

# Belmont Forum

## E-INFRASTRUCTURES & DATA MANAGEMENT Collaborative Research Action

### SIGMA

Capacity Development for Stimulating Innovation in Global Agricultural Monitoring

Erwin Goor - VITO, Belgium

Scoping Workshop

November 28-29, 2016

ANR, Paris



# SIGMA PROJECT FACTS

- ❑ Funded By The European Commission

- ❑ Start 1 November 2013

- ❑ Agriculture AND Environment

- ❑ 22 partners, 17 countries

VITO, CIRAD, JRC, IIASA, Alterra, RADI, NMSC, DEIMOS, GeoSAS, RCMRD, Aghrymet, RCMRD, Sarvision, Sarmap, INTA, Geoville , UCL, EFTAS, FAO, ITC, GISAT, IKI, SRI

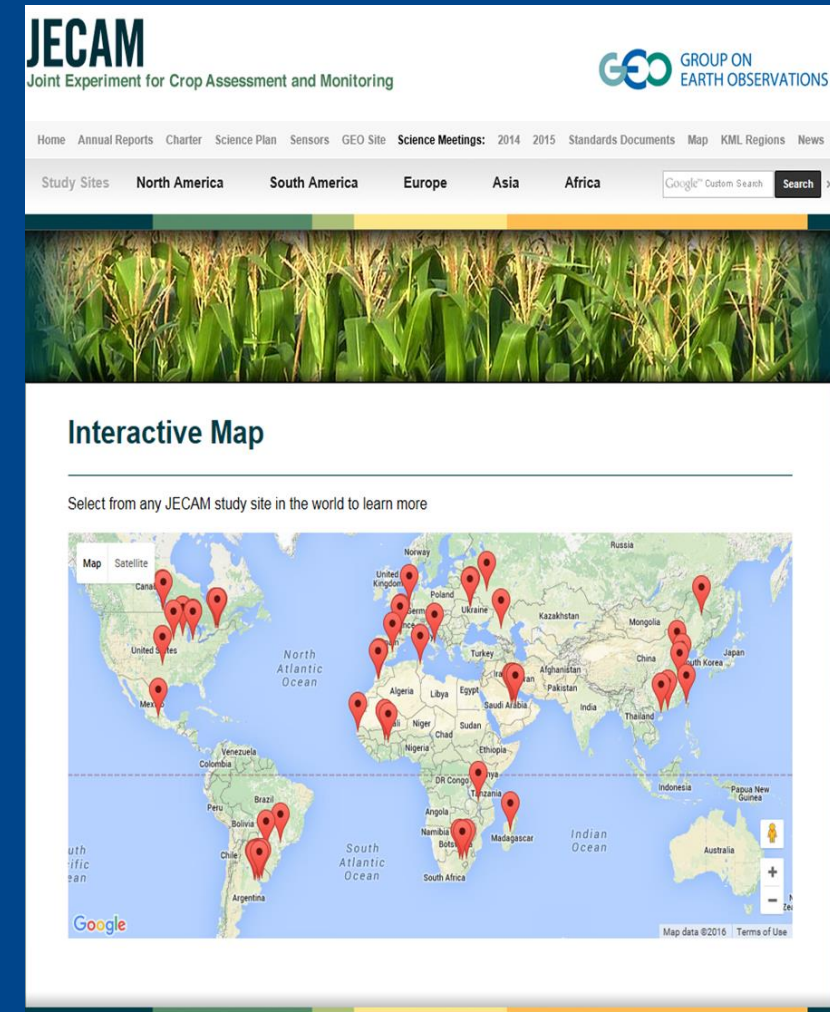
- ❑ Argentina, Ukraine, China, Russia, Burkina Faso, Ethiopia, USA, Brazil, Vietnam, Belgium, ...

- ❑ 11,2 M EUR

- ❑ A Major European contribution to GEOGLAM-> Supporting JECAM

- ❑ Coordinated by VITO, Belgium – Sven Gilliams

- ❑ <http://www.geoglam-sigma.info/>



**JECAM**  
Joint Experiment for Crop Assessment and Monitoring

GROUP ON EARTH OBSERVATIONS


Home Annual Reports Charter Science Plan Sensors GEO Site Science Meetings: 2014 2015 Standards Documents Map KML Regions News

