NED Release Notes
December 2004

The December 2004 release of the National Elevation Dataset (NED) represents the 28th update of the 1-arc-second NED layer since the 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 November 1, 2004. Non-standard (non-USGS) source data are also included in this release. 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 August 2004, October 2004, and December 2004 releases.

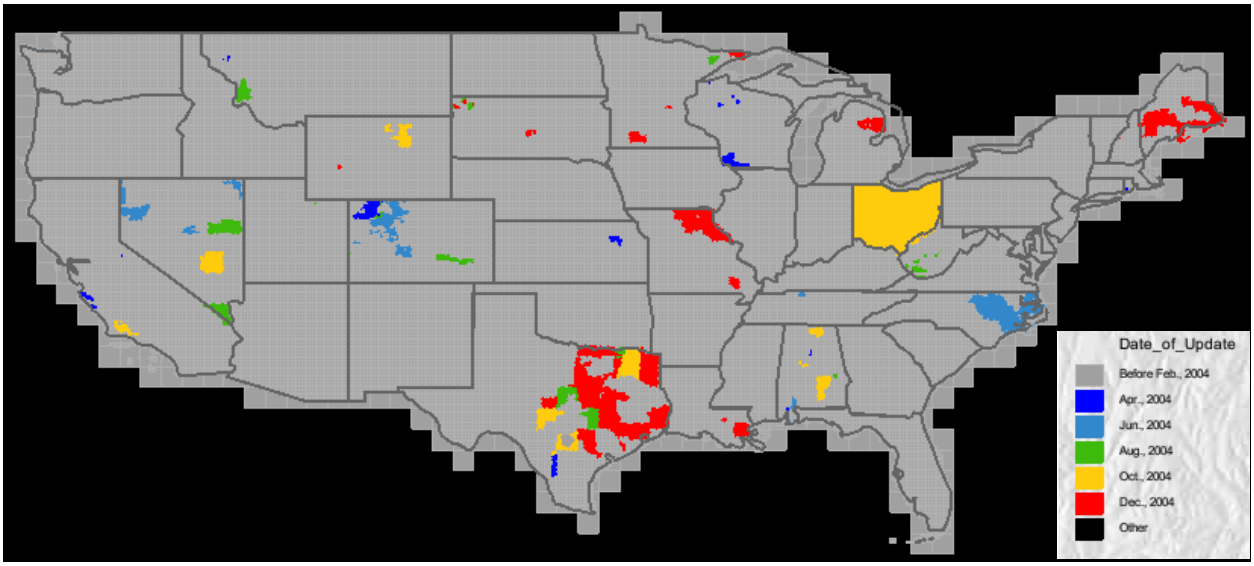

Figure 1. 1-arc-second NED update areas, by release date.

