Electro Optical Components, Inc.
5460 Skylane Boulevard, Santa Rosa, CA 95403
Toll Free: 855-EOC-6300
www.eoc-inc.com | info@eoc-inc.com

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UAVs Hyperspectral Imaging System

EOC-SI-9011

Features:

Integrated VIS camera： support the montage of flight path and realize 3D modeling

Centimeter positioning accuracy: employs RTK technology，GPS positioning accuracy at a class of centimeter.

Push-broom Camera： High working efficiency Full load synchronized trigger: hyperspectral camera, vis camera, POS system synchronized trigger, and accurate GPS data

Remote control： use Bluetooth of laptop or tablet to remote control drone loading

Cloud platform： self-designed double-axis cloud platform

Customized development： Stable cloud platform and loading are available in customized development.

Application:

Monitor Agriculture: plant diseases and insect pest, disaster, categories ID etc.

Forestry: Tree categories identification, Phytomass, nutrient elements, forest health etc.

Water Environment: Water quality parameters, water waste spatial distribution and migration analysis

Soil Pollution: heavy metal waste

Minerals: Mineral mapping, ingredients explore, metallogenic prognosis etc.

City geological substances classification and identification

Description:

EOC-SI-9011 is designed for high-performance-to-ratio hyperspectral imaging system based on UAVs. The system is composed of hyperspectral camera EOC-SI-1020, stable cloud platform, HD camera, POS module, UAVs loaded control and data acquisition module, UAVs loaded power supply module, ground station module. The core hyperspectral camera is completely self-developed by EOC employing CCD image detector, high spectral resolution, high sensitivity, and excellent imaging performance, combined with customized high performance stable cloud platform can effectively reduce image distorted or blur image caused by shaken UAVs; Hyperspectral camera and HD camera can synchronize with POS system, high precision hyperspectral image binning, visble light orthoimage binning, 3D modeling, which realize mufti-functional machine can improve UAVs working efficiency. Ground station module work with mobile APP can monitor and remote control system status, vividly improve user operation and convenience. At the same time, it can store GPS information in the ground station used for PPK treatment later. It can improve positioning accuracy of POS system. The system are available for upgraded and customized development.

Datasheet

EOC-SI-9011 Specification

SN	Item	Specification	Remarks
1	Spectral Range	400-950nm	/
2	Spectral resolution	<2.3nm	/
3	Spatial resolution	0.7mrad	35mm lens
4	Spatial channels	348/696	4 pixels binning/2 pixels binning
5	Spectral channels	260	4 pixels binning
6	Pixel bits	12bits	/
7	Frame rate	50Hz	/

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8	FOV	14.6°	35mm lens
9	Lens focal length	16、25、35、75mm	Standard attached 35mm, others optional
10	Visible camera resolution	15-mega pixel	/
11	Visible camera shooting interval	2s above adjustable	/
12	Visible camera life span	>30 min	/
13	Standard board reflectance	50%，15%，30%，75%，95%	Standard attached 50%, others optional
14	Standard board size	0.5m×0.5m	customized
15	Standard board quantity	1	purchasable
16	Cloud platform self-stable axis	2 axis	/
17	Cloud platform working time	40min	/
18	Cloud platform every axis engine number	2	/
19	UAVs data acquisition and control system CPU	I5	optional
20	UAVs acquisition and control system memory	8G	optional
21	UAVs data acquisition and control system hardware	240G	optional
22	GPS positioning accuracy	Better than 0.5 meter	/
23	POS system acquisition mode	Hardware synchronized trigger acquisition	/

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24	Ground station working distance	Radius 10KM	/
25	Ground station life span	12 hrs	/

