EMODnet

Rappresentazione della geologia del Quaternario e pre-Quaternario

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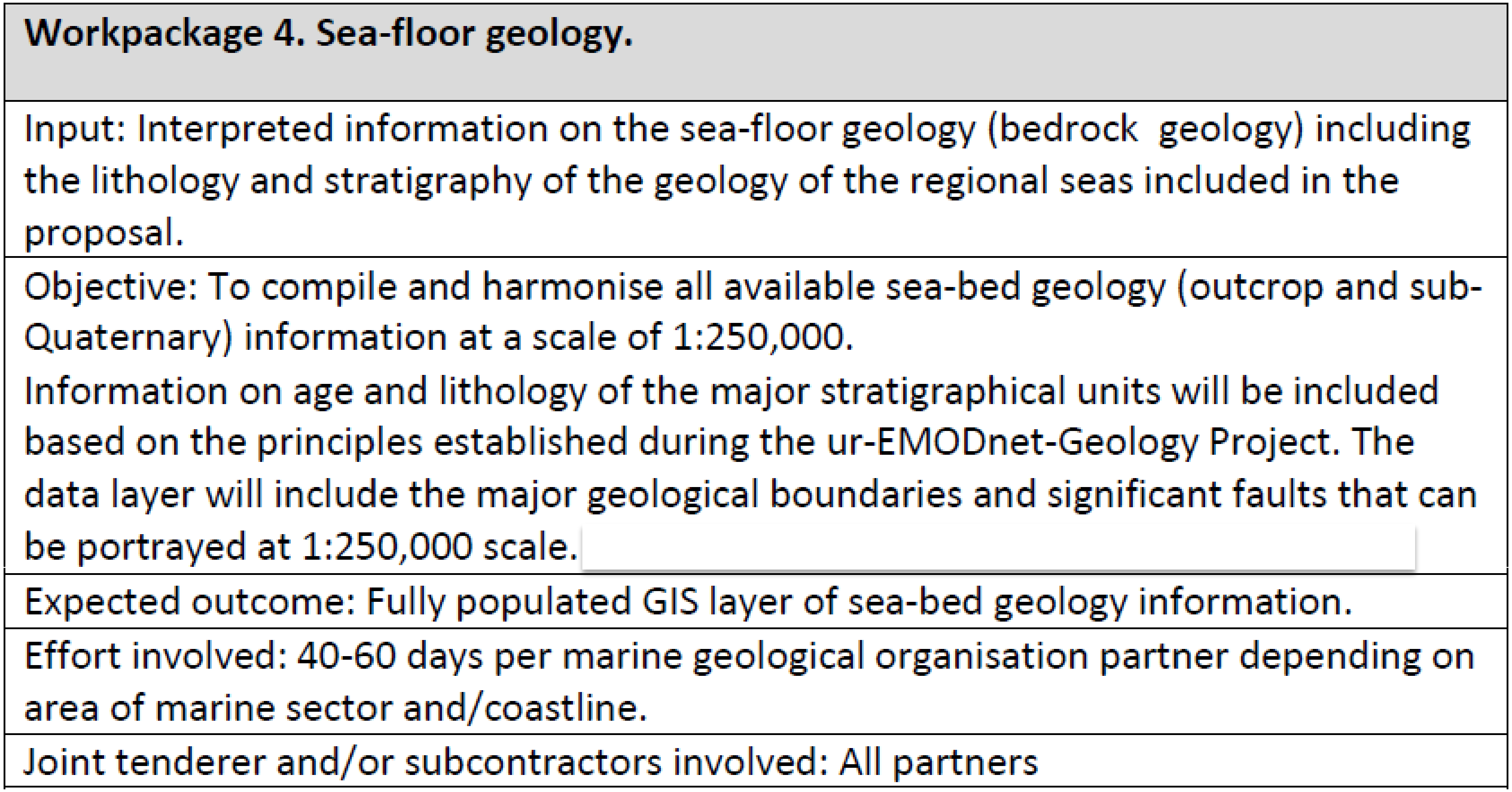
EMODnet Geology WP4



Workpackage 4. Sea-floor geology.
Input: Interpreted information on the sea-floor geology (bedrock geology) including the lithology and stratigraphy of the geology of the regional seas included in the proposal.
Objective: To compile and harmonise all available sea-bed geology (outcrop and sub-Quaternary) information at a scale of 1:250,000. Information on age and lithology of the major stratigraphical units will be included based on the principles established during the ur-EMODnet-Geology Project. The data layer will include the major geological boundaries and significant faults that can be portrayed at 1:250,000 scale.
Expected outcome: Fully populated GIS layer of sea-bed geology information.
Effort involved: 40-60 days per marine geological organisation partner depending on area of marine sector and/coastline.
Joint tenderer and/or subcontractors involved: All partners

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Metodo: individuare, unificare e armonizzare tutte le carte geologiche del substrato e le carte geologiche derivanti da interpretazioni geofisiche in ogni paese partecipante. Risolvere ogni questione rilevante relativa ai limiti alla scala 1:250,000 al fine di produrre le seguenti cartografie digitali:

- Geologia del pre-Quaternario (età, litologia, genesi), faglie
- Geologia del Quaternario (età, litologia, genesi, elementi geomorfologici), faglie.

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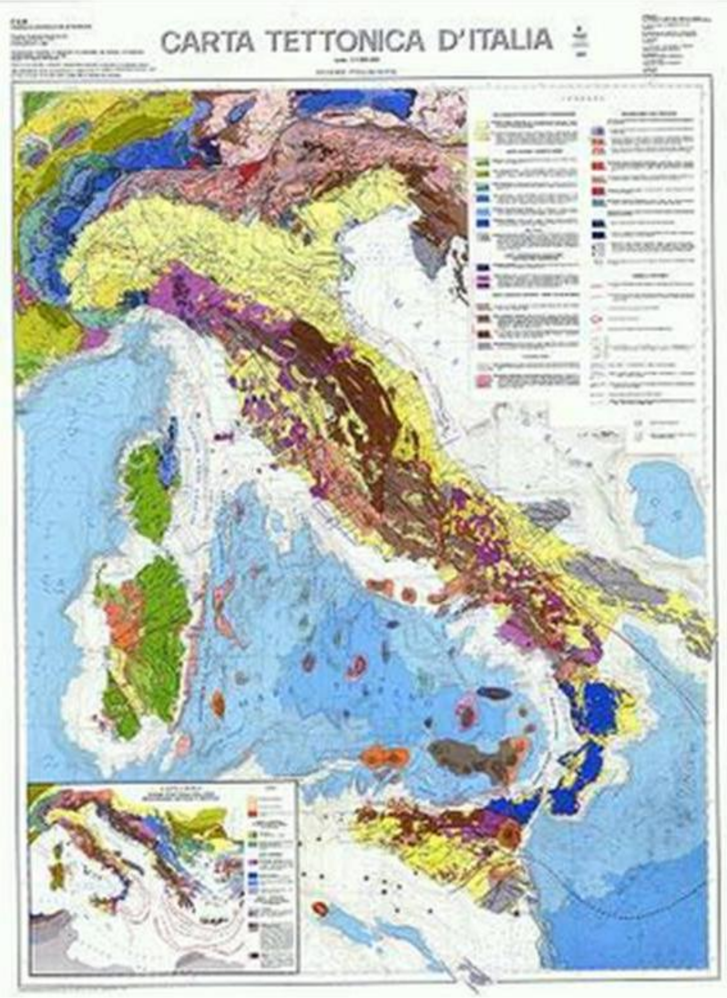
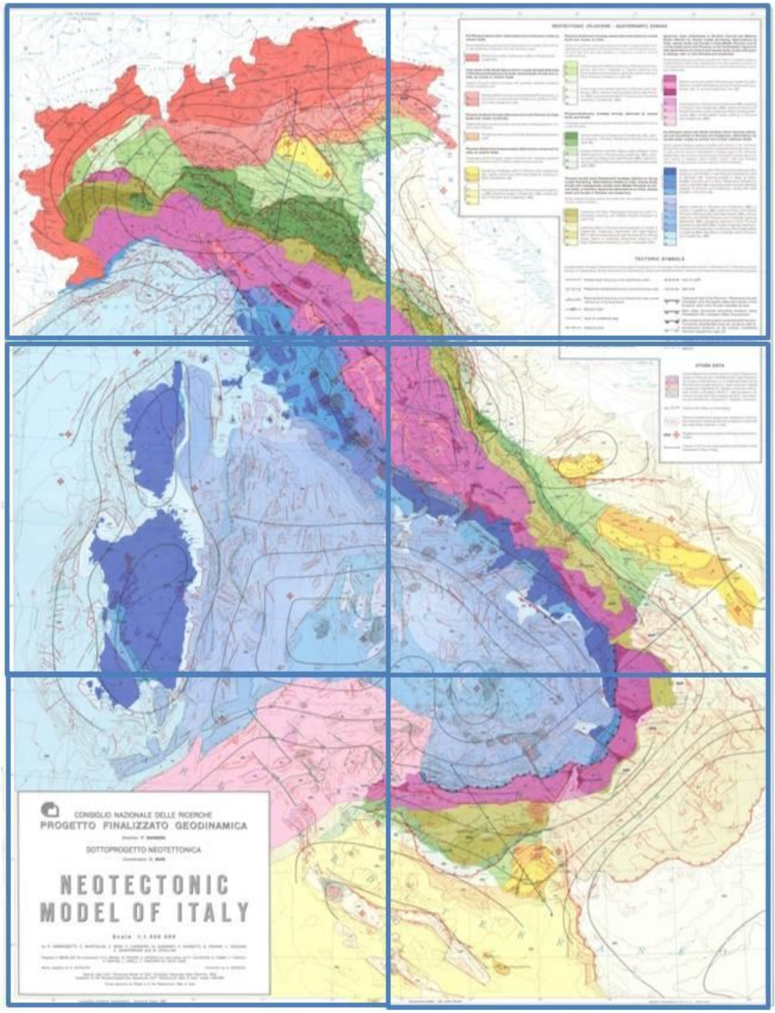

