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NON-METRIC PHOTOGRAMMETRIC CAMERA CALIBRATION: A STUDY OF DJI AND FULL FRAME CAMERAS

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Full-frame cameras are widely used in terrestrial and UAV photogrammetry, where accuracy depends on measurements derived from non-metric images. These cameras enable the construction of photogrammetric models of large areas. Camera calibration parameters are crucial for the rapid and precise reconstruction of these models. This study focused on in-situ camera calibration for accurate pre-calibration of cameras with specific lenses. The analysis involved the full-frame SONY ILX-LR1 with the ZEISS FE 2.8/35 mm ALC-SH129 and selected DJI cameras. The methodology was based on a regular reference matrix calibration of image datasets, with imagery collected from terrestrial and aerial platforms. Targets were measured precisely using a total station and GNSS RTN technique, with an IMU integrated into the pole. The results indicate that reference board-based calibration can be effectively used for internal parameter estimation.

Additionally, aerial images collected by UAS enable parameter adjustments for specific photogrammetric missions. The main conclusion is that GCPs (Ground Control Points) are essential in non-metric photogrammetric missions. The work was carried out due to the Municipal Support Program for Cooperation between Higher Education and Science and the Economic Activity Sector "MOZART XII", Wroclaw Poland 2024.