



Integrating the Geospatial Workplace



New Features in TerraPhoto


GeoCue User Group Meeting
 ASPRS 2012
 Sacramento, CA
 20 March 2012

GeoCue Corporation
 9668 Madison Blvd., Suite 202
 Madison, AL 35758
 +1 (256) 461-8289
www.geocue.com



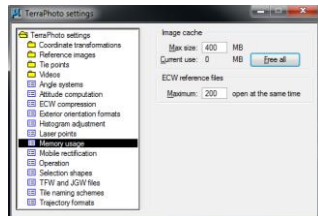
GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA

Integrating the Geospatial Workplace




Various Improvements

- Saves settings when you close **Settings** dialog
- **Settings** tool and **Memory** category shows how much cache is currently using
 - **Free all** frees everything in the cache



- Ability to open several image list files using **Images / Load list** menu command



GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA

GeoCue Integrating the Geospatial Workplace

Shadow map creation

- Removed from automatic tie point and color point searches
- Dedicated **Utility / Compute shadow maps** menu command

Compute shadow maps

Compute: All images

Use points: Project points


Classes: 4-6,9-11 >>

Minimum height: 0.50 m

Use surface objects

Levels: 1,4

OK Cancel

 Terrasolid

GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA

GeoCue Integrating the Geospatial Workplace

Multiple Raw Image Directories

- Cameras in mission definition can now have multiple raw image locations
- Makes it possible:
 - Divide large image sets to multiple hard disks
 - To organize images by flight/drive session

Mission camera

Name: Camera 1

Camera file: D:\hut200\mission\hut200.caf Browse...

Positions: Normal

Format: TIFF 3*8 bit

Numbering: Last number in file name


Image directories

D:\hut200\images1


E:\hut200_images2

Add... Edit... Delete...

OK Cancel


 Terrasolid


GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA



Integrating the Geospatial Workplace

Grey Balance Correction

- Better correction model in **Define Color Corrections** for RGB / grey balance
- Tool for probing grey balance in images




GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA


Integrating the Geospatial Workplace

Trimble MX8 Camera Calibration

- **Define Camera** has **Tools / Convert from / Trimble MX8** calibration converts from Trimble calibration to TerraPhoto calibration

4 Digital Camera System

User Ref.	User Description	Brand	Model	Serial
BP	Back Pavement	PT-Grey	Goeshopper GRAS-5050C	10340090
FC	Front Central	PT-Grey	Goeshopper GRAS-5050C	10340093
FL	Front Left	PT-Grey	Goeshopper GRAS-5050C	10327138
FR	Front Right	PT-Grey	Goeshopper GRAS-5050C	10340096

4.1 Exterior Camera Calibration

Reference Axis Rule: X= Right positive, Y= Forward positive, Z= Up positive

User Ref. (name)	X (m)	Y (m)	Z (m)	Roll (deg)	Pitch (deg)	Yaw (deg)
BP	-0.002	-0.034	0.018	39.8	-36.2	39.2
FC	-0.002	0.451	0.196	-6.48	0	-4.25
FL	-0.037	0.403	0.196	-46.2	8.3	0.15
FR	0.099	0.403	0.196	44.46	-0.25	-0.18

4.2 Interior Camera Calibration

	BP	FC	FL	FR
Units	8.5mm	8.5mm	8.5mm	8.5mm
Focal	-8.52895384	-8.53223527	-8.52667713	-8.53971874
K1	0.00027596	0.00005892	0.00028423	0.00028798
K2	0.00001038	-0.0000247	-0.00001774	-0.00004772
K3	-0.00001322	-0.00000488	-0.00000627	0.00000624
P1	0.00000087	0.00005727	-0.00000082	0.00000084
P2	-0.00000987	-0.00001016	-0.00012824	-0.00016204
P3	0	0	0	0
Xpp	-0.00000083	0.02960111	0.00000004	-0.00000006
Ypp	0.12554882	-0.00002761	-0.14610304	0.14622213
Pixel size	0.000345	0.000345	0.000345	0.000345
P4	0.000345	0.000345	0.000345	0.000345
P5	-0.00000002	-0.00000008	0.00000003	-0.00000006
P6	0.00000008	0.00001273	-0.00001752	0.000015417

