

NED Release Notes

February 2002

The February 2002 release of the National Elevation Dataset (NED) represents the 11th update since the NED bi-monthly maintenance schedule began in June 2000. This release includes existing source data and all new 7.5-minute digital elevation models (DEMs) available in the USGS Sales Database (SDB) as of January 1, 2002. Areas where the new source data were incorporated for this release (and previous releases) are indicated in Figure 1. Figure 2 indicates the combined areas updated in the December 2001 and February 2002 releases.

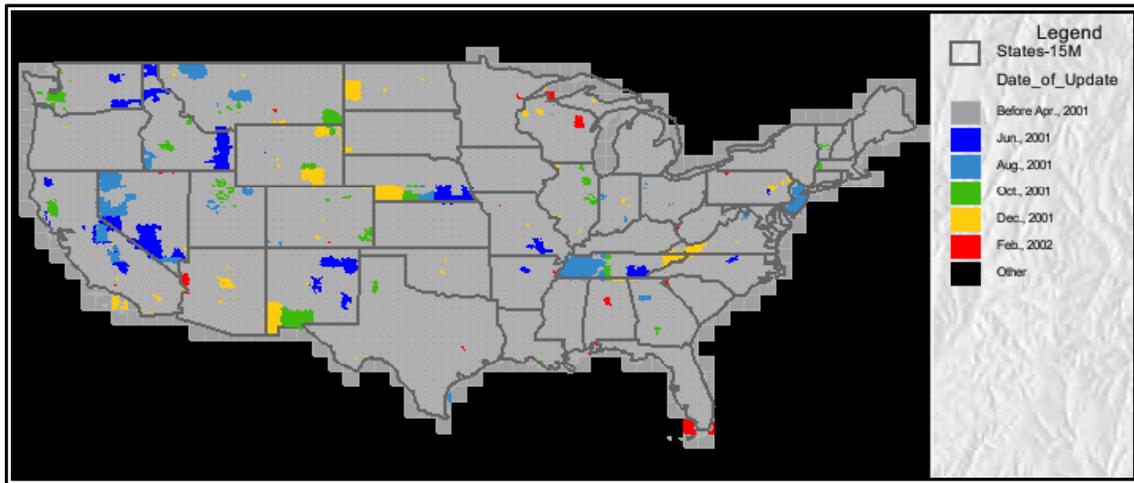


Figure 1. NED update areas, by release date.

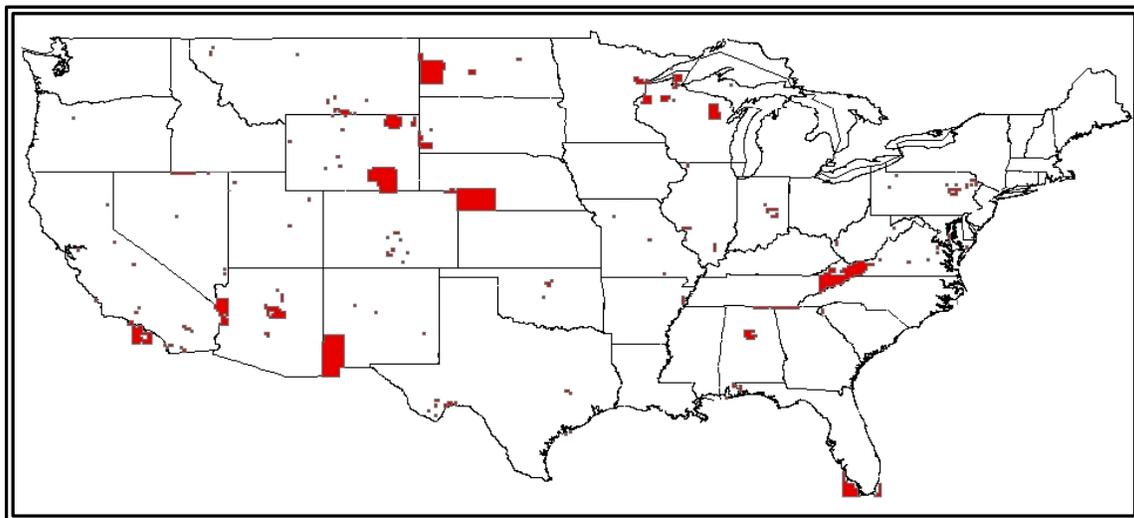


Figure 2. NED areas updated in December 2001 and February 2002 releases.

