

README for Airborne Hyperspectral Reflectance Tallgrass Prairie Preserve from The Nature Conservancy's Tallgrass Prairie Preserve in northeastern Oklahoma

Short name: AEHYP1TPPOK

Long name: Airborne Hyperspectral Reflectance L1 Tallgrass Prairie Preserve Oklahoma Multi-Day 1 m V001

DOI: 10.5067/Community/Airborne/AEHYP1TPPOK.001

Data collection dates: August 03, 2020; July 31, 2021; July 23, 2022

Data collection place: The Nature Conservancy's Tallgrass Prairie Preserve, located in northeastern Oklahoma, USA

Author: Hamed Gholizadeh (hamed.gholizadeh@okstate.edu)

Ecosystem type: Tallgrass prairie

Funding source: National Aeronautics and Space Administration (NASA), Oklahoma Center for the Advancement of Science and Technology (OCAST)

Funding source grant number: NASA NIP [80NSSC21K0941], OCAST [PS20-004]

Imaging spectrometer: AisaFENIX 1K (Specim, Oulu, Finland) pushbroom sensor

Atmospheric correction: ATCOR-4 utilizing the MODTRAN-5 radiative transfer model

Aircraft: Twin Commander 500 – N161BL, Bartlesville, Oklahoma

Collection: SpectIR Remote Sensing (SRS) Division contracted by Oklahoma State University

Measurement quantity: Reflectance (canopy)

Coordinate system: UTM, zone 14N, WGS84

Total volume: 0.71 TB

File format(s) and number of files: 126 files (63 \*.dat files and 63 \*.hdr files)

Number of bands: 323 bands for 2020 and 2021 data collections, and 322 bands for 2022 data collection.

Wavelength range: 400 – 2450 nm. Noisy and water vapor absorption bands need to be removed. It is recommended to use bands covering 431.10 – 1299.36 nm, 1487.71 – 1775.03 nm, and 1998.23 – 2353.76 nm wavelengths.

Processing level: radiometric correction, geometric correction, atmospheric correction

Units: %\*100

Valid Range: 0-10000

Scale factor: 100

## IMAGE INFORMATION

The airborne hyperspectral reflectance data are from The Nature Conservancy's Tallgrass Prairie Preserve in northeastern Oklahoma. The data have a spatial resolution of 1 meter (m) and cover the 400-2450 nm range. These data can be used to develop approaches to study grassland biodiversity.

Airborne data were collected on August 03, 2020, July 31, 2021, July 23, 2022. The data were collected by SpectIR Remote Sensing (SRS) Division contracted by Oklahoma State University, using an AisaFENIX 1K (Specim, Oulu, Finland) pushbroom sensor mounted on a Twin Commander 500 fixed wing aircraft.

The images have been radiometrically, geometrically, and atmospherically corrected.