CLPX-Satellite: EO-1 Hyperion Surface Reflectance, Snow-Covered Area, and Grain Size, Version 1

USER GUIDE

How to Cite These Data

As a condition of using these data, you must include a citation:

Painter, T. 2006. *CLPX-Satellite: EO-1 Hyperion Surface Reflectance, Snow-Covered Area, and Grain Size, Version 1* [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. https://doi.org/10.5067/J5U800GIBU78. [Date Accessed].

FOR QUESTIONS ABOUT THESE DATA, CONTACT NSIDC@NSIDC.ORG

FOR CURRENT INFORMATION, VISIT https://nsidc.org/data/NSIDC-0148

National Snow and Ice Data Center

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1 DETAILED DATA DESCRIPTION

CAUTIONARY NOTE: These data have not been reviewed for quality. Known issues exist in the processing of these data. Until this disclaimer has been removed, users should send questions and comments about this data set to nsidc@nsidc.org. NSIDC will forward these inquiries to the PI for resolution.

Hyperion data have the following characteristics:

- Spectral range: 400-2500 nm
- Spectral resolution: 10 nm
- Spatial resolution: 30 m
- Swath width: 7.8 km
- Processing level: apparent surface reflectance, subpixel snow-covered area and grain size
- Sampling: scene based (256 samples, 512 lines)
- Temporal coverage: 15 February 2002 and 19 March 2002
- Spatial coverage: 39.60N, 106.00W to 40.30N, 105.70W

1.1 Format

Apparent surface reflectance: binary, short integer

Subpixel snow-covered area: binary, floating point (data range v [0,1])

Subpixel snow grain radius: binary, floating point (data range v [0, 1100 micrometers])

1.2 File and Directory Structure

The data consist of fourteen binary ENVI files in a single directory. Seven files each for the two dates that measurements were taken.

1.3 File Naming Convention

The following codes are used in the seven different files:

- All file names begin with the date of collection of the form yyyymmdd.
- Reflectance files have an ".out" extension and their header files have an ".out.hdr" extension.
- Band-interleaved files have a .bip extension.
- Snow-cover area files include "snow" in the file name.
- Snow grain files include "grnsz" in the file name.
- Rock-cover area files include "rock" in the file name.
- Vegitation-cover area files include "veg" in the file name.

1.4 Spatial Coverage

Southernmost Latitude: 39.60 N

Northernmost Latitude: 40.30 N

Westernmost Longitude: 106.00 W

Easternmost Longitude: 105.70 W

1.4.1 Spatial Resolution

Spatial resolution is 30 m.

1.5 Temporal Coverage

Hyperion measurements were made on 15 February 2002 and 19 March 2002.

1.6 Parameter or Variable

1.6.1 Parameter Description

Hyperion measures apparent surface reflectance, subpixel snow-covered area, and grain size.

For a complete description of parameters and measurements, please refer to the Measurements section of the CLPX Plan.

2 DATA ACQUISITION AND PROCESSING

For complete information about data acquisition and processing, please see the Cold Land Processes Field Experiment (CLPX) Plan Web Site.

3 REFERENCES AND RELATED PUBLICATIONS

3.1 Related Data Collections

AMSR-E Validation Data Sets

4 CONTACTS AND ACKNOWLEDGMENTS

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5 DOCUMENT INFORMATION

5.1 Publication Date

13 April 2006

5.2 Date Last Updated

29 March 2021

APPENDIX A – EO-1 HYPERION IMAGING SPECTROMETER, COLD LAND PROCESSES FIELD EXPERIMENT

Summary

This data set consists of apparent surface reflectance, subpixel snow-covered area and grain size collected from the Hyperion hyperspectral imager. The Hyperion imager has a spectral range of 0.4 - 2.5 mm, a spectral resolution of 0.01 mm, spatial resolution of 30 m, and a swath width of 7.8 km. Sampling is scene based (256 samples, 512 lines).

The Hyperion capabilities provide resolution of surface properties into hundreds of spectral bands versus the ten multispectral bands flown on traditional Landsat imaging missions. Through these large number of spectral bands, complex land ecosystems can be imaged and accurately classified.

This data set is part of the NASA Cold Land Processes Field Experiment.

Citing These Data

Painter, T. 2002. Cold Land Processes Field Experiment. Hyperion data. Boulder, CO: National Snow and Ice Data Center.

Overview Table

Table A - 1

Category	Description
data format	Apparent surface reflectance: binary, short integer Subpixel snow-covered area: binary, floating point (data range = [0,1]) Subpixel snow grain radius: binary, floating point (data range = [0, 1100 µm])
spatial coverage	39.6°N, 106.0°W to 40.3°N, 105.7°W Spatial resolution of 30 m
temporal coverage and resolution	February 15, 2002, March 19, 2002
file size	Apparent surface reflectance: 608 Mb Products (snow covered area, grain size): 6 Mb
parameter(s)	apparent surface reflectance, subpixel snow-covered area and grain size

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A2 Detailed Data Description

Hyperion data have the following characteristics:

- Spectral range: 0.4 - 2.5 mm

- Spectral resolution: 0.01 mm
- Spatial resolution: 30 m
- Swath width: 7.8 km
- Processing level: apparent surface reflectance, subpixel snow-covered area and grain size
- Sampling: scene based (256 samples, 512 lines)
- Temporal coverage: 2/15/2002, 3/19/2002
- Spatial coverage: 39.6°N, 106.0°W to 40.3°N, 105.7°W

Format

Apparent surface reflectance: binary, short integer

Subpixel snow-covered area: binary, floating point (data range = [0,1])

Subpixel snow grain radius: binary, floating point (data range = [0, 1100 μm])

File Naming Convention

The following codes are used in filenames:

File Size

Apparent surface reflectance: 608 Mb; Products (snow covered area, grain size): 6 Mb

Spatial Coverage

39.6°N, 106.0°W to 40.3°N, 105.7°W

Temporal Coverage

Hyperion measurements were made on February 15, 2002 and March 19, 2002.

Parameter or Variable

Parameter Description:

Hyperion measures apparent surface reflectance, subpixel snow-covered area, and grain size.

For a complete description of parameters and measurements, please refer to the Measurements section of the CLPX Plan.

A3 Data Access and Tools

Data Access

Data are available via FTP to CLPX investigators.

A4 Data Acquisition and Processing

For complete information about data acquisition and processing, please see the Cold Land Processes Field Experiment (CLPX) Plan Web Site.

A5 References and Related Publications

Please see the References section of the CLPX Plan.

A6 Document Information

Document Creation Date

2002-01-19