http://gmv.cast.uark.edu/photogrammetry/software-photogrammetry/photomodeler/metadata-photomodeler/file-exports-and-deliverables-documentation-for-close-range-photogrammetry/ http://gmv.cast.uark.edu/photogrammetry/software-photogrammetry/photomodeler/metadata-photomodeler/file-exports-and-deliverables-documentation-for-close-range-photogrammetry/#comments Thu, 19 Jul 2012 15:53:17 +0000 adam http://gmv.cast.uark.edu/?p=10754 Continue reading →]]>
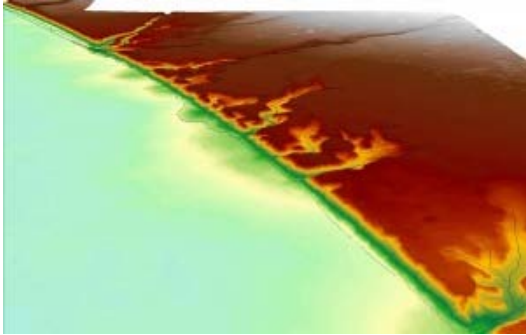
3D View of DEM Overlaid With 3D Breaklines

Close Range Photogrammetry:

Typical deliverables created as the end result of a CRP project could include 2D vector graphics (planimetric or elevation type CAD drawings), dense point clouds, 3D polylines, facetized models (mesh) of an object or surface, and raster graphics such as rectified or fully orthorectified images. Each deliverable created should include appropriate metadata for each of the above mentioned steps, as well as metadata for the additional processing performed to create the final file.

Because the diversity of possible end products and software packages associated with photogrammetry, it is difficult to specify the metadata required. We recommend using the ADS Guides to Good Practice to identify the appropriate metadata for your specific file. Below is a list of ADS Guides and the file types they should be used for:

> **2D CAD drawings and 3D vectors:** http://guides.archaeologydataservice.ac.uk/g2gp/Cad_Toc
> **3D point clouds and facetized models (mesh):**
> http://guides.archaeologydataservice.ac.uk/g2gp/LaserScan_Toc
> **Raster images:** http://guides.archaeologydataservice.ac.uk/g2gp/RasterImg_Toc

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Low Altitude & Aerial Photogrammetry:

A discussion and comparison of file export formats is currently being developed. Please check back soon! And in the meantime, please see the ADS Guides to Good Practice regarding Aerial Survey for detailed information regarding documentation and standards.

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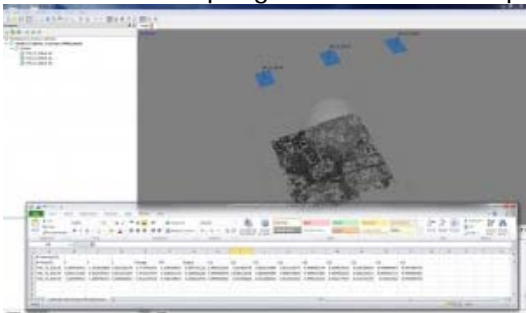
Aligned Images in PhotoScan

In order to extract three dimensional points from two dimensional images, it is necessary to perform a triangulation with at least two images (a stereo pair). When more than two images are used in a triangulation, we refer to the group of images as a 'block'. To perform a triangulation, we must measure a sufficient number of tie, control, and/or check points throughout the block. Constraints may also be placed on certain sets of points to enforce angular, linear, and/or planar properties. Once a triangulation is successful, image exterior orientation parameters (along with estimate for accuracy) should be available to the user. These are important pieces of information for downstream deliverables and should be documented. The table below describes the appropriate documentation for this process. Download a printable form in PDF format here or in a spreadsheet (.xlsx) format here.

