ARS³

Alava Remote Sensing Spectral Solution

Integrated solution for remote sensing

ARS³ is a seamlessly integrated solution for hyperspectral remote sensing. It includes the required HW and SW for data acquisition and processing to generate a spectral reflectance cube. Data are obtained using UAV/UAS or general aviation flights equipped with this solution.

ARS³ is the right tool for remote sensing in the fields of Precision Agriculture, forestry, vegetation stress detection, geology and terrain analysis.

Flight data acquisition can be performed through both UAV/UAS and manned aircraft platforms. One of the key features of this system is that it can be implemented in UAVs with payloads as small as 2-3 Kg only, making them extremely easy to deploy and able to land in any kind of terrain. Alava Ingenieros has integrated this solution including software developed and licensed by the Institute of Sustainable Agriculture (CSIC) and sensors by Headwall Photonics.

Generation of hyperspectral reflectance cubes and mosaics

The **ARS³** integrates all the necessary steps required to generate in a simple, straightforward way the Hyperspectral reflectance cubes and the corresponding mosaics:
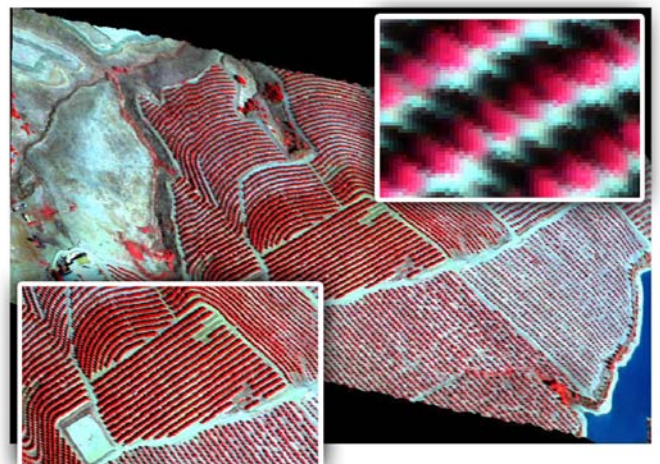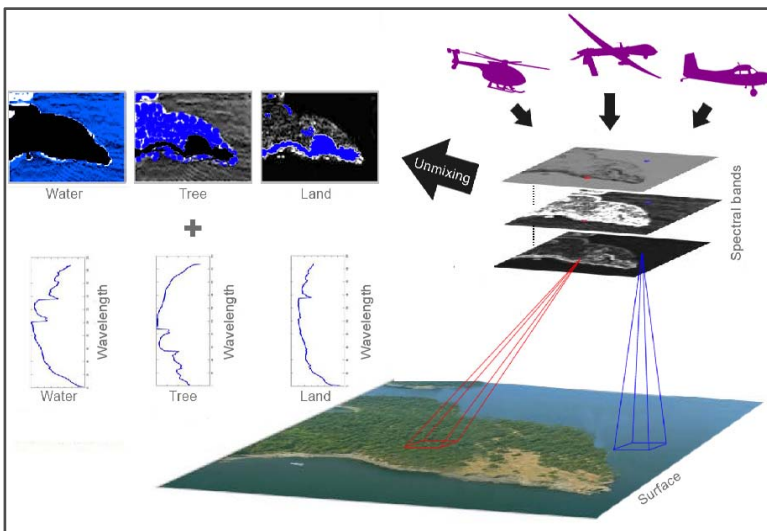
Radiometric Calibration	Flight Data Acquisition	Ground Data Acquisition	Atmospheric Correction	Post-Processing

Zarco-Tejada, P.J., González-Dugo, V., Berni, J.A.J., Fluorescence, temperature and narrow-band indices acquired from a UAV platform for water stress detection using a micro-hyperspectral imager and a thermal camera, Remote Sensing of Environment, 117, 322-337, 2012.

Solution components

HW

- Multi / hyperspectral sensor
- Processing PC
- Ground Sensors
- Inertial Measurement Unit (IMU)
- Solid-State Hard Drive

SW

- Data Acquisition
- Ortho-Rectification
- Data Correction
- Post-processing
- Mosaic Generation

Services

- Calibration
- Training
- Report Generation
- Installation Commissioning
- Maintenance

Hardware Package including:

• Micro-Hyperspec® spectral imager (Headwall Photonics' Micro-Hyperspec / Hyperspec sensors, available in several spectral ranges such as VIS, VNIR, NIR, Extended-VNIR, SWIR).

• Inertial Measurement Unit (IMU) with embedded GPS.

• On-board processing unit based on PC104 for the control and synchronization of all the airborne instruments.

• Solid-State Hard Drive for on-board storage of the images and associated data.

Software Package * including:

• Pre-installed Synchronization / Acquisition routines within PC104 device.

• Complete Post-Processing Software Suite to obtain, from the binary raw data acquired, Hyperspectral reflectance cubes and mosaics.

* SW developed and licensed by CSIC.

Service Package including:

• Radiometric calibration of the Hyperspectral camera.

• Full training on the use of the equipment and on the pre-flight procedures, ground field instrumentation required and diverse measurements to be taken during the flight operation.

• Optional on-site installation and start-up.

• Optional data post-processing service.

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Headwall PHOTONICS
Wavelength Solutions