GROWTH AND DISSECTION OF A FOLD AND THRUST BELT: THE GEOLOGICAL RECORD OF THE HIGH AGRI VALLEY, ITALY.

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PLEISTOCENE TO HOLOCENE DEPOSITS

Dl Marsico Nuovo dam and lake

De Debris

La Lacustrine deposits

Ls Landslides

Hd Upper Pleistocene-Holocene alluvial deposits

Moderately sorted, cemented and crudely stratified lower-middle Pleistocene talus breccia, alluvial fans and dejection conoids.

Sd Slope deposits.

SYN-OROGENIC THRUST-TOP DEPOSITS (TL)

FG **Flysh di Gorgoglione** (Middle Langhian-Lower Tortonian) – Siliciclastic and calcareous clastic successions consisting of turbiditic sandstones and subordinate polygenic conglomerates. The entire stratigraphic succession is currently considered, in the geological literature, as a piggy-back basin deposit. (Outcropping thickness up to 1200 metres).

LIGURIAN DOMAIN (LG)

TC **Torrente Cavolo formation** (Middle? to Upper Oligocene) – Green, red and grey shale and siltstone intercalated with beds of fine to coarse grained grey glauconitic sandstone. It is gradually reported an increase in calcareous material, testified by the occurrence of thin bedded light-grey calciluttites with frequent thin shale intercalations and subordinate calcareous sandstones. The upper portion of the unit is made of coarse grained sandstones that grade to lens of conglomerate made up by crystalline elements (granite) and carbonate platform elements (ooids and biomicrite) according to a coarsening-upward trend. The nannoplancton content of samples from the calciluttitic member indicates an Upper Oligocene age (Rupelian-Chattian). (100-300? metres).

CAMPANIA-LUCANIA PLATFORM DOMAIN (CP)

Cl **Cretaceous Limestones** – Talus breccias, debrites, calcarenites and calciruditesi with rudist fragments. (500-600 metres).

Jl **Jurassic Limestones** – Light grey limestone made up of oolitic and lithoclastic grainstones to floatstones. (350-500 metres).

Td **Triassic Dolostones** – Highly cataclastic white dolostones and dolomitic limestones. (0-400 metres).

LAGONEGRO BASIN DOMAIN - LAGONEGRO II TECTONOSTRATIGRAPHIC UNIT (L2)

AS **Argilliti del Torrente Sarmonte** –grey calcareous sandstones, grey to brown siltitic shales containing debris of micaceous sandstones, micritic limestones, jaspers. (0-100 metres).

Fr **Flysch Rosso** (Upper Cretaceous-Oligocene?) – Calcareous-clastic sediments interbedded with reddish marls and shales. (100-200? metres).

Ss² **Sciti Sillicei II** (Jurassic) – Radiolarites forming thin layers within red shales and silicified calcarenites; less common calciruditesi and pebbly mudstones. (200 -250 metres).

Cs² **Calcari con Selce II** (Upper Triassic) – Thin-bedded cherty mudstones that contain shale intercalations and variable amounts of calcarenites or calciruditesi. Calcarenitic beds are common in the intermediate part of the formation. The thickest calcarenitic banks are made of grains exported from adiacent carbonate platforms and contain benthic foraminifers and fragments of other benthic organisms. (200-250 metres).

MF **Monte Facito Formation** (Middle to Upper Triassic)–From the older to younger the formation may be subdivided in four members, that are, from older to younger: micritic limestones, cross-laminated calcarenites, calciruditesi and shales (A member); micaceous sandstones, quarzarenites, polygenic rudites and shales (B member); grey massive boundstones, black limestones and marls (C member); radiolaritesi and marls with carbonate breccias and carbonate bodies (D member) (200-250 metres).

UNITS OF UNCERTAIN PALEOGEOGRAPHIC POSITION (TL)

AV **Argille Variegate** (Upper Cretaceous-Oligocene) – Red, green and graygreenish shales and silty shales with intercalations of calciluttites and siliciclastic calcarenites. The upper portion, corresponding to the Corleto-Perticara marls and sandstones of the local geological literature, consists of medium to coarse-grained gray calcareous sandstones with subordinate siliciclastic calcarenites, that contain Lepidocyclina and Miogypsinoides. The age of this sandy interval approximates the Oligocene-Miocene boundary. (0-100 metres)

LAGONEGRO BASIN DOMAIN - LAGONEGRO II TECTONOSTRATIGRAPHIC UNIT (L2)

