

Controls with Remote Sensing Vs Monitoring: the role of Sentinel2 AGEA

AGEA since 2016 use Sentinel2 for CwRS

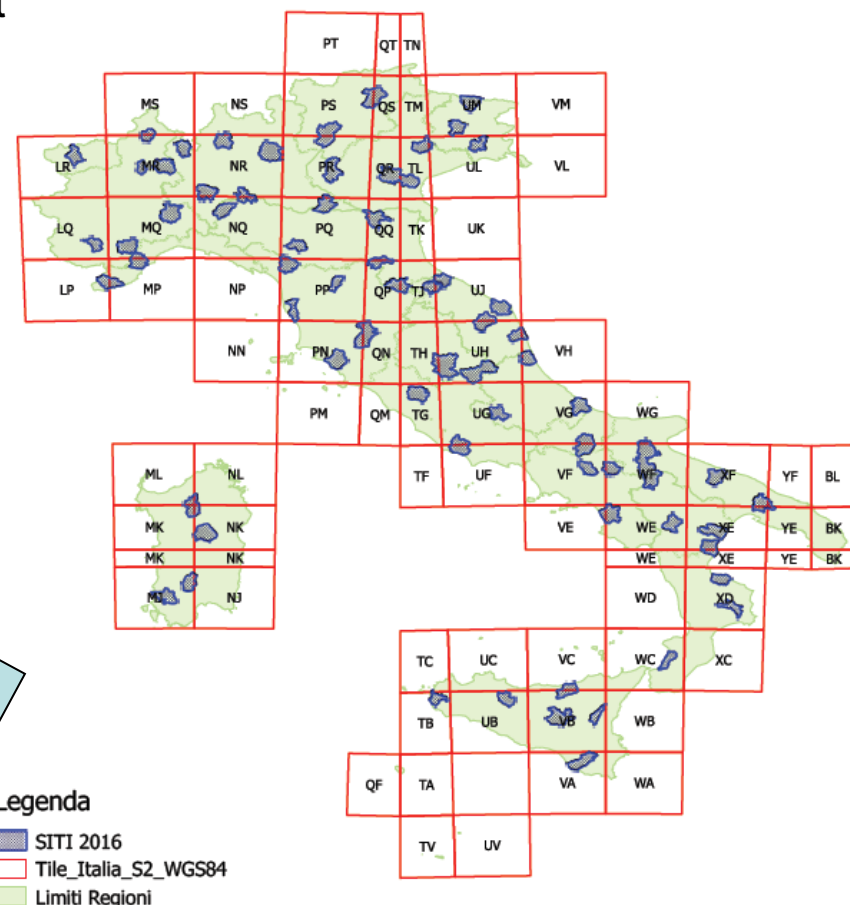
Since 2016 AGEA
started to replace
traditional HR data with Sentinel2 to complement
VHR data for multitemporal analysis

In 2017 campaign **240 S2 granules** have been
used (2018 around the same)

Italy does not use Sentinel1 in CwRS application ,
due to complex morphology, high parcelization
and...sunny periods

.....but for monitoring??

S2 granules overlapping 2016 samples





AGEA use of Sentinel 2

First approach:

- Selection and **manual** download by a provider (Amazon, ESA etc.)
- **manual** ad hoc stretching for each granules or site
- light geometric reprocessing focused on Italian Gauss-Boaga projection (15 CP x granule)
- **panshaping 10m manual** creation for bands 8-11-4 (SWIR 11 is 20m) for better exploiting near and short infrared and contextually, improve the working scale





AGEA use of Sentinel 2

New approach 2017/2018

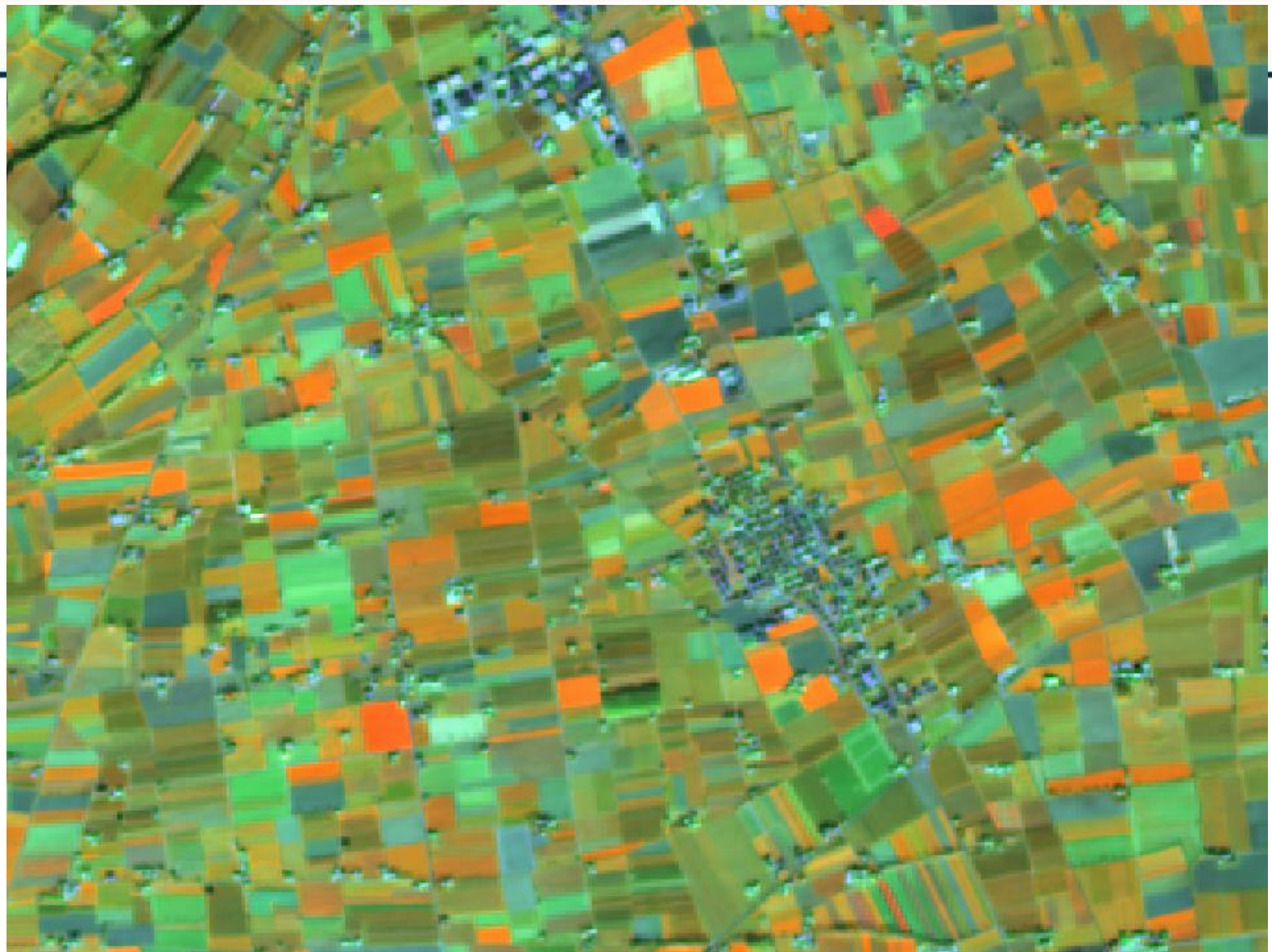
- Selection and automatic downloading through Remote Pixel.ca to achieve JPEG 2000 files
- Saving 16 and 8 bit two image versions and through a proprietary QGIS module data are automatically:
 - Co-registered in multitemporal stacks bands 8-11-4
 - Auto correlated in false-pansharpening 2 IR 10 m res (resampling)
 - Atmospherically corrected by SNAP ESA

