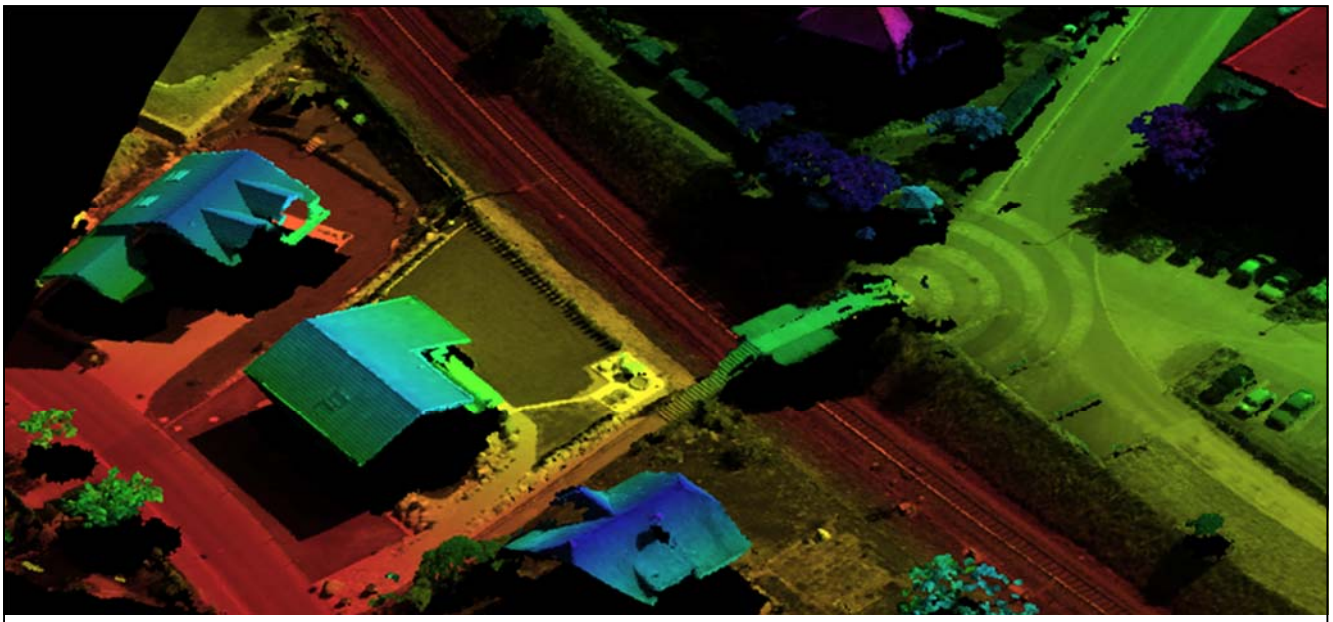


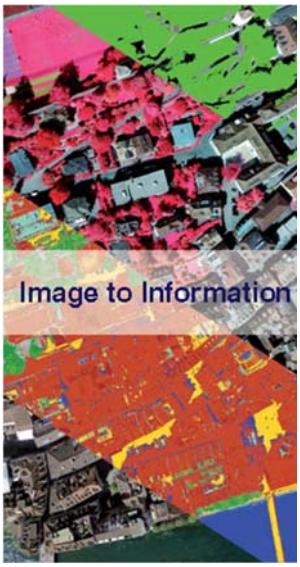
Leica ADS80 and Leica XPro - A total solution for photogrammetric mapping

Ruedi Wagner, VP Imaging, Geospatial Solutions Division

Phowo 2009 - Real Geospatial Solutions What else can I do with my sensor?

Earth to Image

Image to Information

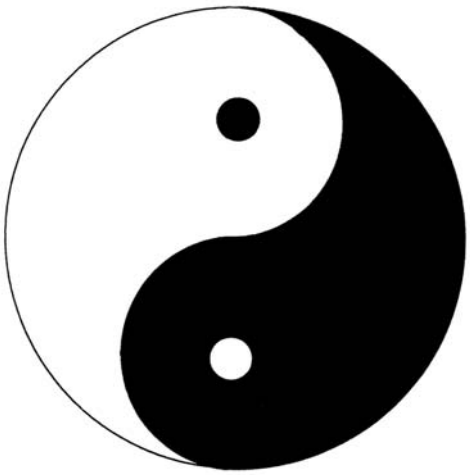


Desktop to World

Leica ADS40 release - ISPRS 2000

Leica GPro
Leica XPro

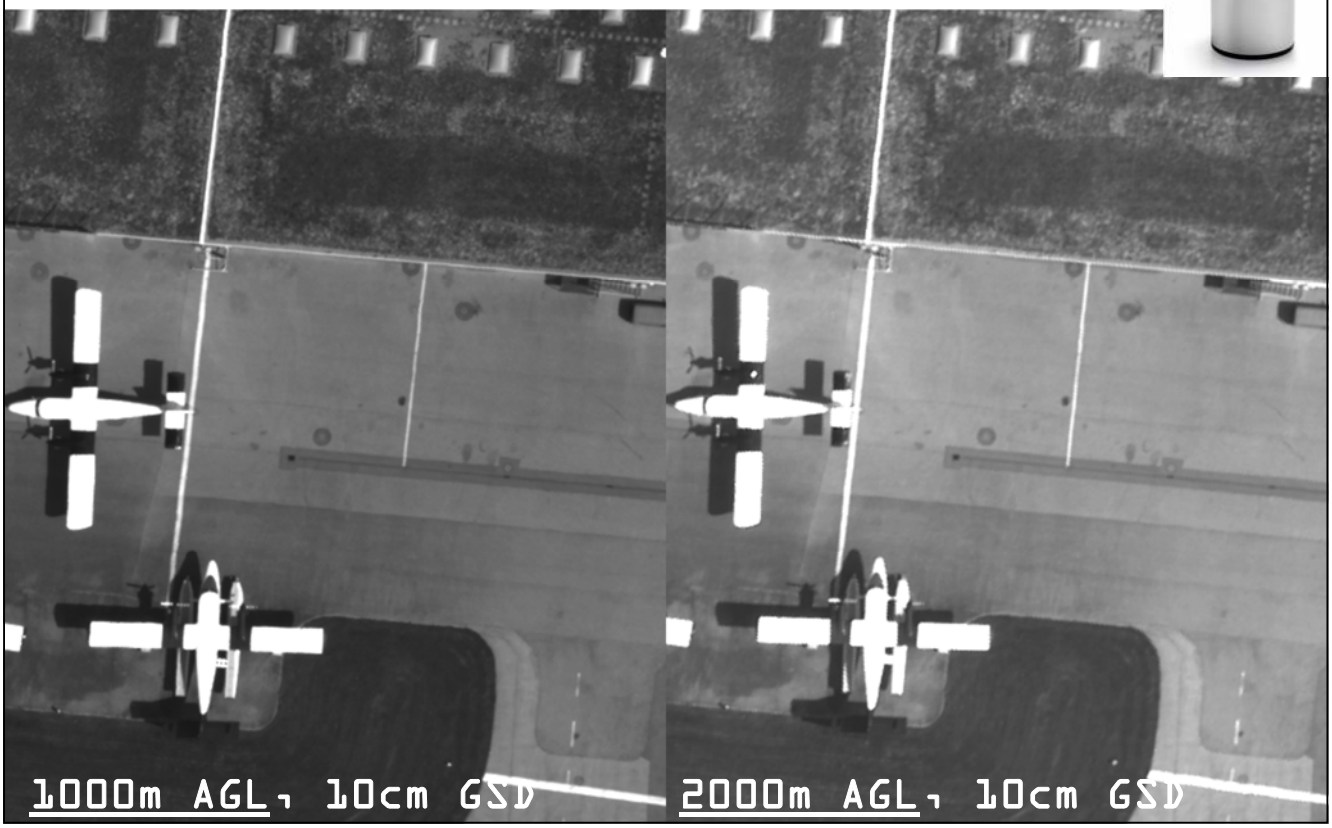
A focus on hardware……AND software



Leica ADS80 Airborne Digital Sensor
New Sensor Head SH91/92

- Multispectral Pan and RGBN sensor
- Innovative beamsplitter design
- provides equal resolution in all bands
- 12000 pixels, 6.5um, in all bands in
- standard mode (Ratio 1:1)
- 24000 pixel swath in HiRes Mode (Ratio 1:2)
- Two Sensor Heads SH91 and SH92
- Focal length 65mm (single lens design)
- 100% forward overlap at all times
- Continously recordable strip length
- Dedicated Workflow
- Rapid orthoprocessing and AT
- DSM extraction
- Optics made by Swissoptic
- Installed system weight 140-145kg

Leica ADS80 Airborne Digital Sensor
24000 Pixel HighRes Mode!

