



Fast, Flexible, Accurate & Affordable mapping system



Swiss Precision Helicopter Mapping  **we map the inaccessible**

Helimap System SA

specialized in 3D high accuracy mapping

Our 100+ clients all over the world have used Helimap System® to map:

- + Small & medium surfaces (10 ha to 50'000 ha / 500 km²)
- + Industrial sites with complex facilities
- + Corridors (2 km to 1'000 km)
 - Pipelines
 - Power lines
 - Roads and railroads
 - Dikes, etc.
- + Complex terrain and sites (mountains, cliffs, steep slopes, urban cover, industrial sites, heritage, etc.)
- + Fully inaccessible areas: disaster stricken, glaciers, cliffs, high mountain, wilderness

Helimap System® is fully compatible with all existing CADs & GIS, which means we deliver what you need.

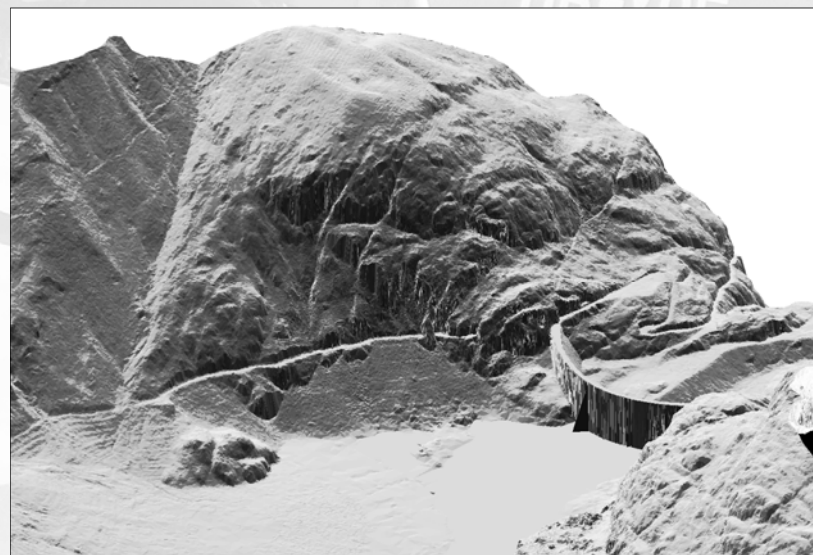


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What is Helimap System®?

Helicopter based handheld mapping system

- ⊕ Designed for small / medium surfaces
- ⊕ Suitable for complex terrain or inaccessible areas
- ⊕ Original and unique concept worldwide
- ⊕ From photogrammetry/geodesy department of EPFL



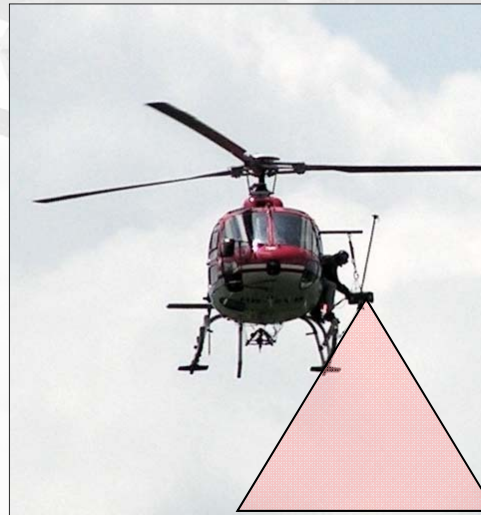
Helimap System® : flexibility and fast deployment

A handheld mapping system fast to install and flexible to operate

- + 1h installation, fit almost on any type of helicopter
- + Oblique and vertical data acquisition within the same aerial survey



