The 36th International Symposium on Remote Sensing of Environment,
11 – 15 May 2015, Berlin, Germany, ISRSE36-513

SYSTEMATIC CROP MAPPING OF SIGMA TEST SITES WITH 100M PROBA-V DATA

Yetkin Özüm DURGUN[a,d,*], Sven GILLIAMS[a], Anne GOBIN[a], Grégory DUVEILLER[b], Bakary DJABY[c], Bernard TYCHON[d]

[a] Vlaamse Instelling voor Technologisch Onderzoek (VITO), Boeretang 200, B-2400 Mol, Belgium – ozuem.durgun@vito.be, sven.gilliams@vito.be, anne.gobin@vito.be
[b] Institute for Environment and Sustainability (IES), European Commission Joint Research Centre, Via E. Fermi, 2749, I-21027 Ispra (VA), Italy – gregory.duveiller@ext.jrc.ec.europa.eu
[c] Monitoring for Environment and Security in Africa (MESA), ECOWAS Land Theme: Water Management for Cropland and Rangeland, AGRHYMET Regional Centre, 11011, Niamey, Niger – bakary.djaby@gmail.com
[d] Université de Liège, Département Sciences et Gestion de l'Environnement, Avenue de Longwy 185, 6700 Arlon, Belgium – bernard.tychon@ulg.ac.be

THEME: AGRI Agriculture and food security

KEY WORDS: Proba-V, crop mapping, SIGMA

ABSTRACT:

The Proba-V satellite was launched on 6 May 2013, and was designed to bridge the gap in space-borne vegetation measurements between SPOT-VGT (March 1998 – May 2014) and the upcoming Sentinel-3 satellites (scheduled for launch in 2015/2016). Proba-V has products in four spectral bands: BLUE (centred at 0.463 µm), RED (0.655 µm), NIR (0.845 µm), and SWIR (1.600 µm) with a spatial resolution ranging from 1km to 300m. Thanks to the construction of the sensor[†], the central camera of the sensor can provide a 100m data product with a 5 to 8 days revisiting time. Although the 100m data product is still in testing phase a methodology for systematic crop mapping is going to be developed. The objective of this work is to test a methodological approach based on the spectral and temporal characteristics of an annual series of images from the sensor and to map annual crops on several of the FP7 SIGMA[‡] test sites of 2014 – 2015. The multi-spectral composites, NDVI (Normalised Difference Vegetation Index) (NIR_RED/NIR+RED) and NDII (Normalised Difference Infrared Index) (NIR-SWIR/NIR+SWIR) profiles will be combined with reference dataset. Reference data in the form of a vectorial GIS with the boundaries and cover type of the large majority of agricultural fields are available through the SIGMA site partners. Additionally, secondary data such as digital elevation data, precipitation, temperature, soil types and administrative boundaries will be used in order to improve the accuracy of the crop mapping.

* Corresponding author.
† http://proba-v.vgt.vito.be/
‡ http://www.geoglam-sigma.info/