

We got to keep an eye on our Crops



United Nations
World Geospatial
Information Congress
联合国世界地理信息大会



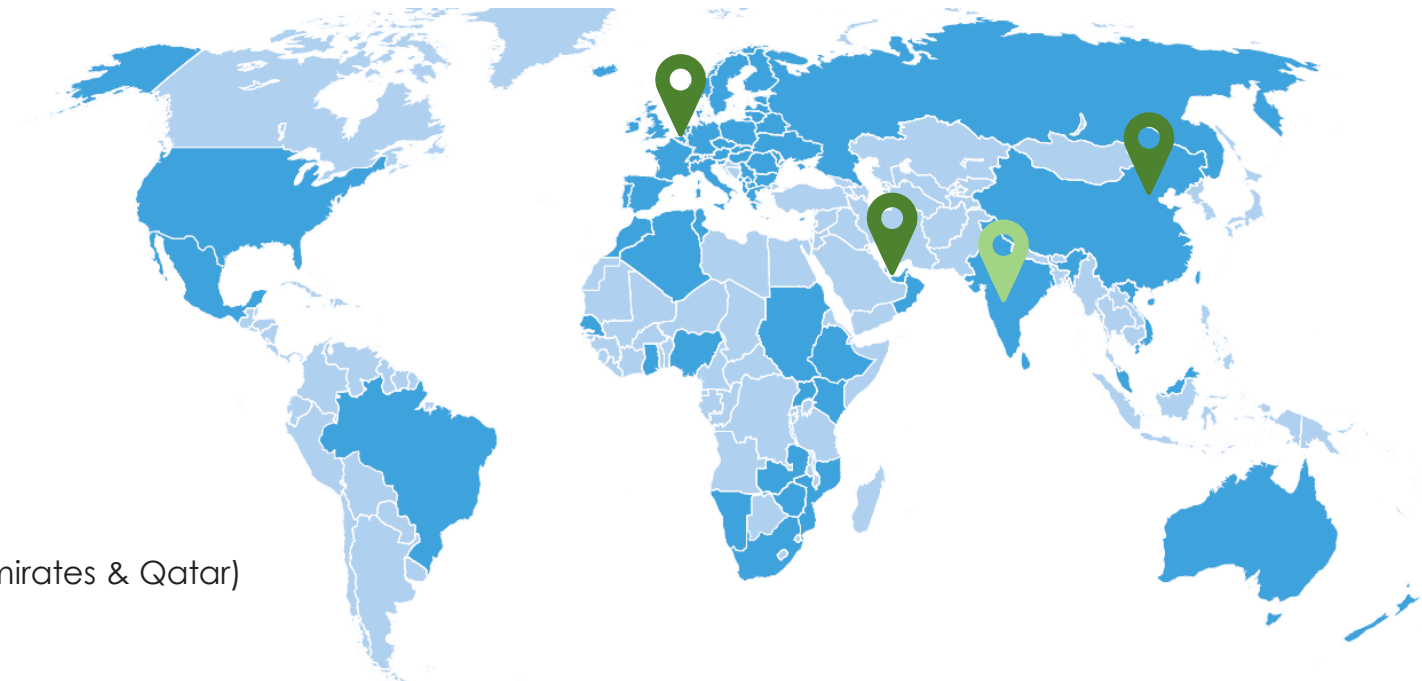
ACCELERATING the transition to a SUSTAINABLE world

Sustainable Energy Supply,
(Re)use Of Raw Materials,
Food Security,
Circular Economy,
Quality Of Life

**We believe in the power of technology,
economic dynamics and the creativity of
people to leverage things.**



VITO AROUND THE GLOBE



● Countries benefiting from VITO projects

- HQ in Mol, Belgium
- Subsidiaries in
 - China (Beijing)
 - Middle East (Emirates & Qatar)
 - Q1 2019 India



Technology to make a transition to a more sustainable world

Energy



Materials



Chemistry



Health



Land use







Platforms



UAV



AIRBORN

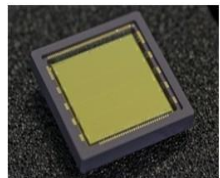


HALE UAV

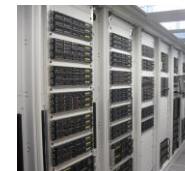
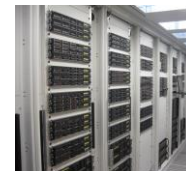
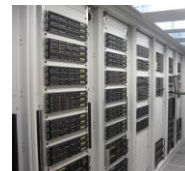
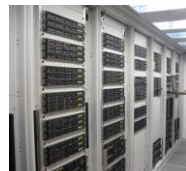


