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PS 1.4 The Past Changing Environment

Landslide susceptibility map in the green peri-urban context of Rome.

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CURSA
Consorzio Universitario per la Ricerca Socioeconomica e per l'Ambiente

CNR ISAFOM

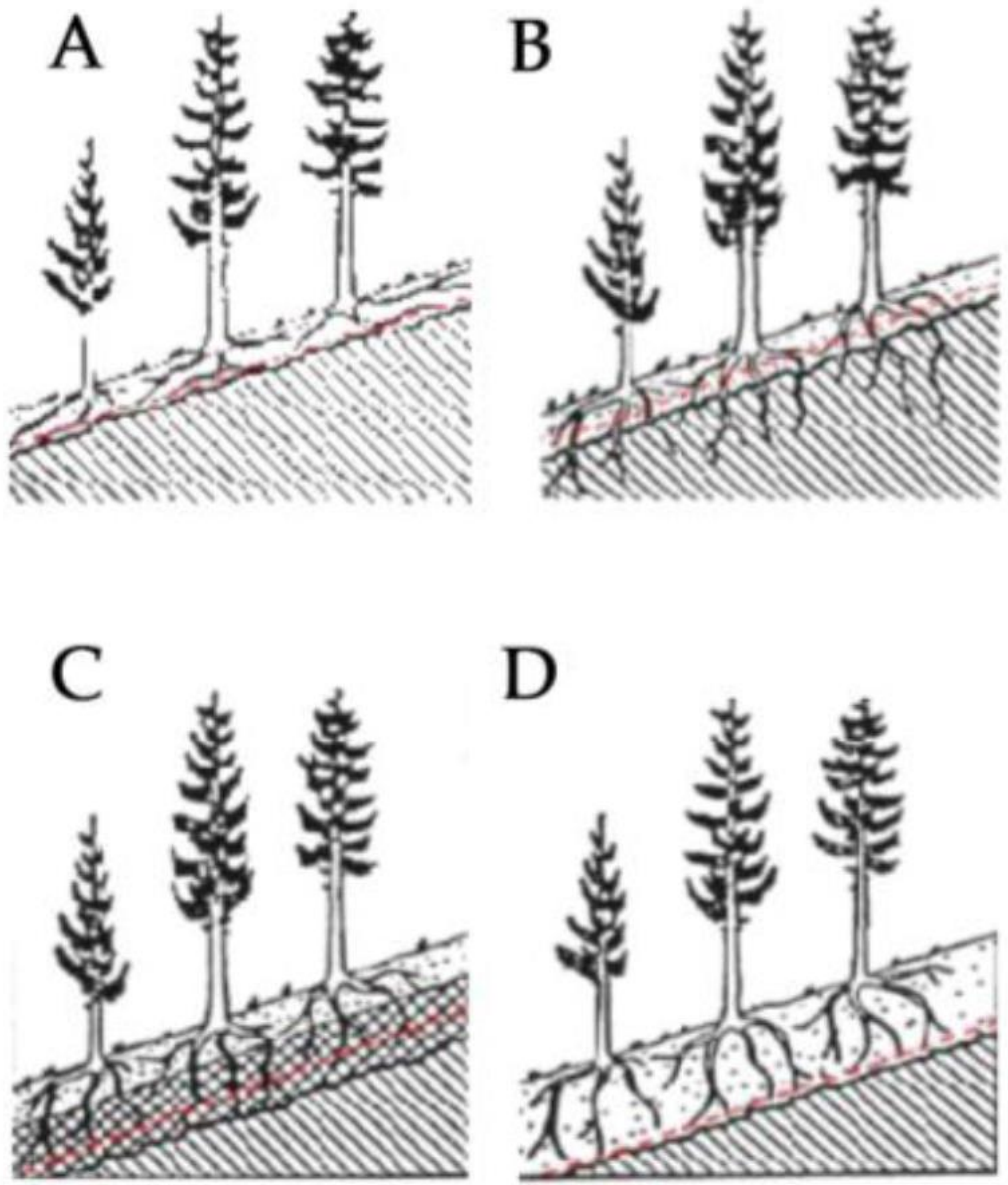
WeDIBAF

cmcc
Centro Euro-Mediterraneo sui Cambiamenti Climatici

Purpose

- Give a tool for hydrogeological risk of FORESTRY AND URBAN LANDSCAPE
- Generate the best possible preventive risk mitigation solutions
- Perform the use of proper spatial planning, for the prevention of hydrogeological risk.