CARTA TETTONICA D'ITALIA


CONSIGLIO NAZIONALE DELLE RICERCHE
PROGETTO FINALIZZATO GEODINAMICA
SOTTOPROGETTO NEOTETTONICA
NEOTECTONIC MODEL OF ITALY

Carta Tettonica d'Italia alla scala 1.5 M. Funiciello et al., 1981

Modello Neotettonico d'Italia alla scala 1:500,000. Barone et al., 1983

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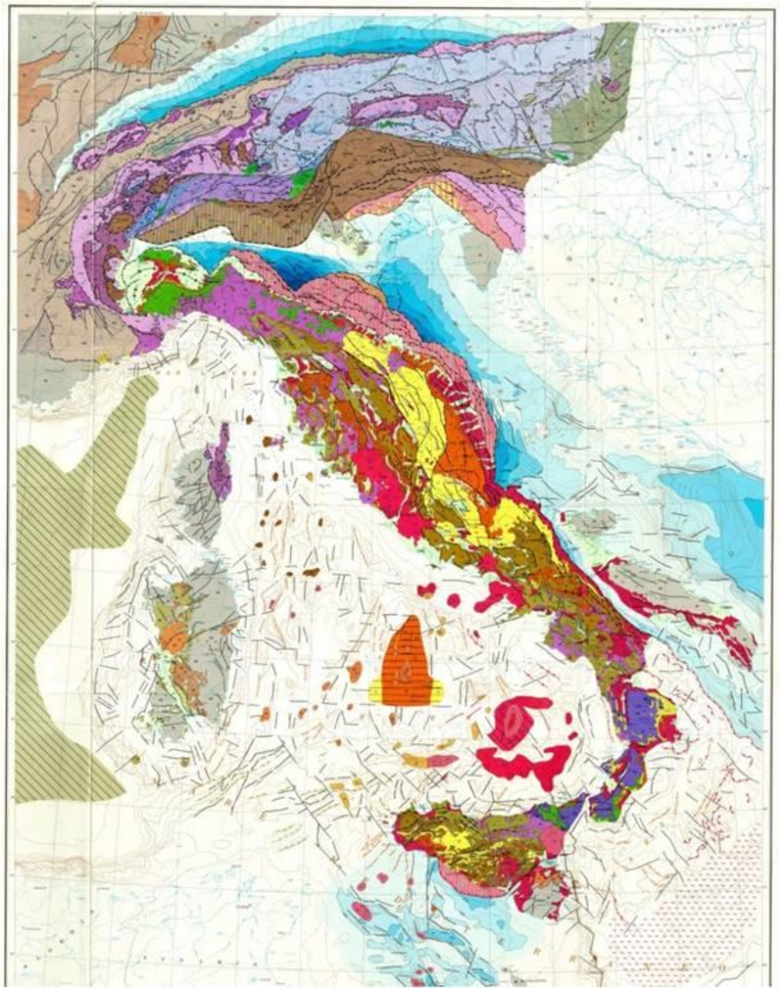
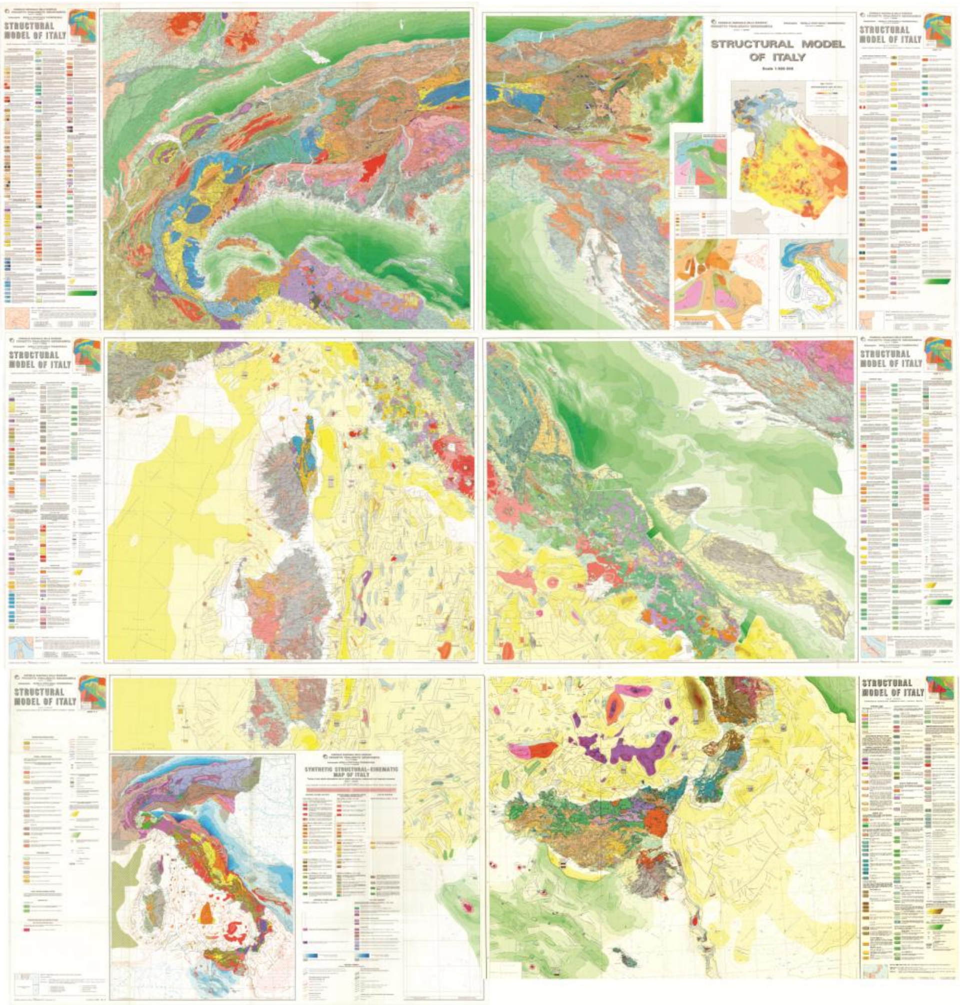


Carta Sintetica cinematico-strutturale d'Italia alla scala 2 M. Bigi et al., 1989


STRUCTURAL MODEL OF ITALY
STRUCTURAL MODEL OF ITALY
STRUCTURAL MODEL OF ITALY
STRUCTURAL MODEL OF ITALY
STRUCTURAL MODEL OF ITALY
STRUCTURAL MODEL OF ITALY
STRUCTURAL MODEL OF ITALY
SYNTHETIC STRUCTURAL-KINEMATIC MAP OF ITALY

Modello Strutturale d'Italia alla scala 1:500,000. Bigi et al.,1992

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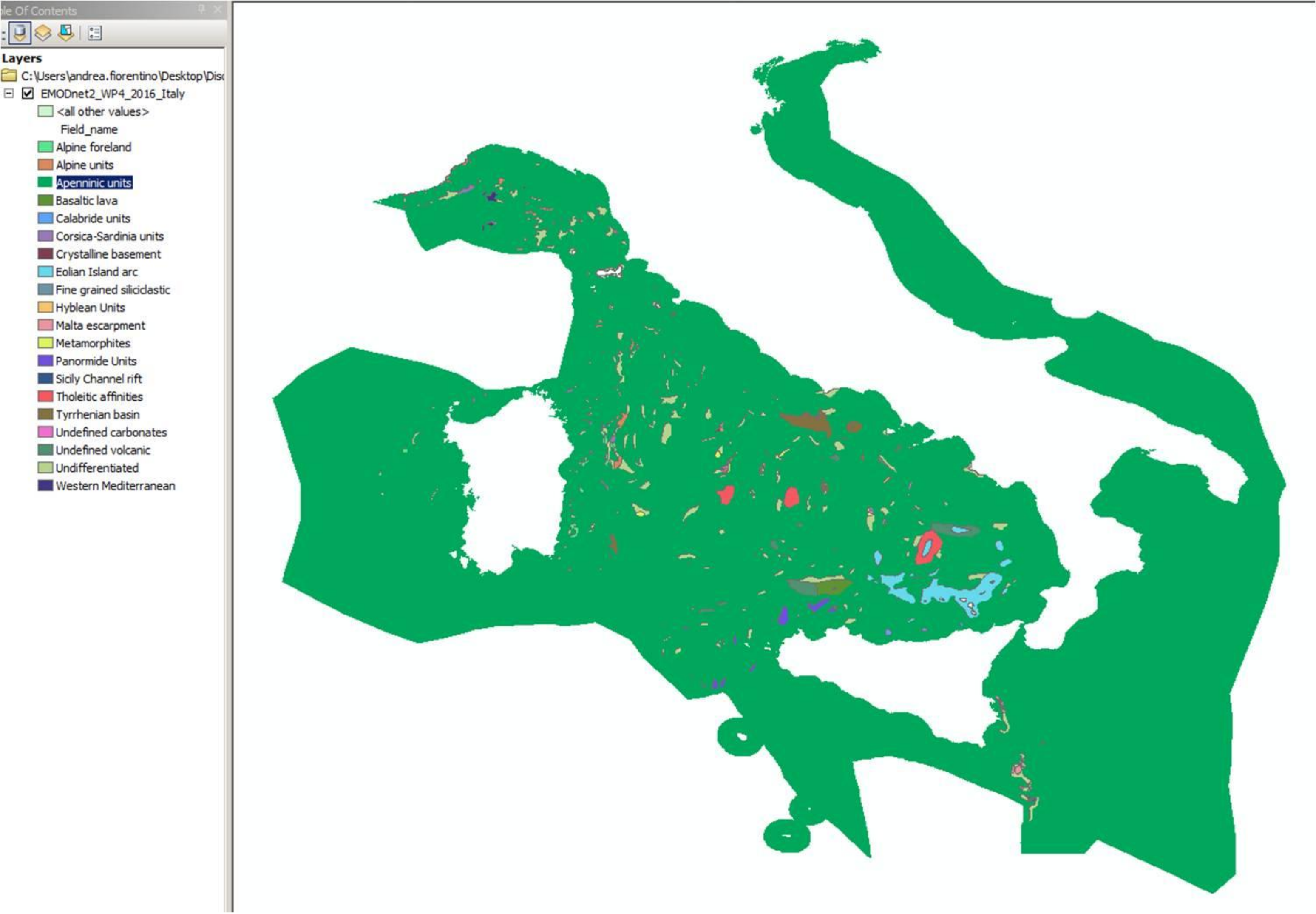
unità tettono-stratigrafiche



