

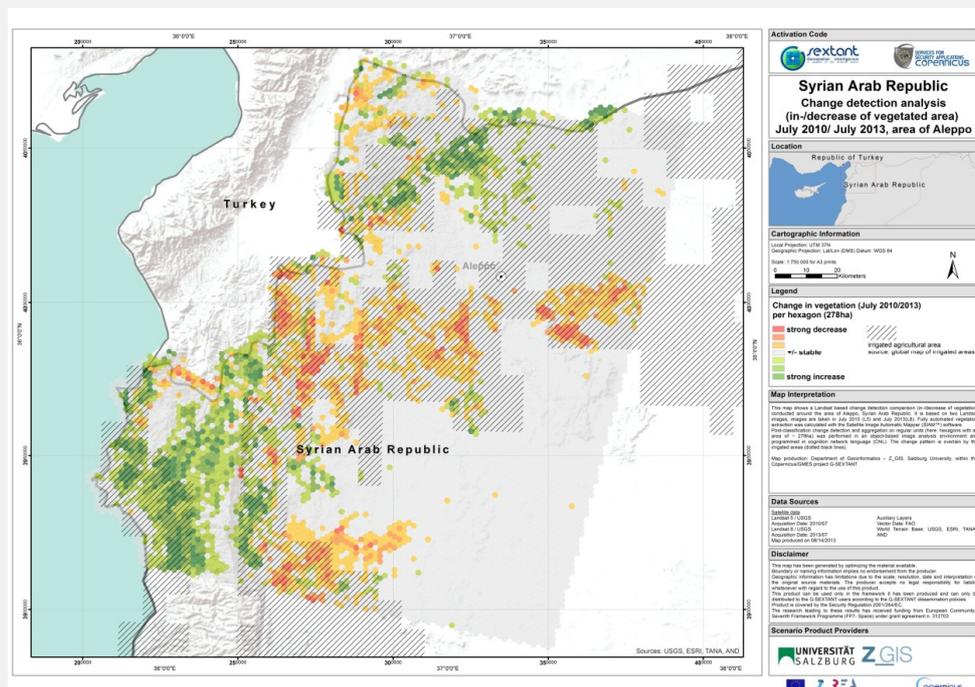
G-SEXTANT Newsletter September 2013

CONTENTS

- In focus: first G-SEXTANT product! (page 2)
- Production activities (pages 3, and 4)
- G-SEXTANT in *ESA Living Planet Symposium 2013* (page 5)
- G-SEXTANT in *Copernicus Observer* and *Window on GMES* (page 5)
- Other G-SEXTANT WPs activities (page 6)
- Next events (page 7)
- Project documents (page 7)

IN FOCUS: FIRST G-SEXTANT PRODUCT!

The G-SEXTANT team is working on the elaboration of the first examples of products according to the *Yearly Production Plan* (D510.3). It was envisaged to present those first products at the user meeting scheduled on 23rd October 2013. However, since the meeting might not take place during October, these products will be presented for the first time at the G-SEXTANT *First Production Review and Second Project Review Meeting* to be held at DLR premises on November 2013. **A specific poster session will be arranged during this meeting.**



Example of land conflict situation awareness product (map produced by PLUS)

First products were elaborated within the scenario *Land conflict situation awareness* (WP540), sub-scenario *Land use changes in 'systems in transition'* performed by PLUS.

The European Commission's DG DEVCO has initiated a preliminary impact assessment of the Syria conflict lead by JRC in order to prepare for post-conflict needs estimation for measures in support of reconstruction and rehabilitation. One of the products (see the previous example) provides information on the land cover changes (in-/decrease of vegetated areas) between July 2010 and July 2013, as an indicator about the impact of the on-going conflict concerning the agricultural production (focusing on irrigated areas during the dry season).

A second product focused on the extraction of indications for land abandonment. The product was requested for a SPOT-6 image from February 2013 and should be compared to a SPOT-5 image from January 2010 (both are acquired in the rainy season). In such a case traditional change detection analyses based on spectral values only are usually not very successful (difficult to differentiate between weed infested areas and cultivated areas).

