



Evaluating the Horizontal Accuracy of DigitalGlobe QuickBird II Orthorectified Products Over the Morrison, Colorado Test Site

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Products delivered from DigitalGlobe included:

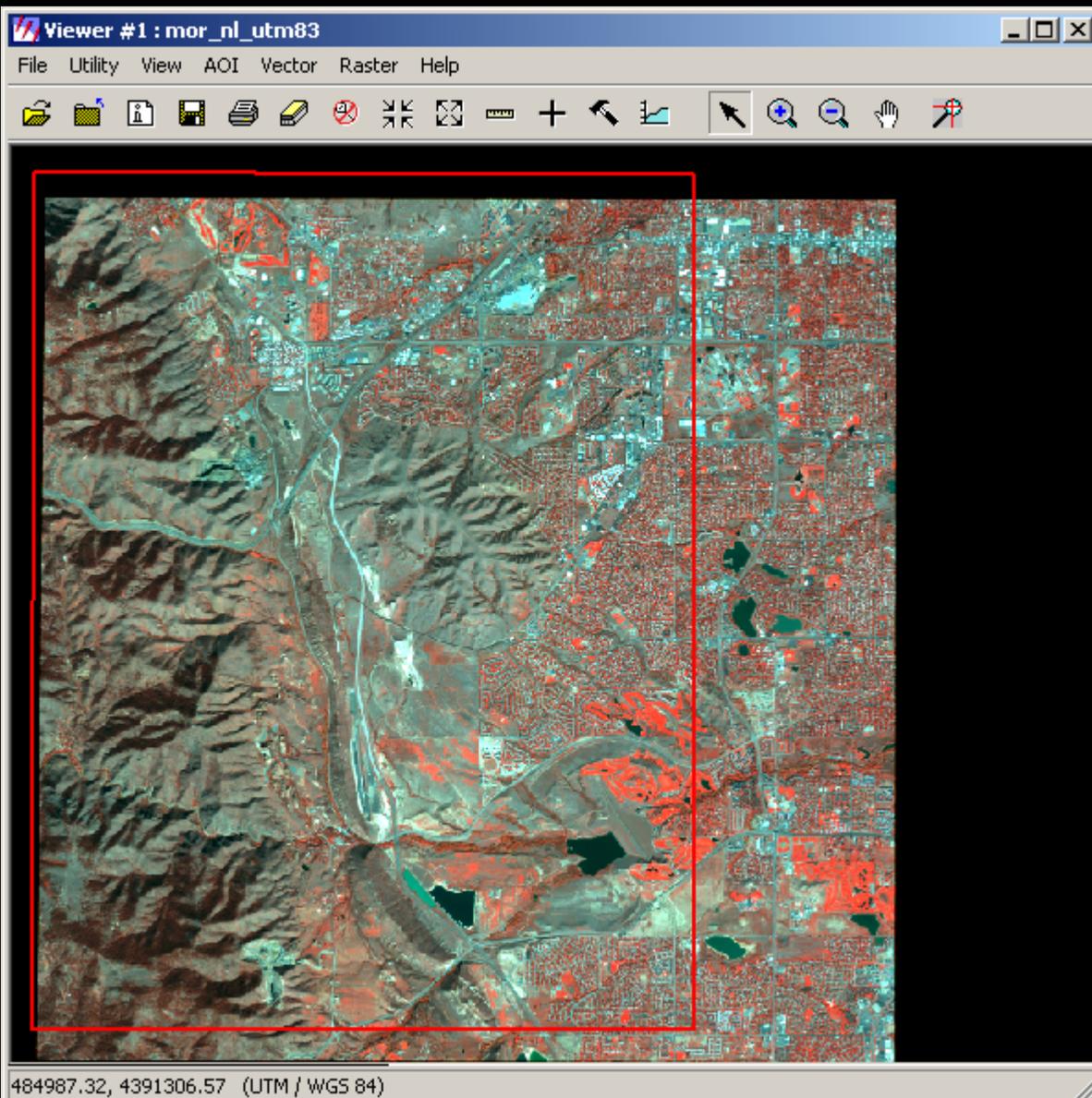
- OrthoRectified 3A Panchromatic and MSI at the 1:50,000-scale
- OrthoRectified 3C Panchromatic and MSI at the 1:24,000-scale
- OrthoRectified 3D Panchromatic and MSI at the 1:12,000-scale
- OrthoRectified 3E Panchromatic and MSI at the 1:10,000-scale