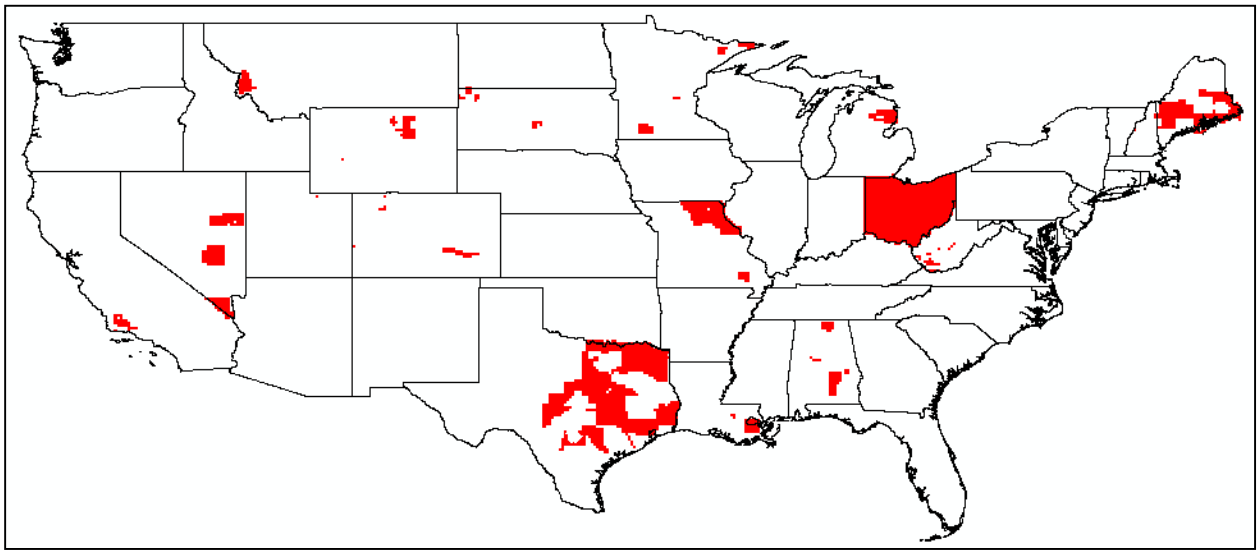

Figure 2. 1-arc-second NED areas updated in August 2004, October 2004, and December 2004 releases.

NED Tile Processing

NED is processed and stored internally as 1ºx1º tiles. The number of tiles, and changes by release date, are listed in Table 1.

Release date	Number of tiles	Note
June 2000	1,367	CONUS: 925 tiles; AK: 428 tiles; HI: 14 tiles
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
December 2004	1,392	

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

For the current release, 93 1-arc-second tiles were updated, which represents 10% of NED (not including Alaska tiles). The number of NED tiles processed for each of the 28 releases is shown in Figure 3.

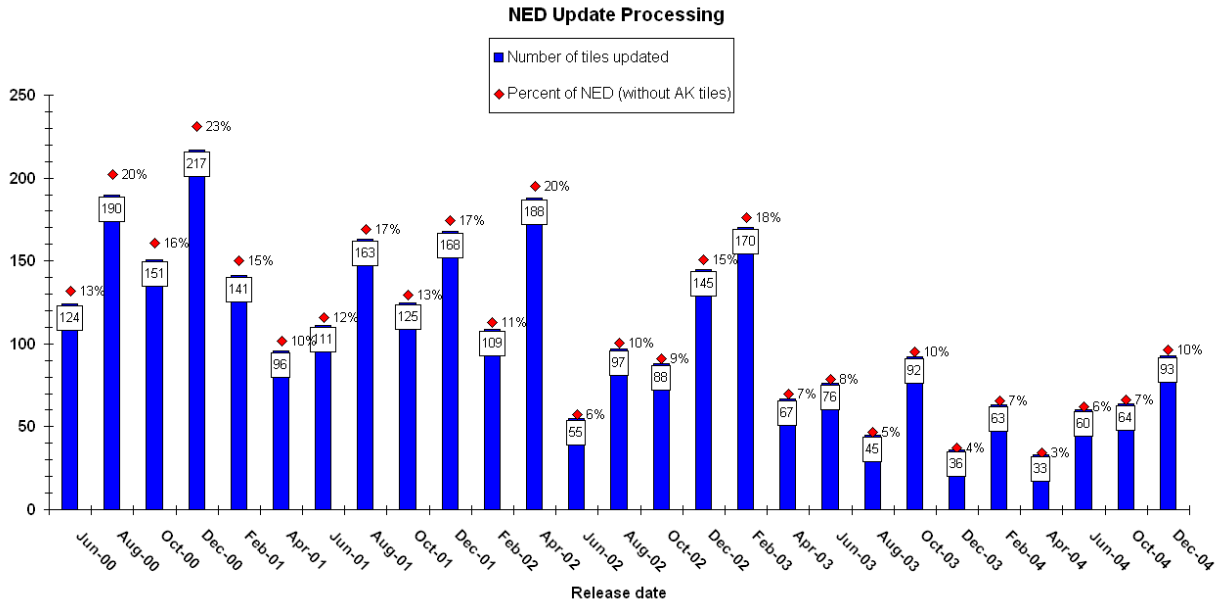

Figure 3. Number (and percentage) of 1-arc-second NED tiles processed, by release date.

