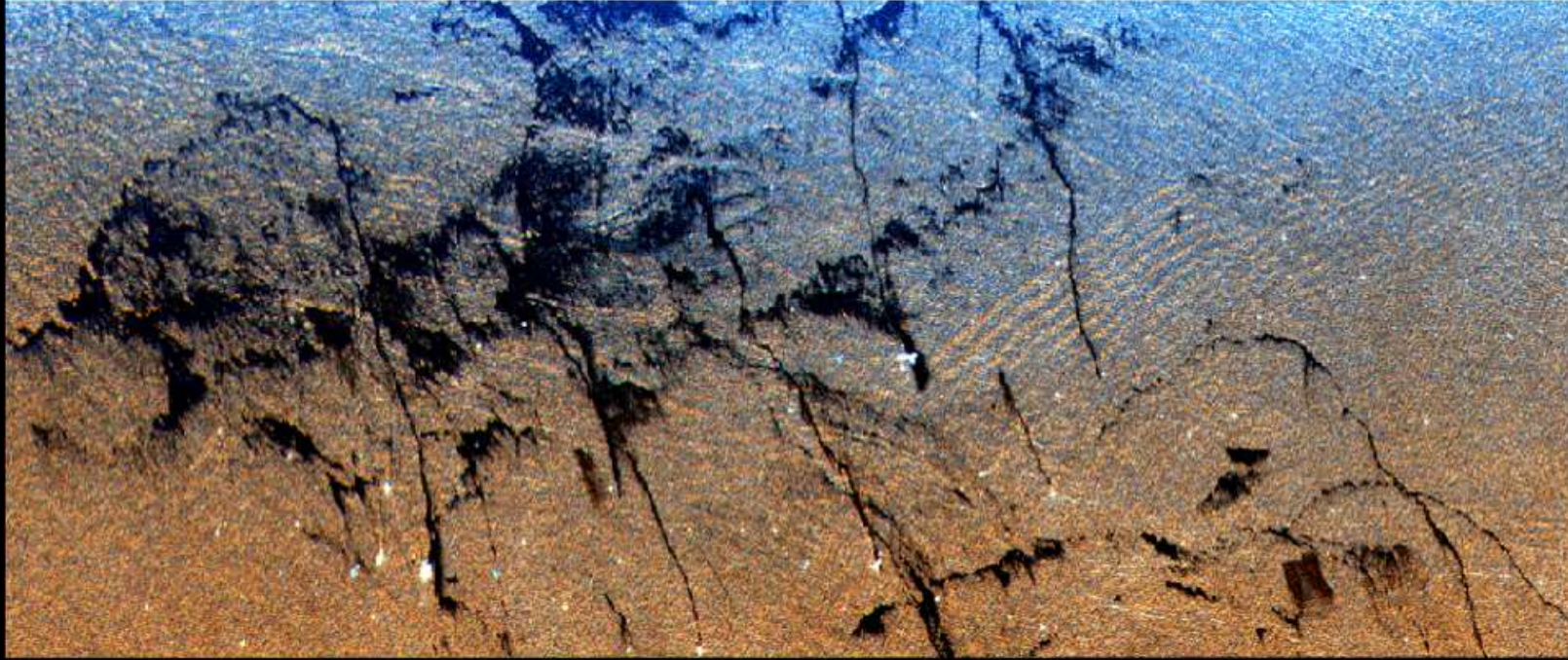


DARK SIDE OF REMOTE SENSING



Yannick Curnel
Walloon Agricultural
Research Centre (CRA-W)

Belspo, 09-12-2015

Walloon Agricultural research Center (CRA-W)



- Regional public body
- **Role** : To carry out fundamental and applied agricultural research programs and service activities



- **CRA-W in figures** : 450 staff (>150 scientists), *about 300 ha* (experimental plots, orchards, laboratories, etc.), 3 sites and more than 150 **research projects** at regional, national and European level
- **Multidisciplinary organization**: The range of services and analyses provided by the Centre covers main aspects of agriculture and agri- business

Walloon Agricultural Research Centre



SAR-based monitoring of grasslands

- Context : PhD (UCL – ELIE)
- Monitoring of grassland :
 - Mowing vs Grazing
 - Detection of mowings
- Objectives :
 - Recalibration of grassland growth models ;
 - Monitoring of grassland use intensity ;
 - (Control activities).

