

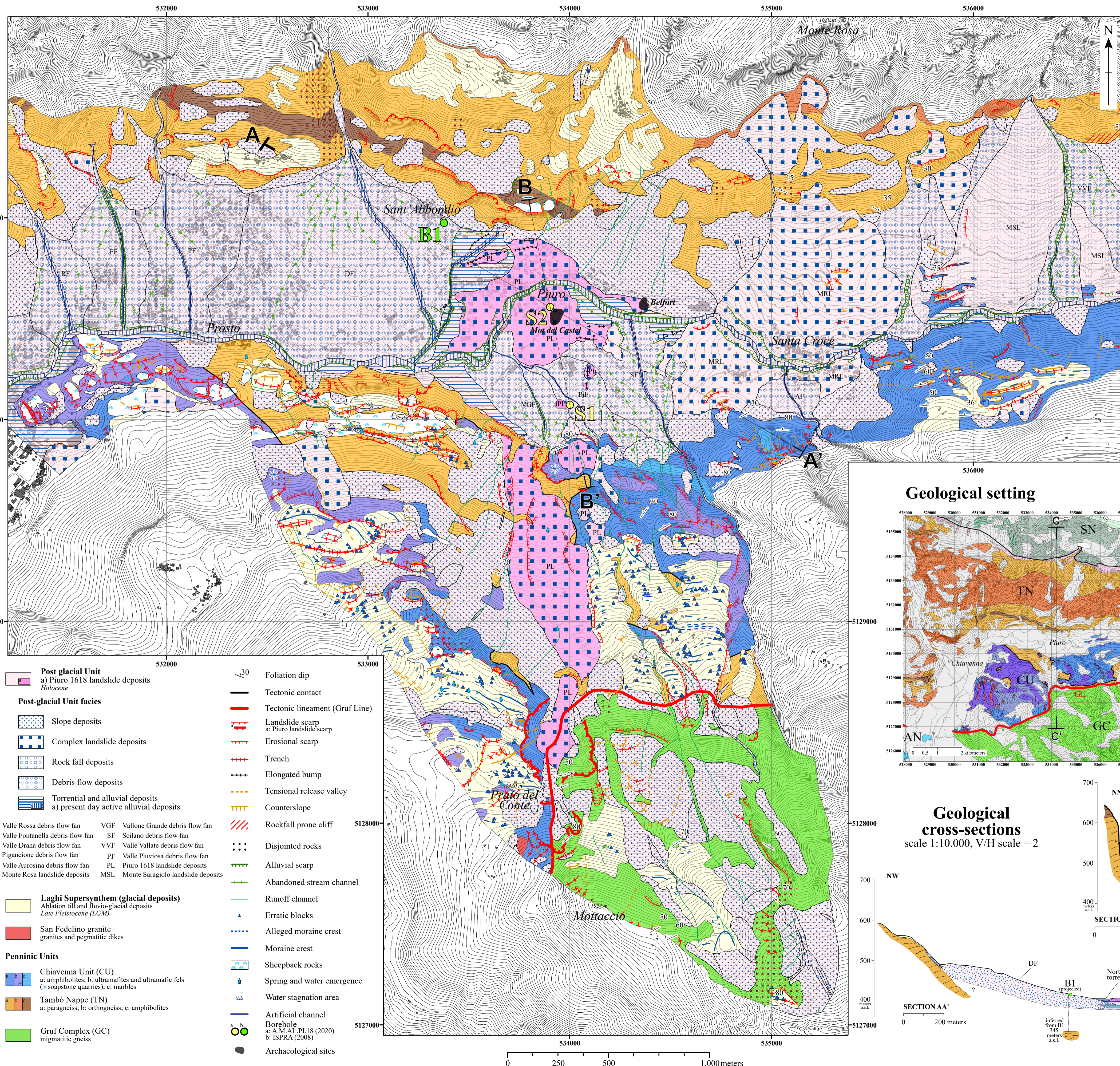
GEOLOGY OF THE AREA OF THE PIURO 1618 EVENT (VAL BREGAGLIA, ITALIAN CENTRAL ALPS): THE SETTING OF A CATASTROPHIC HISTORICAL LANDSLIDE

