HLS Surface Albedo Estimation and Evaluation Against In Situ Measurements Across the Australia OzFlux network

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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 8 and Sentinel 2 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 surface albedo to the HLS product, that inludes both Landsat and Sentinel 2 images. 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). HLS unsupervised classification images are used to disaggregate the BRDF parameters to the HLS spatial resolution (30m). We test the results over different OzFlux stations across the South Eastern Australia and plot the results versus albedo field measurements.

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