

Abstract Submitted
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Multicopter Based Small Format Aerial Photography to Free and Open Source Open Source Photogrammetry ROBERT DAVIS, None — A process is described to convert multicopter based small format aerial photography from flat images to 3 dimensional point clouds and then rasterized into height maps to be used as pseudo digital elevation models for surface modeling. All software used in the process is either free or open source. The process uses Canon Point and Shoot cameras with Canon Hacker's Development Kit installed as the image collection platform. One camera is unaltered, and the other camera is modified to remove the near infrared filter. A DJI Phantom FC-40 multicopter is used as the aerial platform to carry the cameras. Multiple paths are described to convert from still images (or video to still images) to N-view matches, followed by sparse point clouds then dense point clouds. The dense point clouds can be converted into 3D models for viewing and analysis. A height map is extracted from the point cloud and rasters are created and then used in QGIS or ArcMap as pseudo digital elevation models for surface modeling.

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