

5 Years of PHOTOMOD in China and Glance of Chinese Geoinformation

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9. 2018 Crete Greece



Contents

- **SmartSpatio Introduction**
- **PHOTOMOD In China for 5+ years**
- **Chinese Geoinformation**
Changing, current status and development
- **UNWGIC**
Deqing, Zhejiang Province, China
19--21 Nov. 2018



SmartSpatio Introduction

- SmartSpatio Technologies, Inc. **2008 found**, >25 employees
- An IT company for professional Remote sensing, Photogrammetric and GIS Software and service...
- A supplier of **3S software**, **UAS**, Aerophotography, operating system, hardware, database and integrated solution etc..
- Preponderant industry: Surveying and Mapping, Military, Forest, Civil Administration, Education, Traffic, Water Conservancy etc..
- Address: Building 1, Yuhaiyuan 1 Lane, No. 8 Yuquan Road, Haidian District, Beijing **AND**
No. 3 Building State Forestry Administration, No.18 Hepingli East Road, Dongcheng District, Beijing **AND**
No. 7 Building, No. 1088 Fanghe Road, Minghang, Shanghai



SmartSpatio Milestones

- 2008 SmartSpatio Technologies, Inc.
- 2009 SSF-Platform software developed
- 2012 Racurs PHOTOMOD
- 2013 PHOTOMOD Exclusive dealer
- 2015 Merger with Beijing SUCE Sci-Tech
- 2017 Jingyao IT (Shanghai Branch)
- 2018 RS/GIS Cooperation

.....



SmartSpatio Main Business

- PHOTOMOD Sales and Support/Service
- UAS Sales and Aerophotography
Feima Robotics, DJI
- Data Captured and Processing
Satellites/Aerial images Processing, 3D...
- GIS Industry Application R&D
Forest, Military...



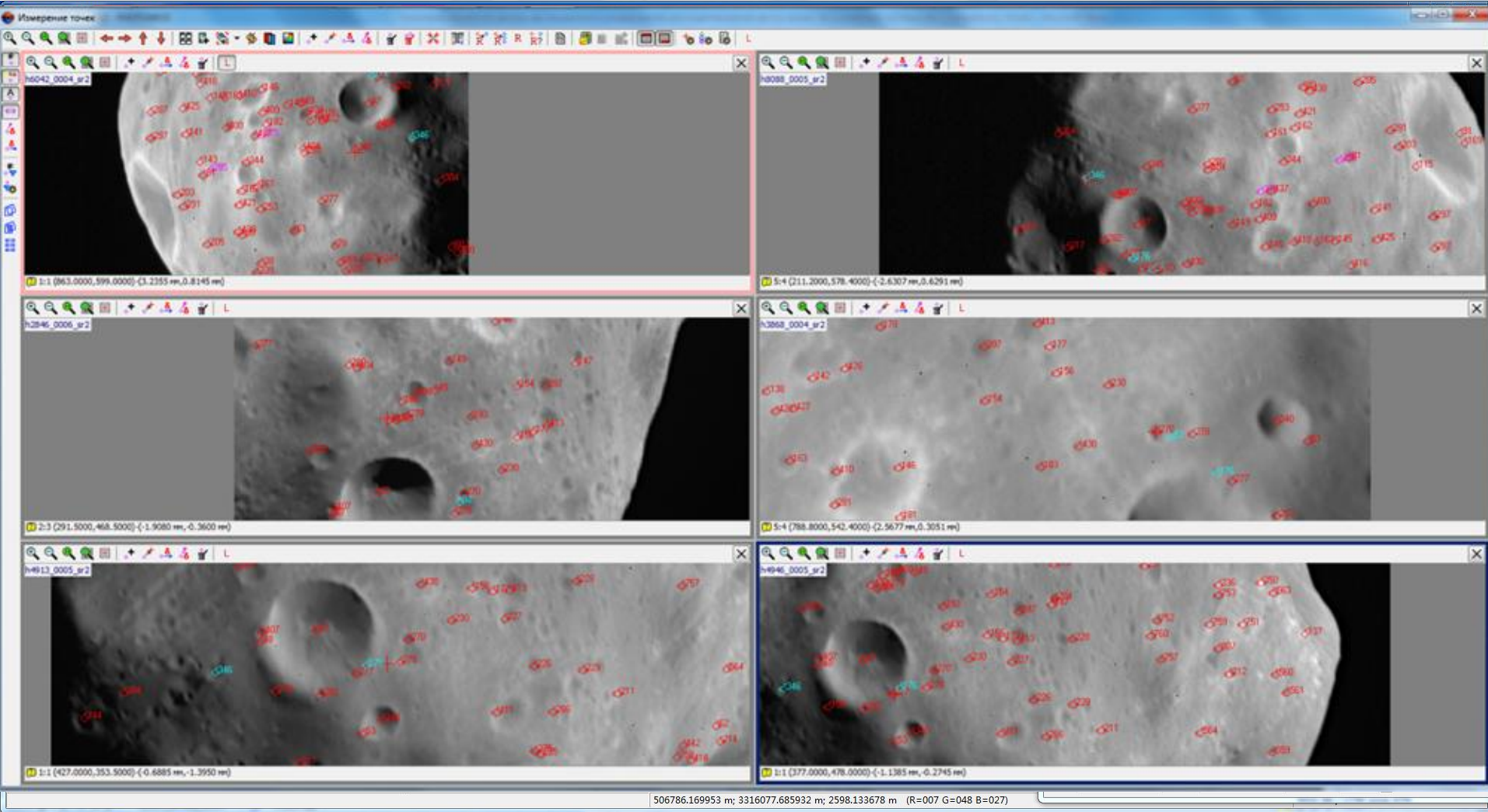
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Why PHTOMOD?