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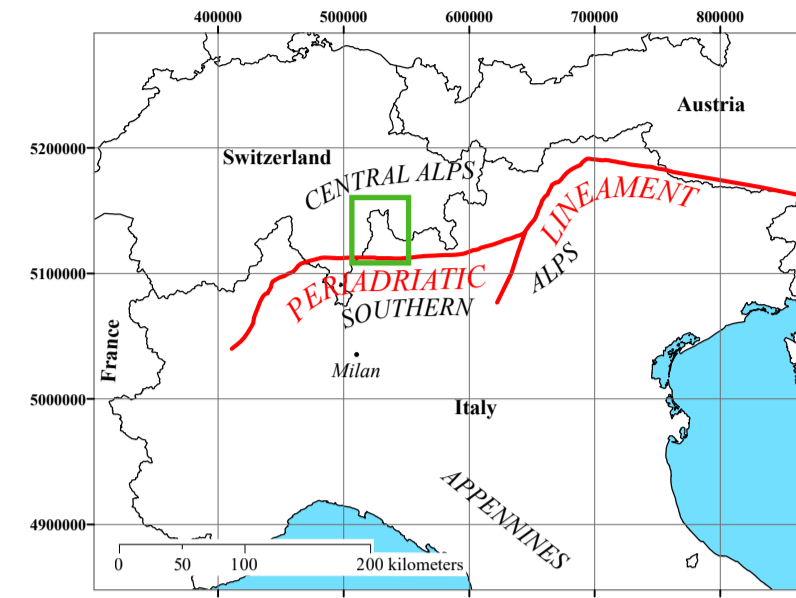
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SCALE 1:10.000

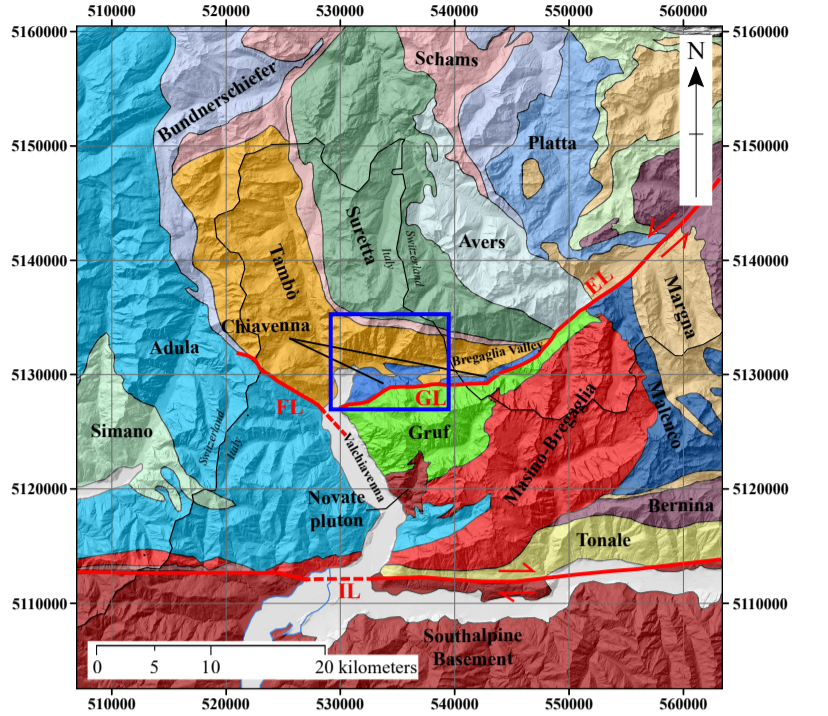
Map Projection: Transverse Mercator
Projected Coordinate System: WGS84 - UTM Zone 32N
Cartographic base: DBTR Lombardia - contour interval: 5 m