Layers

C:\Users\andrea.fiorentino\Desktop\Dis

⊟ ☑ EMODnet2_WP4_2016_Italy

- ☐ <all other values>
- Field_name
- 🟩 Alpine foreland
- 🟧 Alpine units
- 🟩 Apenninic units
- 🟩 Basaltic lava
- 🟦 Calabride units
- 🟪 Corsica-Sardinia units
- 🟥 Crystalline basement
- 🟦 Eolian Island arc
- 🟦 Fine grained siliciclastic
- 🟨 Hyblean Units
- 🟥 Malta escarpment
- 🟨 Metamorphites
- 🟪 Panormide Units
- 🟦 Sicily Channel rift
- 🟥 Tholeitic affinities
- 🟫 Tyrrhenian basin
- 🟪 Undefined carbonates
- 🟩 Undefined volcanic
- 🟩 Undifferentiated
- 🟪 Western Mediterranean

EMODnet Geology WP4
litologia delle unità pre-quaternarie

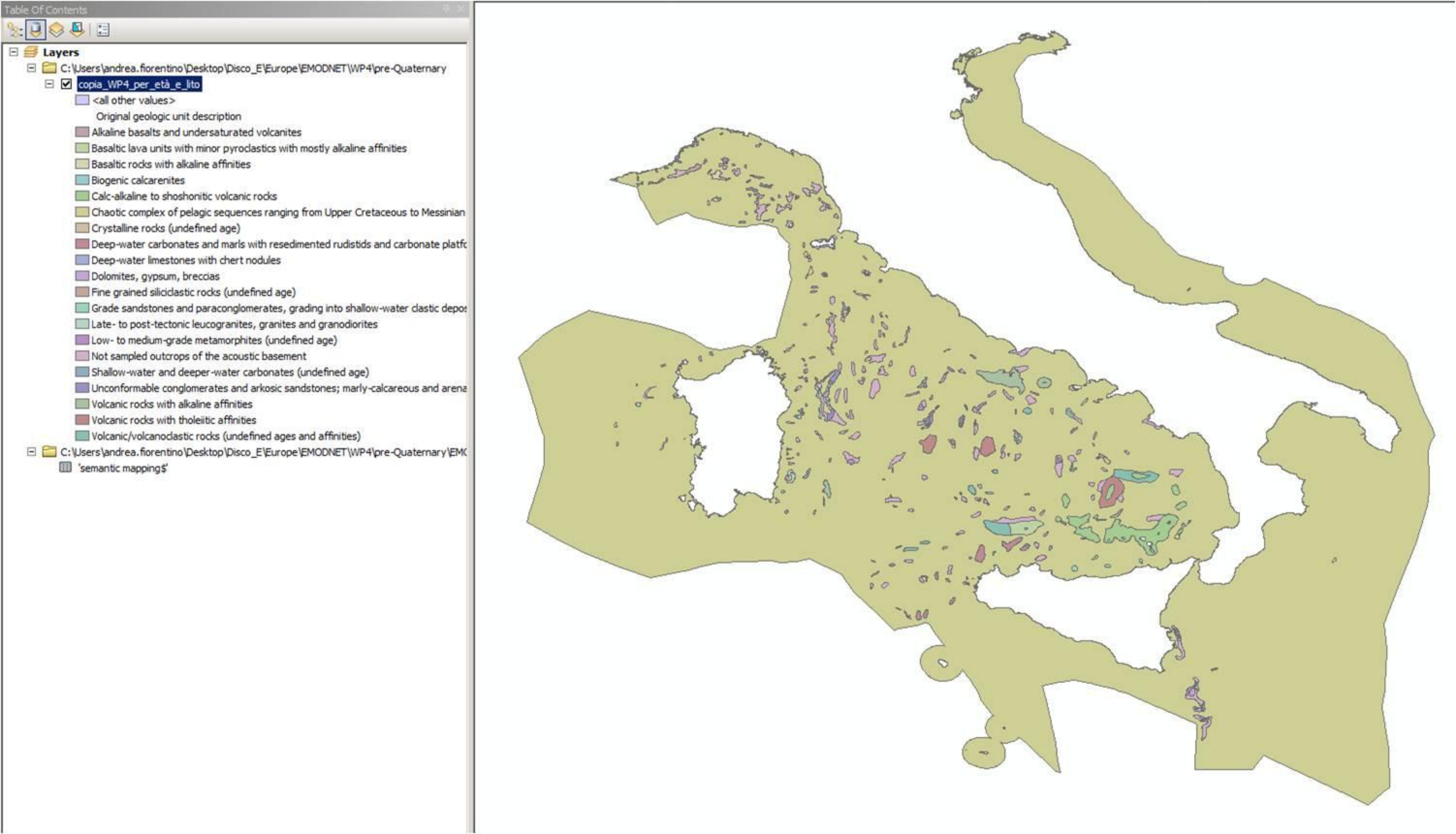


Table Of Contents

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☑ copia_WP4_per_età_e_lito

- ▨ <all other values>
- Original geologic unit description
- ▨ Alkaline basalts and undersaturated volcanites
- ▨ Basaltic lava units with minor pyroclastics with mostly alkaline affinities
- ▨ Basaltic rocks with alkaline affinities
- ▨ Biogenic calcarenites
- ▨ Calc-alkaline to shoshonitic volcanic rocks
- ▨ Chaotic complex of pelagic sequences ranging from Upper Cretaceous to Messinian
- ▨ Crystalline rocks (undefined age)
- ▨ Deep-water carbonates and marls with resedimented rudistids and carbonate platfo
- ▨ Deep-water limestones with chert nodules
- ▨ Dolomites, gypsum, breccias
- ▨ Fine grained siliciclastic rocks (undefined age)
- ▨ Grade sandstones and paraconglomerates, grading into shallow-water clastic depos
- ▨ Late- to post-tectonic leucogranites, granites and granodiorites
- ▨ Low- to medium-grade metamorphites (undefined age)
- ▨ Not sampled outcrops of the acoustic basement
- ▨ Shallow-water and deeper-water carbonates (undefined age)
- ▨ Unconformable conglomerates and arkosic sandstones; marly-calcareous and arena
- ▨ Volcanic rocks with alkaline affinities
- ▨ Volcanic rocks with tholeiitic affinities
- ▨ Volcanic/volcanoclastic rocks (undefined ages and affinities)

