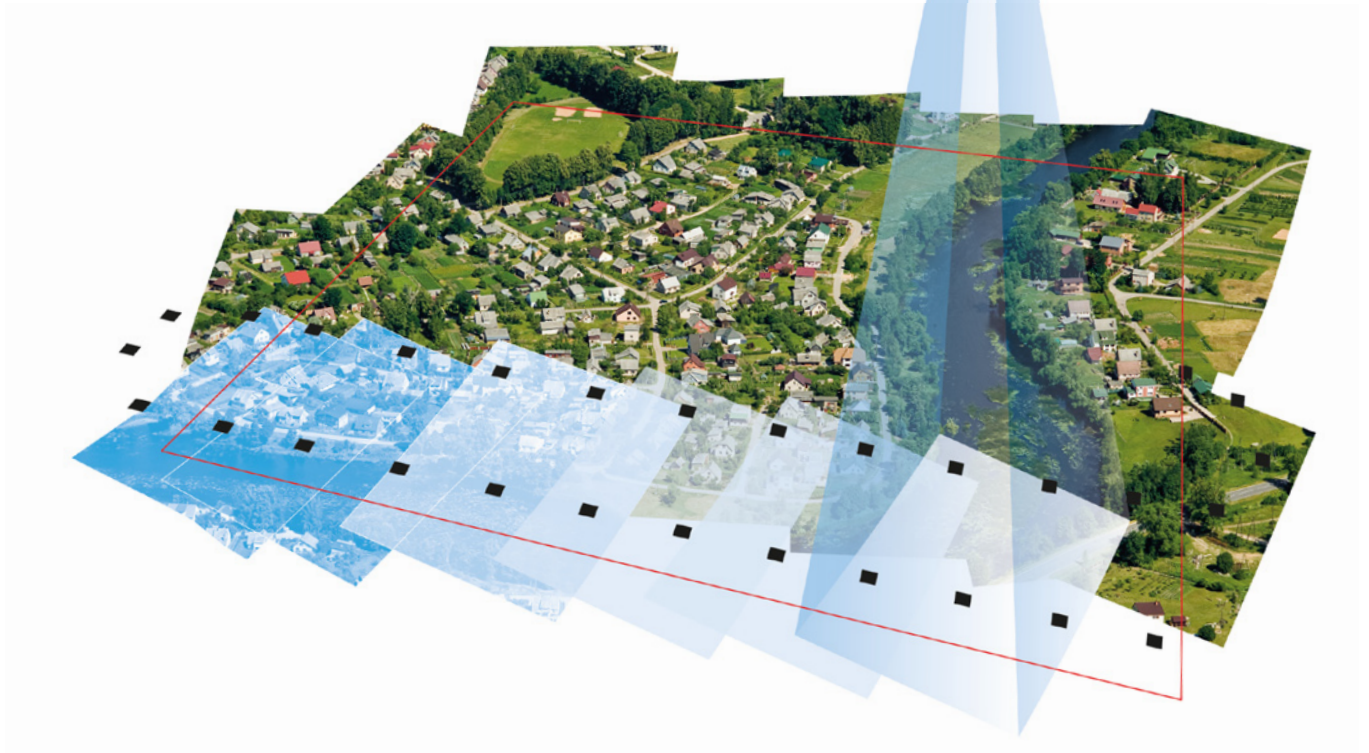




# The X100

revolutionary mapping



**Safe** and **fully automatic**

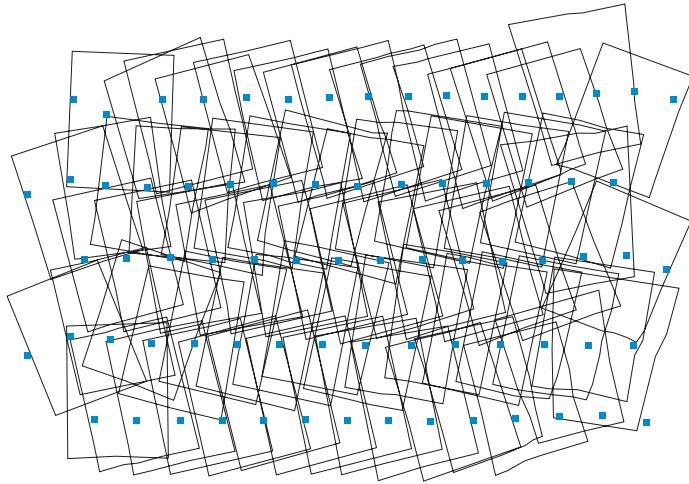
Create your own **orthophotos** and **DSMs**

**Fast** and with **survey accuracy**

Operates even in **harsh weather conditions**  
(up to 65 km/h wind & light rain)

## IMAGE ACQUISITION

A fully automated aerial scan collects raw digital images from between 100 to 750 meters altitude. These GPS positioned images have very high overlap.



