

Digital Geodata Series DGS 04-1 Earthquakes Epicentered in New Jersey

Explanation

MAGNITUDES

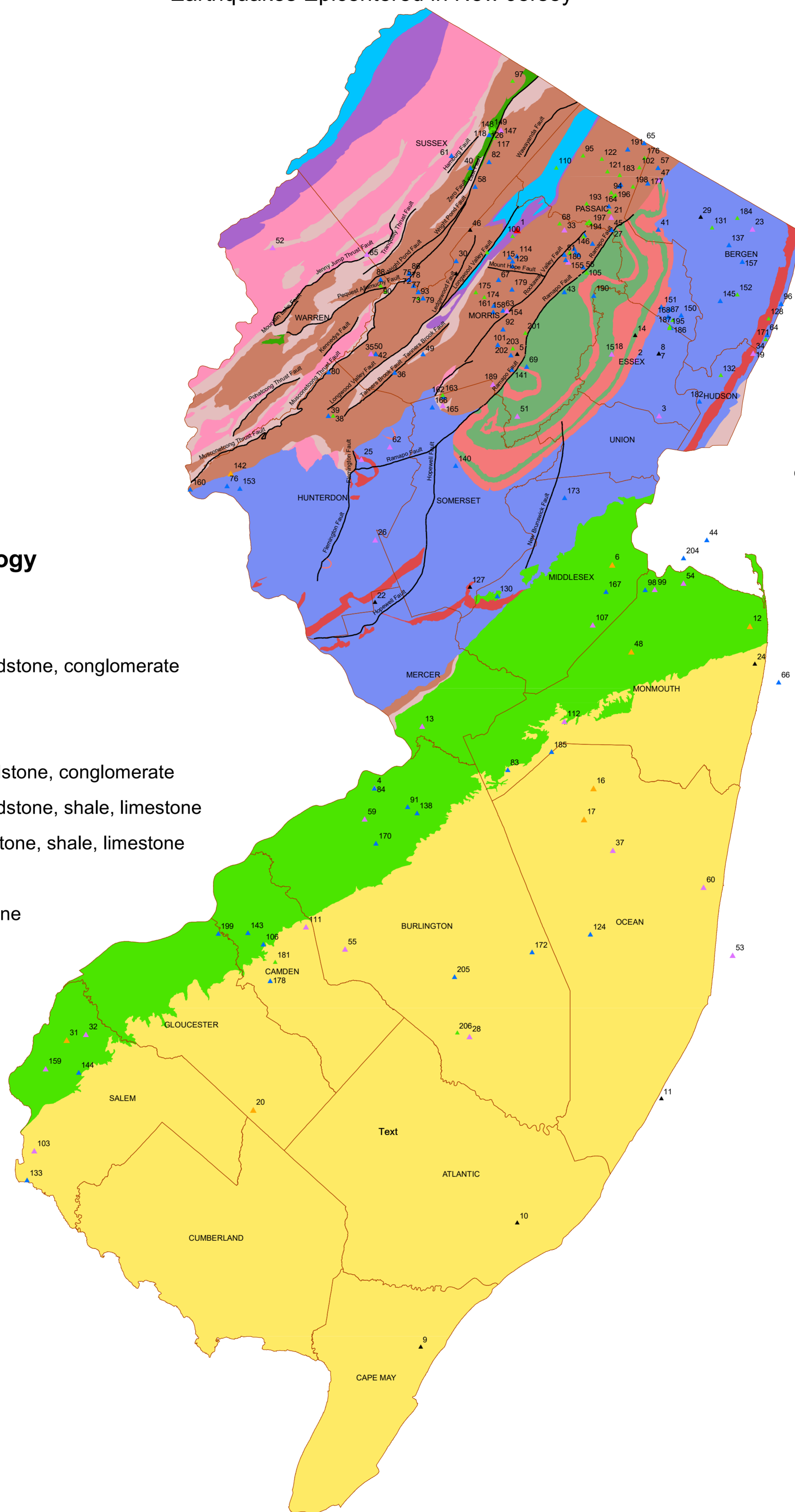
- ▲ 0.0 - 0.3
- ▲ 0.4 - 1.3
- ▲ 1.4 - 2.3
- ▲ 2.4 - 3.3
- ▲ 3.4 - 4.3
- ▲ 4.4 - 5.3

