



Better sensors = better imagery = better outputs

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The photogrammetric workflow has traditionally relied upon the use of high quality metric cameras that enable the acquisition of good quality imagery, from which outputs with a well constrained geometry can be obtained. However with the proliferation of low altitude aerial photography from a range of platforms, the quality of sensor itself has largely become of secondary importance in order to reduce weight and minimise cost. These instruments are often "off-the-shelf" consumer digital cameras, not designed for either aerial photography or photogrammetry. This imposes limitations upon the quality of imagery that can be collected and outputs subsequently produced. Photogrammetric techniques such as a self-calibrating bundle adjustment or Structure from Motion allow the use of "less stable" imagery. Yet at the simplest level, the better the sensor, the better the imagery, the better the output.

Where analysis and the validity of scientific conclusions are dependent upon the quality of outputs it is critical that consideration is given to the choice of sensor – the wide availability and application of UAVs across disciplines means that users may not be aware of such choices and their implications.

This presentation is designed to stimulate discussion around the use of consumer cameras with a focus upon the exposure triangle of ISO-aperture-shutter speed and how this is related to dynamic range and the signal-to-noise ratio. A further important factor is understanding the ground resolution element in terms of resolution, focal length, sensor size (crop factor) and height.