

NATIONAL ELEVATION DATASET (NED) 1/9th METADATA FIELD DEFINITIONS

February, 2013

The metadata field names and descriptions that follow apply only to the NED 1/9th elevation database that was released **April, 2013**.

SOURCE IDENTIFICATION

Field: **DEMNAME**

DEMNAME (text)

Data Name

Name of the final elevation dataset processed according to NED 1/9th specifications.

Example: **DEMNAME = ga_east_dem**

SOURCE PRODUCTION

Fields: **PMETHOD**

S_DATE

FREETEXT

PMETHOD (integer)

Processing Method

Data type of the original source data and processing method required to transform the data into elevation values. The vast majority of processed datasets originated from LiDAR or other active remote sensing techniques.

Current valid codes are:

- 7 LiDAR or other active remote sensing technique
- 8 Photogrammetric mass points and break lines

S_DATE (Integer)

Source Date

The year the source data was collected.

FREETEXT

Free Text (Description)

A free text field used to further describe or clarify other metadata fields. This field may contain additional information, though there are no standards for the use of the free text field. The content of the FREETEXT field varies greatly from one data source to the next, and in some cases may be more confusing than helpful. The PMETHOD may often be derived from text present in the FREETEXT field. Information such as vegetation type, number of sample points and data source further describe the RMSE_Z, RMSE_FVA, RMSE_CVA, RMSE_SVA metadata fields. This field is retained in the NED metadata primarily to allow for confirmation of the PMETHOD field.

Example:

DEMNAME
ga_east_dem

FREETEXT
RMSE NA ; part of GA 17 County Project

OUTPUT PRODUCTIONFields: **RESOLUTION****RESOLUTION** (integer)

Resolution

The planimetric (x, y), spacing of elevation postings of the final processed datasets. Source LiDAR datasets resolution varies but is typically less than 3 meters. During NED 1/9-arc-second processing, source datasets are resampled to a common resolution (e.g. 1/9-arc-second or about 3 meters).

Current valid values are:

19 1/9-arc-second (standard output data)

ELEVATION DESCRIPTORSFields: **ZUNIT**

Elevation Unit

ZUNIT (integer)

Elevation unit of the output data

Valid values:

1 = Meters

This field in the NED 1/9-arc-second collection describes the elevation units of the output data. During the NED 1/9-arc-second processing, the source data vertical units is converted to consistent elevation unit, which is meter.

ACCURACY STATISTICS

Fields: **RMSE(z)**
RMSE(FVA)
RMSE(SVA)
RMSE(CVA)

RMSE_z, RMSE(FVA), RMSE(SVA), RMSE(CVA) (floating point)

RMSE(z): Root Mean Square Error of the elevation estimates. The RMSE(FVA): RMSE (Fundamental Vertical Accuracy). RMSE(SVA): RMSE (Supplemental Vertical Accuracy). RMSE(CVA): RMSE (Consolidated Vertical Accuracy). Reported RMSE statistics are in meters.

RMSE is the square root of the average of the set of squared differences between dataset coordinate values and coordinate values from an independent source of higher accuracy for identical points.

$$RMSE_z = \sqrt{\sum (Z_{data\ I} - Z_{check\ I})^2 / n}$$

where $Z_{data\ I}$ is the vertical coordinate of the I^{th} check point in the elevation dataset, $Z_{check\ I}$ is the vertical coordinate of the I^{th} check point in the independent reference source of higher accuracy, n is the number of points being checked, and I is an integer from 1 to n .

The Fundamental Vertical Accuracy (FVA) of a dataset must be determined with check points located only in open terrain, where there is a very high probability that the sensor will have detected the ground surface. The fundamental accuracy is the value by which vertical accuracy can be equitably assessed and compared among datasets. The FVA is calculated at the 95-percent confidence level as a function of vertical RMSE, i.e., $Accuracy_z = RMSE_z \times 1.9600$.

In addition to the fundamental accuracy, supplemental or consolidated accuracy values may be calculated for other ground cover categories or for combinations of ground cover categories. Because elevation errors often vary with the height and density of ground cover, a normal distribution of error cannot be assumed and, therefore, RMSE cannot be used to calculate the 95-percent accuracy value. Consequently a nonparametric testing method (95th Percentile) is employed for supplemental and consolidated accuracy tests. The SVA or CVA are calculated at the 95-percent confidence level for each supplemental land cover category or combination of categories and equals the 95-percentile error for each category or combination of categories.

Valid values:

0	Not available
Other Values	Actual Calculated RMSE value

NED PRODUCTION TIMESTAMPS

Fields: **QUADDATE**

QUADDATE (yyyymmdd)
 Date released to NED

Quaddate is the date when the source dataset was first added to NED 1/9th.