Then, imagery-stacks geometrical correction using pre-existing CPs data set

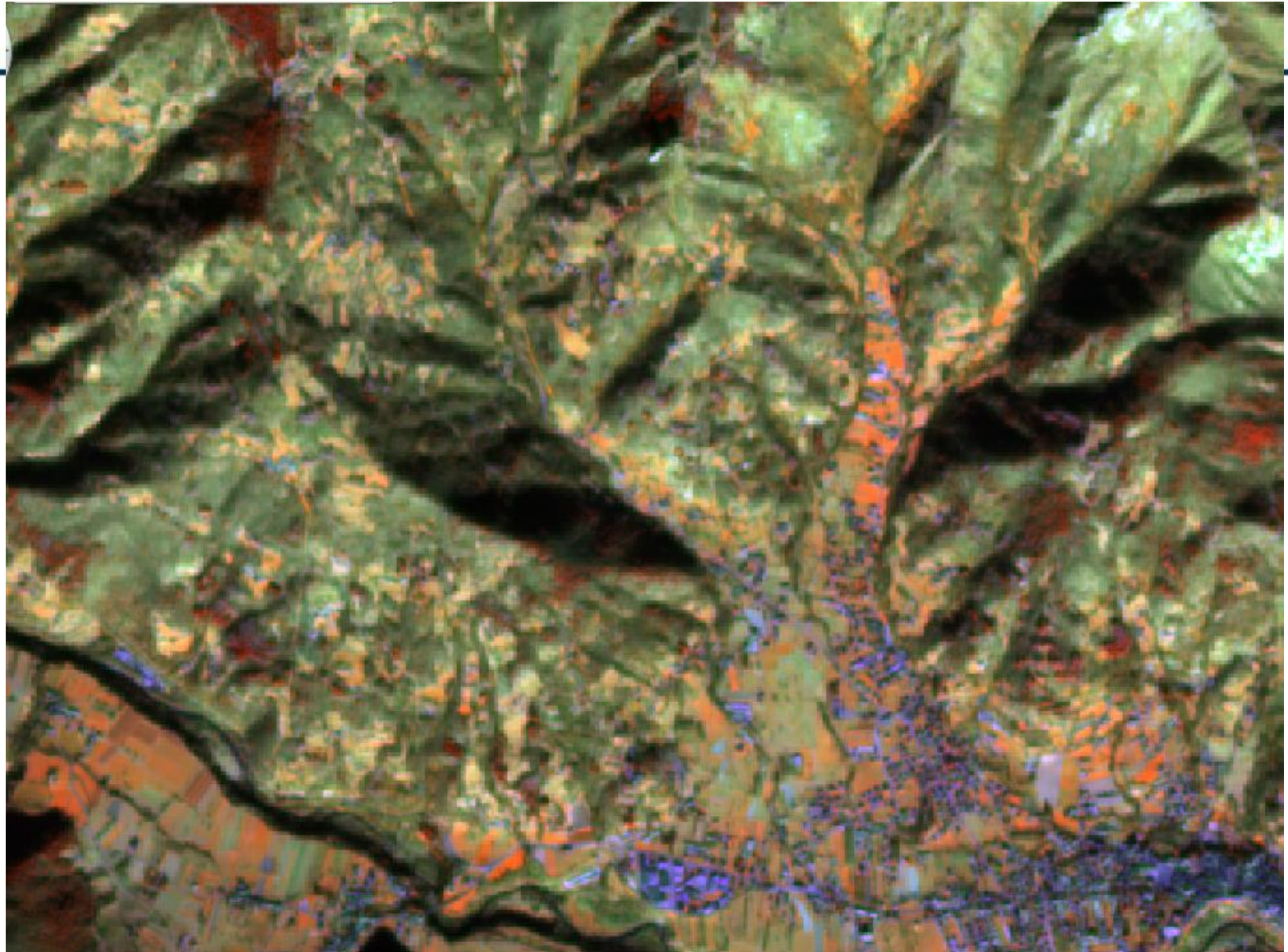
Main benefits:

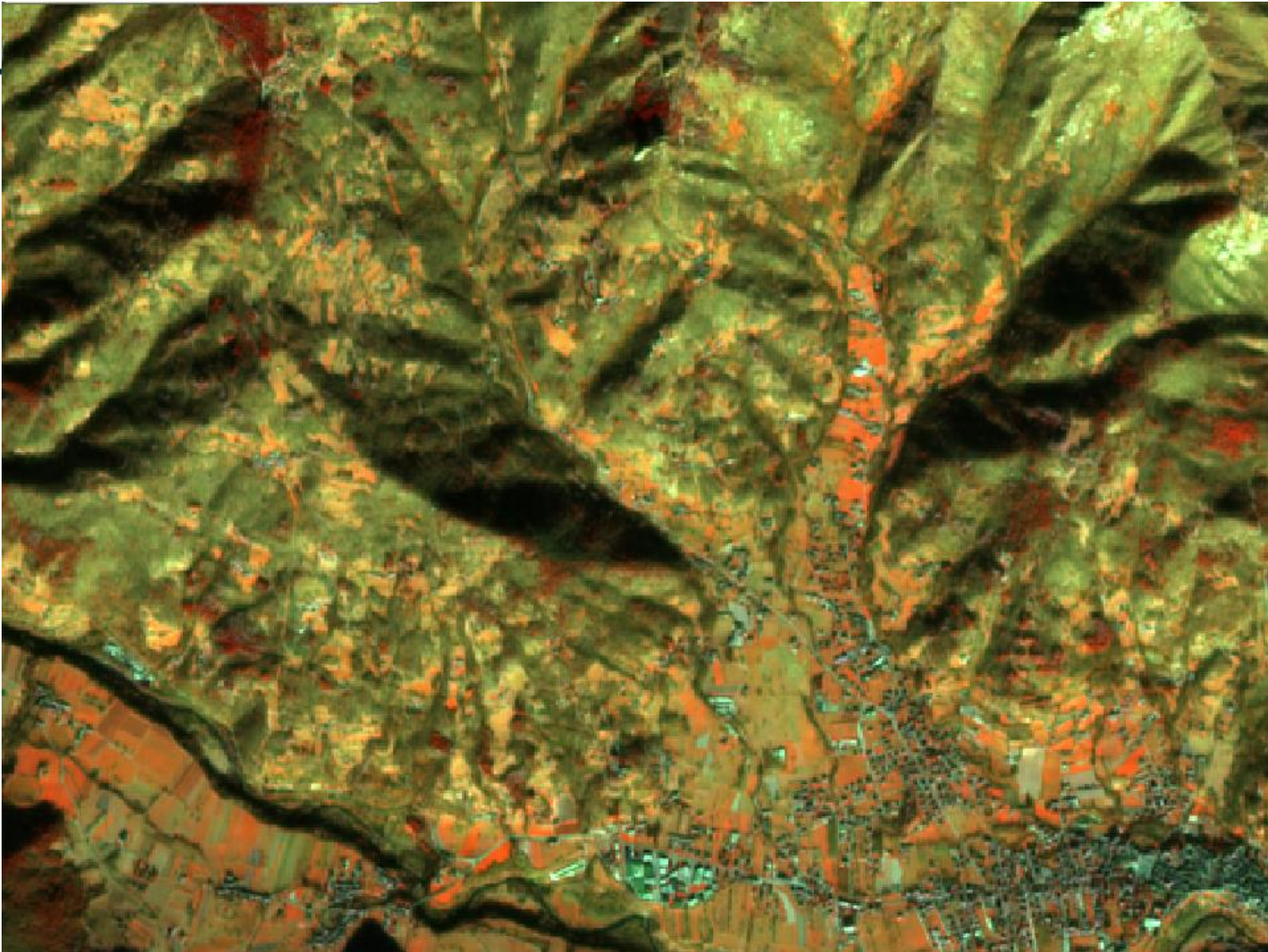
5 minutes vs 20 per image in automatic downloading/processing

Operators are available for other activities ...batch on evening/nights



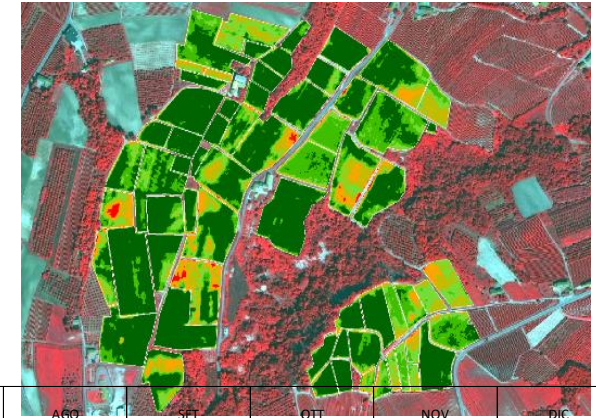
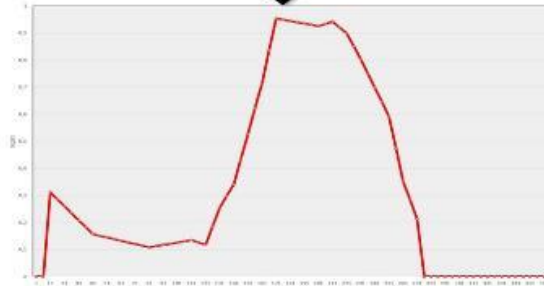
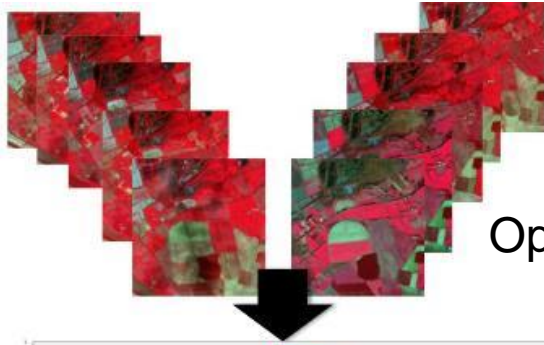