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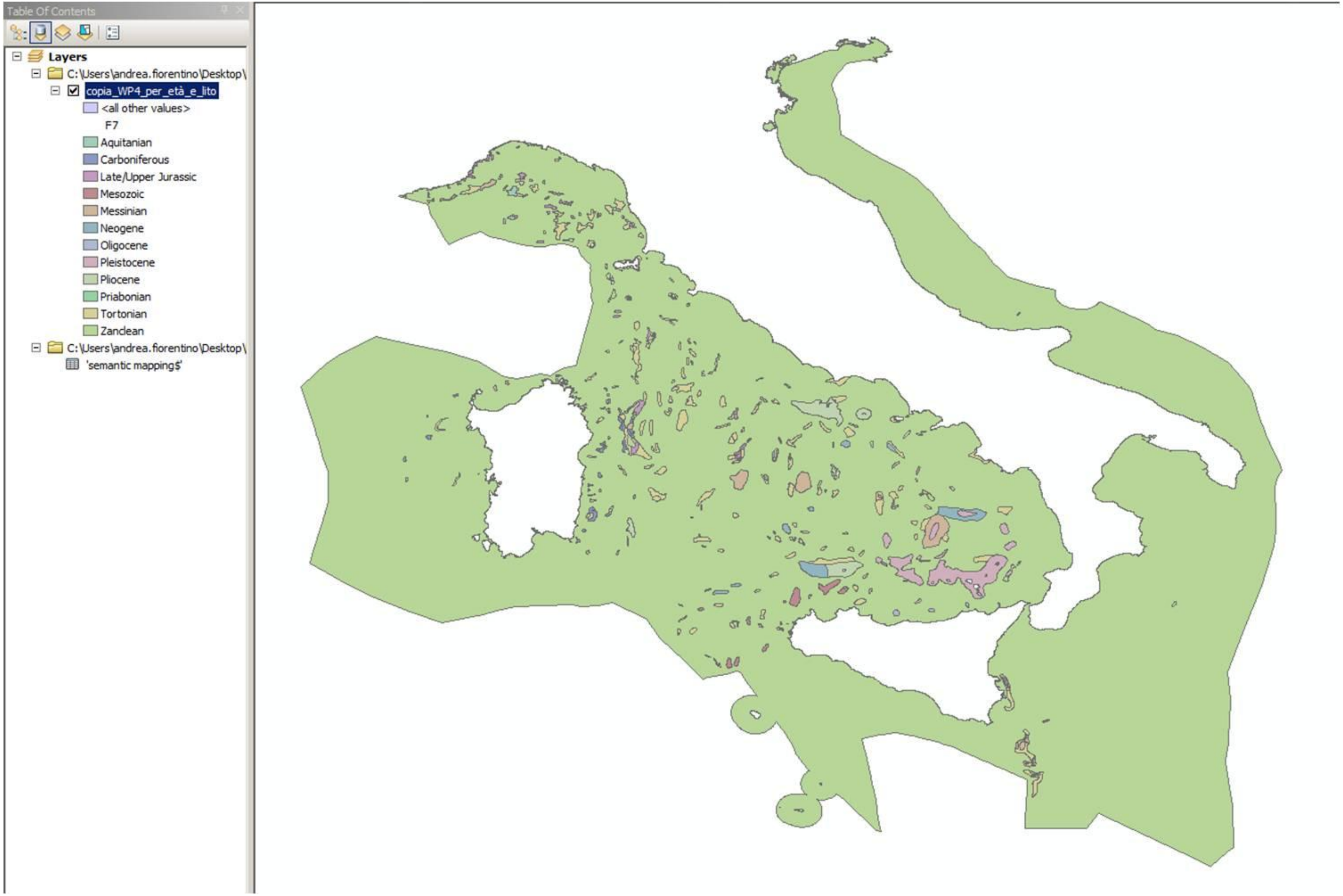
'semantic mapping$'

EMODnet Geology WP4
età delle unità pre-quaternarie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Layers
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<all other values>
F7
Aquitanian
Carboniferous
Late/Upper Jurassic
Mesozoic
Messinian
Neogene
Oligocene
Pleistocene
Pliocene
Priabonian
Tortonian
Zanclean
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'semantic mapping$'

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EMODnet Geology WP4
genesi delle unità pre-quaternarie

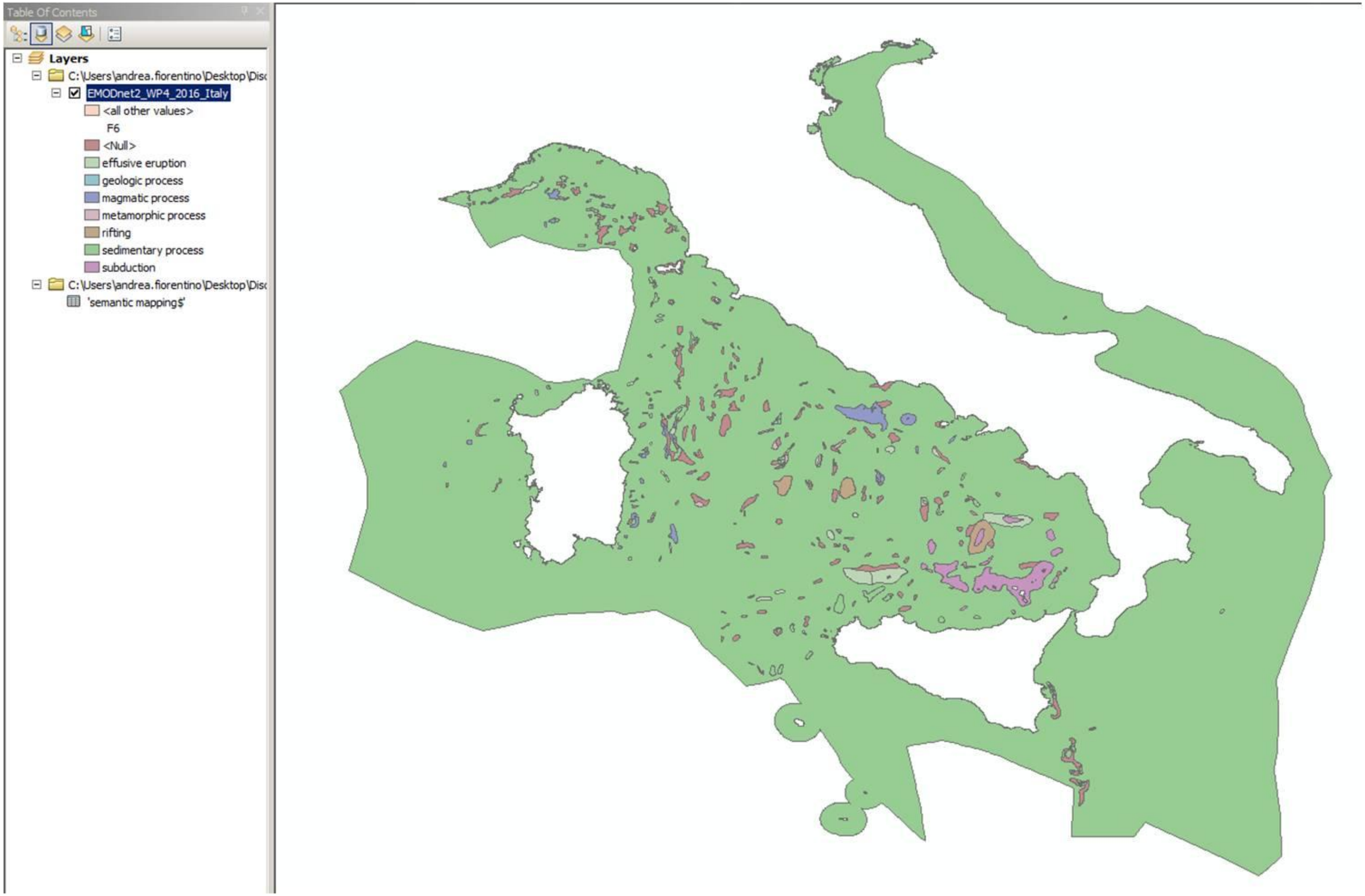

Table Of Contents

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      - F6
      - <Null>
      - effusive eruption
      - geologic process
      - magmatic process
      - metamorphic process
      - rifting
      - sedimentary process
      - subduction
  - C:\Users\andrea.fiorentino\Desktop\Disc
    - 'semantic mapping$'