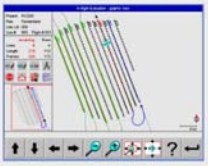


Leica ADS Workflow

Flight Planning

Leica FPES
- Flight Planning
- Flight Plan Optimization
- Project Management
- Cost Estimation

Flight Execution

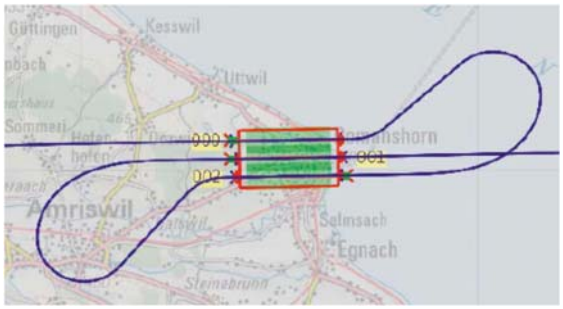


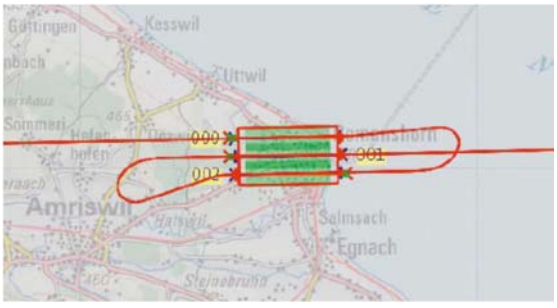
Leica FCMS
- Guidance during approaches and turns
- Sensor control and release
- In-flight evaluation
- Data Logging and user entries

Data Storage

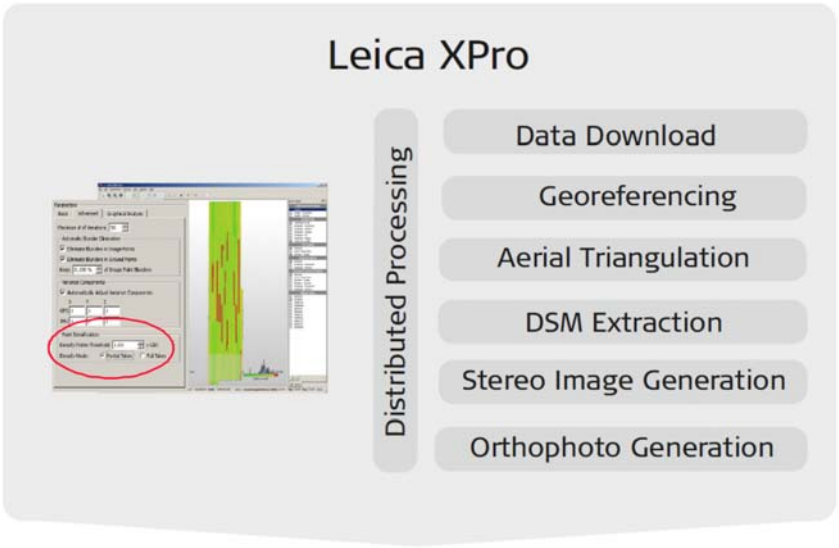
IPAS Freebird
Embedded GNSS/IMU stack and IPAS TC

- Improves flight economy for sensor missions up to 25%
- Allows sharper turns between flight lines – does not require continuous lock of satellites
- GNSS-IMU post processing with Leica IPAS TC is simplified and faster
- Available with all Leica sensors

