CE 503 Homework 4 – Triangulation and Map Compilation

•Each student should prepare a .blk file with 4 attached images: 1_4.tif, 1_6.tif, 1_8.tif, and 1_10.tif. These are located in \\Geomatics\data\share\bethel\ce603\block. The pyramid for each of these has already been computed.

•Import the exterior orientation as an ascii file from the ce503\erdas folder as above. The filename is str1.dat. Units are meters and radians, rotation order is omega, phi, kappa. Reference coordinate system is Indiana State Plane West (1302 ??).

•Enter new camera data from the calibration report (Dickerson ’98 – Wild RC10). Use principal point of “best symmetry” and use the “field angle & distortion” option for radial lens distortion.

•When data entered, then perform interior orientation (measure fiducials and compute the transformation, RMSE < 1.0 pixels (30 um))

•Confirm that it works by showing that you can bring up any of the 3 models with a parallax free view and being consistent with the 3 check points shown on next page

•See map index with name for the portion of the project that you are to compile

•Collect (planimetry) 1. Road, edge of pavement, 2. Sidewalk, 3. Building footprint (usually collected at roofline), 4. Parking lot, 5. Tree/vegetation, (topo) 1. ~100 – 200 evenly distributed points to determine terrain model.

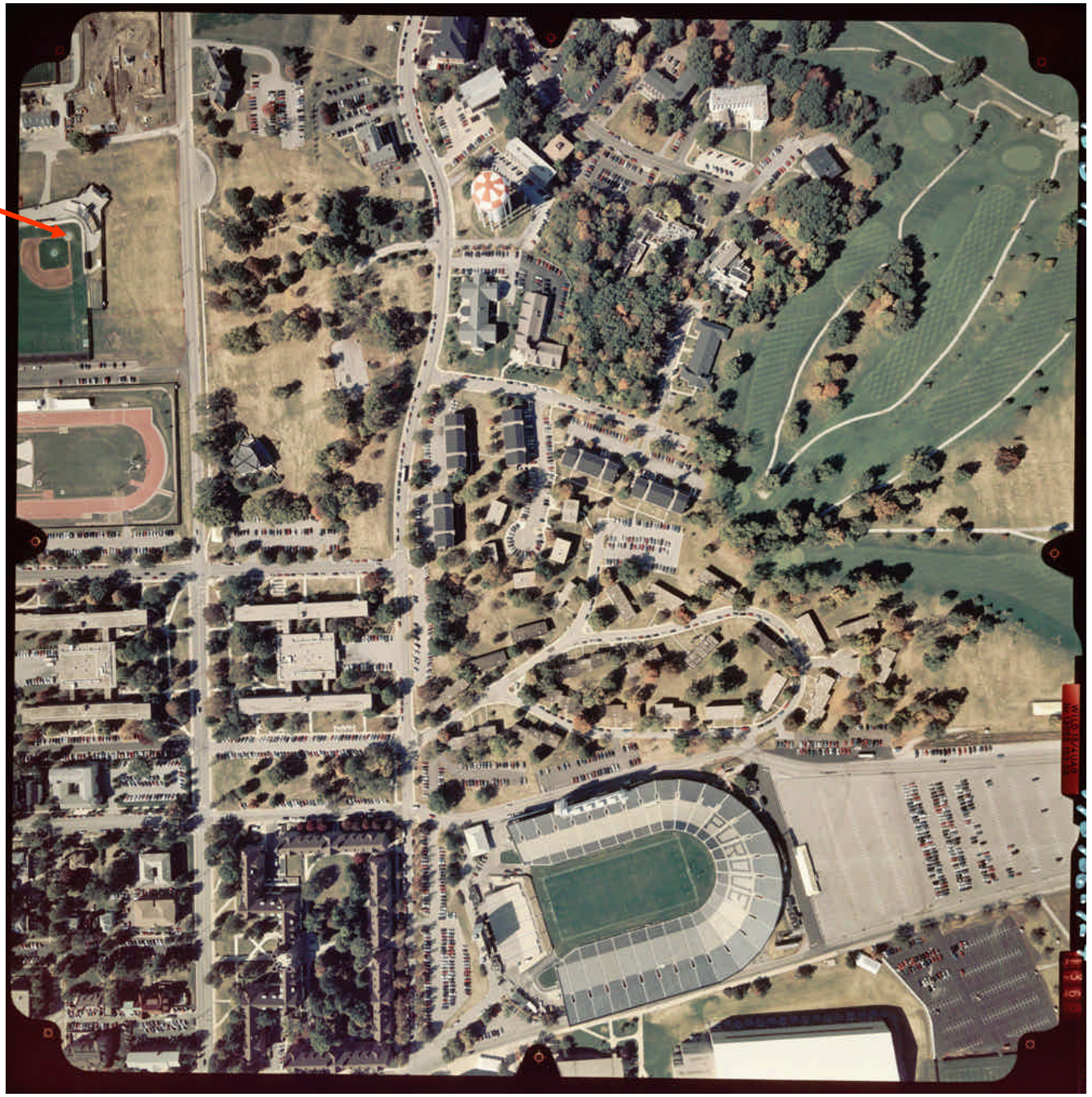
Center of “home plate” circle on baseball field

