

High resolution DTM as a new support for geological and natural hazards mapping

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High resolution Digital Terrain Modelling (DTM), with resolutions from 1 to 2 meters, represents an essential support for geological mapping and provides interesting possibilities for the characterisation of natural hazards. It opens new possibilities that have never been possible before, even with a detailed fieldwork. For example, in forest areas, contact between geological formations can be defined or in pasture zones, where contacts are very tedious to follow, the determination of hinge surfaces and faults traces can be easily highlighted.

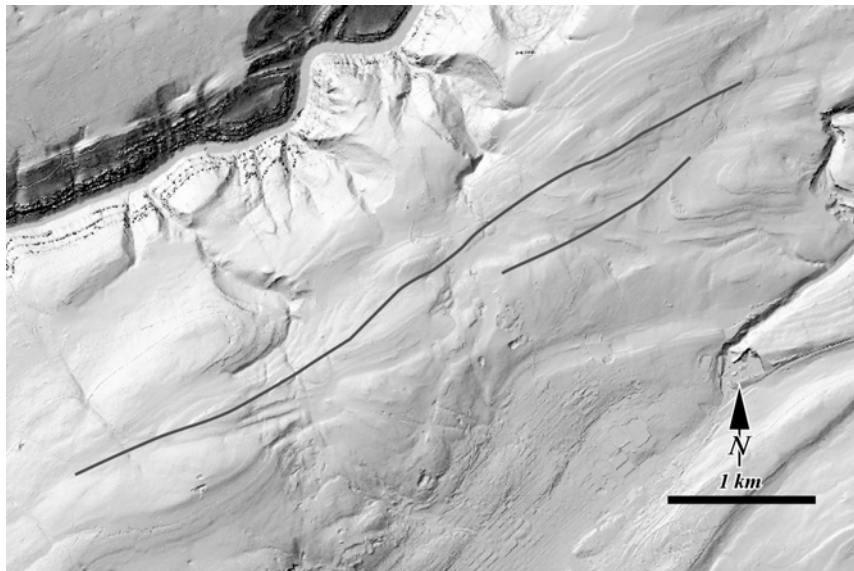


Figure 1: Example of the detection of axial surface trace.

In addition, high resolution DEM allows to improve the geomorphic characterisation of landslides in limits and volumes. The landslide analysis leads to new simple geomechanical interpretation for known landslide areas and for additional potential unstable areas. Moreover, in the field of rockfall modelling, the estimation of the runout distance (2D) and the surface of block dispersion (3D) is largely improved, opening new types of analyses.

Consequently, high resolution DTM appears as an essential document (when existing) that can improve and optimise work hypothesis, fieldwork preparation and natural hazards process modelling.

References

DEM Laser terrain DOM-AV,2003 : Service d'Information du Territoire Neuchâtelois (<http://sitn.ne.ch>) and Swisstopo (www.swisstopo.ch).