

### **Mission Information**

Location: Huludao City, Liao Ning, China Measured area: 800mx1000m (0.8 sq.km) Camera: Sony DLSR ILCE-5100, E20mm UAV: Fixed-wing drone Flight details: 200m AGL, 6 flight strips, 132 images, 1:500 mapping demand Ground control points: 14 points, with 1 point for every 3 baselines and every flight route

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### **GCP** Information

14 ground control points to layout in advance



GCP layout



### Accuracy Report Summary

X-direction max. difference: 0.0484m (PT5) Y-direction max. difference: 0.0255m (PT13) Z-direction max. difference: 0.0904m (PT14) For all the checked points, horizontal RMSE 0.0235m and vertical RMSE 0.0805m, both <10cm. The result meets 1:500 mapping demand.

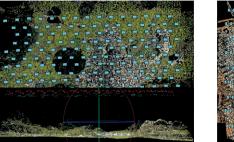
#### GCP coordinates

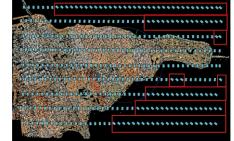
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PT6	405362, 53	4521519, 296	365, 490
PT7	405204, 912	4521583, 918	345, 775
PT8	405138.072	4521404, 21	365, 006
PT9	405244, 107	4521544, 845	260, 962
PT10	405424, 20	4521405, 203	342, 328
PT11	405451,964	4521464, 719	363, 472
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### Accuracy Report

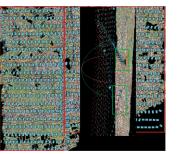
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[rms]:	0,0805					

## **OTHER CASES**





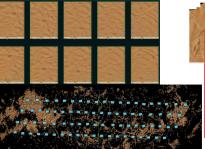
Crisscrossed flight strips, 150 images



2 flights for 2 missions, 900 images



Plain data (Grass, village)



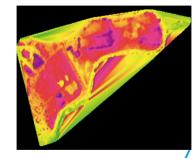


Tough case (deserts, with sparse textures)

## SOUTH SURVEYING & MAPPING INSTRUMENT CO., LTD.

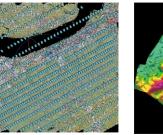
Target your success http://www.southsurvey.com http://www.southinstrument.com



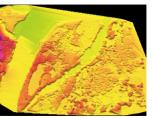


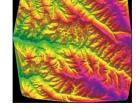
Water area with POS only, no aerial triangulation point to match, 350 images

Water area processing



Typical examples (high mountains, high-density plantation, flatland and grassland, wide rivers, low-rise buildings)





Urban area + water area mapping (high-rise buildings, high-density plantation, wide rivers)

Mountain area mapping (high mountains with deep valleys and high-density plantation)

erial triangulation orientation points for DEM

High-density re-matching points for DEM

E-mail: mail@southsurvey.com export@southsurvey.com imexp@southsurvey.com euoffice@southsurvey.com



**Data Processing Software** for Unmanned Aerial Vehicle

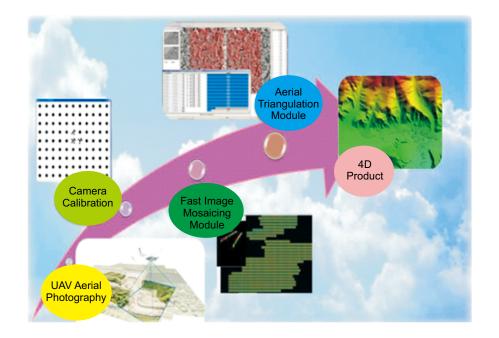


# SkyPhoto

## BRIEF INTRODUCTION

Originally derived from traditional aerial photogrammetry system, SkyPhoto is a professional package solution designed for transforming low-altitude aerial images into consistent and accurate points cloud, DEM (Digitized Elevation Modeling), DOM (Digitized Orthophoto Modeling) mosaics, etc. The software features sharply in not only one-key processing for workflow automation but also advanced settings and editable output options, specifically engineered to meet the demand of both specialists and beginners. The main functions include indoor camera calibration, dodging process, accuracy quality report, measurement tool, 3D modeling generation and browse, DLG (Digitized Line Graphics) production based on stereo image pair and so on, making SkyPhoto a sophisticated solution with accuracy, flexibility, usability and productivity.