Horizontal view



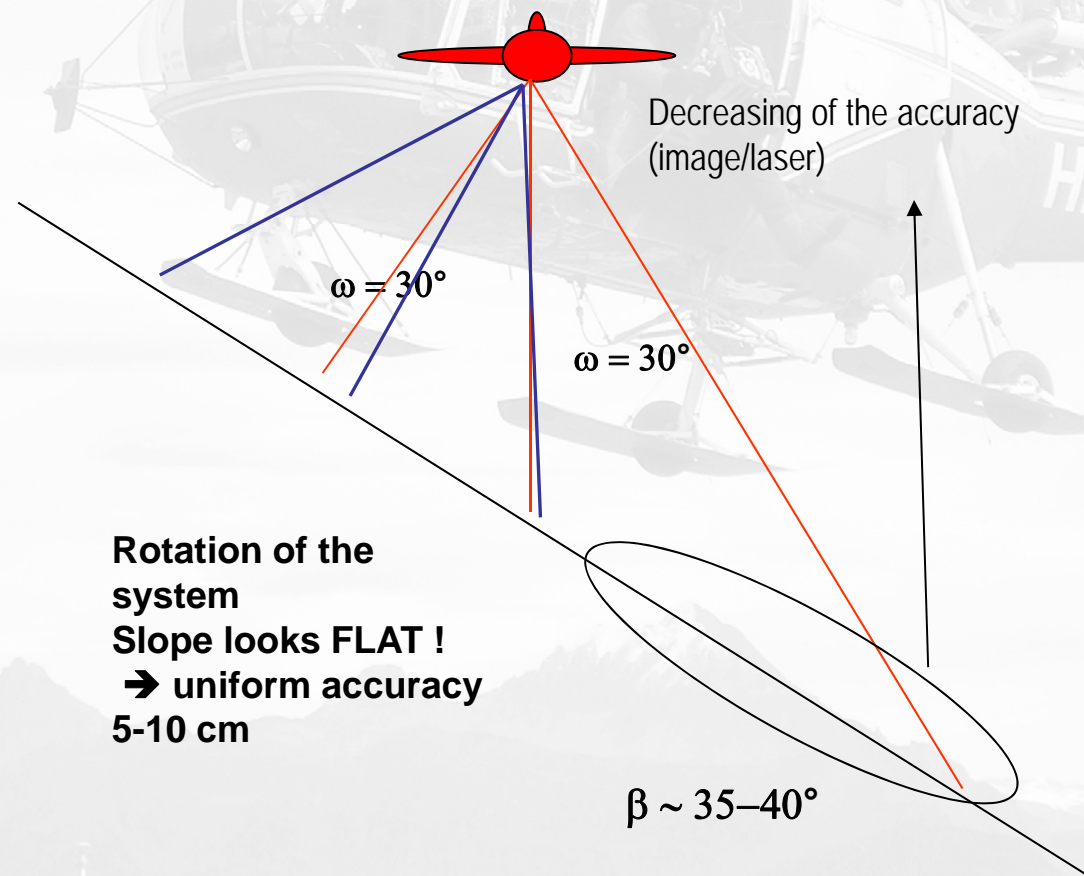
Vertical view



Oblique view

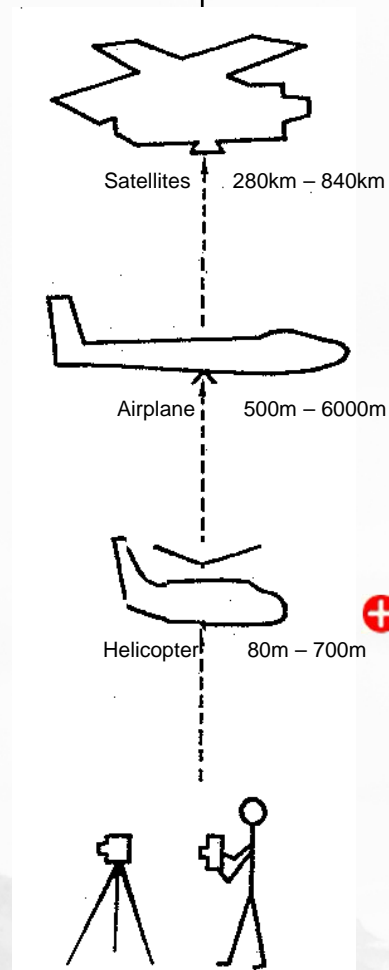
Helimap System[®] : advantage vs. fixed wing aircraft system