— Named Faults

□ statecoq

Generalized Bedrock Geology

- Tertiary sand, silt, clay
- Cretaceous sand, silt, clay
- Jurassic siltstone, shale, sandstone, conglomerate
- Jurassic basalt
- Jurassic diabase
- Triassic siltstone, shale, sandstone, conglomerate
- Devonian conglomerate, sandstone, shale, limestone
- Silurian conglomerate, sandstone, shale, limestone
- Ordovician shale, limestone
- Cambrian limestone, sandstone
- Precambrian marble
- Precambrian gneiss, granite



0 2.5 5 10 15 20 Miles

ID	NORTHING	EASTING	QUAD	MUNICIPALITY	COUNTY	DATE	NJDEP - NJGWS TIME (UTC)	DGS04-1 LAT_N	EARTHQUAKES LONG_W	EPICENTERED DEPTH (KM)	MAGNITUDE	LOCATION	COMMENTS	DATA SOURCE
1	789196	492125	Franklin, NJ	ROCKAWAY TWP	MORRIS	11/30/1783	3:50	41.000	74.500	0.00	5.3	West of New York City	2 Foreshocks (11/24 and 11/30) and 1 aftershock	LCSN, Stover, NESN
2	712791	561345	Caldwell, NJ	WEST ORANGE TWP	ESSEX	1/25/1841	5:30	40.790	74.250	0.00	2.9	West Orange, NJ		NEIC, NESN, LCSN
3	680047	575301	Elizabeth, NJ	NEWARK CITY	ESSEX	3/5/1861	17:00	40.700	74.200	0.00	2.4	Newark, NJ		NEIC
4	461482	408207	Bristol, PA	FLORENCE TWP	BURLINGTON	9/10/1877	14:59	40.100	74.800	0.00	2.9	Burlington, NJ		NEIC, LCSN
5	716335	492125	Mendham, NJ	MORRIS TWP	MORRIS	8/10/1880	17:15	40.800	74.500	0.00	0.0	Near Morristown, NJ	1 aftershock 9/1/1880.	NEIC
6	592540	547774	South Amboy, NJ	SAYRISVILLE BORO	MIDDLESEX	09/01/1895	11:09	40.460	74.300	0.00	4.1	Near South Amboy, NJ	Location changed.	LCSN, Eppley, NESN, Smith, Coffman, Sykes & others
7	716477	575177	Orange, NJ	BLOOMFIELD TWP	ESSEX	5/27/1902	0:00	40.800	74.200	0.00	0.0	Bayonne-Wayne, NJ		NEIC, NESN
8	716477	575177	Orange, NJ	BLOOMFIELD TWP	ESSEX	8/11/1902	0:00	40.800	74.200	0.00	0.0	Bayonne-Wayne, NJ		NEIC, NESN
9	133598	435450	Sea Isle City, NJ	UPPER TWP	CAPE MAY	4/23/1910	0:00	39.200	74.700	0.00	0.0	Near Atlantic City, NJ		NEIC, NESN, Eppley
10	206377	492125	Pleasantville, NJ	PLEASANTVILLE CITY	ATLANTIC	1/16/1912	16:40	39.400	74.500	0.00	0.0	Near Long Beach, NJ		NEIC
11	279361	576654	Beantown, NJ	LONG BEACH TWP	OCEAN	8/5/1919	0:00	39.500	74.000	0.00	0.0	Camden, NJ		NEIC
12	556427	628668	Long Branch, NJ	RUMSON BORO	MONMOUTH	6/1/1927	12:20	40.360	74.010	0.00	3.9	Near Asbury Park, NJ	Location changed.	LCSN, Stover, Smith, Eppley, NESN, Sykes & others
13	497829	436262	Trenton E, NJ	HAMILTON TWP	MERCER	1/25/1933	2:00	40.200	74.700	0.00	2.8	Near Trenton, NJ		NEIC, Eppley, Coffman
14	727363	561303	Caldwell, NJ	VERONA TWP	ESSEX	9/30/1937	22:08	40.830	74.250	0.00	0.0	Verona, NJ	Location changed.	NEIC, NESN, Sykes and others
15	716398	547493	Caldwell, NJ	LIVINGSTON TWP	ESSEX	5/16/1938	19:25	40.800	74.300	0.00	2.3	Verona, NJ		NEIC, NESN
