

Joint Experiment for Crop Assessment and Monitoring

JECAM Meeting 2014

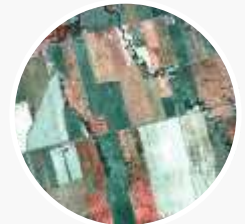
Welcome



Joint Experiment for Crop Assessment and Monitoring

JECAM Meeting 2014

JECAM Update and
Meeting Objectives



Overview of JECAM Principals

The GEO Agricultural Community of Practice Established JECAM to:

- Enhance international collaboration around agricultural monitoring towards the development of a “systems of systems” to address issues associated with food security and a sustainable and a profitable agricultural sector worldwide

JECAM will achieve this by:

- Network distributed regional research sites
- Share time series datasets from earth observing satellites and in-situ data
- Facilitating the inter-comparison of monitoring and modeling

The Approach:

- **Collect and share** time-series datasets from a variety of Earth observing satellites and in-situ crop and meteorological measurements for each site.
- The Committee on Earth Observing Satellites (CEOS) and member agencies are supporting this activity with the **acquisition and timely provision of data for JECAM.**

JECAM – Where We Have been

JECAM is Established, Major Milestones:

- JECAM Concept developed in 2009 by the GEO Ag CoP
- In November 2009, the first JECAM meeting was held at the SAR for Agricultural Monitoring Workshop, in Kananaskis, Alberta, Canada and in December Canada took on the role of JECAM coordination.
- In January 2010, a call was issued to the international community to invite sites to join and in September a JECAM meeting was held which resulted in in-situ data sharing protocols.
- A meeting of the JECAM leadership was held with the space agencies (CEOS) and commercial data providers in Ottawa, in June 2011. Several data providers agreed to marshal their resources to provide coordinated EO data for this task.
- In 2012 EO data started to flow to some sites and the current JECAM.org website was launched.
- In 2013 first annual JECAM report was compiled and published

JECAM.ORG



The screenshot shows the JECAM website homepage. At the top left is the JECAM logo and tagline. At the top right is the GEO logo and tagline. Below these is a navigation menu with links for Home, Charter, Science Plan, Sensors, Map, and Contact Us. A secondary navigation bar includes Study Sites, North America, South America, Europe, Asia, and Africa, along with a Google Custom Search box. The main content area features a large image of a cornfield with a central text box titled 'JECAM GOALS'. The text in the box states: 'The overarching goal of JECAM is to reach a convergence of approaches, develop monitoring and reporting protocols and best practices for a variety of global agricultural systems.' Below this text is the Agriculture Community of Practice logo.

Joint Experiment of Crop Assessment and Monitoring

The overarching goal of JECAM is to reach a convergence of approaches, develop monitoring and reporting protocols and best practices for a variety of global agricultural systems. JECAM will enable the global agricultural monitoring community to compare results based on disparate sources of data, using various methods, over a variety of global cropping systems. It is intended that the JECAM experiments will facilitate international standards for data products and reporting, eventually supporting the development of a global system of systems for agricultural crop assessment and monitoring. The JECAM initiative is developed in the framework of GEO Global Agricultural Monitoring (GEOSS Task AG0703 a) and Agricultural Risk Management (GEOSS Task AG0703 b).

CEOS Support - JECAM Data Requests

JECAM Site	COSMO SkyMed	RADARSAT-2	TerraSAR-X	AWIFS	DMCII	ASTER	HJ-1	Landsat	MODIS	Quickbird	Rapideye	SPOT-4/5/6	Worldview-2	Pléiades	Formosat-2	Deimos	Chris
Argentina	1	18 ¹	7	6	7						24	17					
Belgium		11						x			28	14					
Brazil – Sao Paulo								4	220				3				
Brazil – Tapajos								x ²			48			3		10	
Burkina Faso								11						7			
Canada CFIA – Ottawa								8				7					1
Canada/Red River		x						x			x						
Canada/South Nation			8					x			15						
China/Guangdong (Taishan)	12	6									4						
China/Heilongjiang	4	5	5				27		21		5	x					
China/Jiangsu ³																	
China/Shandong	4	4	1		x		21		46		5	18					
France								7				15		3	16	8	
Italy Apulian Tavoliere									x								
Madagascar												25		9			
Morocco												36					
Russia								x	x								
Saudi Arabia						x		x		4							
South Africa								7	20		11	135					
Taiwan									x			x			x		
Tunisia	15		2			2		21				25					
Ukraine		14						6	x		29	17					
Uruguay								x									
U.S.A.				4													