intra-parcel indexes

Optical series

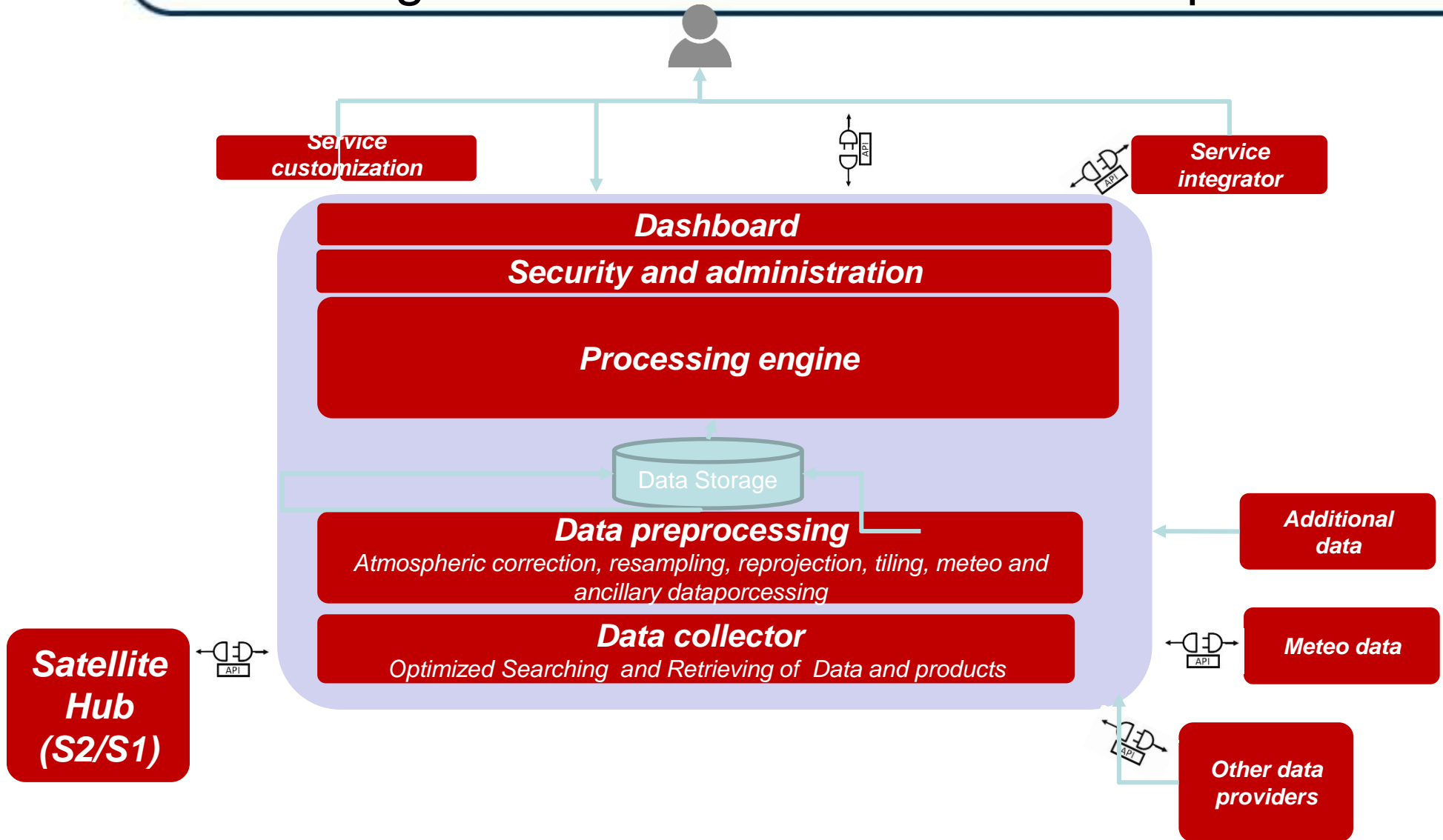


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GSAA => 1 parcel= 1 field

Multitemporal indexes analysis and automatic lights

Monitoring: the infrastructure for services provision



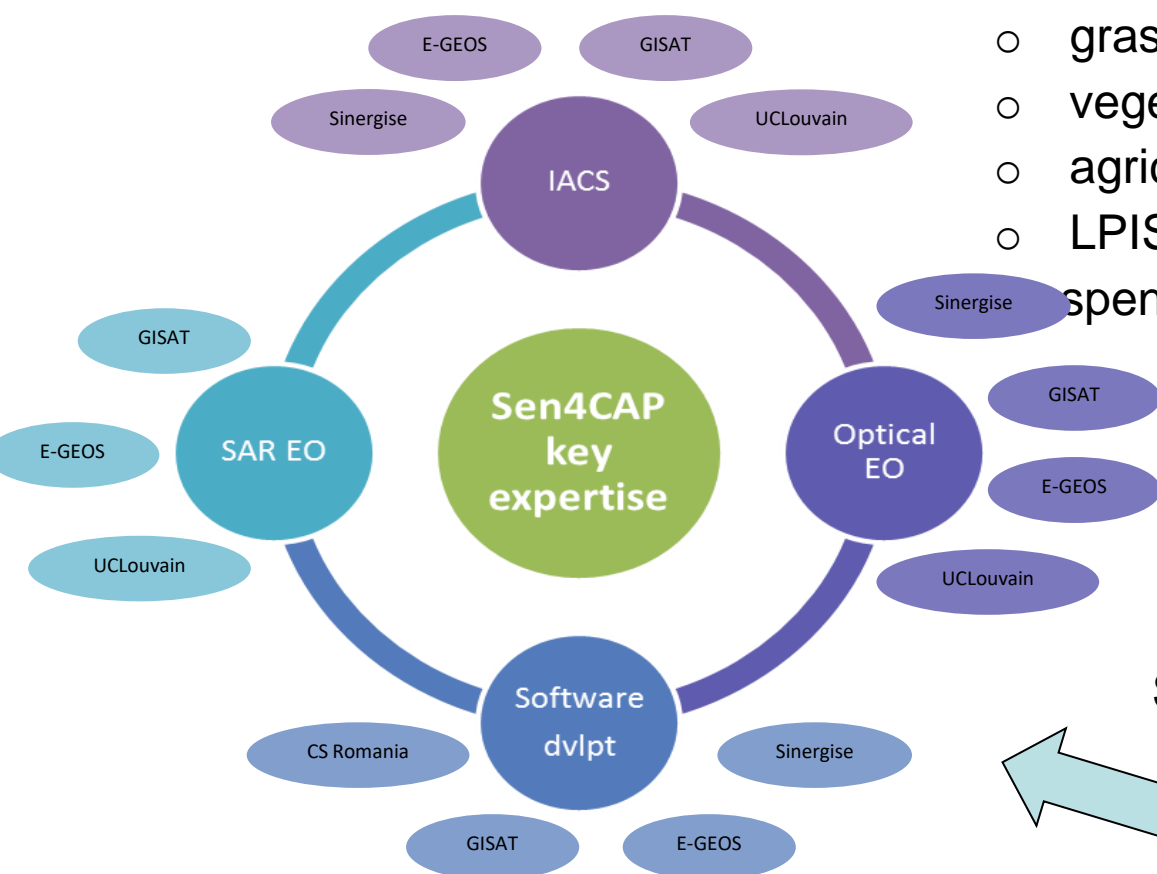
Monitoring approach: exploit SEN4CAP project!