The correlation between the absent of forests and the occurrence of landslides is well-know. In fact, the forests provide a protection in the soil degradation and erosion through the trees presence and roots contribution.



(Tsukamoto e Kusakabe, 1984)

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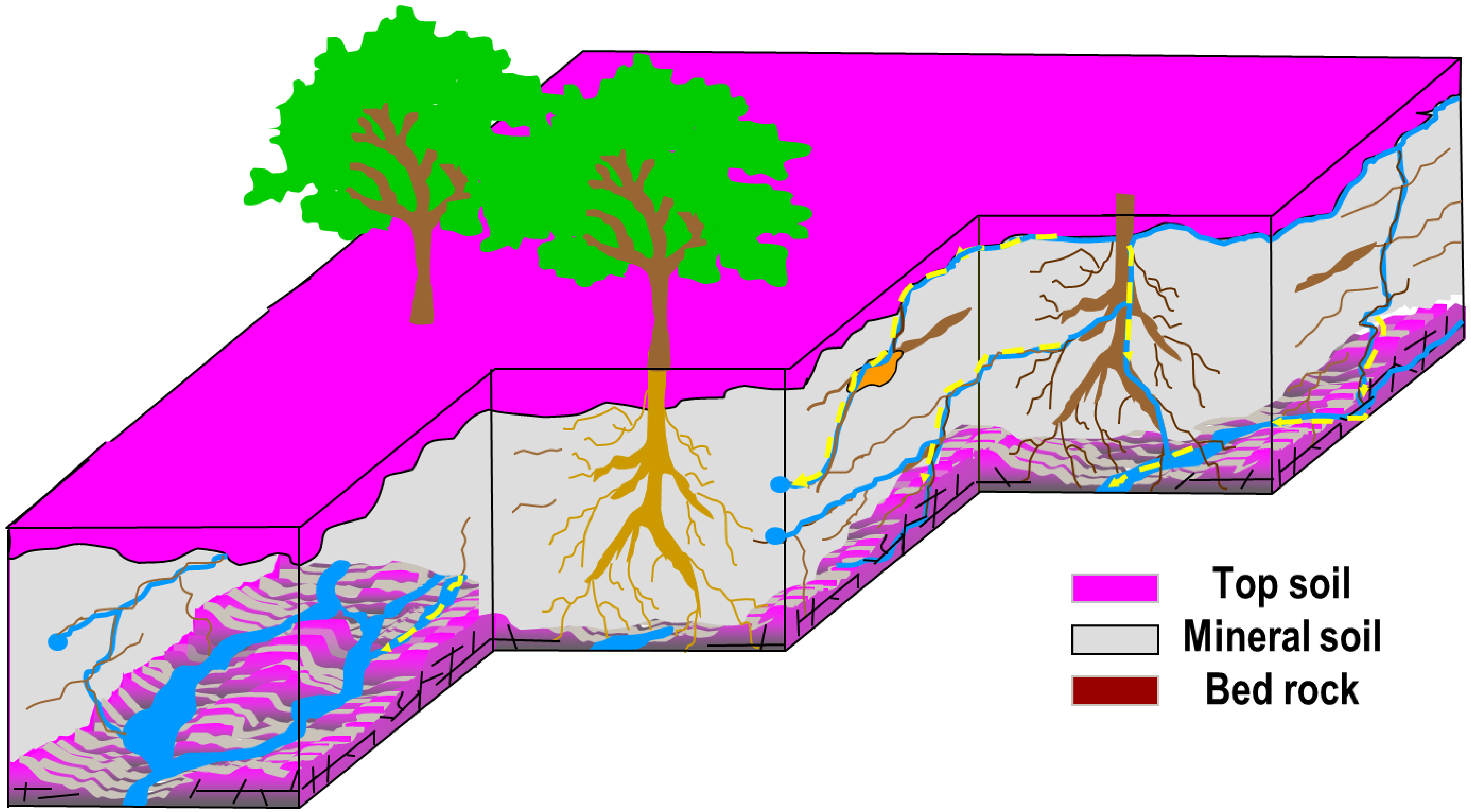
In shallow terrains, soil cohesion is enhanced by roots while the trees modify the soil moisture through increased evapotranspiration. In addition, in deep soils, the roots create macropores with hydrological drainage networks. However, extreme rainfall can be trigging the soil movement because soil moisture is inversely related



