



sentinel-2



→ AGRICULTURE

SEN2AGRI 2016 demonstration phase



JECAM 2015 Science Meeting
16-17 November 2015 – Brussels (Belgium)

European Space Agency

Sentinel-2 for Agriculture 3-year project over 3 phases



**Algorithm
Development
2014**

**Prototypes of
EO products
2015**

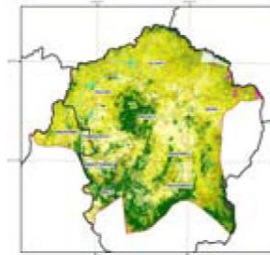
**Demonstration
& Validation
2016**



JECAM

Joint Experiment for Crop Assessment and Monitoring

- ✓ User requirements
- ✓ Products specification
- ✓ Algo / system development



- ✓ 4 agricultural products
- ✓ Open source system
- Prototypes & validation



- **National to local use cases**
- **Products validation**
- **Transfer to national users**



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JECAM Annual Science Meeting, 16-17 November 2015, Brussels, Belgium



Objectives



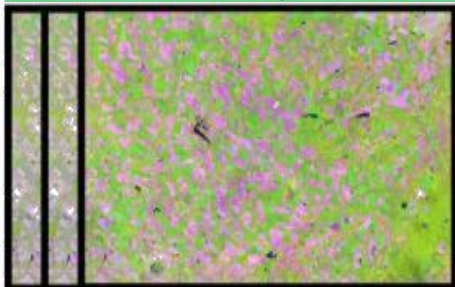
- Assessing and validating the Sen2-Agri products and system to be suitable for regional to national agricultural monitoring purposes as defined by the user requirements
- Demonstrating the system outputs and performances (availability, accuracy, timeliness, robustness and possibly cost effectiveness)
- Transferring the system to user organizations
- Being a learning-by-doing process (operational expectations, logistic requirements and local constraints when going in an operational framework)

Demonstration set-up

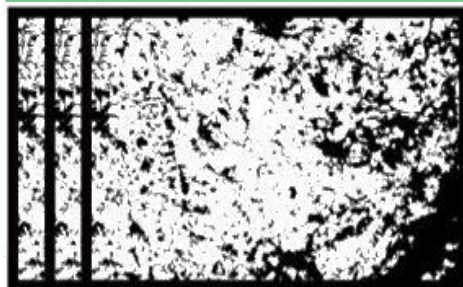


- 2 different levels:
 - 5 **local use cases**
 - 3 **national use cases**
 - some voluntary test sites
- For each case, generation of the 4 Sen2-Agri EO products in NRT with S2 data thanks to active involvement of operational local partners for in situ data collection (JECAM guidelines) and products analysis and use

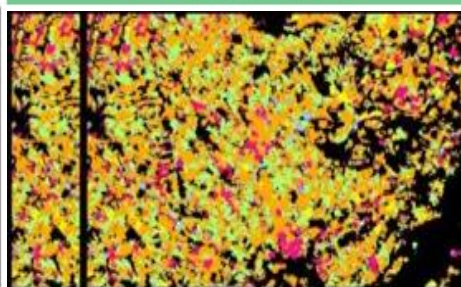
Cloud-free surface
reflectance composite



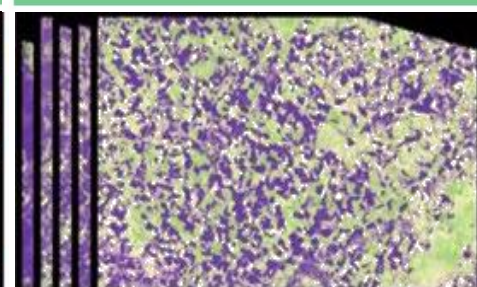
Dynamic cropland mask



Cultivated crop type map
and area estimates



Vegetation status



Demonstration sites



National sites (3)

- Whole country (~ 500.000 km²) to demonstrate the system scalability and robustness
- 2 sites in Africa
- In situ data for algorithms calibration and validation
- System installation at users premises + training (~ 1 week)
- System run by consortium and by users in parallel (if possible)

Local sites (5)

- 1 full S2 scene (290*290 km)
- In situ data for algorithms calibration and validation
- System delivered after training activities
- System run by consortium