-Collection date of imagery **October 7, 2002**

-Delivered **December, 2002**



QuickBird II Evaluation

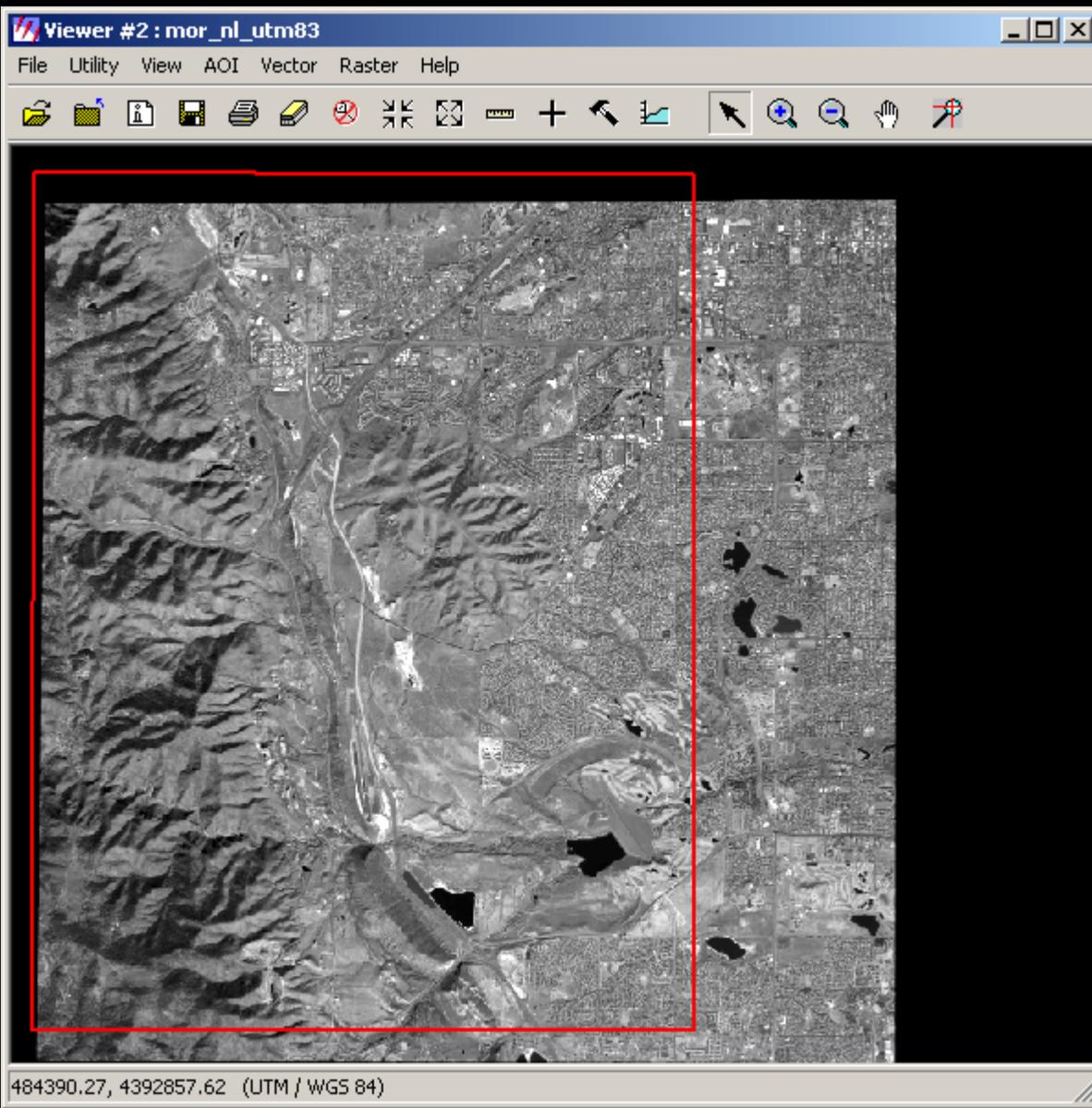


OrthoRectified Multispectral
24K image over Morrison, CO
overlaid with USGS quadrangle
outline

Approximately 169 meters on
the west side of the quad
boundary and 410 meters on
the north side of the quad
boundary were not included in
data delivery



