

Opto-Electronics Review, 2015, volume 23, issue 1, pp. 78-84

Aerial thermography from low-cost UAV for the generation of thermographic digital terrain models

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DOI: <https://doi.org/10.1515/oere-2015-0006>

Abstract:

Aerial thermography is performed from a low-cost aerial vehicle, copter type, for the acquisition of data of medium-size areas, such as neighbourhoods, districts or small villages. Thermographic images are registered in a mosaic subsequently used for the generation of a thermographic digital terrain model (DTM). The thermographic DTM can be used with several purposes, from classification of land uses according to their thermal response to the evaluation of the building prints as a function of their energy performance, land and water management. In the particular case of buildings, apart from their individual evaluation and roof inspection, the availability of thermographic information on a DTM allows for the spatial contextualization of the buildings themselves and the general study of the surrounding area for the detection of global effects such as heat islands.