Atmospheric Correction Effectiveness Analysis for Multispectral Satellite Image: Focused on Agricultural Land

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Abstract: In agriculture, remote sensing data using earth observation satellites have many advantages over other methods in terms of time, space, and efficiency. This study analyzed the changes of reflectance and vegetation index according to atmospheric correction of images before using satellite images in agriculture. Top OF Atmosphere (TOA) reflectance and surface reflectance through atmospheric correction were calculated to compare the reflectance of each band and Normalized Vegetation difference Index (NDVI). The result of quantitative comparison shows that for the atmospherically corrected reflectance, the decrease in RMSE and the increase in correlation coefficient were found at the visible band and vegetation indices to be significant. Therefore, atmospheric correction is a very important process for NDVI time-series analysis in applying image to agricultural field.

Keywords: Atmospheric Correction, Agriculture, NDVI, Reflectance