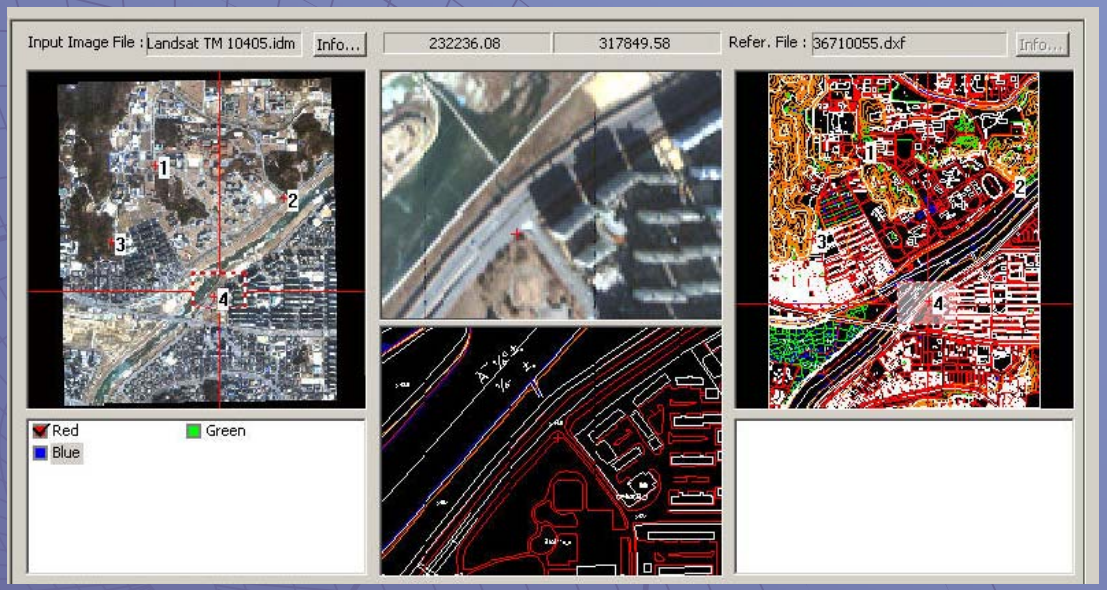
Image Georeferencing



Training Center

Regional Centre for Mapping of Resources for Development (RCMRD)
Nairobi, Kenya

U.S. Geological Survey
Center for Earth Resources Observation and Science (EROS)
Sioux Falls, South Dakota, USA

Applications of Coarse to High Resolution Satellite Imagery for Land Productivity Assessment & Management

IMAGE GEOREFERENCING

Erick Khamala, RCMRD, Nairobi, Kenya

Bamako , Mali

6 - 17 February, 2006

Image Georeferencing

- Image-to-image registration
- Image-to-map registration
- Image transformation
- Using image documentation files (e.g tif/tfw and rst/rdc files)
- Embedding georeferencing information in the image (e.g geotif files)

