LANDSAT AND SENTINEL 2A SURFACE ALBEDO ESTIMATION. APPLICATION TO EVAPOTRANSPIRATION RETRIEVAL

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Surface albedo is an essential parameter not only for developing climate models, but also for most energy balance studies. While climate models are usually applied at coarse resolution, the energy balance studies, which are mainly focused on agricultural applications, require a high spatial resolution. The albedo, estimated through the angular integration of the BRDF, requires an appropriate angular sampling of the surface. However, Landsat and Sentinel 2A sampling characteristics, with nearly constant observation geometry and low illumination variation, prevent from deriving a surface albedo product. In this work we apply an algorithm developed to derive a Landsat and Sentinel 2 surface albedo. It is based on the BRDF parameters estimated from the MODerate Resolution Imaging Spectroradiometer (MODIS) CMG surface reflectance product (M{O,Y}D09) using the VJB method (Vermote et al., 2009). Landsat and Sentinel 2 unsupervised classification images are used to disaggregate the BRDF parameters to their spatial resolution. Using these albedo values with field measurements we apply the S-SEBI method to estimate the evapotranspiration.

Keywords: Landsat, Sentinel 2, Surface albedo, Evapotranspiration