Geophysical Research Abstracts
Vol. 17, EGU2015-12075, 2015
EGU General Assembly 2015

Aerial surveys of landslide bodies through light UAVs: peculiarities and advantages

Giuseppe Spilotro (1), Roberta Pellicani (1), Gianfranco Leandro (1), Cosimo Marzo (2), Paola Manzari (2), and Antonella Belmonte (2)

(1) Università della Basilicata, Dip Culture Europee e del Mediterraneo - Matera, Italia, (2) iDRONE Bari, Italia

The use of UAV in civil applications and particularly for aerial surveillance or surveying is rapidly expanding for several reasons. The first reason is undoubtedly the lowering of the costs of the machines, accompanied by high technology for their positioning and control. The results are high performances and ease of driving.
Authors have surveyed some big landslides by drones, with excellent results, which can retail for this technique a specific role, not in conflict with classical airborne aerial surveys, such as LIDAR and others.
Obviously the first difference is in the amount of payload, over 100 Kg for classical airborne apparatus, but 1000 times lower in the case of the drones.
Nevertheless the advantages of the use of drones and of their products can be synthesized as follows:
-Start from the site, without the need of transfers, flight plans and long time weather forecasts;
-Imagery product georeferenced and immediately exportable to GIS
-Inspection of areas not easily accessible (impervious areas, high layers of mud, crossing of rivers, etc) or unreachable in safety conditions;
-Inspection of specific points, relevant for the interpretation of the type and intensity of movement.
-The pilot and the landslide specialist define route and compare images in real time
-Possibility of flying at very low altitude and hovering.
For the geomorphological interpretation of the big landslide of Montescaglioso (Mt, Italy) has been used a 1.5 m EPP (Expanded polipropilene) fixed wing, driven by 3DR Open Source Autopilot, equipped with a 16 Mp compact camera CANON A2300.
Very useful revealed the image of the toe of the landslide, critical point for the interpretation of the mechanics of the whole landslide. Results have been of excellent quality and allowed authors to an early correct analysis
Other landslides have been explored with a commercial drone (Phantom Vision 2 Dji), the use of which has proved likewise invaluable for returning images of areas not otherwise explorable, allowing real time risk management