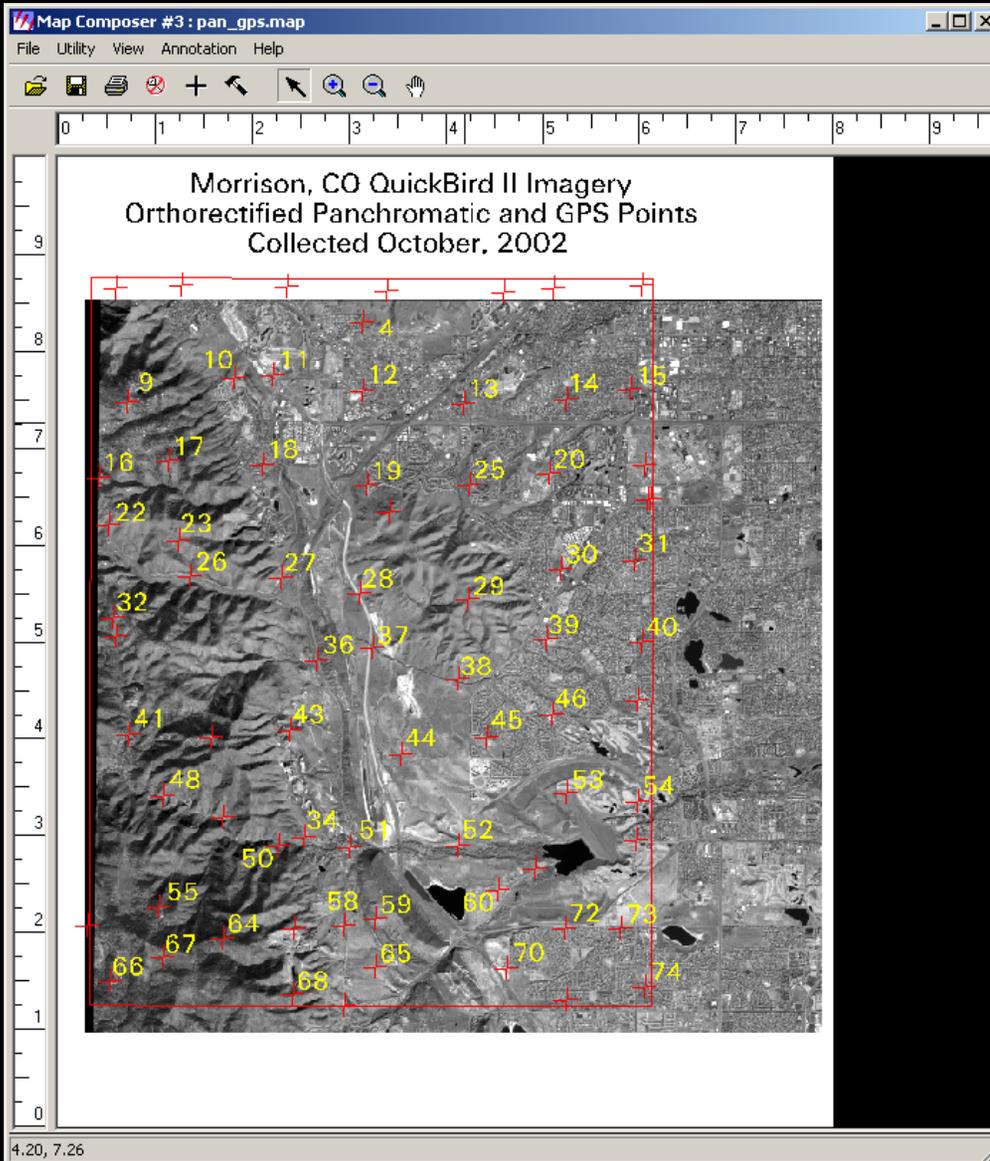
QuickBird II Evaluation



OrthoRectified Panchromatic
24K image over Morrison, CO
overlaid with USGS quadrangle
outline



QuickBird II Evaluation



Independently surveyed ground control points were established over the Morrison, CO quadrangle Oct-Dec, 2000

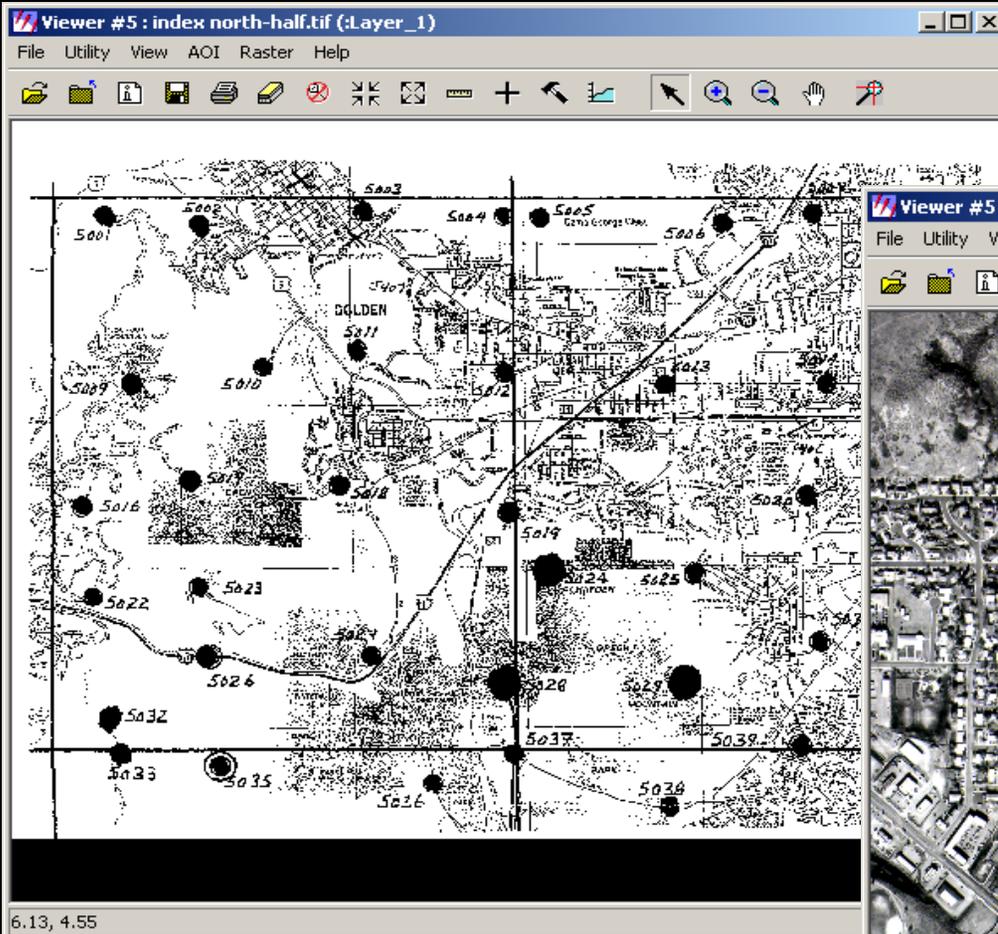
A network of 74 test points was collected using rapid static and static survey GPS collection methods

Approximately 53 points were used to test horizontal accuracy of QBII data for four scales – 10K, 12K, 24K, and 50K