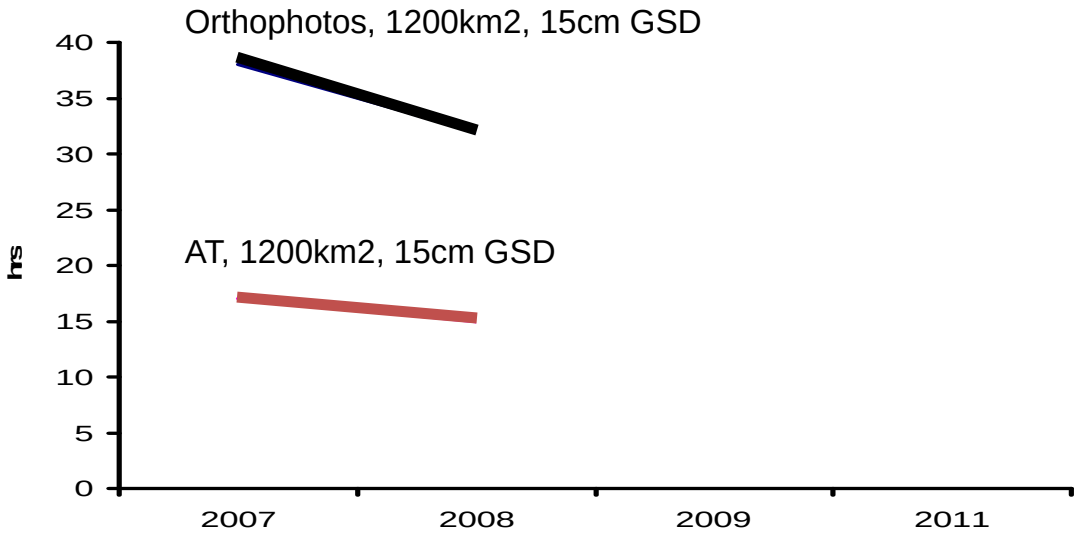




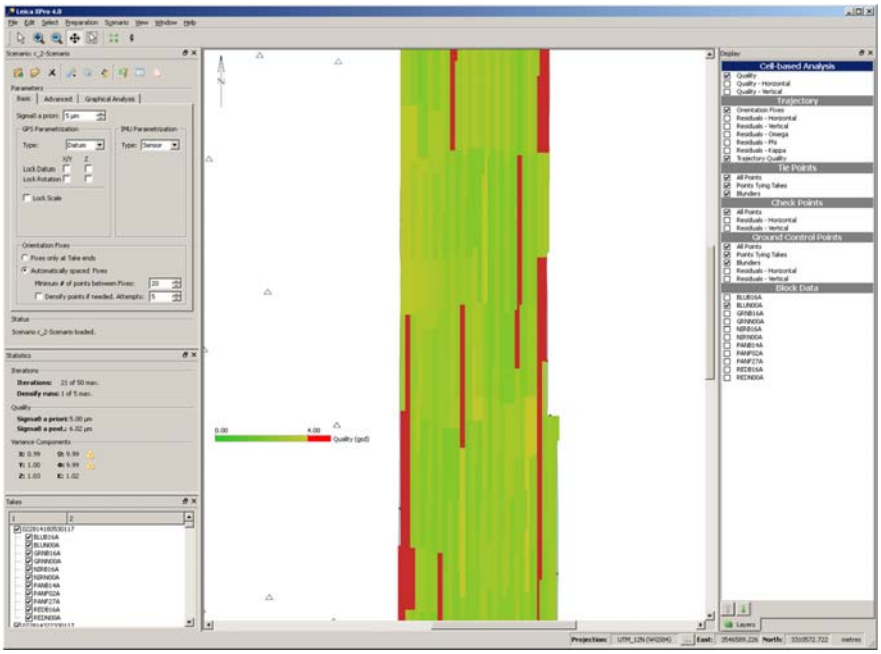
Leica ADS Workflow



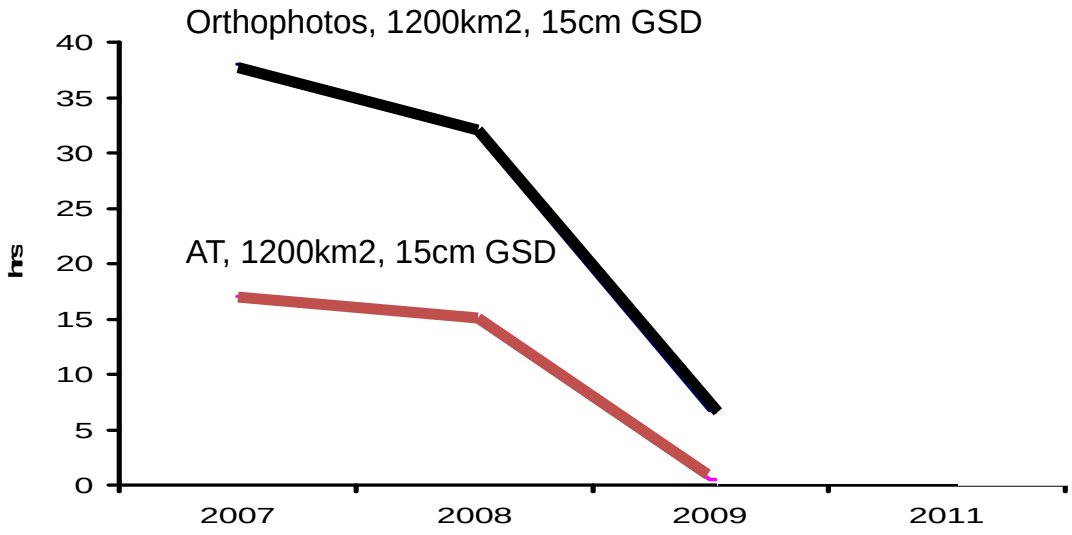
Leica XPro Productivity Enhancements



Innovative Approach to Aerial Triangulation - 2008



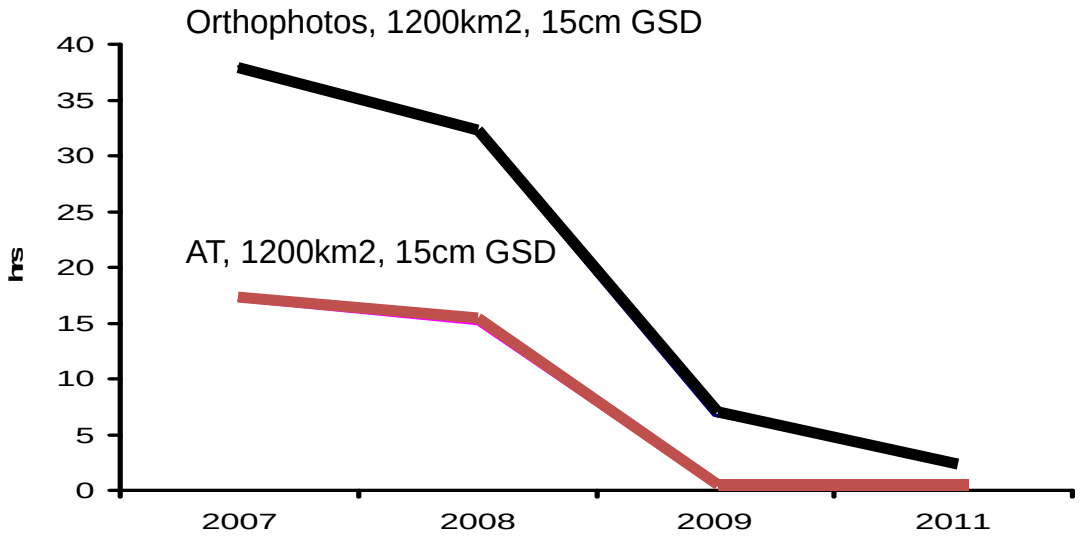
Leica XPro Productivity Enhancements



Driving Productivity in Imaging
Extremely Fast Data Processing

			Total time WS with 6 server cluster	User action time
	Flight	1,200 km², 15cm GSD 12 lines, each 80 km, 3 Pan and 8 MS Approximately 7 hr flight at 130 knots		
	Download	400 GB ADS data format	4 h	0.5 h
	Geo-referencing	Trajectory calculation geo-referencing of L0 images	0.5 h 0.1 h	0.5 h 0.1 h
	Aerial triangulation	Automatic Point Measurement Bundle Adjustment	0.1 h 0.3 h	0.1 h 0.3 h
	Ortho photo	RGB or FCIR 1,200 km²	1.7 h	0.1 h
			6.7 h	1.6 h
	Feature extraction	Due to image strips slightly faster than in traditional workflow		
	Fly-through	Similar to traditional workflow		