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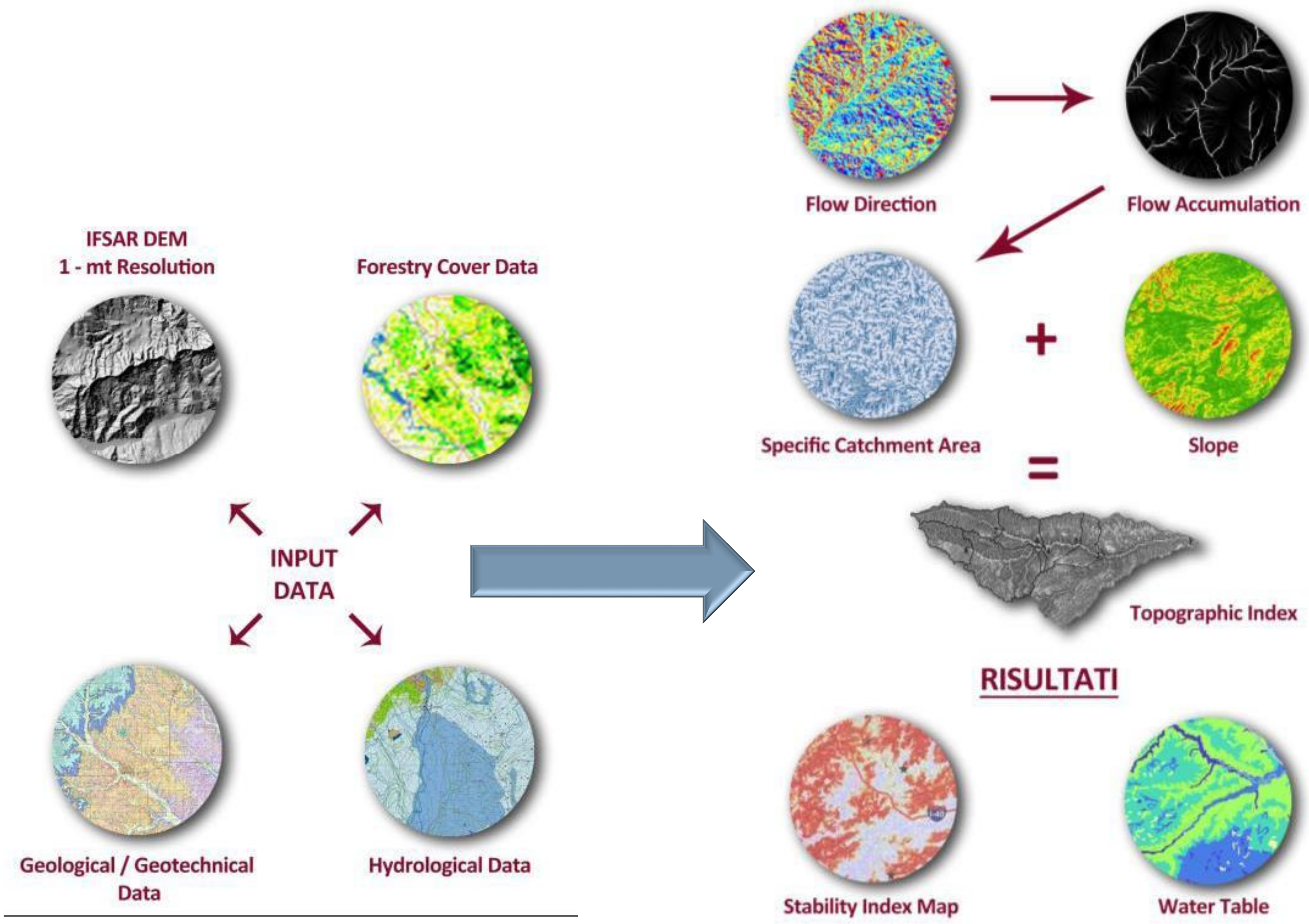
The **SLSI** model considering the effect of root cohesion and it based upon the infinite slope stability model.