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Image to Image Registration

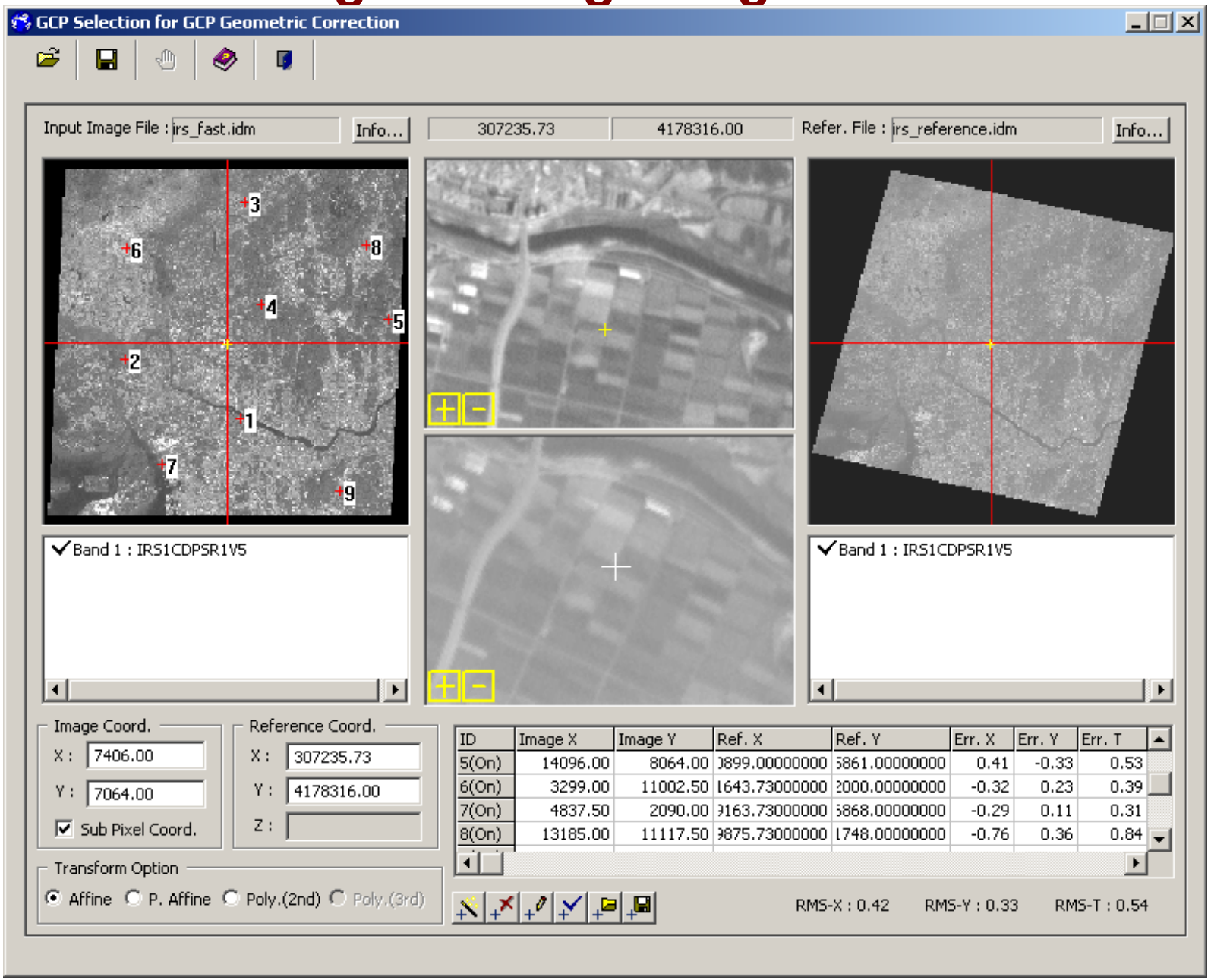

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Image to Map Registration

