

Scan Problems in Digital CORONA Satellite Images from USGS Archives

Wouter Gheyle, Jean Bourgeois, Rudi Goossens, and Karsten Jacobsen

Abstract

The scientific value and relevance of declassified CORONA satellite images has been affirmed by numerous research projects and publications. From 1996 on, duplicates of the CORONA film were available in all standard analog photographic products, including film negatives and photo prints. Since September 2004, the analog imagery is no longer available and has been replaced by digital images produced by the US Geological Survey (USGS) Earth Resources Observation and Science Center (EROS) Scanning Department. This paper points out a heretofore undetected and not negligible problem with the digital imagery. A calibration error in the Leica DSW700 photogrammetric scanner has created gaps between scan tiles. We analyzed the effects these errors have on resulting DSMs and checked the extent of the scanning problem. Part of the USGS archive, i.e. images ordered and scanned between September 2004 and November-December 2007, have comparable scan errors but are nevertheless archived and available for future orders.