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The case study is inside the city of Rome, more precisely in the Monte Mario area

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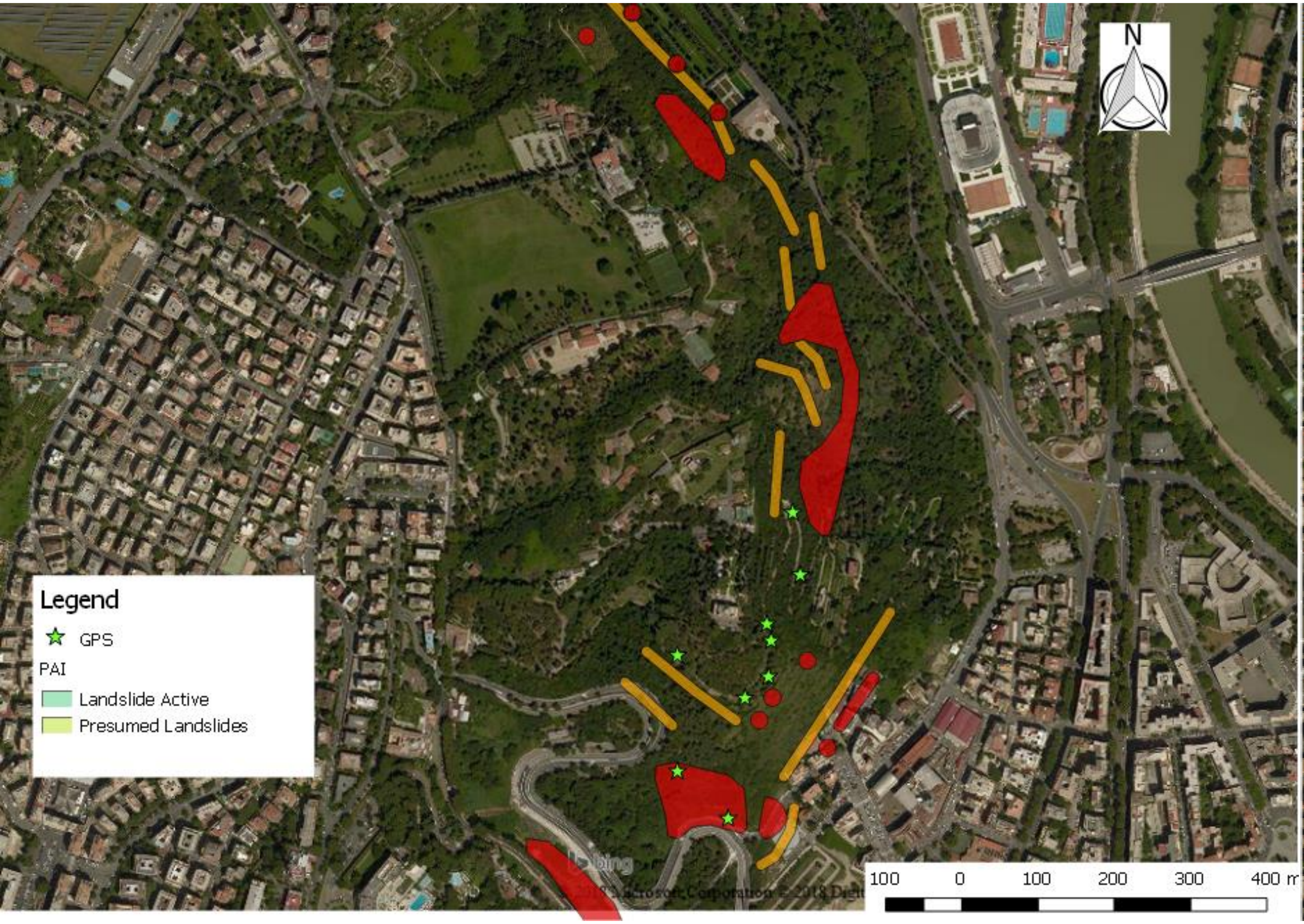
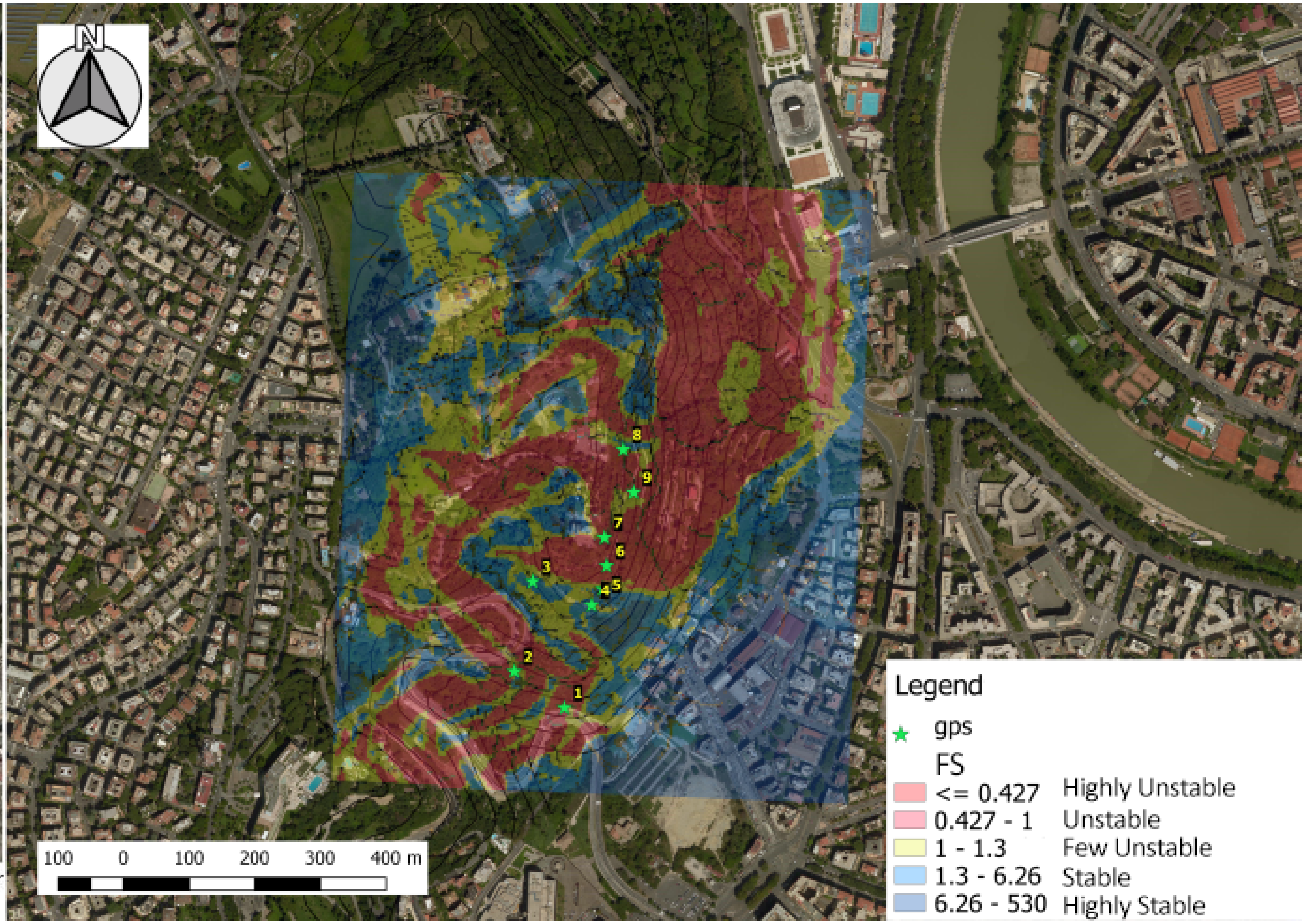
HYDROGEOLOGICAL STRUCTURE PLAN - PAI