Source Data for the 1-arc-second NED

Source data for the NED are selected from the available DEMs according to the following ranking (highest priority listed first): high-resolution elevation data, 10-meter and 1/3-arc-second USGS DEMs, 30-meter Level 2 USGS DEMs, 30-meter Level 1 USGS DEMs, 2-arc-second USGS DEMs, 3-arc-second USGS DEMs. Note that the 2-arc-second DEMs are used only in Alaska, and the 3-arc-second DEMs are used only to fill in values over some large water bodies. The composition of the source data used in NED continued the trend seen in previous releases with 10-meter and 1/3-arc-second DEMs increasing and the corresponding decrease in 30-meter DEMs. Thus, the ongoing production of USGS 10-meter DEMs is reflected in each NED release. The total for the 10-meter and 1/3-arc-second DEM source category includes 777 7.5-minute quadrangle-based DEMs over Kentucky, 173 quadrangle-based DEMs over Missouri, and coverage of Ohio equivalent to 744 quadrangles. Although these DEMs are not standard USGS 10-meter DEMs because they were produced in non-standard projections, they were derived from the same 1:24,000-scale hypsography data as the 10-meter DEMs and thus have the equivalent information content. The high-resolution source category includes elevation data derived from photogrammetric mapping over Bexar County in central Texas (first used in the August 2003 release) and from lidar data over eastern North Carolina (see the December 2003 NED Release Notes for details). The area covered by these high-resolution data sources is equivalent to that covered by 251 7.5-minute quadrangles. The percentages of 1-arc-second NED derived from each type of source DEM for the 28 releases are shown in Figure 4. Note that the percentages in Figure 4 include source data at a 30-meter resolution or higher, so Alaska is not included.

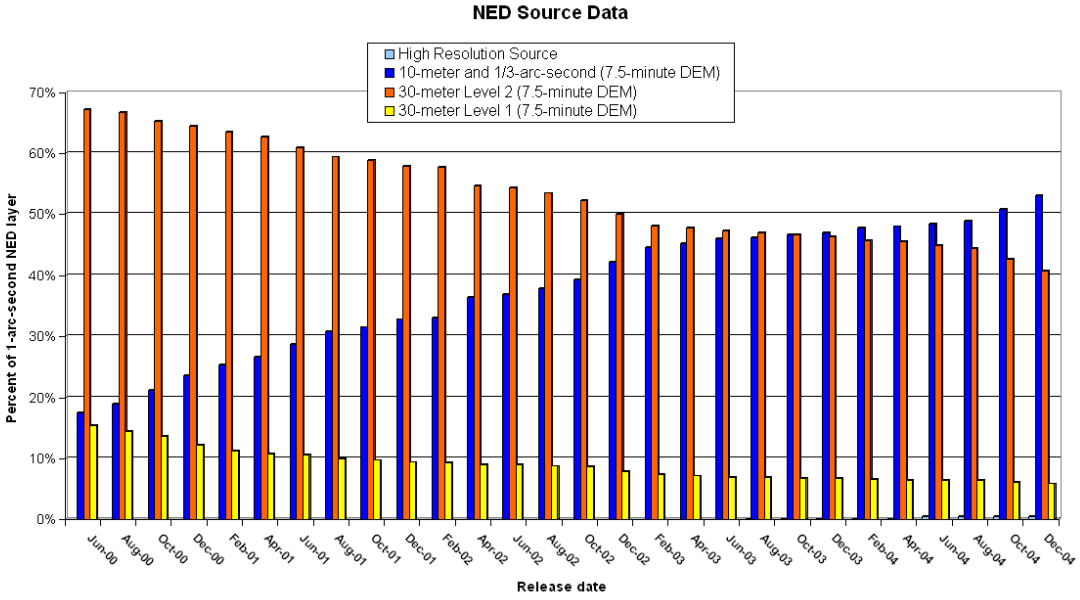

Figure 4. Source data (by DEM type) for 1-arc-second NED releases.

Multi-resolution NED

In addition to the standard 1-arc-second resolution, NED data for a portion of the United States are available in 1/3-arc-second resolution (approximately 10 meters). These higher resolution data have been produced where 10-meter DEMs and other high-resolution DEMs are available as NED source data. The current release of 1/3-arc-second NED (November 2004) includes all USGS 10-meter and 1/3-arc-second DEMs produced as of October 2004. Figure 5 shows the current coverage of 1/3-arc-second NED over CONUS. In addition, 1/3-arc-second NED is available over Hawaii and the Pacific basin islands. As with 1-arc-second NED, some of the 1/3-arc-second NED is derived from "non-standard" source data (data other than standard USGS 7.5-minute DEMs). The two areas derived from non-USGS source data are Bexar County in south central Texas (photogrammetric data), and eastern North Carolina (lidar data). As new source data (either high-resolution data or USGS 10-meter DEMs) become available, production of 1/3-arc-second NED will continue, and additional areas will be made available as they are completed. The data are available for download and on media copies through the seamless data distribution system (SDDS) (http://seamless.usgs.gov).

