

HYPER SPECTRAL IMAGING



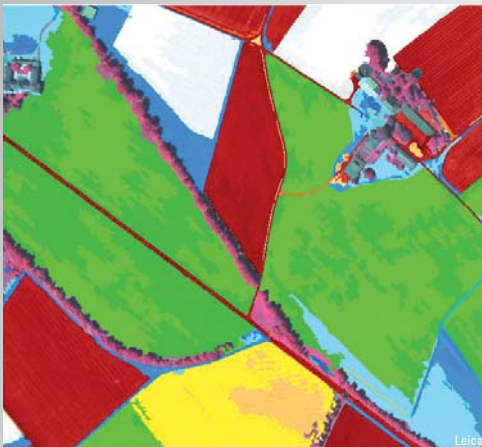
DESIGNED FOR PRECISION

Hyperspectral imaging collects information about the visible light as well as ultraviolet and infrared light. All objects have unique „fingerprints“ across the electromagnetic spectrum, which are known as spectral signatures and enable identifying their material constitution.

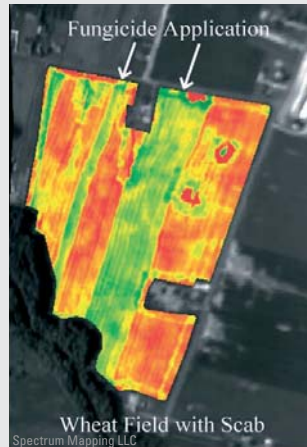
APPLICATIONS:

AGRICULTURE, FORESTRY & ENVIRONMENTAL MONITORING:

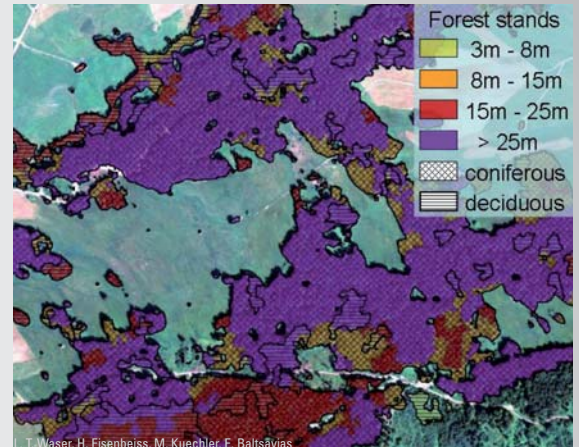
- Vegetation analyses
- Biomass and landuse mapping
- Precision farming
- Agricultural and soil analyses
- Monitoring the development & health of crops, crop vigor & disease treatment
- Detection of chemical compositions of plants
- Tree and land cover classification



Landuse Mapping:
Classification of agricultural areas with NDVI

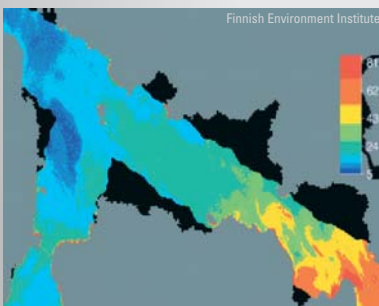


Biomass Mapping: Green areas show the improved biomass of crops after applying fungicide toxicant.



Forrest stand classes as obtained by combining tree heights (LiDAR) and dominant tree type

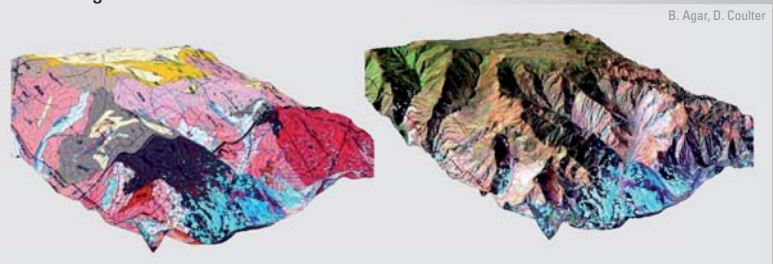
AQUATIC BIOLOGY & WATER SUPPLY:



Phytoplankton concentration monitoring (cost effective solution compared to water sampling at a few fixed stations)

- Water quality monitoring
- Phytoplankton and chlorophyll-a monitoring
- Coral reef mapping
- Algae culture detection / classification
- Snow cover / glacier monitoring

Analyses of archaeological structures, e.g. visualizations of phyllic alteration (light blue) relative to mapped geology (left) and standard image algorithms (right)



GEOLOGY, SOIL SCIENCES, PHYSICS, MINERALOGY & ARCHAEOLOGY:

- Determining lithologic units / soil types
- Mineral alteration mapping (mining)
- Exploration of oil/gas
- Delineation of ore bodies
- Archaeological applications (e.g. crop marks of buildings)

FUSION OF AIRBORNE LASER SCANNING, RGB IMAGING AND HYPER SPECTRAL IMAGING

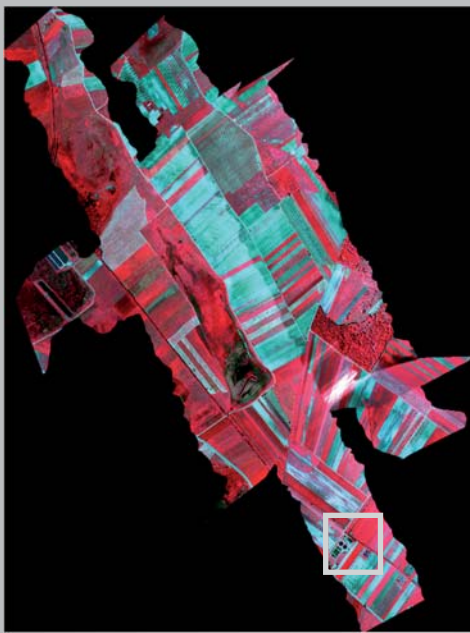
WE DELIVER:

