



MATCH-T DSM

MATCH-T DSM stands for automation and precision in DTM and DSM extraction.

MATCH-T DSM is an automated terrain and surface extraction environment providing highly precise digital terrain models and digital surface models derived from aerial or satellite imagery. Seamless models are generated for entire image blocks.



MATCH-T DSM generates regular grids or extremely dense point clouds, and guarantees for reliable and accurate results.

MATCH-T has been the synonym for highly precise DTM extraction. The new **MATCH-T DSM** extends the previous functionality by a powerful means to acquire surface models – even in urban and forest areas – with highly dense point clouds that till now have only been achievable by LIDAR.

Best accuracy and reliability is achieved by applying advanced multi-image matching and robust data filtering. All locally overlapping images are taken into account.

In DSM mode, even narrow streets in urban areas can be detected with image overlaps of at least 60/60 percent. Surface models from **MATCH-T DSM** with their LIDAR-alike characteristics are well-suited for applications like city modelling.

A vast variety of organizations from all over the world rely on our experience in automatic DTM/DSM generation.

DTM Box combines **MATCH-T DSM** with DTMaster Stereo, our powerful photogrammetric DTM editing station. DTM Box is a complete photogrammetric DTM station, including DTM data collection, quality control and editing.

MATCH-T DSM is part of INPHO's modular system. It is delivered with ApplicationsMaster, the core of the system, providing a comprehensive collection of essential tools. For details see pages 32ff.

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Features

- DTM and DSM generation from aerial images (frame and pushbroom sensors), and from various types of satellite imagery (Ikonos, Quickbird, WorldView, Spot, Landsat, IRS C/D, Aster, Cartosat).
- One seamless DTM or DSM is generated for a user definable area, which can be any sub-block or polygon area, or the entire image block.
- Intelligent multi-image matching through on-the-fly selection of the locally best suited images.
- Extremely dense point clouds by using feature-based and least-squares matching techniques, with different strategies for DTM and DSM extraction.
- Different filter techniques for DTM and DSM extraction for obtaining optimized point clouds.
- Consideration of pre-measured morphological data (breaklines, 2D and 3D exclusion areas, borderlines).
- DTM generation with elimination of outliers, e.g. trees, buildings, by robust finite element interpolation.
- The project area may be subdivided into polygonal areas with individual, appropriate parameter settings for terrain type and terrain coverage.
- Optimized point extraction by dynamic filtering of sensor noise.
- Regular distribution of points also in poorly textured image areas through local auto-optimization of parameter settings.
- High quality terrain representation near breaklines by adaptive parallax bound strategy.
- Numerous functions for internal quality control.
- On-line epipolar image resampling:
 - No extra processing step
 - Necessary disk capacity reduced, no intermediate storage
- High throughput by supporting multi-core architecture (parallel processing).

- The integrated DTM Toolkit provides a flexible post-processing of DTMs, with functions like merging, splitting or tiling of DTMs.
- Filtering methods are available to thin-out DTM data.
- DTMs can be converted into several formats, including hybrid DTMs, TIN, raster data, or point clouds and lines:
 - SCOP DTM, AutoCAD DXF-TIN, ArcGIS SHP-TIN, geocoded TIFF, VRML-TIN, BIL, FLT, Winput, XYZ
- Optional distributed processing in combination with DPMaster.

Options

- MATCH-T DSM (DPL)
 - High-volume extension using Distributed Processing technology
 - Efficiency increase by using MATCH-T DSM in a multi-core setup

Benefits

MATCH-T DSM is well-proven and production-oriented and offers its users significant benefits:

- Superior productivity through:
 - High processing speed
 - High level of automation
 - Optimized utilization of hardware capacity
 - Minimized user interaction for project set-up
 - Batch processing capabilities
- Superior quality through:
 - High accuracy by leading-edge multi-image matching techniques
 - High reliability by internal quality control
- Easy integration into any third-party workflow.

Recommendations

- High-end PC workstation
- 4 GB RAM
- High-capacity disk system
- Windows Vista/XP/2000, 32 or 64 bit

