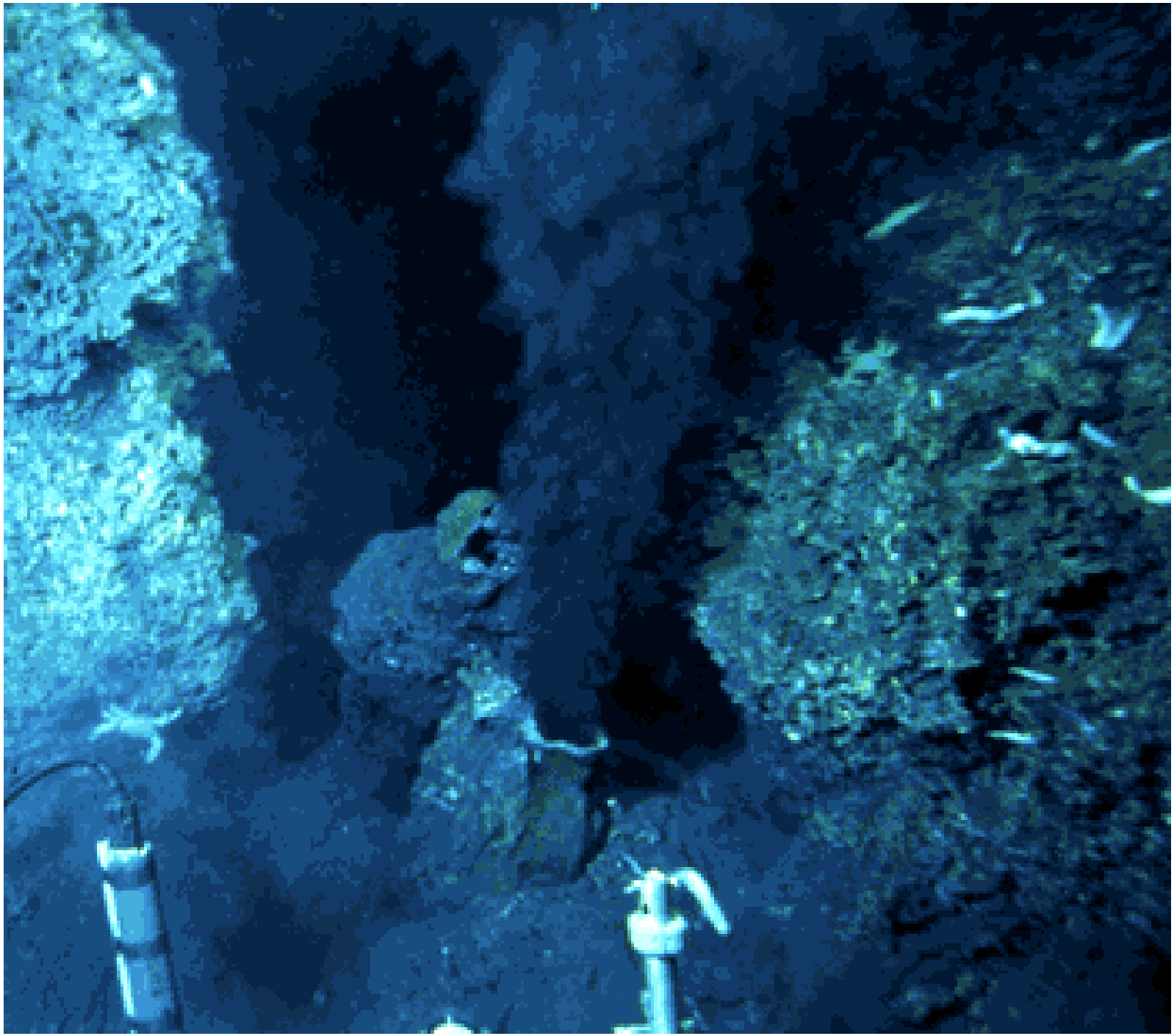
Sulfide talus at Hook Ridge (1070 m water depth)