+ Constant accuracy even in complex terrain



Helimap System® - Comparison of Technologies

Sensor platform
+ Flying height

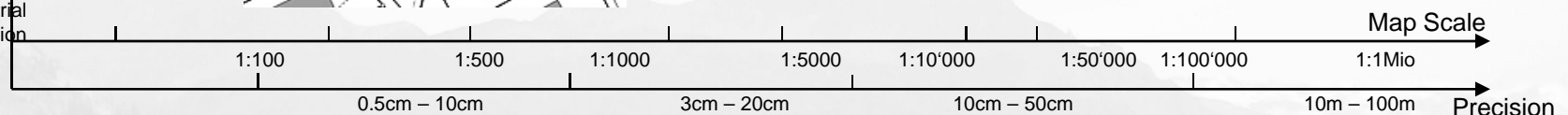
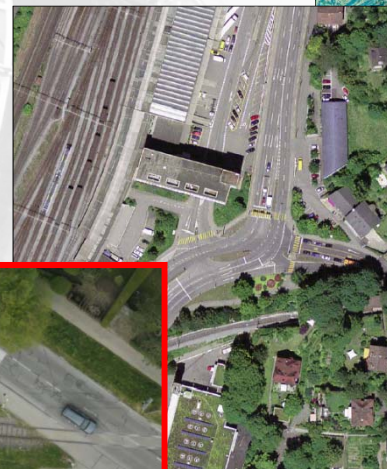