Standard Attachments	
1	EOC-SI-9011 host *1
2	EOC-UAV-M600 pro UAVs（remote control included） *1
3	UAVs battery *1 groups
4	Ipad *1
5	Standard board *1
6	Cloud platform battery *1
7	35mm lens
8	Sky control data acquisition and control software
9	UAVs battery charger *1/ipad charger *1/cloud platform charger *1
10	Wireless mouse *1
11	Ground station
12	Ground station antenna
Optional attachment	
1	Standard board/cloth（reflectance 10%/20%/30%/40%/50% optional）
2	Cloud platform battery
3	Lens（focal length16mm/25mm/35mm）

4	Illuminator
5	Wind gauge
6	UAVs battery
7	UAVs remote controller
8	Ground station antenna

EOC-UAV-M600 Pro Specification:

SN	Description	Specification	Remarks
1	External Dimension	1668mm×1518mm×727mm	Propellers & arms unfoldable
2	Symmetrical engine wheelbase	1133mm	/
3	Weight	10kg	Includes 6 blocks of battery
4	Max. Flying weight load	15.5kg	/
5	Hovering Accuracy	Vertical ±0.5m; Horizontal ±1.5m	/

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6	Hovering Time	Unloaded lasting 32min	/
7	Max pitch angle	25°	/
8	Max Rotation angle	Pitch axis 300°/s；heading axis 150°/s	/
9	Max lift speed	5m/s	/
10	Max descending speed	3m/s	/
11	Max horizontal fly speed	65km/h	Wind-free
12	Max wind speed	8m/s	/
13	Remote controller max communication distance	5km	Non-interference & block
14	Working Temperature	-10~40℃	/