THE SLSI MODEL EVALUATION



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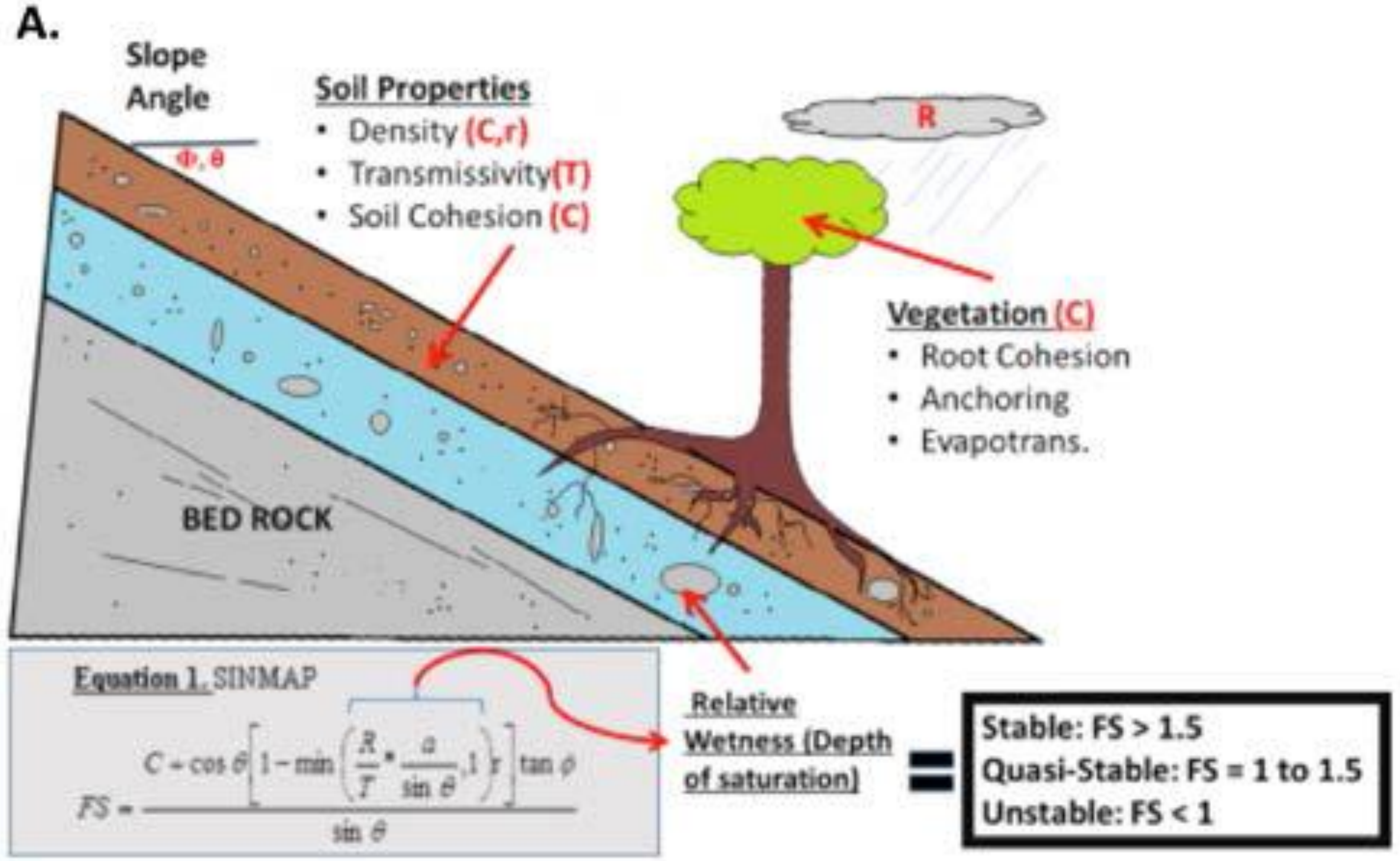
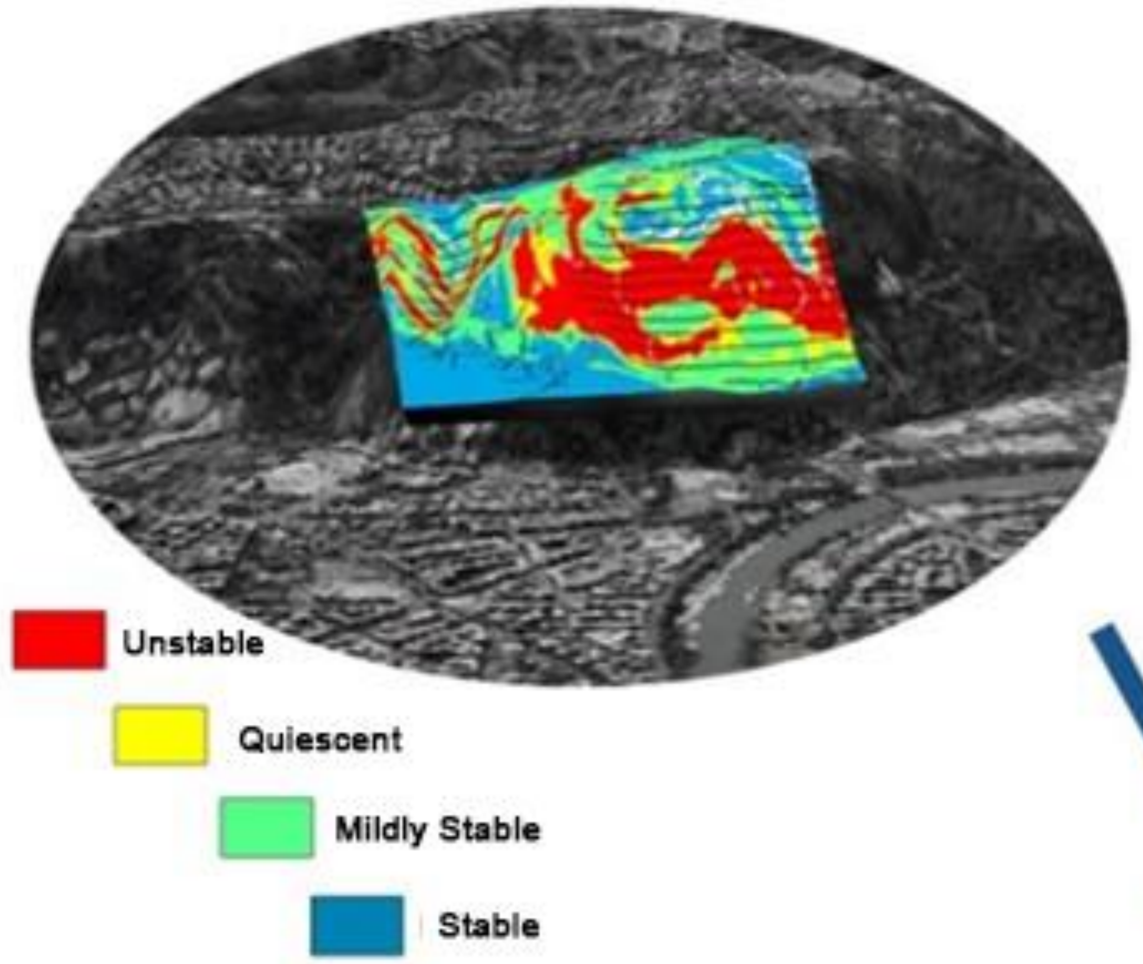
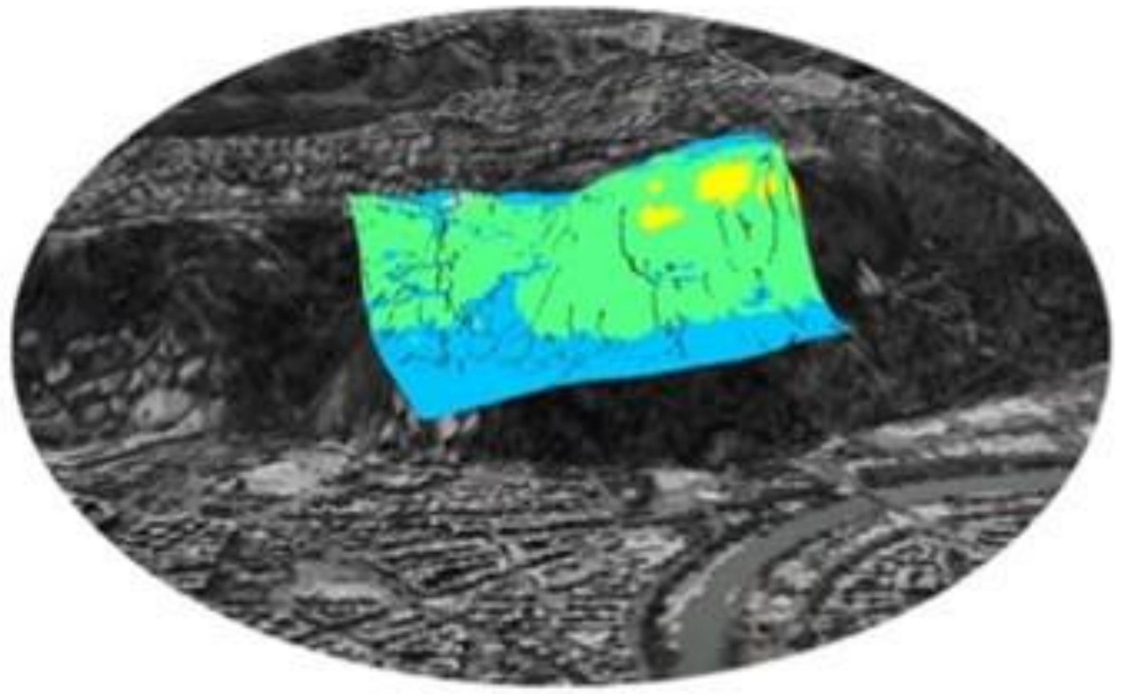
The map shows that close to 27% of the area has a high susceptibility to mass movements, 32% presents medium susceptibility and 41% a low threat.





Risk map Elaborated by SLSI

Effect Of The Reforestation Of The *Quercus Suber* On The Stability Of The Slopes



Risk map Elaborated by SLSI with the effect of roots cohesion

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Conclusions

- The use of the SLSI model allowed to obtain a first definition of the area landslide susceptibility.
- The model permit to perform many simulations with different types of plants, in order to define the best methodologies to safeguard areas at risk of failure.