VEXCEL
IMAGING

From raw data to high value information

Streamlined UltraMap software processing suite

Vexcel Imaging's UltraMap is a state-of-the-art complete photogrammetric workflow system that provides highly automated processing capabilities to allow organizations to rapidly generate quality data products from an UltraCam flight.

UltraMap is designed to process huge amounts of UltraCam data in the shortest possible time with the highest degree of automatization, supported by guided manual interaction, quality control tools and powerful visualization.

The newest version, UltraMap v4.0 continues the innovation trend through several enhancements: The UltraMap team completely overhauled the project workflow and data management to achieve best efficiency through simplified software architecture and unified project handling. The implementation of one application for all UltraMap modules leads to a simple and more intuitive user interface allowing for excellent interaction possibilities with even bigger data sets. Additionally, the new UltraMap v4.0 interface enables the easy and detailed visual analysis of big blocks and improved aerial triangulation results.

UltraMap v4.0 also provides an advanced radiometry module featuring a simultaneous project-based color balancing and de-hazing of oblique and nadir imagery as well as flexible radiometric adjustments through interactive user guidance.

The end-to-end processing software suite delivers exceptional quality DSMOrthos and DTMOrthos at high accuracies and without any manual interaction, since the UltraMap ortho mosaicking approach takes into account all available inputs (i.e. DSM and the internal DTM).
Vexcel Imaging developed industry-leading, automated 3D modeling technology. UltraMap v4.0 is shipped with a technology preview enabling basic automated 3D textured TIN functionality.

UltraMap data products:

- High-density 3D point cloud generation, with a point density of several hundred points per square meter, derived from an UltraCam photo mission.
- Highly accurate and detailed digital surface model (DSM) generation.
- Generation of DSMOrtho (orthomosaic based on an automatically generated DSM) and DTMOrtho (traditional ortho mosaic) images.
- Automatic generation of 3D textured TINs.

UltraMap Modules

ULTRAMAP
ESSENTIALS

The UltraMap/Essentials module is responsible for applying the camera calibration and postprocessing the images to file formats that can be used for further processing steps in UltraMap and/or third party software systems.

ULTRAMAP
AT

The Aerial Triangulation (AT) module provides an interactive workflow while calculating image correspondences in order to generate a precise exterior orientation for an entire image block by means of a least-squares bundle adjustment.

ULTRAMAP
DENSE MATCHER

The UltraMap/DenseMatcher module creates high-density point clouds and DSMs from level-2 images by extrapolating precise exterior orientation data to generate per-pixel height values. The 3D point cloud and the DSM data can be exported in standard file formats for further 3rd party processing.

ULTRAMAP
ORTHO PIPELINE

The UltraMap/OrthoPipeline module generates the final ortho mosaic from all available inputs such as level-2 imagery, AT results, radiometric settings, and height field. Two different ortho images can be generated: DSMOrthos and DTMOrthos (based on an internally generated DTM).

ULTRAMAP
3D

UltraMap is shipped with a technology preview enabling basic automated 3D textured TIN functionality. The package provides the 3D data generation as well as an interactive view and export module.