- **Useful:** lots of testing, solve lots of problems



5 years of PHTOMOD in China

- 2012.11 Start cooperation
- 2013.06 The Exclusive Reseller of PHOTOMOD in China
The 1st Chinese PHOTOMOD Version
- 2014.10 14th ISTC “From imagery to map: digital photogrammetric technologies” Wanning, Hainan
- 2015.08 Visit Racurs
- 2016.09 PHOTOMOD technical seminar
State Forestry Administration, Beijing
- 2017.10 Join the 17th ISTC “From imagery to digital reality: ERS & photogrammetry” Hadera, Israel
- 2018.02 1st Digital China and Photogrammetry Conference
Beidou industrial base, Shanghai



UAS Case

The screenshot displays the PHOTOMOD GeoMosaic software interface. The main window shows a mosaic of aerial photographs of a rural landscape, including a river, fields, and a small settlement. The interface includes a menu bar at the top with options like '工程' (Project), '影像' (Image), '拼接线' (Mosaic Line), '控制/连接点' (Control/Connection Points), '片区' (Area), 'Misc', '镶嵌' (Mosaic), '矢量' (Vector), '编辑' (Edit), '服务' (Service), '窗口' (Window), '帮助' (Help), and '退出' (Exit). Below the menu is a toolbar with various icons for file operations and editing. A status bar at the bottom of the software window displays coordinates: 548052.800000 m; 3839056.300000 m; 0.000000 m (R=129 G=128 B=133) and the text 'Cartesian Right'. On the right side, there is a '主 | 导航' (Main | Navigation) panel with a legend containing items like '标识' (Marker), '有用区' (Useful Area), '云层' (Clouds), '地面控制点和连...' (Ground Control Points and Connections), '混杂' (Mixed), '片区' (Area), '拼接线' (Mosaic Line), and '栅格' (Grid). The Windows taskbar at the bottom shows the system tray with a 97% battery level and the date 12:41 2014/2/16.

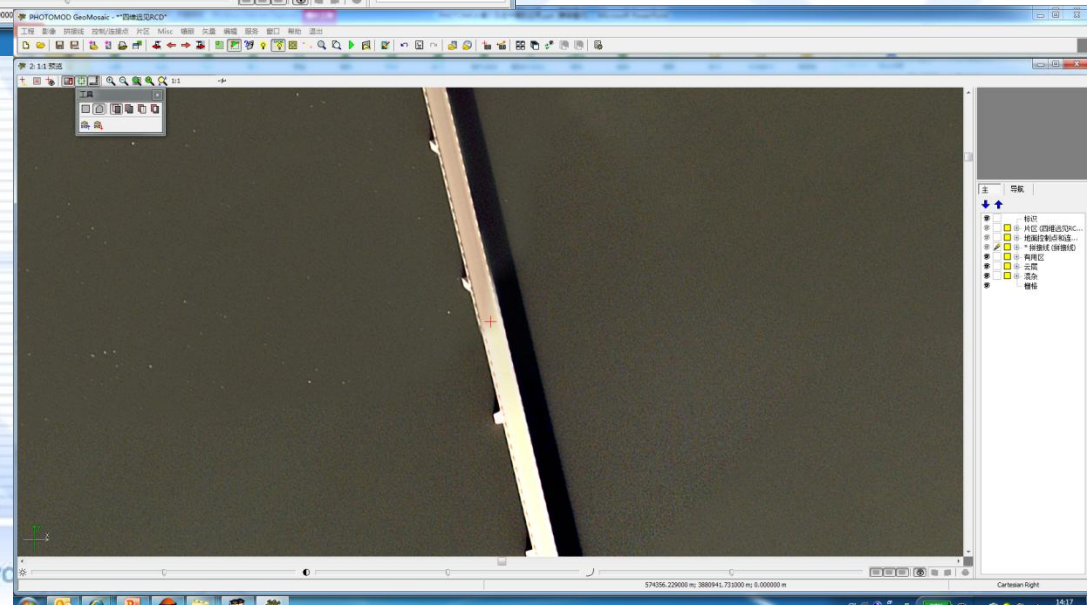
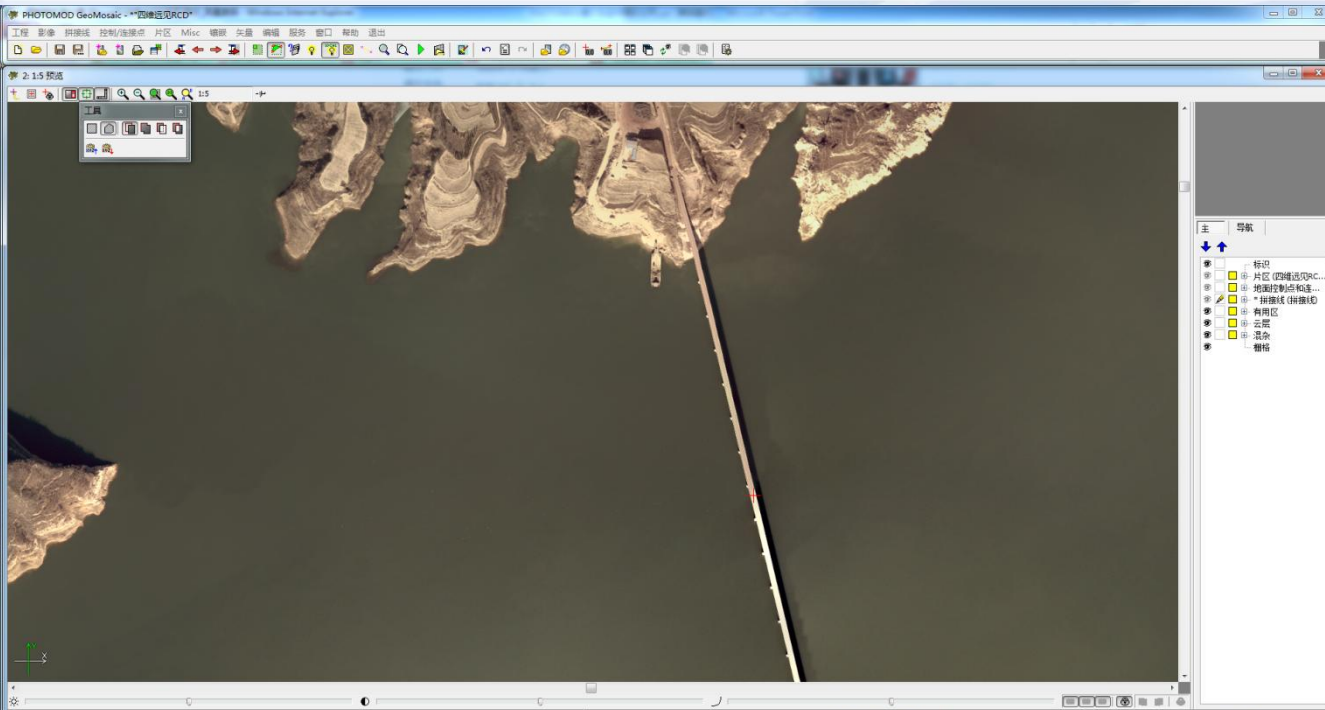
Feima F1000--1:500