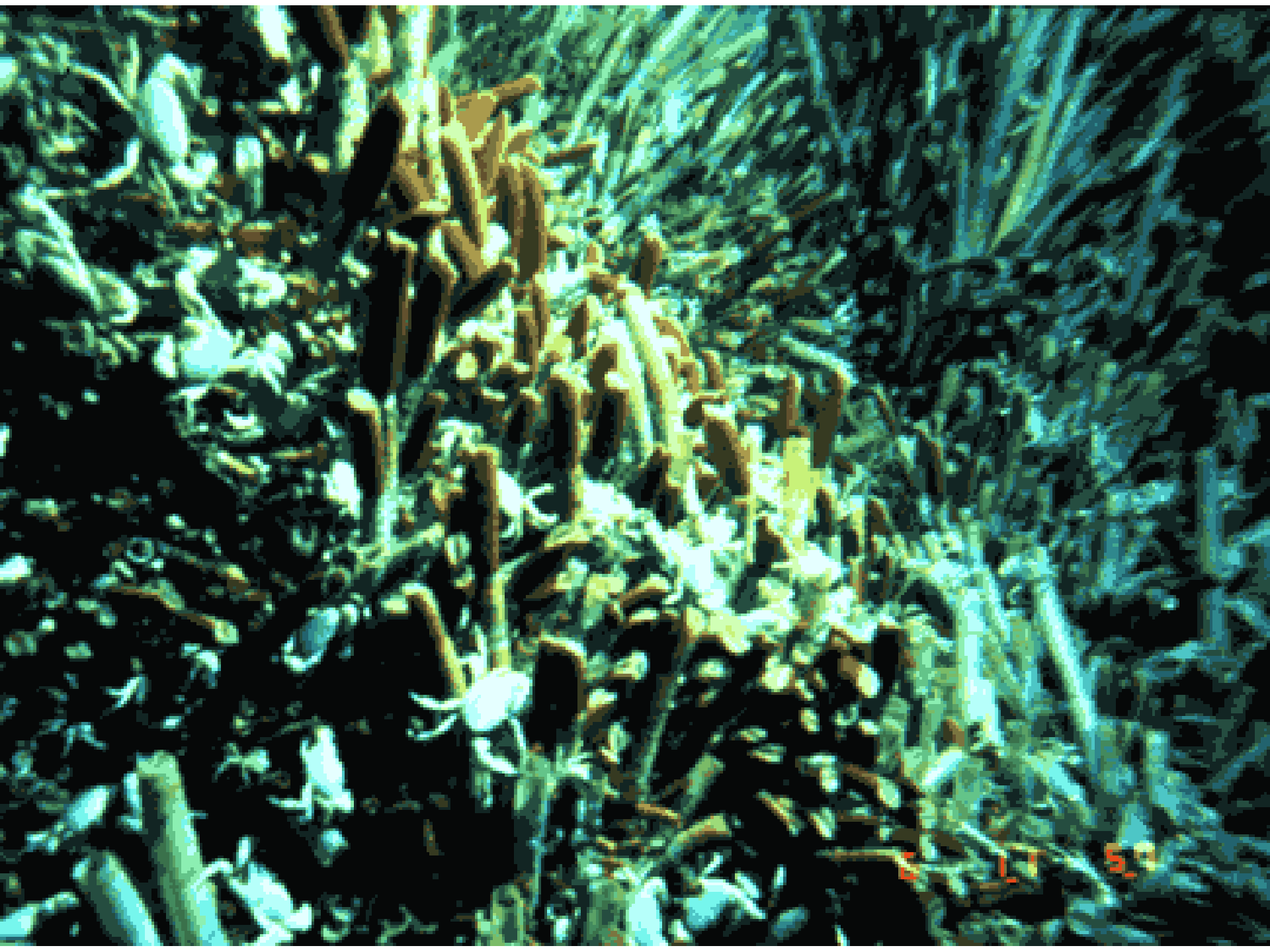


Polymetallic mineralization in a sedimented marginal basin ➔ broadly similar to the Iberian Pyrite Belt, the largest massive sulfide accumulation in the world

Sulfide talus at Hook Ridge (1060 m water depth)

Petersen et al. (2004)