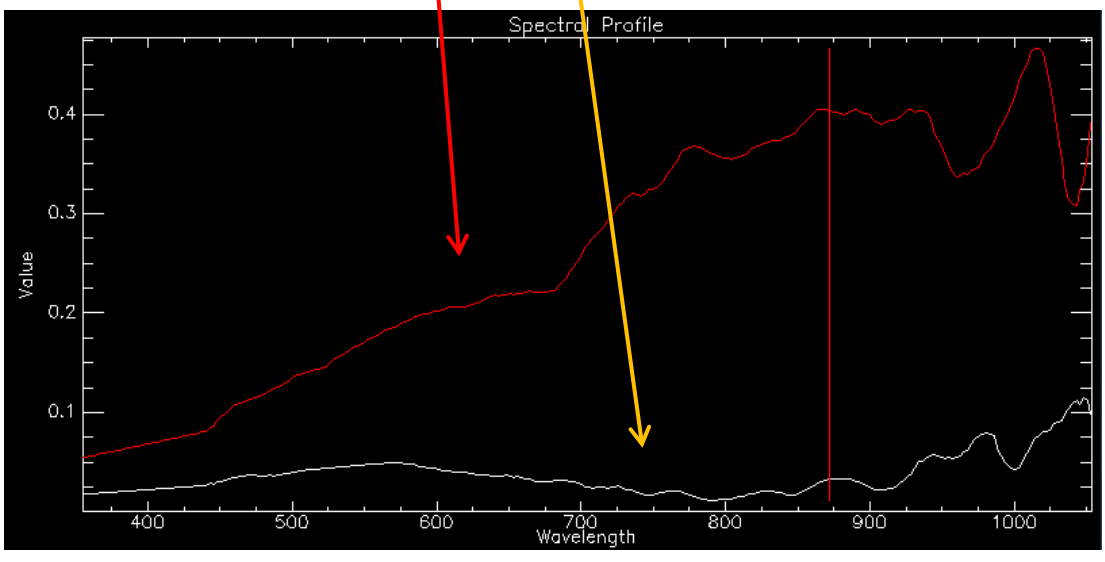
1. Application

1.1 UAVs Hyperspectral Imaging System

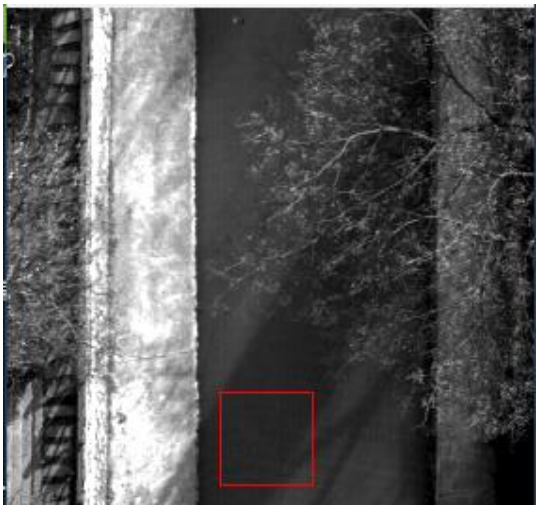
Datasheet

Datasheet

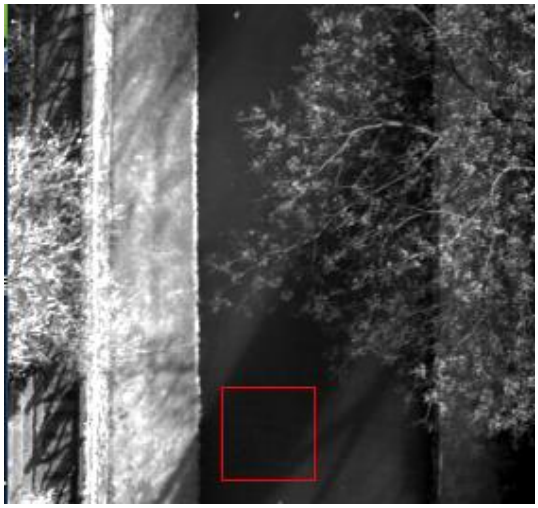
RGM combined image