Instead of comparing spectral values, the approach developed within G-SEXTANT is focusing on changes in field fragmentation using an adapted object-based image segmentation and object-comparison algorithm, programmed in cognition network language (CNL).

PRODUCTION ACTIVITIES

Humanitarian crisis scenario



Work on products has started in all four sub-scenarios focusing on different areas of interest. Optical satellite data of high and very high spatial resolution are analysed. **Technological enhancement and research is concentrating on thematic mapping, optical change detection and feature extraction.** The latter comprises object-based image analysis, mathematical morphology as well as support vector machine approaches.

Example of shelter detection in a refugee camp in Dadaab, Kenya. Classification of tents (pink), corrugated iron huts (yellow), vegetation (green) and shadow (blue)

Natural resources scenario



For sub-scenario 1 **Mining of Minerals** optical and radar satellite imageries are currently analysed for two areas of interest in the Democratic Republic of the Congo (DRC). Feature extraction following an object-based image analysis approach as well as change detection analysis is in the focus of technological enhancement and research. In sub-scenario 2 **Oil exploitation** research is concentrated on an area in Chad for which high resolution satellite imagery are analysed. For both sub-scenarios information on the conflict and its impact are collected and compiled in a dossier.

Product example of a gold mining map in the South Kivu province of DRC

Land conflict situation awareness scenario



One of the aims of the scenario is to show the impact of conflict situations on the environment and land use. Improved land cover/land use change methodologies have been applied to the **analysis of territorial changes in areas in conflict.**

The first products elaborated within this scenario are currently under verification and validation processes.

Product example for Syria (indications for land abandonment) produced by PLUS presented at ESA Living Planet Symposium

Monitoring of nuclear sites and activities tools



Subscenario 1 *Monitoring of Nuclear Decommissioning Activities* has started to work on the [SAR visualisation tool](#). Subscenario 2 *Monitoring of Nuclear Activities in the Context of the Nuclear Non-Proliferation Treaty (NPT)* is enhancing tools for SAR and optical change detection, to be implemented into an integrated platform to the non-proliferation image analyst.

Illicit crops scenario



Cultivation activities for illicit crops in Afghanistan are influenced by a variety of socio-economic and environmental factors. In the context of this scenario, a risk mapping approach for illicit crops (such as poppy) is developed by [integrating different key factors identified during past assessments](#). This risk index can support UNODC to identify hotspot regions within the country. The conceptual framework has been already developed and the model will be discussed with the user.

Poppy cultivation in Afghanistan (Credits: UNODC)

Border surveillance scenario



Based on requirements of SEA services/products portfolio, in this first production phase [wide-area border monitoring products](#) are being developed. Reference mapping techniques, improvement of current permeability/porosity models and semi-automatic change detection methods are being tested in Sudan-Chad border. New sensors applications, as nocturnal, are also being analyzed.

Delineation of built-up areas using semi-automatic classification in Sudan-Chad border (Credits: Eurosense)

G-SEXTANT IN ESA LIVING PLANET SYMPOSIUM 2013

A joint G-SEXTANT/G-NEXT oral presentation was given in the *ESA Living Planet Symposium 2013* held in Edinburgh from 9th to 13th September, entitled *GMES Pre-operational Services Supporting European External Actions*.

<http://www.livingplanet2013.org/abstracts/849360.htm>



G-SEXTANT IN COPERNICUS OBSERVER AND WINDOW ON GMES



STP has coordinated the elaboration of a joint G-SEXTANT/G-NEXT article published in the Commission official newsletter on Copernicus (*Copernicus Observer*).

<http://newsletter.gmes.info/>

G-NEXT and G-SEXTANT: support to EU External Action

The Copernicus services for Security applications, in support of EU External Action, are currently being developed by two FP7 projects: G-NEXT and G-SEXTANT, both of which started on the 1st of January 2013.