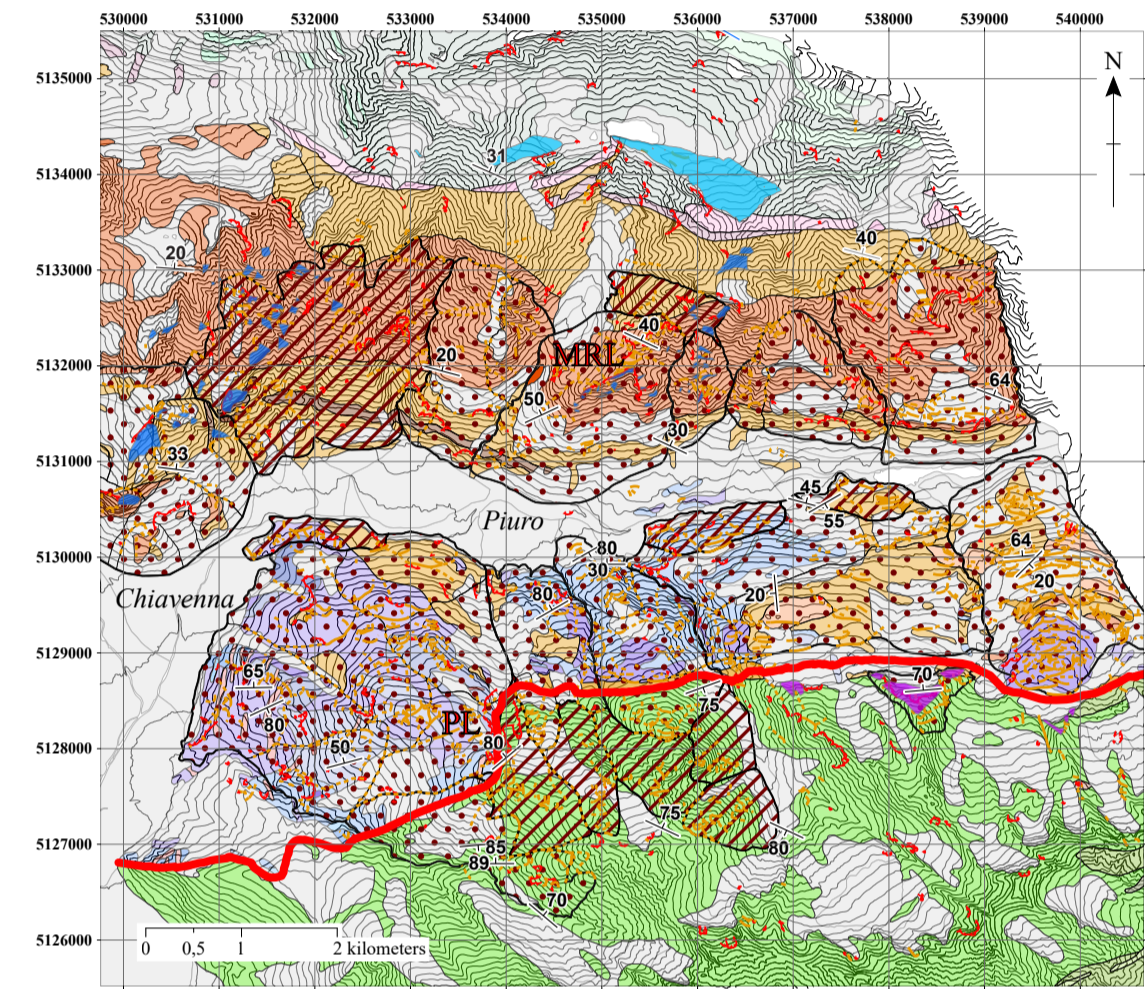
Location map



Regional scheme

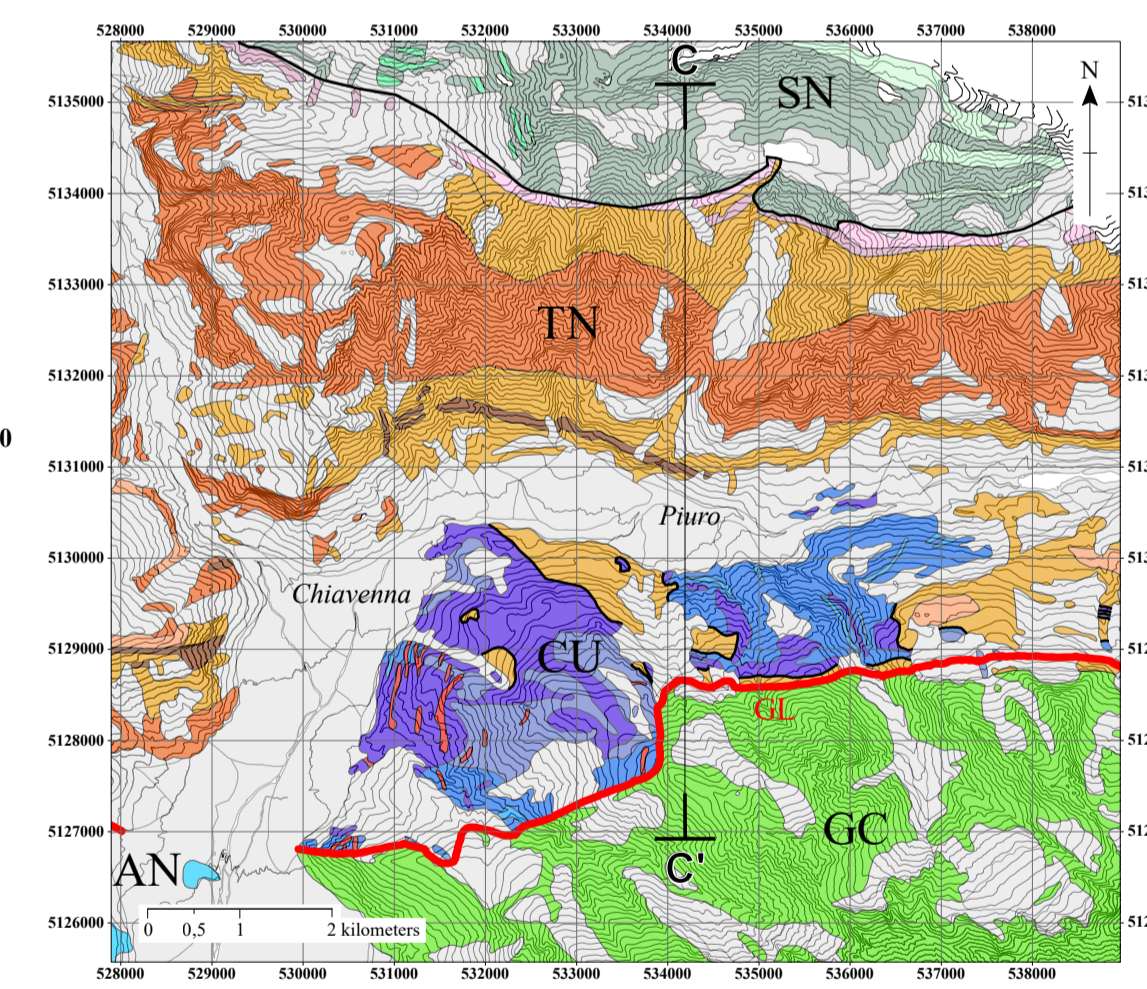


Morpho-structural scheme



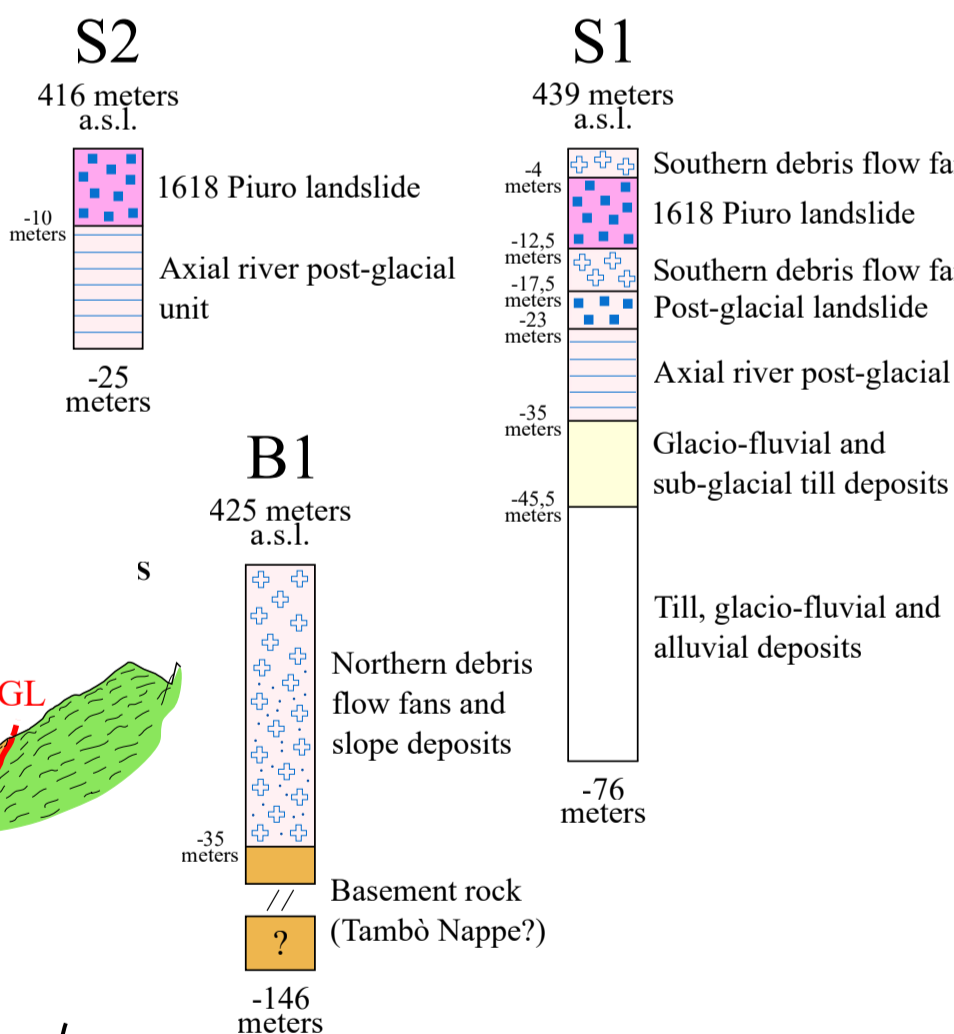
- GL Gruf Line
 - EL Engadine Line
 - FL Forcola Line
 - IL Insubric Line
- 70 Main foliation
 - Gruf Line (GL)
 - Triangular facets (a) North-dipping, (b) South-dipping
 - Trench
 - Tensional release valley
 - Landslide scarp
 - DSGD area
 - Area with widespread instability
 - PL Piuro 1618 landslide
 - MRL Monte Rosa landslide