Leica XPro Productivity Enhancements



Hexagon Geosystems

at any point in time

SOLUTIONS

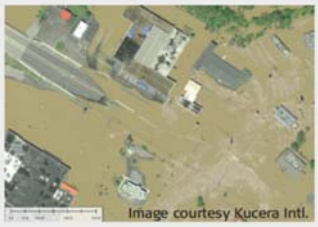
for every challenge

customer ingenuity

long term growth

Application Oriented Workflow – Disaster Management

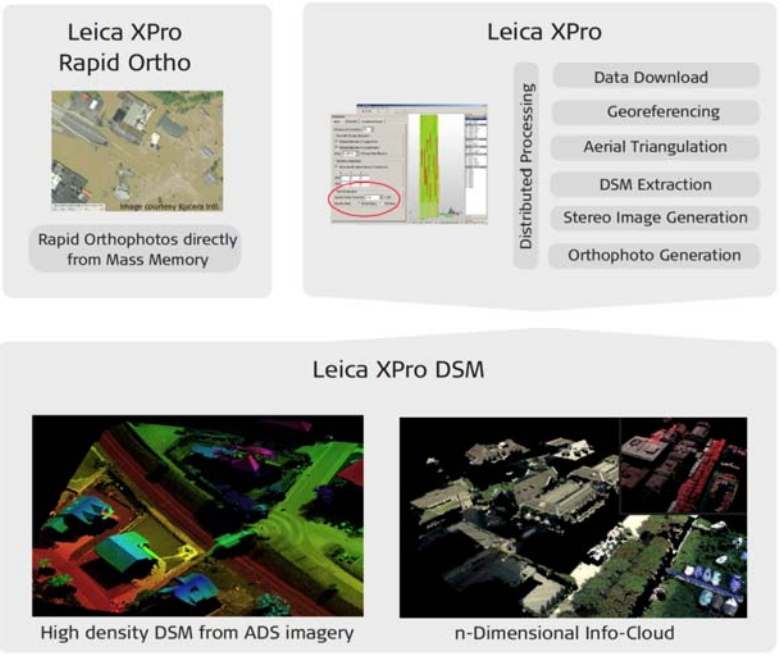
Leica XPro
Rapid Ortho



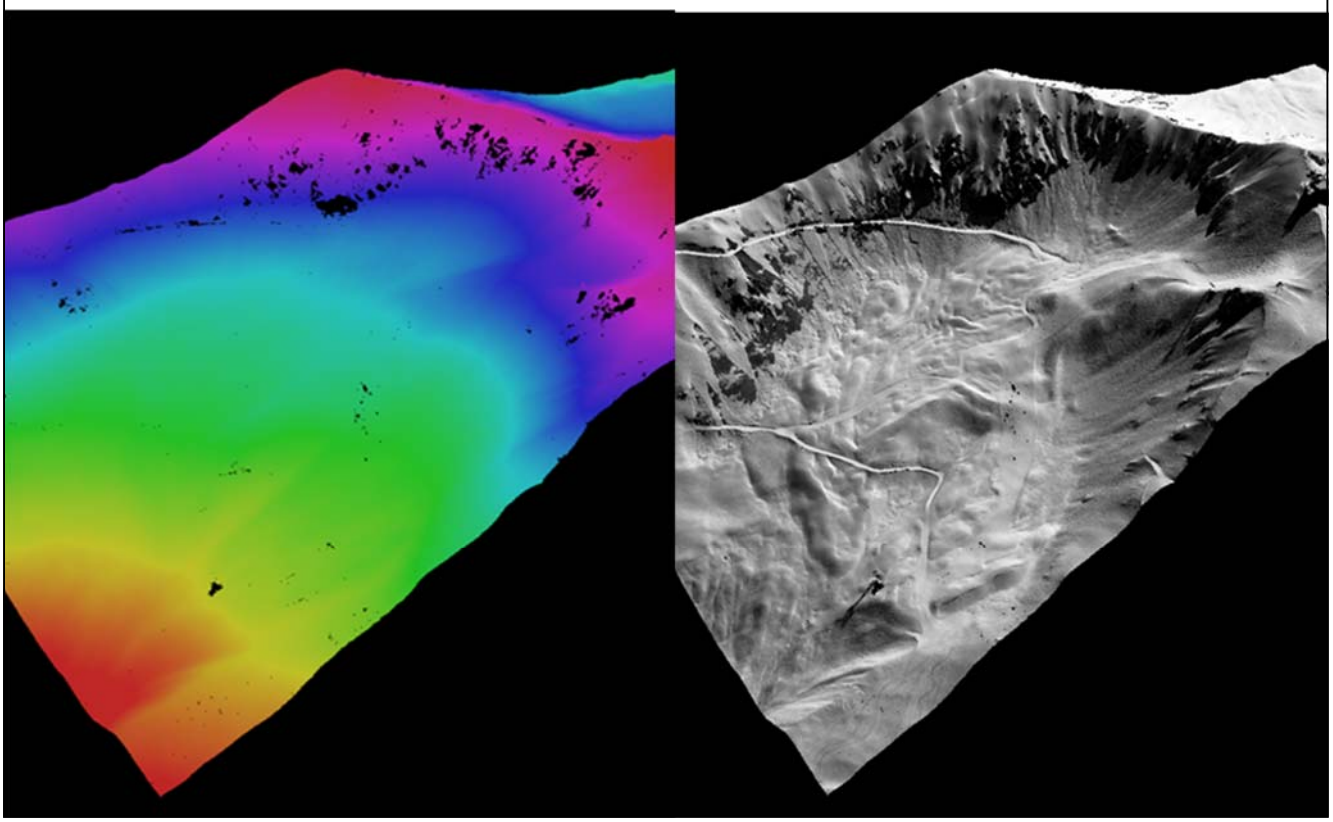
Rapid Orthophotos directly from Mass Memory

- Direct Processing from Mass Memory
- One-button click, no operator involvement
- Fully automated orthophotos

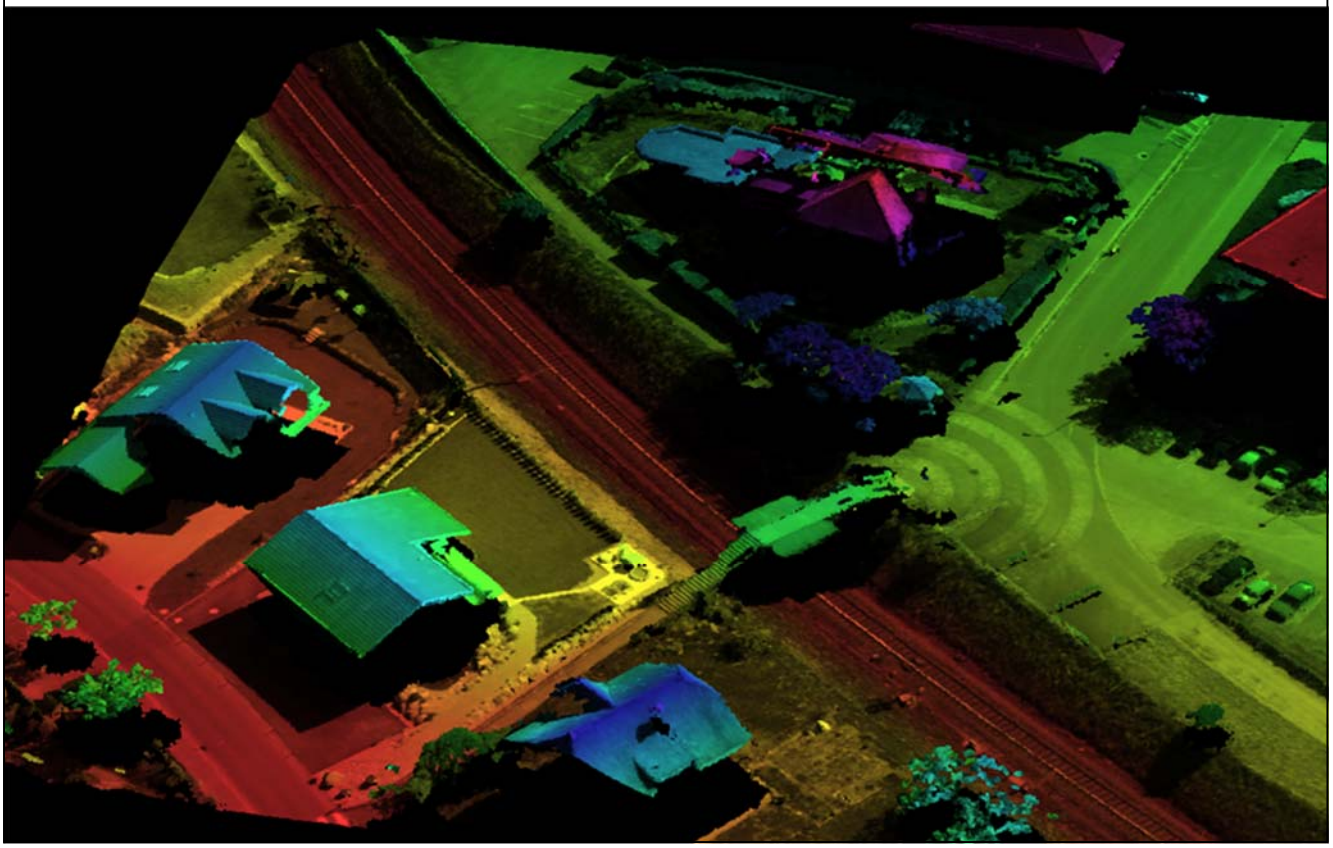
Application Oriented Workflow - Infocloud