SATELLITE

Sensors



Value Added Services & Information Products



Markets



Agriculture



Landuse & Biodiversity



Climate



Water & Coast



Infrastructure



Security

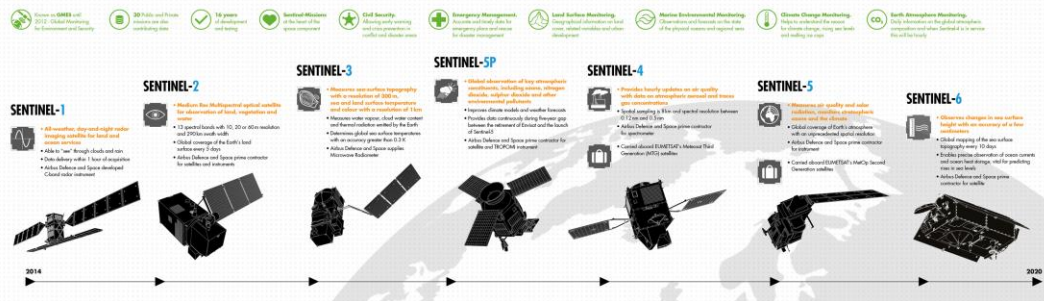


Copernicus: Europe's eyes on Earth



COPERNICUS AND ITS SENTINELS

European Earth Observation Programme Copernicus: observing our planet for a safer world