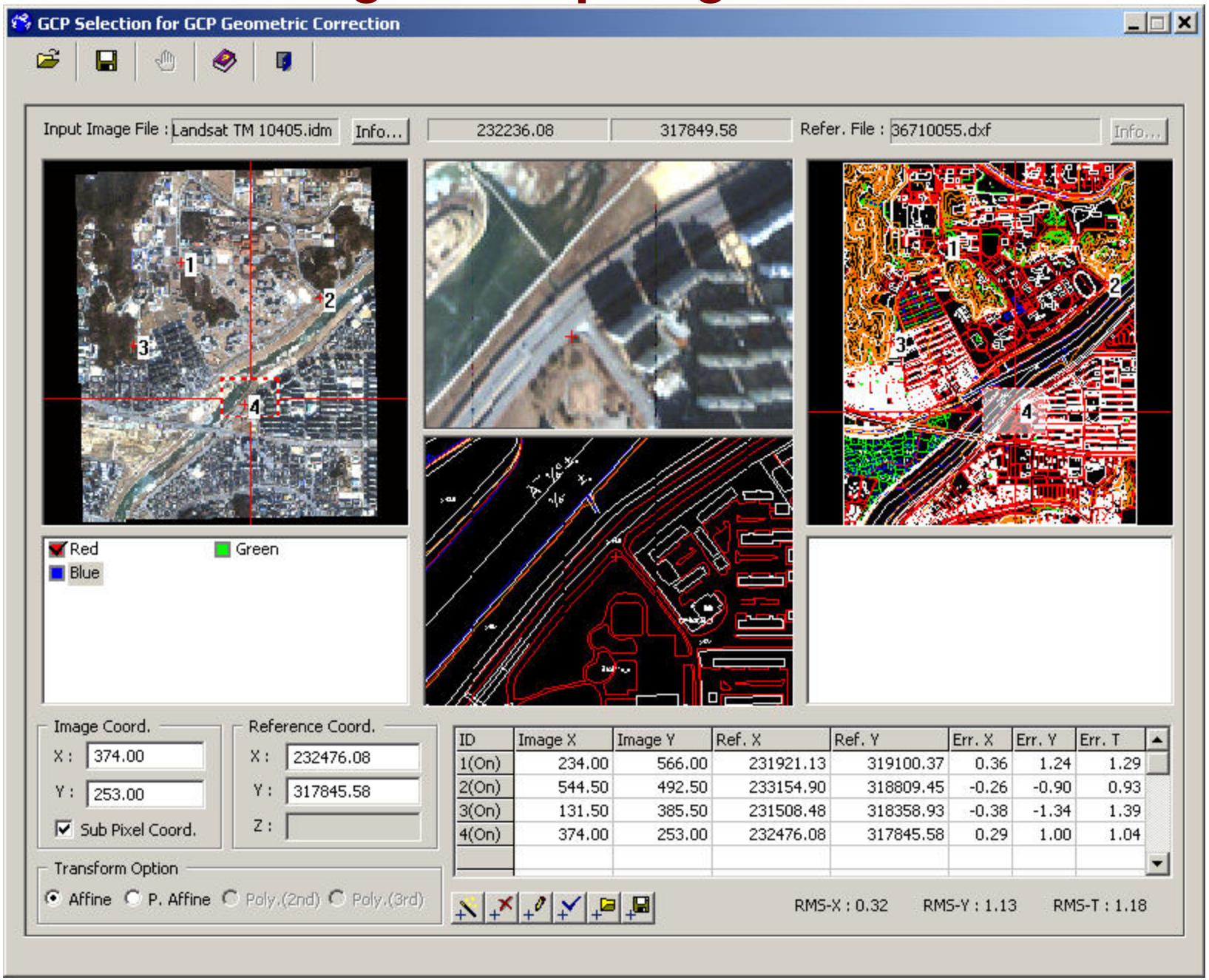
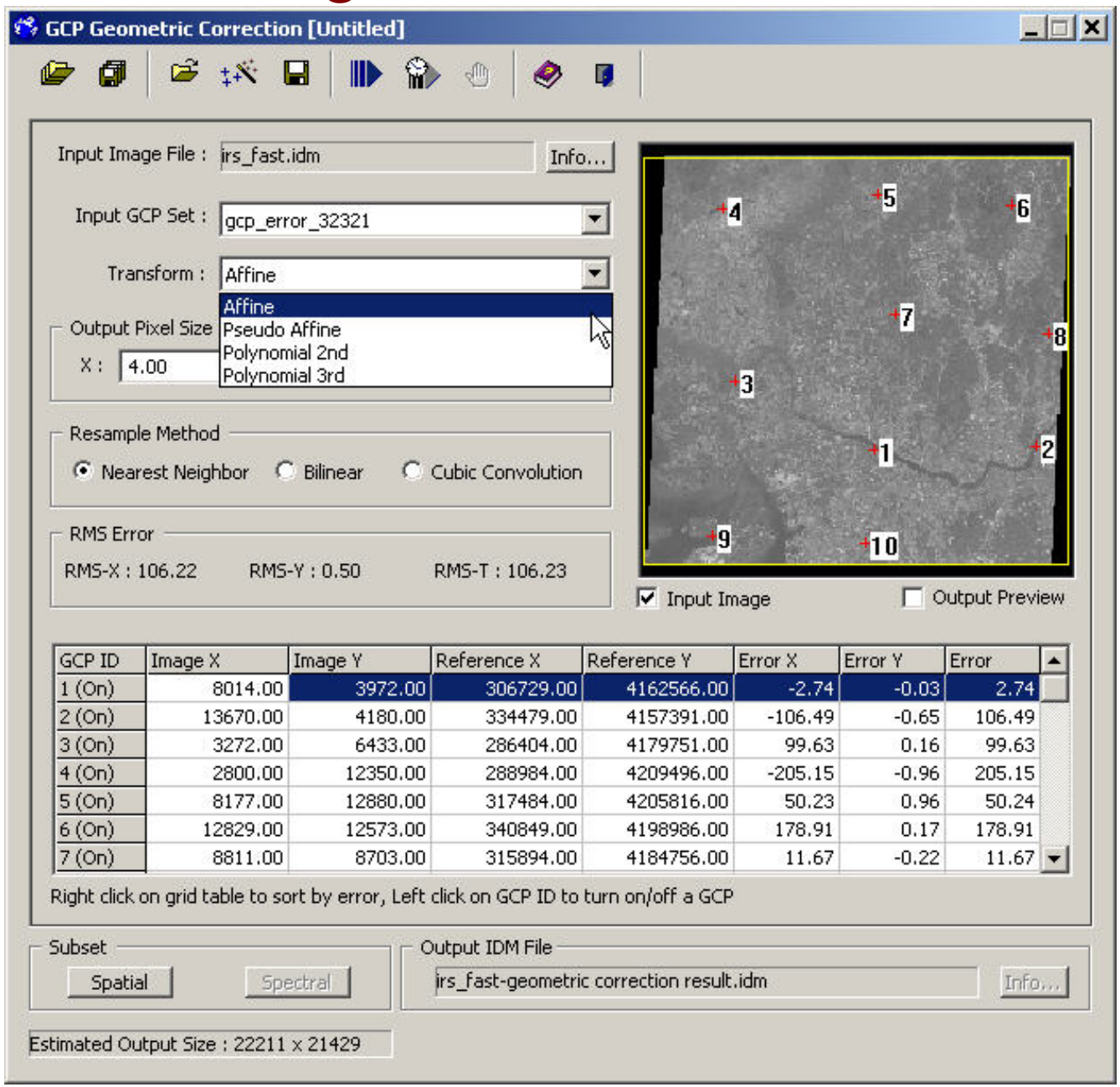