NED Tile Processing

NED is processed and stored internally as 1°x1° tiles. The number of tiles and changes for each release are listed in Table 1.

Release date	Number of tiles	Note
June 2000	1,367	CONUS: 925 tiles; AK: 428 tiles; HI: 14 tiles
August 2000	1,367	
October 2000	1,367	
December 2000	1,367	
February 2001	1,367	
April 2001	1,375	8 tiles added: Puerto Rico and Virgin Islands
June 2001	1,387	12 tiles added: Pacific islands
August 2001	1,392	5 tiles added: Pacific islands
October 2001	1,392	
December 2001	1,392	
February 2002	1,392	

Table 1. Number of NED tiles and changes, by release date.

For the current release, 109 tiles were updated, which represents 11% of NED (not including Alaska tiles). The number of NED tiles processed for each of the last 11 releases is shown in Figure 3.

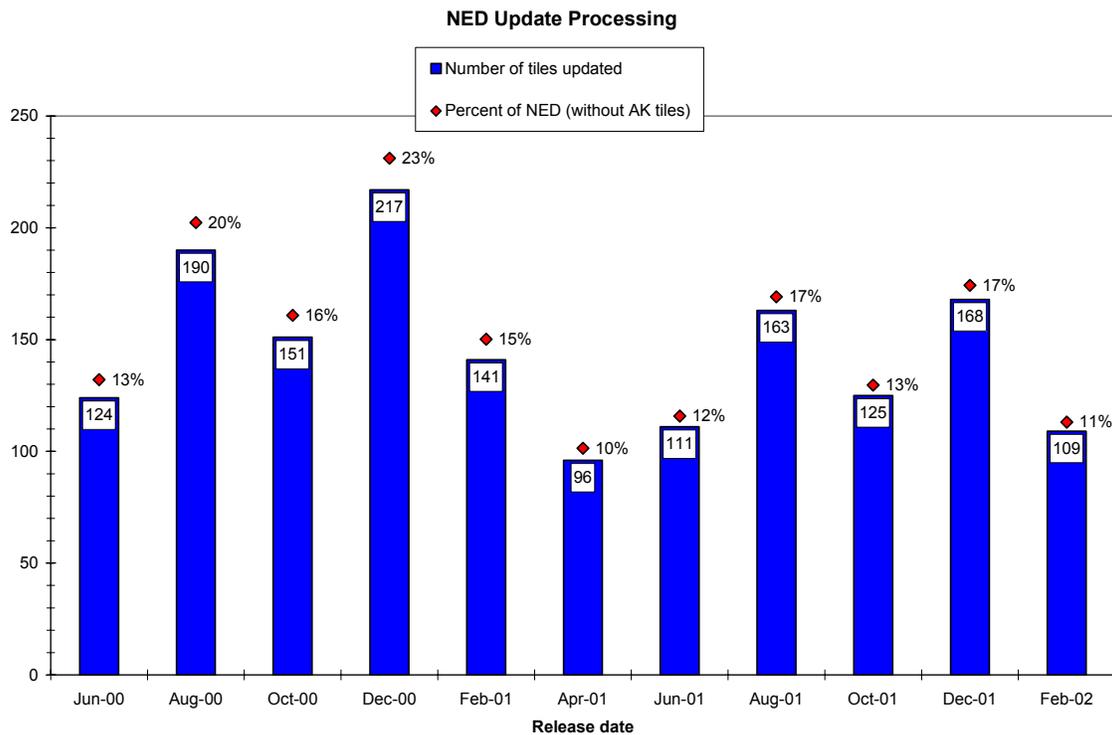


Figure 3. Number (and percentage) of NED tiles processed, by release date.