16	461381	536881	Lakehurst, NJ	JACKSON TWP	OCEAN	8/23/1938	3:36	40.100	74.340	13.80	3.8	NE of New Egypt, NJ		Eppley, Coffman, NESN
17	443159	531315	Lakehurst, NJ	JACKSON TWP	OCEAN	8/23/1938	5:04	40.050	74.360	20.70	4.0	Freehold, NJ	4 aftershocks felt.	NESN
18	716398	547493	Weehawken, NJ	LIVINGSTON TWP	ESSEX	12/6/1938	19:38	40.800	74.300	0.00	2.6	Verona, NJ		NEIC, NESN, Smith
19	716730	630545	Weehawken, NJ	NORTH BERGEN TWP	HUDSON	9/13/1939	1:22	40.800	74.000	0.00	2.2	Union City, NJ		NEIC, NESN, Smith
20	272410	337110	Newfield, NJ	FRANKLIN TWP	GLOUCESTER	11/15/1939	2:53	39.580	75.050	3.00	3.4	Salem County, NJ		NESN
21	796546	541730	Wanaque, NJ	WANAUKE BORO	PASSAIC	4/11/1947	13:25	41.020	74.400	0.00	2.7	Pompton Lakes, NJ	Location changed.	NESN, Sykes and others
22	570762	408577	Hoechstville, NJ	HOECHSTVILLE TWP	MERCER	10/31/1949	16:33	41.000	74.800	0.00	1.1	Hopewell, NJ		NESN
23	789592	630128	Weehawken, NJ-NY	OLD TAPPAN BORO	BERGEN	8/17/1953	4:22	40.870	74.070	0.00	3.2	Bergery County, NJ	Location changed.	NESN, Sykes and others
24	534586	631578	Long Branch, NJ	LONG BRANCH CITY	MONMOUTH	3/31/1954	21:25	40.300	74.000	0.00	0.0	Long Branch, NJ		NEIC
25	654577	400536	Califon, NJ	CLINTON TWP	HUNTERDON	3/23/1957	19:02	40.630	74.830	0.00	2.9	Schooley's Mountain, NJ	Walls cracked, dishes broke. Location changed.	NESN, Stover, Coffman, Eppley, Sykes & others
26	607190	408701	Flemington, NJ	RIVARITAN TWP	HUNTERDON	12/27/1961	17:06	40.500	74.800	0.00	2.7	5 km W of Flemington, NJ		NEIC, NESN, Eppley, Coffman
27	789260	547326	Wanaque, NJ	RIVERDALE BORO	MORRIS	10/13/1962	0:00	41.000	74.300	0.00	2.2	Pompton Lakes, NJ		NEIC, NESN
28	315659	463989	Jenkins, NJ	WASHINGTON TWP	BURLINGTON	12/10/1968	9:12	39.700	74.600	0.00	2.7	SE of Camden, NJ	1 aftershock 12/20/1962.	NESN
29	796723	599735	Franklin, NJ	SADDLE RIVER BORO	BERGEN	4/25/1969	0:14	41.020	74.110	25.00	0.0	Near Sussex, NJ		NEIC
30	771008	456217	Franklin, NJ	JEFFERSON TWP	MORRIS	10/6/1969	02:27	40.950	74.630	0.00	2.1	Ogdensburg, NJ	Location changed.	NEIC, Sykes & others
31	313387	227609	Penns Grove, NJ-Del	CARNEYS POINT TWP	SALEM	2/28/1973	8:21	39.690	75.440	11.90	3.5	E OF Wilmington, DE		NESN
32	316914	238902	Penns Grove, NJ-Del	OLDMANS TWP	SALEM	7/10/1973	4:38	39.700	75.400	0.00	2.6	E OF Wilmington, DE		NESN
33	789212	519726	Newfoundland, NJ	KINNELON BORO	MORRIS	3/11/1976	21:07	41.000	74.400	1.00	2.8	Pompton Lakes, NJ	1 aftershock, some damage.	LCSN, NEIC, Stover, NESN
34	716730	630545	Weehawken, NJ-NY	WASHINGTON TWP	MORRIS	12/5/1976	13:00	40.800	74.800	0.00	3.1	Near Ridgedale, NJ	The shock felt widely.	LCSN, NEIC, Stover, NESN