E 913443.3

N 575337.3

H 188.6

Checkpoint for models 1_4/1_6 and 1_6/1_8



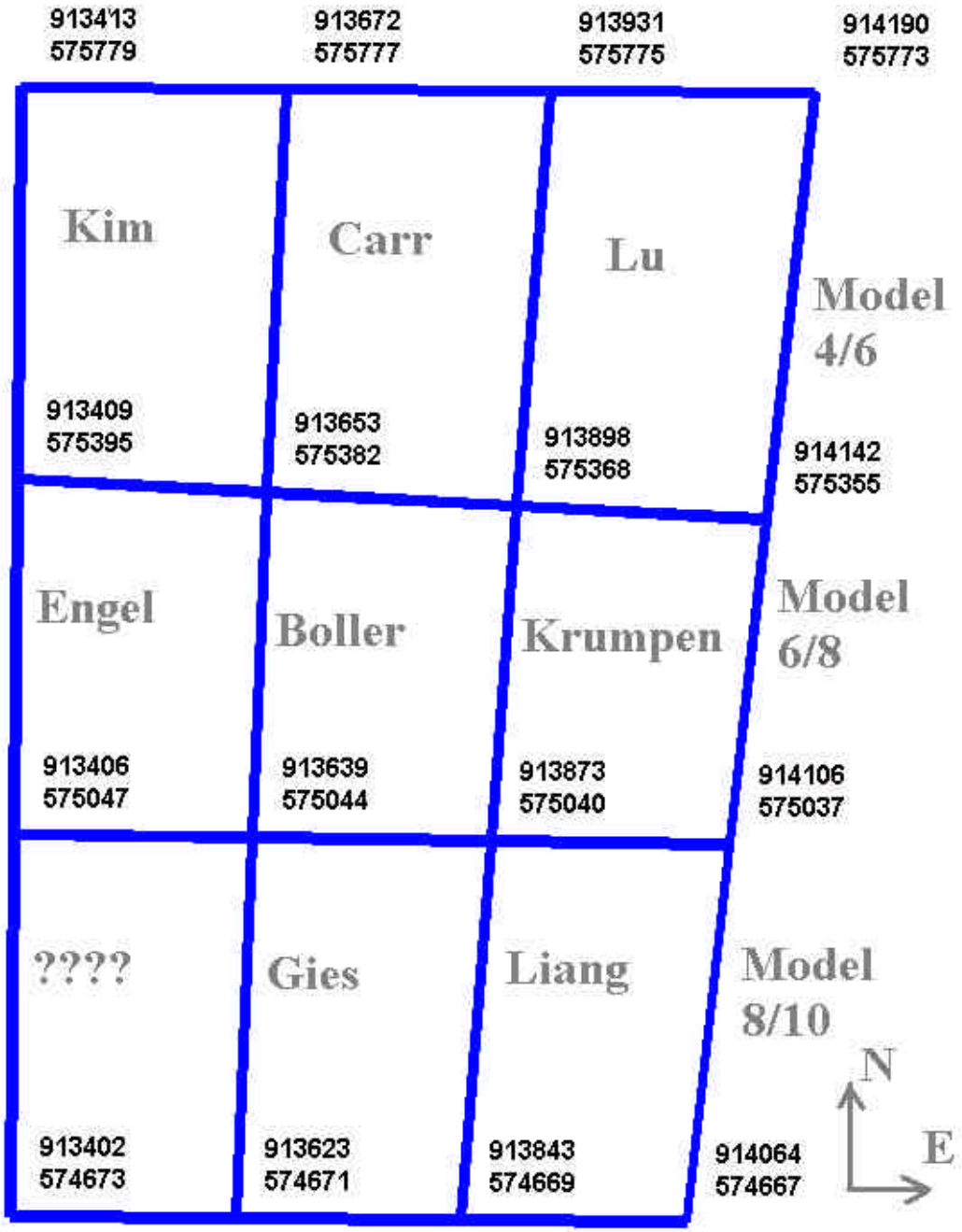
Sidewalk intersection, E side of N/W walk, S side of E/W walk