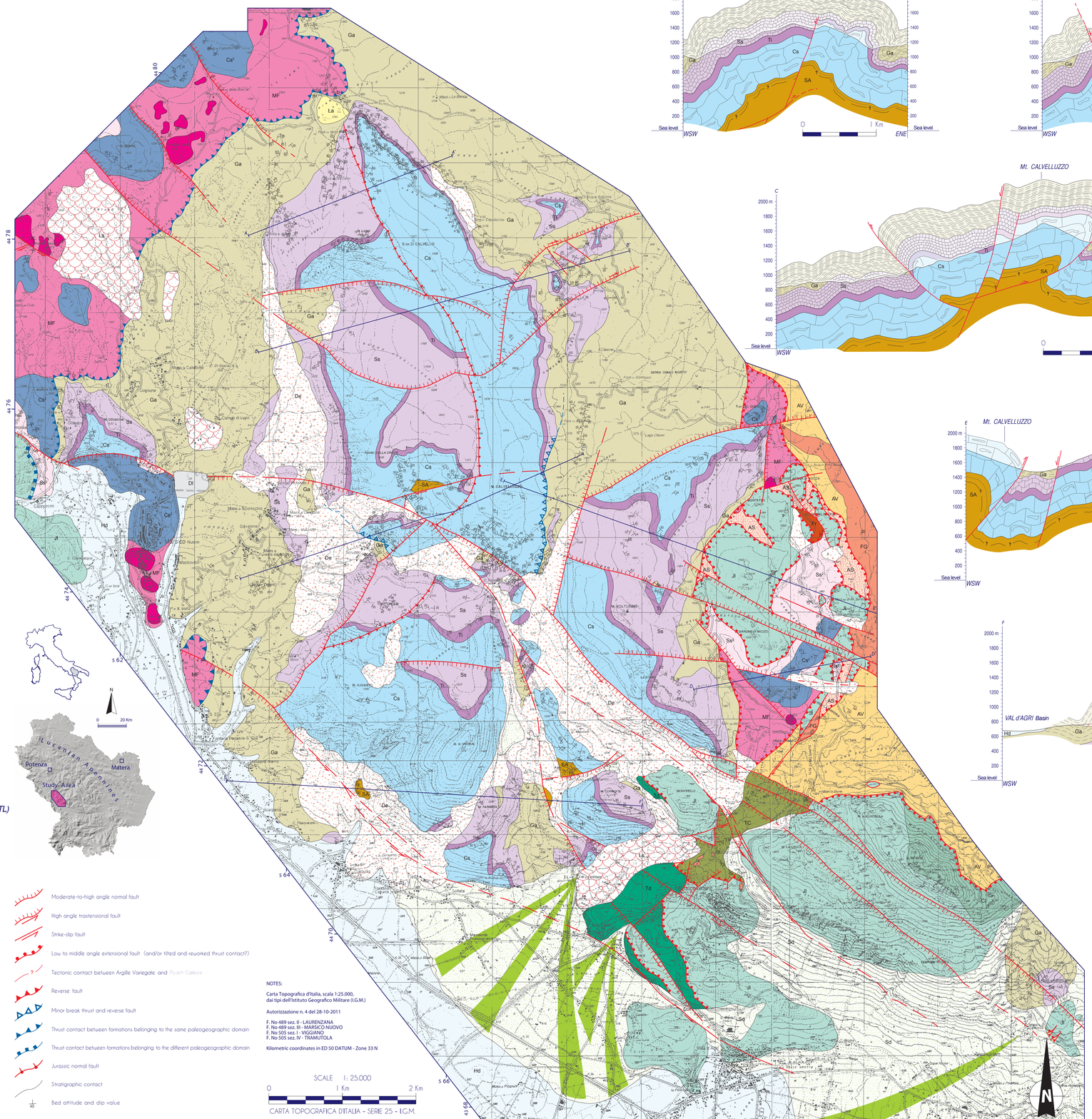
Ga **Flysch Galestrino** (Cretaceous) – Gray to broun siliceous marlstones and gray to dark-gray siliceous shales associated with well-bedded buff (alterate surface) calciluttites and subordinate calcarenites rich in radiolarians. (300-350 metres).

Ss **Sciti Sillicei I** (Jurassic) – Regularly thin-bedded, red, green and black shales, radiolaritic cherts and radiolarites. (40-170 metres).

Ti **Intervallo di Transizione** (Triassic-Jurassic Boundary) – Alternating cherty limestones and red shales with thin radiolarian cherty layers. These features are common for the distal and intermediate facies of the Lagonegro succession that cropping out in the Mt. Cugnone Mt. Volturino area. (50-80 metres).

Cs **Calcari con Selce I** (Upper Triassic) – Thin-bedded cherty mudstones that contain shale intercalations and variable amounts of calcarenites. Cherty mudstone is the most common lithofacies in the distal succession. The formation contains abundant radiolarians, sponge spiculae and thin-shelled bivalves. Alternating mudstones and shales are frequent. (350-450 metres).

SA **Sorgente dell'Acero formation** (Carnian) – Abundant shales that contain cross-bedded calcarenites (20-30 cm thick) and by grained fine, well bedded, black micritic limestones (5-15 cm thick). Calcarenite beds contains radiolarians and thin-shelled bivalves (*Daonella lommeli*), indicating a pelagic depositional environment. Fauna association suggests a Carnian age. (Outcropping thickness 30 metres).



NOTES:

Carta Topografica d'Italia, scala 1:25.000,
dai tipi dell'Istituto Geografico Militare (I.G.M.)

Autorizzazione n. 4 del 28-10-2011

F. No 489 sez. II - LAURENZANA
F. No 489 sez. III - MARSICO NUOVO
F. No 505 sez. I - VIGGIANO
F. No 505 sez. IV - TRAMUTOLA

Kilometric coordinates in ED 50 DATUM - Zone 33 N

STRATIGRAPHIC SECTIONS AND STRUCTURAL RELATIONSHIPS