Study Sites North America South America Europe Asia Africa

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### Interactive Map

Select from any JECAM study site in the world to learn more

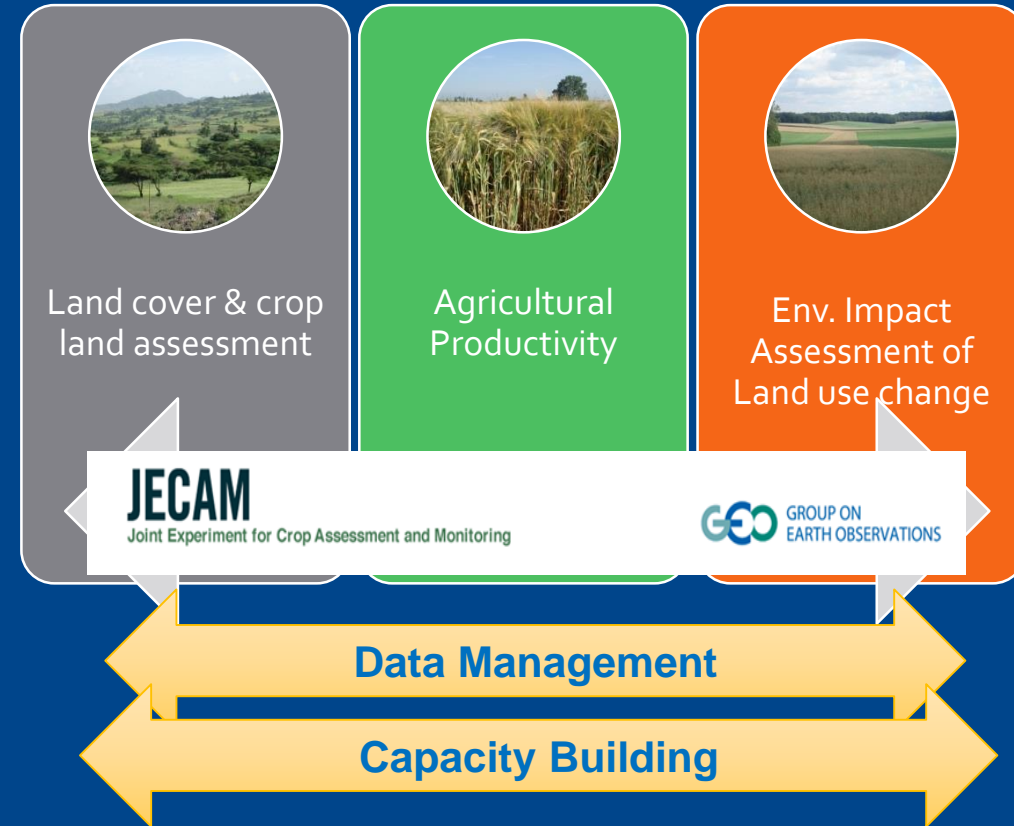


Map data ©2016 Terms of Use

# SIGMA GOAL

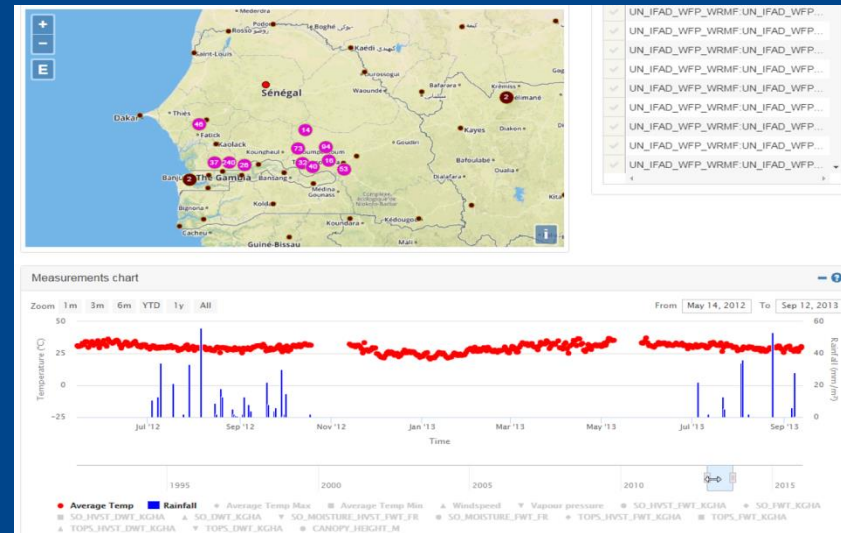
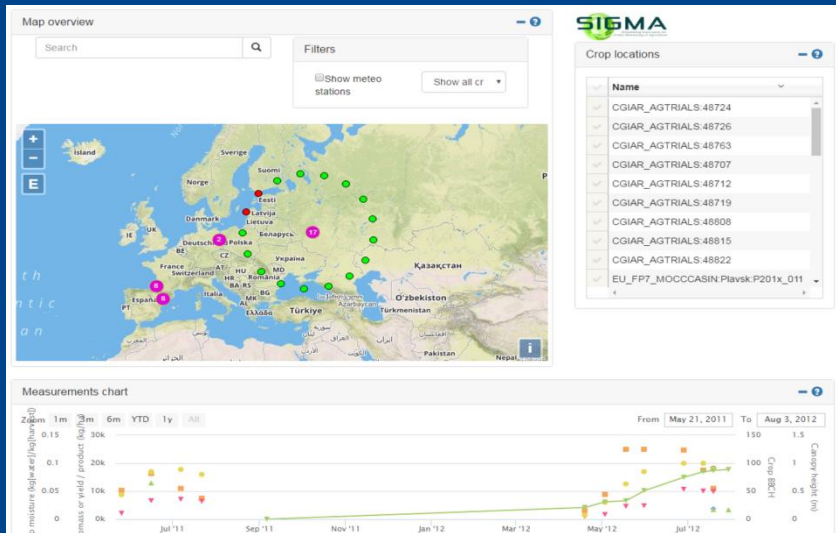
*Improve Remote Sensing based methods and indicators to monitor and assess progress towards “sustainable agriculture”*