E 913724.3

N575045.4

H 188.8

Checkpoint for model 1_8/1_10



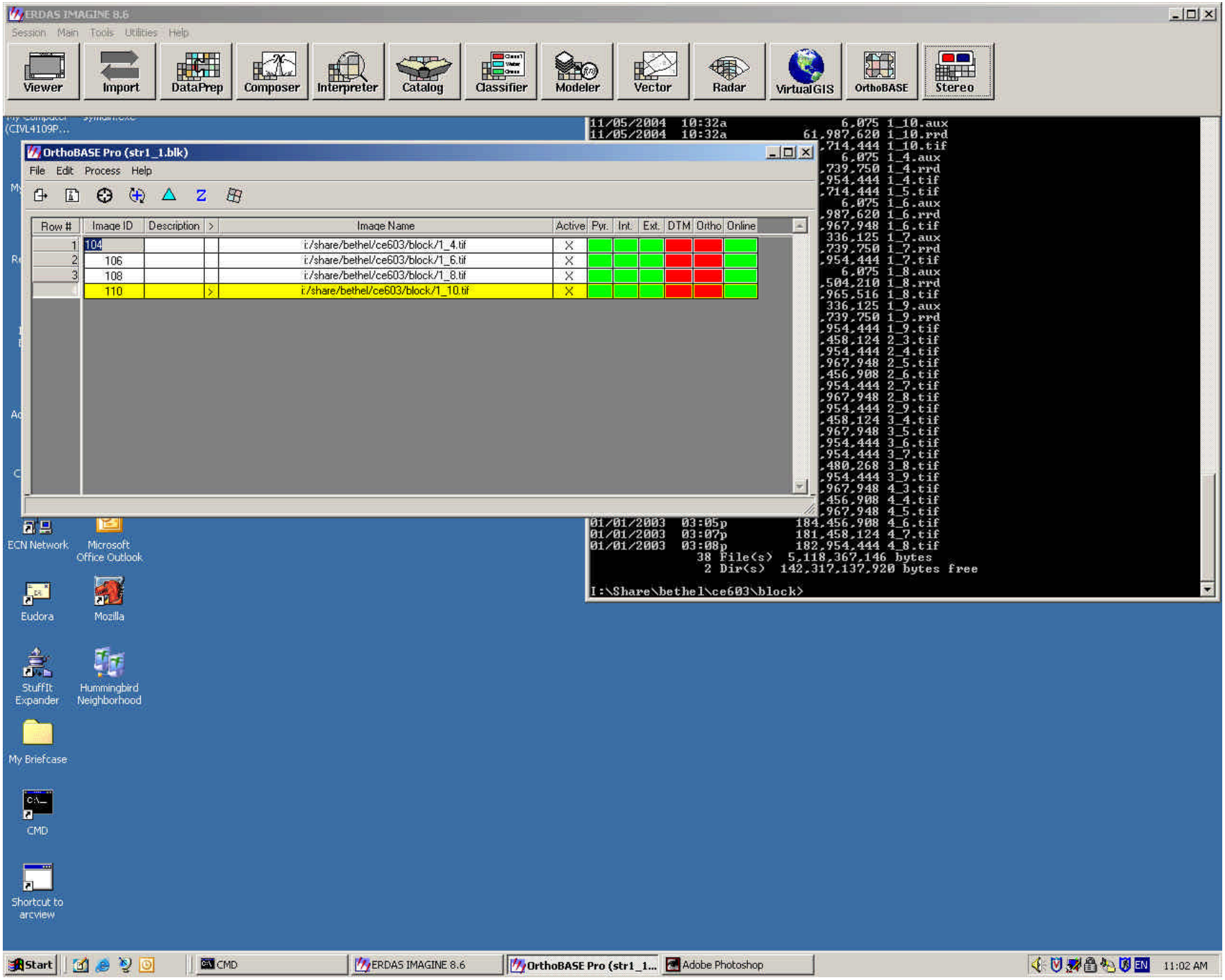
Assignment of model segments to individuals.

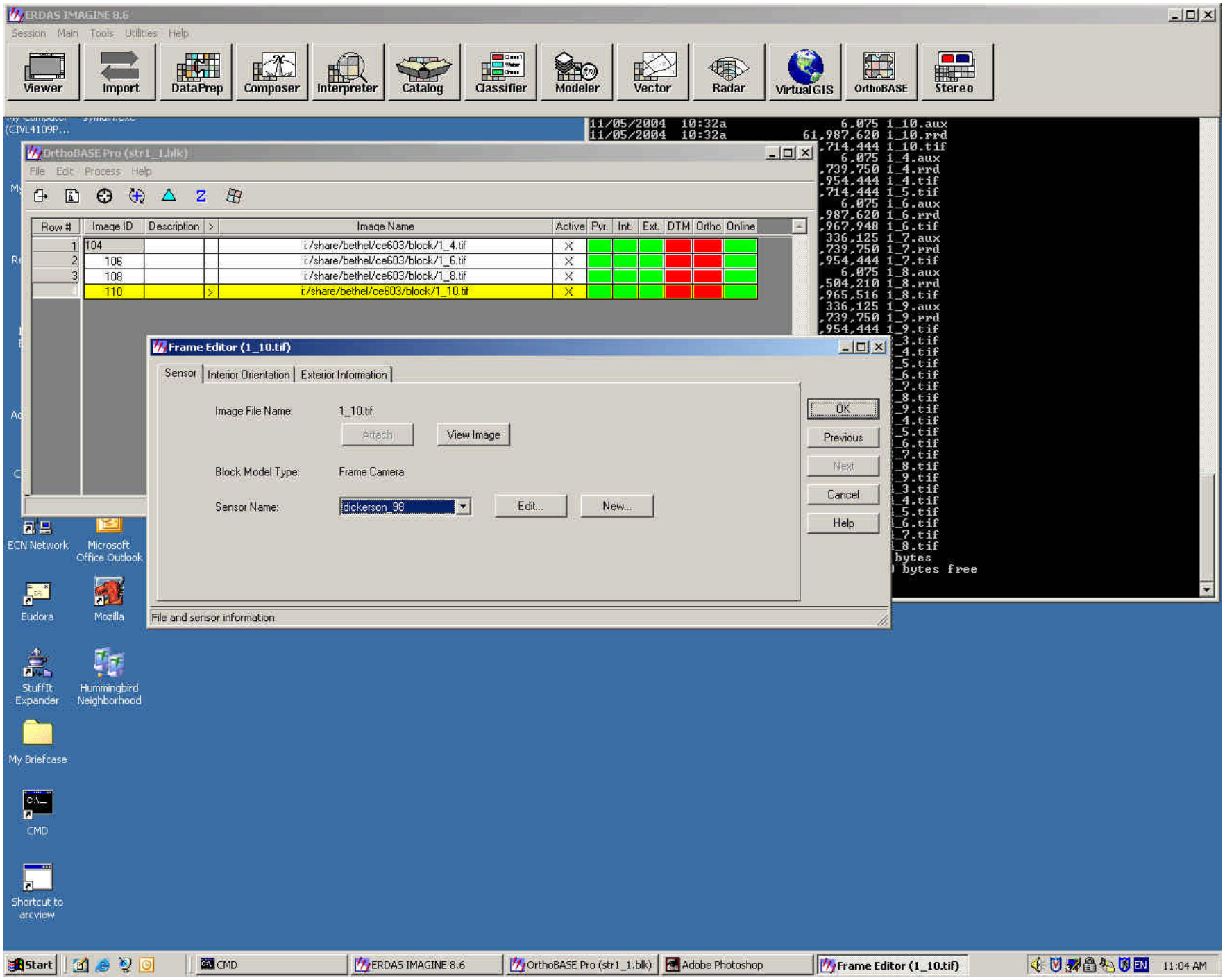
Depending on the order you enter the photos, you will either be viewing the models from the east or from the west. Either way should work.