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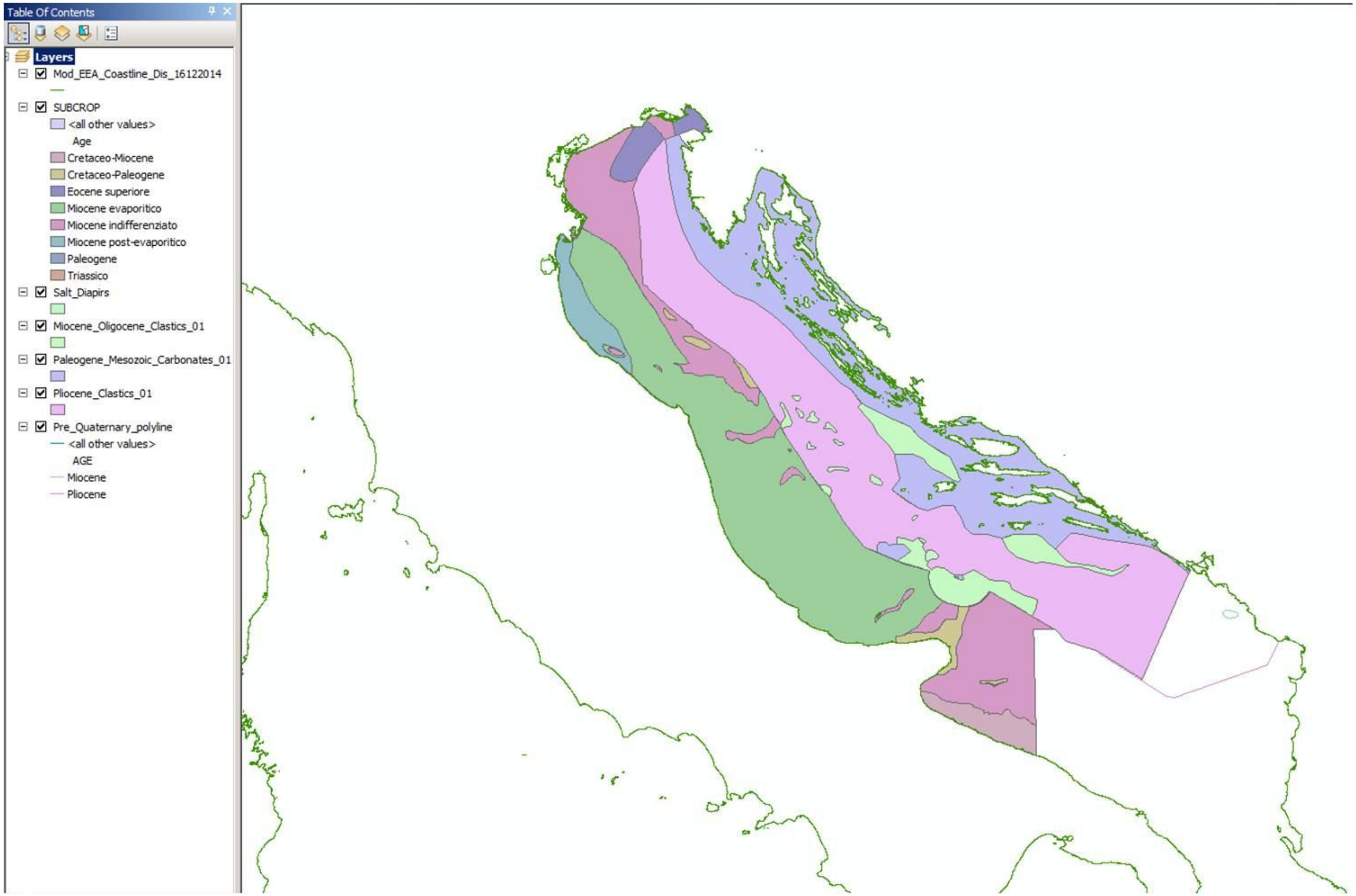
EMODnet Geology WP4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Layers
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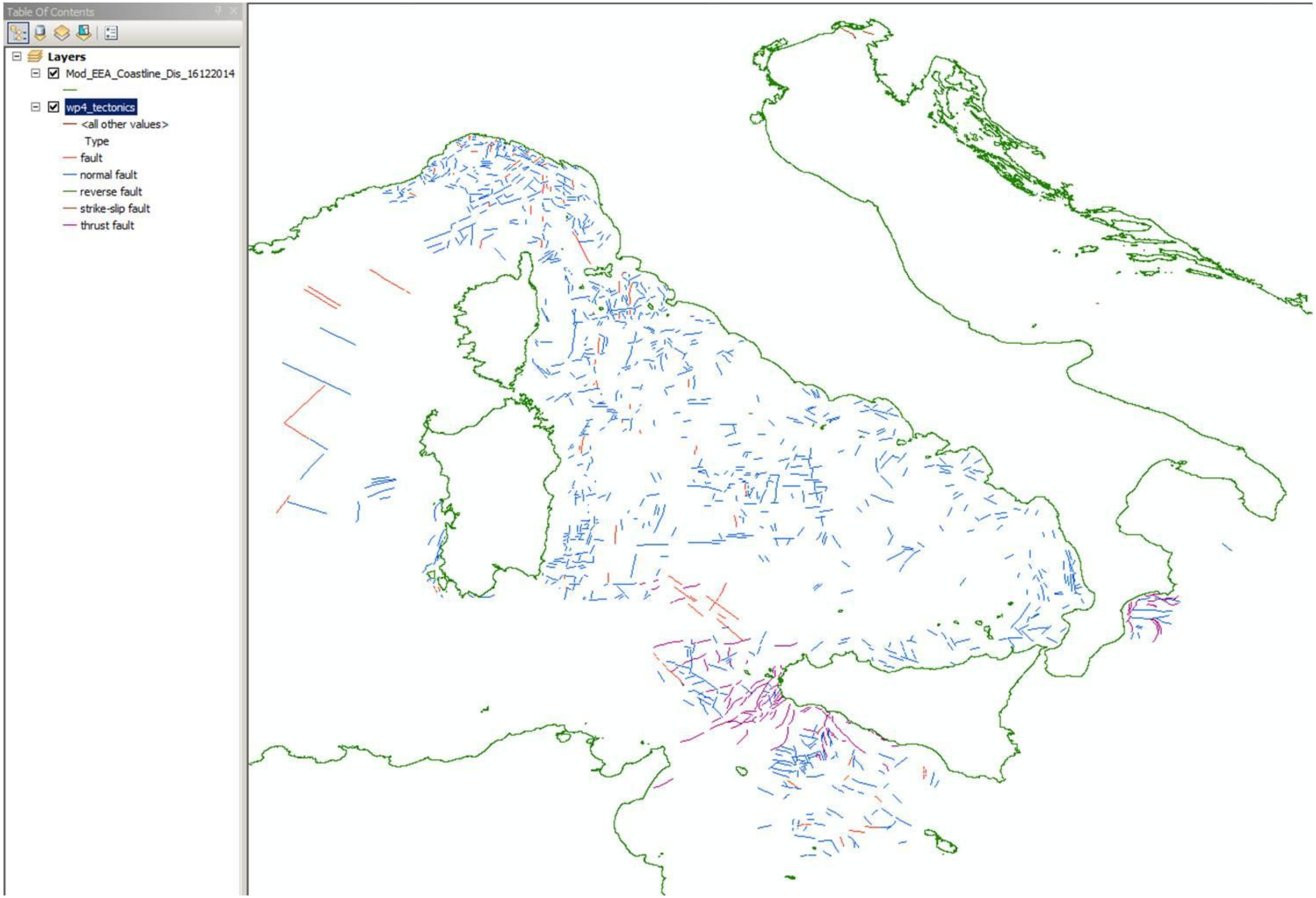
☑ SUBCROP
<all other values>
Age
Cretaceo-Miocene
Cretaceo-Paleogene
Eocene superiore
Miocene evaporitico
Miocene indifferenziato
Miocene post-evaporitico
Paleogene
Triassico
☑ Salt_Diapirs
☑ Miocene_Oligocene_Clastics_01
☑ Paleogene_Mesozoic_Carbonates_01
☑ Pliocene_Clastics_01
☑ Pre_Quaternary_polyline
<all other values>
AGE
Miocene
Pliocene

EMODnet Geology WP4 faglie pre-quaternarie



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☑ wp4_tectonics

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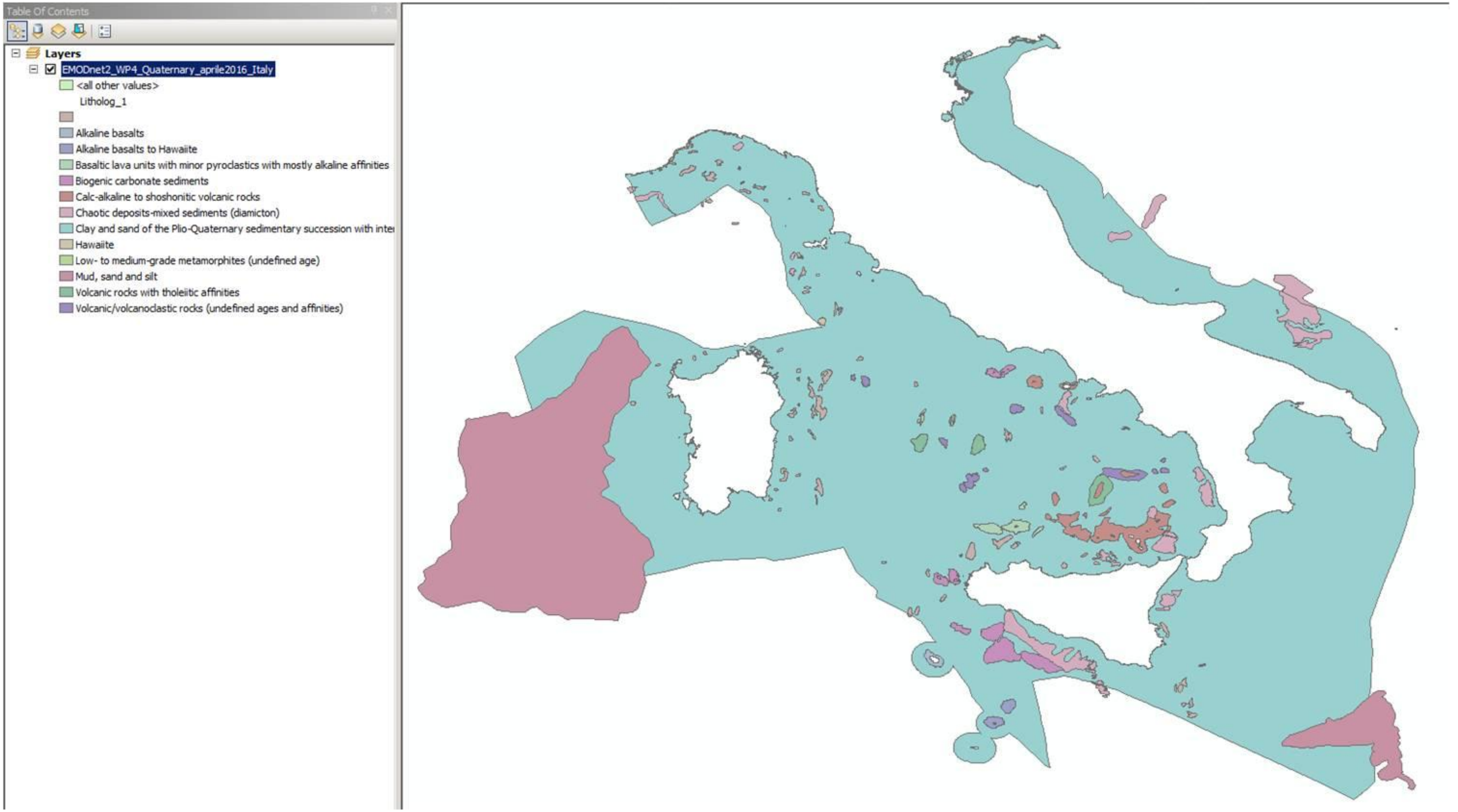
- — normal fault
- — reverse fault
- — strike-slip fault
- — thrust fault