点号	像控点测量值			匹配DEM高程值	Dz	备注
	Y	X	Z	hxdem		
1	2525993	545688.4	41.459	41.408	-0.051	
2	2525981	546034.5	42.717	42.834	0.117	
3	2525958	546519.1	45.325	45.4	0.075	
4	2525926	547062.3	42.594	42.394	-0.2	
5	2525736	545950.4	55.644	55.309	-0.335	点位不清晰
6	2525600	546070.7	40.165	40.325	0.16	
7	2525701	546571.2	45.983	46.016	0.033	
8	2525767	547023.6	42.256	42.181	-0.075	
9	2525587	545829.6	55.283	55.067	-0.216	
10	2525408	545656.1	40.663	41.263	0.6	
11	2525294	545950.2	45.629	45.623	-0.006	
12	2525373	546230.2	39.374	39.432	0.058	
13	2525369	546612.9	37.321	37.597	0.276	
14	2525375	546871.3	36.049	36.173	0.124	
15	2525506	547024.5	36.741	36.701	-0.04	
16	2525166	546990.7	31.014	30.927	-0.087	
17	2525082	545615.8	40.437	40.283	-0.154	
18	2524690	545958.2	28.278			超出立体范围
19	2524880	546112.5	29.407	29.564	0.157	
20	2524877	546378.2	29.444	29.511	0.067	
21	2524965	546611.3	28.671	28.781	0.11	
22	2524857	546871.9	25.884	25.523	-0.361	
23	2524646	546421.6	24.761			超出立体范围
24	2524634	546744	23.879			超出立体范围