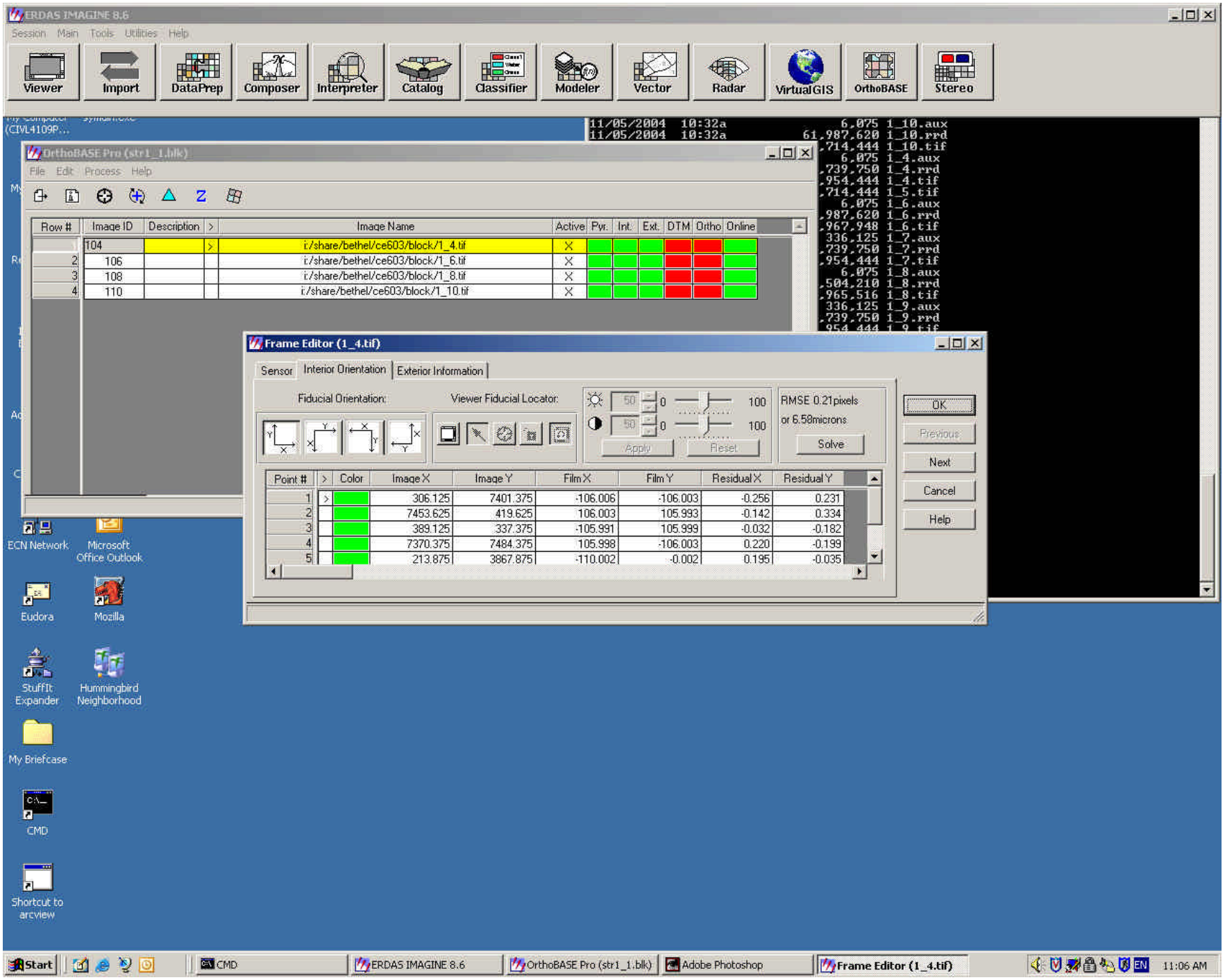
Following are a listing of the exterior orientation ascii file, and then some screen shots of the erdas/orthobase and stereo dialogues.

