

## **Boresight Calibration of the WASP Airborne Mapping Camera System**

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The boresight calibration of all four cameras in the WASP Airborne Mapping Camera System is a critical component when using both GPS and IMU data in the direct georeferencing mode. There are software suites that claim that it can compute the misalignment angles between the camera and the IMU; however there is no guarantee that the attitude produced is correct without resorting to trial and error. An alternative approach in validating boresight misalignment is developed based on fundamental photogrammetric principles, precise knowledge on the sensor orientations, and some inside knowledge on the aero-triangulation and GPS/IMU exterior orientation processing tools. The accuracy, limitations and testing strategies performed on this alternative boresight calibration process will be discussed; for instance, the effect of height on the accuracy of the boresight and its performance in detecting fire using real time GPS/IMU sensor data.