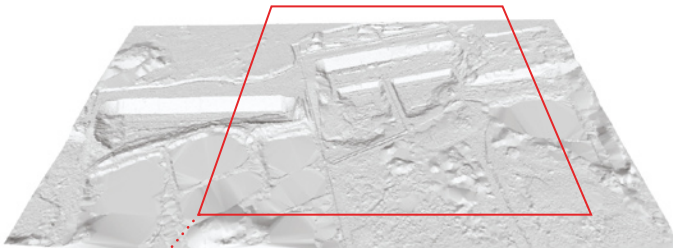
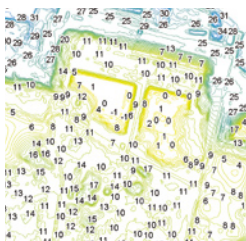
## HIGH RESOLUTION ORTHOPHOTOS

The raw images are digitally processed into the highest quality orthophotos. These aerial photo maps are geo-referenced.



## ACCURATE DIGITAL ELEVATION MODELS

As a valuable addition precise topographic elevation models can be derived.



## GATEWING TERRAIN MAPPING

With the Gatewing X100 – UAS based rapid terrain mapping tool – you can make your own high quality images whenever and wherever needed.

### APPLICATIONS

- Vegetation monitoring in combined visual and NIR spectrum for precision farming and forest preservation
- Topographic surveying as a valuable alternative for LiDAR and add-on to terrestrial measurements
- Infrastructure mapping for land management and planning, visualization and follow-up of projects
- And many more!



### DATA PRODUCTS

Data products are generated using Gatewing certified desktop or cloud solutions using advanced, automatic vision software. There is a trade-off between speed and accuracy. Rapid mapping orthophoto products can be generated in a matter of minutes to an hour while dense, accurate point clouds may require hours depending on processing power. The table specifies typical project size and optimal accuracies.

CATEGORY	ITEM	VALUE
Acquisition	Default flight altitude	150 m
	Overlap	Variable, 75% default forward & side
	Average coverage per flight	1.5 km <sup>2</sup> (45 min at 150 m)
	Average number of pictures per km <sup>2</sup>	600 (at 150 m)
Orthophoto	Pixel resolution (GSD)	5 cm (at 150 m)
	Planimetric accuracy	Equal to 1 pixel
	Projection	Semi-true or true
	Color	True RGB; no haze
Point cloud	Point spacing	Up to 1 pixel
	Planimetric accuracy (XY plane)	5 cm (at 150 m)
	Height accuracy (Z axis)	10 cm (at 150 m)







## BENEFITS

- Fast and with survey accuracy
- Safe and fully automatic
- End products ready for GIS or CAD importing
- Up to 3.3 cm GSD mapping of medium-sized areas
- Multitemporal site coverage through frequent scanning
- Create your own orthophotos and DSMs, even in harsh weather conditions. (up to 65 km/h wind & light rain)

## GATEWING X100 KIT



- Complete X100 UAV with eBox
- Launcher
- Extra body
- Ground control station
- Modem (2.4 GHz)
- Calibrated digital camera
- Battery charger
- 2 High performance lithium polymer batteries
- Tracker tool
- Spare parts & accessories
- Stretchout™

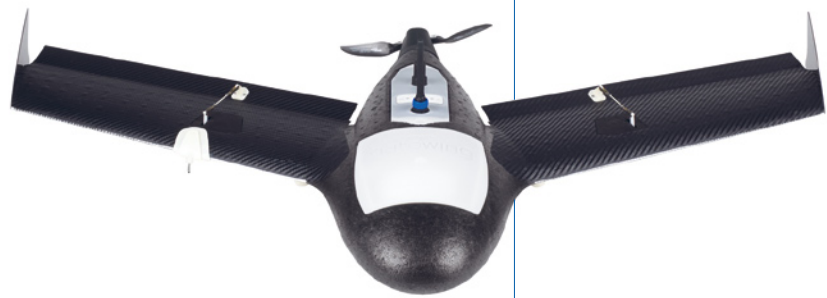


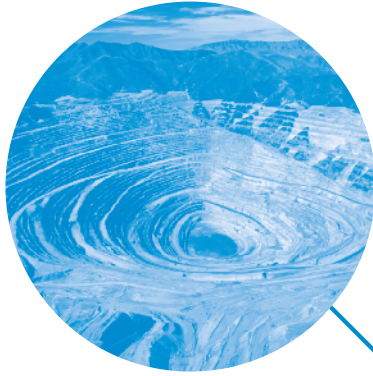
Have a peek at our product video.