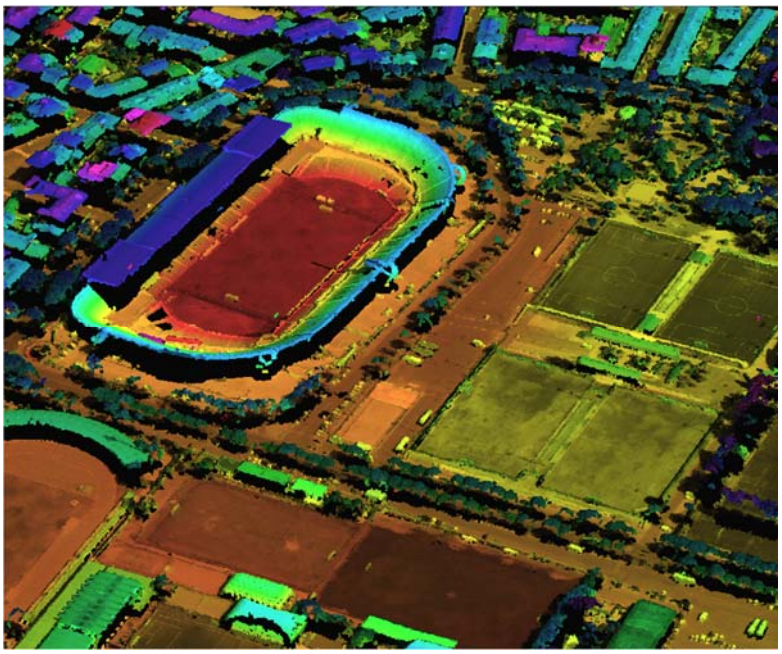
New Leica XPro 5.0 DSM
Large Area DSM Extraction from ADS Imagery