- Over 30 sites currently exist or are in development



JECAM and GEOGLAM

GEOGLAM:

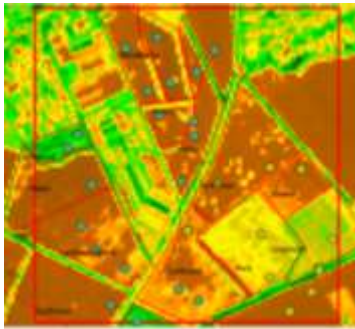
- G20 launched and Action Plan on Food Price Volatility and Agriculture, in 2011 which included the GEO Global Agricultural Monitoring Initiative (GEOGLAM).
- It was recognized that any operational global system of systems for ag monitoring requires a research component to fill knowledge gaps, help build a convergence of methods and best practices, and make use of emerging technologies, including new satellite platforms.
- Essentially JECAM is now seen as the foundation of the R&D component of GEOGLAM
- In 2013 we saw significant investments in R&D to support GEOGLAM and Ag monitoring in general
 - SIGMA – EC FP7 (9M Euros) for R&D to support GEOGLAM, largely built on the JECAM network
 - Sentinel 2 Agri
- GEOGLAM is now helping to drive the research agenda, consequently there are significant opportunities for JECAM to support

General approach to agriculture monitoring - Ukraine



JECAM Activities

Local Scale
Field level
100m – 1km



Validation

Mid-Scale
NUTS3 – NUTS2
50x50 – 200x200 km



Product development

“Large Scale”
Whole Ukraine
1000x1000 km



Operational implementation

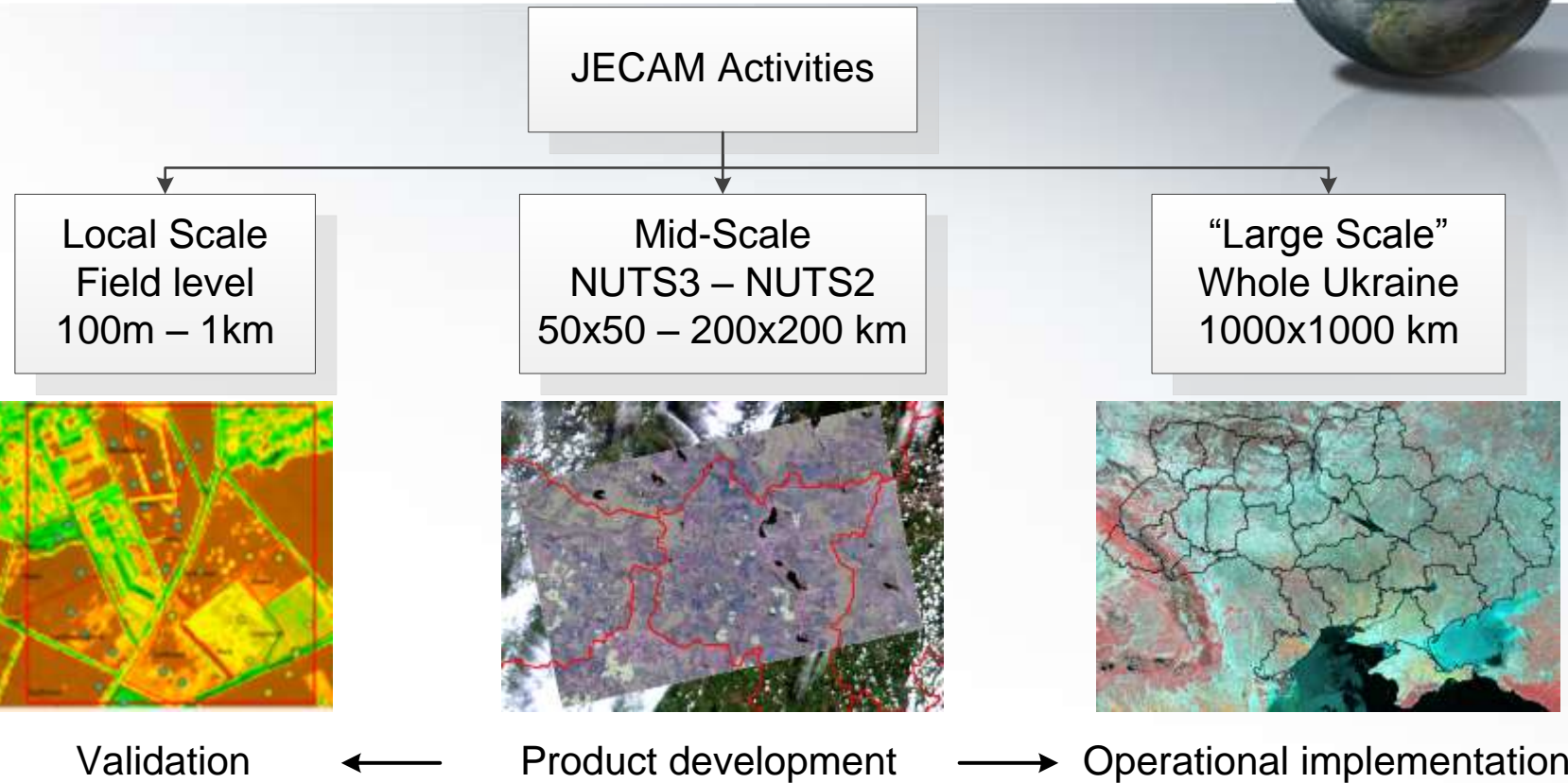
FP7 ImagineS

FP7 SIGMA

ESA Sentinel-2 for Agriculture

PROJECTS

General approach to agriculture monitoring



GEOGLAM
Global Agricultural Monitoring



JECAM – Where We are Going

- JECAM was developed as a “bear bones” initiative built on common interest and best intentions. No infrastructure for data management and sharing,