Land



Marine



Atmosphere



Emergency



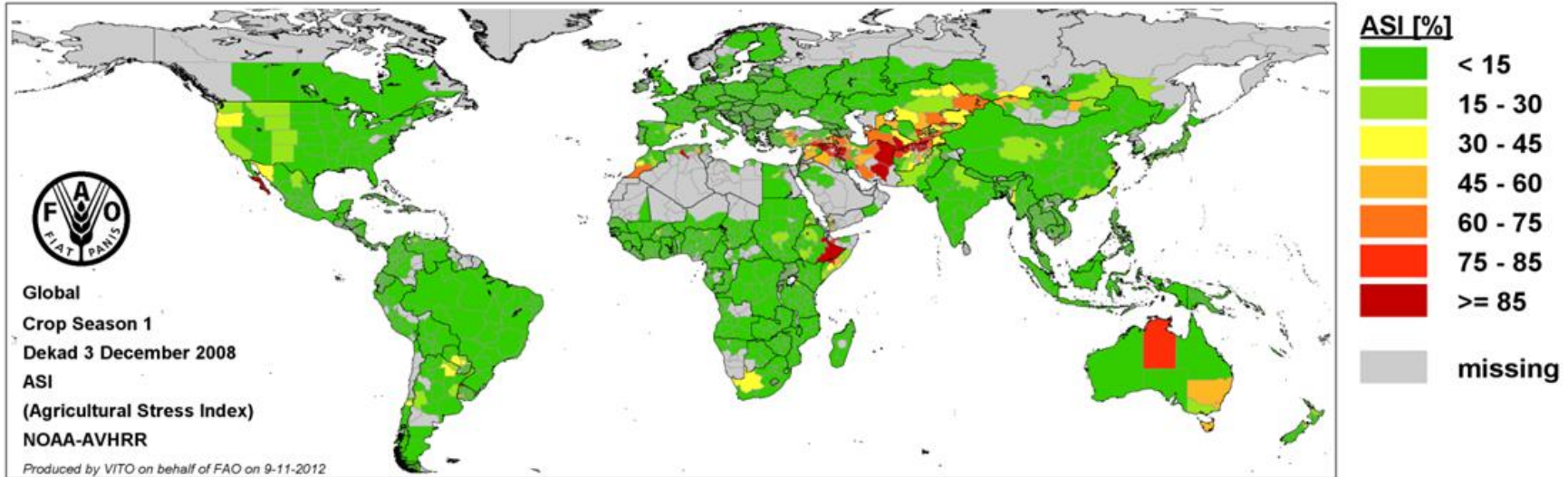
Security



Climate Change



Food Security: Agricultural Stress Index System



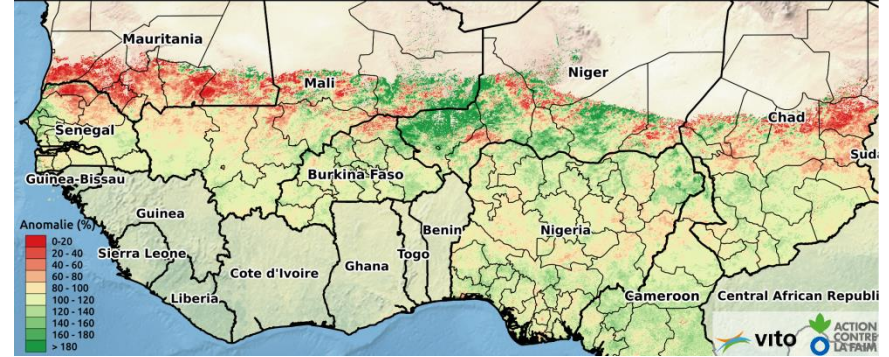
Agricultural stress index (ASI) at the end of 2008. The ASI is defined as the percentage of crop area within each administrative unit with a mean Vegetation Health Index (VHI) over the growing season below 35%.



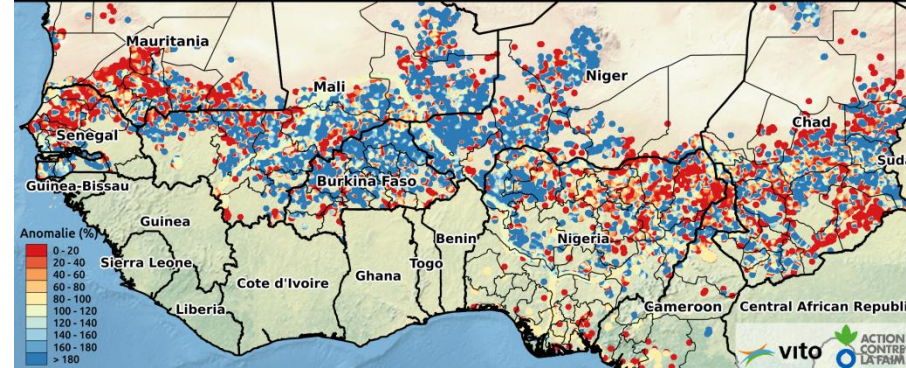
PROBA-V data for monitoring West-African cattle herders



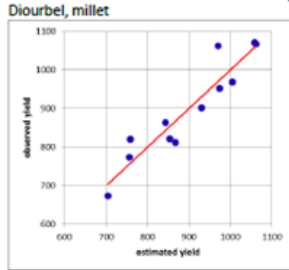
Anomalie de la Production de la Biomasse au Sahel: 01 Octobre 2017



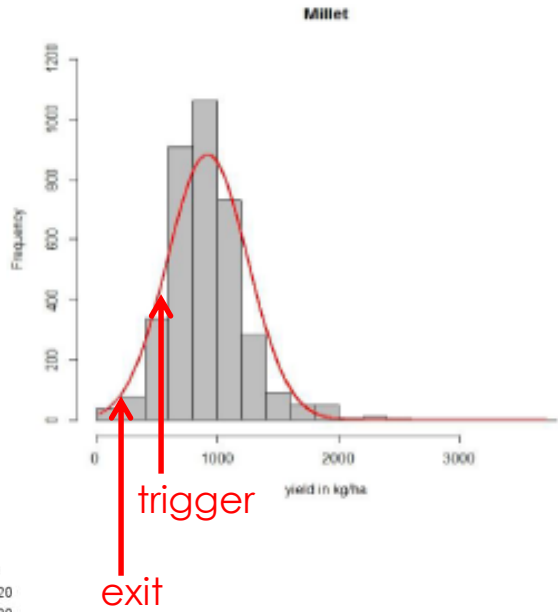
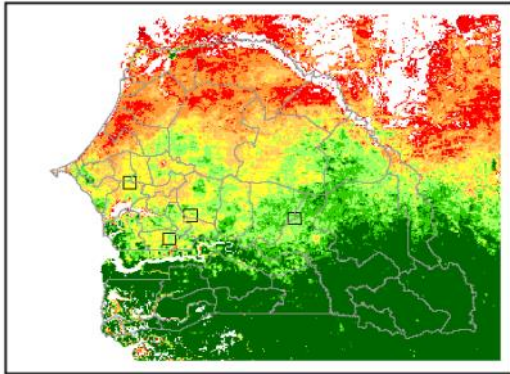
Anomalie d'accessibilité des eaux de surface: 01 Octobre 2017



Index Based Insurances



1APAR sum SoS to EoS 2012 (VGT)