- Sentinels use for supporting IACS processes
 - Sentinels as a support for CAP reform
- Current knowledge and training expectations

Target products:

EO products based on Sentinel 1/2

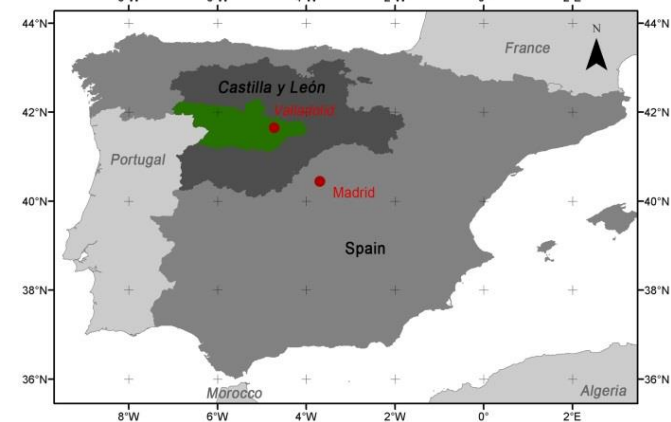
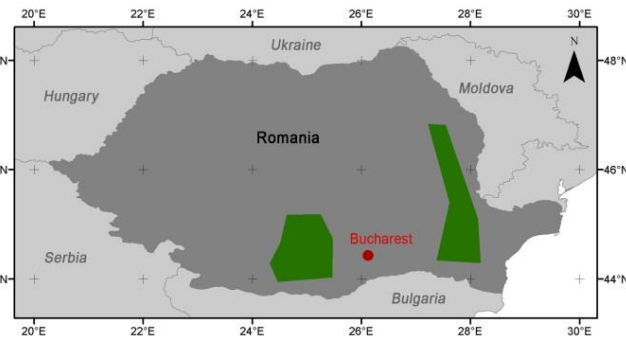
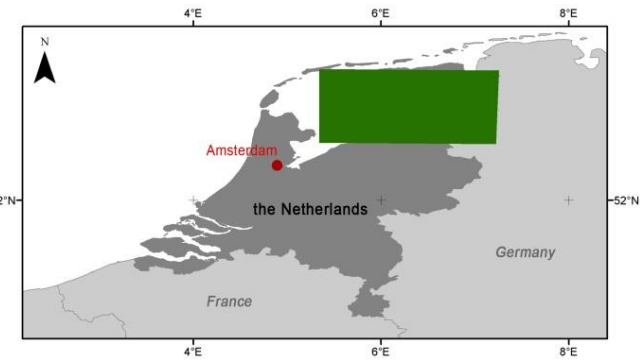
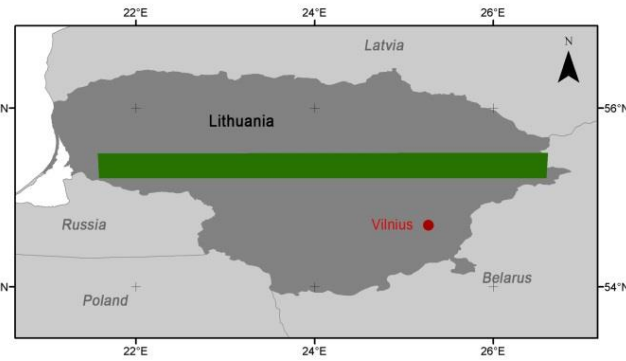
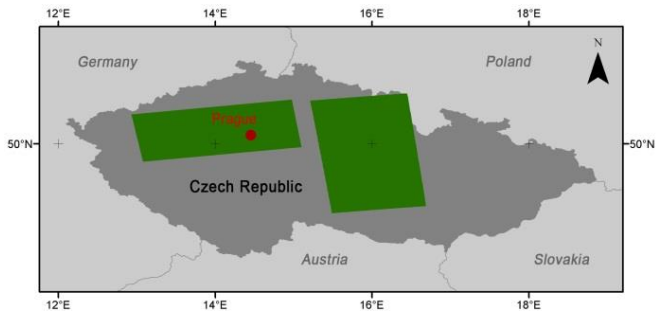
- crop type mapping
- grassland monitoring
- vegetation status
- agricultural practices monitoring
- LPIS update, risk analysis and OTSC support (spended)