+ Fast

+ Everywhere

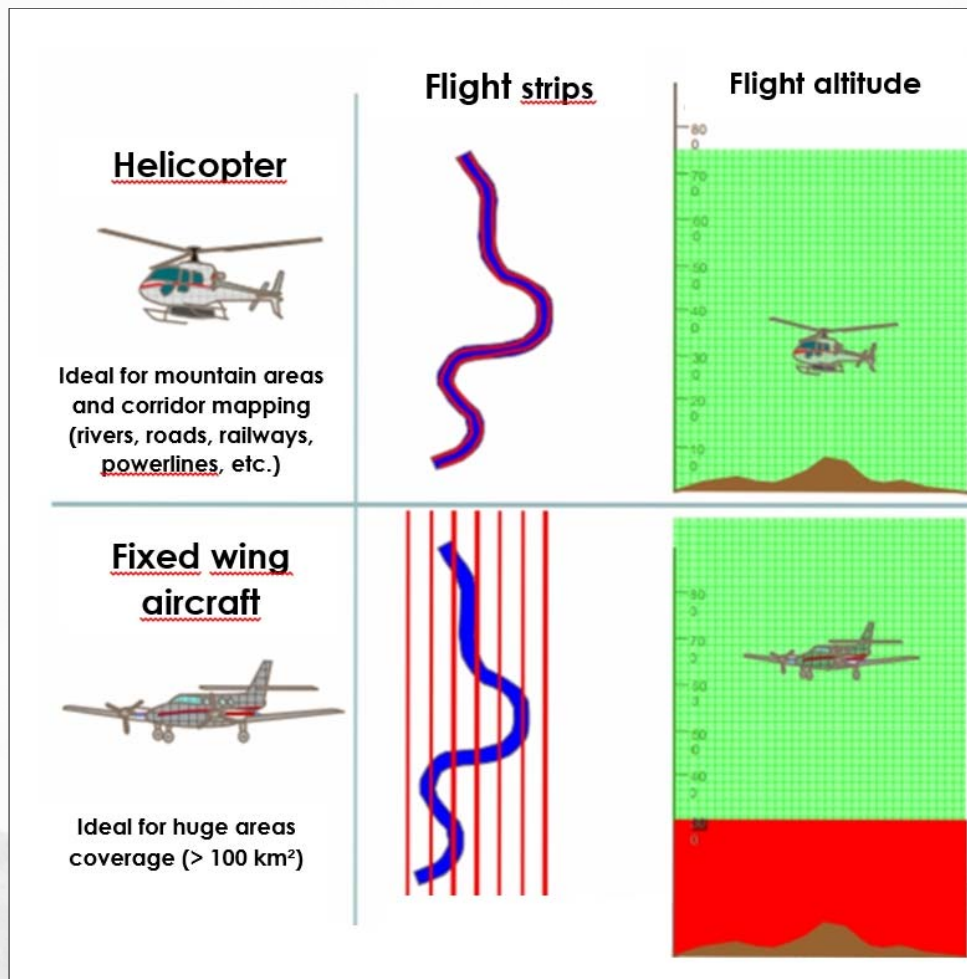
+ Flexible

+ Precise



Swiss Precision Helicopter Mapping + we map the inaccessible

Helicopter but Ultralight too...



Helimap System® - High-tech integration

Main components

- + Digital camera 50/80/100 Mpix
- + Vertical/Oblique views
- + Laser scanner (→ 275'000 pts/sec)
- + Inertial unit (IMU)
- + GPS
- + ... hyperspectral sensor
- + ... thermal camera
- + ... GoPro georeferenced video

- No ground signalization required if requested Z accuracy > 5 cm
- High accuracy (2 to 10 cm)



Helimap System® - Technical specifications



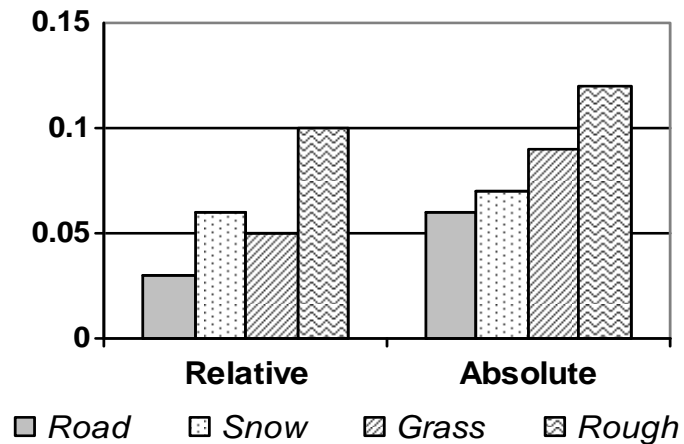
5 full equipments:

- + Helimap System I (2005) - Riegl Q240i**
 - 10'000 pts/sec, range 300m, utilisable sur neige et glace
 - 1 recorded echo (first, last or alternate)
 - Camera 22Mpix
- + Helimap System II (2009 – upgrade 2014) – Riegl VQ-480i**
 - To 275'000 pts/sec, range 1'000m, snow=NO
 - Multiecho, MTA
 - Camera 50Mpix
 - From 100 to 20'000 ha
- + Helimap System III (2012) - Riegl-580**
 - To 190'000 pts/sec, range 1'200m, snow=OK
 - Multiecho, MTA
 - Camera 80Mpix
- + Helimap System IV (2015) – Riegl VQ-480u**
 - To 275'000 pts/sec, range 750m, snow=NO
 - Multiecho, MTA
 - Camera 50Mpix
- + Helimap System V (2015) – Riegl VUX-1LR**
 - To 275'000 pts/sec, **scan 330°**, range 350m, snow=NO
 - Multiecho, MTA
 - Camera 100Mpix