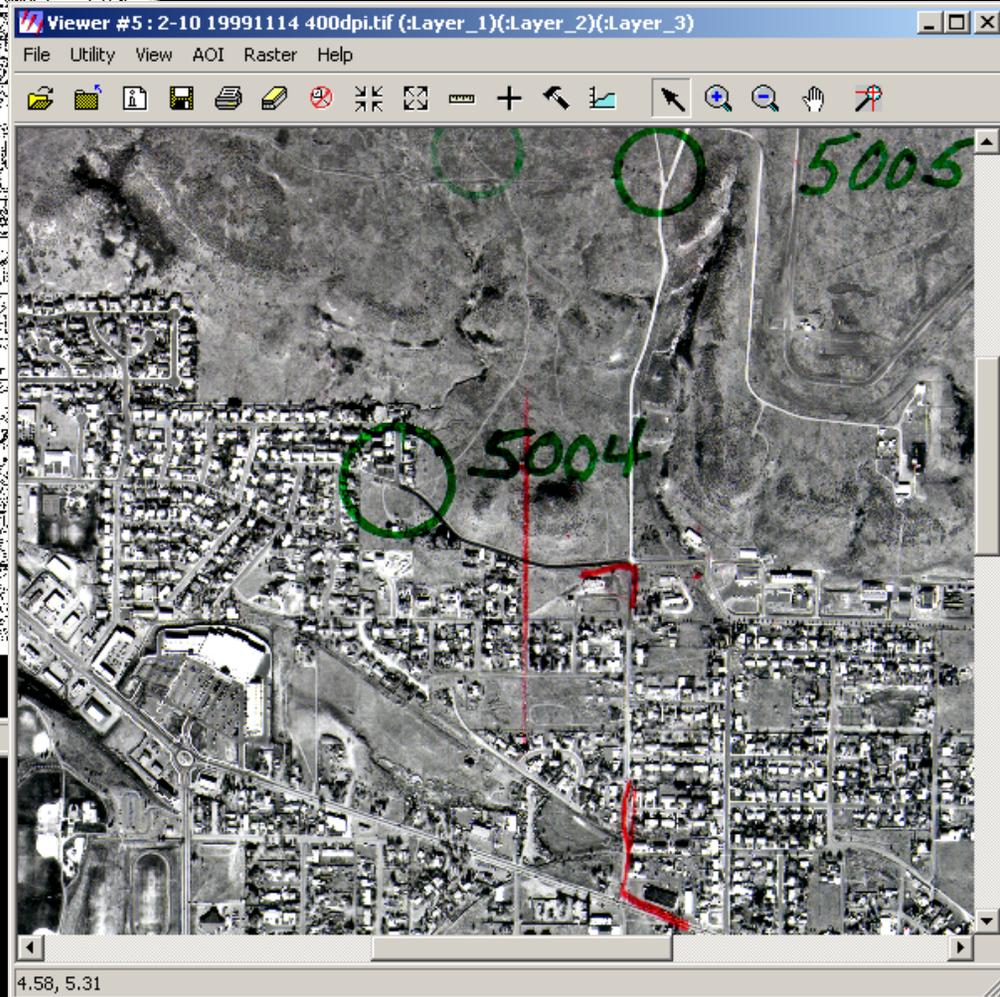


QuickBird II Evaluation

Ancillary Sources



Scanned index map

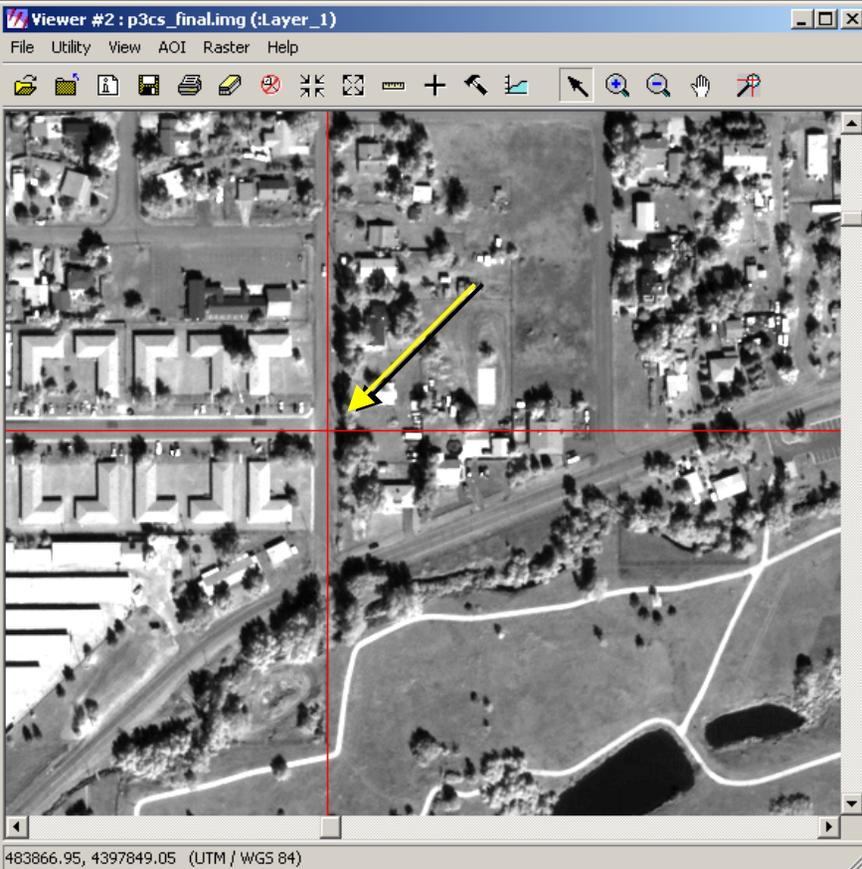


Scanned aerial photograph

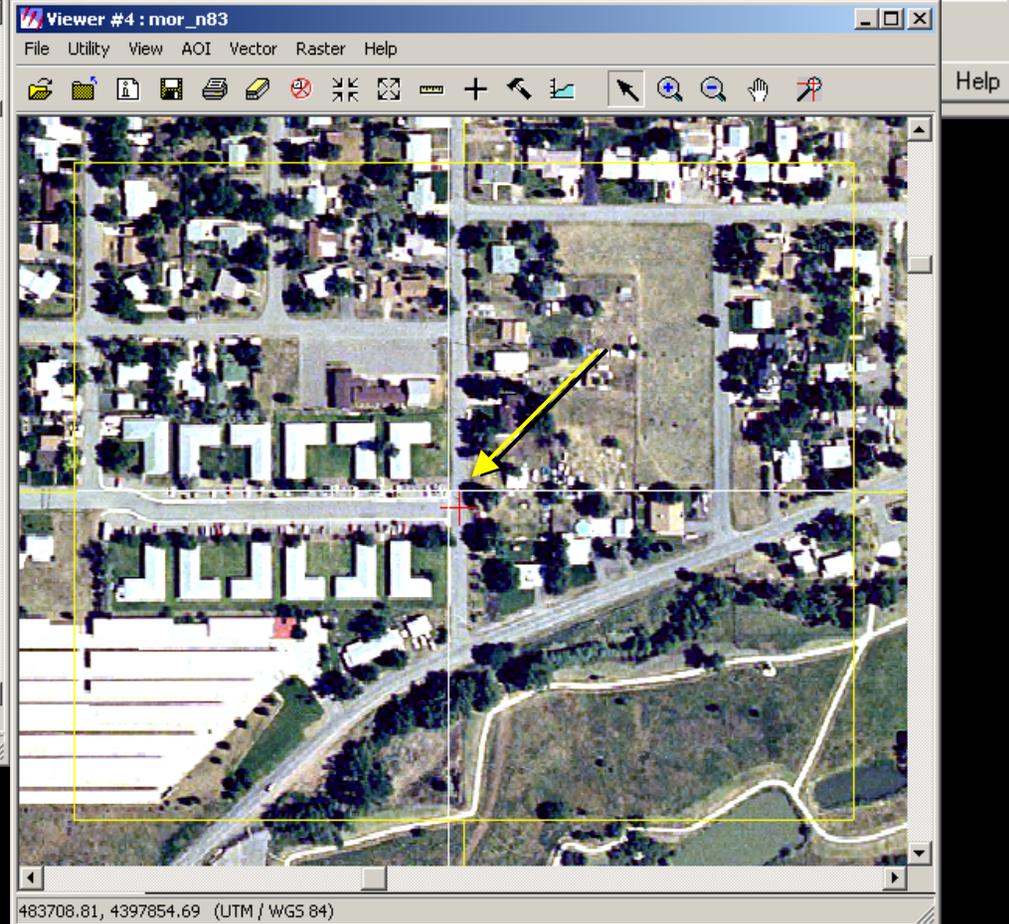
