Focus

- Laboratory/field spectrometry (leaf optical properties)
- Imaging spectroscopy (ground & airborne & satellite)
- Ground support of hyperspectral flight campaigns
- Pre-processing of hyperspectral image data (radiometric, geometric, atmospheric corrections)
- Radiative transfer modeling (DART model)
- Quantitative remote sensing (e.g. chlorophyll estimation using imaging spectroscopy)

http://hydap.czechglobe.cz/
Needle optical properties - measurement

Li-Cor integrating sphere Li 1800-12 in combination with field spectrometer ASD FieldSpec Pro.

http://hydap.czechglobe.cz/
Ground based imaging spectroscopy

- Spatial resolution up to 2 mm, spectral resolution up to 2.5 nm

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Airborne imaging spectrometry

• AISA Eagle VNIR imaging system (Specim Ltd., Finland)
• FOV 58.4°, 39.7°, 29.9°
• Spectral Range 400-1000 nm
• Spectral Samples/pixels 260
• Max. spectral Resolution 3.2 nm
• Spatial Resolution 0.4-6.0 m
Satellite image data

CHRIS ESA

Aster NASA

Landsat NASA
Ground support segment

- Artificial reference targets painted by Nextel Suede Coating
- Spectral measurement of ground reference targets by FieldSpec-3 spectroradiometer
- Actual state of atmosphere is estimated from Microtops II measurements
- GPS surveying

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Outputs

Quantitative remote sensing

- physical models of vegetation radiative transfer e.g. coupled PROSPECT and DART model
- Estimation of biophysical and biochemical parameters of vegetation

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Hyperspectral + LiDAR
Building RS infrastructure

Key components of RS infrastructure
Flying Laboratory of Imaging Systems (FLIS) + field campaign instrumentation + highly educated staff

FLIS
- Photogrammetric aircraft with two acquisition open slits for imaging RS instruments
  - Airborne imaging spectroradiometer with sensors
    - visible and near infrared (VNIR)
    - short wavelength infrared (SWIR)
    - thermal infrared (TIR) of EM spectral regions
  - IMU/GPS units
- Full-waveform Light Detection And Ranging (LiDAR) airborne laser scanner for mapping the geometrical characteristics of the Earth surface objects (AdMaS)
Thank you for your attention

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