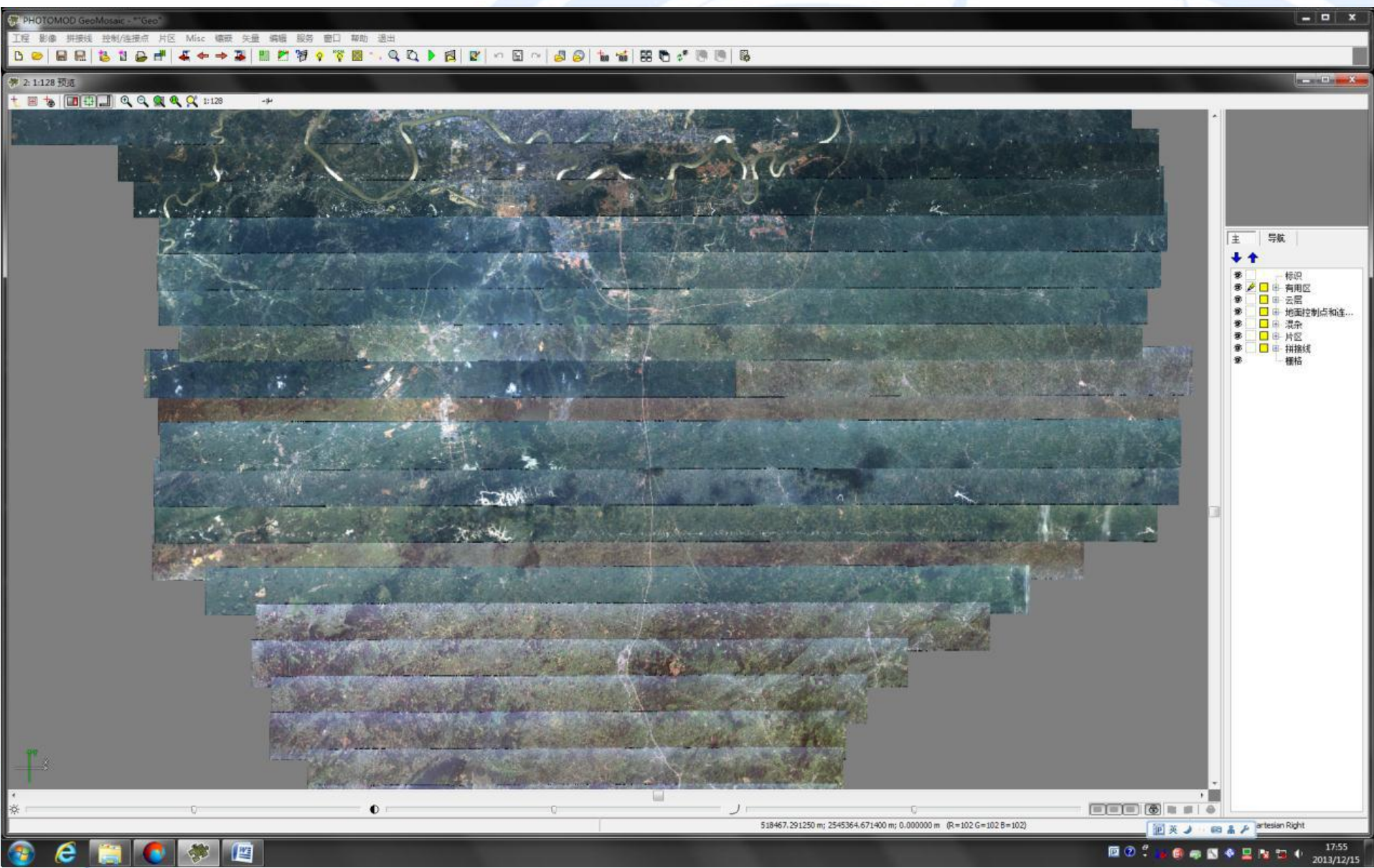
Feima F1000--1:500



Helicopter SWDC

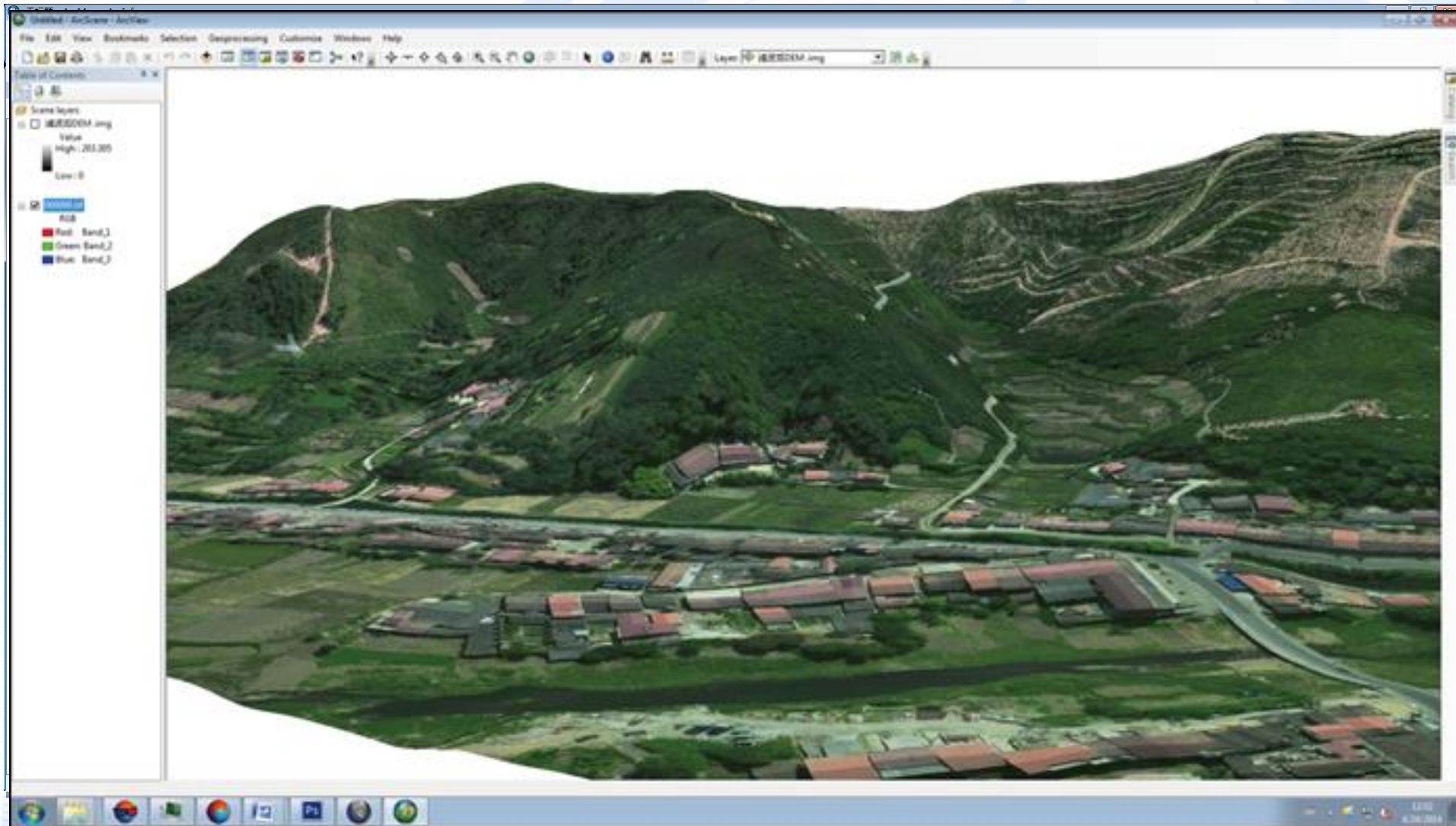


ADS Case



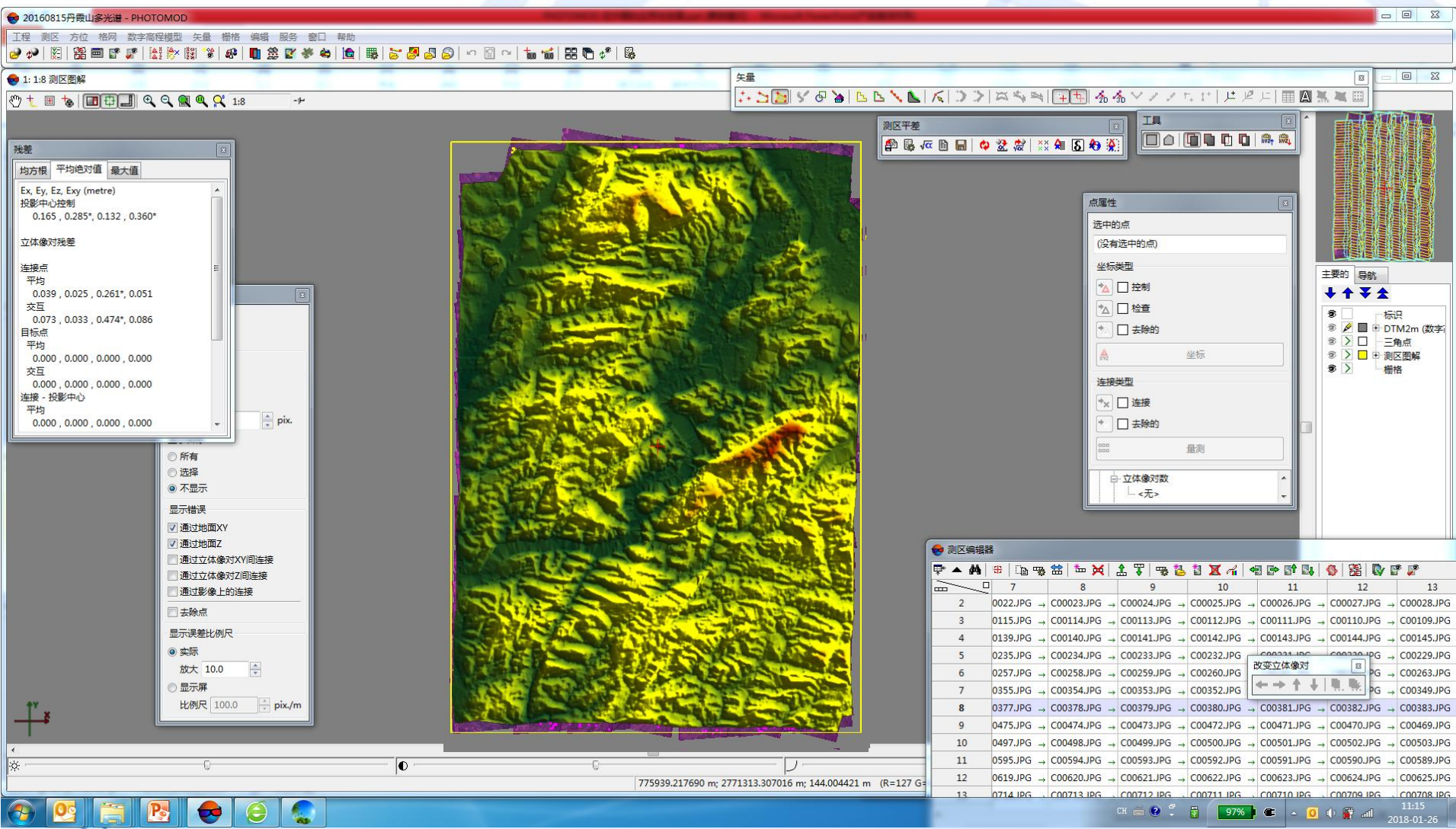
ADS Case

■ ADS100



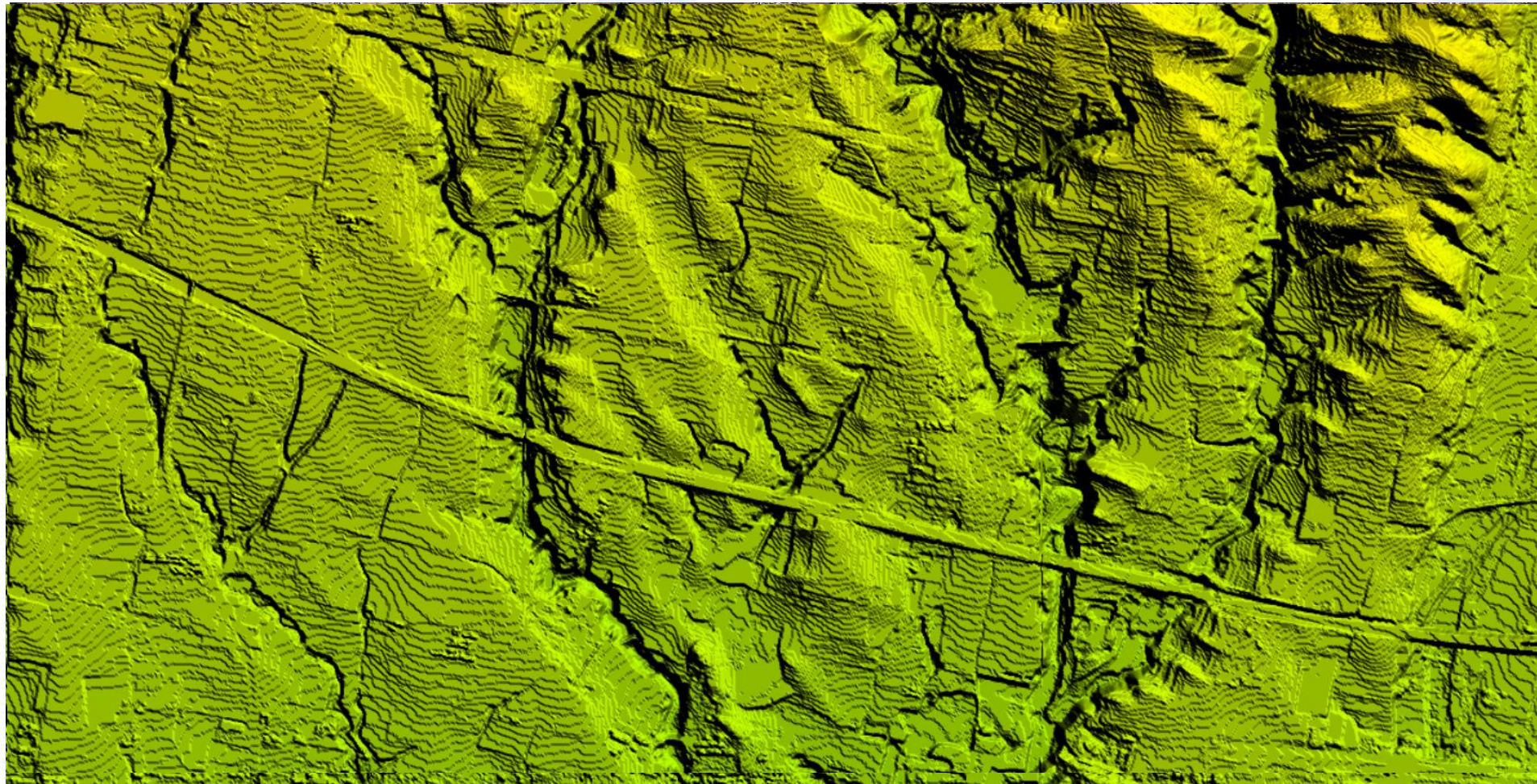
Multispectral sensor

- 8 Bands



Lidar

- Filtering



3D

Perspective



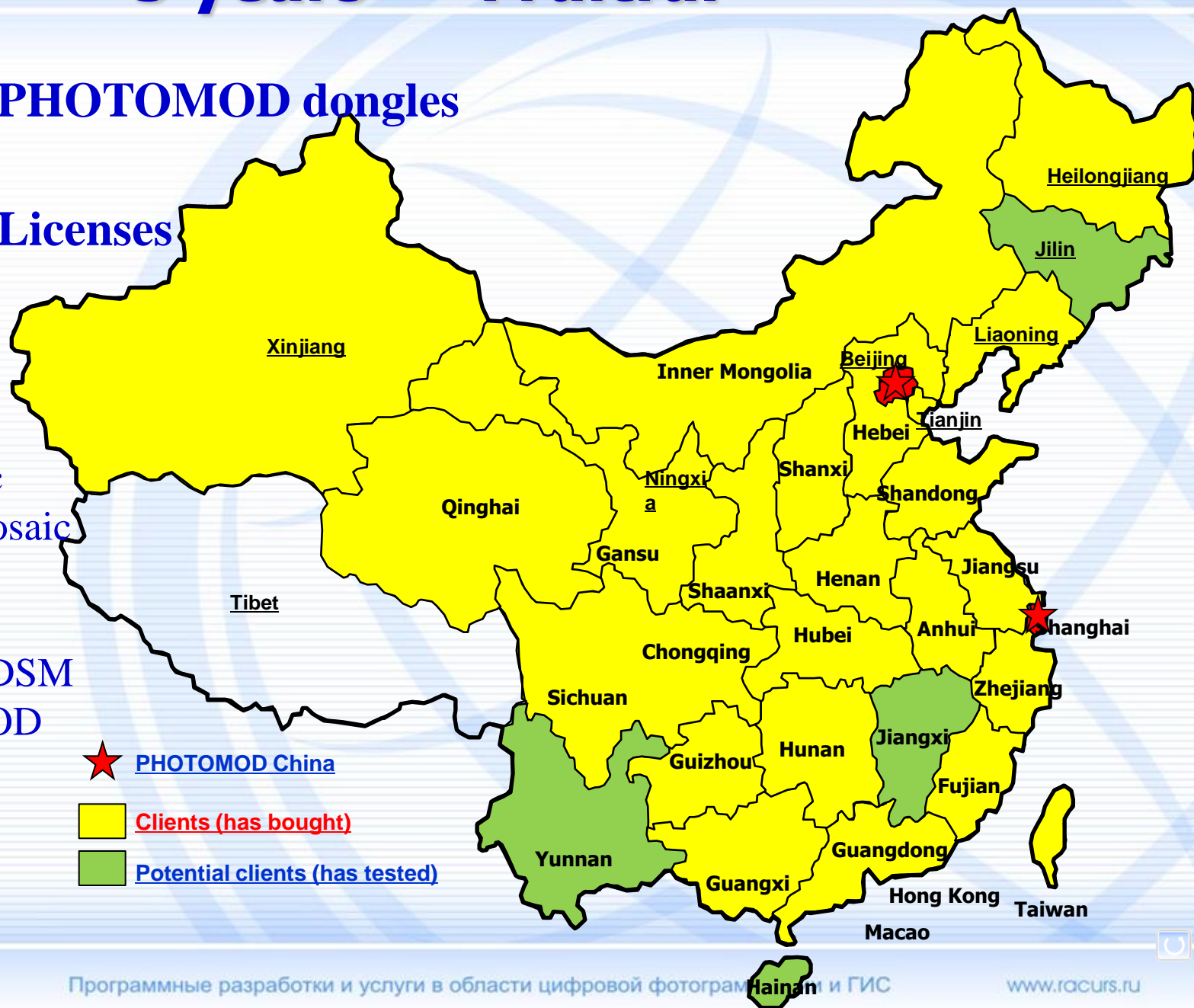
5 years----Fruitful

- **100+** PHOTOMOD dongles

- **500+** Licenses

Core
AT
SA/SS
DTM
Mosaic
GeoMosaic
UAS

DenseDSM
3D-MOD



- ★ [PHOTOMOD China](#)
- [Clients \(has bought\)](#)
- [Potential clients \(has tested\)](#)

5 years----Useful

- Different clients from different industry/provinces
Surveying and Mapping, Military, Forest, Land Planning...
Hunan, Guihou, Sichuan...
- Different & Difficult projects/jobs
Mountains, Grassland, Coastal zone, desert...
AT, Point filtering, Color balance...
- Different platforms/sensors
Satellites, aircrafts, UAS...
Satellite sensors, multispectral cameras, thermal infrared cameras,
DMC, A3, ADS, PhaseOne, Canon, Nikon...
- Different requirements/supports
Fast technical support, fast service response, more than just software
Products--technical support--R&D--service--solution

