

# WROC 2015 - Douglas Co. St. Louis River QL2 LiDAR (2015-16); Intensity Image

Thumbnail Not Available

## Tags

Lidar, intensity image, first return, GeoTIFF, 8-bit, 256 color gray scale

## Summary

This data, along with its derivatives, is part of a watershed stressor and habitat assessment in the larger Nemadji River watershed. This data was produced all from lidar information as of 2015.

## Description

The St. Louis River Area of Concern project area covers approximately 308 square miles. Lidar data was acquired with a nominal point spacing (NPS) of 0.7 meters. Project specifications are based on the U.S. Geological Survey National Geospatial Program Base LIDAR Specification, Version 1.0. The data was developed based on a horizontal projection/datum of Coordinate System: NAD\_1983\_UTM\_Zone\_15N, Meters and vertical datum of NAVD1988 (GEOID12A), Meters.

LIDAR data was acquired using the Orion Optech H300 sensor. Collection occurred from October 17-19, 2015, while no snow was on the ground and rivers were at or below normal levels.

## Credits

There are no credits for this item.

## Use limitations

None. However, temporal changes to the Earth's surface may have occurred since the acquisition of the lidar data and may no longer represent current bare earth surface conditions.

## Extent

There is no extent for this item.

## Scale Range

There is no scale range for this item.

[ArcGIS Metadata](#) ►

[Citation](#) ►

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[Resource Details](#) ►

CREDITS

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## Resource Constraints ►

### CONSTRAINTS

#### LIMITATIONS OF USE

None. However, temporal changes to the Earth's surface may have occurred since the acquisition of the lidar data and may no longer represent current bare earth surface conditions.

[Hide Resource Constraints ▲](#)

## FGDC Metadata (read-only) ▼

### CITATION

#### CITATION INFORMATION

ORIGINATOR Ayres Associates

PUBLICATION DATE unknown

#### TITLE

WROC 2015 - Douglas Co. St. Louis River QL2 LiDAR (2015-16); Intensity Image

#### PUBLICATION INFORMATION

PUBLICATION PLACE Madison, WI

PUBLISHER Ayres Associates

### DESCRIPTION

#### ABSTRACT

The St. Louis River Area of Concern project area covers approximately 308 square miles. Lidar data was acquired with a nominal point spacing (NPS) of 0.7 meters . Project specifications are based on the U.S. Geological Survey National Geospatial Program Base LIDAR Specification, Version 1.0. The data was developed based on a horizontal projection/datum of Coordinate System: NAD\_1983\_UTM\_Zone\_15N, Meters and vertical datum of NAVD1988 (GEOID12A), Meters.

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#### PURPOSE

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#### TIME PERIOD OF CONTENT

#### TIME PERIOD INFORMATION

#### RANGE OF DATES/TIMES

BEGINNING DATE 2015-10-17

ENDING DATE 2015-10-19

#### CURRENTNESS REFERENCE

ground condition

#### STATUS

PROGRESS Complete

MAINTENANCE AND UPDATE FREQUENCY None planned

#### SPATIAL DOMAIN

#### BOUNDING COORDINATES

WEST BOUNDING COORDINATE -92.299251

EAST BOUNDING COORDINATE -91.862322

NORTH BOUNDING COORDINATE 46.752570

SOUTH BOUNDING COORDINATE 46.319511

#### KEYWORDS

##### THEME

THEME KEYWORD THESAURUS None  
THEME KEYWORD Lidar  
THEME KEYWORD intensity image  
THEME KEYWORD first return  
THEME KEYWORD GeoTIFF  
THEME KEYWORD 8-bit  
THEME KEYWORD 256 color gray scale

##### PLACE

PLACE KEYWORD THESAURUS None  
PLACE KEYWORD Wisconsin  
PLACE KEYWORD Douglas County  
PLACE KEYWORD St. Louis River Area of Concern

#### ACCESS CONSTRAINTS

Any and all accessibility to data of or pertaining to the 2016 lidar dataset is to be determined by the Wisconsin Department of Natural Resources.

#### USE CONSTRAINTS

None. However, temporal changes to the Earth's surface may have occurred since the acquisition of the lidar data and may no longer represent current bare earth surface conditions.

#### POINT OF CONTACT

##### CONTACT INFORMATION

CONTACT ORGANIZATION PRIMARY  
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#### NATIVE DATA SET ENVIRONMENT

Environment as of Metadata Creation: Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.3.1 (Build 4959) Service Pack N/A (Build N/A)

#### [Hide Identification](#) ▲

##### ATTRIBUTE ACCURACY

##### ATTRIBUTE ACCURACY REPORT

No formal attribute accuracy tests were conducted.

##### LOGICAL CONSISTENCY REPORT

Spatial consistency of coverage of the 2016 St. Louis River Area of Concern project area was maintained throughout the dataset.