Image Transformation



GCP ID	Image X	Image Y	Reference X	Reference Y	Error X	Error Y	Error
1 (On)	8014.00	3972.00	306729.00	4162566.00	-2.74	-0.03	2.74
2 (On)	13670.00	4180.00	334479.00	4157391.00	-106.49	-0.65	106.49
3 (On)	3272.00	6433.00	286404.00	4179751.00	99.63	0.16	99.63
4 (On)	2800.00	12350.00	288984.00	4209496.00	-205.15	-0.96	205.15
5 (On)	8177.00	12880.00	317484.00	4205816.00	50.23	0.96	50.24
6 (On)	12829.00	12573.00	340849.00	4198986.00	178.91	0.17	178.91
7 (On)	8811.00	8703.00	315894.00	4184756.00	11.67	-0.22	11.67

Using image Documentation Files

.tfw file format

28.5
0
0
-28.5
570327.75
1424928.75

Pixel size on the x-axis

Point of origin

Pixel size on the y-axis

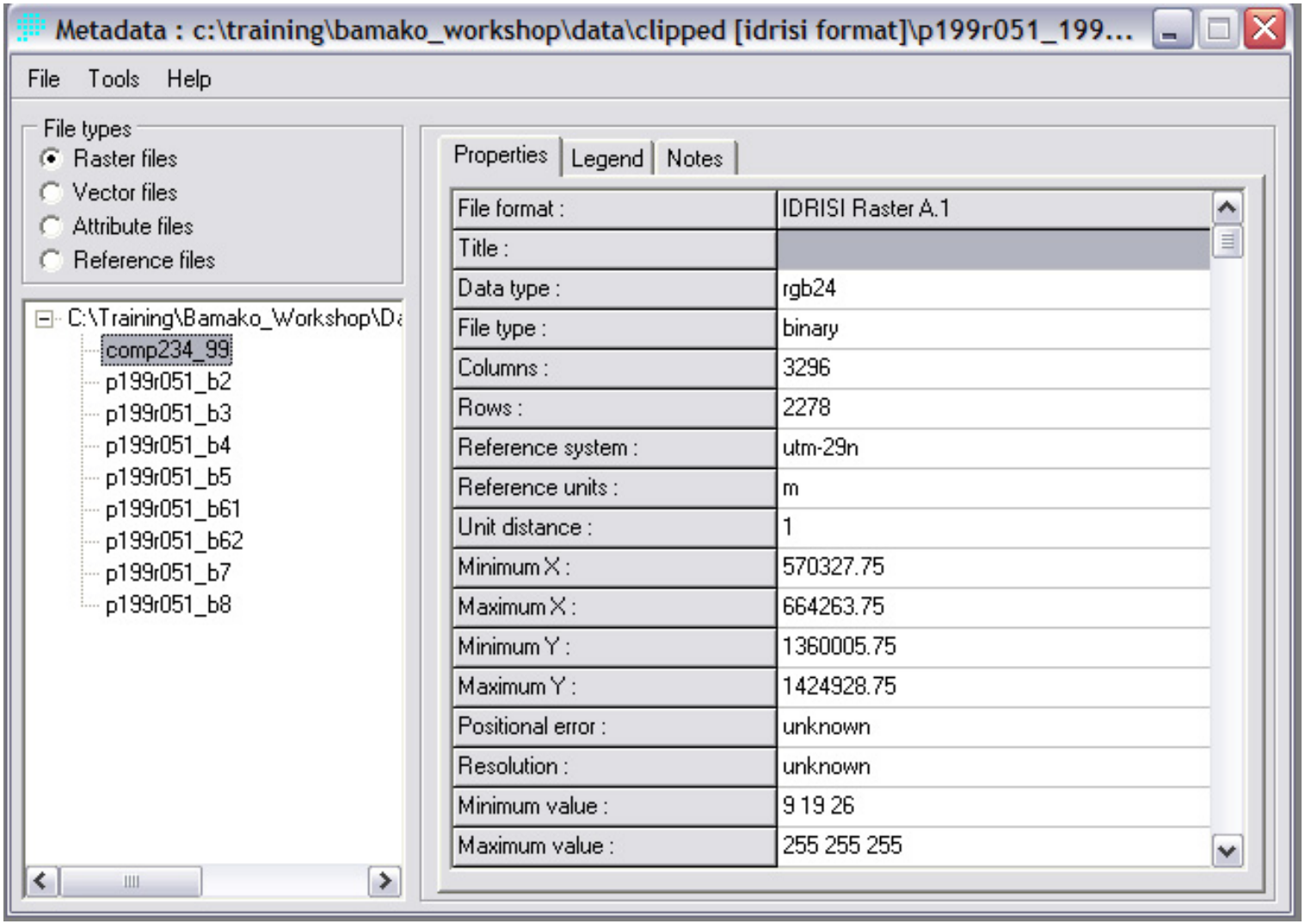
X coordinate at
the point of origin

Y coordinates at
the point of origin

Usually has the same name as its accompanying .tif file
e.g p199r051.tif / p199r051.tfw or bamako.tif / bamako.tfw

Using image Documentation Files (Cont)