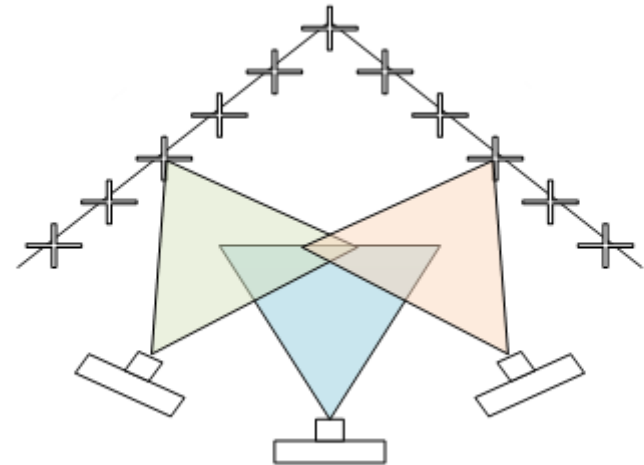
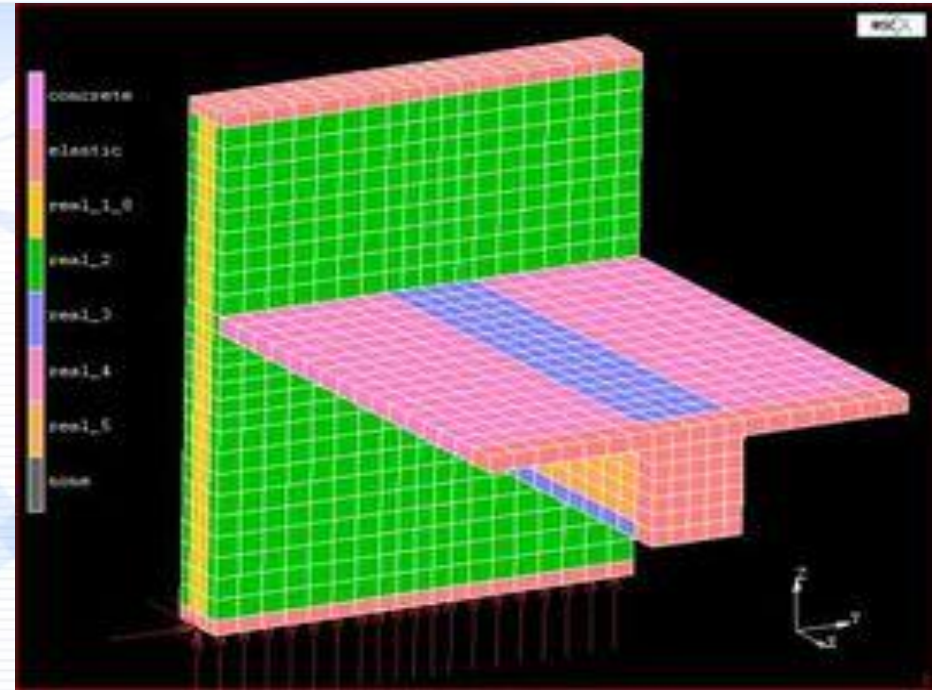
PHOTOMOD = Universal and Reliable Photogrammetric Solution



Developing in China

- **PHOTOMOD**
Accessibility Tools

FEM, Finite Element Method
Calculate Camera distortion (Lab)



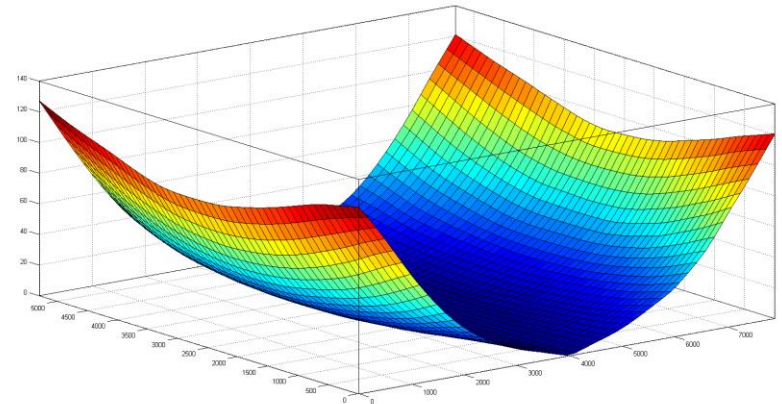
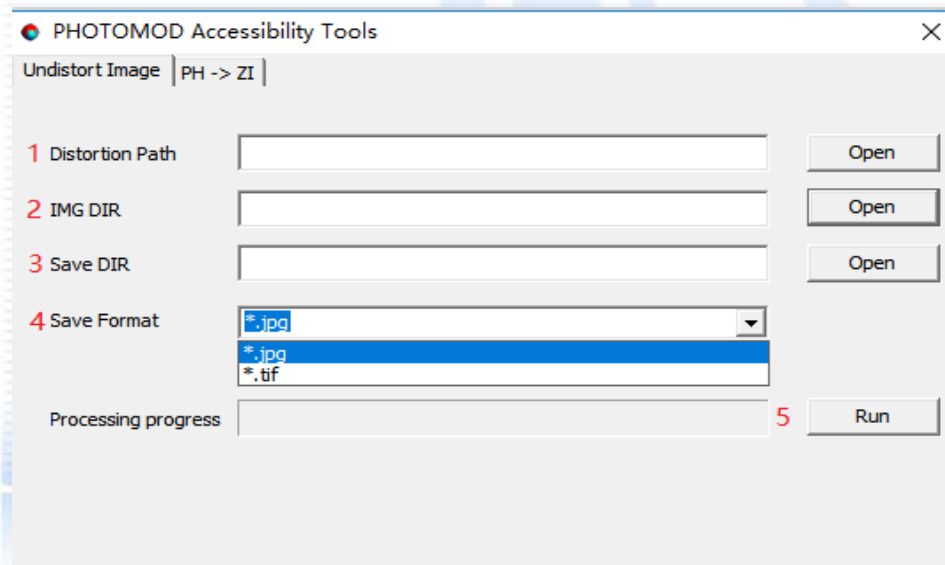
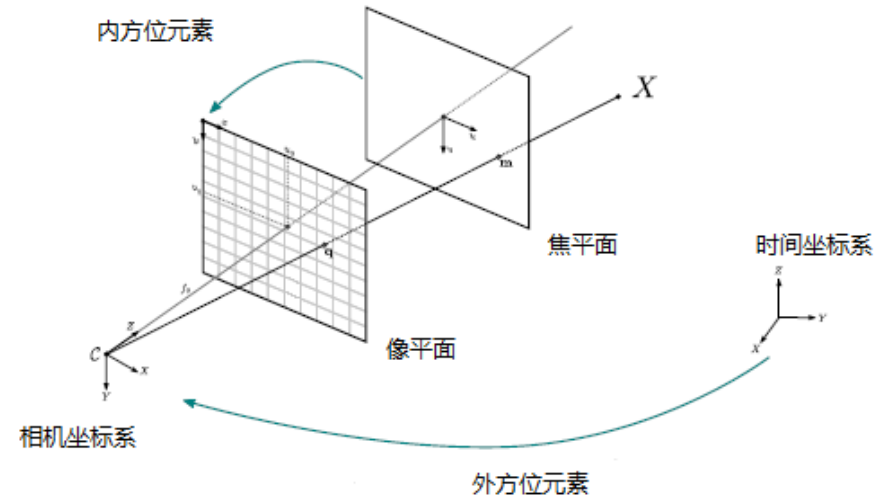
Developing in China