100m Global Land Cover Layer from Copernicus Global Land Service for Africa 2015

100 m Land Cover Classification
with 14 classes for
Africa 2015

Legend

- No PROBA-V 100 m data available
- Closed Forest (evergreen)
- Closed Forest (deciduous)
- Open Forest (evergreen)
- Open Forest (deciduous)
- Shrubs
- Herbaceous Vegetation
- Croplands
- Urban / Build Up
- Bare / Sparse Vegetation
- Snow & Ice
- Permanent Water Bodies
- Temporary Water Bodies
- Herbaceous Wetland

This map was created by VITO Remote Sensing (Belgium), IIASA (Austria) and Wageningen University (the Netherlands) under assignment of the European Commission DG Joint Research Center (Italy) and in co-operation with DLR (Germany). The data used is PROBA-V 100 m for the reference year 2015. The bathymetry is derived from the Blue Marble next generation.
© Copernicus Service Information 2017



What grows where & how much?



Few fields with known crop type




Training a satellite-based automatic crop detection procedure

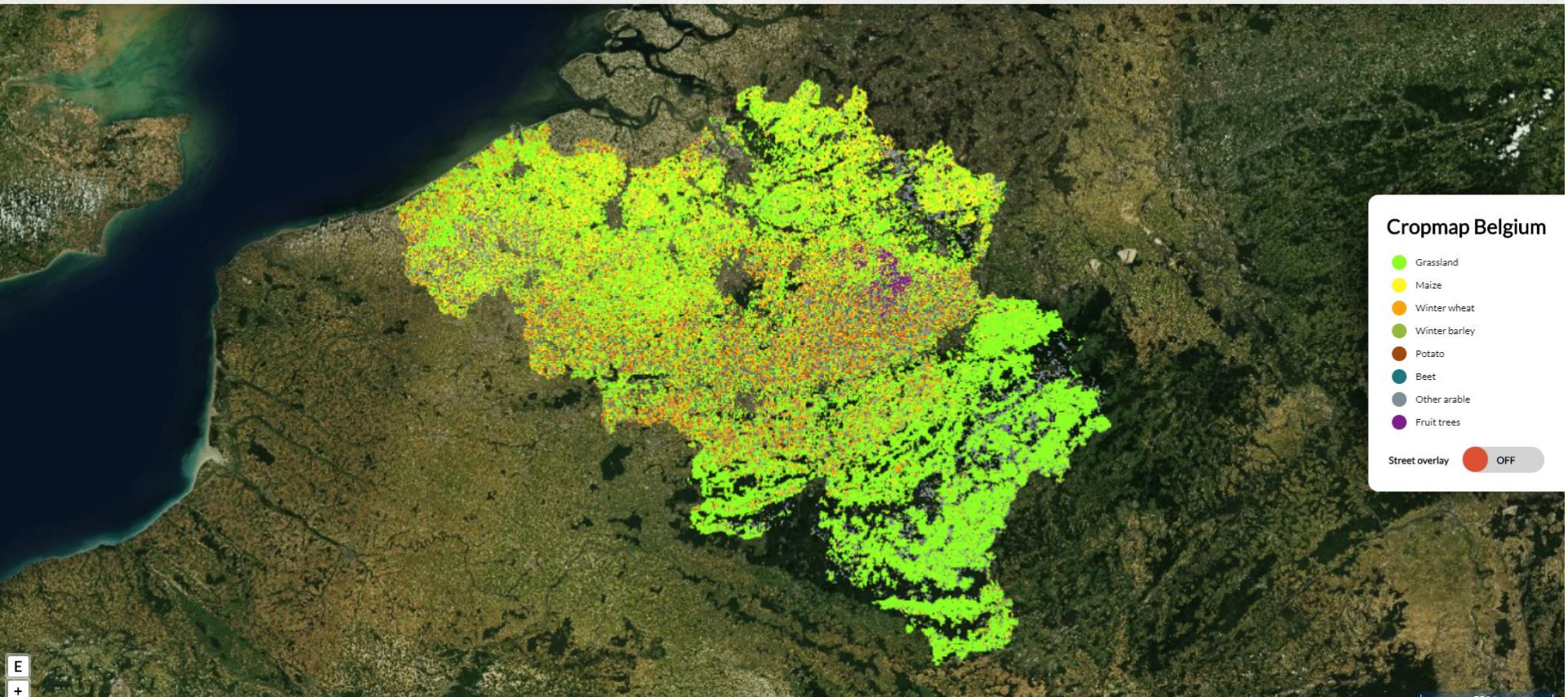


Region-wide area estimation, months before harvesting



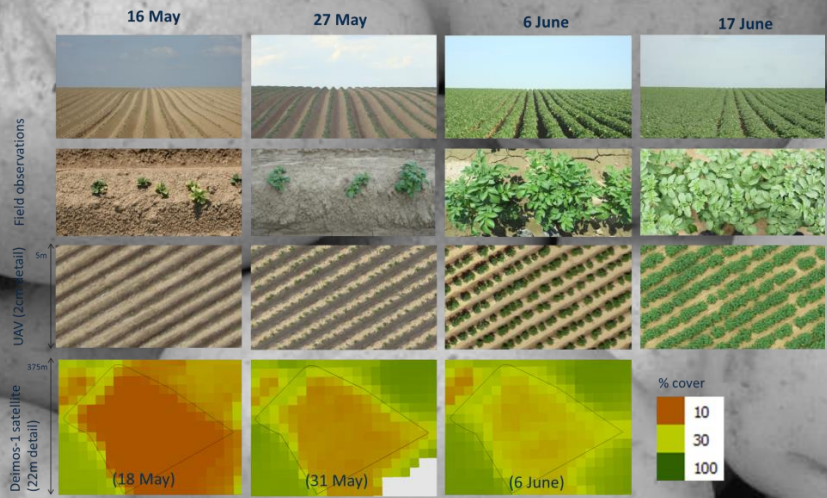
Crop classification in the Champagne region

 Winter wheat
 Winter barley



E
+

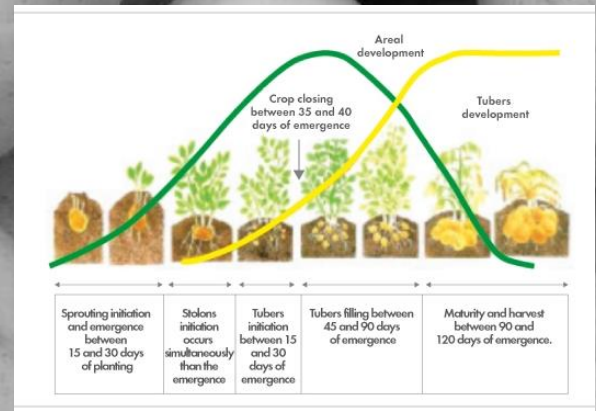
Belgian potatoes are monitored from space!



James Bint says, "EAT BELGIAN FRIES"

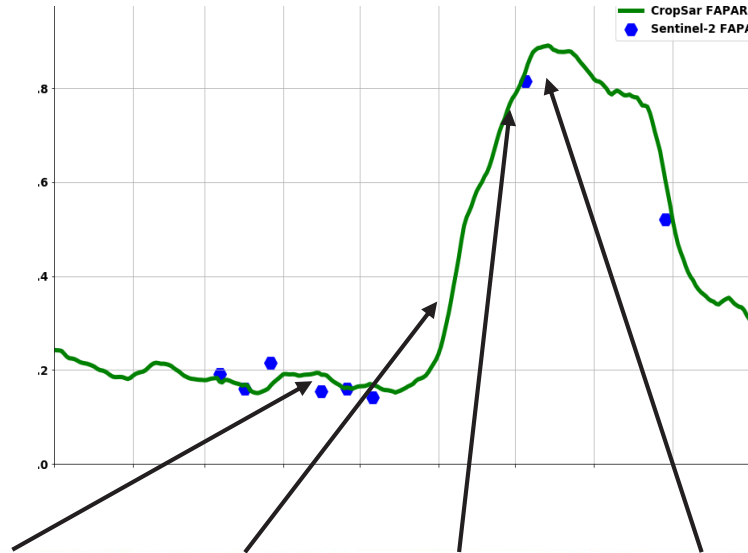


- Crop development
- Field heterogeneity
- Risk assessment at production and quality losses
- Yield forecasts
- Digitization of agriculture for all actors in the potato value chain: farmers, traders, food processing industry, agroconsultants....





CROPSAR – getting around the Clouds!



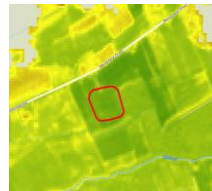
VITO developed a unique algorithm that combines Optical & Radar data.

