

ATMOSPHERIC CORRECTION FOR FORMOSAT-5'S PANCHROMATIC BAND

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Normally by using an empirical approach, FORMOSAT-5 images' surface reflectance (SR) of multispectral (MS) bands can be retrieved by using reflectance product of Sentinel-2 data as a reference once there are unchanged pixels can be found between them. However, the same approach can not be applied on panchromatic (PAN) band because that there is no SR product for PAN band. For solving this problem, at first a component substitution (CS) method is applied to formulate the relation of top of atmosphere reflectance (TOAR) between the source FORMOSAT-5 PAN and MS bands. Then, by applying the criteria of dark object and bright object assumptions, the transmittance and intrinsic reflectance of PAN band can be obtained as a function of known parameters and finally the SR of PAN band can be carried out. The results of proposed method show that the obtained SR images acquired on different dates can achieve consistencies in both spatial and temporal domain.

Keywords: Panchromatic Band, Multispectral Band, Atmospheric Correction, Component Substitution, Surface Reflectance.