



# CLASIC07 Land Cover Classification Map, Version 1

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## USER GUIDE

### How to Cite These Data

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

Cosh, M. 2015. *CLASIC07 Land Cover Classification Map, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. <https://doi.org/10.5067/QFLMQI76MOJA>. [Date Accessed].

FOR QUESTIONS ABOUT THESE DATA, CONTACT [NSIDC@NSIDC.ORG](mailto:NSIDC@NSIDC.ORG)

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/CL07LC>



National Snow and Ice Data Center

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# 1 DETAILED DATA DESCRIPTION

This data set consists of land cover classification data derived from satellite imagery as part of the Cloud and Land Surface Interaction Campaign 2007 (CLASIC07). ResourceSat-1/IRS-P6 AWiFS images of the study areas were retrieved for the period of April through August 2007. The land use classification image provides information about vegetation present in the study area at a resolution of 56 meters.

## 1.1 Format

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Data are provided in a binary file and a header file. An associated Extensible Markup Language (XML) metadata file is also provided.

Number of rows: 14554

Number of columns: 8279

Number of bands: 1

Number of bits per pixel: 16

File layout: BIL

Upper left corner in east-west direction: 393250

Upper left corner in north-south direction: 4312655

Pixel size in east-west direction: 56

Pixel size in north-south direction: 56

Universal Transverse Mercator (UTM) Zone: 14 N, World Geodetic System 1984 (WGS84)

## 1.2 File and Directory Structure

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Data files are available at:

[https://n5eil01u.ecs.nsidc.org/SMAP\\_VAL/CL07LC.001/](https://n5eil01u.ecs.nsidc.org/SMAP_VAL/CL07LC.001/)

## 1.3 File Naming Convention

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Data are provided in a binary file and header file. The binary data file is CL07LC\_CLASIC\_classification.bil, and the header file is CL07LC\_CLASIC\_classification.hdr.

## 1.4 File Size

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The data file is approximately 230 MB.

## 1.5 Spatial Coverage

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Southernmost Latitude: 31.62°N  
Northernmost Latitude: 38.96°N  
Westernmost Longitude: 95.13°W  
Easternmost Longitude: 94.91°W

## 1.6 Spatial Resolution

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56 m

## 1.7 Projection

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UTM 18 N (WGS84)

### 1.7.1 Grid Description

Data are on a rectangular grid with a cell size of 56 m by 56 m.

Upper left corner in east-west direction: 393250  
Upper left corner in north-south direction: 4312655  
Number of rows: 14554  
Number of columns: 8279

## 1.8 Temporal Coverage

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Satellite images were obtained in April and August 2007. All data were combined into a single map.

## 1.9 Parameter or Variable

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The measured parameter for this data set is land cover classification. Land cover classification distinguishes between crop types, water, roads, and urban areas. The classification values are as follows:

**Classification values:**

- 0: Unclassified
- 1: Water
- 2: Forest
- 3: Pasture
- 4: Wheat
- 5: Alfalfa

- 6: Corn
- 7: Cotton
- 8: Soybean
- 9: Urban

### 1.9.1 Parameter Range

Valid parameter values are as follows:

Land cover class: 1-9

Unclassified: 0

## 2 SOFTWARE AND TOOLS

Data can be accessed with any software that can read binary files, such as ENVI, ArcGIS, MATLAB, or IDL

## 3 DATA ACQUISITION AND PROCESSING

### 3.1 Data Acquisition Methods

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There was great difficulty in estimating land cover because of the significant cloud cover in the Oklahoma area during the study period, therefore a complex decision tree was necessary to arrive at a final land cover classification. The weather was always very cloudy during [CLASIC07](#). Atmospheric corrections were needed to reflect the true ground.

Described in the following table are important input parameters used in the MODerate resolution atmospheric TRANsmiission (MODTRAN) computer program, which is designed to model atmospheric propagation of electromagnetic radiation for the 100-50,000 cm<sup>-1</sup> (0.2 to 100 um) spectral range. These were used to generate the images.

Table 1. Important Input Parameters for MODTRAN to Images

Images	O3STR	VIS	ML	IDAY	PARM1	PARM2	TIME
0415	a0.375	74.5724	54	105	35.276	97.037	17.492
0429	a0.325	41.1477	48	119	36.857	98.666	17.624
0519	a0.350	19.9010	44	139	36.857	94.445	17.341
0715	a0.325	30.6211	55	196	35.276	98.099	17.554
0808	a0.283	40.6304	56	220	35.276	98.100	17.551
0813	a0.294	28.35889	56	225	35.277	97.045	17.480
0814	a0.295	24.3875	48	226	37.654	95.312	17.121
0828	a0.300	28.69239	43	240	37.218	95.485	17.260
0901	a0.295	46.82300	47	244	35.862	97.928	17.541

The reflectance of AWiFS could not be validated because there was no observed reflectance on the same day.

For AWiFS, we generated a classification with supervised classification algorithms for April and August, and then used a combination of the two months as specified below to generate a final CLASIC data layer:

Table 2. Combine Classification for April and August

Apr/Aug		Unclassified		Crop		Pasture		Water		Forest	
		Apr	Aug	Apr	Aug	Apr	Aug	Apr	Aug	Apr	Aug
<b>Unclassified</b>	CLASIC	Unclassified		Crop		Pasture		Water		Forest	
	Fix	-	-	Bare	-	P	-	Wa	-	F	-
<b>Wheat</b>	CLASIC	Wheat		Wheat		Wheat		Wheat		Forest	
	Fix	-	HW	-	-	-	HW	-	HW	F	-
<b>Pasture</b>	CLASIC	Pasture		Crop		Pasture		Pasture		Pasture	
	Fix	-	P	Bare	-	-	-	-	P	-	P
<b>Water</b>	CLASIC	Water		Crop		Pasture		Water		Forest	
	Fix	-	Wa	Bare	-	P	-	-	-	F	-
<b>Forest</b>	CLASIC	Forest		Wheat		Pasture		Forest		Forest	
	Fix	-	F	W	-	P	-	-	F	-	-

\*Bare: Bare Cropland

\*P: Pasture

\*Wa: Water

\*F: Forest

\*HW: Harvest Winter Wheat

\*W: Winter Wheat

\*Crop: Alfalfa, Corn, Cotton, Soy

## 3.2 Errors Sources

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The classification was completed based on data acquired significantly before and after the campaign (due to the cloud cover during the campaign) which increases the uncertainty of the classification accuracy.

## 3.3 Quality Assessment

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The quality of the classification is not high due to the effect of the error sources as specified above.

# 4 CONTACTS AND ACKNOWLEDGMENTS

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# 5 DOCUMENT INFORMATION

## 5.1 Publication Date

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June 2015

## 5.2 Date Last Updated

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