Voluntary sites

- Local or national production: run the system by themselves
- No funding; involved in training activities; feedback requested

« Selection » criteria



National case

- Commitment and mandate
- Remote sensing expertise + experience in field campaigns
- Representativeness for a large demonstration ambition (variety of agricultural systems and agro-climatic conditions; GEOGLAM connection)
- Feasibility and chance of success (political stability, technical capabilities, institutional capacity)
- Expected added-value of the Sen2-Agri products

Local case

- Agricultural expertise within a governmental or scientific entity
- Attendance to a Sen2-Agri training
- Ability to deliver in situ data along the season in a standard format
- Willingness to assess products accuracy and relevance with regard to the local context and to discuss the overall system performances and possible improvements

3 « prime » candidates



Countries		Characteristics
Africa	South Africa	Growing season 2016-2017 559.088 km ² (agri provinces of Nord-Ouest, Mpumalanga, Etat Libre, Kwazulu-Natal, Gauteng, Cap Occidental) High technical and field expertise Mandated user
	Mali	Growing season 2016 427.260 km ² when excluding the northern desertic areas High food security impact High added value of products Mandated user
Europe	Ukraine	Growing season 2016 601.649 km ² High technical and field expertise Mandated user



Support for national cases



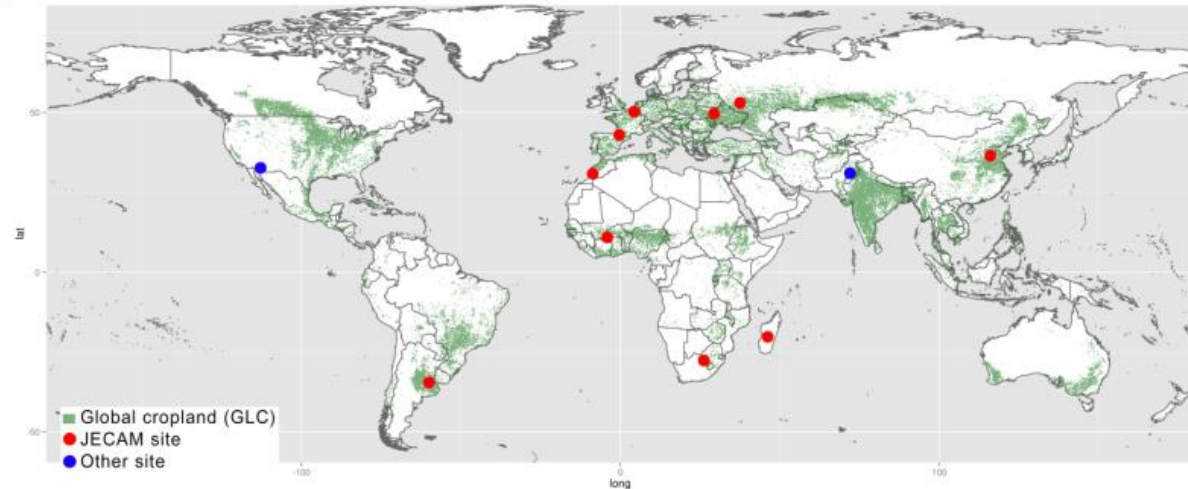
- Preparation of 3 specific plans:
 - **Capacity building plan** to develop a set of skills in the national team regarding the system management and the in situ field campaign
 - **System implementation plan** including good internet connection, the hard and software infrastructure installation, the system operations and maintenance
 - **In situ observation plan** defining the resources requirement and the sampling strategy along the season at the country level
- Budget:
 - 10 K Euros for hardware and software
 - 12 K Euros to support specific Sen2-Agri field campaign activities at national scale

Local use cases



- Candidates

Sites interest will be discussed during the S2-Agri user workshop



- Training activities:

- Training on the use of the system
- Training at the end of the demonstration on the final version

- Budget:

- All travel expenses for training sessions
- Maximum budget of 3 K Euros for:
 - specific field data collection required by Sen2-Agri demonstration
 - Sen2-Agri products analysis



Tentative planning



- Month 1-3: definition of the 3 plans (capacity building, system implementation, in situ observation)
- Month 4: hardware and software installation
- Month 5 or 6: capacity building activities
- Month 6-11: production
- Month 11-13: Sen2-Agri system and products assessment, recommendations