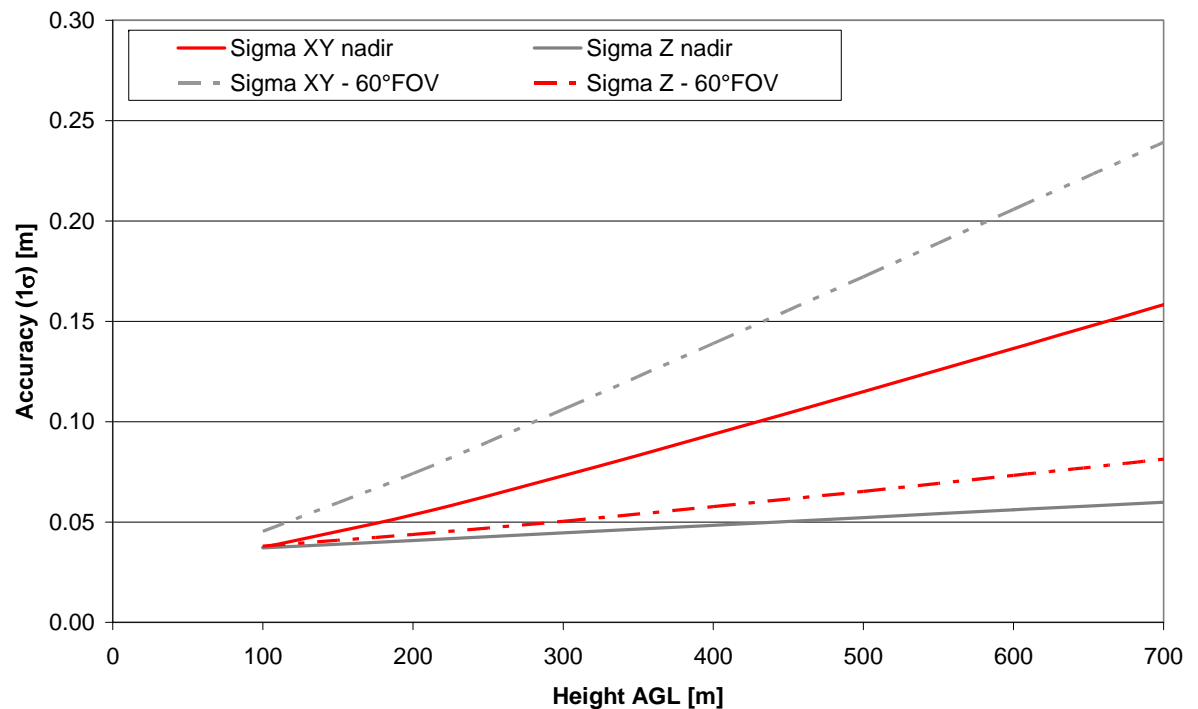
System performance

Mapping accuracy (precision of point cloud)

