

LANDSAT8 IMAGERY SATELLITE FOR QUALITY CHECKING THE BEST  
PAN-SHARPENED TECHNIQUE

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ABSTRACT

This thesis aims to define the best Pan-sharpened technique for the imageries from LANDSAT8 by evaluating the image quality. Four algorithms of Pan-sharpened technique which are Brovey Transformation (BT), Intensity-Hue-Saturation (IHS), Gram-Schmidt (GS), and Principal Component Analysis (PCA) are used for an analysis in this study. Nine imageries are collected from LANDSAT8, Operational Land Imager system (OLI), recorded on January 4th, 2015, from Path No. 129 and Row No. 47 to Path No. 129 and Row No. 55, with different types of geography. Quality check of imageries based on the spectral and spatial distortion, Median of Standard Deviation (SD), Entropy (En) and Correlation Coefficient (CC) is used as a measurement for evaluation. It is found that with Median of SD, En and CC, GS algorithm is the best Pan-sharpened technique comparing to BT, IHS, and PCA, in terms of all. Moreover, GS also preserves both spectral/spatial completeness, the relation between imageries before and after processing with Pan-sharpened technique and image content. Lastly, GS algorithm is also appropriate to use in different types of geographical areas such as forest, mountain, plain, urban, sea and cloud cover.

KEY WORDS: LANDSAT8 / SATELLITE IMAGERY / PAN-SHARPENED /  
QUALITY METRICS / DISTORTION

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