<http://www.youtube.com/user/Gateway1>

DATA SHEET X100

CATEGORY	ITEM	VALUE
Wing	Type	Lifting body, fixed wing
	Weight	2.2 kg
	Wingspan	100 cm
	Wing area	23 dm <sup>2</sup>
	Dimensions	100 x 60 x 10 cm
	Material	Carbon reinforced EPP structure
Configuration	Propulsion	Electric brushless 250 W Pusher prop
	Battery	Lithium-polymer 11.1 V, 8000 mAh
	Payload	Calibrated 10 MP digital camera
	Autopilot	Automatic take off & landing
		Waypoint navigation Autonomous camera triggering Fail-safe routines
Operation	System setup time	15 Minutes
	Take off type	Catapult launch
	Climb angle	15 Degrees
	Endurance	45 Minutes
	Flight altitude (AGL)	100–750 m
	Cruise speed	80 km/h
	Landing type	Belly landing
	Recommended landing strip	150 x 30 m
	Weather	Up to 65 km/h wind & light rain
Communication	Communication & control link	2.4 GHz
	Communication & control range	Up to 5 km





*"For us, the X100 is a perfect addition to a total station, a GNSS receiver or a scanner"*

Topographic surveying

ARMIN WEBER MANAGER OF SURVEYING COMPANY LERCH-WEBER AG, SWITZERLAND

*"We were greatly impressed with the ease and sophistication of the X100."*

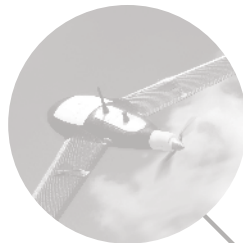
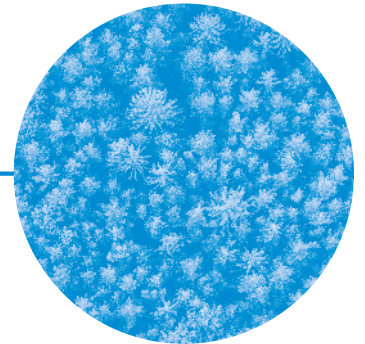
Archaeological mapping

PROF. CARL LIPO DEPARTMENT OF ANTHROPOLOGY AND IIRMS CALIFORNIA STATE UNIVERSITY, USA

*"The X100 now opens the door to forest managers to acquire valuable information at any time thanks to the flexibility and the system."*

Forest inventory

PROF. JONATHAN LISEIN DEPARTEMENT OF FOREST AND NATURE MANAGEMENT LIÈGE UNIVERSITY, BELGIUM



*"The fantastic thing about the Gatewing X100 is that you can use it whenever you want, even in harsh weather conditions!"*

Quarry and mine site surveying

Steve Talbot SURVEYOR AT MINING AND QUARRYING COMPANY SIBELCO, AUSTRALIA



*"We needed a way to conduct surveys quickly and accurately, with minimal risk to health and safety"*