Sen4CAP Consortium
and main roles

Monitoring approach: SEN4CAP project

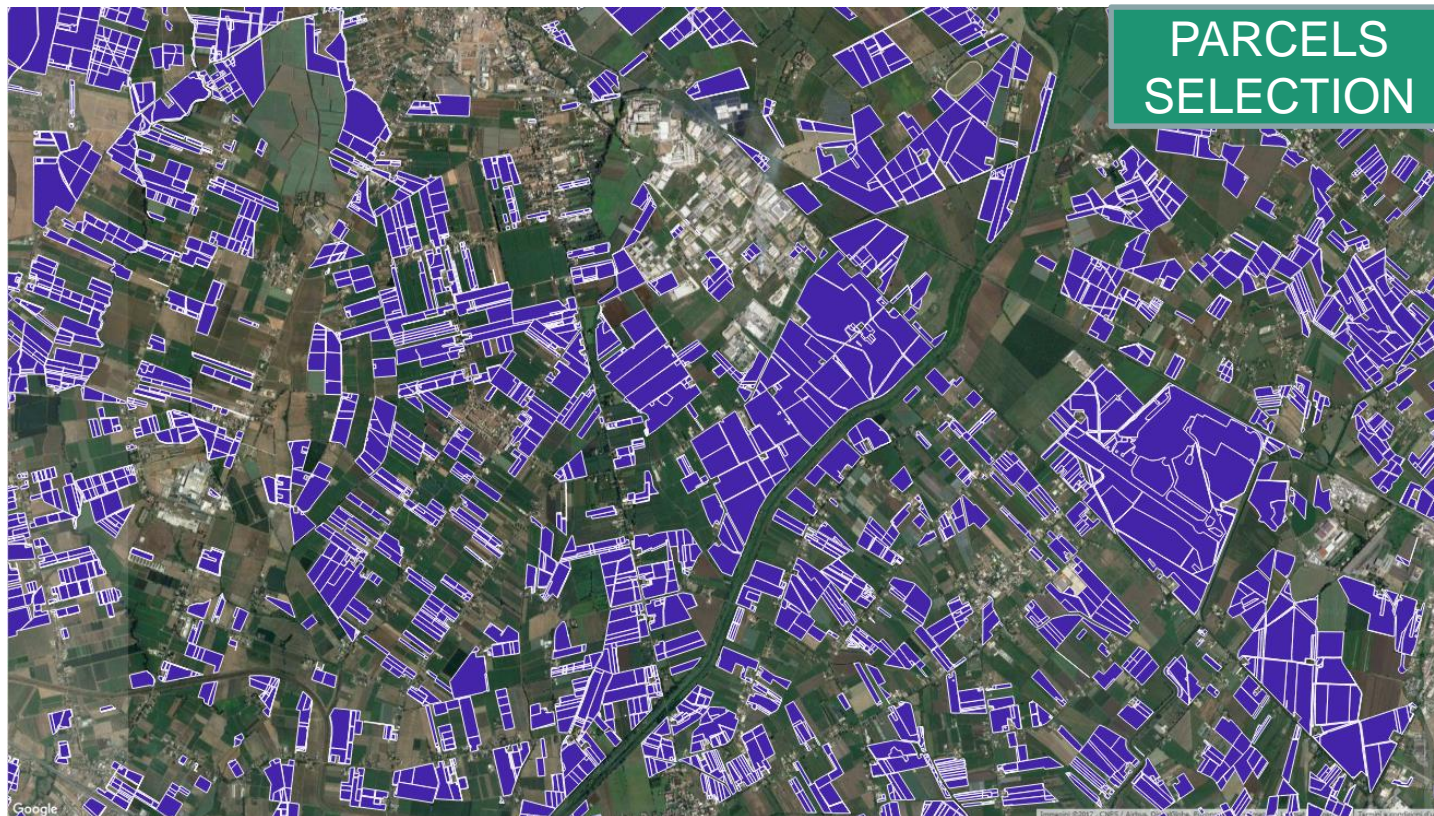
Prototyping test sites ready



End of 2018: national outputs for the products

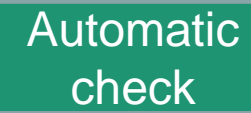


Sentinel 2 crop monitoring: central Italy



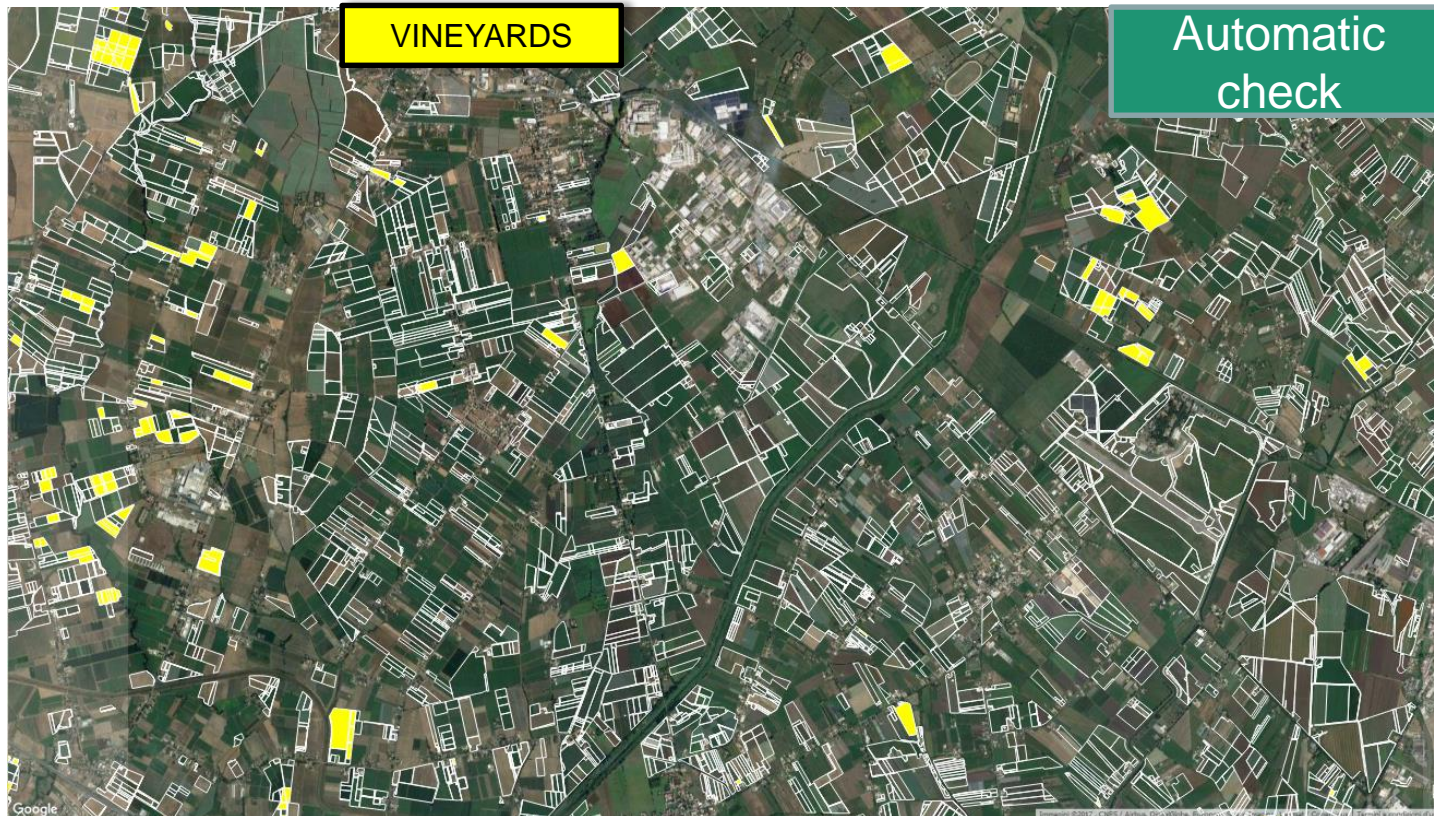
Sentinel 2 crop monitoring Central Italy