Geological setting

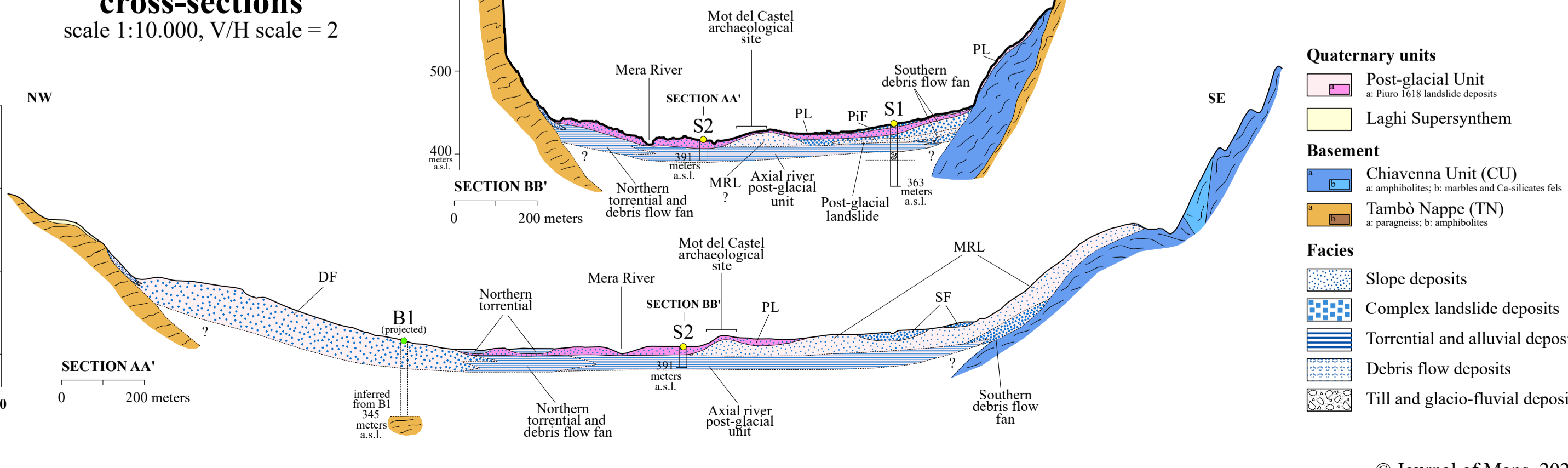


- Quaternary deposits and valley infilling
- San Fedelino granite (granites and pegmatitic dikes)
- Chiavenna Unit (CU): a: amphibolites; b: ultramafites and ultramafic fels; c: meta-gabbros; d: marbles
- Suretta Nappe (SN): a: paragneiss; b: orthogneiss; c: metavulcanics
- Tambò Nappe (TN): a: paragneiss; b: orthogneiss; c: amphibolites; d: meta-sedimentary cover
- Gruf Complex (GC): migmatitic gneiss
- Adula Nappe (AN): a: orthogneiss; b: micaceous
- Tectonic contact
- GL Gruf Line

Well logs interpretation



Geological cross-sections



- Post glacial Unit**
a) Piuro 1618 landslide deposits (Holocene)
- Post-glacial Unit facies**
 - Slope deposits
 - Complex landslide deposits
 - Rock fall deposits
 - Debris flow deposits
 - Torrential and alluvial deposits (a) present day active alluvial deposits
- Laghi Supersythem (glacial deposits)**
Ablation till and fluvio-glacial deposits (Late Pleistocene (LGM))
- San Fedelino granite (granites and pegmatitic dikes)
- Penninic Units**
 - Chiavenna Unit (CU): a: amphibolites; b: ultramafites and ultramafic fels (* soapstone quarries); c: marbles
 - Tambò Nappe (TN): a: paragneiss; b: orthogneiss; c: amphibolites
 - Gruf Complex (GC): migmatitic gneiss
- Foliation dip**
- Tectonic contact
- Tectonic lineament (Gruf Line)
- Landslide scarp (a: Piuro landslide scarp)
- Erosional scarp
- Trench
- Elongated bump
- Tensional release valley
- Counterslope
- Rockfall prone cliff
- Disjointed rocks
- Alluvial scarp
- Abandoned stream channel
- Runoff channel
- Erratic blocks
- Alleged moraine crest
- Moraine crest
- Sheepback rocks
- Spring and water emergence
- Water stagnation area
- Artificial channel
- Borehole (a: A.M.A.L.P.I.18 (2020); b: ISPR (2008))
- Archaeological sites

- Quaternary units**
 - Post-glacial Unit (a: Piuro 1618 landslide deposits)
 - Laghi Supersythem
- Basement**
 - Chiavenna Unit (CU): a: amphibolites; b: marbles and Calcivates fels
 - Tambò Nappe (TN): a: paragneiss; b: amphibolites
- Facies**
 - Slope deposits
 - Complex landslide deposits
 - Torrential and alluvial deposits
 - Debris flow deposits
 - Till and glacio-fluvial deposits