Topographic surveying DAVE BANSEMER SURVEYOR WITH NMSS, SOUTH-AFRICA

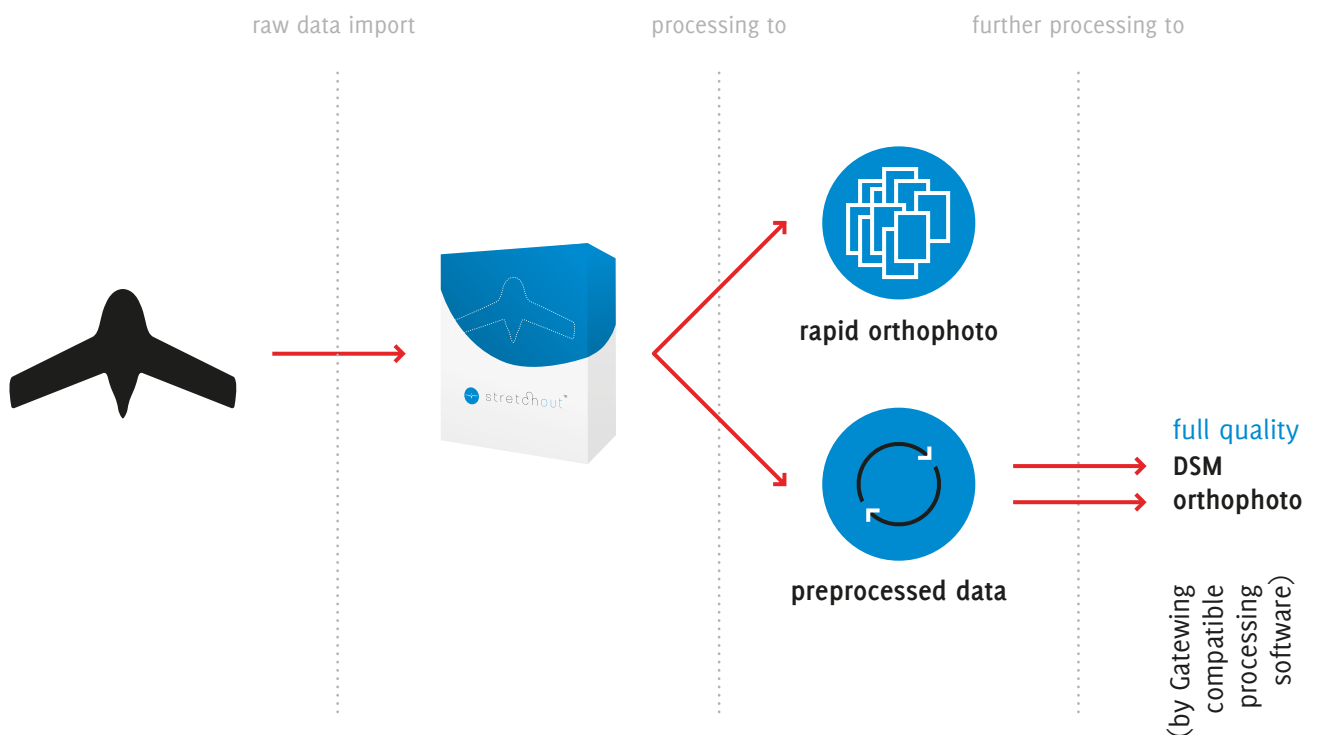




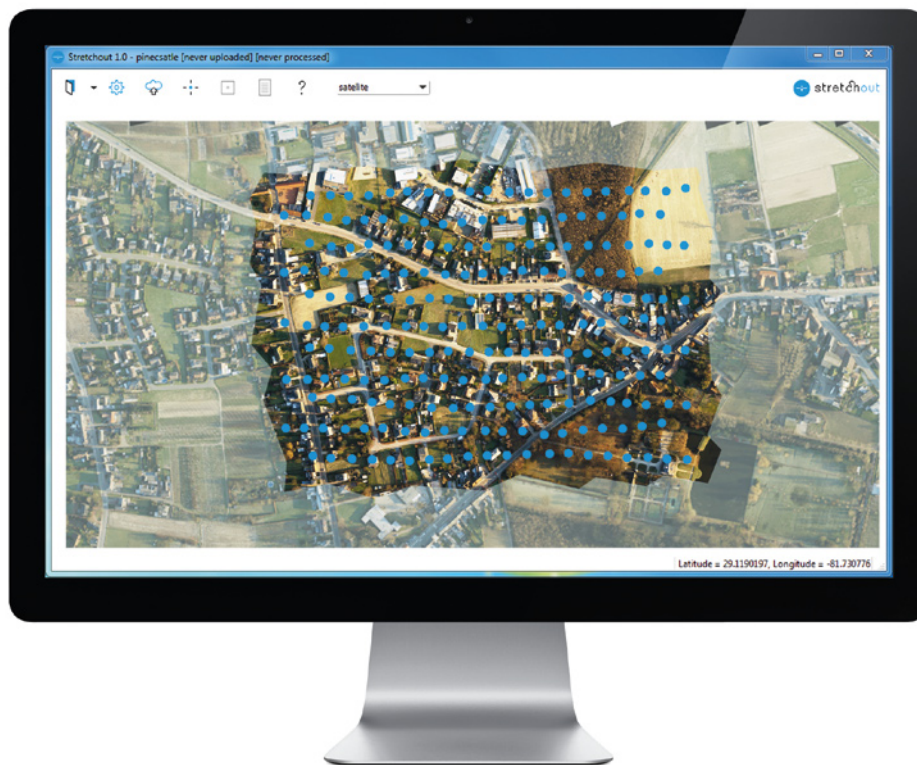
# stretchout

Stretchout™ is part of the X100 mapping kit and runs smoothly delivering rapid-proof georeferenced orthophotos. Compatibility with state-of-the-art processing solutions is guaranteed as well, allowing the user to get the highest accuracy and functionality.