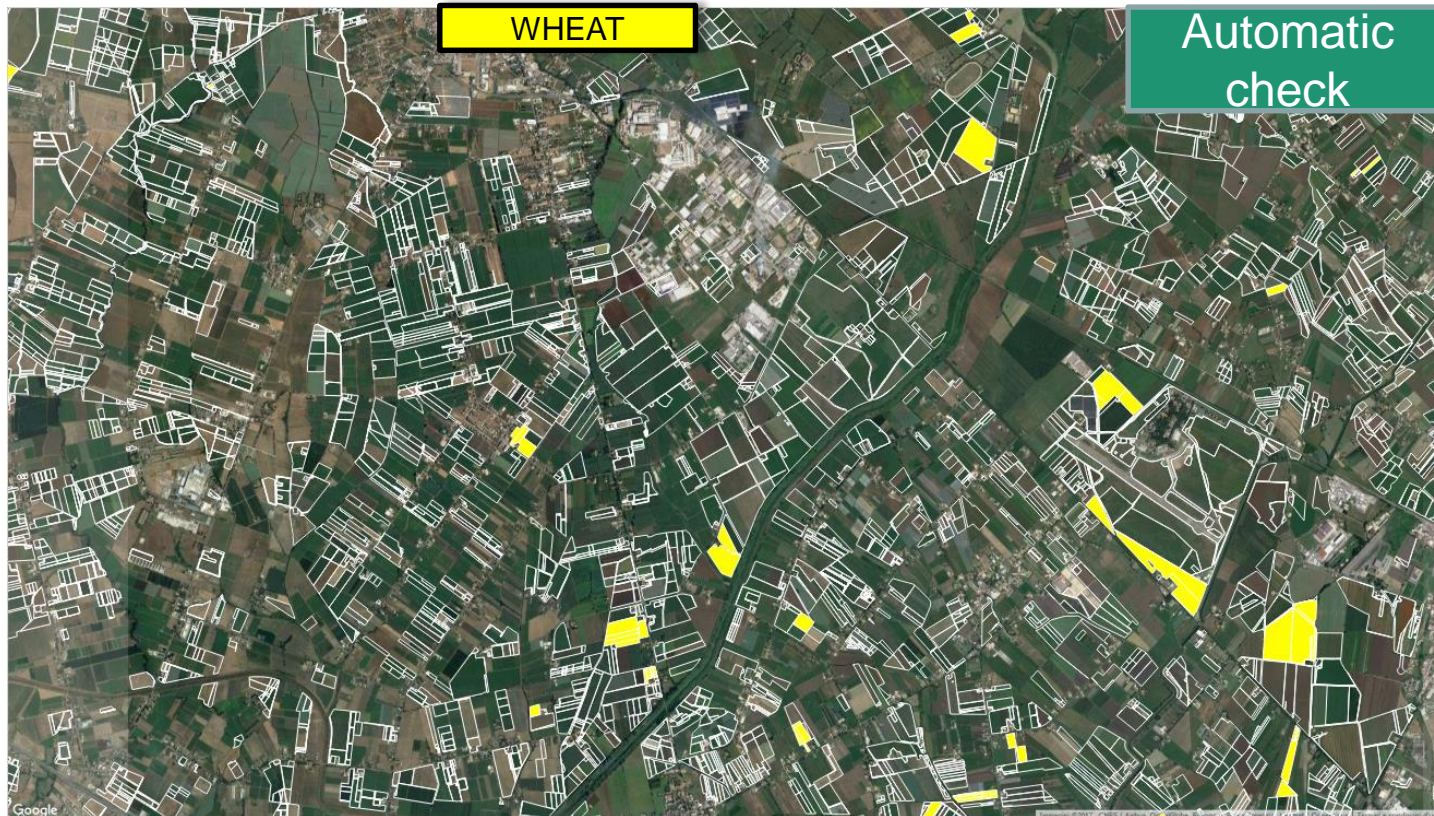




Sentinel 2 crop monitoring



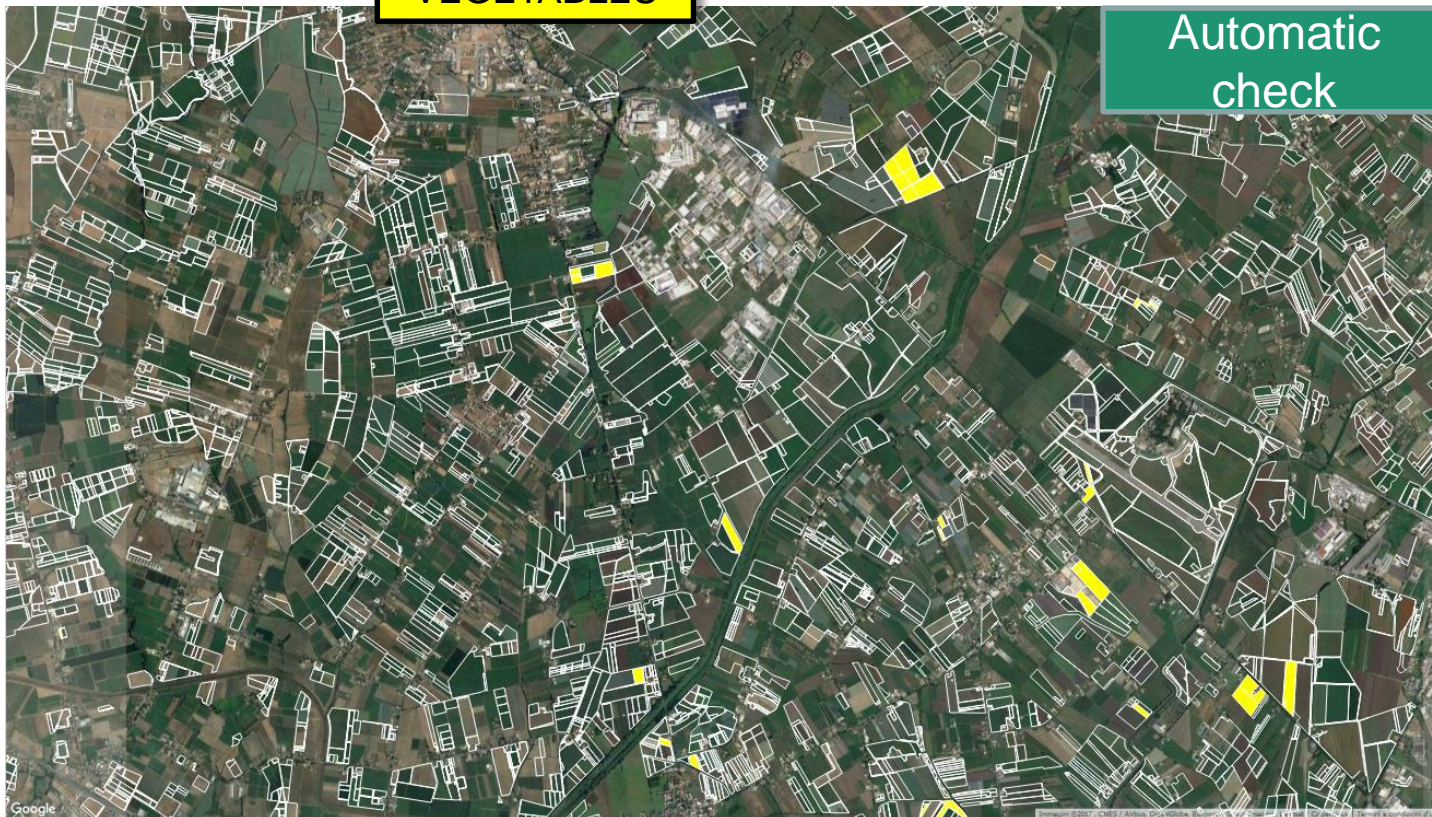
Sentinel 2 crop monitoring



Sentinel 2 crop monitoring

VEGETABLES

Automatic
check

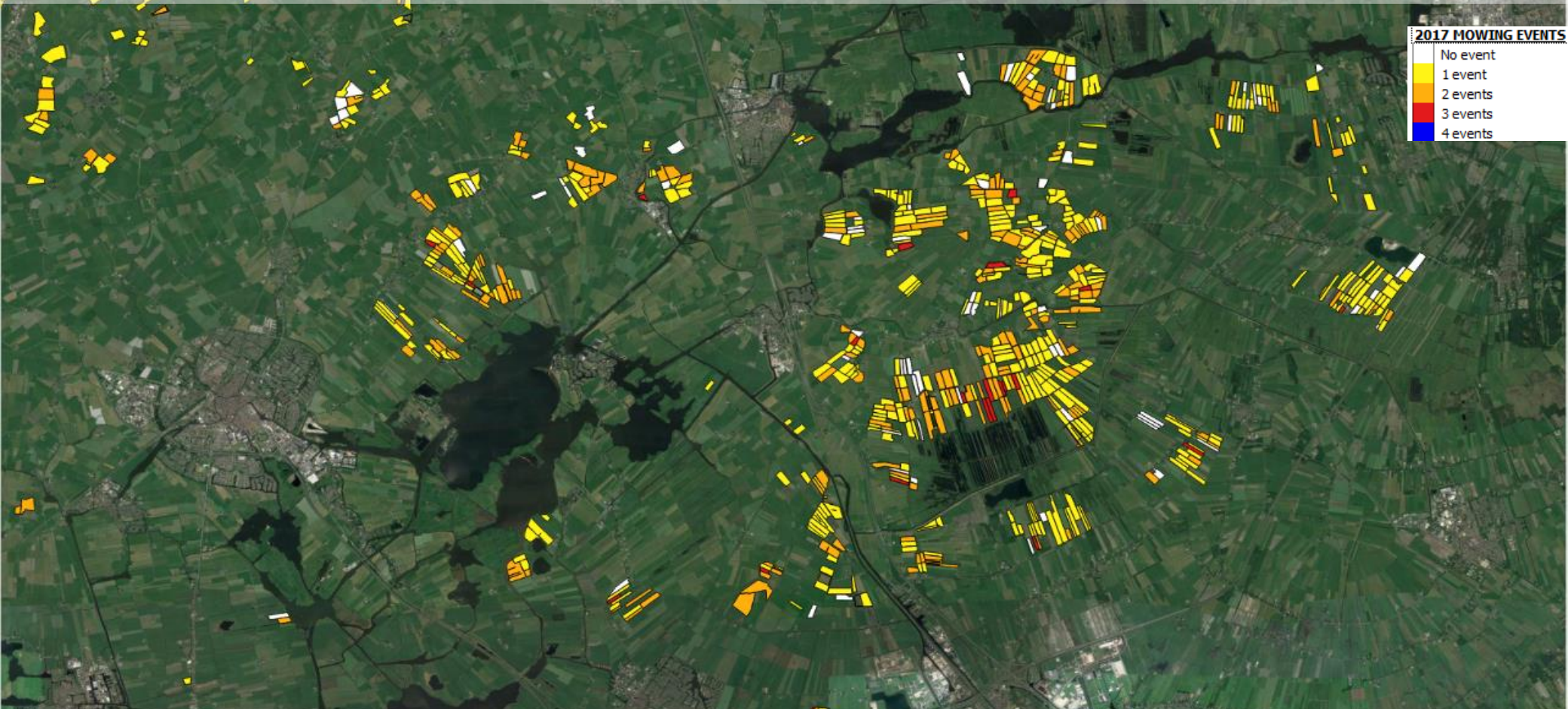


Sentinel 2 crop monitoring central Italy





Sentinel 1 and Sentinel 2 : 90% accuracy only if integrated



Grassland mowing control (Nederland example)



CAP RS next perspectives

S1, S2 in future monitoring –OK integrated

a possible reduction of image requests in 2019 (HR 100%; less VHR with different distribution space/time) in progress up 2021

HHR (Sot6,7 Planet, others mini/microsat): to be tried in 2018 for when and for what?

RPAS for monitoring? Only for specific local and benefit/cost operation