Obtention and classification of broadband low spatial resolution BRDFs from TOA CERES radiances

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Most of the studies found in the literature on classification of surfaces by means of Bidirectional Reflectance Distribution Functions (BRDF) are currently carried out by using linear parametric models to get optimum computation efficiency. Usually the data proceed from high resolution multispectral sensors.

In this work, the inversion of the nonlinear Rahman-Pinty-Verstraete (RPV) parametric model is optimized and coupled to a radiative transfer code to invert broadband and low spatial resolution Top of Atmosphere (TOA) radiances to directly obtain broadband and low spatial resolution BRDFs.

The BRDFs have been obtained for regions with a similar reflectance field behaviour, selected from a radiance and atmosphere/surface information data base, which has been built by using CERES (*Clouds and the Earth's Radiant Energy System*) SSF (*Single Scanner Footprint*) top of atmosphere data. Since the anisotropic behaviour of the surfaces is much weaker at low spatial resolution, we have been able to relate these regions to a general BRDF that can be classified according to biotypes defined in a generical way (IGBP surface types).