



# UAV Image Acquisition Services

Recent developments in Unoccupied Aerial Vehicle (UAV) technologies have spawned opportunities for small-scale image capture (for facilities, mining, forestry, agriculture, etc.). Conventional fixed-wing aircraft and satellites are too costly to be used to capture imagery for small geographic areas —using UAVs we can now meet this need.

The Saskatchewan Research Council (SRC) has many years of experience in remotely-sensed data acquisition and now offers UAV services to support industry and government as a cost-effective alternative to conventional methods. These small, environmentally-friendly vehicles (under 3 kg) are autonomous aircraft that fly a pre-programmed flight path to capture high-resolution imagery for small geographic areas (less than 1,000 ha).

## Services offered:

- High-resolution image acquisition
  - o Ground resolutions from 1.6 – 3 cm
  - o Typical flight elevations from 60 – 110 m above ground (with terrain-following capability)
  - o Shade-free image capability (when UAV flies under cloud cover)
  - o Typical flights cover 30-50 ha; multi-flight capability
- GPS ground control to improve positional accuracies
- Image processing services
  - o GIS-ready digital ortho-photos with metadata
  - o Digital terrain data
  - o Volumetric calculations (gravel pits, chip piles, etc.)
  - o Image editing and analysis
  - o Stereo photo interpretation

## About SRC

SRC has provided Smart Science Solutions™ for more than 60 years. We are Canada's leading provider of applied research, development, demonstration and technology commercialization. Our clients benefit from our multidisciplinary teams that work together to provide solutions to unique challenges in a variety of industries.



## CONTACT

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## UAV Data Products Overview

There are a wide range of data products that are produced for each UAV flight project. Each product offers outstanding resolution and accuracy.

### Standard Deliverables

#### Orthophoto Mosaics

- All images collected are processed into a single orthophoto mosaic that is ready for use in GIS/CAD
- Image ground resolutions from 1.6 – 3.0 cm
- Positionally accurate map content

#### Digital Surface Models (DSM)

- Triangulation of photos generate detailed surface elevation data
- Raster-based elevation digital data
- Sub-meter elevation change capabilities
- Optional vector contour data at desired intervals

#### Point Clouds

- A set of data points in 3-D coordinates (x,y,z)
- Colour of each point can be included
- LIDAR, 3-D scanning and orthophoto image processing create point clouds
- New perspective for viewing imagery
- Great for virtual site tours, logistics planning and change detection

### Optional Services

#### GPS Ground Control

- Improves accuracy of orthophoto/DSM products by using surveyed ground targets to calibrate position/elevation
- Ground control targets deployed at strategic locations based on:
  - o An even distribution throughout the area of interest
  - o Major changes in topography (elevation)

#### Volumetric Calculations and GIS Mapping/Analysis

- Detailed elevation data can be used to accurately calculate volumes for a wide variety of applications:
  - o Gravel pits
  - o Tailings
  - o Chip piles
- Supplemental GIS data analysis, digitizing and mapping services are available to further enhance UAV data products including:
  - o Basemap vectorization
  - o Spatial data analysis
  - o Custom map products
  - o Image virtualization and 3-D fly-through videos

### Testimonial

*"The high quality images provided of our compressor station facilities has allowed us to plan work that was not possible with other aerial imagery. This has already saved our company hours of time spent driving to site only to verify equipment and location details that can be clearly seen in the imagery provided. The highly mobile equipment and cost effective deployment has enabled us to collect Ortho-imagery of smaller areas that were simply cost and time prohibitive with other technologies."*

- Kent Schoenroth, P. Eng, Sr. Engineer, System Integrity, TransGas Limited

**KNOW YOUR LAND – CONTACT SRC TO GET STARTED**