## SYSTEM STRUCTURE

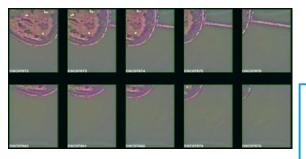


## **SYSTEM FEATURES**

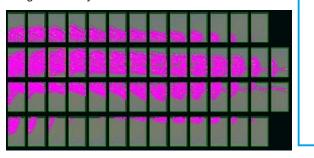
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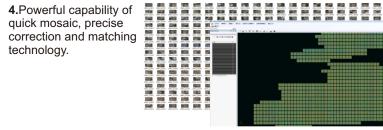
1. The parameter settings for aerial photogrammetry enjoy great flexibility, with manual intervention as well as default one-key operation, worry-free for non-professionals.



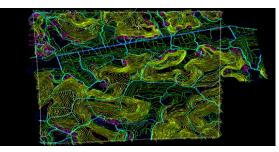
2. The intellectualized aerial triangulation algorithm satisfactorily deals with tough cases like images from unstable flight attitude (Kappa or Omega angle out of tolerance) and sparse textures, for example, deserts, large water area with just a little land, etc. The overlap percentage and rotating angle of images are very little restricted.



correction and matching technology.

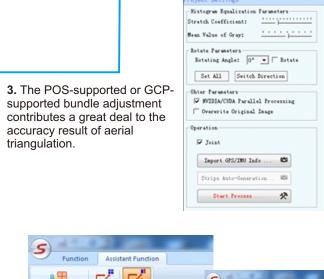


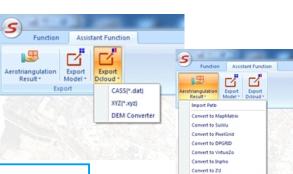
5. This package features largely in keeping both functional versatilities and high efficiency at the same time and less time required when processing the same quantity of images compared with other software on the market. Images from multi-rotor drones with excellent flight stability (SkyWalker X61 highly recommended) would easily help you to obtain 1:500 DLG mapping.



Our software training would be very helpful for users to advance from traditional ground survey to aerial photogrammetry.

## **SKY**SOLUTIONS





triangulation.

**6.**The system is compatible to other professional GIS or mapping software by exporting to universal data formats popular on the market

Export Report

Unlike simple modeling soft ware, SkyPhoto-super is a professional aerial photogrammetry solution that demands systematic operation and proficient expertise.

With independent intellectualized property rights, the software is available for format customization upon request.



The core algorithm, adopting pyramid

gradation method, is optional to match

POS data, photographic strips or all

precise aerial triangulation matching.

images, which provides effective and

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The specialized camera calibration program is included for image distortion correction, as similarly required by all other professional aerial photogrammetry software solutions. By manually inputting camera parameters (eg.principal point, principal distance, pixel size, etc.), you may easily finish the procedures indoors with a desktop LCD monitor. It is to be done either before or after photography, but normally, better before the flights.

2016/4/22 11:11 SCBACMR 文件

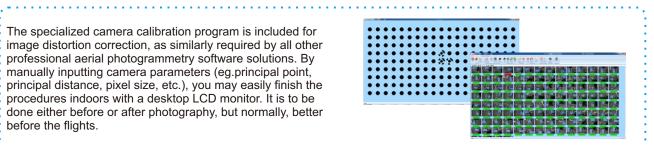
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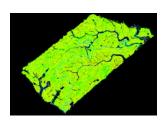
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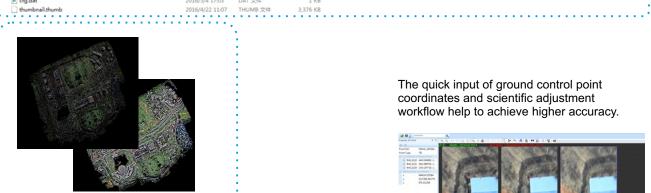




Impressive deliverables (DEM, DOM, DLG, etc.) can be automatically generated, and further edited for higher quality outputs.

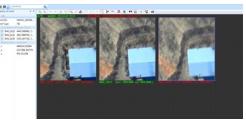


The POS-supported or GCP-supported bundle adjustment contributes a great deal to the accuracy result of aerial triangulation.



Millions of orientation points are attributed and even reach to hundreds of millions after densification. Instead of monochromatic points cloud, the colorful output, is more convenient for users to view and analyze the shape and properties of surface features. And you may browse the points cloud in the software like the way that you do with 3D laser scanner. 

The quick input of ground control point coordinates and scientific adjustment workflow help to achieve higher accuracy.



High-precision POS data from airborne GNSS-RTK system successfully gets you to minimize the huge efforts in dealing with ground control points fieldwork, and you may go straight to adjustment then mapping without the GCP concern.