LiDAR mapping accuracy 300m/agl



Practical mapping accuracy

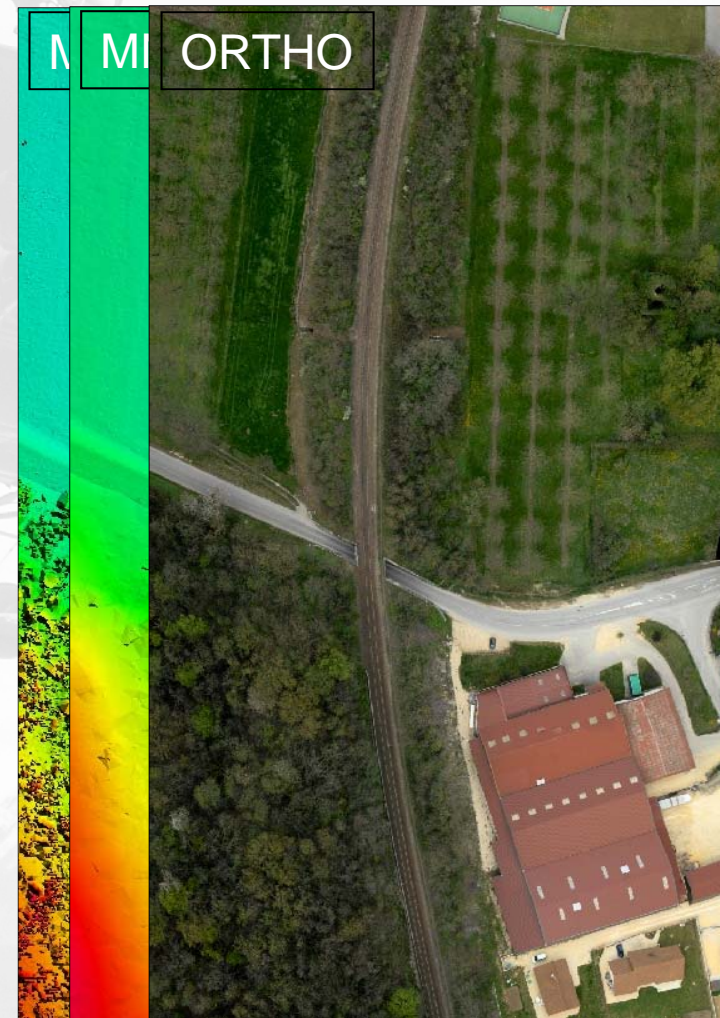


Theoretical accuracy on flat terrain vs flight height (Tactical grade IMU)

Data production

Basic products

- + High density DSM/DTM (from 2 to 180 pts/m²)
- + High resolution Orthophoto haute résolution (pixel 2 to 10 cm)
- + Linear and surface elements 3D measurements (as breaklines)



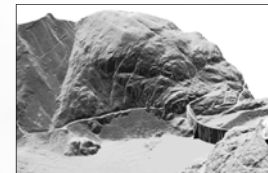
Data production

Add-Value data

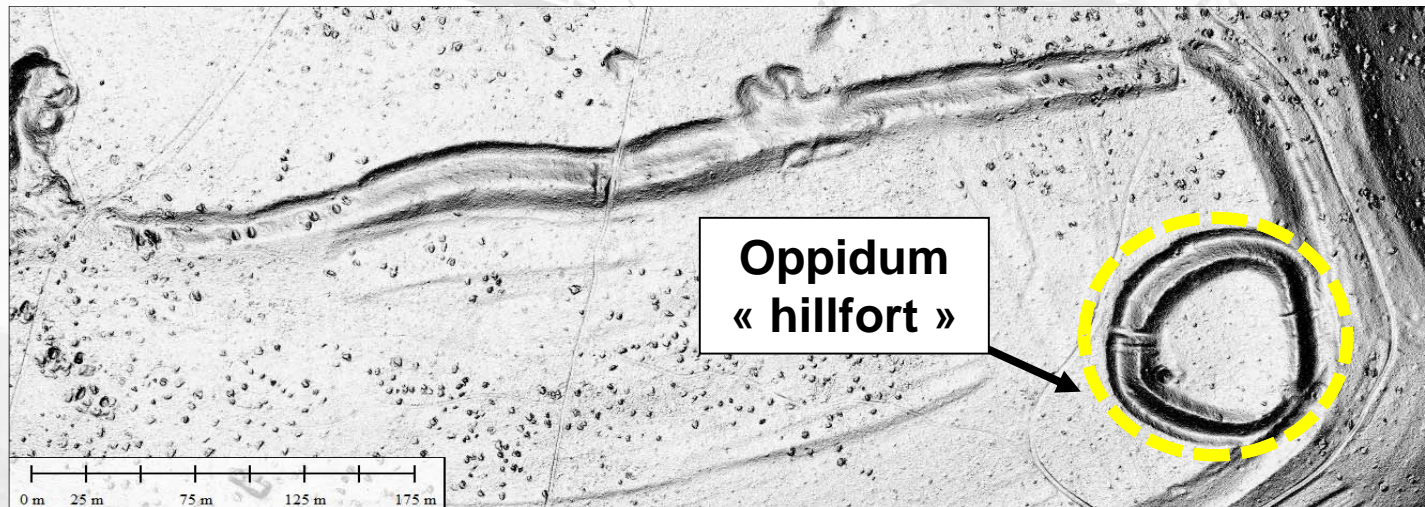
- + Volume computation, profiles, slopes, orientations, drainage
- + Obstacles identification, land cover, wires
- + Objects Classification of land cover (orthoimage): manhole, buildings, roads, railway, vegetation
- + Digital maps: from scale 1/200 to 1/1000
- + 3D modelling for virtual reality
- + Change detection