Datasheet



50 Band



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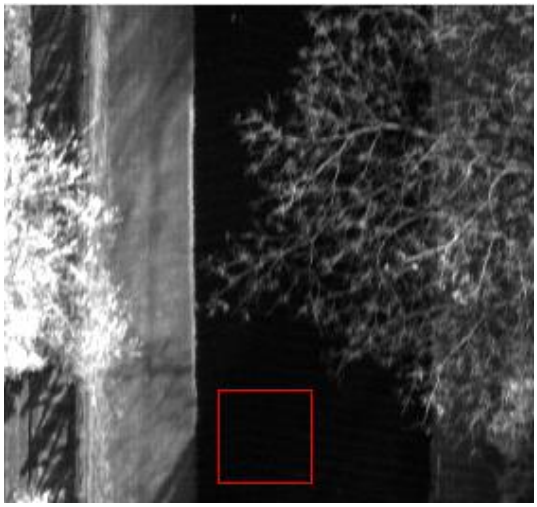
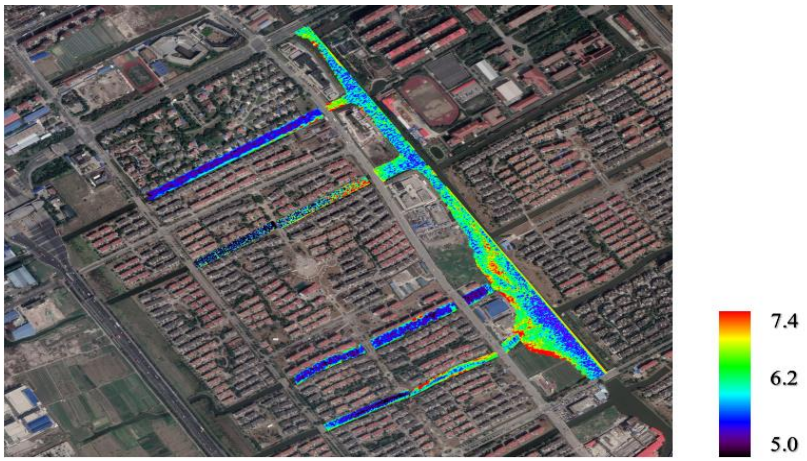
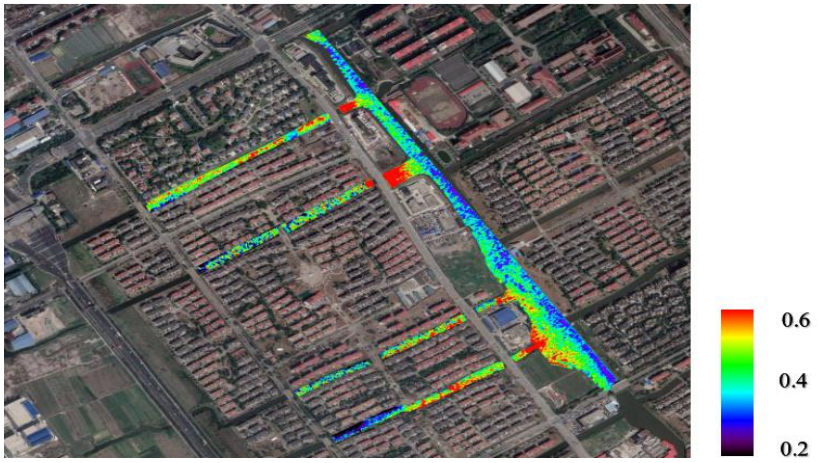


