# Orthorectification Results for QuickBird

The illustrations on this page compare the Rational Polynomial Co-efficient (RPC) orthorectification results for a QuickBird Ortho Ready Standard Product image using 1) the nominal (approximate) georeferencing provided with the image and 2) georeferencing from accurate ground 3D control points. Very small errors in the satellite position data used to create the nominal georeferencing can result in position errors of tens to hundreds of meters over much of the raw image. Replacing the image's nominal georeferencing with even a modest number of accurate ground control points (4 to 6) produces a much more accurate orthoimage. The test scene is a QuickBird panchromatic image (0.7 meter ground resolution) of an area of about 316 square kilometers surrounding Castle Rock, Colorado. This large image was re-georeferenced with 28 accurate ground control points, and an elevation model with 10-meter cell size was used in the rectification. Only a very small portion of the image is illustrated here.
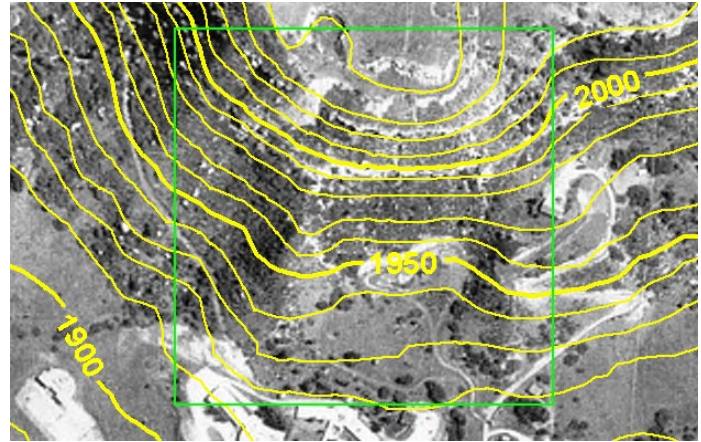

Hillside in northern part of the Castle Rock scene shown in digital orthophoto with 1-meter resolution (USGS Digital Orthoquarter Quad [DOQ]). Width of image is 625 meters, and yellow contour lines show elevations in meters. Green rectangle shows position of View-In-View box; DOQ is shown outside of this box in all remaining illustrations.
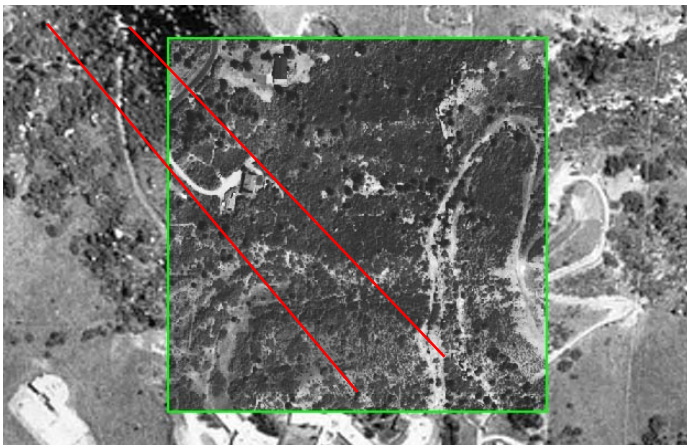

View-In-View box showing QuickBird panchromatic image with nominal georeferencing from satellite positioning, prior to RPC rectification. Ground features are mislocated relative to the DOQ by up to 435 m (red lines).
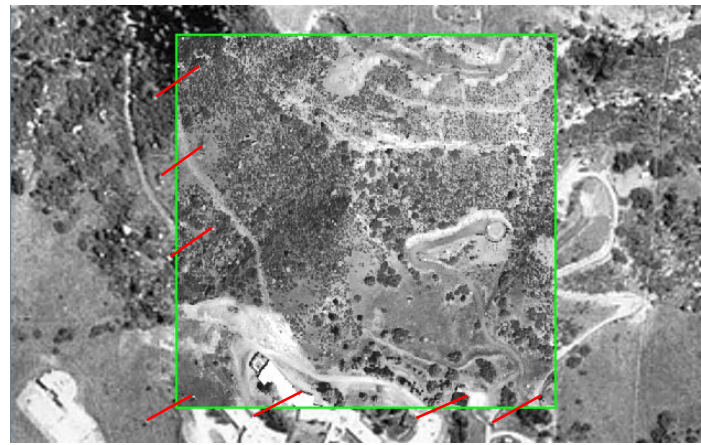
QuickBird image with nominal georeferencing after RPC orthorecti-fication. Rectification greatly improves positioning, but most ground features are still mislocated relative to the DOQ by up to 50 meters (red lines).
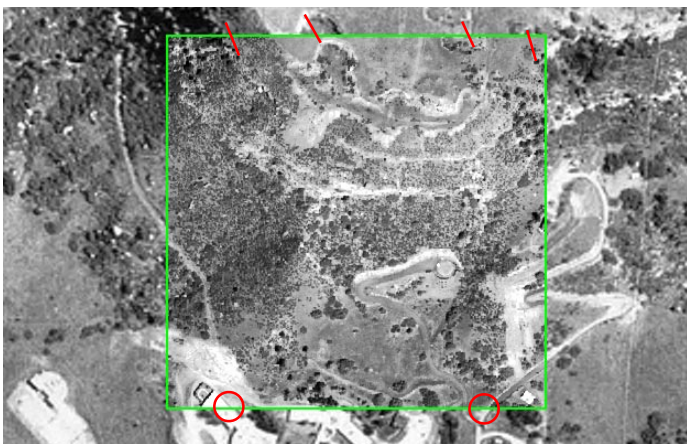
QuickBird image re-georeferenced using 28 ground control points, shown prior to RPC rectification. Features match DOQ well in low-lying areas (red circles) but are mislocated by up to 30 meters on top of hill (red lines).
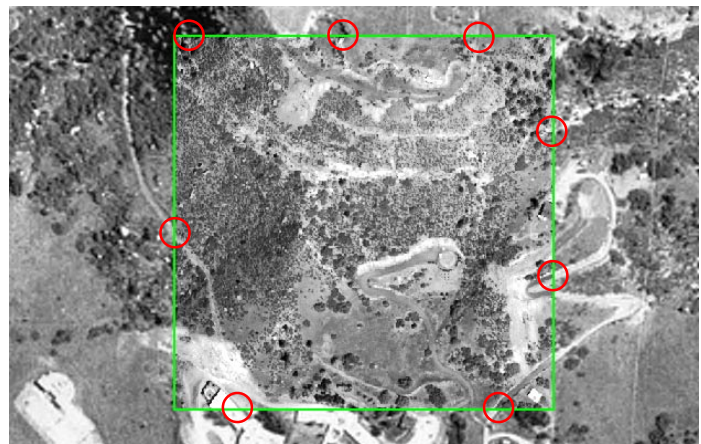
Re-georeferenced QuickBird image after RPC rectification shows excellent registration with the DOQ, with most ground features matched to within a few meters (red circles).