STRUCTURAL GEOLOGICAL AND
GEOMORPHOLOGICAL MAP OF THE
PASSO SAN MARCO – PIZZO DI TRONA AREA
(WESTERN OROBIC ALPS,
SOUTHERN ALPS, ITALY)

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Mapping scale 1:5.000

Topographic base:
CTR Regione Lombardia (1:10.000)
Coordinate System: Gauss-Boaga (Monte Mario 1)
printing scale 1:8.000

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Lithological legend

- MICASCHISTS AND PARAGNEISS**
Mineralogical composition: quartz, feldspar, white mica, dark mica, chlorite, rare tourmaline and garnet. Structure: one or two spaced foliations (1 to 70 mm thick) frequently folded; crenulation cleavage locally in the micaschists; quartz-rich levels (up to 100 mm thick) locally in the paragneiss.
- ORTHOgneiss**
Granodioritic mineralogical composition: quartz, plagioclase, K-feldspar, biotite, chlorite, epidotes. Fabric: subhedral grains and inequigranular aggregates. Structure: locally spaced foliation (1 to 30 mm thick).
- CONGLOMERATO DEL PONTERANICA**
Greyish conglomerates with well rounded clasts, alternated with gray conglomeratic sandstones with rare clasts. Conglomerate clasts: volcanic fragments, rare basement fragments and quartz (maximum diameter 70 cm). Sandstones: volcanic fragments, rare quartz, feldspar and muscovite. Lower Permian.
- COLLIO**
Gray siltstones and mudstones with fine intercalations of black pelite and local intercalations of green sandstone, conglomeratic sandstones and conglomerates with greenish matrix. Sandstones: volcanic rock fragments, quartz, plagioclase, muscovite and feldspar; very thin parallel bedding, little matrix. Lower Permian.
- VERRUCANO LOMBARDO**
Alternation of red conglomerates, red sandstones and dark red mudstones. Conglomerates: sub-rounded and rounded clasts of quartz and volcanic rocks (diameter 2-64 mm, up to 100 mm). Red sandstones: grains of quartz, volcanic rocks, feldspar and micas. Upper Permian.
- SERVINO**
Yellowish quartzitic coarse to fine sandstones, with rounded grains and ochreous weathering, intercalated by yellow-grey to green shale, marlstones and mudstones; the bedding is parallel with thin layers. Lower Triassic.

Quaternary deposits legend

- GLACIAL DEPOSITS**
- SLOPE DEPOSITS**
- ALLUVIAL DEPOSITS**
- PALUSTRINE AND PEATBOG DEPOSITS**
- LANDSLIDE DEPOSITS**
- ROCKGLACIER**
- DEBRISFLOW**

FAULTS ATTITUDE

the fault plane dip is indicated; the azimuth of the slickenside lineation is indicated in brackets (for faults with unknown kinematic the azimuth value indicates one of the two possible slip directions; 2 azimuth values indicate 2 different slip directions along the same fault plane)

- 10/30 **direct fault**
- 10/30 **reverse fault**
- 10/30 **right lateral fault**
- 10/30 **left lateral fault**
- 10/30 **fault with unknown kinematic**
- 10/30 **thrust**

AXIAL PLANES ATTITUDE

the axial plane dip is indicated

- 20 **AP2 axial plane**
- 20 **AP3 axial plane**
- 20 **AP4 axial plane**

AXIS ATTITUDE

the axis dip is indicated

- 20 **A2 axis**
- 20 **A3 axis**

FOLIATIONS ATTITUDE

the foliation plane dip is indicated

- 20 **SL sedimentary foliation**
- 20 **S1 foliation**
- 20 **S2 foliation**
- 20 **S3 foliation**
- 20 **S4 foliation**
- 20 **S4 cataclastic foliation**
- 20 **S4 mylonitic foliation**
- 20 **S6 foliation**

Fig. a: panoramic view of the Giarolo crest. The traces of an A-system thrust and its associated split are shown. The shot point of the photography is indicated on the map.

FAULTS TRACE

- direct fault**
- reverse fault**
- deformation band**
- cataclastic band**
- thrust**
- interpreted fault**
- right lateral fault**
- left lateral fault**

MORPHOLOGIES

- gravitational trench**
- ridge**
- interpreted ridge**

OTHER SYMBOLS

- photographer position**
- photo location**
- LT Linea di Trona fault**
- OT Orobic Thrust**
- PG Pizzo di Giacomo Thrust**

Fig. c: D2 phase fold in micaschists. The location is indicated on the map.

Fig. d: D4 phase pseudotachylites inside the cataclites of the Orobic Thrust deformation zone. The location is indicated on the map.

Fig. e: 1) S1 quartz level folded, boudinated and transposed by following deformation phases; 2) D3 phase crenulation of S2 surfaces. The location is indicated on the map.

Fig. f: panoramic view of the Orobic Thrust in the Passo del Forcellino area. The shot point of the photography is indicated on the map.

LEGEND FOR SECTIONS AND PHOTOS

- reverse fault**
- direct fault**
- left lateral fault**
- right lateral fault**
- thrust**
- pseudotachylites**
- S2 foliation**
- S3 foliation**
- S4 foliation**

Fig. g: D4 phase fold, in Verrucano conglomerates, associated to A-system thrusts (AP4 and S0 traces are indicated). The location is indicated on the map.

Fig. h: A-system secondary thrust bounding a horse of Collio pelites overlapping the Verrucano conglomerates. The location is indicated on the map.

Fig. i: S4 foliations in matrix and flattened clasts in Ponteranica conglomerates. The location is indicated on the map.

Fig. l: panoramic view of the Pizzo di Giacomo northern slope showing the same structures of section C-C'. The shot point of the photography is indicated on the map.