

# SPECTRAL EVOLUTION

## Forest Canopy Research

There is a wide range of forest canopy applications that can benefit from research performed using a field spectroradiometer. Some examples include:

- ◆ Canopy architecture and nutrient concentration
- ◆ Environmental research using leaf reflectance measurements as indicators for stress factors such as air pollution, drought, insect infestations, heavy metals, and more
- ◆ Discrimination of different plant species within a heterogeneous canopy for species mapping
- ◆ Nitrogen cycling and whole canopy photosynthetic capacity
- ◆ Biomass studies in closed canopy applications
- ◆ Leaf morphology, leaf distribution, leaf allocation, leaf orientation
- ◆ Forest canopy moisture content and fire hazard
- ◆ Measurement of vegetation for plant biochemicals, including chlorophyll, xanthophylls, lignin, cellulose, and nitrogen

Because it is fast and non-destructive, remote sensing is a popular technology for reliably measuring and estimating biophysical and biochemical vegetation variables in forest canopies. By capturing and analyzing data such as leaf area index (LAI) and canopy chlorophyll content, vegetation can be modeled and compared to vegetation indices to reveal health, stress, infestation, pollution, climate changes, drought, fertilization, and a range of other conditions.

Remote sensing data can be gathered in the field to confirm canopy reflectance measurements obtained by satellite or flyover and analyzed. Researchers can build an accurate picture of an ecosystem by measuring reflectance and radiometry. Both canopy and individual leaf measurements can be made to provide a clear picture of landscape coverage and health.

SPECTRAL EVOLUTION'S spectroradiometers for canopy studies include:

- ◆ PSR-3500—full range field spectroradiometer (350-2500nm)
- ◆ RS-3500 remote sensing bundle—spectroradiometer and accessories designed for remote sensing
- ◆ PSR-1100-F—320-1100nm spectral range in a handheld unit with built-in keypad and LCD display and a range of available fiber optic lenses
- ◆ UDS-1100—field spectroradiometer (320-1100nm) for the simultaneous measurement of upwelling and downwelling

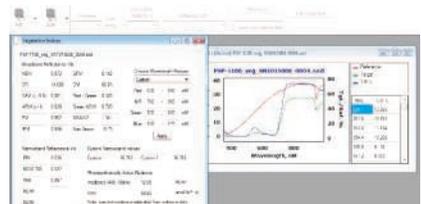
Plus a range of accessories including contact probe, pistol grip probe, benchtop reflectance probe with soil compactor, leaf clip, and more.



*A field portable spectroradiometer provides valuable information for forest canopy research.*



*An optional leaf clip includes an internal reference standard.*



*A pull down menu within our DARWin SP Data Acquisition software provides immediate access to 19 vegetation indices.*

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