NED Source Data

NED source data are selected from the available USGS DEMs according to the following ranking (highest priority listed first): 10-meter, 30-meter Level 2, 30-meter Level 1, 2-arc-second, 3-arc-second. The composition of the source data used in NED continued the trend seen in previous releases with 10-meter increasing and the corresponding decrease in 30-meter. Thus, the ongoing production of USGS 10-meter DEMs is reflected in each NED release. The number of source DEMs (by type) and the percentage of NED derived from each type for each of the last 11 releases are shown in Figure 4 and Figure 5, respectively. Note that only 7.5-minute DEMs were included for Figures 4 and 5, so the totals and percentages do not include Alaska, which is derived from 2-arc-second source data.

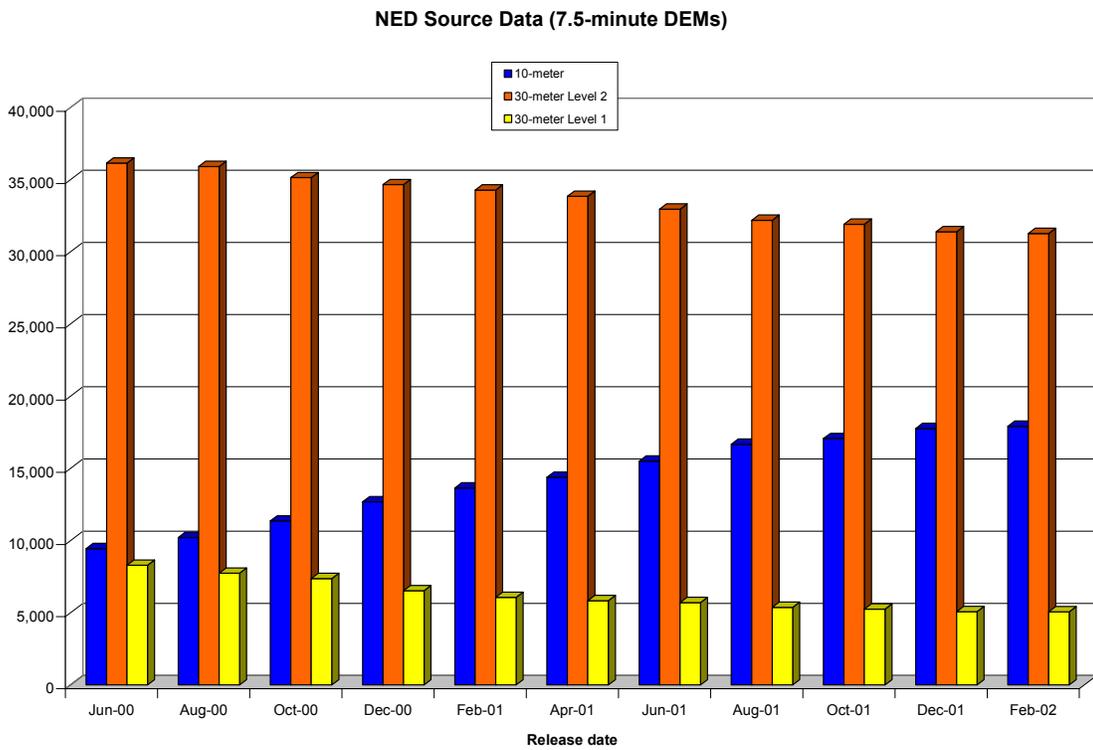


Figure 4. NED source data (by DEM type) for recent releases.