EMODnet Geology WP4
litologia delle unità quaternarie



- ⊟ Layers
  - ⊟ ☑ EMODnet2_WP4_Quaternary_aprile2016_Italy
    - 🟩 <all other values>
    - Litholog_1
    - 🟫
    - 🟦 Alkaline basalts
    - 🟪 Alkaline basalts to Hawaiite
    - 🟩 Basaltic lava units with minor pyroclastics with mostly alkaline affinities
    - 🟪 Biogenic carbonate sediments
    - 🟥 Calc-alkaline to shoshonitic volcanic rocks
    - 🟥 Chaotic deposits-mixed sediments (diamicton)
    - 🟦 Clay and sand of the Plio-Quaternary sedimentary succession with inte
    - 🟫 Hawaiite
    - 🟩 Low- to medium-grade metamorphites (undefined age)
    - 🟥 Mud, sand and silt
    - 🟩 Volcanic rocks with tholeiitic affinities
    - 🟪 Volcanic/volcanoclastic rocks (undefined ages and affinities)

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EMODnet Geology WP4
età delle unità quaternarie

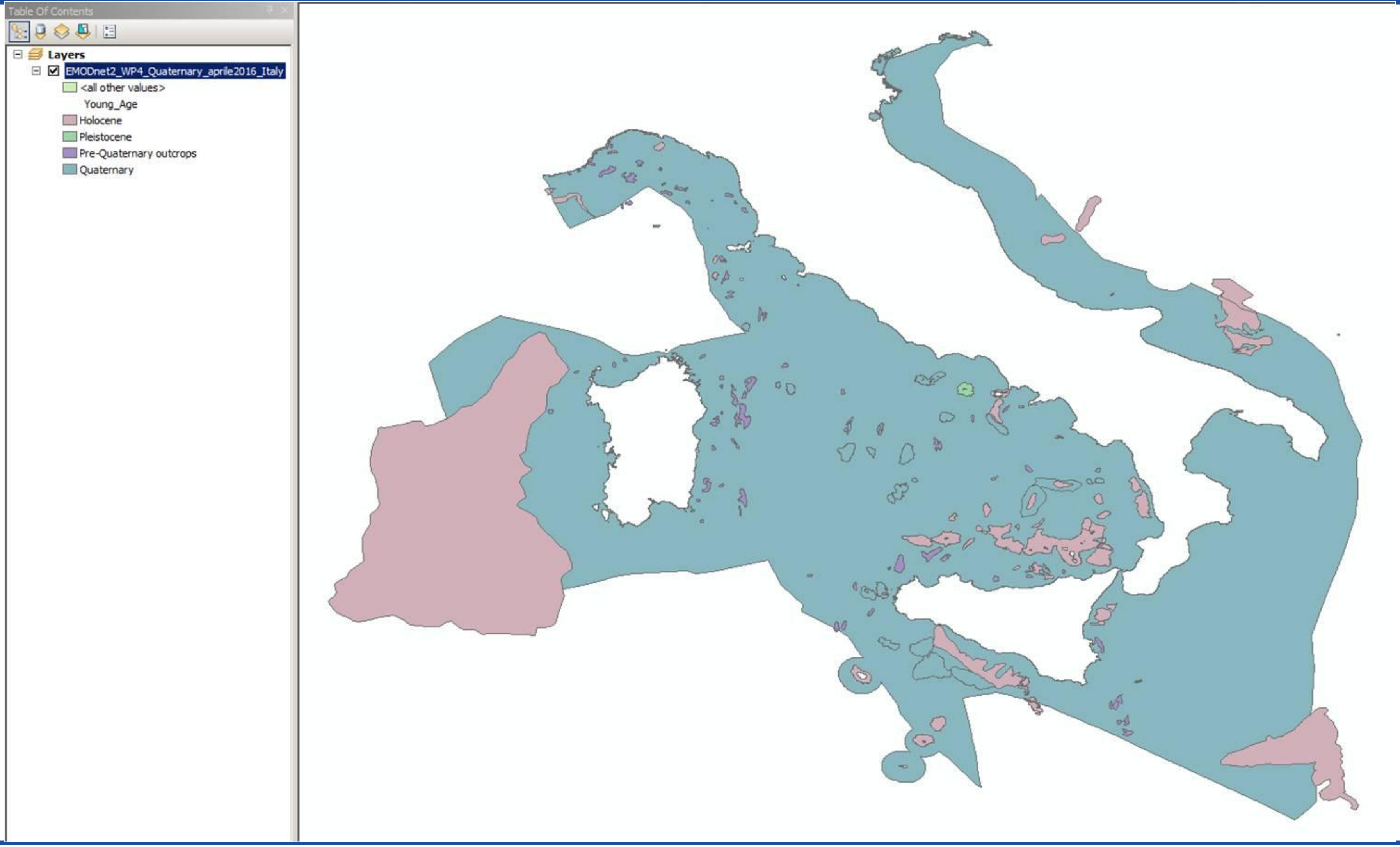

Table Of Contents

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- 🟩 <all other values>
- Young_Age
- 🟥 Holocene
- 🟩 Pleistocene
- 🟪 Pre-Quaternary outcrops
- 🟦 Quaternary

EMODnet Geology WP4
genesi delle unità quaternarie

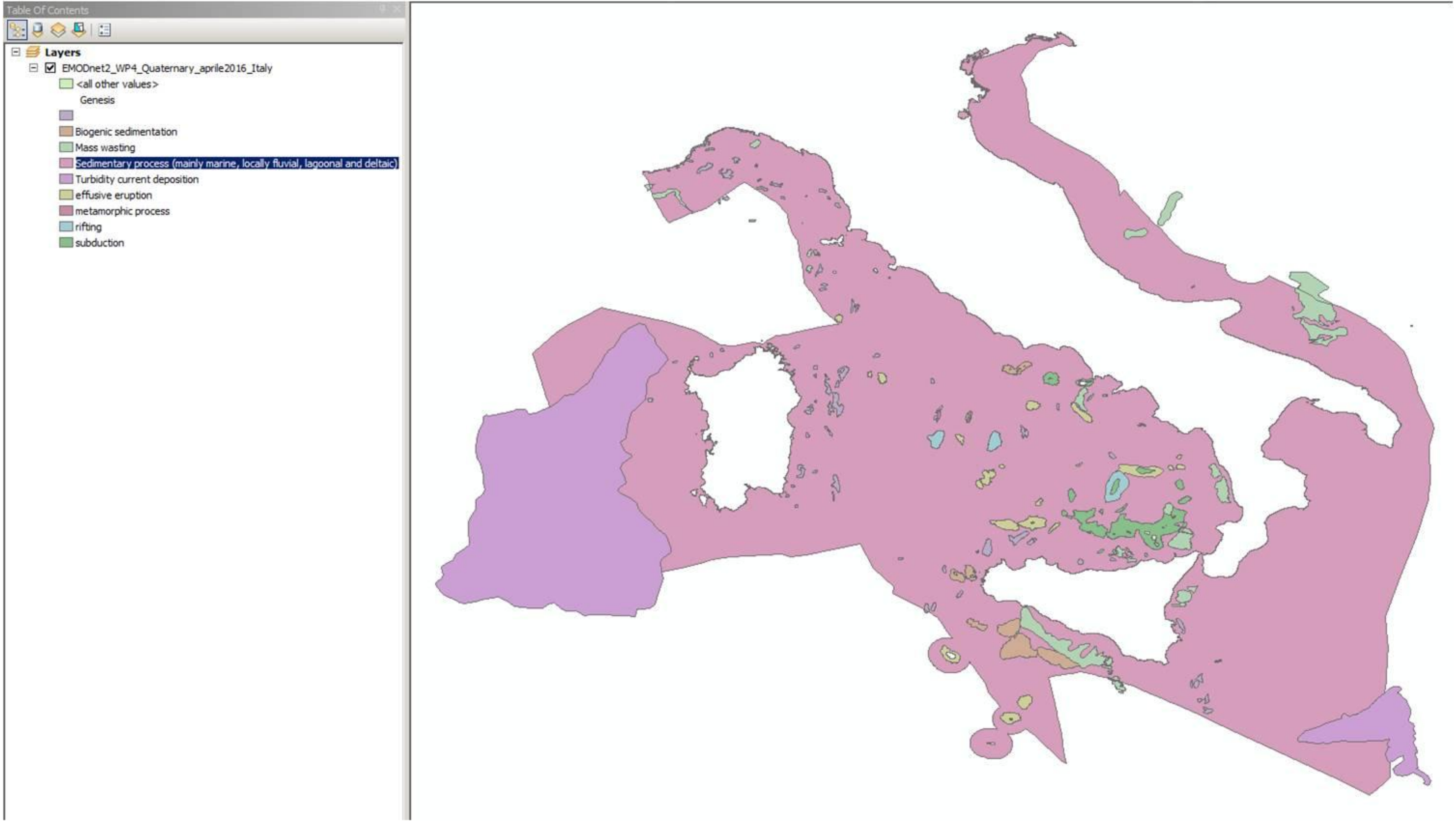
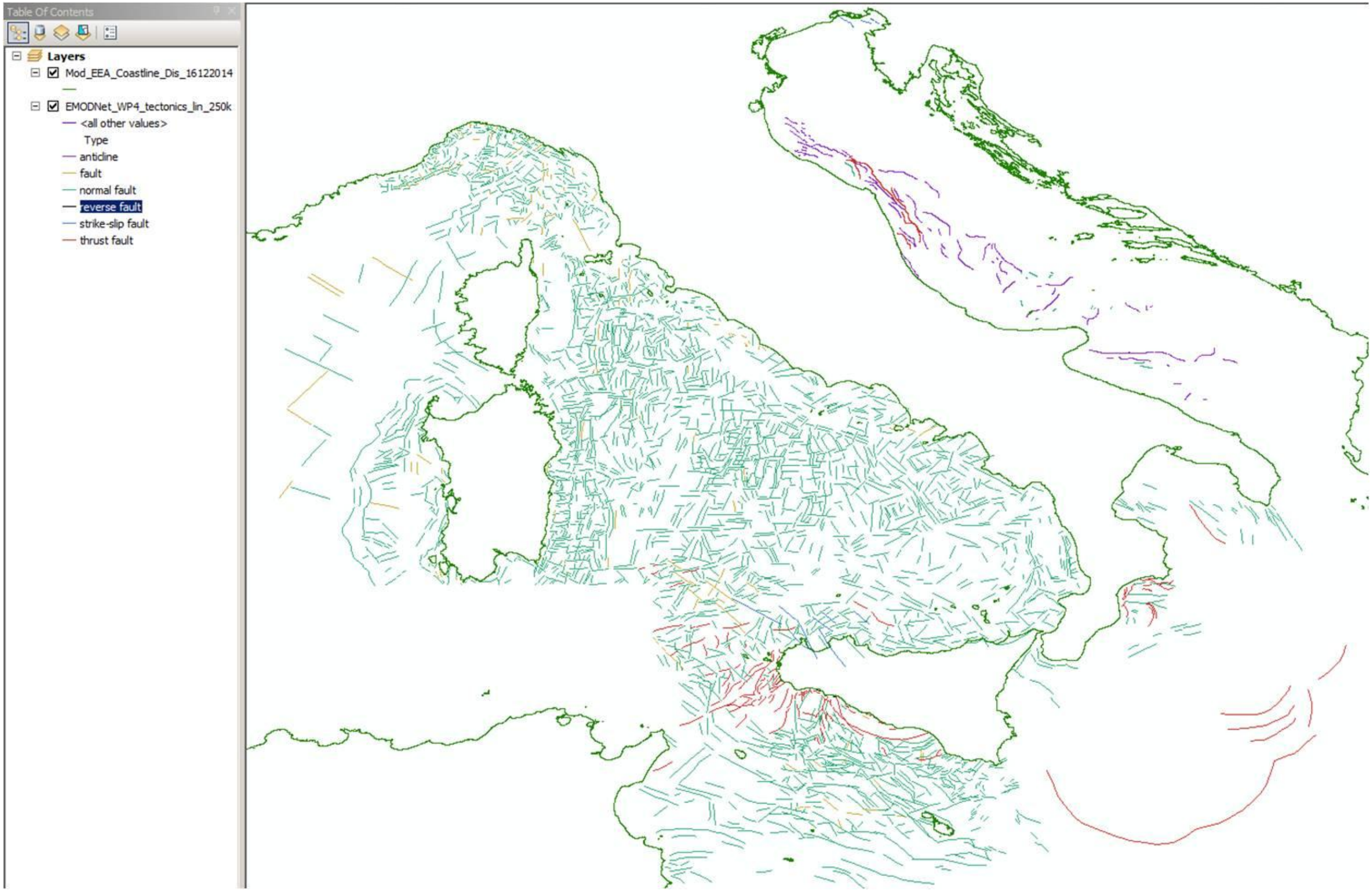