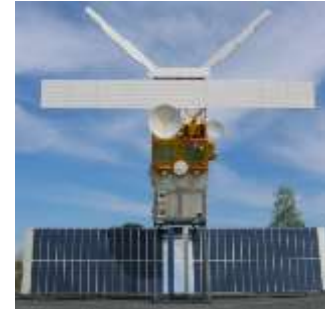
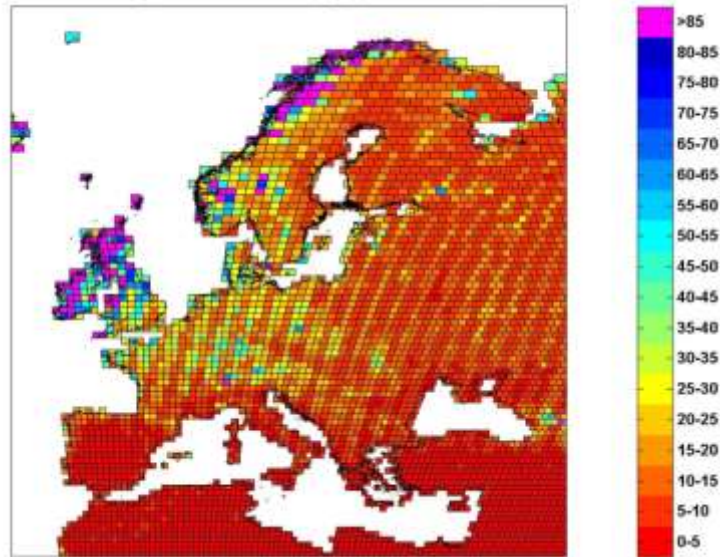


SAR-based monitoring of grasslands

- ERS-2
- Why SAR ?
 - Mowings are punctual events
 - Belgian cloud conditions

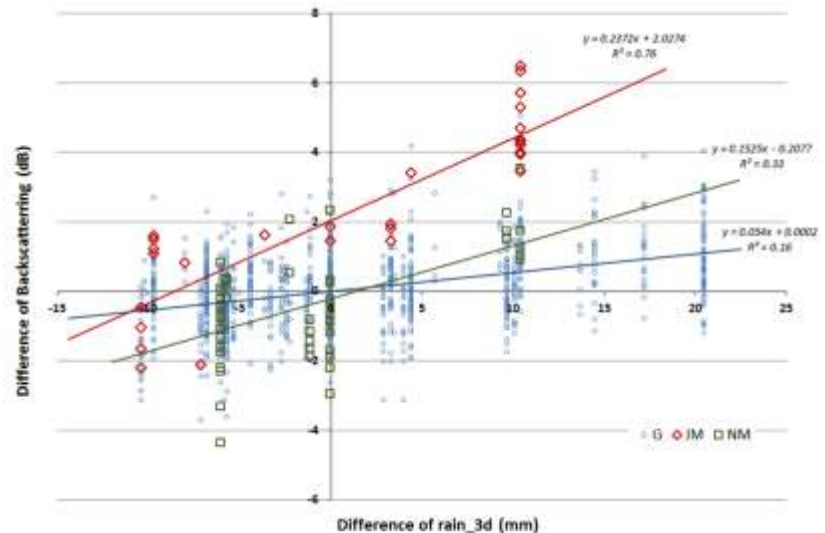
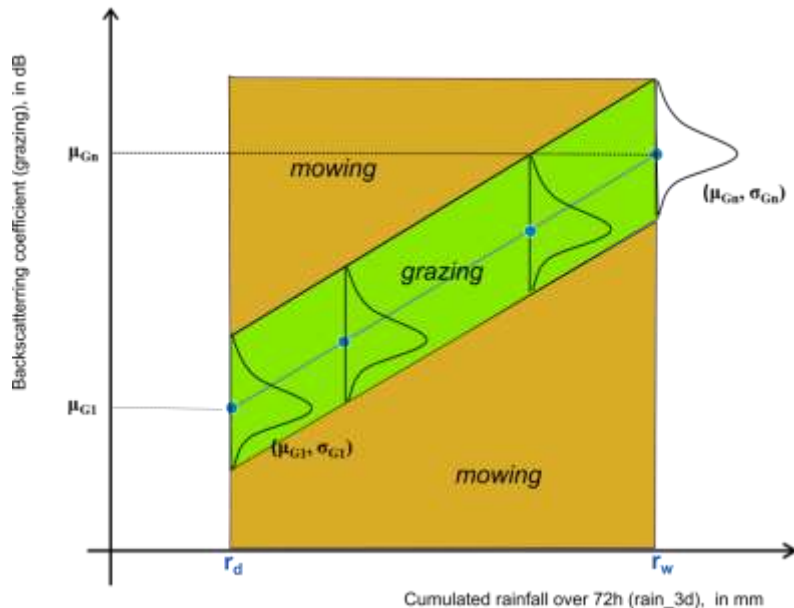
**Revisit time over Europe
in summer with 2
satellites (Sentinel-2)**
(Martimort, 2009)

Maximum effective coverage time for SC1 & SC2 (days) (<15% cloud cover, 68% confidence)



SAR-based monitoring of grasslands

- Based on the distribution of backscattering coefficients (Mowing vs Grazing) and on the differences of backscattering coefficients between 2 consecutive acquisition dates (considering the effect of soil moisture on backscattered signal).
 - ~ 80 % of overall classification accuracy
 - ~ 50 % of mowings unambiguously identified



SAR-based monitoring of grasslands



- Based on the distribution of backscattering coefficients (Mowing vs Grazing) and on the differences of backscattering coefficients between 2 consecutive acquisition dates (considering the effect of soil moisture on backscattered signal).
 - ~ 80 % of overall classification accuracy
 - ~ 50 % of mowings unambiguously identified
- Validation of the results based on SENTINEL-1 data (Master thesis at UCL)
- Use of other SAR technics
 - Polarimetry
 - interferometry



**Thank for your
attention !**