GIS ready high resolution image maps and tailor-made database products

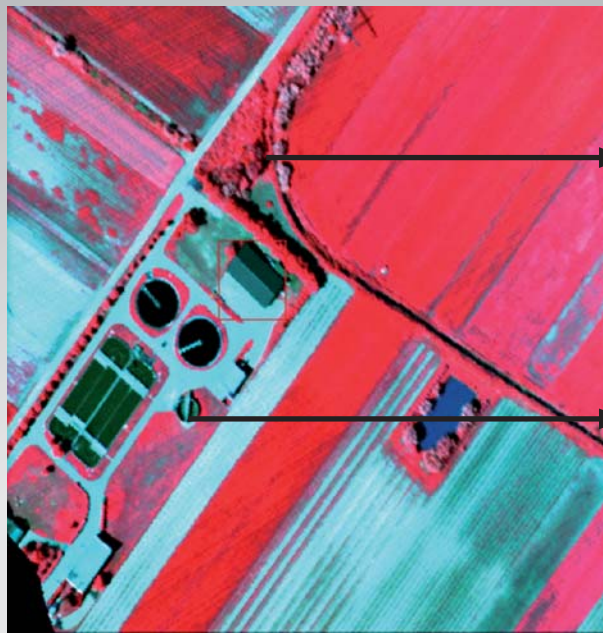
Send your requests to:

info@airbornetechnologies.at

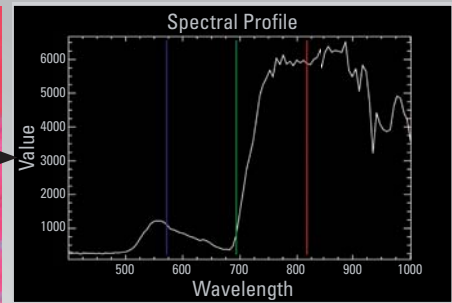
or reach us on phone: +43 2622 34718



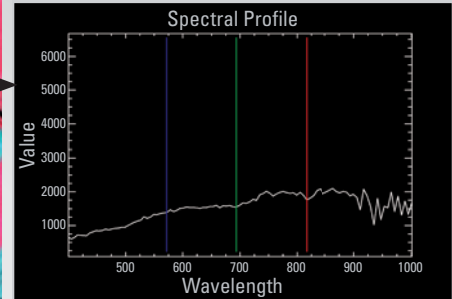
Hyperspectral data



Hyperspectral data - detailed view



Spectral Profile Tree



Spectral Profile Building

PRINCIPLE OF HYPERSPECTRAL IMAGING

All materials are differentiated and mapped to their absorption features dependant on their wavelengths. With hyperspectral sensing visible light (0.4 - 0.7 μm), near-infrared light (0.7 - 1.0 μm) and short wave infrared light (1.0 - 2.5 μm) is captured. (The human eye sees only visible light.)

The broad range of the electromagnetic spectrum is divided into small intervals so called spectral samples or spectral bands. Airborne Technologies is able to record more than 700 spectral bands simultaneously.

Reflectance spectra of objects captured via airborne remote sensing methods are directly compared to reflectance spectra from libraries. Thereby it's possible to determine materials without extensive ground measurements on site.

OUR SERVICES

Organization and realization of surveying flights as well as processing of captured data (CaliGeo & ENVI):

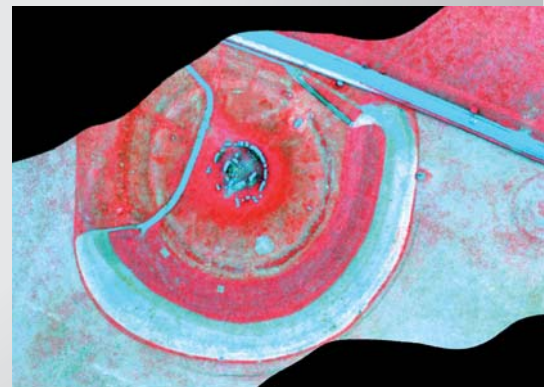
- Performing radiometric corrections
- Geo-referencing using flight path information
- Orho-rectification using high-resolution digital elevation models
- Extraction of spectral information / Classification of images based on spectral libraries

ABOUT AIRBORNE TECHNOLOGIES

We own and operate a fleet of multi-mission aircraft and data processing systems for remote sensing applications. Up to five sensors acquire ground data simultaneously in one flight with our new innovative aerial platform.

WELL-PROVEN SENSOR COMBINATION:

- SPECIM AisaEAGLE Hyperspectral scanner operating in the visible to near infrared range of the spectrum (400 to 970 nm, up to 488 spectral bands)
- SPECIM AisaHAWK Hyperspectral scanner operating in the infrared range of the spectrum (970 to 2500 nm, up to 254 spectral bands)
- 2x SPECIM FODIS Sensor Diffuse down welling irradiance collector
- RIEGL LMS-Q680i Airborne laser scanner providing up to 8 laser points per square meter
- IGI DigiCAM Medium-format camera system for digital aerial photography
- IGI DigiTHERM Airborne thermal camera system



Hyperspectral Image of Stonehenge

TECNAM MMA (Multi Mission Aircraft)



ADVANCED SENSOR FUSION BY AIRBORNE TECHNOLOGIES



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