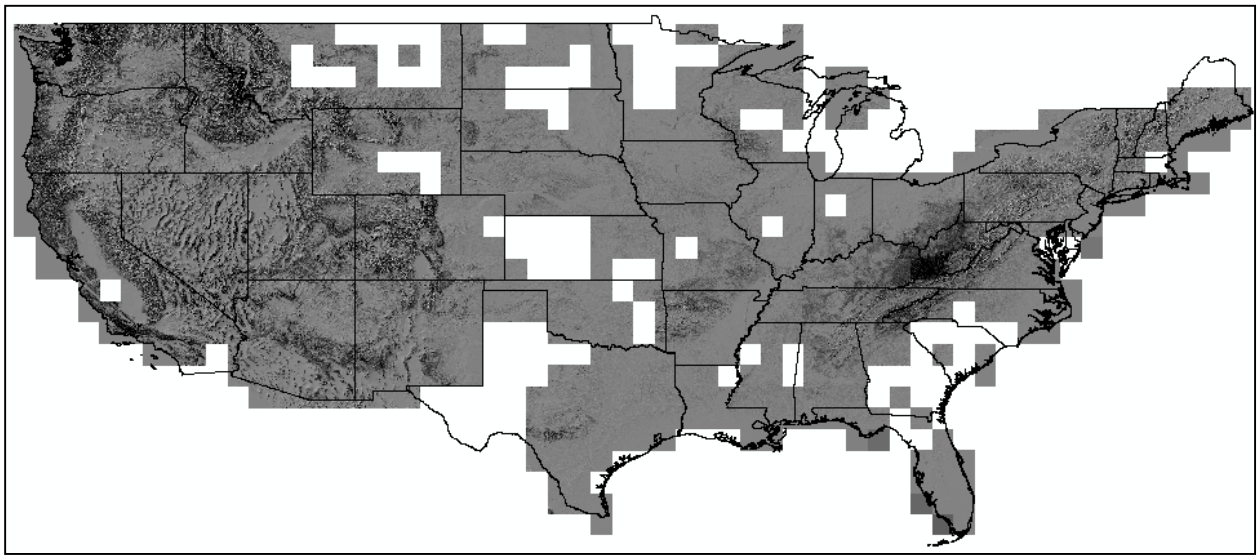

Figure 5. 1/3-arc-second NED available for distribution through the SDDS.

The 1/3-arc-second NED shown in Figure 5 currently covers approximately 80% of the United States (excluding Alaska). However, it is important to note that source data with a resolution of 10-meters or higher currently exists for only 53% of the United States (excluding Alaska), so a portion of the current 1/3-arc-second NED coverage is derived from oversampling of 30-meter DEM source data. The oversampling of 30-meter data occurs where no high-resolution (10-meter or better) data exist to fill in the 1ºx1º tile unit in which NED is processed. Figure 6 shows the distribution of source data resolution within the current 1/3-arc-second NED coverage. The NED spatial metadata delivered with each order can be queried to determine the source data used to produce 1/3-arc-second NED over any given area. As new high-resolution source data become available, either 10-meter DEMs or other sources, the data derived from 30-meter DEMs will be replaced. Processing and updating of the 1/3-arc-second NED occurs in the alternating months in which the 1-arc-second NED does not have a scheduled update. Thus, 1/3-arc-second

NED is updated in November, January, March, May, July, and September, while 1-arc-second NED is updated in October, December, February, April, June, and August.