→ **measurements for cloudy days possible!**

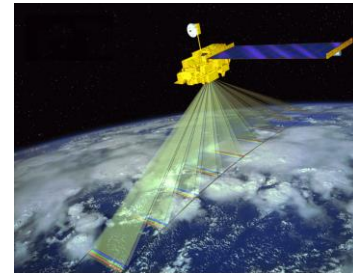
Every 5 days a measurement point (e.g. FAPAR)



No satellite image



No satellite image



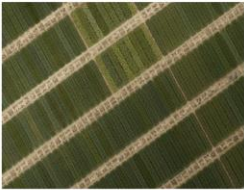


MAPEO

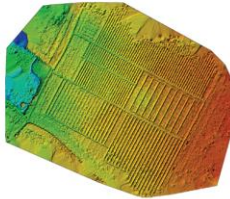
Drone based phenotyping



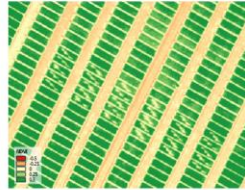
Orthomosaic



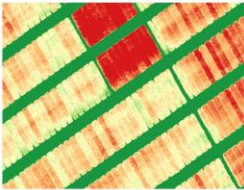
DEM



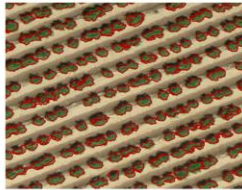
NDVI



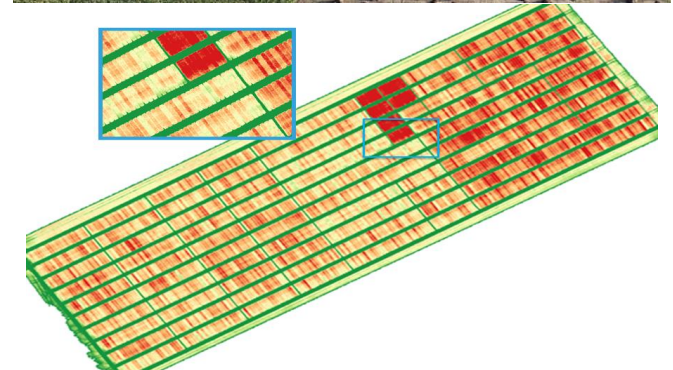
Crop height



Crop count



Crop cover





PROBA-V DATA FOR TIMELY LIVESTOCK MANAGEMENT IN NAMIBIA

Cornelis van der Waal
06.09.2018
PROBA-V, cattle management, Agriculture, land cover

WHEN THE HEAT GETS TOUGH ...

Bart Deronde 06.08.2018
EO Data, Agriculture, Crop monitoring, WatchTgrow®, Terrascope

A SENTINEL SHAKE FOR EARLY CROP MAPPING

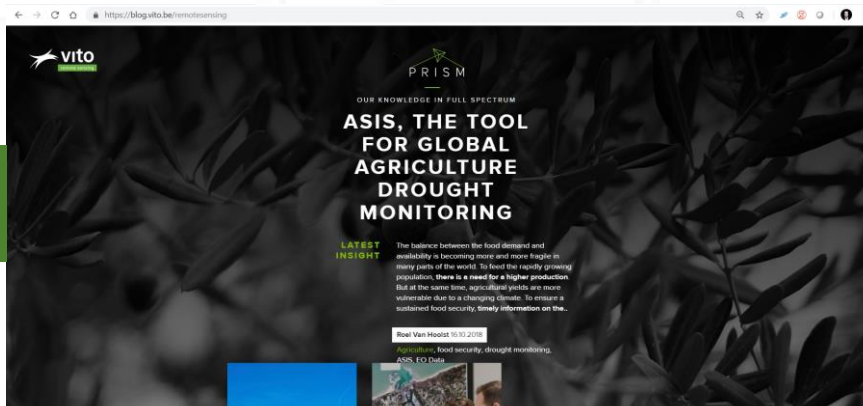
Kristof Van Tricht 17.07.2018
Agriculture, Sentinel, deep learning, Multitemporal image analysis, radar, optical, food security

WEATHER IMPACTS ON AGRICULTURE

Anne Gobin 06.11.2017
Climate, Agriculture, smart farming, EO Data

IMAGE ANALYTICS FOR OBJECTIVE PLANT VARIETY ASSESSMENT

Esther Monard 20.06.2018
MAPEO, phenotyping, plant breeding, Agriculture, drones



Keep an eye on our **blog** for more!
<https://blog.vito.be/remotesensing>

Steven Krekels
M steven.krekels@vito.be
T [@stevenkrekels](https://www.linkedin.com/company/vito)



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