New Leica XPro 5.0 DSM
Large Scale DSM Extraction from ADS Imagery

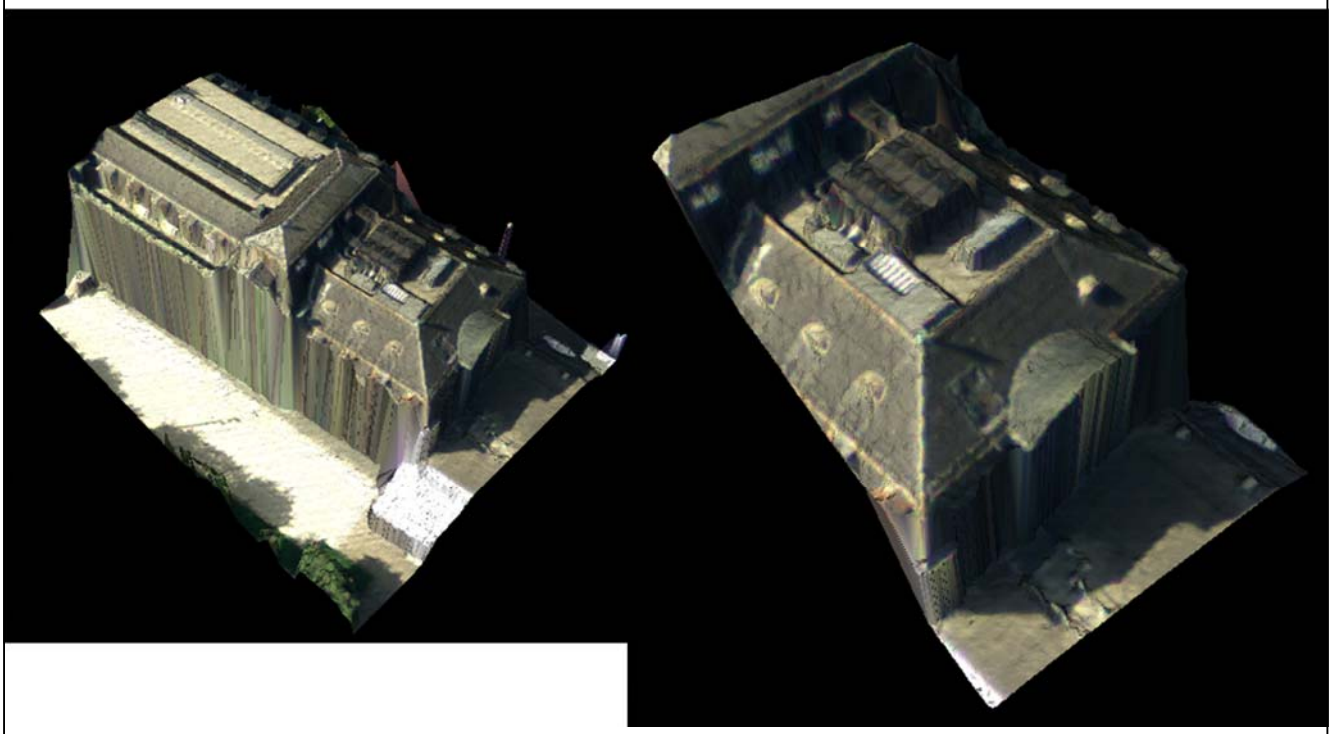


Leica XPro DSM – 3D City Modelling

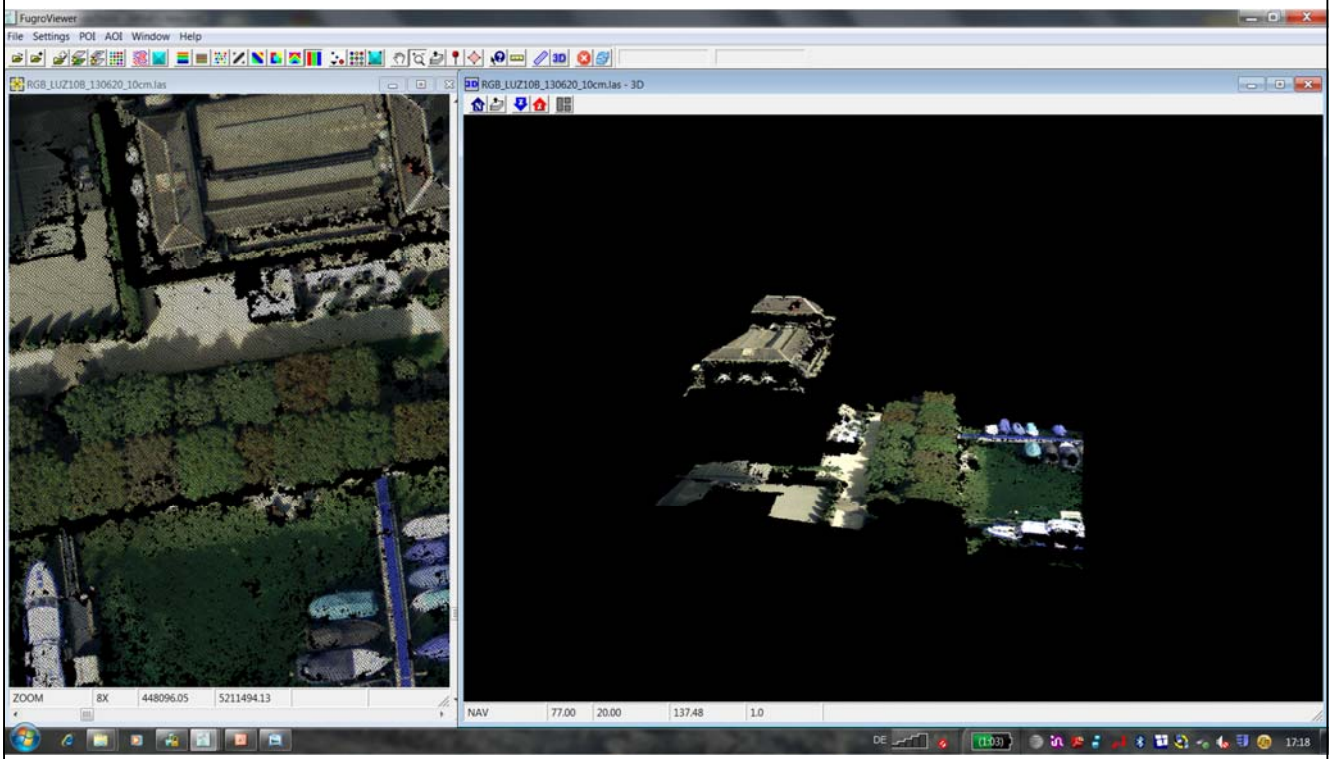


Data courtesy of Blom CGR S.p.A, Italy

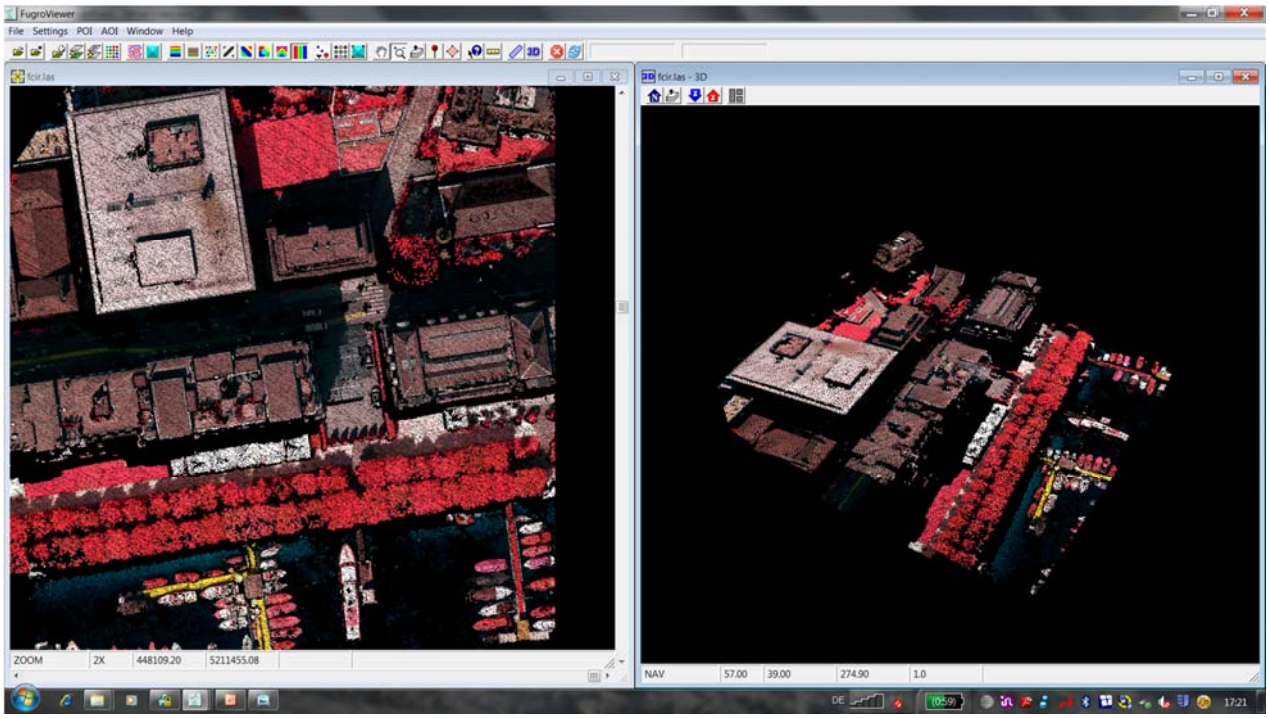
Leica XPro DSM – Accurate Building Reconstruction



