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Image Specifications and Outlook for 2015 Campaign

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*Evidence-based scientific and technical support
Cooperation with policy Directorates-General
Sharing its know-how with the Member States*



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Presentation content:

1. News (specifications) for the 2015 Campaign
2. Image requests for the 2015 Campaign
3. Two words on the outsourcing



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1. NEWS in the upcoming Campaign

- New sensors
- New products (profiles)
- New Image Acquisition Approaches
- New NG-LIO.NET web application (will phase out G-LIO.NET)
- Miscellaneous (other news) for the Campaign

New HR and VHR Specifications will be published before end of year, see:
<http://g-lio.jrc.ec.europa.eu/G-LioDotNet/>

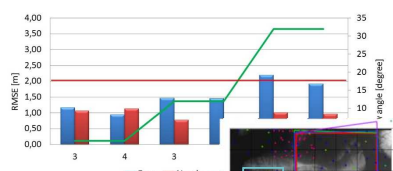
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NEW sensors benchmarked

Kompsat 3 (K3)

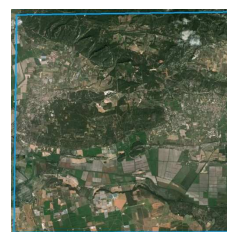
- GSD (at nadir) 0.70m PAN, 2.80m MSP (4 bands)
 - ✓ meets the requirement of $\leq 2\text{m}$ 1D absolute RMSE_{1D} and $\text{GSD} \leq 0.75\text{m}$
 - ✓ $\text{ELA} \geq 76\text{-}77\text{deg}$ ($\text{ONA} \leq 13\text{-}14\text{deg}$)
 - ✓ RPC with ≥ 3 GCPs, rigorous model ≥ 12 GCPs
- => **Can therefore be used as VHR prime, and VHR backup**



Maussane, FR; JRC test site

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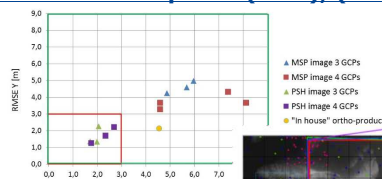


NEW sensors benchmarked



SPOT 7 (S7)

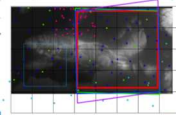
- GSD (at nadir) 2.2m PAN, 8.8m MSP (4 bands); (resampled to 1.5m, 6m)
 - ✓ MSP meets req. of $\leq 9\text{m RMSE}_{1D}$ with ≥ 3 GCPs
 - ✓ PSH meets the requirement of $\leq 3\text{m RMSE}_{1D}$ (VHR backup) with ≥ 3 GCPs
 - ✓ Ortho product no GCPs using Ref3D, meets the requirement of $\leq 5\text{m RMSE}_{1D}$
- => **therefore be used as HR prime (HHR), (and VHR backup)**



Maussane, FR; JRC test site

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NEW sensors being benchmarked

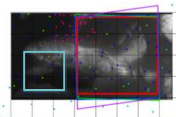
WorldView3 (WV3)

- GSD (at nadir) 0.31m PAN, 1.24m MSP (8 bands), 3.70m SWIR (8 bands)
 - ✓ Programmed and ongoing tests (3 images already acquired)
 - ✓ Geometric benchmark on imagery of 32,5deg and 14deg
 - ✓ Geometric test, and interpretation tests on high angle (44deg ONA)
 - ✓ CwRS imagery will "preliminarily" not be above 36deg ONA (≈ 50 deg ELA)
- => **Ready for 2015 VHR Campaign (hopefully)**

Maussane, FR; JRC test site

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Reg. EC 640/2014 art 6;
Reg. EC 1306/2013 art 59

NEW image acquisition approach for the LPIS QA

Fulfills: representativeness and image quality

- Each MS LPIS should obtain sufficient area to allow a representative inspection
- Image provider (EUSI) will acquire near to nadir imagery when atmospheric conditions allow and ensuring a representative spread;

⇒ Image characteristics:

- $\leq 50\text{cm}$ GSD, near to nadir-view (avoiding feature leaning and topography displacement) ($\approx > 80\text{deg}$ elevation angle)
- Cloud free (very low threshold), and haze-free (\Rightarrow optimal radiometry)
- Acquisition windows longer than CwRS windows ...