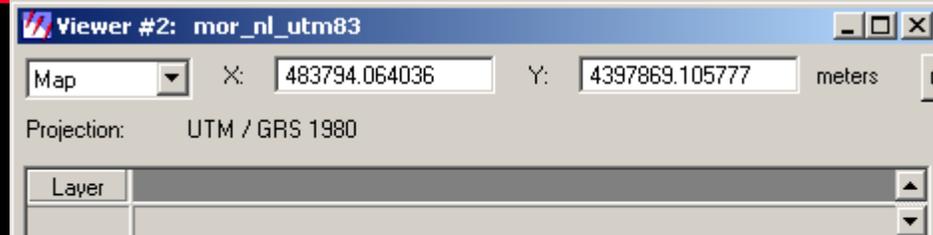


QuickBird II Evaluation

ERDAS Imagine 8.5 was used for measuring independent and test pts



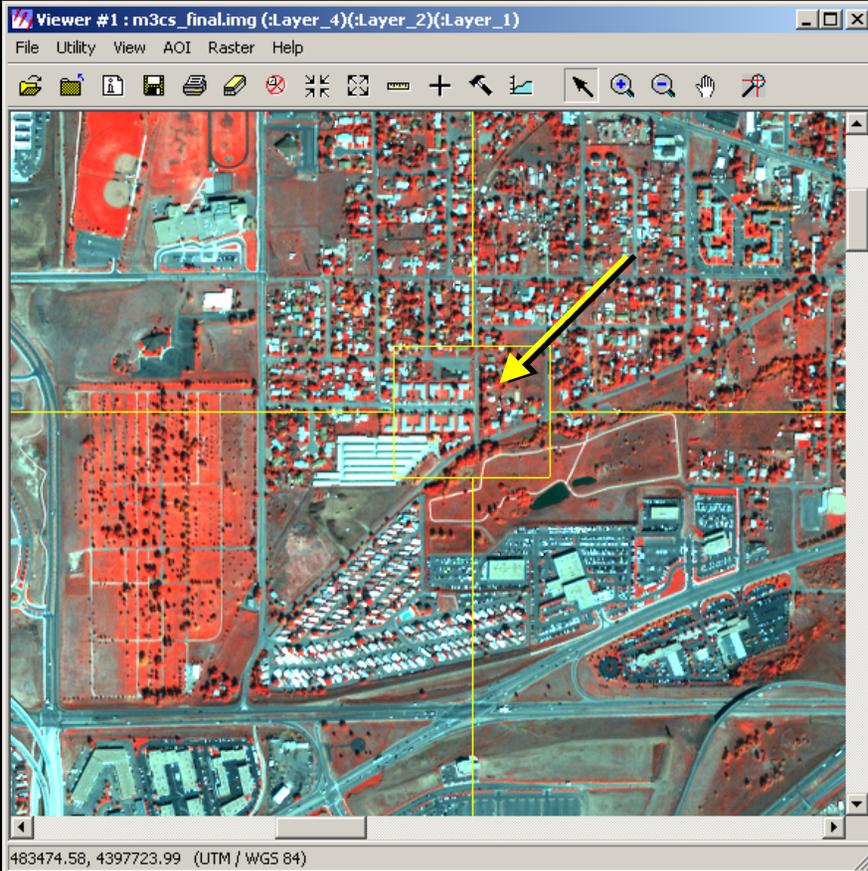
Panchromatic (0.7m) 24K image displayed at 'default zoom'