With its years of experience, Gatewing can assist you to select the best processing solution for your applications.





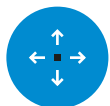


## STRETCHOUT™ FEATURES



### Supported output formats

The orthophotos (GeoTIFF format) are compatible with post-processing software such as CAD or GIS packages for further analysis (terrain digitizing and classification).



### Ground Control Points optimization

The use of at least a few GCPs is advised for projects that require high spatial accuracy. Stretchout™ allows you to use GCPs easily by importing and selecting them in the frame of reference.



### Quality checks

The software allows you to check the quality of your products by providing a quality report or by automatically computing errors with any number of ground verification points you provide.



### Flight path visualization

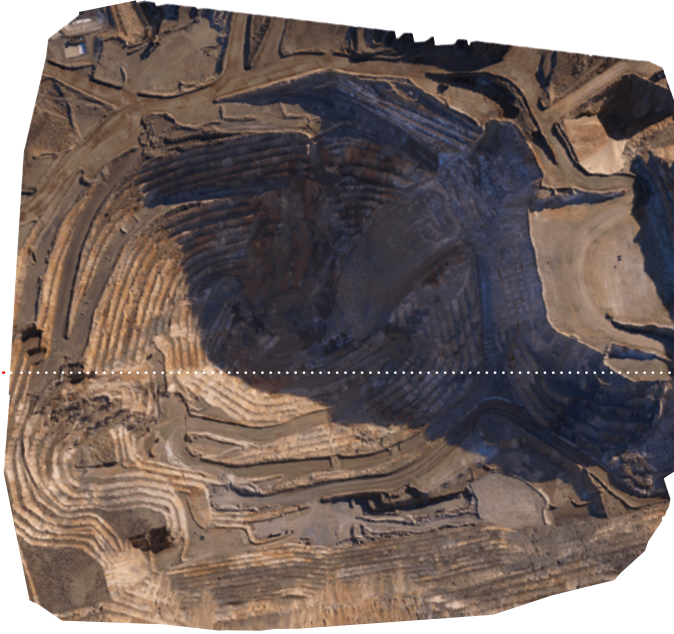
Stretchout™ is your quick and easy flight explorer that lists your flights including important properties (image count, flight time and date). Every flight can be visualized in your favorite virtual earth environment, such as ArcGIS Explorer or Google Earth, simply by pressing the X100 icon in the toolbar.

## CLOUD PROCESSING



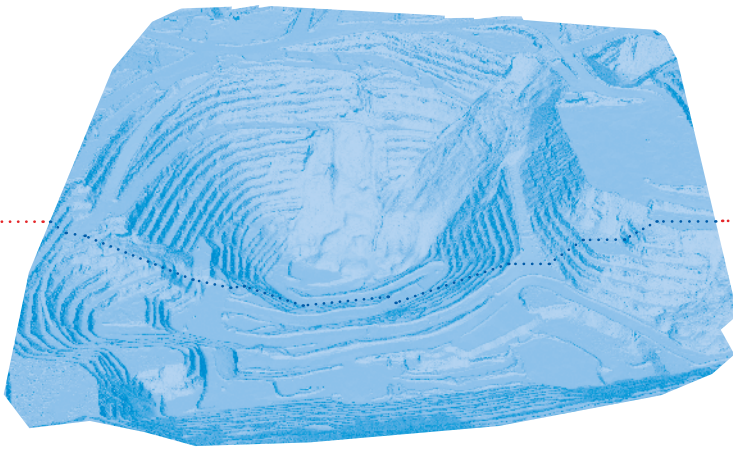
### cloud

Gatewing Stretchout™ lets you upload your images to a cloud server, which does the processing for you with pricing based on your project size and requirements. After a few hours, you can download your georeferenced orthophotos and DSMs from the cloud server and request feedback on the results.