- With GEOGLAM and associated initiatives the situation has evolved so that we need to be able to share our data, information and science more openly, efficiently and effectively.
- Operationally this includes:
 - Coordinated, standardized data management
 - Central services
 - Need to define in-situ data collection standards to enable intercomparisons
 - Standards Document, Data collection tools
 - Need to open up sharing of EO data as much as possible
 - Work with CEOS to define data needs and “push the bar” on open licensing
- From a research perspective GEOGLAM has presented a number of new emerging priorities/opportunities:
 - Use of SAR for areas of the globe with high cloud coverage
 - Sampling frameworks for areas where “wall to wall” monitoring is not possible
 - Other research questions particular to food insecure nations

JECAM Meeting Objectives

- JECAM and GEOGLAM updates (Day 1)
- JECAM site reports: Description, research, data and collaboration (Day 1)
- Space agency and commercial data providers: Mission status, new missions and research opportunities (Day 2)
- Define and create minimum EO and in-situ datasets: Discuss, modify, endorse (Day 2)
 - Documents distributed prior to meeting
- Review of major collaborative initiatives: SIGMA, Sen2Agri, Asia Rice (Day 2)
- Open data management, sharing solutions and collection tools (Day 2-3)
- Emerging research issues: Mini Workshops (Day 3)
 - SAR Agricultural Applications
 - Research challenges for “countries at risk”
 - Regional to National sampling frameworks
- Revision of JECAM Science plan for GEOGLAM and wrap-up