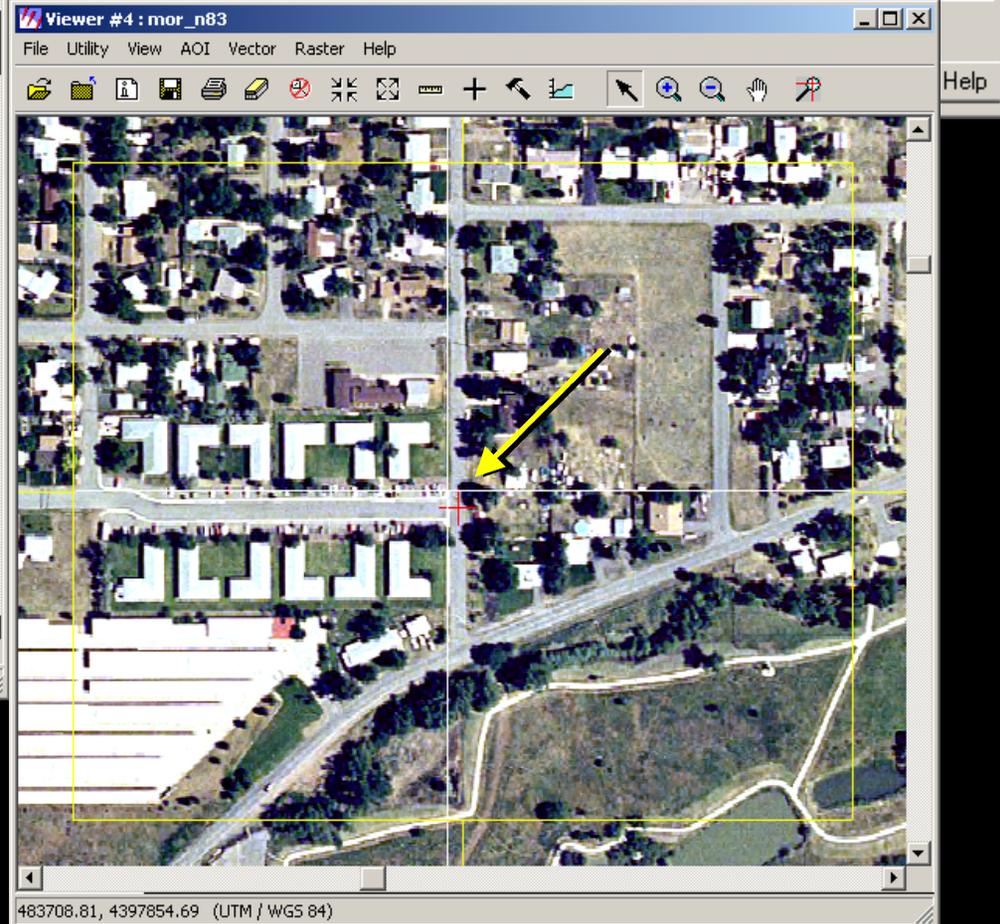
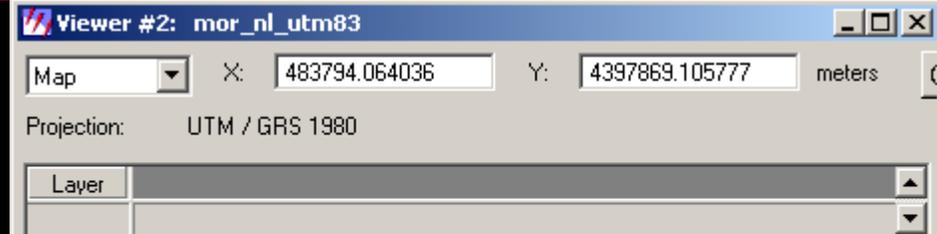
RTD data (1.5ft) and GPS point used as reference



QuickBird II Evaluation



Multispectral (2.8m) 24K image displayed at 'default zoom'