Table Of Contents

- ⊟ Layers
  - ⊟ ☑ EMODnet2_WP4_Quaternary_aprile2016_Italy
    - ▨ <all other values>
    - Genesis
    - ▨
    - ▨ Biogenic sedimentation
    - ▨ Mass wasting
    - ▨ Sedimentary process (mainly marine, locally fluvial, lagoonal and deltaic)
    - ▨ Turbidity current deposition
    - ▨ effusive eruption
    - ▨ metamorphic process
    - ▨ rifting
    - ▨ subduction

EMODnet Geology WP4 tettonica quaternaria



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- Type
- anticline
- fault
- normal fault
- reverse fault
- strike-slip fault
- thrust fault

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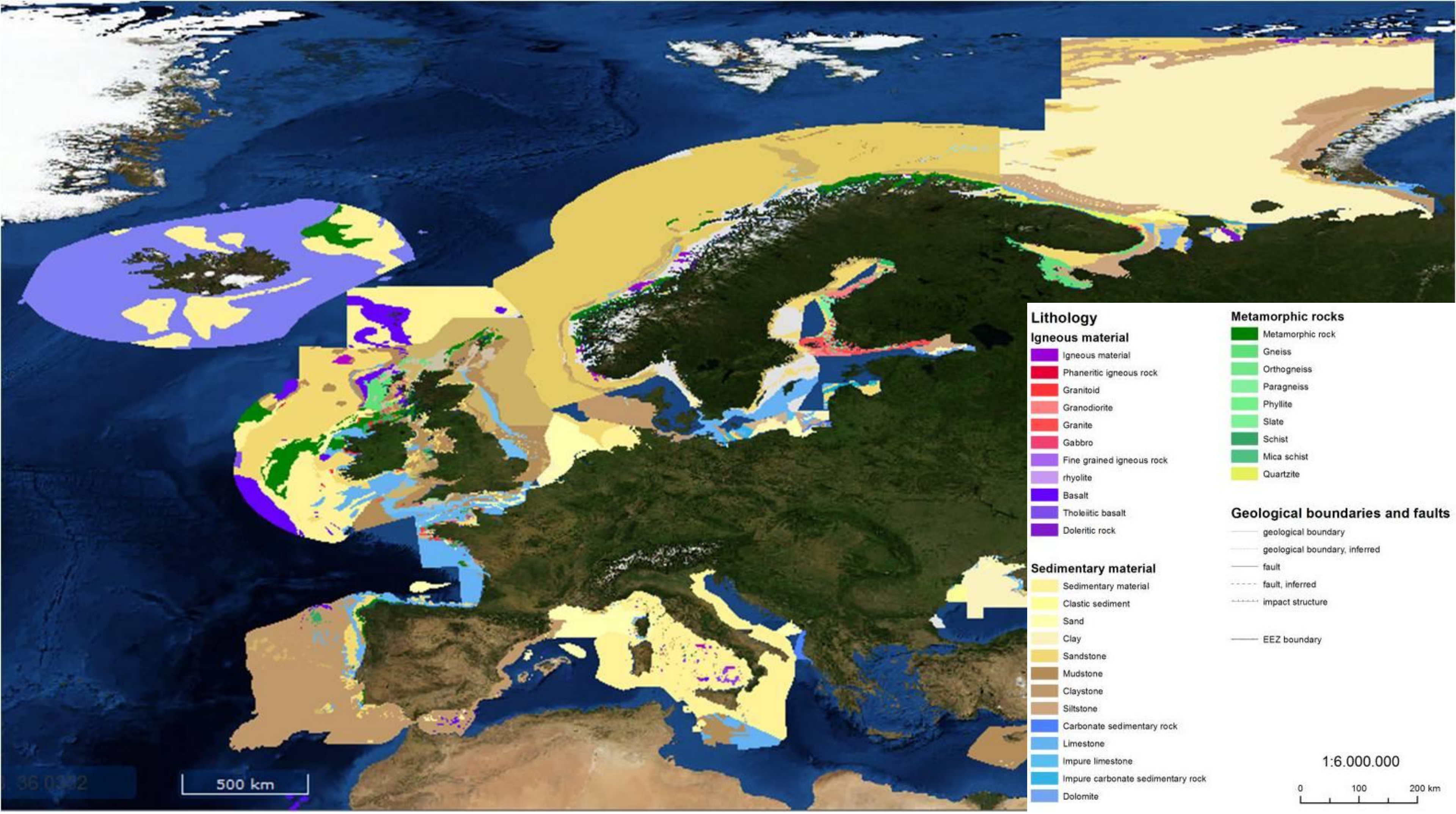
EMODnet Geology WP4 pre-Quaternary lithology


Lithology
Igneous material
Igneous material
Phaneritic igneous rock
Granitoid
Granodiorite
Granite
Gabbro
Fine grained igneous rock
rhyolite
Basalt
Tholeiitic basalt
Doleritic rock
Sedimentary material
Sedimentary material
Clastic sediment
Sand
Clay
Sandstone
Mudstone
Claystone
Siltstone
Carbonate sedimentary rock
Limestone
Impure limestone
Impure carbonate sedimentary rock
Dolomite
Metamorphic rocks
Metamorphic rock
Gneiss
Orthogneiss
Paragneiss
Phyllite
Slate
Schist
Mica schist
Quartzite
Geological boundaries and faults
geological boundary
geological boundary, inferred
fault
fault, inferred
impact structure
EEZ boundary
1:6.000.000
0
100
200 km
500 km
36 0382

