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# Advanced remote sensing techniques for monitoring anthropogenic landscapes

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In the last decade, a range of new remote-sensing techniques has led to a dramatic increase in terrain information, providing new opportunities to understand better Earth surface processes based on geomorphic signatures. Light detection and ranging (LiDAR) technology and, more recently, Structure from Motion (SfM) photogrammetry have the capability to produce sub-meter resolution digital elevation models (DEM) over large areas. LiDAR high-resolution topographic surveying is traditionally associated with high capital and logistical costs. Remotely Piloted Aircraft Systems (RPAS) on the other hand, offer a remote sensing tool capable of acquiring high-resolution spatial data at an unprecedented spatial and temporal resolution at an affordable cost, thus making multi-temporal surveys more flexible and easy to conduct. The scientific community is now providing a significantly increased amount of analyses on the Earth's surface using RPAS in different environmental contexts and purpose. The goal of this talk is to provide a few useful examples of surveys through airborne LiDAR and RPAS monitoring of anthropogenic landscapes with a specific focus on mining (e.g., open-pit) and agriculture (e.g., terraces). In details, multi-temporal surveys and geomorphometric indexes (including novel landscape metrics) have been carried out and tested in key study areas in order to (i) map the extension of the investigated features, (ii) track any anthropogenic change through time, (iii) analyze the effects of the change related to changes in erosion. The proposed analysis can provide a basis for a large-scale and low-cost topographic survey for sustainable environmental planning and, for example, for the mitigation of anthropogenic environmental impacts.

## References

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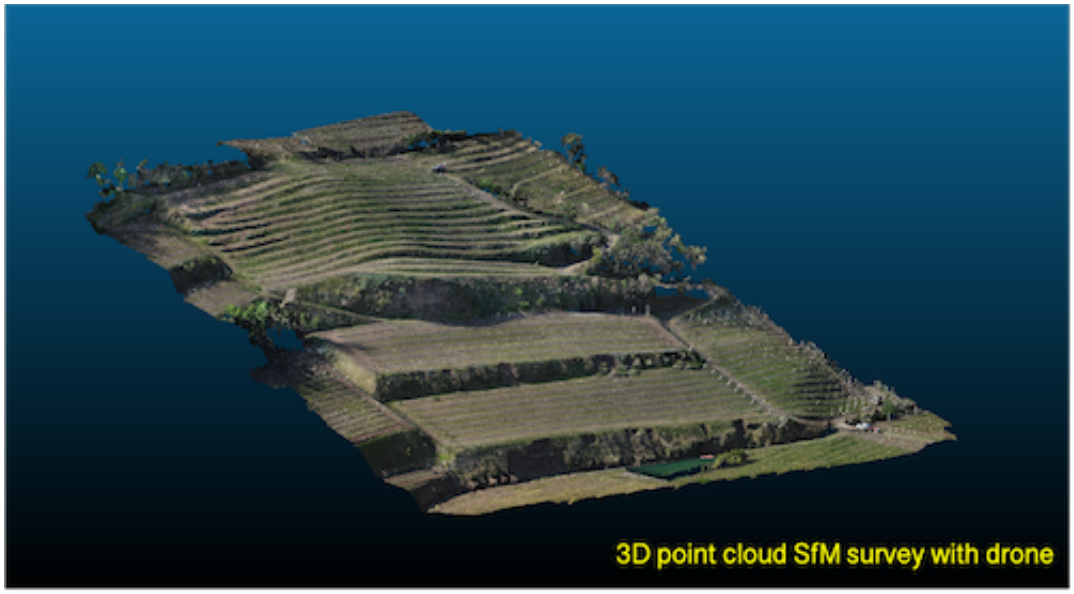
3D point cloud SfM survey with drone