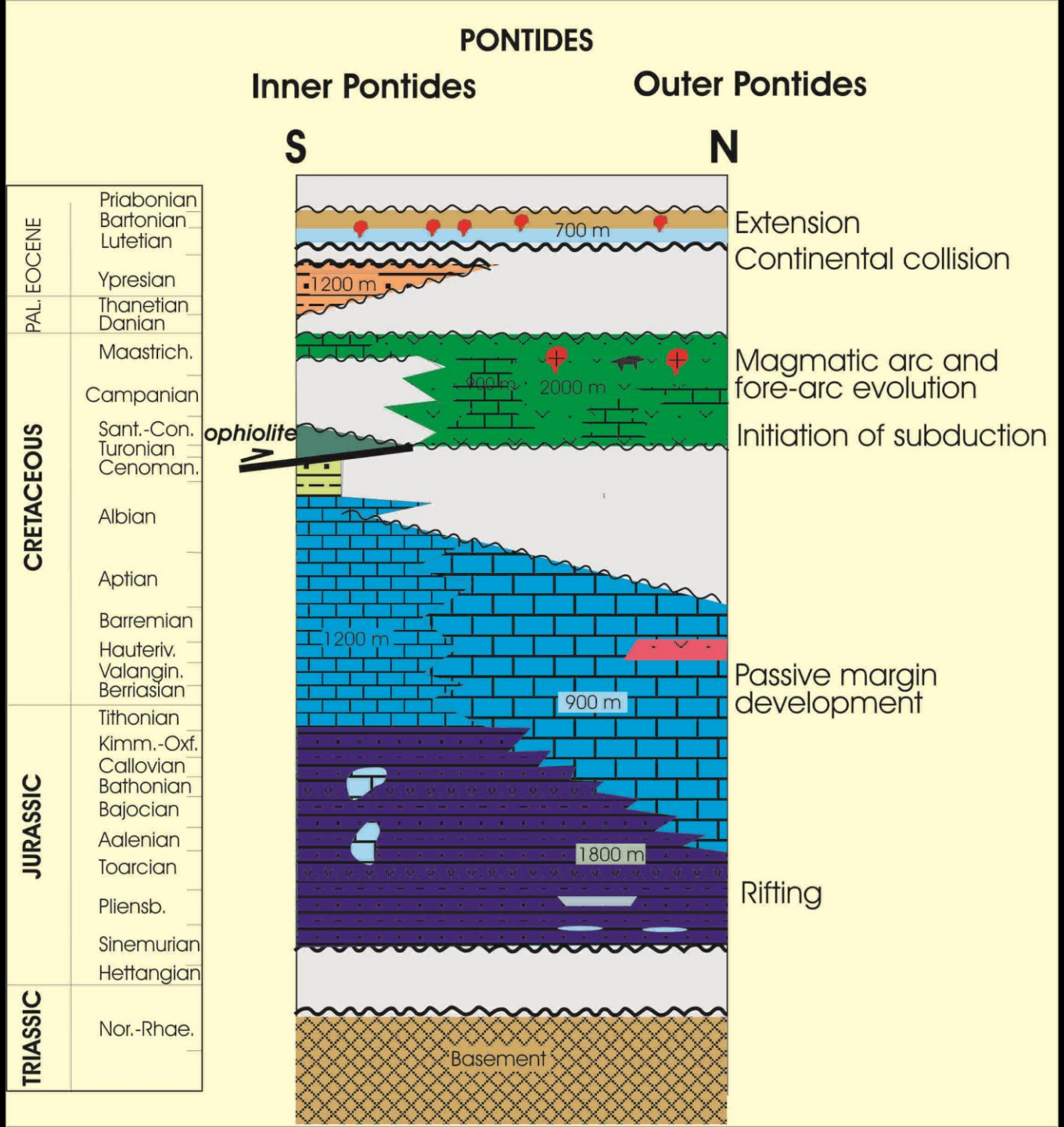





100
BİN LİRA
2000

MAASTRİHTİYEN-PALEOSEN

MAGMATİZMA SONA ERİYOR – SAKİN BİR ORTAMDA KİREÇTAŞI ÇÖKELİYOR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700 m
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Basement
