

The CYCLOPES products: land surface bio-geophysical variables from VEGETATION sensor for environmental applications

Roselyne Lacaze (1), Frédéric Baret (2), Béatrice Berthelot (3), Patrice Bicheron (1), Bernhard Geiger (4), Olivier Hagolle (5), Marc Leroy (1), Kathy Pavageau (2), Jean-Louis Roujean (4), Olivier Samain (4), Marie Weiss (3)

(1) Medias-France, Toulouse, France (roselyne.lacaze@medias.cnes.fr / Fax : +33561282905 / Phone: +33561073121), (2) INRA-CSE Agroparc, Avignon, France, (3) Noveltis, Ramonville, France, (4) Météo-France – CNRM, Toulouse, France, (5) Cnes, SI/MO, Toulouse, France

The FP5/EU CYCLOPES project aims at providing land surface bio-geophysical products such as LAI, Fapar, FCover and albedo over the globe at 1 km resolution at a 10-day time step. The products are derived from the VEGETATION sensor.

The retrieval algorithms used to derive the version 3 of products are presented. They mainly consist of radiometric inter-calibration of sensors using cloud screening, atmospheric correction, BRDF normalization of observations collected within a temporal window of +/-15 days, and biophysical algorithm using a neural network for inverting a radiative transfer model.

The main results of the validation procedure are shown. In the first step, the CYCLOPES products are inter-compared with existing products derived from other sensors by different or similar approaches, such as the albedo, LAI, and Fapar derived from MODIS and POLDER-2, and the multi-sensor LAI from ESA/GLOBCARBON project. Then, the satellite variables are validated using ground measurements. The albedo from VEGETATION is compared with data provided by the BSRN stations; the LAI, Fapar and FCover are compared with measurements collected over the sites of VALERI, BigFoot, and ModLand networks, representing a large range of ecosystems.

The objective of the validation is to assess the quality of products in order that users may determine whether the CYCLOPES products are useful for their specific applications such as land surface monitoring, carbon modelling, and other environmental studies.