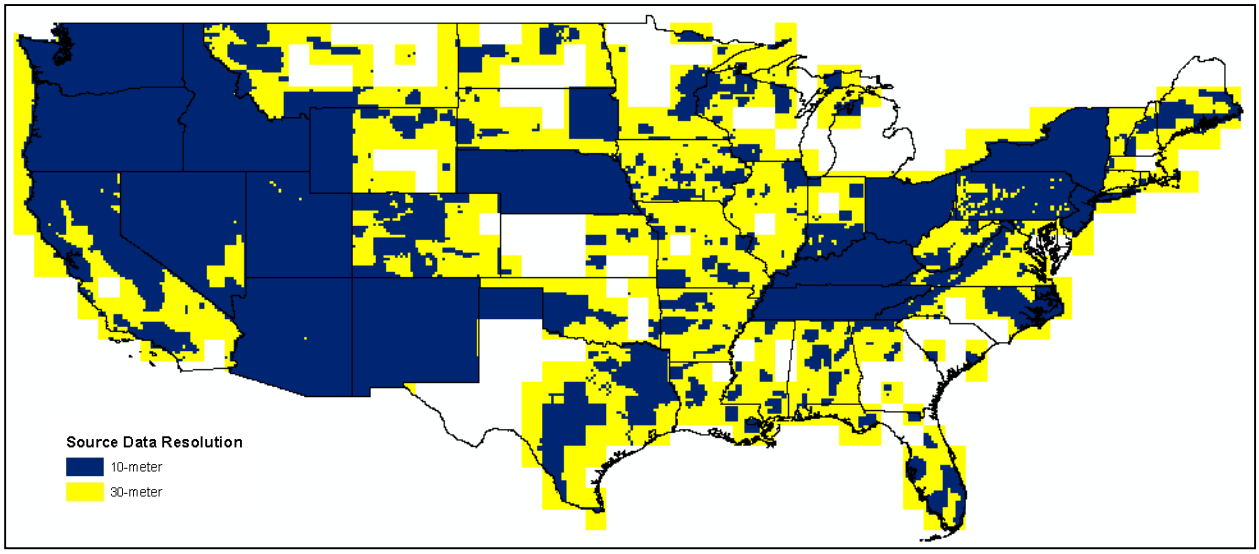

Figure 6. Source data used in the November 2004 release of 1/3-arc-second NED.

In October 2004, a second area covered by 1/9-arc-second NED data became available on the SDDS. High-resolution lidar data were used to produce 1/9-arc-second resolution (approximately 3 meters) NED for the Mt. St. Helens region in Washington. Figure 7 shows the area covered by the additional 1/9-arc-second NED.

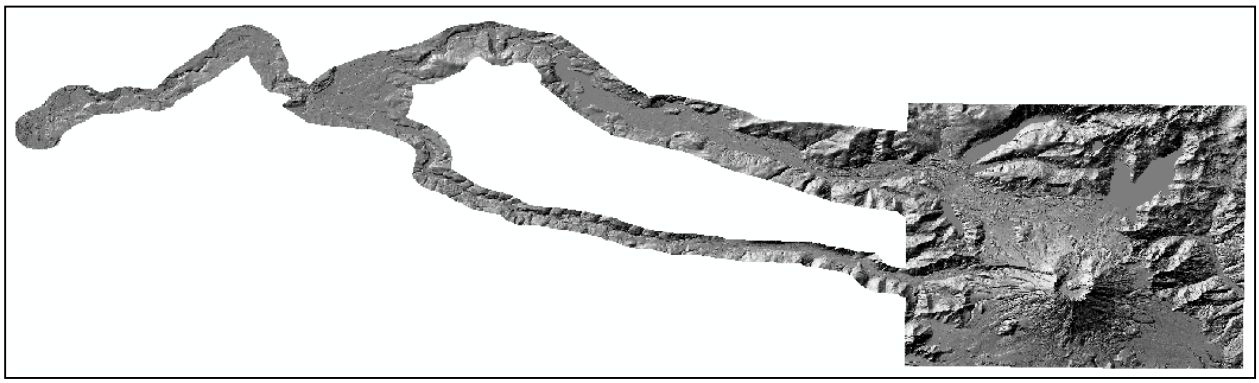

Figure 7. 1/9-arc-second NED coverage of the Mt. St. Helens area.

NED Data Distribution Statistics

Data distribution statistics for 1-arc-second NED, 1/3-arc-second NED, and 1/9-arc-second NED are shown in Figure 8, Figure 9, and Figure 10, respectively.