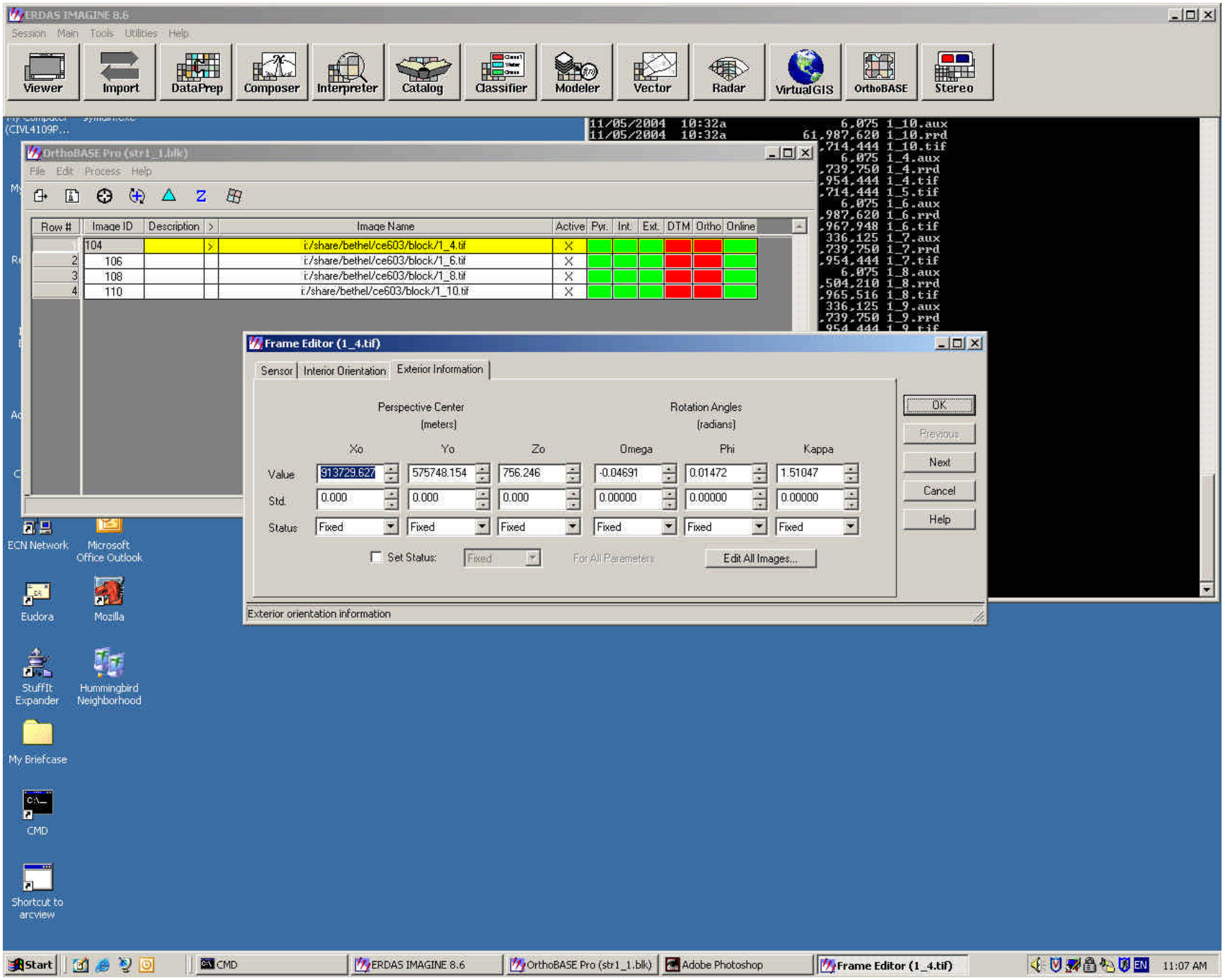
str1.txt

104	ph_1_04	913729.627	575748.154	756.246	-0.046909	0.014723	1.510469
106	ph_1_06	913726.041	575407.788	761.432	-0.016416	-0.007173	1.510695
108	ph_1_08	913726.084	575050.276	761.497	-0.001294	0.011821	1.530523
110	ph_1_10	913737.117	574695.466	758.008	-0.004458	-0.027589	1.541427


ERDAS IMAGINE 8.6
Session Main Tools Utilities Help
Viewer Import DataPrep Composer Interpreter Catalog Classifier Modeler Vector Radar VirtualGIS OrthoBASE Stereo
OrthoBASE Pro (str1_1.blk)
File Edit Process Help
Row # Image ID Description Image Name Active Pyr. Int. Ext. DTM Ortho Online
1 104 i:/share/bethel/ce603/block/1_4.tif X
2 106 i:/share/bethel/ce603/block/1_6.tif X
3 108 i:/share/bethel/ce603/block/1_8.tif X
110 i:/share/bethel/ce603/block/1_10.tif X
11/05/2004 10:32a 6,075 1_10.aux
11/05/2004 10:32a 61,987,620 1_10.rrd
,714,444 1_10.tif
6,075 1_4.aux
,739,750 1_4.rrd
,954,444 1_4.tif
,714,444 1_5.tif
6,075 1_6.aux
,987,620 1_6.rrd
,967,948 1_6.tif
336,125 1_7.aux
,739,750 1_7.rrd
,954,444 1_7.tif
6,075 1_8.aux
,504,210 1_8.rrd
,965,516 1_8.tif
336,125 1_9.aux
,739,750 1_9.rrd
,954,444 1_9.tif
,458,124 2_3.tif
,954,444 2_4.tif
,967,948 2_5.tif
,456,908 2_6.tif
,954,444 2_7.tif
,967,948 2_8.tif
,954,444 2_9.tif
,458,124 3_4.tif
,967,948 3_5.tif
,954,444 3_6.tif
,954,444 3_7.tif
,480,268 3_8.tif
,954,444 3_9.tif
,967,948 4_3.tif
,456,908 4_4.tif
,967,948 4_5.tif
01/01/2003 03:05p 184,456,908 4_6.tif
01/01/2003 03:07p 181,458,124 4_7.tif
01/01/2003 03:08p 182,954,444 4_8.tif
38 File(s) 5,118,367,146 bytes
2 Dir(s) 142,317,137,920 bytes free
I:\Share\bethel\ce603\block>
ECN Network
Microsoft Office Outlook
Eudora
Mozilla
StuffIt Expander
Hummingbird Neighborhood
My Briefcase
CMD
Shortcut to arcview
Start
CMD
ERDAS IMAGINE 8.6
OrthoBASE Pro (str1_1...
Adobe Photoshop
11:02 AM