- *Inventory of Crop land distribution and its changes over time*
- *Characterize changes in agricultural production levels*
- *Assess environmental impact of agriculture over time*



# E-INFRASTRUCTURES & DATA MANAGEMENT

- SIGMA distribution facility
- SIGMA Analysis facility (VEGA)
- SIGMA Validation facility (GeoWiki)
- Agricultural database (STAC)
- Time Series Viewer → Leverages on Proba-V Mission Exploitation Platform



In Situ data storage – viewing - analysis

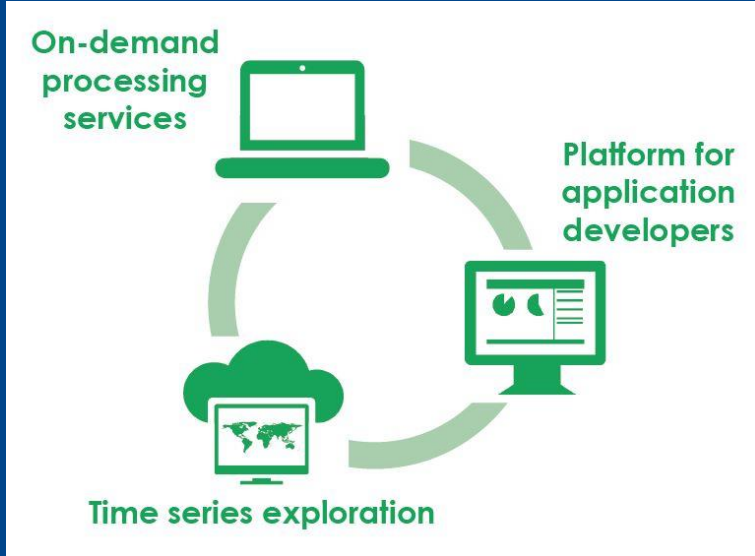
# PROBA-V MISSION EXPLOITATION PLATFORM



[PROBA-V-MEP.ESA.INT](https://proba-v-mep.esa.int)

A screenshot of a virtual machine desktop environment. The window title is "daemsdVM". The desktop background is a satellite image of a coastal region. On the desktop, there are several icons: "File System", "data", "Home", "Sentinel Toolbox", and "Samples". A "QGIS Desktop" icon is highlighted with a yellow box. The system tray at the bottom shows the time "07:37" and the user "ddaems". The bottom right corner of the screenshot contains the "proba-v mep" logo, the URL "https://proba-v-mep.esa.int", and the copyright notice "© ESA-BELSPO 2016, produced by VITO".

Develop and run your EO applications with direct access to full EO data archive



# E-INFRASTRUCTURE AND DATA MANAGEMENT ISSUES

- In-situ database → visualisation & analysis of data
  - Prototype is available ... path towards operationalisation is unclear
  - General issue to find reliable complementary open data
  - Mindshift needed to open in-situ data (e.g. field work from multiple projects): free & open
- Mindshift needed towards 'bring users to the data'
  - Many scattered 'pre-operational' approaches, but no final solution in place → EC DIAS looks promising for Copernicus data
  - Interoperability between different platforms → practically!
  - Need for **easy-to-use python/R Remote Sensing** APIs on time series of raster data
    - Hiding complexity of the underlying platform (e.g. Hadoop/Spark)
    - Researchers vs. ICT → how to bridge the gap?
    - Good example: Jupyter Notebooks, if supported by rich python/R library specific for the community of researchers
- It is very difficult to stimulate users to publish their output (i.e. products/services) on a platform where other users can discover it - consult its metadata - download it – use it – invoke it - ...

# EXPECTATIONS FROM E-I&DM CALL

- Opportunities to collaborate with 'best practices' from different teams to (1) learn from each other and to (2) bring together its data & infrastructure for a common goal.
- Focus on bridging the gap between 'data scientists' and 'ICT experts' → simple community-oriented interfaces, hiding underlying complexity of the infrastructure

