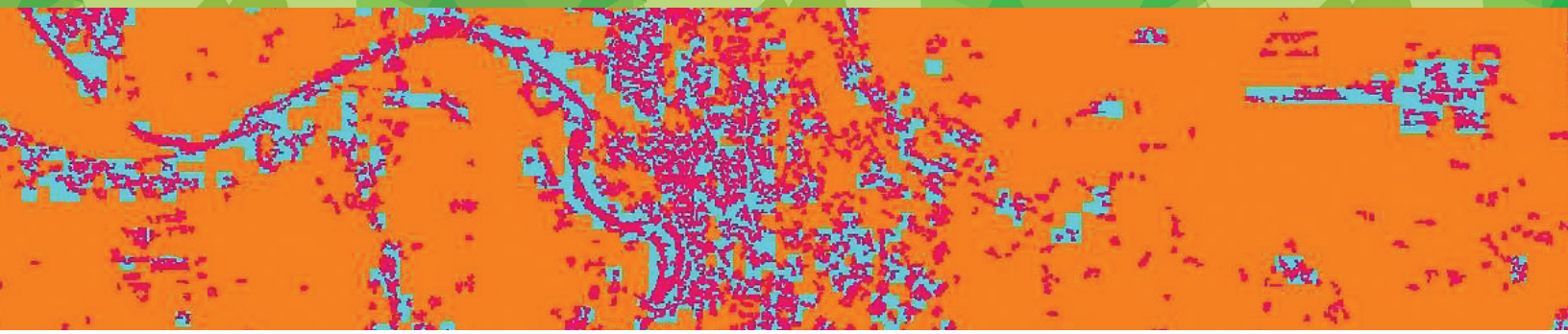
HEXAGON
GEOSPATIAL

PRODUCT SHEET



IMAGESTATION® AUTOMATIC ELEVATIONS

ImageStation Automatic Elevations (ISAE) automatically extracts digital terrain model (DTM) elevation points from digital aerial and satellite stereo images. The software's hierarchical image data structures and image processing methods provide a high degree of automation and accuracy. ISAE yields extremely reliable DTM points in an efficient manner due to high redundancy. The software also reduces collection time by defining collection areas and skipping excluded areas. ISAE offers a robust set of features that helps increase your overall productivity.

INTEGRAL PART OF PRODUCTION WORKFLOW

ISAE produces higher-quality DTMs by combining digital image matching algorithms, automatic blunder detection, and a robust least squares using finite element interpolation. The software can extract DTMs from digital stereo images that could be the result of scanning aerial photography or images directly acquired in digital form by a digital aerial or satellite sensor.

Using ISAE, you can collect DTMs from raw non-epipolar stereo pairs as well as epipolar-resampled imagery from aerial photography or satellite sensors such as IKONOS, GeoEye, SPOT, WorldView, OrbView, IRS, QuickBird, Pleiades, and many more. Using ISAE, you can collect DTMs from images that range between 8 bits and 16 bits in radiometric resolution. ISAE is completely multi-threaded; it is a true symmetric multiprocessor (SMP) application, running on multiple CPUs in the hosting computer workstation. ISAE also supports distributed processing over a network using the HTCondor for Hexagon Geospatial distributed processing system.

ISAE KEY FEATURES

- Automatically generates high-quality elevation models
- Generates DTM points in the north direction
- Handles aerial frame, satellite, and ADS line sensor data
- Generates DTM points from color or gray scale imagery
- Captures satellite DTMs using rational functions
- Performs epipolar resampling of stereo imagery on the fly
- Performs batch processing
- Supports film-based and digital aerial cameras, such as Leica Geosystems' DMC cameras, RCD30 cameras, and ADS line sensors
- Posts the generated elevation data to a MicroStation design file (.dgn) automatically
- Writes elevation data into a TIN format surface file (.dtm)
- Provides the raw elevation data (stored in an ASCII file) generated before interpolation is used to generate a grid
- Provides enhanced matching algorithm
- Optionally suppresses grid points near breaklines and obscure areas
- Offers separate class definitions and symbologies for points of different statistical qualities
- Uses existing geomorphic features to improve automatic DTM generation
- Uses a surface reconstruction module to capture DTM points in poor texture areas
- Explodes borderlines to avoid edge effects
- Supports adaptive parameter tuning and variation of grid spacing based on the terrain's relief characteristics
- Checks accuracy and bias of automatically generated points against an ASCII file of control/check point coordinates (Delta Z)
- Provides blockwise DTM generation capability that allows users to digitize a polygon over the project area of interest to be automatically filled with DTM data
- Supports distributed processing over a network using the HTCondor distributed processing system

INTEGRATED SOLUTIONS

ISAE is a member of the ImageStation photogrammetric software product family. ISAE integrates with other ImageStation modules such as ImageStation DTM for GeoMedia (ISDG) and ImageStation Stereo for GeoMedia (ISSG) in a GIS environment; or ImageStation DTM Collection (ISDC), ImageStation Feature Collection (ISFC), and ImageStation Stereo Display (ISSD) in the MicroStation CAD environment to create and edit DTM files. ISAE honors information such as breaklines, points, collection boundaries, and obscured collection areas. These geomorphic and boundary features are stored in a triangulated irregular network (TIN) format surface file or MicroStation design file. ISDG together with ISSG, or ISDC together with ISSD, provides interactive stereo collection of the geomorphic features for the execution of ISAE. ISDG and ISSG, or ISDC and ISSD, are also used for stereo viewing and editing of DTM points extracted by ISAE.

You can also use ISDG or ISDC to create contours and perform a variety of modeling, earthwork, and engineering functions.

ImageStation DTMQue (ISDQ) can be used to supplement DTM workflows with DTM file format conversion, coordinate transformations, tiling, merging, basic 3D viewing, and QA/QC tools for assessing accuracy.

ImageStation Automatic Elevations-Extended (ISAE-Ext) is a superset of ISAE and adds production of dense Digital Surface Models (DSMs) in the form of point clouds and raster files from digital stereo aerial frame source images using the Semi-Global Matching (SGM) correlation methodology.

ABOUT POWER PORTFOLIO

The Power Portfolio from Hexagon Geospatial combines the best photogrammetry, remote sensing, GIS and cartography technologies available. Flowing seamlessly from the desktop to server-based solutions, these technologies specialize in data organization, automated geoprocessing, spatial data infrastructure, workflow optimization, web editing, and web mapping.

The Producer Suite enables you to intelligently author, analyze, process, and map multiple sources of data.

ABOUT HEXAGON GEOSPATIAL

Hexagon Geospatial helps you make sense of the dynamically changing world. Known globally as a maker of leading-edge technology, we enable our customers to easily transform their data into actionable information, shortening the lifecycle from the moment of change to action. Hexagon Geospatial provides the software products and platforms to a large variety of customers through direct sales, channel partners, and Hexagon businesses. For more information, visit www.hexagongeospatial.com or contact us at marketing@hexagongeospatial.com.

Hexagon Geospatial is part of Hexagon, a leading global provider of information technologies that drive productivity and quality across geospatial and industrial enterprise applications. Hexagon's solutions integrate sensors, software, domain knowledge and customer workflows into intelligent information ecosystems that deliver actionable information. They are used in a broad range of vital industries. Hexagon (Nasdaq Stockholm: HEXA B) has more than 18,000 employees in 50 countries and net sales of approximately 3.3bn USD. Learn more at hexagon.com and follow us @HexagonAB.