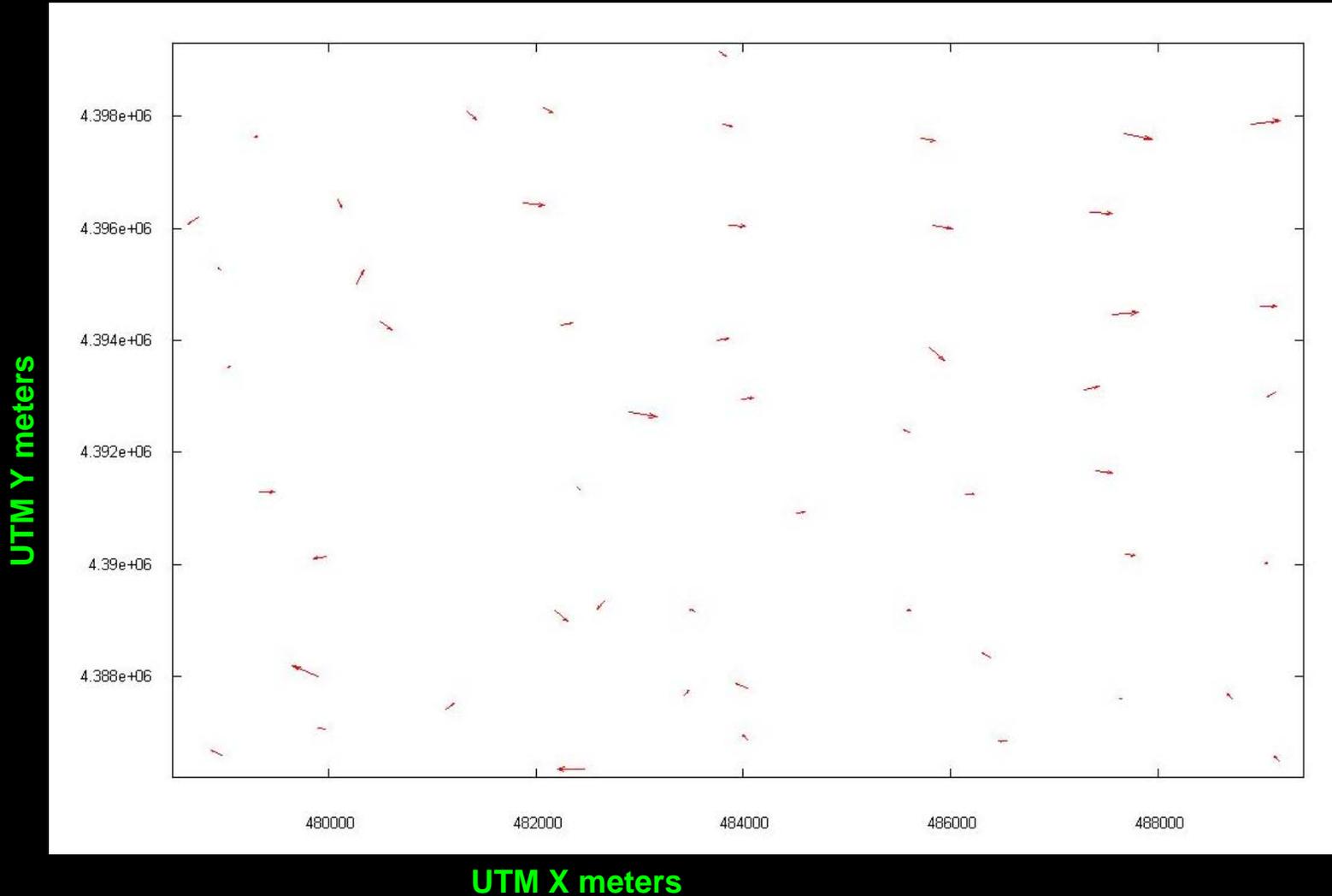


RTD data (1.5ft) and GPS point used as reference



QuickBird II Evaluation

**USGS Horizontal Accuracy Statistical Sampling for 24K
Independent GPS points used as control
Errors scaled 100x**

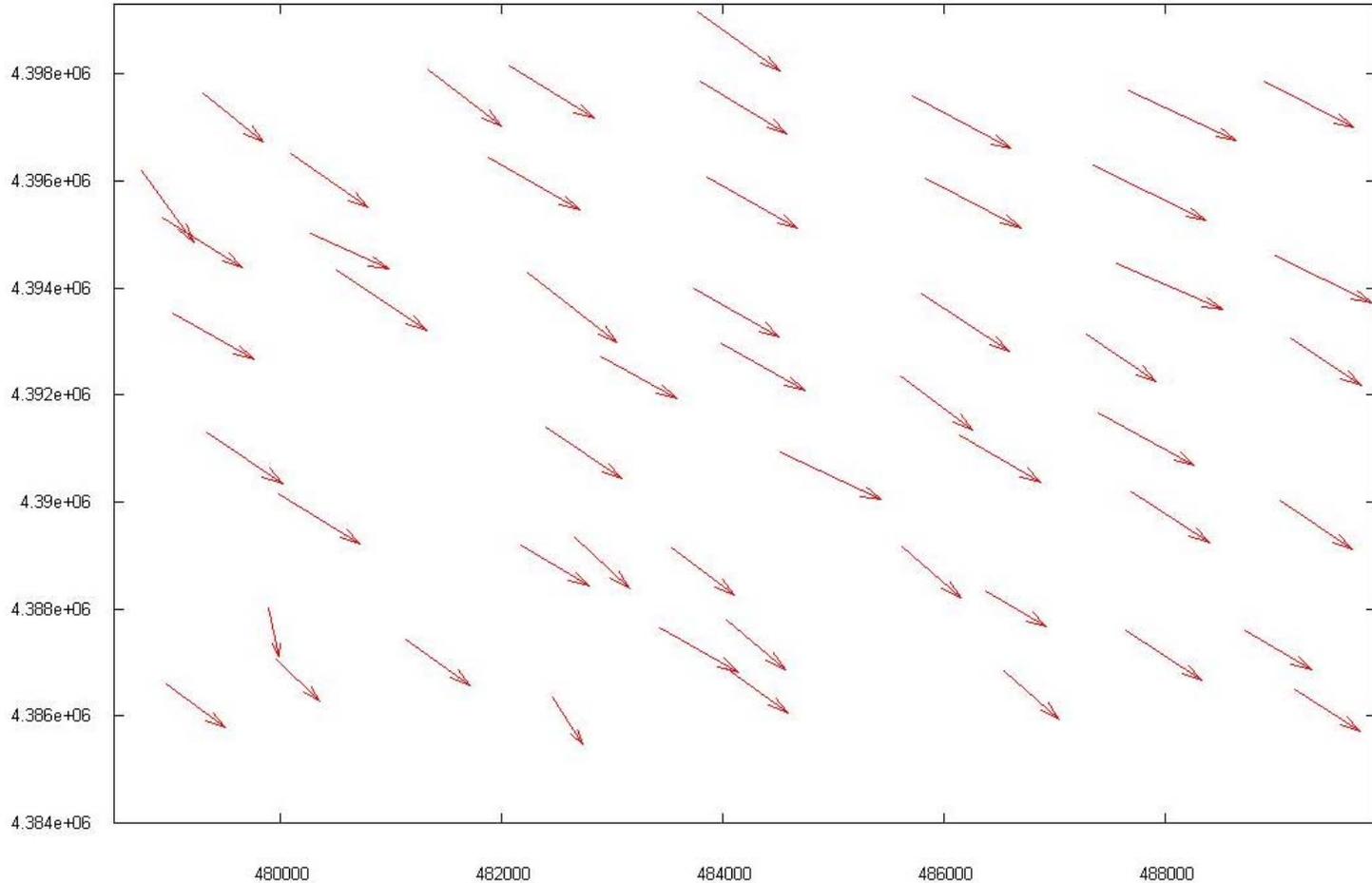




QuickBird II Evaluation

**USGS Horizontal Accuracy Statistical Sampling for 50K
Independent GPS points used as control
Errors scaled 100x**

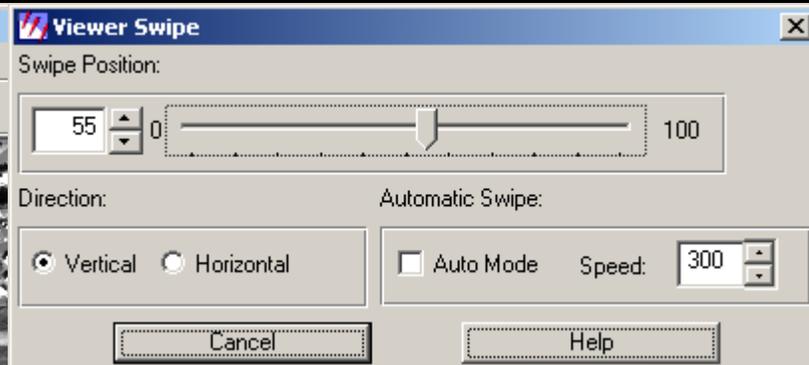
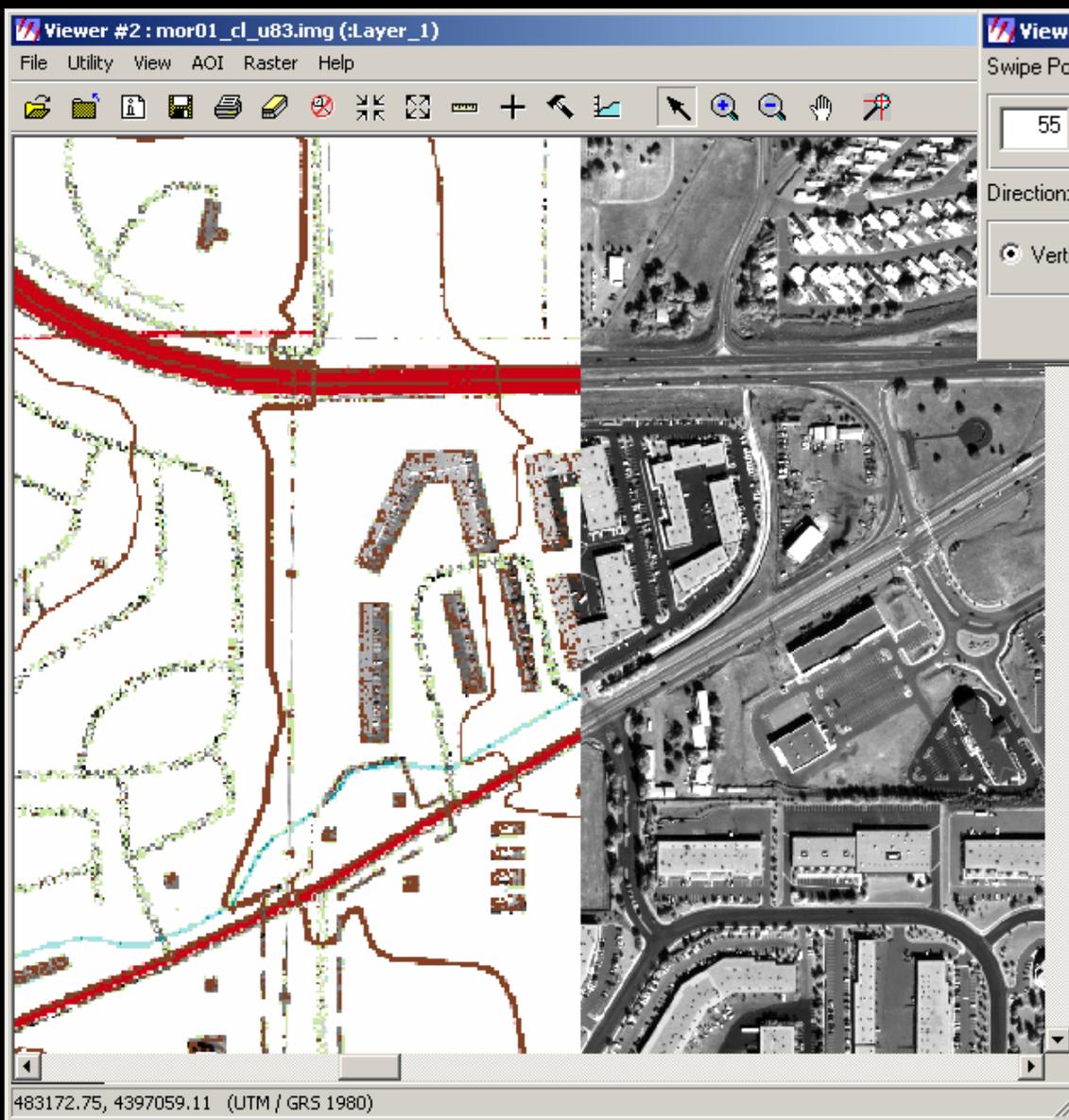
UTM Y meters



UTM X meters



QuickBird II Evaluation



USGS Digital Raster Graphic displayed over QB II Pan image

Buildings match well within accuracy standards

Good source for digitizing planimetric features



Evaluation Results:

***All Orthorectified products met accuracy specifications stated**

Table B. Summary of the accuracy statistic worksheet.

<u>QuickBird II Orthorectified Data</u>	RMSE (m)	<u>NSSDA at 95% confidence (m)</u>	CMAS at 90% confidence (m)	<u>QuickBird II Specifications* (m)</u>
Panchromatic 1:10,000	1.81	3.14	2.75	8.5
Panchromatic 1:12,000	1.70	2.94	2.58	10.2
Panchromatic 1:24,000	1.82	3.15	2.76	12.2
Panchromatic 1:50,000	11.66	20.19	17.70	25.4
Multispectral 1:10,000	1.64	2.83	2.48	8.5
Multispectral 1:12,000	1.51	2.61	2.29	10.2
Multispectral 1:24,000	2.91	5.04	4.42	12.2
Multispectral 1:50,000	11.45	19.83	17.38	25.4

* QuickBird II specifications provided by DigitalGlobe™.