[read more](#)

Window on GMES



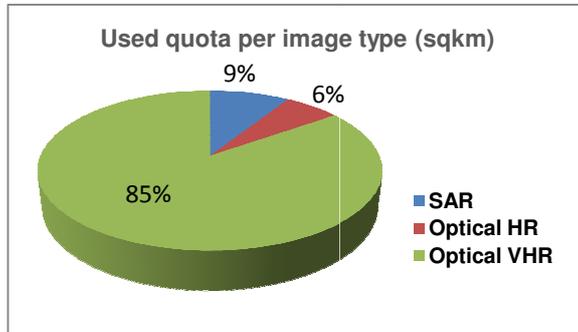
People displaced by conflict Northern Uganda 2004 © T. Koene/ MSF

Peter Zeil (PLUS) has written an article entitled *Support to Security and Stability in Africa: Copernicus services development in the G-SEXTANT project* to be published in the next issue of *Window on GMES*.

In this article, Peter points to the nexus between security and development, and portrays the G-SEXTANT activities focused on Africa as opportunities for collaboration in the context of GMES & Africa.

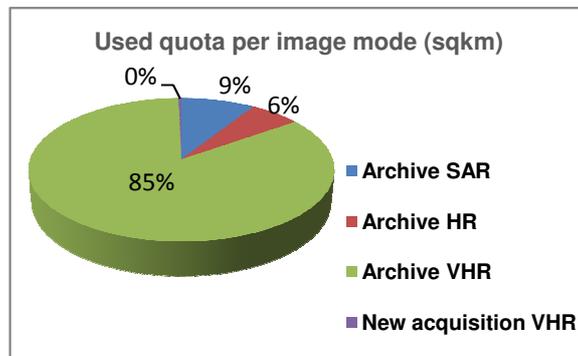
OTHER G-SEXTANT WPs ACTIVITIES

G-SEXTANT EO data consumption (WP120)



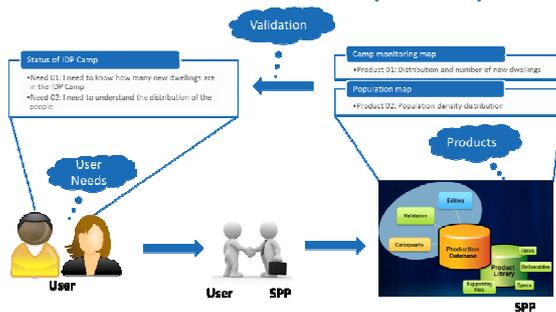
EO data quota consumption statistics for G-SEXTANT (status: 15/09/2013) based on the *ESA Web Status Report*:

32,152 sqkm (23,6% of allocated quota) have been consumed by the project so far.



113 sqkm correspond to new acquisition VHR.

Validation and verification (WP600)



G-SEXTANT product workflow

After an analysis of G-SEXTANT scenarios and services, validation (EUSC) and verification (SRC) protocols are starting to be implemented on the first product.

Cost benefits analysis and sustainability (WP730)

The proposed methodology for cost modelling, based on -and building upon- the token tracking methodology developed by EUSC, has been designed (*Project Sustainability Procedure -D.730.1*).

Dissemination (WP800)

Communication Strategy and Action Plan document (D810.2) is under final revision and the *Multimedia Presentation* is under development.