Extension
Continental collision
Magmatic arc and
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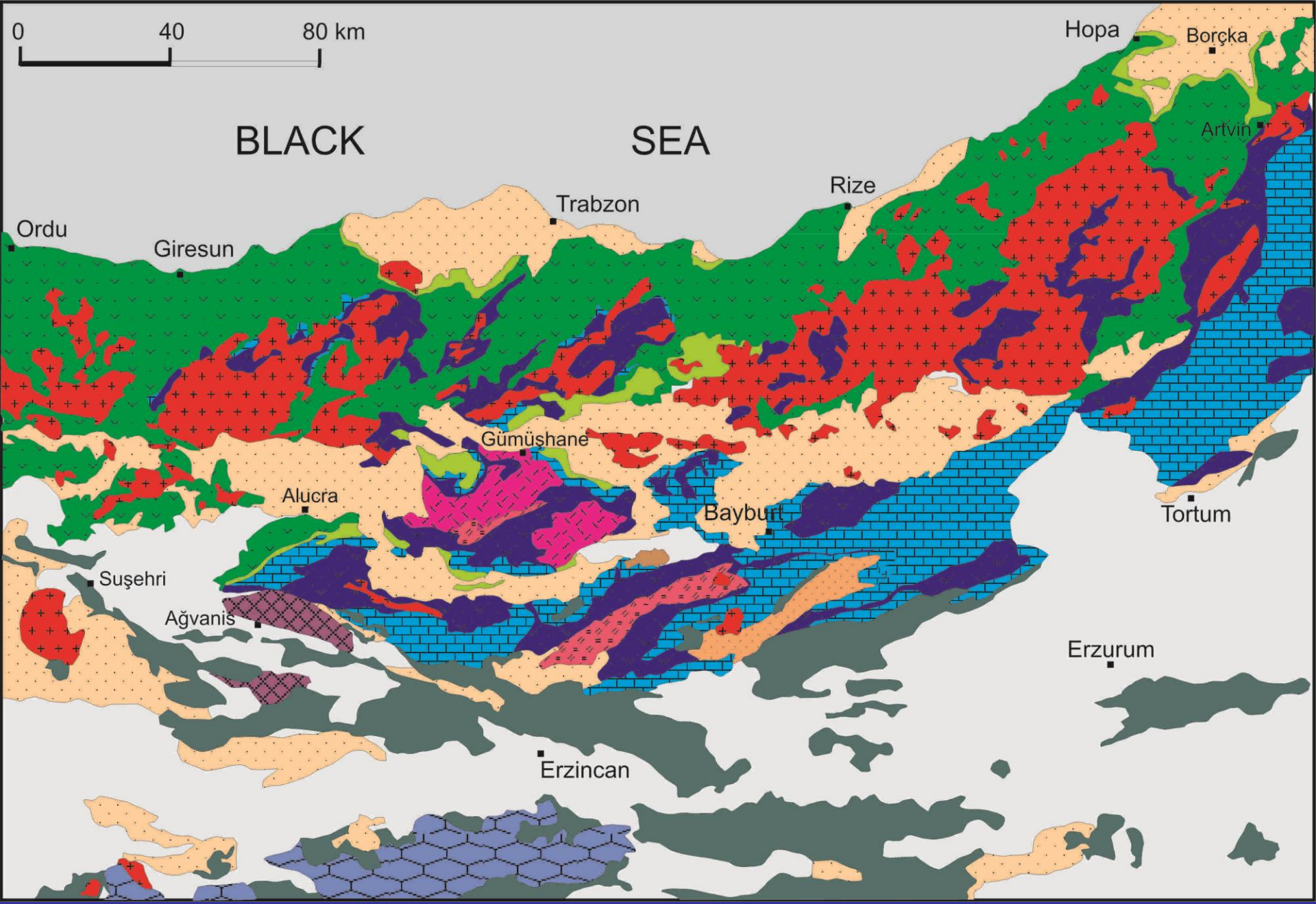
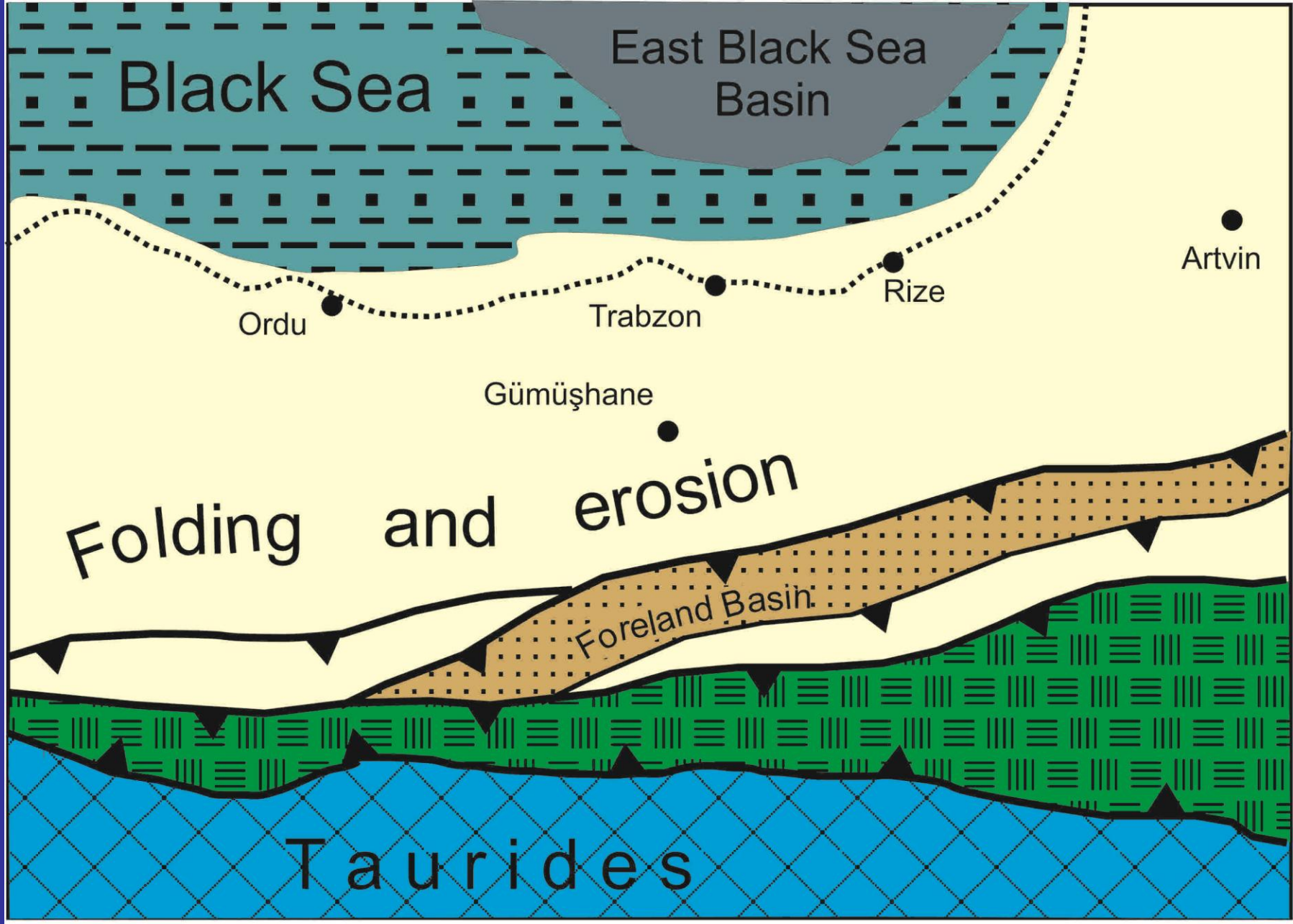
Initiation of subduction
Passive margin
development
Rifting