⇒ no. of scenes through EU approx. 120-130 of size 15x15km

⇒ Image acquisition as "normal" through NG-LIO.NET

- JRC will drive Image Requests, and imagery will be delivered to MS

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next generation NG-LIO.NET (1)

- The **new and enhanced NG-LIO.NET** system will serve as the main workflow management and communication tool between the stakeholders involved in the CAP checks programme from 2015 Campaign onwards
- It is an enhanced and re-worked version of the G-LIO.NET system already used during the 2014 Campaign.
- NG-LIO.NET is a Web application, implemented with **Microsoft.NET technology**. The upgrade and developments made have improved the overall efficiency of the system, in particular the **communication flow** between the different stakeholders, the MS **image requests**, and **acquisition windows management**. The aim has been to ensure a smooth running and maintainability of the system. An **improved Quicklook Browser** is also provided within the new NG-LIO.NET.

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next generation NG-LIO.NET (2)

What does it mean practically?

- Autumn / winter window image requests still in G-LIO.NET (ongoing at present)
- Shape files to JRC for check ASAP (ongoing at present)
- **PLS. NOTE** with start **15/01/2015**, insert HR and VHR image requests from HR-1 onwards, and for VHR 1/2 etc. in new **NG-LIO.NET** (notice from JRC will announce opening)
- ✓ Pls. visit demonstration in **seminar level room 5/6**, where there will always be staff of **JRC, EUSI, AIRBUS, and GAF** (NG-LIO.NET developer) at any time during conference.
 - Rolling PPT
 - Demonstration of prototype
 - "hands-on"
 - Become "test pilot"



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Miscellaneous (other news) for the Campaign

- No. of vertices on AOI shape (maximum 999 vertices)
- Buffer on zone for orthorectification purposes in hilly mts. area of at least 0.2km (in extreme hilly terrain 0.5km)
- New windows HRB1, HRB2 between the VHR1 and VHR2
- SPOT 5 will be de-commissioned in March 2015, only available as archive after that date
- IDQA, 10 days max. from delivery in order to enable faster invoicing
- Pls. follow instructions of FW Contractors for image return
- proposed improvements regarding returned orthorectified data:
 - ✓ return images with all source bands, in original band order
 - ✓ return images in original radiometry (data type), without histogram stretching
 - ✓ avoid lossy data compression (e.g. ECW, MrSID) for data return

New HR and VHR Specifications will be published before end of year, see:
<http://g-ljo.jrc.ec.europa.eu/G-LioDotNet/>

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2. Image requests for 2015 Campaign (1)

Inquiry to all MS Administrations in (1) July 2014, and (2) November 2014

- At present discussions with DG AGRI to decide on available budget
 - **Nearly double volumes requested (cf. 2014) for both VHR area and HR area ...**
 - MS need to justify their choices in detail, and be prepared to defend their choices
 - ✓ Why is an extra VHR/HR window necessary?
 - ✓ Why do you need VHR satellite even if you are flying aerial photography?
 - ✓ etc.
- => Possible introduction of quota per MS or pro-rata reduction ?



2.) Image requests for 2015 Campaign (2)

Status as of today:

- VHR zones total 609 (cf. 2014 516)
- VHR area to be covered by one/two images approx 424.000 km²
- VHR area total approx. 580.000 km² (cf. 2014 approx. 300.000)
- HR zones total 450 (cf. 2014 304)
- Total HR images 1212 (cf. 2014 628)
- Out of which HHR images 327 (≈ 30%)
- Area HR total approx. 958.000 km² (2014 cf. 460.000)



3. Two words on the outsourcing

- Thanks to a very good job of EUSI, and AIRBUS, who both have done a huge effort during the whole 2014 Campaign.



- Efficiency gains in timely delivery, in maintained success rate, in a very good collaboration, in a new NG-LIO.NET, and in overall innovation!
 - ✓ every campaign seems however to have its unique "issues" to overcome ...



...and at very last: thanks to "simsEC"



- **simsEC** can be pronounced "**seems easy**", but it is not always easy and it means **satellite image management services for the EC** ...
 - In collaboration with DG AGRI / GTCAP
 - In collaboration with the FW Contractors: EUSI, and Airbus
 - In collaboration with all of you 28 MS Administrations, and your contractors