Multidisciplinary approach to assess landslide hazards in alpine environment: the geomorphological map of the upper Maira Valley (Western Alps, Italy).

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The Acceglio Unit outcrops as a half tectonic window (Middle Pennidic Domain) surrounded by blueschist facies metasediments (Schistes Lustrés, Upper Pennidic Zone; DEVILLE et al., 1991; LEMOINE, 2003). The Acceglio Unit (SCHWARTZ et al., 2000) consists of meta-volcanoclastic rocks overlain by Mesozoic to Tertiary sedimentary cover (Ultrabriançonnais).

**GEOLOGICAL SETTING**

**METHODOLOGIES**

- Geomorphological fieldwork
- Photointerpretation of multi-temporal aerial images and digital orthophotos
- Reinterpretation of boreholes lithostratigraphic data (SIFraP Project)
- 5 m DEM analyses
- Equal-angle stereo diagrams projections of structural elements.
GEOLOGICAL-GEOMORPHOLOGICAL MAPPING AND FEATURES

LEGEND

QUATERNARY DEPOSITS

LANDFORMS DUE TO GRAVITY

- Deltaic flow tract
- Y-shaped alluvial deposits
- Rocky river deposits
- Scarp of alluvial deposits
- Rockfall induced slide
- Rockfall affected by fall

LANDFORMS DUE TO FLUVIAL AND GLACIAL PROCESSES

- Fluvial scarp
- Gaps due to denudation
- Outwash delta
- Alluvial fan
- Glacial erosion
- Slope with glacial features
- Surface with glacial features

GEOMETRICSYMBOLS

- Lithological contact
- Tectonic contact
- Fault, offset where inferred
- Main regional fault line
- Terminus of geological features
- Building
- Elevator
- Primary road
- Contour index (intermediate)
- Non- made scarp

METAMORPHIC BASEMENT

UPPER PIEDMONT ZONE

- Carbonate (M):
- Basalt and basaltic melaphite (B):
- Serpentinite (B):
- Mica (B):
- Quartzite and metacarbonate facies (B):
- Quartzite and quartz-feldspar schist (B):
- Metacarbonate (B):
CONCLUSIVE REMARKS

Our multidisciplinary fieldwork and mapping, combining a detailed structural geological study with a geomorphological approach, allowed us to find a strong correlation between landslide phenomena, discontinuities and rheology of the outcropping lithologies. In particular, the orientation of the fracture and fault systems or of the lithological contacts between different lithologies with respect to the slope is an important landslide predisposing factor.
References


Thanks for your attention!