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Traceable quality assurance for independent reference data used in the validation of satellite ECV estimates.

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This contribution presents the methodology and first results of the Quality Assurance for Essential Climate Variables (QA4ECV) project for ensuring how trustable assessments of satellite land Essential Climate Variables (ECVs) quality can facilitate users in judging the fitness-for-purpose of the ECV Climate Data Record (CDR). This aims to bring a major step forward in providing quality assured long-term CDRs that are relevant for policy and climate change assessments. The main goal here is to provide algorithms/products developers with several simulated satellite sensors data from a 3-D radiative transfer soil and canopy model coupled with an atmospheric one using 6S RTC. Atmospheric water vapour and ozone are represented using ERA Interim reanalysis, while aerosol properties are assumed from both AERONET and MODIS archives.

With the aim to enlighten the contribution of bi-directional reflectance (BRF) on top-of-atmosphere (TOA) values, simulations are performed assuming i) the anisotropic surface reflectance arising from 3-D Raytran simulations and ii) an lambertian surface albedo equal to that provided by the 3-D diffuse sky simulation. We summarize the 3-D canopies scenes as well as the atmospheric properties. Results arising from first simulations and concerning the radiative models performances in reproducing real BRF measurements (MERIS, AVHRR, MODIS) are then presented.