ERDAS IMAGINE 8.6
Session Main Tools Utilities Help
Viewer
Import
DataPrep
Composer
Interpreter
Catalog
Classifier
Modeler
Vector
Radar
VirtualGIS
OrthoBASE
Stereo
OrthoBASE Pro (str1_1.blk)
File Edit Process Help
Row # | Image ID | Description | Image Name | Active | Pyr. | Int. | Ext. | DTM | Ortho | Online
1 | 104 | i:/share/bethel/ce603/block/1_4.tif | X
2 | 106 | i:/share/bethel/ce603/block/1_6.tif | X
3 | 108 | i:/share/bethel/ce603/block/1_8.tif | X
110 | i:/share/bethel/ce603/block/1_10.tif | X
Frame Editor (1_10.tif)
Sensor | Interior Orientation | Exterior Information
Image File Name: 1_10.tif
Attach
View Image
Block Model Type: Frame Camera
Sensor Name: dickerson_98
Edit...
New...
OK
Previous
Next
Cancel
Help
File and sensor information
11/05/2004 10:32a 6,075 1_10.aux
11/05/2004 10:32a 61,987,620 1_10.rrd
,714,444 1_10.tif
6,075 1_4.aux
,739,750 1_4.rrd
,954,444 1_4.tif
,714,444 1_5.tif
6,075 1_6.aux
,987,620 1_6.rrd
,967,948 1_6.tif
336,125 1_7.aux
,739,750 1_7.rrd
,954,444 1_7.tif
6,075 1_8.aux
,504,210 1_8.rrd
,965,516 1_8.tif
336,125 1_9.aux
,739,750 1_9.rrd
,954,444 1_9.tif
bytes
bytes free
ECN Network
Microsoft Office Outlook
Eudora
Mozilla
StuffIt Expander
Hummingbird Neighborhood
My Briefcase
CMD
Shortcut to arcview
Start
CMD
ERDAS IMAGINE 8.6
OrthoBASE Pro (str1_1.blk)
Adobe Photoshop
Frame Editor (1_10.tif)
11:04 AM


ERDAS IMAGINE 8.6
Session Main Tools Utilities Help
Viewer Import DataPrep Composer Interpreter Catalog Classifier Modeler Vector Radar VirtualGIS OrthoBASE Stereo
11/05/2004 10:32a 6,075 1_10.aux
11/05/2004 10:32a 61,987,620 1_10.rrd
,714,444 1_10.tif
6,075 1_4.aux
,739,750 1_4.rrd
,954,444 1_4.tif
,714,444 1_5.tif
6,075 1_6.aux
,987,620 1_6.rrd
,967,948 1_6.tif
336,125 1_7.aux
,739,750 1_7.rrd
,954,444 1_7.tif
6,075 1_8.aux
,504,210 1_8.rrd
,965,516 1_8.tif
336,125 1_9.aux
,739,750 1_9.rrd
OrthoBASE Pro (str1_1.blk)
File Edit Process Help
Row # Image ID Description Image Name Active Pyr. Int. Ext. DTM Ortho Online
1 104 i:/share/bethel/ce603/block/1_4.tif X
2 106 i:/share/bethel/ce603/block/1_6.tif X
3 108 i:/share/bethel/ce603/block/1_8.tif X
4 110 i:/share/bethel/ce603/block/1_10.tif X
Frame Editor (1_4.tif)
Sensor Interior Orientation Exterior Information
Fiducial Orientation:
Viewer Fiducial Locator:
50 0 100
50 0 100
Apply Reset
RMSE 0.21pixels
or 6.58microns
Solve
OK
Previous
Next
Cancel
Help
Point # Color Image X Image Y Film X Film Y Residual X Residual Y
1 306.125 7401.375 -106.006 -106.003 -0.256 0.231
2 7453.625 419.625 106.003 105.993 -0.142 0.334
3 389.125 337.375 -105.991 105.999 -0.032 -0.182
4 7370.375 7484.375 105.998 -106.003 0.220 -0.199
5 213.875 3867.875 -110.002 -0.002 0.195 -0.035
ECN Network
Microsoft Office Outlook
Eudora
Mozilla
StuffIt Expander
Hummingbird Neighborhood
My Briefcase
CMD
Shortcut to arcview
Start
CMD
ERDAS IMAGINE 8.6
OrthoBASE Pro (str1_1.blk)
Adobe Photoshop
Frame Editor (1_4.tif)
11:06 AM


