

# Digital Aerial Survey Technology



**The first photogrammetric devices** and methods were invented in 1851 by Aime Laussedat of France and he is therefore considered as the inventor of photogrammetry. A few years later in 1858, the first aerial photography was taken from a balloon by Gaspar Felix Tournacho or 'Nadar' as he was also know. For almost 150 years, the concept of film based aerial photography and photogrammetry has remained relatively unchanged until the invention of digital technology, specifically the 'Direct Georeferencing' concept comprised of Airborne Global Position System (GPS), Inertial Measurement Unit (IMU) and high resolution digital cameras.

Airborne GPS measures the change in carrier phase from the satellites to the receiver, providing a more precise measurement of location than standard, ground based GPS devices. Comprised of 3 accelerometers and 3 gyros, the IMU precisely monitors the speed and attitude of the aircraft at the instance of exposure. During post processing, Airborne GPS and IMU data is correlated with additional ground based GPS data to quickly provide the highly accurate positional information necessary to complete the photogrammetric process. This technology negates the costly and time consuming requirement to perform ground based surveys.

Airborne digital sensor systems record positional information from the GPS / IMU, along with the raw digital photo on a hard drive and even allow the pilot to see each individual exposure during flight. When acquisition is completed, the sensor's hard drive is simply removed and installed in a processing system, allowing for verification of image quality and project completion within hours. Directly georeferenced GIS ready data delivery can be completed quicker than traditional analog, accurately and affordably.

Digital aerial survey technology from Leading Edge Geomatics offers clients with the accurate geospatial information they need, when they need it the most.



2398 Route 102 Hwy  
Lincoln, New Brunswick  
E3B 7G1  
(506) 446-4403

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*LEGeo Aircraft and Digital Sensor Systems*