README for Airborne Hyperspectral Reflectance of the Indian Cave plot in Nebraska

Short name: AEHYPICNE1M.001

Long name: Airborne Hyperspectral Reflectance Indian Cave Nebraska Multi-Day 1 m V001

DOI: 10.5067/Community/Airborne/AEHYPICNE1M.001

Data collection dates: September 06, 2019; August 04, 2022

Data collection place: Indian Cave ForestGeo plot (40.247° N, 95.537° W), located in southeastern Nebraska, USA

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Ecosystem type: Forest

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Imaging spectrometer: AisaKESTREL (Specim, Oulu, Finland) pushbroom imager

Spatial resolution (pixel size): 1 m^2

Atmospheric correction: A hybrid method that combines MODTRAN outputs and ground reflectance measurements of multiple calibration targets via Bayesian inference.

Aircraft: Piper Saratoga, Piper Aircraft, Vero Beach, Florida, USA

Collection: Nebraska Earth Observatory (NEO), University of Nebraska-Lincoln and Cornerstone Mapping, Inc., NE, USA

Measurement quantity: Surface reflectance

Coordinate system: UTM 15N, WGS 84

Total volume: 10 GB

File format: ENVI standard (flat binary stream plus ASCll header file)

Number of files: 4 (2 *.dat files and 2 *.hdr files)

Number of bands: 178

Wavelength range: 400 – 1000 nm

Processing level: radiometric correction, geometric correction, atmospheric correction

Unit: NA

Valid Range: 0 - 100

Image information:

Airborne hyperspectral images of the Indian Cave dynamic forest plot (ICP) were collected on September 6, 2019, and August 4, 2022. The images have been radiometrically, geometrically, and atmospherically corrected.

ICP is part of the Smithsonian ForestGEO global network of forest dynamics plots. The dimensions of the ICP plot are 400 m × 460 m. Woody stems (trees, shrubs, and lianas) within the ICP have been inventoried in 2019 following the standardized protocols of the Smithsonian ForestGEO network. Combining the systematically mapped ICP plot and the rich spectral and spatial information contained in the airborne hyperspectral images offers a unique opportunity to integrate forest inventory and remote sensing data for developing effective operational biodiversity assessment methods using remote sensing.