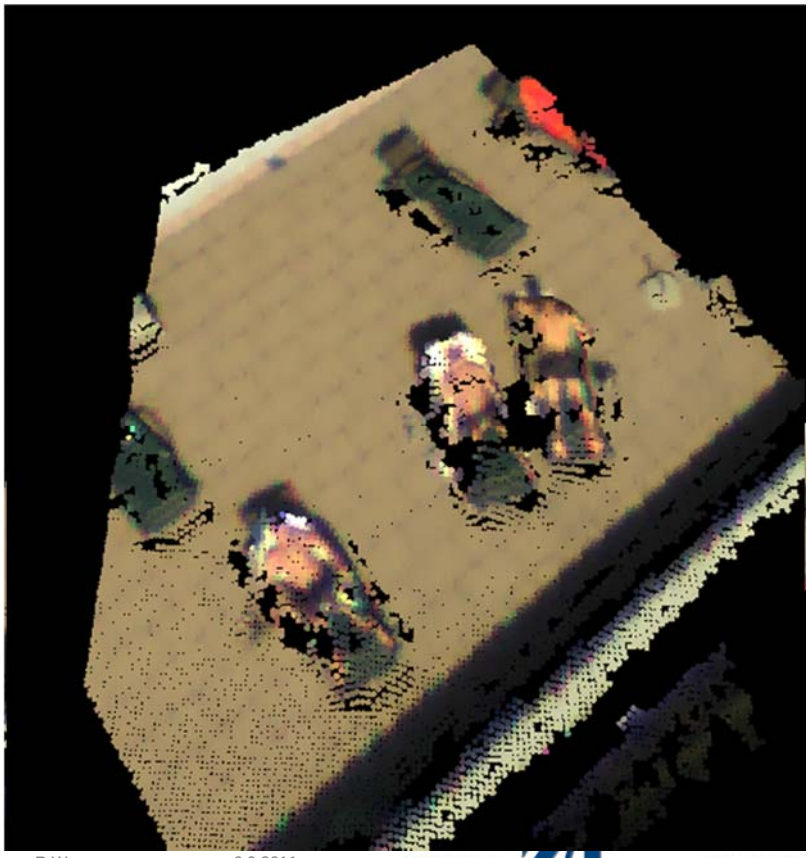
From Point Cloud to Info Cloud



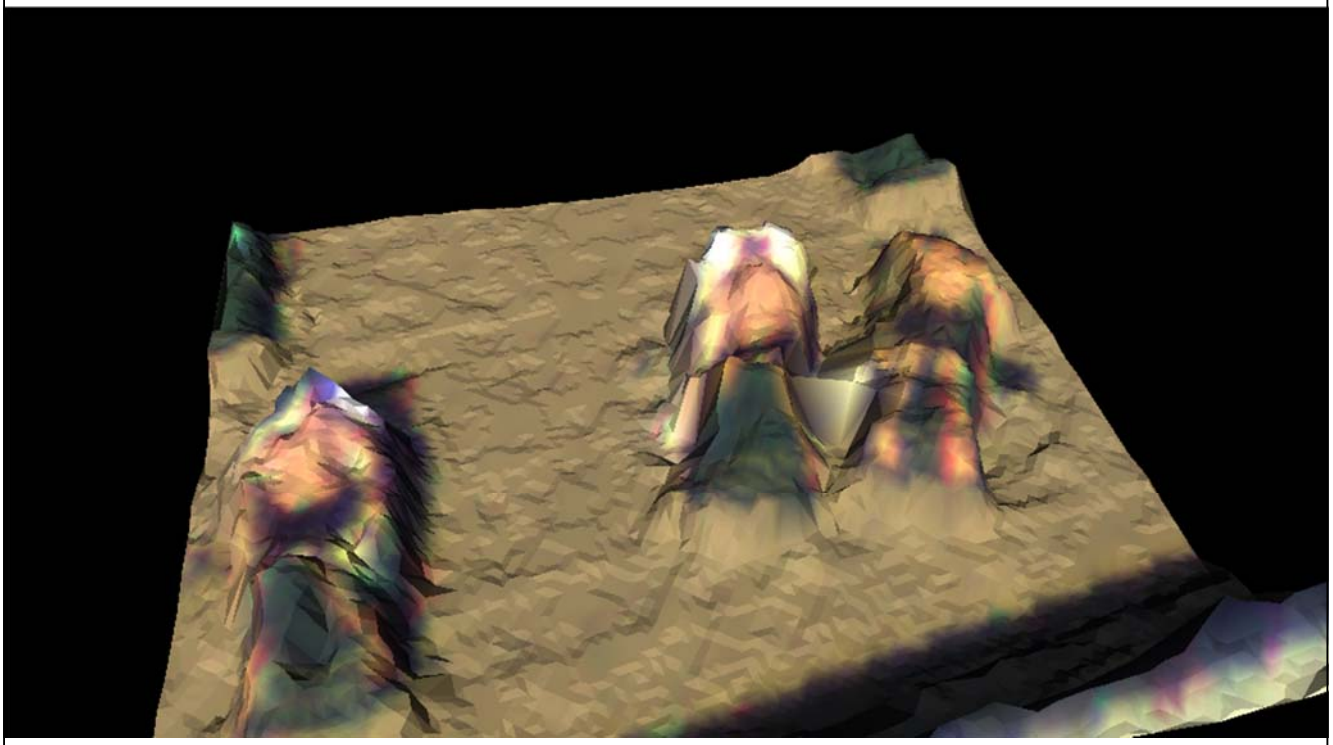
From Point Cloud to Info Cloud



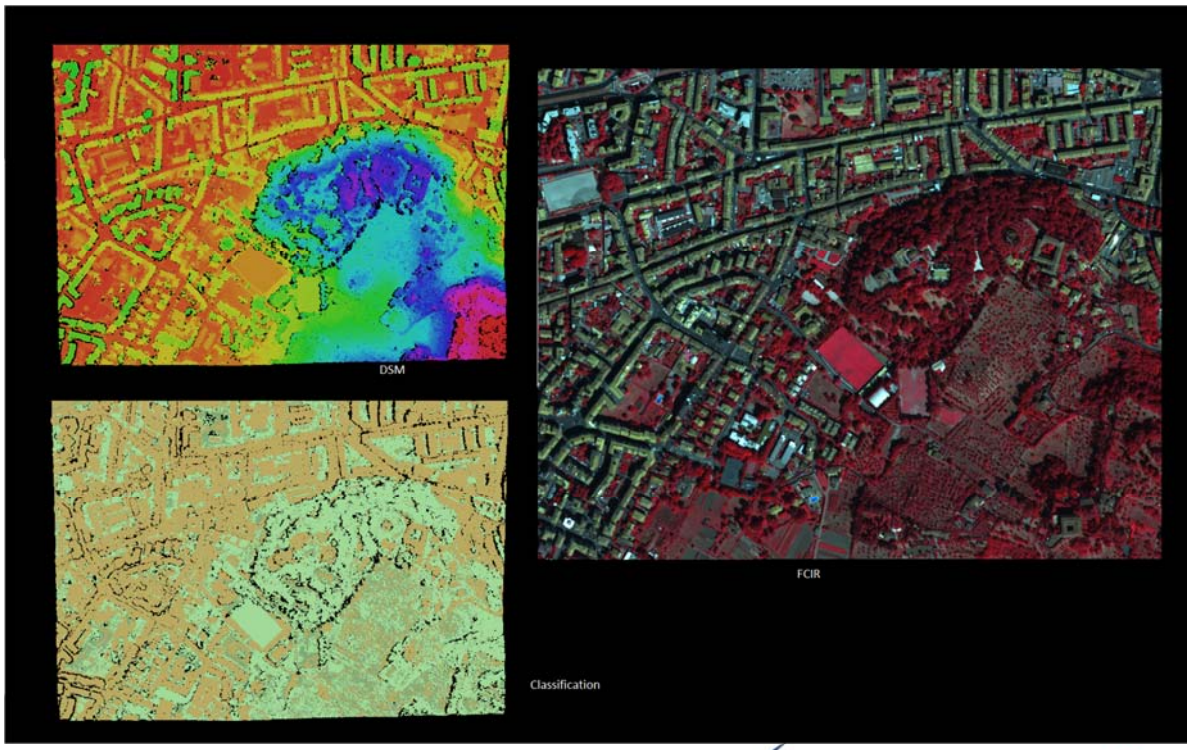
Leica XPro DSM – Modelling



Leica XPro DSM – Modelling – Tinned Info-cloud



Leading the pack once again…..



Real 3D World - Managing the Info Cloud

Dynamic GIS

Sensors

Data feeds the Information Cloud

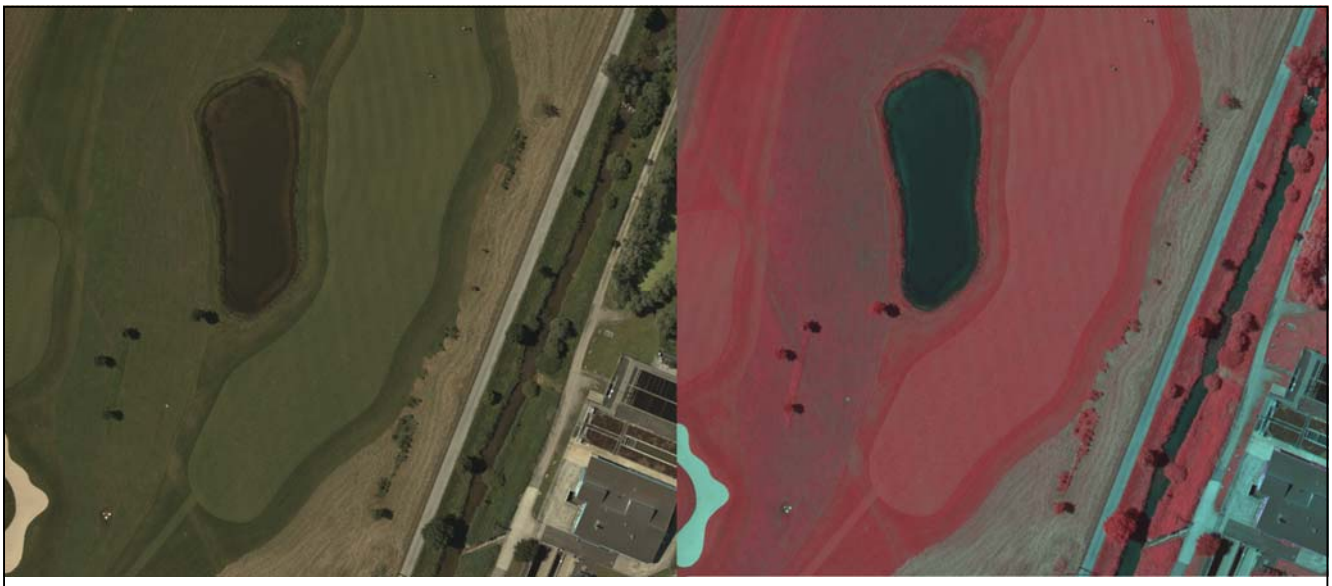
Information Cloud

Software

Processes data to extract content to feed multi-dimensional information to the cloud

