

Viewshed Sample: Appalachian Trail



Tags
Appalachian, Trail,
Viewshed

Summary

This sample viewshed was computed for a portion of the Appalachian National Scenic Trail to illustrate variations in visibility from the trail.

Description

This sample viewshed was computed for a portion of the Appalachian National Scenic Trail using an algorithm by Brent Chamberlain of Kansas State University. The values represent maximum visual magnitude. Elevation data from the U.S. Geological Survey at 10m resolution were processed with a sample (viewpoint) every 10m along the trail with a 50% sample number of viewpoints. The viewshed assumes a 2m height observer and the ground surface as the target height with no obstructions (such as vegetation). This provides a conservative estimate of visibility, allowing for the potential that vegetation cover could be lost. As in traditional viewshed computations, the algorithm determines visibility based on line-of-sight on the elevation surface, but it also weights observations based on proximity and angle of view, thereby accounting for more dominant terrain features.

Credits

Brent Chamberlain, Kansas State University

Use limitations

There are no access and use limitations for this item.

Extent

West -74.549830 East -70.677562

North 44.530888 South 41.537996

Scale Range

Maximum (zoomed in) 1:5,000

Minimum (zoomed out) 1:625,000

ArcGIS Metadata ►

Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE elevation, environment, planningCadastre

* CONTENT TYPE Downloadable Data
EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

Hide Topics and Keywords ▲

Citation ►

* TITLE appalachian_trail_viewshed_int16.tif
ALTERNATE TITLES Viewshed Sample: Appalachian Trail
PUBLICATION DATE 2015-06-29 00:00:00

PRESENTATION FORMATS * digital map

Hide Citation ▲

Citation Contacts ►

RESPONSIBLE PARTY

INDIVIDUAL'S NAME Brent
Chamberlain ORGANIZATION'S NAME
Kansas State University CONTACT'S
POSITION Assistant Professor
CONTACT'S ROLE originator

CONTACT INFORMATION ►

PHONE
VOICE (785) 532-2431

ADDRESS

TYPE both
DELIVERY POINT 303I Seaton Hall
CITY Manhattan
ADMINISTRATIVE
AREA KS POSTAL
CODE 66506
E-MAIL ADDRESS brentchamberlain@k-state.edu

RESPONSIBLE PARTY

INDIVIDUAL'S NAME Jim Kuiper
ORGANIZATION'S NAME Argonne National Laboratory
CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

PHONE
VOICE 630-252-6206

ADDRESS

TYPE physical
DELIVERY POINT 9700 S. Cass Ave.
CITY Darien
ADMINISTRATIVE
AREA IL POSTAL
CODE 60439
E-MAIL ADDRESS jkuiper@anl.gov

Resource Details ►

DATASET LANGUAGES * English (UNITED STATES)
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS completed
SPATIAL REPRESENTATION TYPE * grid

* **PROCESSING ENVIRONMENT** Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.3.0.4322

CREDITS

Brent Chamberlain, Kansas State
University

ARCGIS ITEM PROPERTIES

- * **NAME** appalachian_trail_viewshed_int16.tif
- * **LOCATION**
- * **ACCESS PROTOCOL** Local Area
Network

Extents ►

EXTENT

DESCRIPTION

Date based on U.S. Geological Survey source data.

GEOGRAPHIC EXTENT

BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

- * **WEST LONGITUDE** -74.549830
- * **EAST LONGITUDE** -70.677562
- * **NORTH LATITUDE** 44.530888
- * **SOUTH LATITUDE** 41.537996
- * **EXTENT CONTAINS THE RESOURCE** Yes

TEMPORAL EXTENT

BEGINNING DATE 2009-01-01 00:00:00

EXTENT IN THE ITEM'S COORDINATE SYSTEM

- * **WEST LONGITUDE** -
8298849.163126
- * **EAST LONGITUDE** -7867790.203106
- * **SOUTH LATITUDE** 5092022.719772
- * **NORTH LATITUDE** 5547969.214628
- * **EXTENT CONTAINS THE RESOURCE** Yes

Resource Points of Contact ►

POINT OF CONTACT

INDIVIDUAL'S NAME Jim Kuiper
ORGANIZATION'S NAME Argonne National Laboratory
CONTACT'S ROLE distributor

CONTACT INFORMATION ►

PHONE

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AREA IL POSTAL
CODE 60439
E-MAIL ADDRESS jkuiper@anl.gov

Resource Maintenance ►

RESOURCE MAINTENANCE
UPDATE FREQUENCY not planned

Spatial Reference ►

ARCGIS COORDINATE SYSTEM

- * TYPE Projected
- * GEOGRAPHIC COORDINATE REFERENCE GCS_WGS_1984
- * PROJECTION WGS_1984_Web_Mercator_Auxiliary_Sphere

* COORDINATE REFERENCE DETAILS

PROJECTED COORDINATE SYSTEM WELL-KNOWN IDENTIFIER 102100

X ORIGIN -20037700

Y ORIGIN -30241100

XY SCALE 148923141.92838538

Z ORIGIN -100000

Z SCALE 10000

M ORIGIN -100000

M SCALE 10000

XY TOLERANCE 0.001

Z TOLERANCE 0.001

M TOLERANCE 0.001

HIGH PRECISION true

LATEST WELL-KNOWN IDENTIFIER 3857

WELL-KNOWN TEXT

PROJCS["WGS_1984_Web_Mercator_Auxiliary_Sphere",GEOGCS["GCS_WGS_1984",DATUM

["D_WGS_1984",SPHEROID["WGS_1984",6378137.0,298.257223563]],PRIMEM["Greenwich",0.0],UNIT

