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AEROTRIANGULATION SUPPORTED BY CAMERA STATION POSITION DETERMINED VIA PHYSICAL INTEGRATION OF LIDAR AND SLR DIGITAL CAMERA

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Abstract. Nowadays lidar and photogrammetric surveys have been used together in many mapping procedures due to their complementary characteristics. Lidar survey is capable to promptly acquire reliable elevation information that is sometimes difficult via photogrammetric procedure. On the other hand, photogrammetric survey is easily able to get semantic information of the objects. Accessibility, availability, the increasing sensor size and quick image acquisition and processing are properties that have raised the use of SLR digital cameras in photogrammetry. Orthoimage generation is a powerful photogrammetric mapping procedure, where the advantages of the integration of lidar and image datasets are very well characterized. However, to perform this application both datasets must be within a common reference frame. In this paper, a procedure to have digital images positioned and oriented in the same lidar frame via a combination of direct and indirect georeferencing is studied. The SLR digital camera was physically connected with the lidar system to calculate the camera station's position in lidar frame. After that, the aerotriangulation supported by camera station's position is performed to get image's exterior orientation parameters (EOP).

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