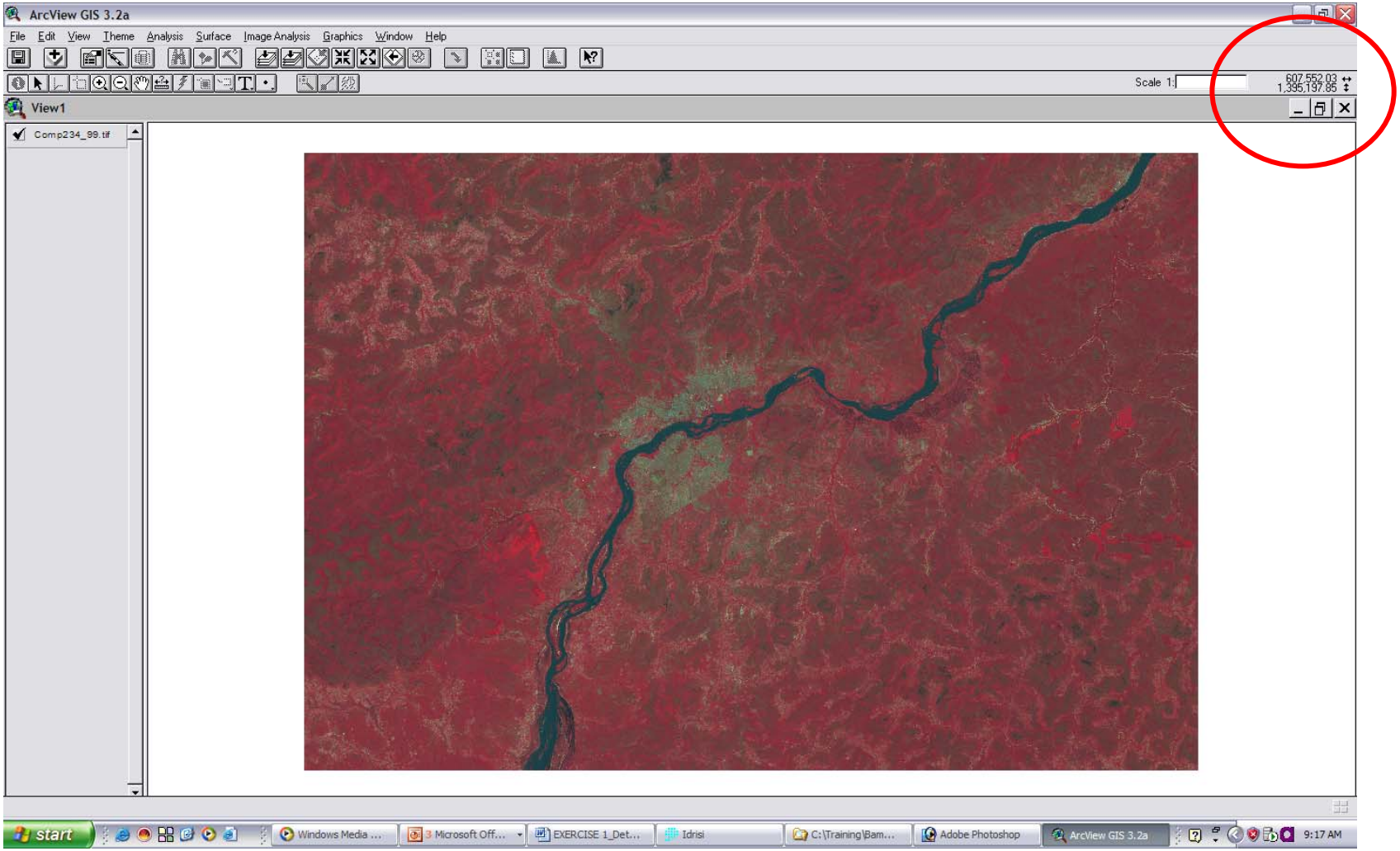
Idrisi raster documentation file (.rdc) format



File format :	IDRISI Raster A.1
Title :	
Data type :	rgb24
File type :	binary
Columns :	3296
Rows :	2278
Reference system :	utm-29n
Reference units :	m
Unit distance :	1
Minimum X :	570327.75
Maximum X :	664263.75
Minimum Y :	1360005.75
Maximum Y :	1424928.75
Positional error :	unknown
Resolution :	unknown
Minimum value :	9 19 26
Maximum value :	255 255 255

Embedding Georeferencing Information in the image

- An example of this is the geotif file format



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Contacts

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