## DIGITAL SURFACE MODEL & ORTHOPHOTO

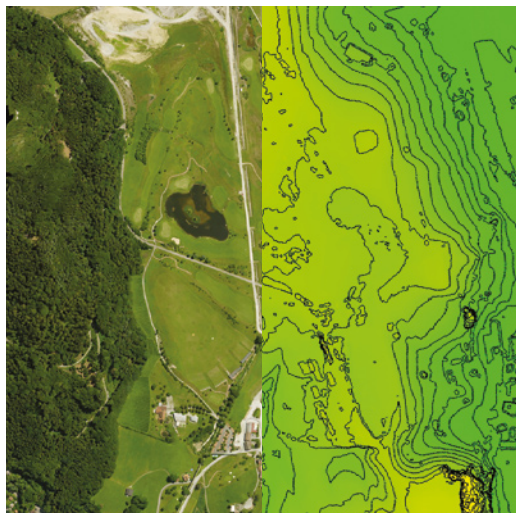
A Digital Surface Model or DSM is a digital representation of ground surface topography including all objects (houses, trees, etc). In combination with a professional photogrammetry suite, Stretchout allows for the creation of very dense point clouds in a georeferenced format (GeoTIFF, XYZ or TIN model) that can be imported into any GIS or CAD package. Orthophoto mosaics are created by projecting the texture of raw images onto the DSM. This can be done in a seamless manner using intelligent color balancing.



## PROCESSING EXAMPLES

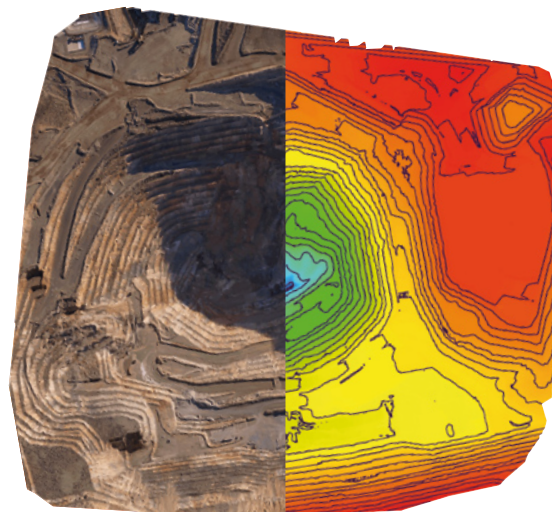
Orthophoto and DEM of a golf course (CH),  
183 m height difference.

Orthophoto | DEM



Orthophoto and DEM of an open pit mine (US),  
300 m height difference.

Orthophoto | DEM



PROJECT EXAMPLE

TYPE	LOCATION	IMAGES	GSD <sup>1</sup>	AREA	# GCP <sup>2</sup>	VERSION	PROCESSING TIME <sup>3</sup>	ERROR	
								X, Y	Z
Mining	Canada	185	4.4 cm	0.26 km <sup>2</sup>	8	PhotoScan Pro	2 h	4.0 cm	10.3 cm
Forestry	Alaska	372	5.2 cm	0.83 km <sup>2</sup>	11	Pix4UAV	6 h	3.4 cm	4.2 cm
Test field	Belgium	400	4.6 cm	0.84 km <sup>2</sup>	8	Stretchout™	20 min	6.4 cm	12.0 cm
						Pix4UAV	5 h	1.6 cm	3.0 cm
Mining	US	640	5.5 cm	1.2 km <sup>2</sup>	5	Pix4UAV	10 h	1.9 cm	3.7 cm
River Bank	Spain	2504	8.1 cm	13.1 km <sup>2</sup>	27	Cloud	48 h	4.5 cm	9.5 cm
Golf Course	Switzerland	510	13 cm	2.5 km <sup>2</sup>	8	PhotoScan Pro	4 h	9.2 cm	27.4 cm

<sup>1</sup> GSD = Ground Sample Distance

<sup>2</sup> GCP = Ground Control Point

<sup>3</sup> Stretchout™ was run on an off-the-shelf laptop,

Pix4UAV Gatewing Edition & Agisoft PhotoScan Pro was run on a Windows workstation (64bit) with 20GB RAM



## INTERESTED?

Price & details available upon request:  
contact your local Gatewing dealer or [sales@gatewing.com](mailto:sales@gatewing.com)



Gatewing NV  
Buchtenstraat 9  
9051 Gent Belgium  
T +32 9 335 05 15  
F +32 9 335 88 03  
[sales@gatewing.com](mailto:sales@gatewing.com)  
[www.gatewing.com](http://www.gatewing.com)