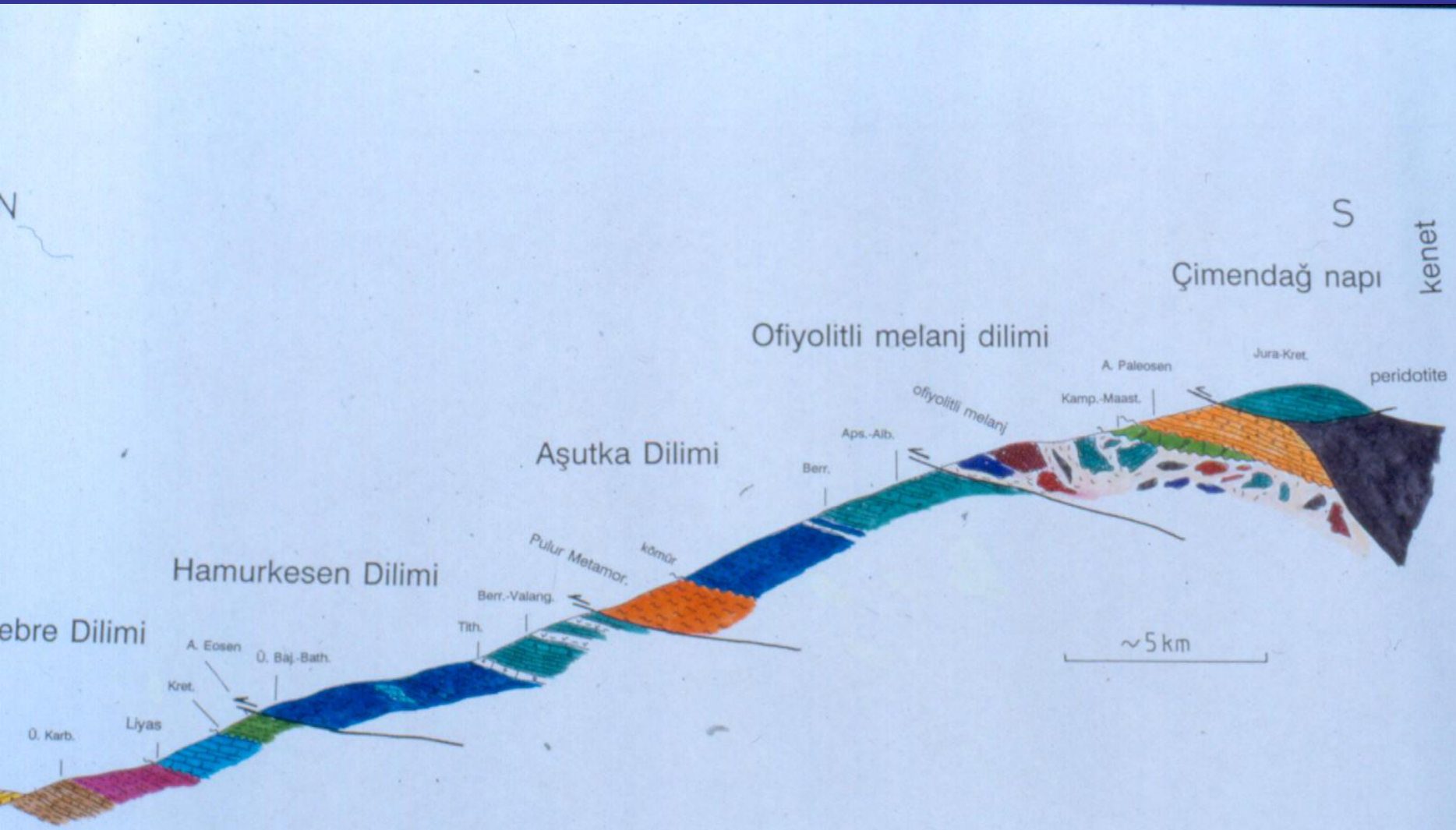

100
BİN LİRA
2021

GEÇ PALEOSEN – ERKEN EOSEN

PONTİDLER TOROSLAR İLE ÇARPIŞIYOR


0
40
80 km
BLACK
SEA
Hopa
Borçka
Artvin
Rize
Trabzon
Ordu
Giresun
Gümüşhane
Alucra
Bayburt
Tortum
Suşehri
Ağvanis
Erzurum
Erzincan