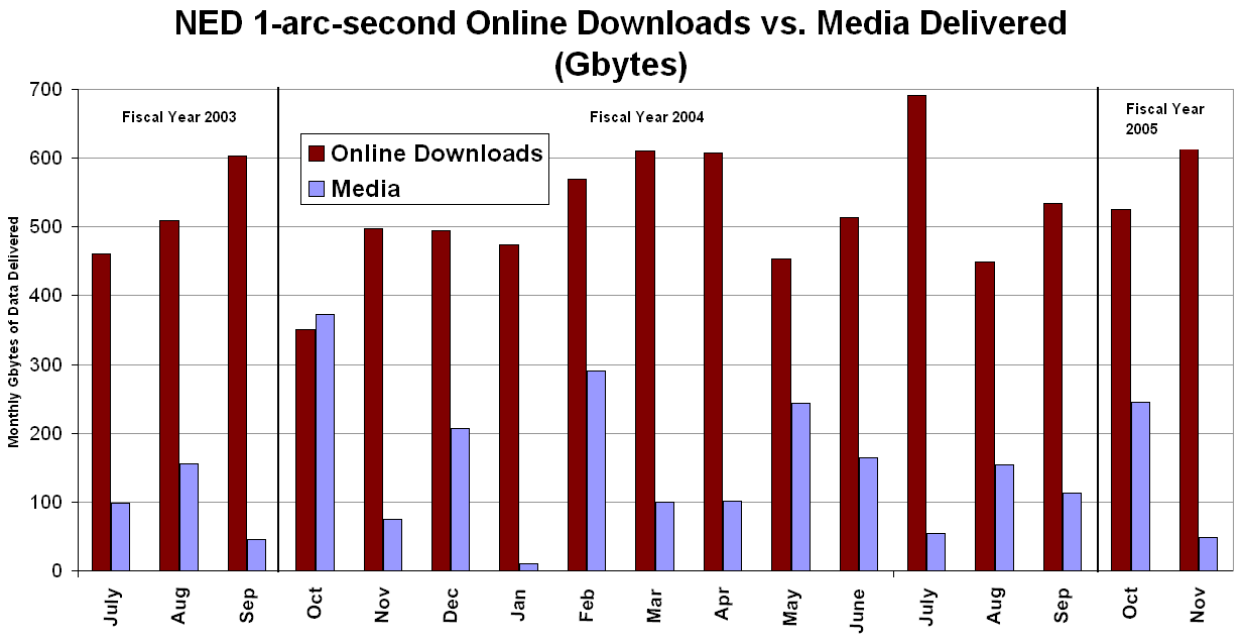

Figure 8. Data distribution statistics for 1-arc-second NED.

