



Camera settings for UAV image acquisition

James O'Connor (1), Mike J. Smith (1), and Mike R. James (2)

(1) School of Natural & Built Environments, Kingston University, London, United Kingdom (k1454695@kingston.ac.uk), (2) Lancaster Environment Centre, Lancaster University, Lancaster, United Kingdom

The acquisition of aerial imagery has become more ubiquitous than ever in the geosciences due to the advent of consumer-grade UAVs capable of carrying imaging devices. These allow the collection of high spatial resolution data in a timely manner with little expertise.

Conversely, the cameras/lenses used to acquire this imagery are often given less thought, and can be unfit for purpose. Given weight constraints which are frequently an issue with UAV flights, low-payload UAVs (<1 kg) limit the types of cameras/lenses which could potentially be used for specific surveys, and therefore the quality of imagery which can be acquired.

This contribution discusses these constraints, which need to be considered when selecting a camera/lens for conducting a UAV survey and how they can best be optimized. These include balancing of the camera exposure triangle (ISO, Shutter speed, Aperture) to ensure sharp, well exposed imagery, and its interactions with other camera parameters (Sensor size, Focal length, Pixel pitch) as well as UAV flight parameters (height, velocity).