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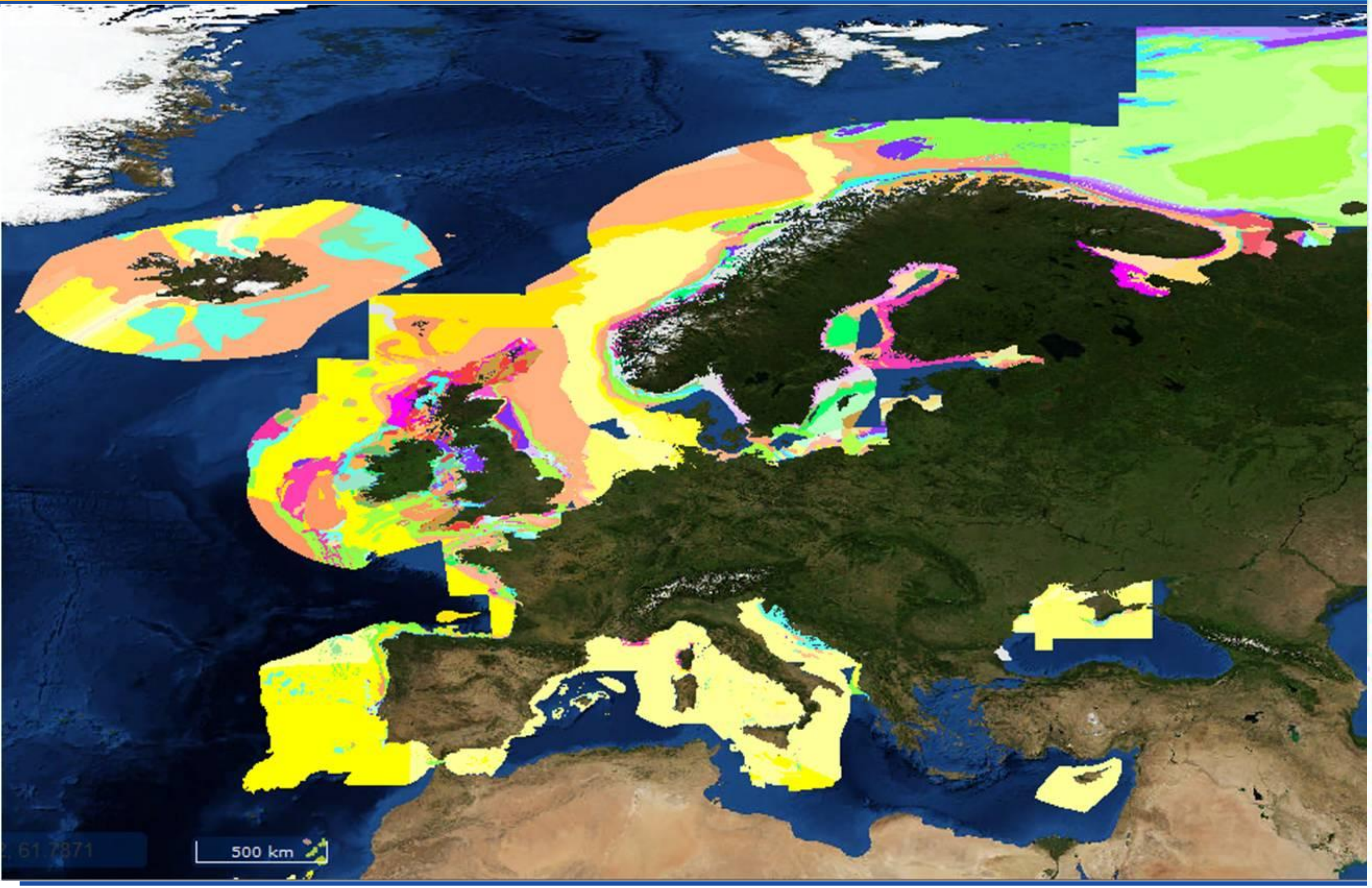
EMODnet Geology WP4 age of pre-Quaternary units


61.7871
500 km
Age
Pliocene
Miocene
Neogene
Oligocene
Eocene
Paleocene
Paleogene
Cenozoic
Late/Upper Cretaceous
Early/Lower Cretaceous
Cretaceous
Late/Upper Jurassic
Middle Jurassic
Early/Lower Jurassic
Jurassic
Late/Upper Triassic
Middle Triassic
Early/Lower Triassic
Triassic
Mesozoic
Lopingian
Permian
Pennsylvanian
Mississippian
Carboniferous
Late/Upper Devonian
Middle Devonian
Early/Lower Devonian
Devonian
Ludlow
Llandovery
Silurian
Late/Upper Ordovician
Early/Lower Ordovician
Ordovician
Cambrian-Stage 10
Cambrian-Series 2
Terreneuvian
Cambrian
Paleozoic
Neoproterozoic
Mesoproterozoic
Paleoproterozoic
Proterozoic
Archean
Precambrian

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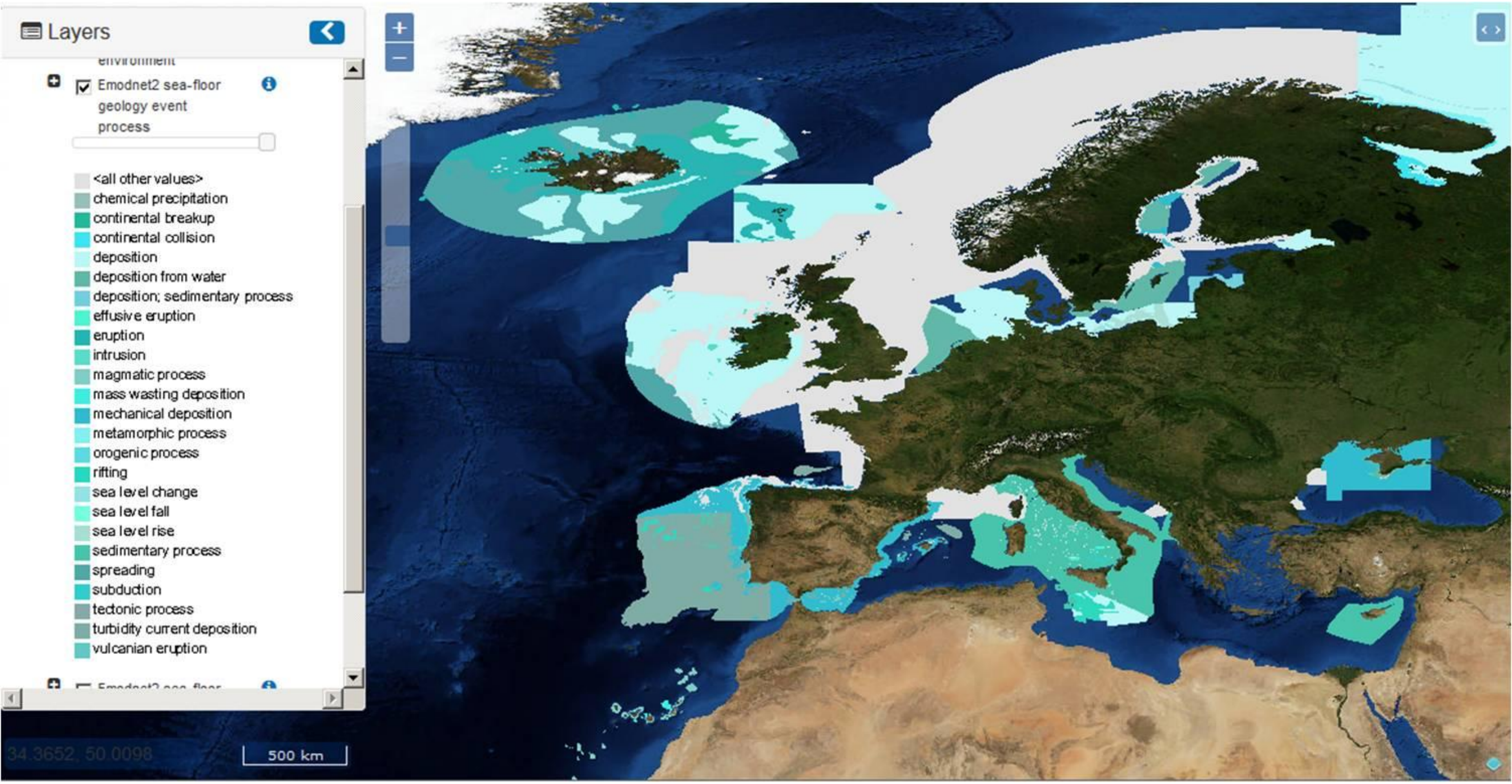
EMODnet Geology WP4 genesis of pre-Quaternary units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☑ Emodnet2 sea-floor geology event process
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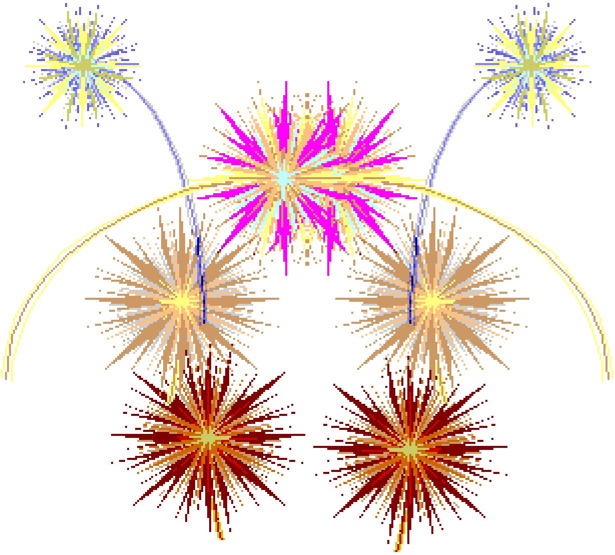
chemical precipitation
continental breakup
continental collision
deposition
deposition from water
deposition; sedimentary process
effusive eruption
eruption
intrusion
magmatic process
mass wasting deposition
mechanical deposition
metamorphic process
orogenic process
rifting
sea level change
sea level fall
sea level rise
sedimentary process
spreading
subduction
tectonic process
turbidity current deposition
vulcanian eruption
Emodnet2 sea-floor
34.3652, 50.0098
500 km

EMODnet

Grazie per l'attenzione