##### COMPLETENESS REPORT

Spatial consistency of coverage of the 2016 St. Louis River Area of Concern project area was maintained throughout the dataset.

##### POSITIONAL ACCURACY

HORIZONTAL POSITIONAL ACCURACY  
HORIZONTAL POSITIONAL ACCURACY REPORT

A formal accuracy assessment of the horizontal positional information in the data set has not been conducted.

VERTICAL POSITIONAL ACCURACY  
VERTICAL POSITIONAL ACCURACY REPORT

A Nonvegetated Vertical Accuracy (NVA) was computed for raw lidar point cloud swath data. Vertical accuracy was tested in open terrain using 25 independent survey points, distributed evenly through the project, and used solely for the purpose of assessing vertical accuracy. Specifications for this project require that the NVA be 19.6 cm or better AccuracyZ at 95 percent confidence level NSSDA standards (point cloud and DEM).

LINEAGE  
PROCESS STEP  
PROCESS DESCRIPTION

LiDAR processing utilizes several software packages, including GeoCue and the TerraSolid suite of processing components. The GeoCue software is a database management system for housing the LiDAR dataset (usually multiple gigabytes in size). GeoCue incorporates a thorough checklist of processing steps and quality assurance/quality control (QA/QC) procedures that assist in the LiDAR workflow. The TerraSolid software suite is used to automate the initial classification of the LiDAR point cloud based on a set of predetermined parameters. Lidar technicians refer to ground cover research (natural and cultural features) within the project area and determine algorithms most suitable for the initial automated LiDAR classification. (Some algorithms/filters recognize the ground in forests well, while others have greater capability in urban areas). During this process each point is given an initial classification (e.g., as ground, vegetation, or noise) based on the point's coordinates and the relation to its neighbors. Classifications to be assigned include all those outlined by ASPRS standards. The initial classifications produce a coarse and inexact dataset, but offer an adequate starting point for the subsequent manual classification procedure. During this step, "overlap" points are automatically classified (those originating from neighboring flightlines) using information gathered from the ABGPS and IMU data. Any duplicate points existing from adjacent flightlines are removed during this process. Hydrographic breaklines are collected using LiDARgrammetry to ensure hydroflattened water surfaces. This process involves manipulating the LiDAR data's intensity information to create a metrically sound stereo environment. From this generated "imagery", breaklines are photogrammetrically compiled. Breakline polygons are created to represent open water bodies. The LiDAR points that fall within these areas are classified as "water." Hydro-flattened breaklines were compiled for ponded water that is 2 acres or greater and double lined streams with a minimum width of 6.096 meters (20 feet). Streams break at road crossings (culvert locations). The road fills are not be removed from the DEM. Streams are not broken at bridges. When the identification of a feature as a bridge or culvert cannot be made reliably, the feature will be regarded as a culvert. Breaklines representing streams and rivers shall be smooth, continuous, and monotonic, and represent the water surface without any stair steps except for dams and rapids. All hydrographic breaklines include a 0.3 meter buffer, with the Class 2 (bare earth) points being re-classified as Class 10 (ignored ground). TerraSolid is further used for the subsequent manual classification of the LiDAR points allowing technicians to view the point cloud in a number of ways to ensure accuracy and consistency of points and uniformity of point coverage. The Intensity Image was created using the breaklines and the intensity values from the first return points.

PROCESS DATE Unknown

*Hide Data Quality* ▲

HORIZONTAL COORDINATE SYSTEM DEFINITION  
PLANAR  
MAP PROJECTION  
MAP PROJECTION NAME NAD 1983 UTM Zone 15N  
TRANSVERSE MERCATOR  
SCALE FACTOR AT CENTRAL MERIDIAN 0.9996  
LONGITUDE OF CENTRAL MERIDIAN -93.0  
LATITUDE OF PROJECTION ORIGIN 0.0  
FALSE EASTING 500000.0  
FALSE NORTHING 0.0

PLANAR COORDINATE INFORMATION  
PLANAR COORDINATE ENCODING METHOD coordinate pair  
COORDINATE REPRESENTATION  
ABSCISSA RESOLUTION 0.000000002220024164500956  
ORDINATE RESOLUTION 0.000000002220024164500956  
PLANAR DISTANCE UNITS meter

GEODETTIC MODEL  
HORIZONTAL DATUM NAME D North American 1983  
ELLIPSOID NAME GRS 1980  
SEMI-MAJOR AXIS 6378137.0  
DENOMINATOR OF FLATTENING RATIO 298.257222101

*Hide Spatial Reference* ▲

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METADATA STANDARD NAME FGDC Content Standard for Digital Geospatial  
Metadata  
METADATA STANDARD VERSION FGDC-STD-001-1998

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