Conversion - F:\jyvaskyla\mission\bp.cvc

File

Exterior camera calibration

X: -0.0220 m

Y: -0.2340 m

Z: 0.0150 m

Heading: 178.900 deg

Roll: -0.500 deg

Pitch: -19.200 deg

Interior camera calibration

Focal: -8.528052 mm

K1: 2.175940E-003

K2: 1.038000E-005

K3: -1.320000E-006


P1: 6.867000E-005

P2: -4.987000E-005

Xpp: 0.03894 mm

Ypp: 0.12355 mm

Pixel size: 0.00345000


GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA

GeoCue Integrating the Geospatial Workplace

Trimble MX8 & Compute List

- **Compute list** supports Trimble MX8 .dbf files as timing source
- MX8 image files organized into a specific folder structure
- MX8 image file names are not unique and therefore not usable for TerraPhoto directly
- Routine moves or copies image files and renames to be suitable for TerraPhoto
- For example \BP_20111005(2)\00032.jpg becomes 1_111005_002_00032.jpg

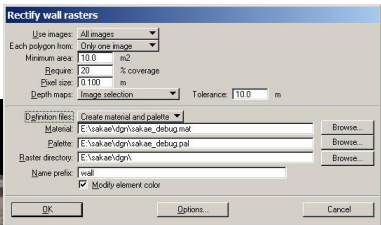
Terrasolid

GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA

GeoCue Integrating the Geospatial Workplace

Rectify / Wall rasters


- Creates visualization rasters for walls
- First version produces reasonable results from oblique airborne images



Terrasolid

GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA

Integrating the Geospatial Workplace



Compute Depth Maps for Airborne

- Can now compute depth maps for airborne images
- Needed for wall rasters

Compute depth maps

Compute: All images

Resolution: 2*2 pixels

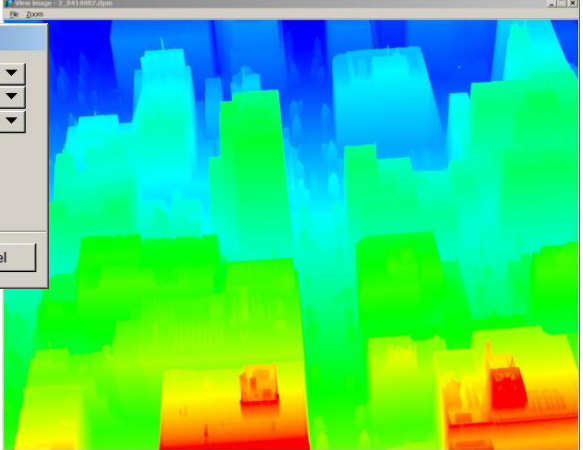
Use points: Project points


Use every: 1 th point

Classes: 2,5,6 >>

Max depth: 600 m


OK Cancel





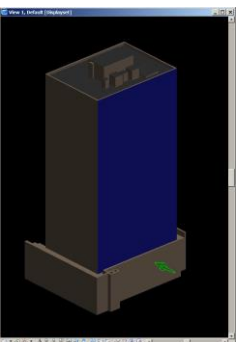
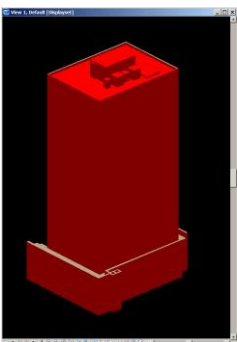
GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA


Integrating the Geospatial Workplace




Building Plane Normal Directions

- MicroStation shapes have a normal vector
- Must point to outside of wall for **Rectify / Wall rasters**
- Building models coming from other sources may have bad normal vector directions
- **Define Rendering Settings** has a setting for how back side of shapes will be colored (to find bad normals)









GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA



Integrating the Geospatial Workplace

Fix Building Normals

- Fixes directions of polygon normal vectors
- Method:
 - **Swap all** – changes every selected polygon
 - **Fix using geometry** – compares touching polygons and decides what is inside/outside
 - **Fix using images** – turns so that TerraPhoto raw images see the outside better than the inside
 - **Fix using view** – turns polygons so that user sees outside of polygons in a selected view



GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA


Integrating the Geospatial Workplace

Import Pictometry Survey

- Reads Pictometry shot data
 1. Creates camera calibration files
 2. Creates a mission definition
 3. Creates an image list
- Requires tab delimited text file with column labels:

NAME	IMAGENAME
OMEGA	IMAGEEXT
PHI	OMEGA
KAPPA	PHI
X COORD	KAPPA
Y COORD	CAMERAX
ALTITUDE	CAMERAY
X PP OFFSET	ALT
Y PP OFFSET	PPX
FOCAL LENGTH	PPY
FOCAL WIDTH	FOCALLEN
FOCAL HEIGHT	IMAGECOLS
K1	IMAGEROWS
K2	K1
K3	K2
GPS TIME	K3


GeoCue User Group Meeting – ASPRS 2012 – Sacramento, CA