200 Band

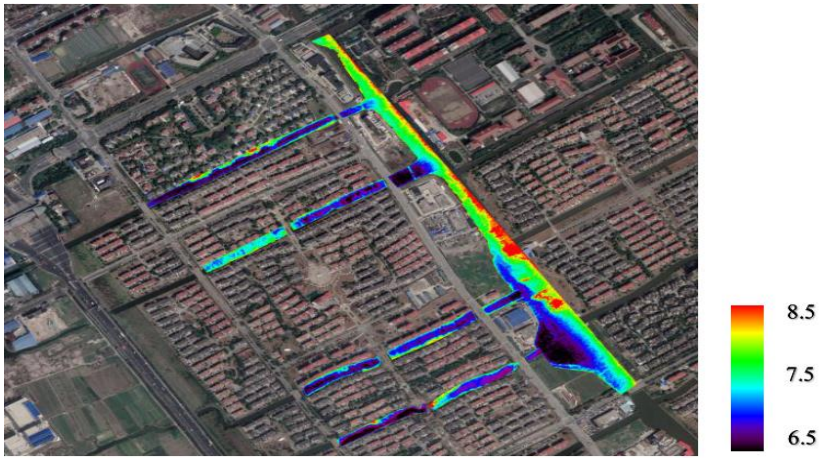
TP concentration distribution



CODMn concentration distribution



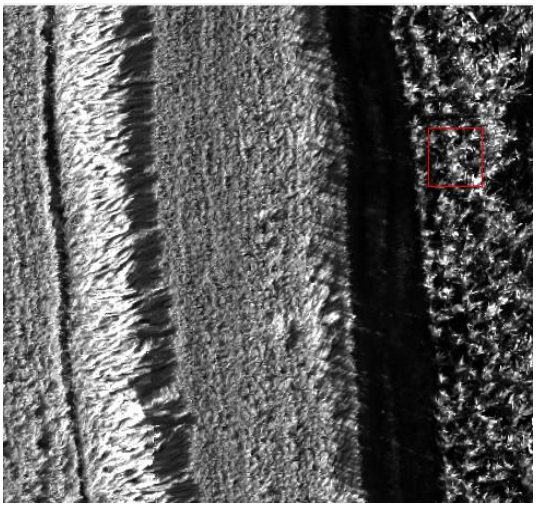
NH3-N concentration distribution



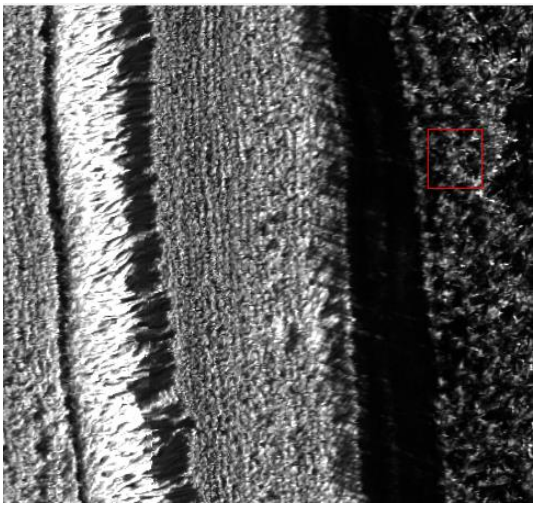
DO concentration distribution

1.2 Airborne Hyperspectral Imaging System Monitors Agriculture

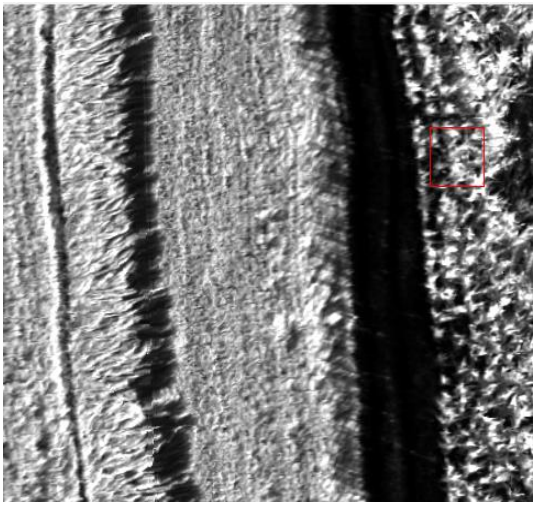
Datasheet



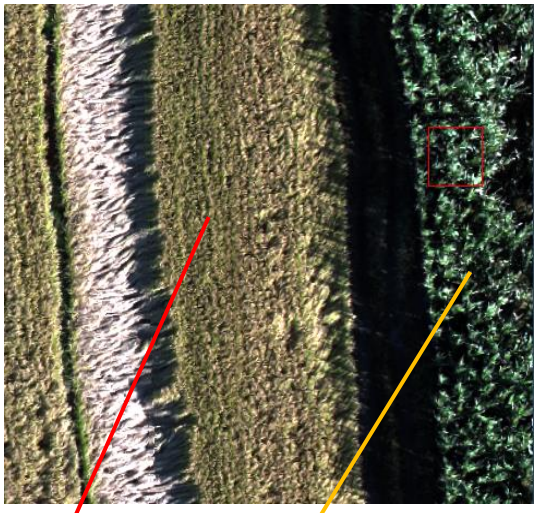