Entry	Description
For each block:	
Name and version of the software	Include all details of the software name, manufacturer, version, and build used for image processing and file format conversions.
Description of image processing	Describe and image processing and/or file format conversions performed and the settings used.
Name and version of the software	Include all details of the software name, manufacturer, version, and build used for triangulation.
RMSE values	Root Mean Square Error (RMSE) for control and check point measurements, indicating whether the RMSE is for control points only, check points only, or all points.
Constraints on object points	List of constraints used during processing.
For each point:	
Point ID	ID or name used for the point.
Point type	Tie, Control, or Check point.
XYZ priori and a priori	If available, provide the XYZ coordinates before and after bundle adjustment (control and check points only).
Covariance matrix a priori	If available, provide the covariance matrix.
Image coordinates and residuals	A list of images on which the point is indicated. For each image on the list, provide the uv coordiates and residual.
For each image:	
Exterior orientation	List exterior orientation parameters for each image.

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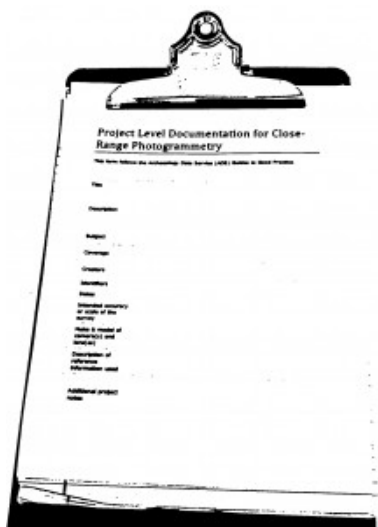GPS Control Point Reference Photo

If external control is collected for the project, the table below describes the appropriate documentation for this process. Download a printable form in PDF format here or in a spreadsheet (.xlsx) format here.

For each control point:

Entry	Description
Point ID	ID or name given to the point.
Source and datum (total station, GPS, etc. and WGS84, UTM, LRF)	Identify the source for control point collection and the datum used during data collection.

xyz coordinates	List the three-dimensional coordinates for each control point.
xyz covariance matrix or estimated error	Provide full correlation if available (from survey adjustment or GPS baseline solution), otherwise provide estimated standard deviation or variance of each coordinate.
Textual description of location	Provided a textual description for the location of each control point.
Image name with control point location indicated	Name of image with the control point location clearly indicated.
Geometric constraints on reference features or control	List any known geometric constraints for reference features or control.
Coordinate System	Name of coordinate system, datum and projection.

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A number of guides and documentation standards for the collection and processing of close-range photogrammetric data (or in some cases for photographic documentation in general) have been published by various organizations. This form and other metadata forms on this site follow the Archaeology Data Service (ADS) Guides to Good Practice. See the list of helpful webpages and publications for a link to the ADS guides and other helpful links.

Every CRP project should contain project level documentation, including a description of the project and site, date(s) of the survey, name(s) and organization(s) of the surveyor(s), and other useful notes. The table below describes the appropriate documentation for this process and you can download a printable form in PDF format here or in a spreadsheet (.xlsx) format here.

Element	Description
Title	The project name or name for the dataset.
Description	The original purpose for the survey work.
Subject	Keywords for the subject content of the dataset (qualified using e.g. the English Heritage NMR Monument Type Thesaurus or the MDA Object Type Thesaurus).
Coverage	Site location and description. The address, or coordinates for the site and a description of the site and object or structure to be surveyed. Coverage should also include any relevant period terms.
Creators	Full name and organization(s) of the surveyor(s)
Identifiers	Project or reference numbers (e.g. HABS/HAER/HALS survey number) used to identify the dataset.
Dates	Date or dates that the survey was conducted in both the field and/or lab.
Intended accuracy or scale of the survey	The originally intended accuracy or scale that the survey was to achieve.
Make & model of camera(s) and lens(es)	Detailed make and model of the camera and lens used for the survey. List the associated calibration files if applicable.

Description of reference information used	Describe any existing reference information available to the surveyor(s), including paper plans or digital spatial data of the site or object.
Additional project notes	Any additional project notes that the surveyor feels applicable.

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