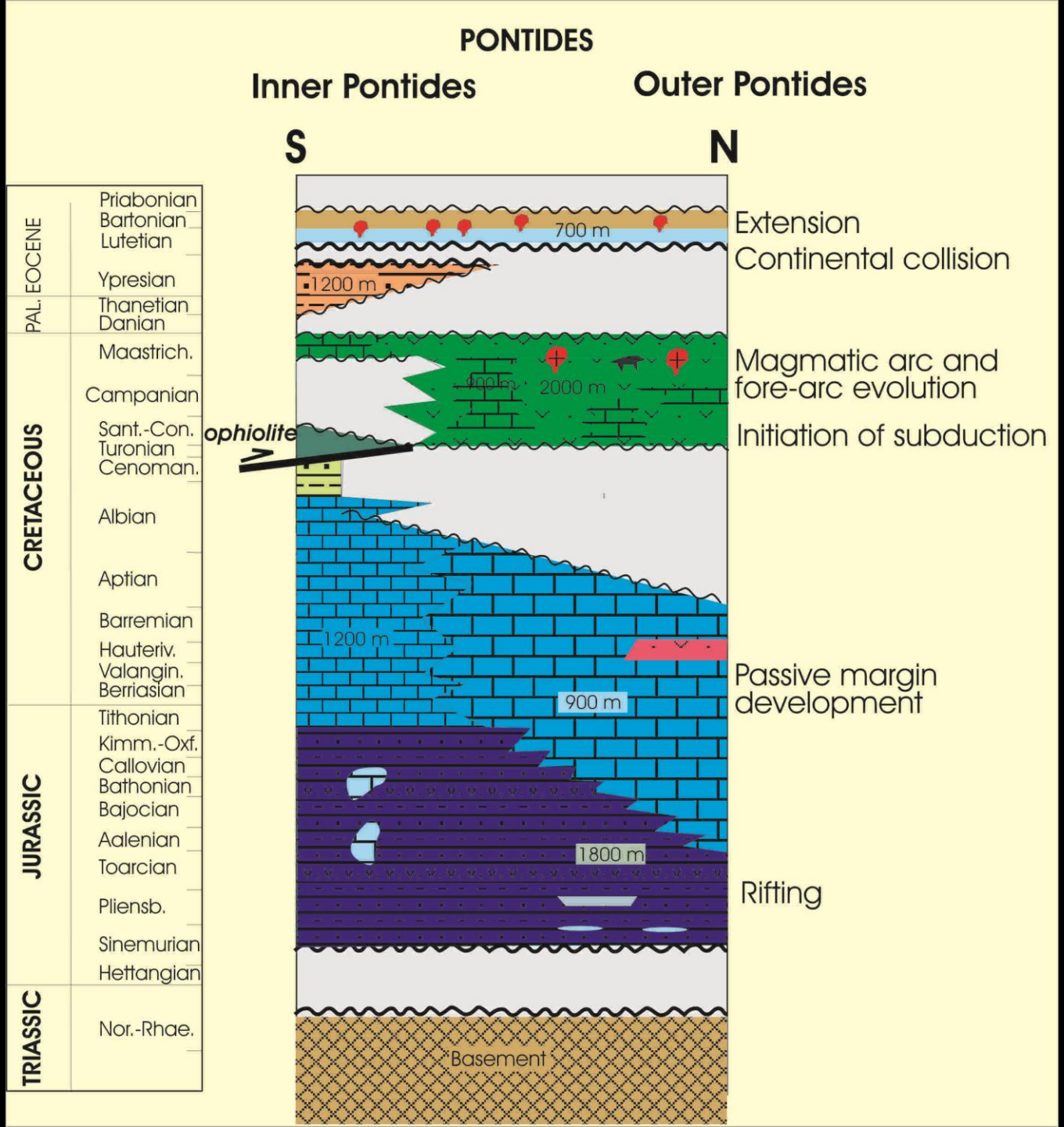

Black Sea
East Black Sea Basin
Artvin
Rize
Trabzon
Ordu
Gümüşhane
Folding and erosion
Foreland Basin
Taurides
Early Eocene
100 km


N
S
Çimendağ napı
kenet
Ofiyolitli melanj dilimi
A. Paleosen
Jura-Kret.
peridotite
Kamp.-Maast.
ofiyolitli melanj
Aps.-Alb.
Aşutka Dilimi
Berr.
Pulur Metamor.
kömür
Hamurkesen Dilimi
Berr.-Valang.
ebre Dilimi
Tith.
A. Eosen
Ü. Baj.-Bath.
Kret.
Liyas
Ü. Karb.
~5 km