ERDAS IMAGINE 8.6
Session Main Tools Utilities Help
Viewer Import DataPrep Composer Interpreter Catalog Classifier Modeler Vector Radar VirtualGIS OrthoBASE Stereo
11/05/2004 10:32a 6,075 1_10.aux
11/05/2004 10:32a 61,987,620 1_10.rrd
,714,444 1_10.tif
6,075 1_4.aux
,739,750 1_4.rrd
,954,444 1_4.tif
,714,444 1_5.tif
6,075 1_6.aux
,987,620 1_6.rrd
,967,948 1_6.tif
336,125 1_7.aux
,739,750 1_7.rrd
,954,444 1_7.tif
6,075 1_8.aux
,504,210 1_8.rrd
,965,516 1_8.tif
336,125 1_9.aux
,739,750 1_9.rrd
OrthoBASE Pro (str1_1.blk)
File Edit Process Help
Row # Image ID Description Image Name Active Pyr. Int. Ext. DTM Ortho Online
1 104 i:/share/bethel/ce603/block/1_4.tif X
2 106 i:/share/bethel/ce603/block/1_6.tif X
3 108 i:/share/bethel/ce603/block/1_8.tif X
4 110 i:/share/bethel/ce603/block/1_10.tif X
Frame Editor (1_4.tif)
Sensor Interior Orientation Exterior Information
Perspective Center (meters)
Rotation Angles (radians)
Xo Yo Zo Omega Phi Kappa
Value 913729.627 575748.154 756.246 -0.04691 0.01472 1.51047
Std. 0.000 0.000 0.000 0.00000 0.00000 0.00000
Status Fixed Fixed Fixed Fixed Fixed Fixed
Set Status: Fixed For All Parameters Edit All Images...
OK
Previous
Next
Cancel
Help
Exterior orientation information
ECN Network
Microsoft Office Outlook
Eudora
Mozilla
StuffIt Expander
Hummingbird Neighborhood
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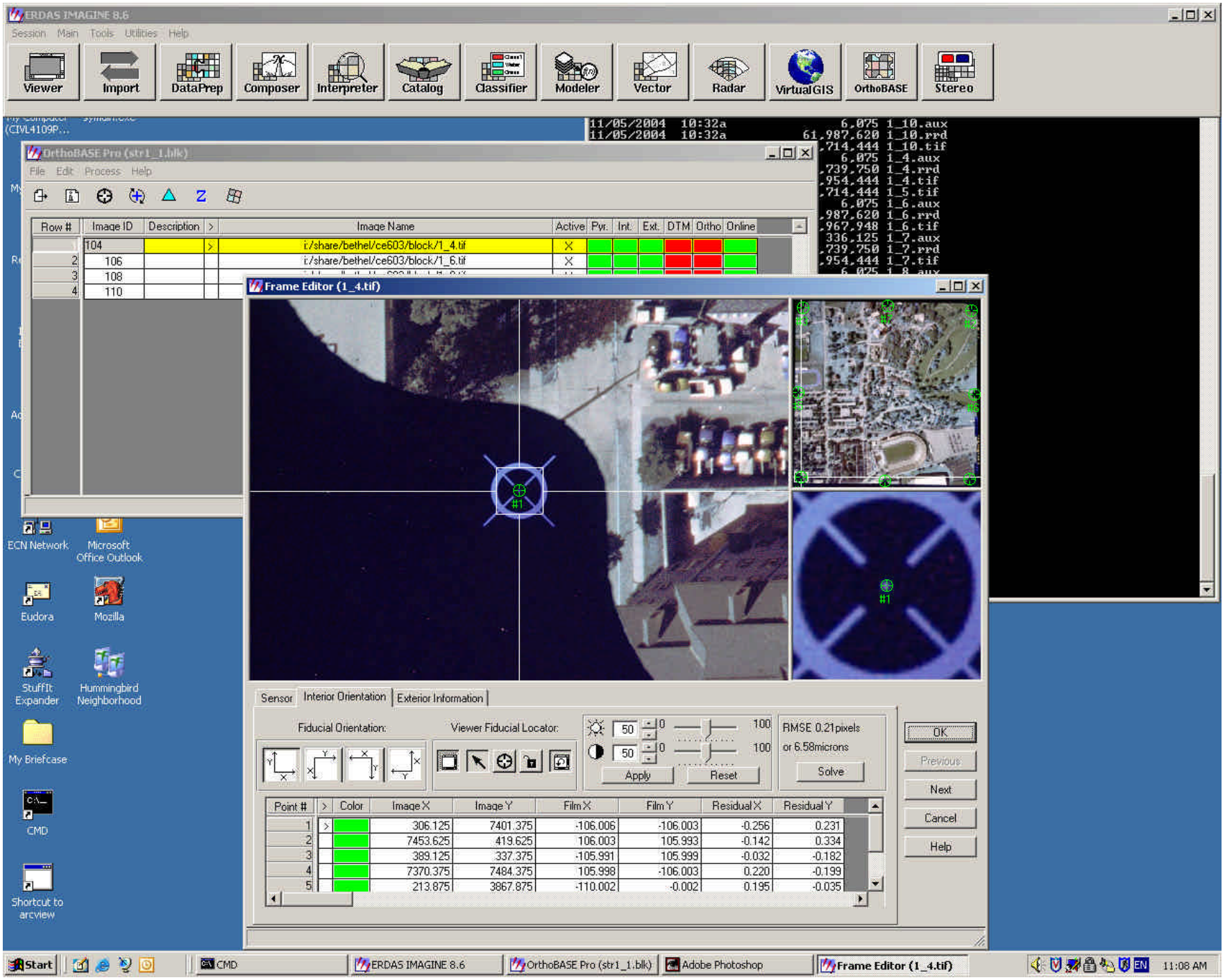
Adobe Photoshop
Frame Editor (1_4.tif)
11:07 AM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Viewer Import DataPrep Composer Interpreter Catalog Classifier Modeler Vector Radar VirtualGIS OrthoBASE Stereo
11/05/2004 10:32a 6,075 1_10.aux