30 Band



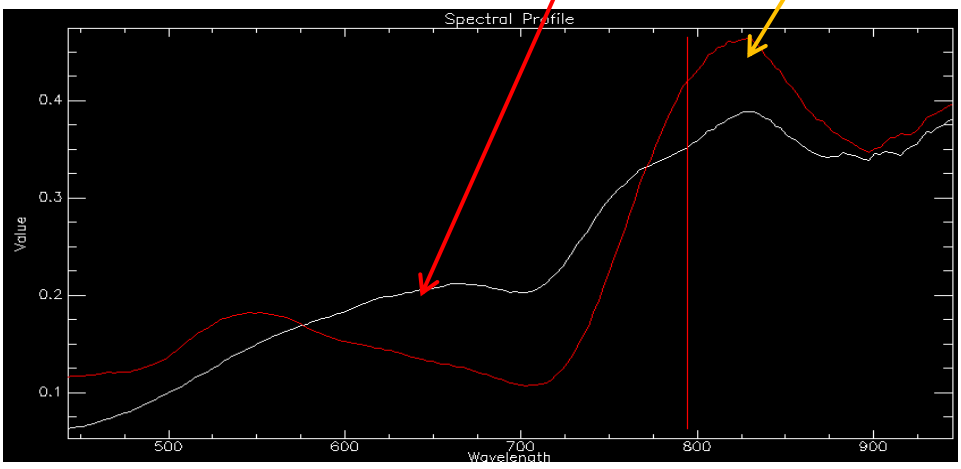
90 Band



120 Band



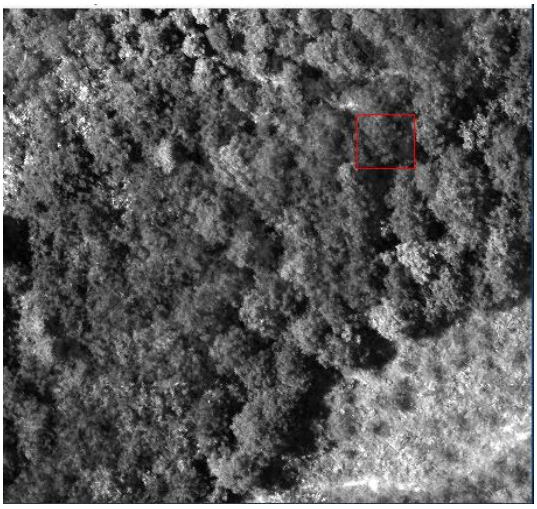
RGM combined image



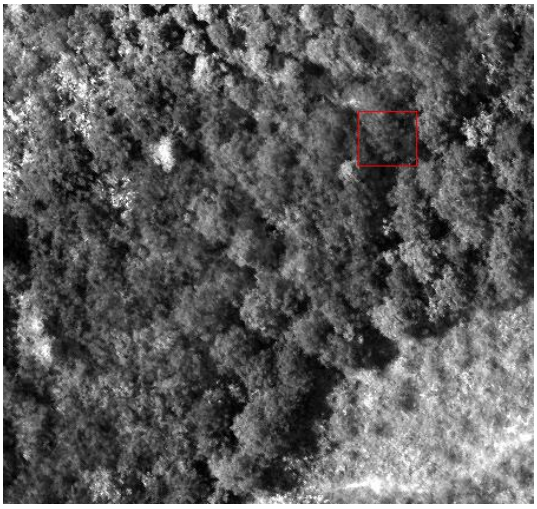
Comparison of spectral curves

Datasheet

1.2 Airborne Hyperspectral Imaging System Monitors Forestry



50 Band



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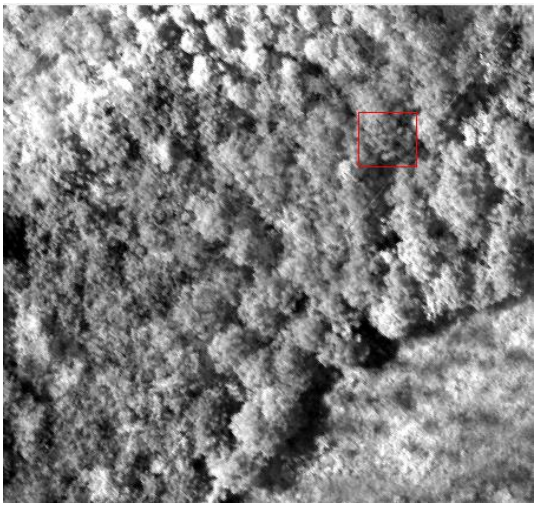
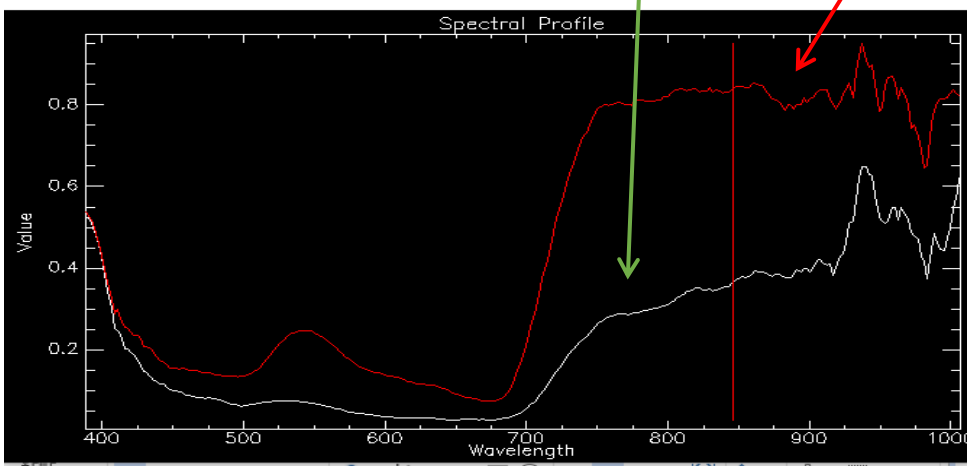