ORTA – GEÇ EOSEN

ÇARPIŞMA SONRASI GERME VE MAGMATİZMA

YENİ BİR ÇÖKELME EVRESİ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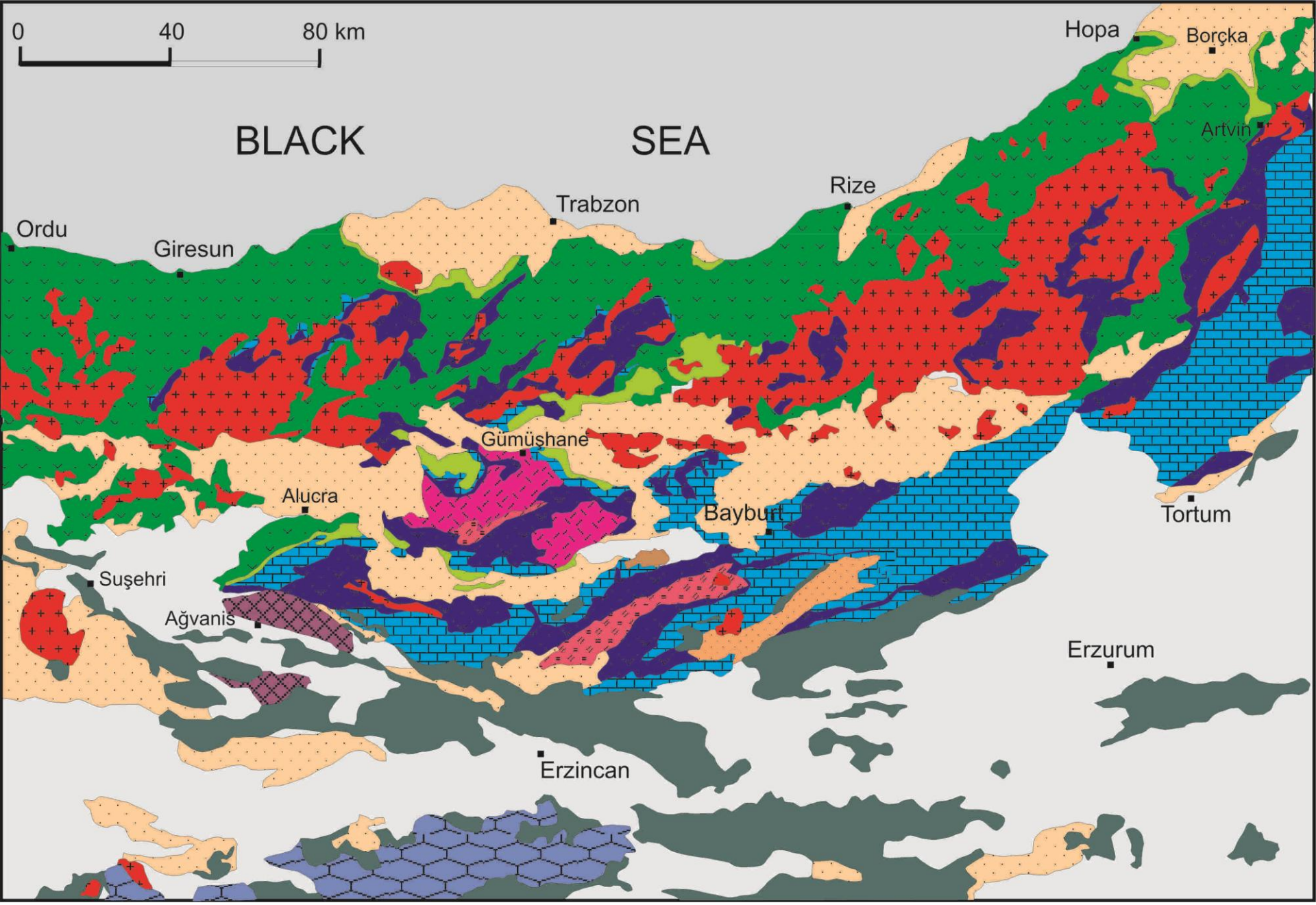
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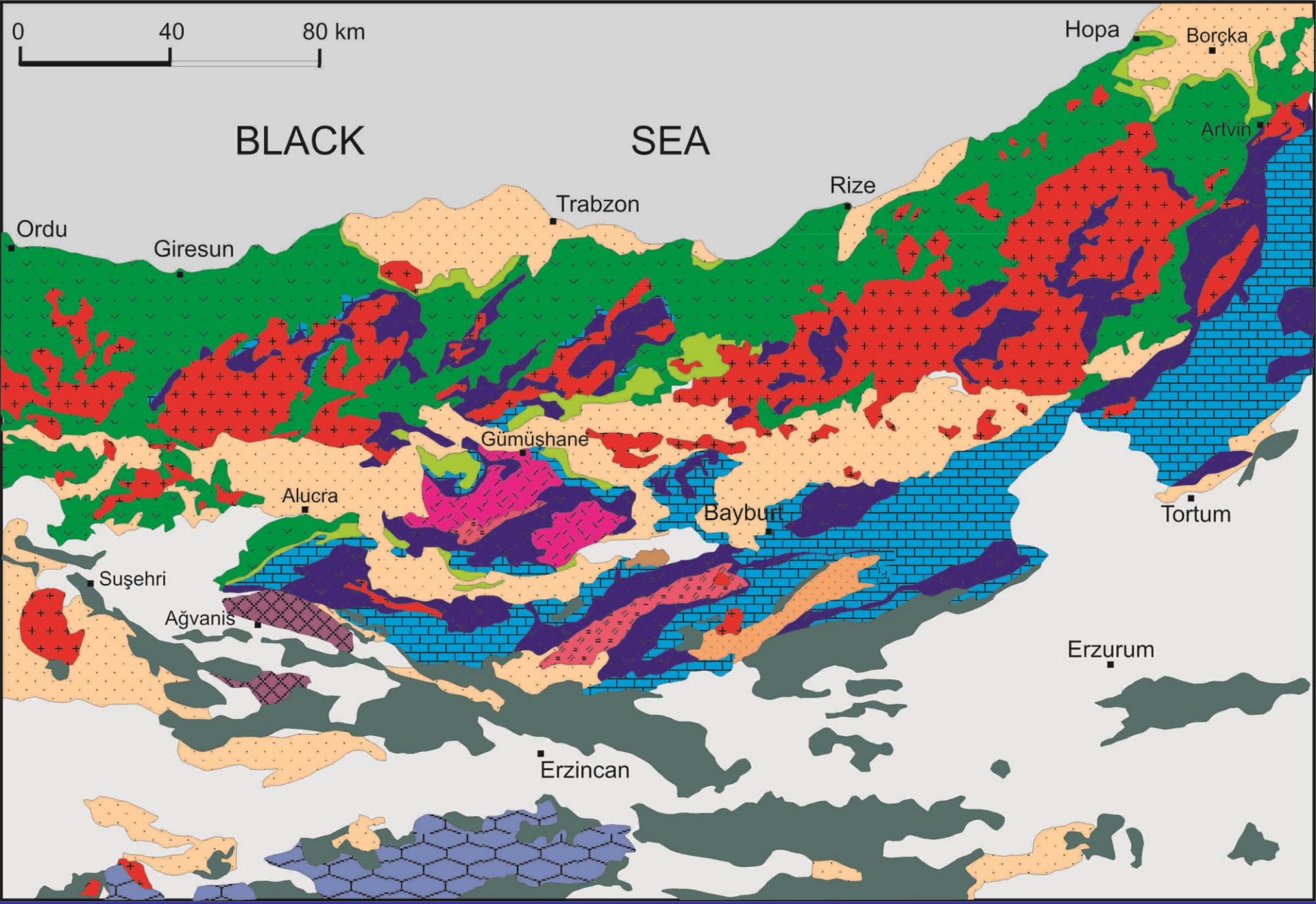
Ordu
Giresun
Gümüşhane
Alucra
Bayburt
Tortum
Suşehri
Ağvanis
Erzurum
Erzincan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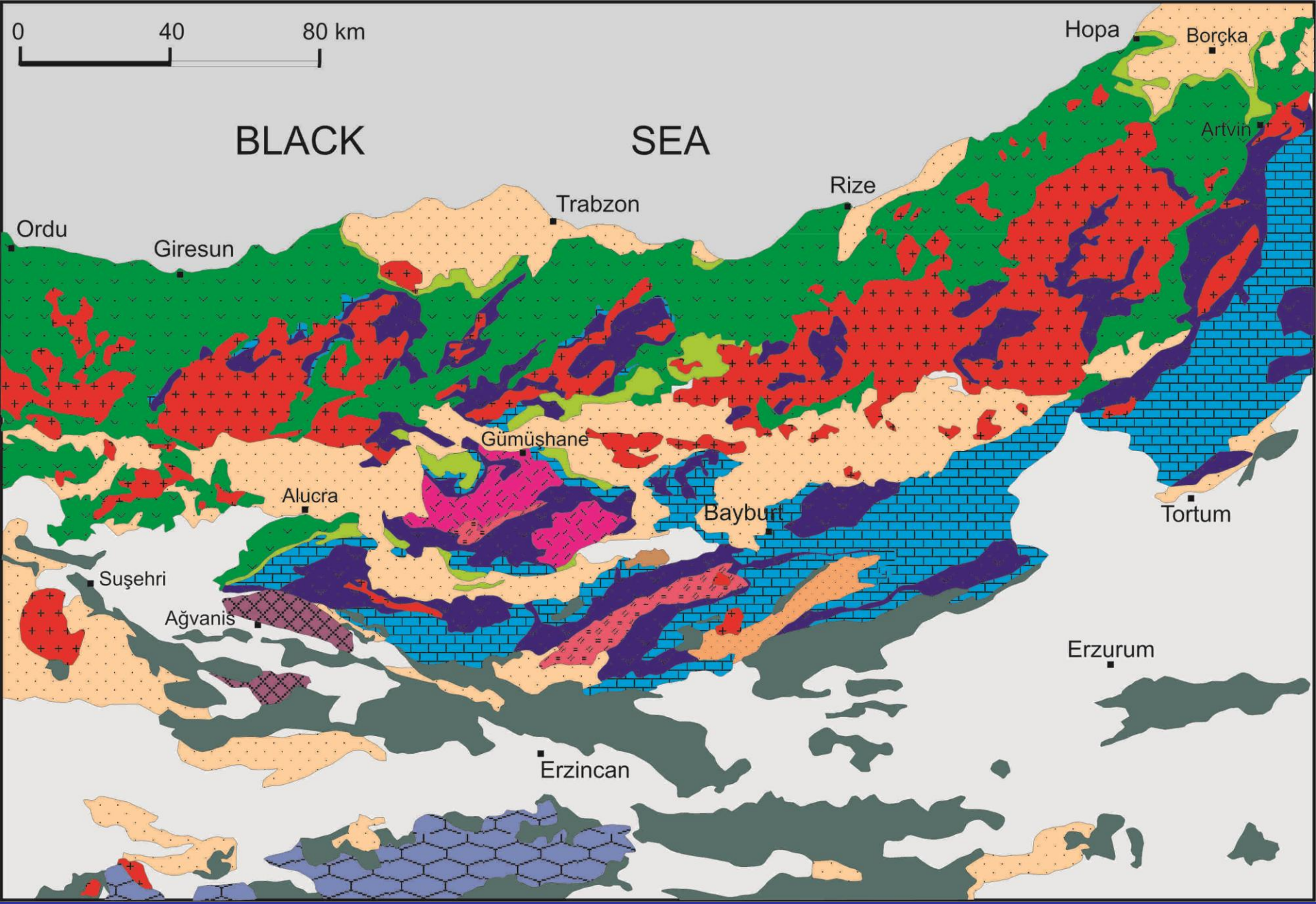
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Erzurum
Erzincan

EOSEN SONRASI KARASAL ÇÖKELLER VE VOLKANİZMA

Main Tectonic Features of the Eastern Pontides

- - A complex and heterogeneous pre-Jurassic basement.
- - Volcanoclastic Early to Middle Jurassic.
- - Upper Jurassic – Lower Cretaceous carbonates – south-facing passive continental margin.
- - North-vergent emplacement of ophiolitic melange in Mid-Cretaceous.
- - Build-up of a magmatic arc in the Senonian. Formation of the Kuruko-type sulfide deposits.
- - Continent-arc collision in the Late Paleocene - Early Eocene.
- - Widespread post-collisional magmatism and sedimentation in the Mid-Eocene.