

# ASSESSING THE SPATIAL ACCURACY OF APPLANIX DIGITAL ORTHOPHOTOGRAPHS

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## Abstract

During the past decade, Geographic Information Systems (GISs) have become prolific in many disciplines and because of that, it has placed demands on the need for accurate high-resolution digital data, especial digital imagery. Photogrammetry has emerged as one of the most important disciplines employed in the collection of spatially related information for use in GIS databases especial for terrestrial landscapes. This study assessed the horizontal and vertical accuracy of the Applanix Digital Sensor System (DSS™) 301 orthophotographs. The study area was located at the University of Arkansas at Monticello campus and included 950 acres. In order to assess the accuracy of the DSS, 56 Ground Control Points (GCPs) were collected prior to image acquisition using Trimble Surveying grade 4700 Global Positioning Systems (GPS). The 28 stereo aerial photographs used to create the orthorectified mosaic were taken with the DSS™ 301 with approximately a 6-inch pixel spatial resolution. The average horizontal Root Mean Square (RMS) error for the DSS™ mosaic was 0.212 meters using the GPS-aided Inertial Navigation System (INS) and 0.194 meters from the mosaic created using one GCP per photo with the INS. The vertical RMS error was 0.375 meters for the 2-meter DEM created from stereo imagery using only the INS.

[Abstract Only]

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