



## **Preliminary validation of Albedo, FAPAR and LAI Essential Climate Variables products derived from PROBA-V observations in the Copernicus Global Land Service**

Fernando Camacho (1), Jorge Sanchez (1), Roselyne Lacaze (2), and Bruno Smets (3)

(1) EOLAB, Valencia, Spain (fernando.camacho@eolab.es), (2) HYGEOS, Toulouse, France, (3) VITO, Mol, Belgium

From 1st January 2013, the Copernicus Global Land Service is operational, providing in near real time a set of biophysical variables over the globe, including Surface Albedo (SA), Leaf Area Index (LAI) and Fraction of Absorbed Photosynthetically Active Radiation (FAPAR) Essential Climate Variables among other variables such as the Fraction of Vegetation Cover (FCover) are delivered at 1 km resolution and 10-days frequency. These ECVs are also key inputs for land surface applications such as agriculture monitoring, yield estimate, food security, environmental monitoring (e.g. desertification, drought).

The first version of these Copernicus Global Land products were based on SPOT/VGT observations (1999-2004). The continuity of the production is currently based on PROBA-V 1 km observations, and the evolution of the services will provide enhanced spatial resolution (333m).

This study presents the preliminary validation results of PROBA-V Albedo, FAPAR, LAI and FCover 1 km products, focused on the consistency with SPOT/VGT GEOV1 products during the overlap period (November 2013 - May 2014) and including intercomparison with MODIS C5 equivalent products. The procedure follows as much as possible guidelines and metrics defined by the Land Product Validation (LPV) group of the Committee on Earth Observation Satellite (CEOS) for the validation of satellite-derived land products and propose additional metrics to quantify spatial and temporal consistency among the several products. Several criteria of performance were evaluated including product completeness, spatial consistency, temporal consistency, inter-annual precision and accuracy. Inter-comparison with reference satellite products (SPOT/VGT GEOV1 and MODIS C5) are presented over a network of sites (BELMANIP-2). The accuracy of PROBA-V LAI and FAPAR products was evaluated against a number of agricultural sites using the ImagineS database, whereas for Albedo few homogeneous sites with available ground data were considered coming from SURFRAD and EFDC networks. The ground data was collected, compiled or processed in the context of the FP7 ImagineS project in support of the evolution of Copernicus Land Service. Our results demonstrate that PROBA-V GEOV1 LAI and FAPAR products were found spatially and temporally consistent with similar products (SPOT/VGT, MODIS C5), and good agreement with limited ground truth data. Albedo products are currently under evaluation, and preliminary results will be shown at the conference.