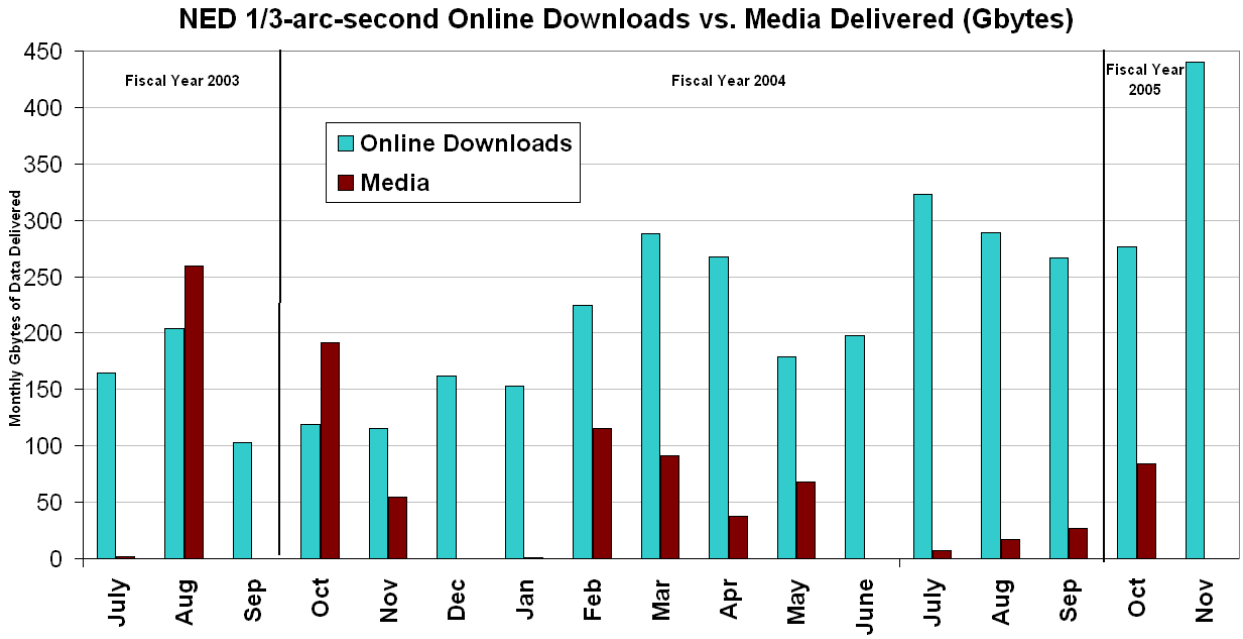

Figure 9. Data distribution statistics for 1/3-arc-second NED.

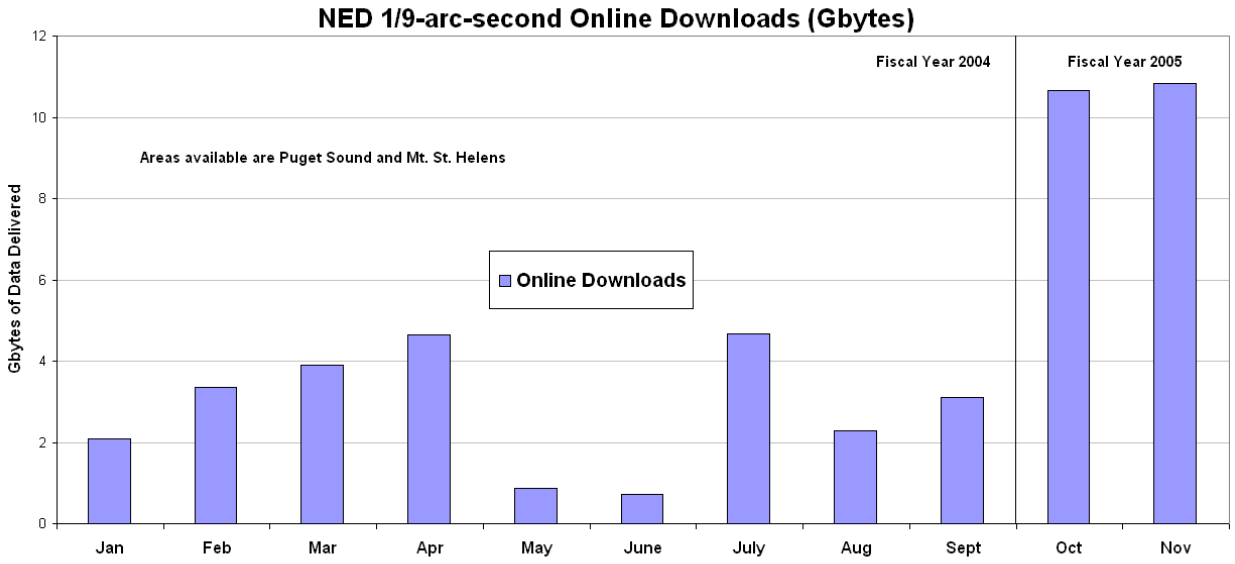

Figure 10. Data distribution statistics for 1/9-arc-second NED.

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, previous issues of the NED Release Notes, and Shapefiles that outline the areas updated in the December 2004 and previous releases. The FTP site for these items is: ftp://edcftp.cr.usgs.gov/pub/data/ned
- The following information was added to the FAQ list on the NED home page (http://ned.usgs.gov):

  "What horizontal datum, vertical datum, and geoid model are used for the NED?"
  (see http://ned.usgs.gov/Ned/faq.asp#used)

  "Why does the coverage of 1/3-arc-second NED appear to include a greater area than that covered by the 10-meter DEMs?"
  (see http://ned.usgs.gov/Ned/faq.asp#coverage)