

Direct-to-Digital Mapping Services

Fugro EarthData's all-digital approach to high-accuracy mapping projects



Using the latest in digital data acquisition and processing technologies, Fugro EarthData offers fast delivery of high-accuracy aerial mapping products with an expanded range of data options.

INTRODUCTION

Direct-to-digital technologies have revolutionized the aerial mapping industry, enabling delivery of high-accuracy geospatial data faster than ever before possible. Fugro EarthData's approach to all-digital mapping combines Leica's second generation ADS40 digital imaging sensor with the advanced Pixel Factory™ processing system. Benefits include:

Multiple orthoimagery products. The ADS40 simultaneously acquires panchromatic, color, and color-infrared datasets. This means that a single aerial mission will produce black-and-white, natural-color, and color-infrared products or individual spectral bands of data to serve diverse needs and applications.

Affordable true orthoimagery and robust elevation models. The pushbroom motion of the ADS40 sensor "sweeps" the ground to capture forward, nadir, and backward views from the aircraft, providing wide-area coverage and multiple looks at every point on the ground for higher accuracy and sharper detail. This redundant coverage supports true orthoimagery in which every feature is rectified to its true ground position. The redundant collections also support digital surface models that are more robust than ever before.

When-needed requests for products. Regardless of which products are initially requested, Fugro EarthData can easily accommodate future requests for ancillary datasets. Since the ADS40 captures all data renditions in a single flight, subsequent mapping products will be perfectly coregistered with original deliverables.

DATA APPLICATIONS

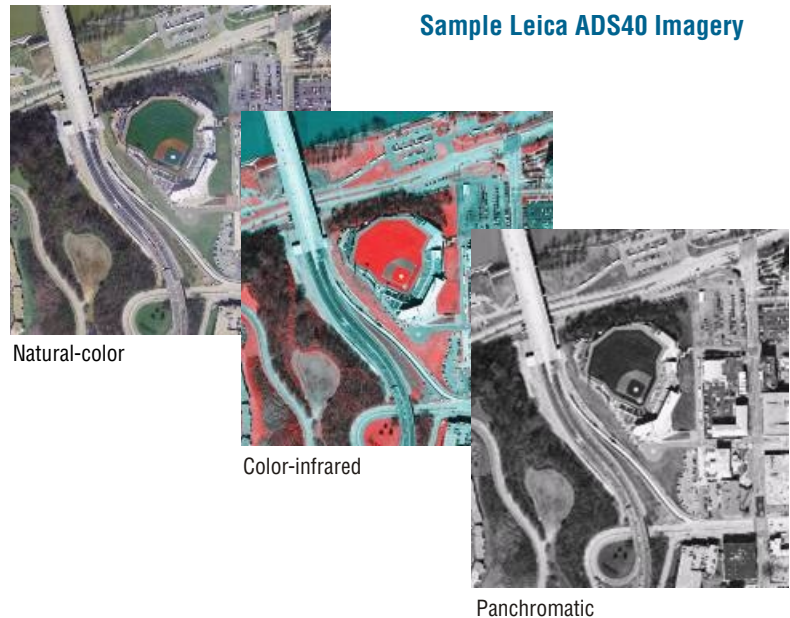
All-digital mapping serves a full-range of mapping applications, including infrastructure planning, public works, agricultural monitoring, disaster response, property assessment, national security, and coastal resources management.

- **Natural-color products** serve planning and development applications.
- **Color-infrared products** serve environmental applications like coastal and vegetation analysis.
- **True orthoimagery** provides urban users unobstructed views of the ground, revealing details usually hidden by shadows in traditional ground orthos.
- **Digital surface models**, while used to orthorectify each image, serve 3D visualization and line-of-sight applications such as identifying vertical obstructions along airport flight paths.

DIRECT-TO-DIGITAL ADVANTAGES

- **Higher accuracy and no radial distortion.** The ADS40 sensor's backward, nadir, and forward viewing positions mean projects can be designed to provide imagery that is free of radial distortion or "building lean." Features can be represented in their true vertical positions, a fact particularly significant in urban areas where building lean often obscures ground detail.
- **Superior image quality.** All-digital mapping results in "crisp" orthoimagery that displays far greater detail than available from comparable photographically-derived products, which are scanned from negatives. Data can be used with increased confidence and precision.
- **Fast turnaround.** All-digital acquisition bypasses film development and scanning as well as subsequent steps to correct blemishes introduced during those processes. Further, automated processing eliminates most touch-labor, usually delivering products in half the time required by traditional methods.
- **Diverse applications.** The choices of products, level of detail, resolutions, and fast delivery offer options for numerous applications, including infrastructure planning, public works, agricultural monitoring, disaster response, property assessment, national security, and coastal resources management.

Sample Leica ADS40 Imagery



DIGITAL IMAGING PRODUCTS

Fugro EarthData's direct-to-digital mapping approach supports the following products:

- **Orthoimagery.** Available at scales from 1:600 (1" = 50') to 1:12,000 (1" = 1,000') and pixel resolutions of 4" (10 cm) to 1 m, orthoimagery is offered in two formats, ground orthoimagery and true orthoimagery.
- **Digital elevation models.** Autocorrelated digital surface model (DSM) data serves to orthorectify each image and also is available for 3D visualization and line-of-sight applications. A derived bare-earth digital elevation model (DEM) enhanced with 3D breaklines supports topographic contour generation.
- **Contours.** With supplemented breaklines, Fugro EarthData provides contours at 2' to 8' intervals.
- **Planimetric and topographic data.** Stereo pairs of the ADS40 imagery are used in the compilation of 3D planimetric and topographic data, including building footprints, transportation networks, hydrography, and breaklines and spot heights.
- **Land-use/land-cover and impervious surfaces data.** Using photointerpretation and/or automated classification methods—including pixel-based and object-oriented classification—land-use/land-cover classification and impervious surface data can be derived from the ADS40 imagery.



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