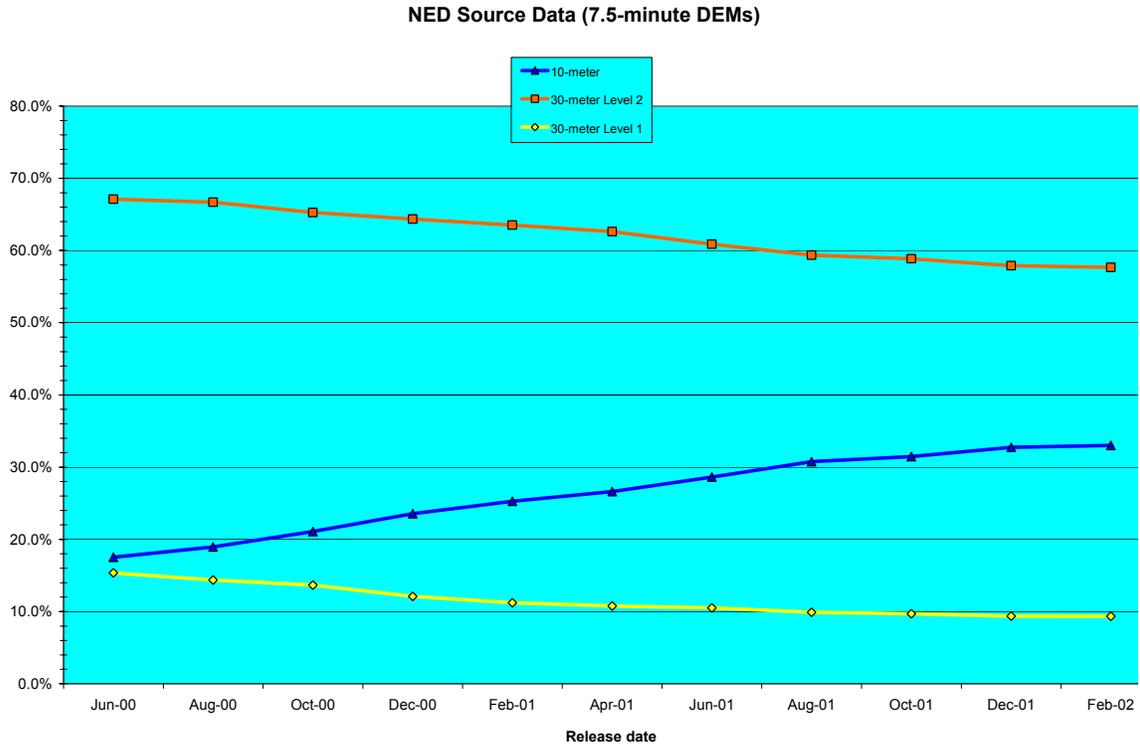


Figure 5. Percent of NED source data (by DEM type) for recent releases.

The changes in NED source data since the previous releases are described in Table 2.

Release date	10-meter added	10-meter removed	30-meter Level 2 added	30-meter Level 2 removed	30-meter Level 1 added	30-meter Level 1 removed	Total added	Total removed	Net added
June 2001	1,288	176	31	919	0	134	1,319	1,229	90
August 2001	1,181	6	96	871	49	375	1,326	1,252	74
October 2001	488	95	205	479	76	196	769	770	-1
December 2001	715	22	182	689	12	189	909	900	9
February 2002	151	0	3	121	15	40	169	161	8

Table 2. Changes in NED source data (7.5-minute DEMs).

As recorded in the NED spatially referenced metadata, the composition of the NED source data may be described in terms of specific characteristics of the source DEMs. Table 3 and Table 4 show the number of DEMs by production method and production site, respectively, for the current and previous releases. Note that in the current release about 9% of NED is derived from DEMs produced with photogrammetric methods (GPM and

MP), while over 80% of NED is derived from DEMs produced from hypsography processed with LT4X.

Release date	GPM	MP	CTOG	DCASS	LT4X	Unknown
August 2001	2,332	3,061	6,759	230	44,845	476
October 2001	2,281	2,988	6,091	235	45,627	469
December 2001	2,168	2,919	5,515	238	46,360	440
February 2002	2,146	2,911	5,250	238	46,560	427

Table 3. NED source DEMs, by production method.

Release date	MAC	MCMC	RMMC	WMC	Contractor	FS	BLM	EMC	Unknown
August 2001	1,748	9,476	8,109	2,706	22,046	9,450	379	258	3,531
October 2001	1,721	9,480	8,090	2,726	22,193	9,406	366	258	3,450
December 2001	1,672	9,426	7,957	2,727	22,506	9,375	364	261	3,348
February 2002	1,620	9,392	7,916	2,721	22,597	9,349	352	260	3,312

Table 4. NED source DEMs, by production site.

NED Processing Notes

The following items were encountered during the February 2002 NED maintenance:

- A number of tiles in coastal areas were reprocessed to exclude 2-arc-second source data, which merely contained zero values in open water areas not covered by 7.5-minute DEMs. Thus, the tiles themselves are not affected, but the metadata is simplified.
- A small fraction of the new DEMs included are in fact repaired versions of quads used previously.