50 Band

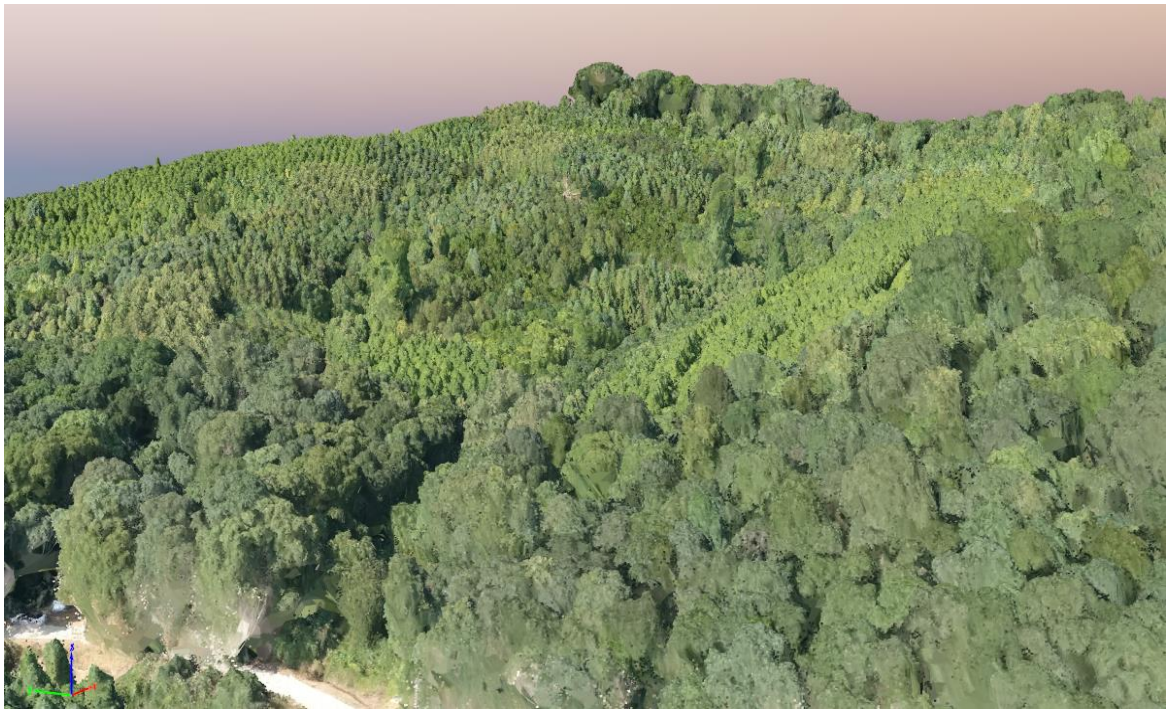
RGM combined image



Datasheet

Comparison of spectral curves

orthoimage binning



3D modeling