["Degree",0.0174532925199433]],PROJECTION["Mercator_Auxiliary_Sphere"],PARAMETER["False_Easting",0.0],PARAMETER

["False_Northing",0.0],PARAMETER["Central_Meridian",0.0],PARAMETER["Standard_Parallel_1",0.0],PARAMETER

["Auxiliary_Sphere_Type",0.0],UNIT["Meter",1.0],AUTHORITY["EPSG",3857]]

REFERENCE SYSTEM IDENTIFIER

- * VALUE 3857
- * CODESPACE EPSG
- * VERSION 8.2.6

Hide Spatial
Reference ▲

Spatial Data Properties ►

GEORECTIFIED GRID ►

- * NUMBER OF DIMENSIONS 2

AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE column (x-axis)

* DIMENSION SIZE 40235

* RESOLUTION 10.713532

AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE row (y-axis)

* DIMENSION SIZE 42558

* RESOLUTION 10.713532

- * CELL GEOMETRY area
- * POINT IN PIXEL center
- * TRANSFORMATION PARAMETERS ARE AVAILABLE Yes
- * CHECK POINTS ARE AVAILABLE No

CORNER POINTS

- * POINT -8298849.163126 5092022.719772
- * POINT -8298849.163126 5547969.214628
- * POINT -7867790.203106 5547969.214628
- * POINT -7867790.203106 5092022.719772
- * CENTER POINT -8083319.683116 5319995.967200

GRID ►

NUMBER OF DIMENSIONS 2
 CELL GEOMETRY area
 TRANSFORMATION PARAMETERS ARE AVAILABLE No

ARCGIS RASTER PROPERTIES ►

GENERAL INFORMATION

- * PIXEL DEPTH
16
- * COMPRESSION TYPE LZW
- * NUMBER OF BANDS 1
- * RASTER FORMAT TIFF
- * SOURCE TYPE continuous
- * PIXEL TYPE unsigned integer
- * NO DATA VALUE 65535
- * HAS COLORMAP No
- * HAS PYRAMIDS Yes

Spatial Data Content ►

IMAGE DESCRIPTION

- * TYPE OF INFORMATION image
- ATTRIBUTE DESCRIBED BY CELL VALUES Maximum Visual Magnitude

BAND INFORMATION

- * DESCRIPTION Maximum Visual Magnitude
- * MAXIMUM VALUE 6075.000000
- * MINIMUM VALUE 0.000000
- * NUMBER OF BITS PER VALUE 16

TRIANGULATION HAS BEEN
 PERFORMED No
 RADIOMETRIC
 CALIBRATION IS AVAILABLE No
 CAMERA CALIBRATION IS
 AVAILABLE No
 FILM DISTORTION INFORMATION IS AVAILABLE No
 LENS DISTORTION INFORMATION IS AVAILABLE No

Hide Spatial Data Content ▲

Lineage ►

PROCESS STEP ►

WHEN THE PROCESS OCCURRED 2015-06-23 00:00:00
 DESCRIPTION

Floating point values from the original data were multiplied by 10,000 and converted to integers.

Distribution ►

DISTRIBUTION FORMAT

- * NAME Raster Dataset

Fields ►

DETAILS FOR OBJECT [appalachian_trail_viewshed_int16.tif.vat](#) ►

- * TYPE Table
- * ROW COUNT 3140

DEFINITION

Maximum Visual Magnitude

DEFINITION SOURCE

Brent Chamberlain

FIELD OID ►

- * ALIAS OID
- * DATA TYPE OID
- * WIDTH 4
- * PRECISION 0
- * SCALE 0
- * FIELD DESCRIPTION
Internal feature number.

* DESCRIPTION SOURCE

Esri

* DESCRIPTION OF VALUES

Sequential unique whole numbers that are automatically generated.

[FIELD Maximum Visual Magnitude](#) ►

ALIAS Maximum Visual Magnitude

- * DATA TYPE Integer
- * WIDTH 10
- * PRECISION 10
- * SCALE 0

FIELD DESCRIPTION

Maximum Visual
Magnitude

DESCRIPTION SOURCE

Brent Chamberlain

FIELD Count ►

- * ALIAS Count
- * DATA TYPE Double
- * WIDTH 19
- * PRECISION 0
- * SCALE 0

FIELD DESCRIPTION

Number of cells with same value.

DESCRIPTION SOURCE

Automatically generated

Metadata Details ►

- * METADATA LANGUAGE English (UNITED STATES)
- * METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
SCOPE NAME * dataset

* LAST UPDATE 2015-06-29

ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0
METADATA STYLE FGDC CSDGM Metadata
STANDARD OR PROFILE USED TO EDIT METADATA FGDC

CREATED IN ARCGIS FOR THE ITEM 2015-06-17 08:03:45
LAST MODIFIED IN ARCGIS FOR THE ITEM 2015-06-29 14:08:09

AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes
LAST UPDATE 2015-06-29
14:00:25

Metadata Contacts ►

METADATA CONTACT

INDIVIDUAL'S NAME Jim Kuiper
ORGANIZATION'S NAME Argonne National Laboratory
CONTACT'S ROLE user

CONTACT INFORMATION ►

PHONE
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DELIVERY POINT 9700 S. Cass Ave.
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Thumbnail and Enclosures ►

THUMBNAIL

THUMBNAIL TYPE JPG