Helimap System® - Applications

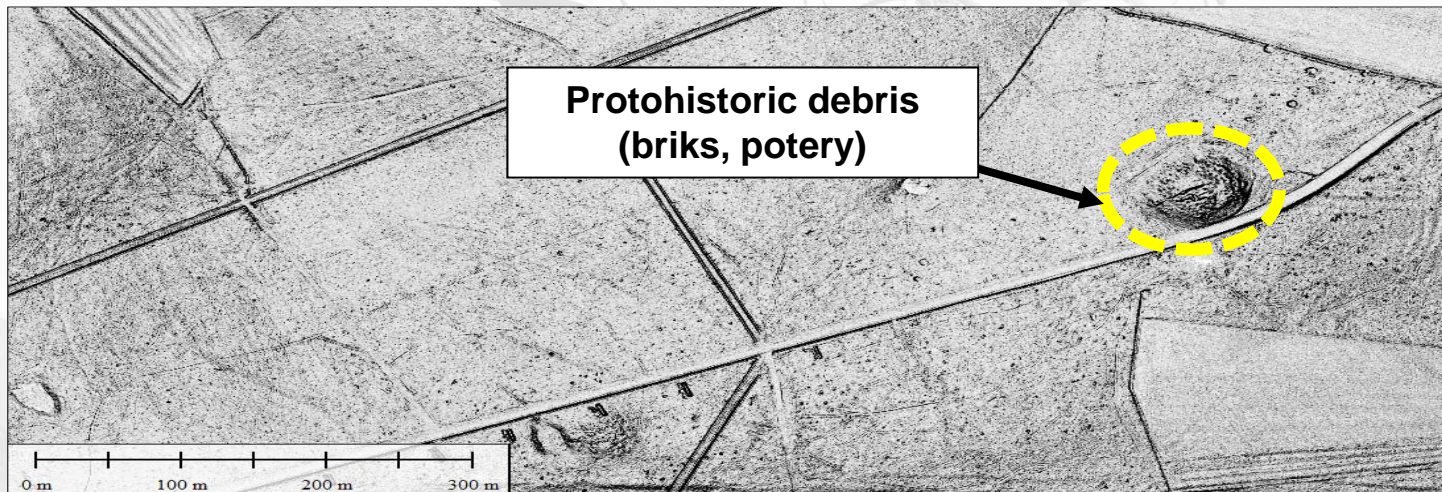
- ⊕ Corridors: roads, railways, pipelines, rivers...
- ⊕ Steep slopes, Cliff, mountain mapping
- ⊕ Hazardous areas (natural, industrial)
- ⊕ Land management, construction
- ⊕ Resources management, continuous assessment
- ⊕ Heritage and archeology



Heritage and Archeology



Heritage and Archeology



Helimap System SA ... Facts

Since early 2005...

- + 13 persons including 12 engineers
- + more than 700 projects worldwide
- + ~ 3'000 h helicopter flight
- + ~ 20 types of helicopters and ultralights
- + > 2'000 km of railroads
- + > 2'000 km of powerlines
- + > 6'000 km of roads



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Helimap System SA – Services / Contacts

We provide exclusives services with Helimap System®

We offer:

- + Custom services
- + High flexibility and fast deployment all around the world
- + The choice of the nearest helicopter company
- + Raw data access (no blackbox)
- + Consulting and assistance for your project and data processing

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Thanks for your attention