■ PHOTOMOD Accessibility Tools

Generate undistorted images

More AT accuracy

Better for feature collection
(Chinese software)



PHOTOMOD, Need more.....

As an Universal and Reliable **Photogrammetric** Solution

- **More powerful**

Mountain area AT, Oblique images processing, Images matching exiting orthophotos...

- **More accurate**

DGPS UAS without GCPs/ with less GCPs, 1:500
Images undistortion...

- **More automated**

One button for UAS/Satellites images processing

- **More efficient**

AT, DTM, DenseDSM; Net version

- **More complete**

Conveyor, DenseDSM, PHOTOMOD Radar



PHOTOMOD, Need more.....

More than Universal and Reliable Photogrammetric Solution

- **3D solution**

3D model and **texturing** (DenseDSM--3DTIN)

- **Feature collection based 3D model**

Chinese symbol library

- **Oblique/Close range** images processing

AT (accuracy), 3D model and texturing

- **Cloud service**

Hardware+Software+Service, efficiency

- **Geospatial Bridge**

Satellite images, RS/**GIS** softwares/solutions (Classify, 3D...)

UAS, Sensors, Satellite images

Whole GeoSpatial Solution for Our Clients!



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The Big Change

- Ministry of Land and Resources of the People's Republic of China

State Bureau of Surveying and Mapping



The Big Change

- 2018.04.10 Ministry for Natural Resources of the People's Republic of China



Current status

- **Advantages----long-term**
 - Organization simplifies
 - GeoSpatial Market Expanding
 - Data capturing easier
 - Processing & Application wider and wider
(Provinces--prefecture-level cities--county)
- **Disadvantages----short-term**
 - Lots of projects stopped
 - Plan adjustment



Current status

- **Data** Bigger and bigger (Such as: Shanghai)
- **Processing** Faster and faster (Chinese software)
- **Application** More and more (Esri, SuperMap)
- **Cooperation** Closer and closer (Equipment+Software)



Current status

- The third land and resources survey (Satellites Images)
- Smart Cities
- Thousands of UAS companies
- BAT, Huawei



Development

- **3D**
Processing (Full-automatic, Accurate, Efficient)
Analyze/Application
Exhibition/Publish
- **Cloud Service**
Easy
Efficient
- **Application-oriented**
No more 3S
Services



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UNWGIC

■ United Nations World Geospatial Information Congress Deqing, Zhejiang, China from 19 - 21 November 2018.

and registration on this first UNWGIC will be gradually posted on the event's web-page at:
http://ggim.un.org/meetings/2018-1st_Congress_Deqing/.

Should you have questions regarding the World Geospatial Information Congress, please do not hesitate to contact Mr. Greg Scott (Tel: 1-212-963-8578; Fax: 1-212-963-9851; Email: scott12@un.org) and Ms. Vilma Frani (Tel: 1-917-367-2903; Fax: 1-212-963-9851; Email: frani@un.org), Statistics Division, Department of Economic and Social Affairs. For information regarding the arrangements in Deqing, China, please contact Mr. Shibai Zhang (Tel: +86 10 66557045; Email: zhangsb@sbsm.gov.cn), Ministry of Natural Resources, China.

Together with our co-organizers, we look forward to welcoming you at the United Nations World Geospatial Information Congress, as we work to advance the critical role of geospatial information in the implementation of global development objectives for a shared future and a more inclusive world.

Yours sincerely,



LIU Zhenmin
Under-Secretary-General for
Economic and Social Affairs



LU Hao
Minister for Natural Resources
China

UNWGIC

- **United Nations World Geospatial Information Congress**
Deqing, Zhejiang, China from 19 - 21 November 2018.



UNWGIC

- **United Nations World Geospatial Information Congress**
<http://www.unwgic2018.org/>

- **Exhibition**

Space Options

- A. Raw Space – 108 m², 240,000 RMB (appr. 37,500 USD)
- B. Raw Space – 72 m², 160,000 RMB (appr. 25,000 USD)
- C. Raw Space – 54 m², 120,000 RMB (appr. 18,500 USD)
- D. Raw Space – 36 m², 80,000 RMB (appr. 12,500 USD)
- E. Standard Booth – 9 m², 240,000 RMB (appr. 4,000 USD)

- **Welcome to Deqing, UNWGIC!**



Happy Mid-autumn Day!
Thank you very much!