11/05/2004 10:32a 61,987,620 1_10.rrd
,714,444 1_10.tif
6,075 1_4.aux
,739,750 1_4.rrd
,954,444 1_4.tif
,714,444 1_5.tif
6,075 1_6.aux
,987,620 1_6.rrd
,967,948 1_6.tif
336,125 1_7.aux
,739,750 1_7.rrd
,954,444 1_7.tif
OrthoBASE Pro (str1_1.blk)
File Edit Process Help
Row # Image ID Description Image Name Active Pyr. Int. Ext. DTM Ortho Online
1 104 i:/share/bethel/ce603/block/1_4.tif X
2 106 i:/share/bethel/ce603/block/1_6.tif X
3 108
4 110
Frame Editor (1_4.tif)
#1
#1
Sensor Interior Orientation Exterior Information
Fiducial Orientation:
Viewer Fiducial Locator:
50 0 100
50 0 100
Apply Reset
RMSE 0.21pixels
or 6.58microns
Solve
OK
Previous
Next
Cancel
Help
Point # Color Image X Image Y Film X Film Y Residual X Residual Y
1 306.125 7401.375 -106.006 -106.003 -0.256 0.231
2 7453.625 419.625 106.003 105.993 -0.142 0.334
3 389.125 337.375 -105.991 105.999 -0.032 -0.182
4 7370.375 7484.375 105.998 -106.003 0.220 -0.199
5 213.875 3867.875 -110.002 -0.002 0.195 -0.035
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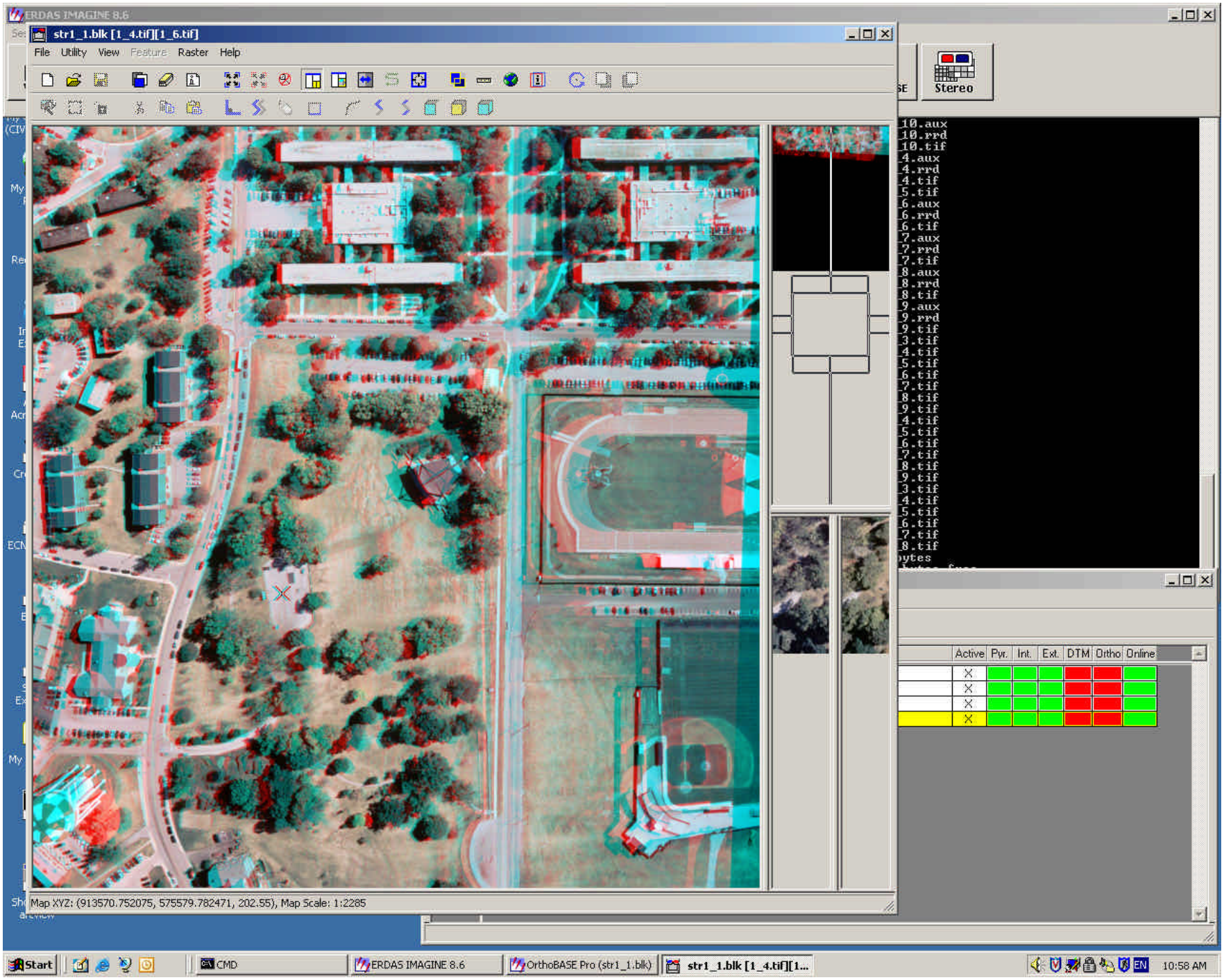
ERDAS IMAGINE 8.6
OrthoBASE Pro (str1_1.blk)
Adobe Photoshop
Frame Editor (1_4.tif)
11:08 AM


ERDAS IMAGINE 8.6
str1_1.blk [1_4.tif][1_6.tif]
File Utility View Feature Raster Help
Stereo
10.aux
10.rrd
10.tif
4.aux
4.rrd
4.tif
5.tif
6.aux
6.rrd
6.tif
7.aux
7.rrd
7.tif
8.aux
8.rrd
8.tif
9.aux
9.rrd
9.tif
3.tif
4.tif
5.tif
6.tif
7.tif
8.tif
9.tif
4.tif
5.tif
6.tif
7.tif
8.tif
9.tif
3.tif
4.tif
5.tif
6.tif
7.tif
8.tif
ytes
Active Pyr. Int. Ext. DTM Ortho Online
Map XYZ: (913570.752075, 575579.782471, 202.55), Map Scale: 1:2285
Start
CMD
ERDAS IMAGINE 8.6
OrthoBASE Pro (str1_1.blk)
str1_1.blk [1_4.tif][1...
10:58 AM