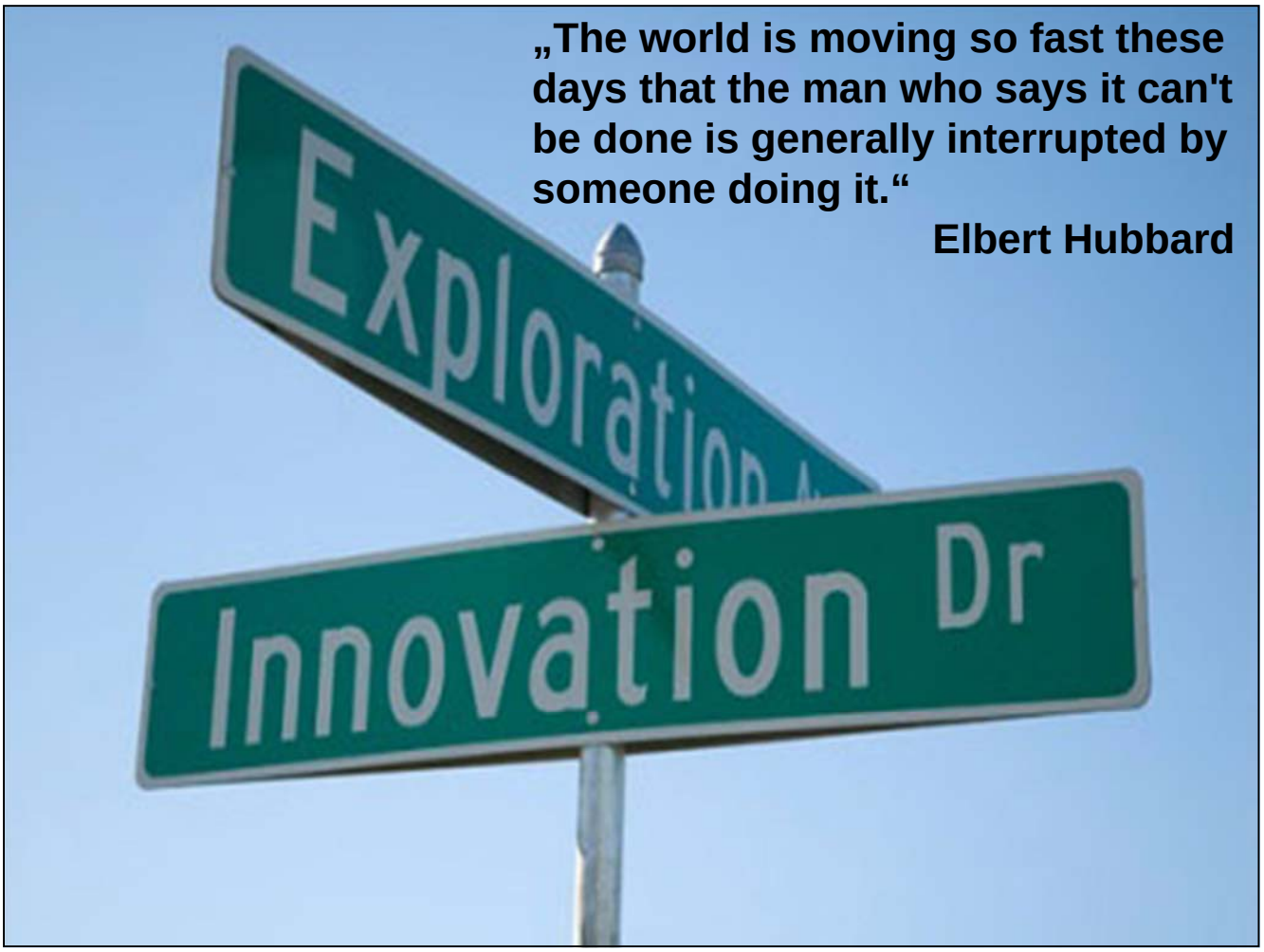
Solutions

Rapidly deliver reliable and actionable 5D information to users across vertical markets as cost effective solutions to solve market problems



Leica RCD30 – Imaging Revolution

Ruedi Wagner, VP Imaging, Geospatial Solutions Division



„The world is moving so fast these days that the man who says it can't be done is generally interrupted by someone doing it.“

Elbert Hubbard

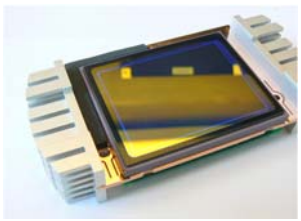
Medium Format Frame Camera

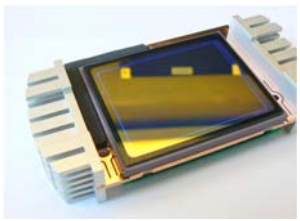
Leica RCD30

Medium format for photogrammetry

- Multispectral, coregistered RGB and IR
- Mechanical motion compensation, 2 axes
- >1 second frame rate
- 50 mm and 80 mm focal length
- Stabilized lens system
- High accuracy mapping range
- Exchangeable central shutter
- B/H ratio of 0.32 @ 60% overlap (50mm)
- 2 x 60MP, 6um CCD for RGB and NIR
- CC3x can control up to five CH6x
- Image size single head 8956 x 6708
- Image size dual head 13216 x 8956
- 15cm GSD @ 3780ft flying height (50mm)
- Weight CH6x 4 kg, CC3x 6kg
- Upgradeable to 80MP

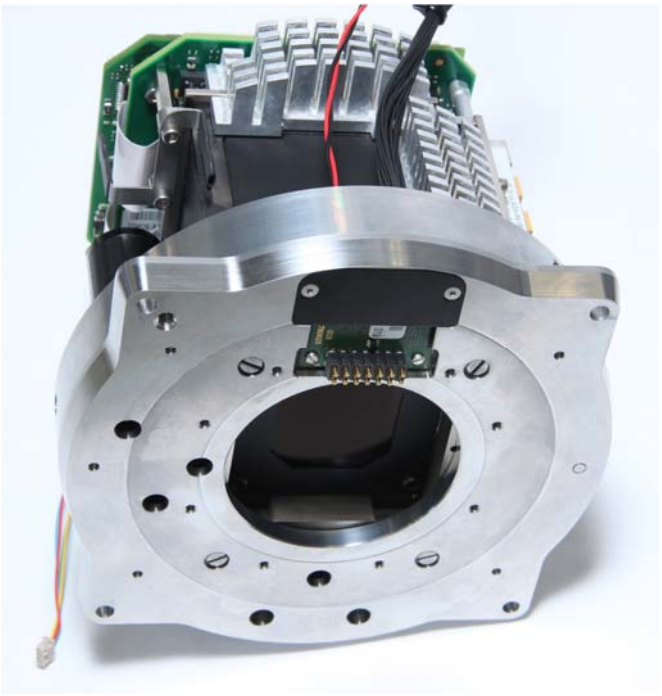
RGB and NIR CCD‘s





Upgradeable to 80MP……2012

Innovative Beamsplitter



Medium format for photogrammetry

- Multispectral, coregistered RGB and IR
- Mechanical motion compensation, 2 axes
- >1 second frame rate
- 50 mm and 80 mm focal length
- Stabilized lens system
- High accuracy mapping range
- Exchangeable central shutter
- B/H ratio of 0.32 @ 60% overlap (50mm)
- 2 x 60MP, 6um CCD for RGB and NIR
- CC3x can control up to five CH6x
- Image size single head 8956 x 6708
- Image size dual head 13216 x 8956
- 15cm GSD @ 3780ft flying height (50mm)
- Weight CH6x 4 kg, CC3x 6kg
- Upgradeable to 80MP

Innovative Bayonet Mount – high repeater accuracy

Exchangeable Shutter

Medium format for photogrammetry

- Multispectral, coregistered RGB and IR
- Mechanical motion compensation, 2 axes
- >1 second frame rate
- 50 mm and 80 mm focal length
- Stabilized lens system
- High accuracy mapping range
- Exchangeable central shutter
- B/H ratio of 0.32 @ 60% overlap (50mm)
- 2 x 60MP, 6um CCD for RGB and NIR
- CC3x can control up to five CH6x
- Embedded IPAS/SPAN
- Image size single head 8956 x 6708
- Image size dual head 13216 x 8956
- 15cm GSD @ 3780ft flying height (50mm)
- Weight CH6x 4 kg, CC3x 6kg
- Upgradeable to 80MP

Empower technology synergies within Hexagon

HEXAGON
precision in everything

Leica Geosystems | ZI IMAGING | NovAtel

- Sensor Systems
  - ---
  - Embedded GNSS/IMU system
  - ---
- Workflow
  - Leica IPAS TC
  - ---
- Devices, Sub-Components and Modules
  - ---
  - SPAN
  - ---
  - ---
  - GNSS/IMU post processing module
  - ---

Leica RCD30 Standalone, for ALS and 3rd party