NEXT EVENTS



Item	Topic	Chair	Start	End
1	Registration	DLR	13:00	13:30
2	PR1+PR2	DLR	13:30	15:00
3	Break	DLR	15:00	15:30
4	PR1+PR2	DLR	15:30	17:00
5	Registration	DLR	17:00	17:30
6	PR1+PR2	DLR	17:30	19:00
7	Break	DLR	19:00	19:30
8	PR1+PR2	DLR	19:30	21:00
9	Registration	DLR	21:00	21:30
10	PR1+PR2	DLR	21:30	23:00
11	Break	DLR	23:00	23:30
12	PR1+PR2	DLR	23:30	01:00
13	Registration	DLR	01:00	01:30
14	PR1+PR2	DLR	01:30	03:00
15	Break	DLR	03:00	03:30
16	PR1+PR2	DLR	03:30	05:00
17	Registration	DLR	05:00	05:30
18	PR1+PR2	DLR	05:30	07:00
19	Break	DLR	07:00	07:30
20	PR1+PR2	DLR	07:30	09:00
21	Registration	DLR	09:00	09:30
22	PR1+PR2	DLR	09:30	11:00
23	Break	DLR	11:00	11:30
24	PR1+PR2	DLR	11:30	13:00
25	Registration	DLR	13:00	13:30
26	PR1+PR2	DLR	13:30	15:00
27	Break	DLR	15:00	15:30
28	PR1+PR2	DLR	15:30	17:00
29	Registration	DLR	17:00	17:30
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32	PR1+PR2	DLR	19:30	21:00
33	Registration	DLR	21:00	21:30
34	PR1+PR2	DLR	21:30	23:00
35	Break	DLR	23:00	23:30
36	PR1+PR2	DLR	23:30	01:00
37	Registration	DLR	01:00	01:30
38	PR1+PR2	DLR	01:30	03:00
39	Break	DLR	03:00	03:30
40	PR1+PR2	DLR	03:30	05:00
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42	PR1+PR2	DLR	05:30	07:00
43	Break	DLR	07:00	07:30
44	PR1+PR2	DLR	07:30	09:00
45	Registration	DLR	09:00	09:30
46	PR1+PR2	DLR	09:30	11:00
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62	PR1+PR2	DLR	01:30	03:00
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64	PR1+PR2	DLR	03:30	05:00
65	Registration	DLR	05:00	05:30
66	PR1+PR2	DLR	05:30	07:00
67	Break	DLR	07:00	07:30
68	PR1+PR2	DLR	07:30	09:00
69	Registration	DLR	09:00	09:30
70	PR1+PR2	DLR	09:30	11:00
71	Break	DLR	11:00	11:30
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73	Registration	DLR	13:00	13:30
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85	Registration	DLR	01:00	01:30
86	PR1+PR2	DLR	01:30	03:00
87	Break	DLR	03:00	03:30
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89	Registration	DLR	05:00	05:30
90	PR1+PR2	DLR	05:30	07:00
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93	Registration	DLR	09:00	09:30
94	PR1+PR2	DLR	09:30	11:00
95	Break	DLR	11:00	11:30
96	PR1+PR2	DLR	11:30	13:00
97	Registration	DLR	13:00	13:30
98	PR1+PR2	DLR	13:30	15:00
99	Break	DLR	15:00	15:30
100	PR1+PR2	DLR	15:30	17:00

G-SEXTANT First Production Review and Second Project Review Meeting to be held at DLR premises on 6th and 7th November.

PROJECT DOCUMENTS

On-going deliverables

The following list corresponds to the on-going deliverables to be submitted from M9 to M11.

-  *D110.10 (Periodic Ethics Report from IEE) - To be submitted in M11*
-  *D110.15 (Periodic Ethics Report from EAB) - To be submitted in M11*
-  *D720.1 (Policy report and recommendations v1) - To be submitted in M11*
-  *D730.1 (Project sustainability procedure) - To be submitted in M10*
-  *D730.2 (Project sustainability report v1) - To be submitted in M11*
-  *D810.2 (Communication Strategy and Action Plan final) - To be submitted in M10*
-  *D810.4 (Project Website v2) - To be submitted in M10*
-  *D810.7 (Multimedia Presentation v1) - To be submitted in M10*

Submitted deliverables

The following list corresponds to the submitted deliverables, from 31/07/2013 to 30/09/2013.

Submitted deliverables	Submission date
 <i>D210.1 Users Coordination Plan</i>	08/08/2013
 <i>D510.3 Yearly production plan V1</i>	11/09/2013
 <i>D6201.1 Verification Protocol</i>	16/08/2013
 <i>D630.1 Validation Protocol</i>	11/09/2013

All deliverables can be found on the project FTP site (*/Deliverables*).