35	716477	409073	Hackettstown, NJ	WASHINGTON TWP	MORRIS	12/5/1976	13:00	40.800	74.800	0.00	0.0	Ridgefield, NJ		SR
36	705513	420115	Hackettstown, NJ	WASHINGTON TWP	MORRIS	12/5/1976	16:32	40.770	74.760	3.40	1.8	Schooley's Mountain, NJ	1 aftershock 12/07/1976. Location changed.	NESN, Sykes & others
37	424978	548152	Lakehurst, NJ	MANCHESTER TWP	OCEAN	1/21/1977	20:50	40.000	74.300	6.00	2.7	Lakehurst, NJ		LCSN, NESN
38	680145	383996	High Bridge, NJ	LEBANON TWP	HUNTERDON	6/10/1977	12:48	40.700	74.890	6.00	1.1	High Bridge, NJ	Location changed.	LCSN, NESN, Sykes & others
39	680158	381223	High Bridge, NJ	LEBANON TWP	HUNTERDON	7/2/1977	11:13	40.700	74.900	7.30	2.3	Hampton, NJ		NESN
40	825644	464566	Franklin, NJ	FRANKLIN BORO	SUSSEX	10/27/1977	9:22	41.100	74.600	6.00	1.5	Sparta, NJ		LCSN
41	789339	574927	Ramsey, NJ-NY	FRANKLIN LAKES BORO	BERGEN	11/27/1977	13:57	41.000	74.200	5.00	1.8	Oakland, NJ		LCSN
42	716477	409073	Hackettstown, NJ	WASHINGTON TWP	MORRIS	12/23/1977	4:55	40.800	74.800	0.00	2.3	Schooley's Mountain, NJ	5 foreshocks 12/4 to 12/8 and 5 aftershocks 12/2	NESN
43	752781	519767	Boonton, NJ	BOONTON TOWN	MORRIS	2/15/1978	5:28	40.900	74.400	6.00	1.6	Boonton, NJ		LCSN, NESN
44	607300	603358	The Narrows, NY	MIDDLETOWN TWP	MONMOUTH	4/3/1978	23:57	40.500	74.100	0.00	2.0	Off Sandy Hook		NESN
45	789200	547326	Wanaque, NJ	RIVERDALE BORO	MORRIS	5/18/1978	1:29	41.000	74.300	6.00	1.5	Bloomfield, NJ		NESN
46	789212	464524	Franklin, NJ	JEFFERSON TWP	MORRIS	4/16/1978	4:49	41.000	74.400	0.00	0.0	Sparta, NJ		NESN
47	818484	574827	Ramsey, NJ-NY	MAHWAH TWP	BERGEN	6/30/1978	20:13	41.080	74.200	5.00	2.9	Mahwah-Oakland, NJ	1 aftershock on same day. Location changed.	NESN, Sykes & others
48	541569	559043	Freehold, NJ	MARLBORO TWP	MONMOUTH	1/30/1979	16:30	40.320	74.260	5.00	3.5	Cheesequake, NJ	Location changed.	NESN, Sykes and others
49	716398	436757	Chester, NJ	CHESTER TWP	MORRIS	2/21/1979	2:26	40.800	74.700	0.00	1.9	Chester, NJ		NESN
50	716487	406305	Chester, NJ	WASHINGTON TWP	MORRIS	2/23/1979	10:23	40.800	74.810	13.00	2.9	Chester, NJ		NEIC
51	679905	492125	Bernardsville, NJ	LONG HILL TWP	MORRIS	3/10/1979	4:49	40.700	74.500	3.00	3.1	Bernardsville, NJ		LCSN
52	778694	348537	Portland, NJ-Pa	BLAIRSTOWN TWP	WARREN	3/25/1980	18:54	40.970	75.020	5.00	2.8	Hainesburg, NJ		LCSN, NESN
53	363312	618498	Barneget Light, NJ	BERKELEY TWP	OCEAN	4/5/1980	11:49	39.830	74.050	6.20	2.9	S. of Seaside, NJ		NESN
54	581741	589555	Keyport, NJ-NY	HAZLET TWP	MONMOUTH	8/2/1980	17:21	40.430	74.150	7.60	2.8	Keyport, NJ		NESN
55	366839	391041	Medford Lakes, NJ	MEDFORD TWP	BURLINGTON	8/30/1980	9:19	39.840	74.860	2.00	3.0	Medford Lakes, NJ		NESN, NEIC