NED Accuracy

The overall absolute vertical accuracy of NED has been assessed by comparison to an independent reference dataset, the geodetic control points in the High Accuracy Reference Network (HARN) maintained and distributed by the National Geodetic Survey. The initial assessment was done in September 1999 using 5,811 HARN points located throughout the continental United States (Figure 6). At that time, some small areas of NED in the continental United States were still based on 2-arc-second or 3-arc-second data. Also, less than 15% of NED was derived from 10-meter DEMs. The accuracy assessment was conducted again in October 2001 using the same 5,811 HARN points for

reference. At that time, the continental U.S. NED was derived entirely from 7.5-minute source DEMs, with nearly one-third being 10-meter DEMs. The vertical accuracy (expressed in meters) calculated in each assessment is presented in Table 5. The numbers are presented as the root mean square error (RMSE) and also as the equivalent metrics in the National Map Accuracy Standards (NMAS; 90% confidence) and the National Standard for Spatial Data Accuracy (NSSDA; 95% confidence).

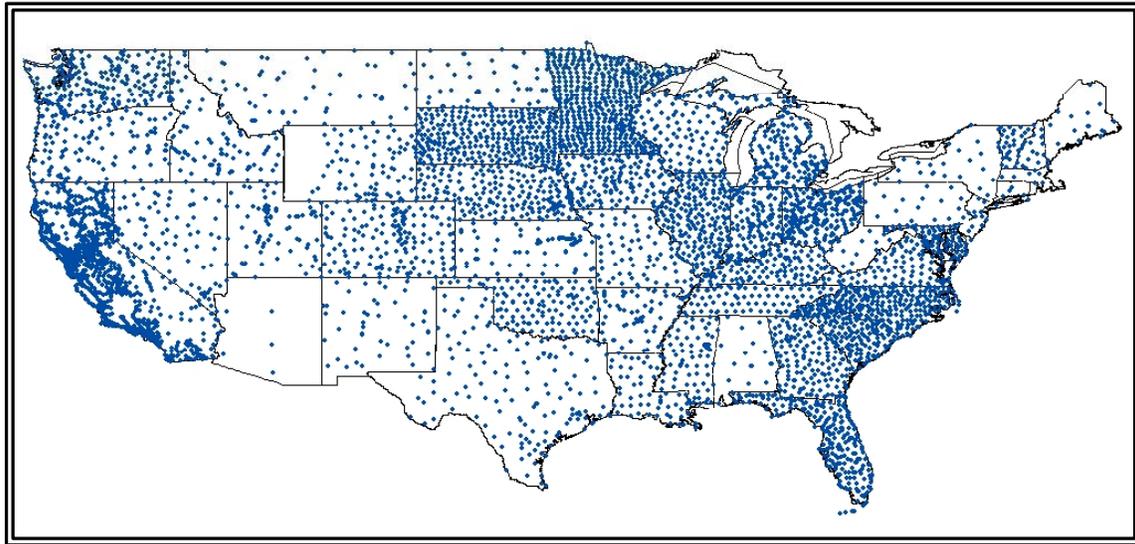


Figure 6. HARN points used for NED accuracy assessment.

Date of assessment	RMSE	NMAS (90%)	NSSDA (95%)
September 1999	3.74 meters	6.15 meters	7.34 meters
October 2001	3.13 meters	5.15 meters	6.14 meters

Table 5. NED vertical accuracy based on a comparison with HARN points.

Miscellaneous Notes

- The following are available via anonymous FTP: the NED spatial metadata in Shapefile and Arc Export format, the NED data dictionary with definitions of the attributes of the spatial metadata coverage, and a Shapefile that outlines the areas updated in the December 2001 and February 2002 releases (also available in Arc Export format). The FTP site for these items is:
<ftp://edcftp.cr.usgs.gov/pub/data/ned/>
- A journal article on NED was published by ASPRS in the January 2002 issue of *Photogrammetric Engineering & Remote Sensing*, available online at:
<http://www.asprs.org/asprs/publications/pe&rs/2002journal/january/highlight.html>