



*drones*



*Special Issue Reprint*

## Unconventional Drone-Based Surveying

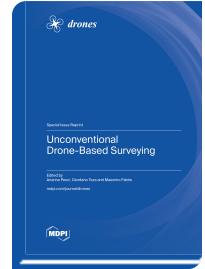
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Drones are becoming increasingly popular due to the diffusion of advanced low-cost systems that can be equipped with different sensors: i) GNSS receivers, ii) compact inertial platforms, iii) professional cameras for Structure from Motion (SfM) photogrammetry; iv) light infrared cameras, v) compact LiDARs. In addition, a drone-based survey can be performed by planning the navigation with user-friendly specific apps. Even if in several applications the use of drones is completely standardized, the simplicity and the possibility of greatly automating surveys and data processing in any case require an adequate evaluation of the quality of the results.

This reprint collects papers that cover a wide spectrum of applications related to the unconventional surveying using drones in different areas of the world and characterized by multi-source data. In particular, these topics are addressed: surveying with non-optical sensors (acoustic and sonar); use of superficial and underwater drones, including maximization of exchanged information via underwater acoustic communication channel and minimization of collision risk; use of a swarm of drones or one or more drones in an environment where other drones are flying, including maximization of obtained information and minimization of collision risk; use of a drone connected to a vessel equipped with a sonar; solving of issues related to flying in hard environment, in particular turbulent atmosphere and icing; direct georeferencing with different approaches; comparison between open source and commercial SfM packages.



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