56	767369	530801	Pompton Plains, NJ	MONTVILLE TWP	MORRIS	3/19/1981	8:51	40.940	74.360	9.60	2.0	Boonton, NJ		NESN
57	825770	574802	Ramsey, NJ-NY	MAHWAH TWP	MORRIS	5/18/1981	7:22	41.100	74.200	8.70	2.1	Ramsey, NJ		NESN
58	814711	467311	Franklin, NJ	ODDENSBERG BORO	SUSSEX	8/21/1981	5:04	41.070	74.590	8.50	1.8	Denville, NJ		NESN
59	443289	402547	Bristol, Pa-NJ	BURLINGTON TWP	BURLINGTON	4/12/1982	22:14	40.050	74.820	7.30	2.4	Mount Olive, NJ		NEIC, NESN
60	403299	601473	Seaside Park, NJ	DOVER TWP	OCEAN	7/29/1982	4:37	39.940	74.110	10.00	2.4	Seaside Heights, NJ		NESN
61	832945	453554	Newton East, NJ	LAFAYETTE TWP	SUSSEX	9/16/1982	6:36	41.120	74.640	0.50	1.6	Franklin, NJ		NESN
62	661806	417211	Califon, NJ	READINGTON TWP	HUNTERDON	2/19/1983	5:45	40.650	74.770	6.10	2.7	Oldwick, NJ		NESN
63	741838	483829	Mendham, NJ	RANDOLPH TWP	MORRIS	6/1/1983	9:50	40.870	74.530	5.10	1.5	Dover, NJ		NESN
64	727708	638784	Central Park, NY-NJ	EDGEWATER BORO	BERGEN	9/6/1983	10:44	40.830	73.970	7.10	1.5	Fort Lee, NJ		NESN
65	840316	566489	Sloatsburg, NY-NJ	RINGWOOD BORO	PASSAIC	9/15/1983	23:17	41.140	74.230	9.10	1.5	Ringwood, NJ		NESN
66	523741	645591	Long Branch, NJ	LONG BRANCH CITY	OCEAN	3/12/1984	6:34	40.270	73.950	10.00	2.0	Asbury Park, NJ		NESN
67	760054	481071	Dover, NJ	ROCKAWAY TWP	MORRIS	5/13/1984	3:18	40.920	74.540	5.60	2.1	Mount Hope, NJ		NESN
68	792852	516962	Newfoundland, NJ	KINNELON BORO	MORRIS	6/3/1984	7:04	41.010	74.410	0.20	1.3	Kinnelon, NJ		NESN
69	709650	547326	Morristown, NJ	MORRIS TWP	MORRIS	6/8/1984	17:48	40.770	74.480	10.00	1.7	Near Morristown, NJ		NESN
70	752835	434076	Stanhope, NJ	STANHOPE BORO	SUSSEX	8/20/1984	1:03	40.900	74.710	5.70	1.7	Mount Olive, NJ		SR
71	760135	428567	Stanhope, NJ	BYRAM TWP	SUSSEX	8/12/1984	21:03	40.920	74.730	3.10	2.4	Byram, NJ		NESN
72	756485	431321	Stanhope, NJ	MOUNT OLIVE TWP	MORRIS	8/12/1984	21:12	40.910	74.720	4.66	2.1	Byram, NJ		NESN
73	749186	436832	Stanhope, NJ	ROXBURY TWP	MORRIS	10/25/1984	7:18	40.890	74.700	7.10	2.0	Near Mt. Olive, NJ		NESN
74	763778	428576	Stanhope, NJ	BYRAM TWP	SUSSEX									

197	792988	535313 Wanaque, NJ	BLOOMINGDALE BORO	PASSAIC	8/9/2016	2:33:00	41.010	74.344	1.62	0.5 1 km N of Butler, NJ	LCSN
198	814721	560006 Wanaque, NJ	RINGWOOD BORO	PASSAIC	9/20/2016	3:04:04	41.070	74.254	7.90	0.6 5 km NE of Wanaque, NJ	LCSN
199	376174	316610 Woodbury, NJ	WESTVILLE BORO	GLOUCESTER	11/6/2016	10:11:15	39.865	75.125	5.00	1.5 2.6 km W of Bellmawr, NJ	LCSN
200	585963	686872 Atlantic Ocean	MIDDLETOWN TWP	MONMOUTH	11/6/2016	12:15:02	40.440	73.800	4.48	2.0 16.3 km E of Highlands, NJ	LCSN
201	728649	496864 Morristown, NJ	MORRIS PLAINS BORO	MORRIS	3/25/2017	17:44:50	40.8338	74.4828	6.03	1.31 1.4 km S Morristown, NJ	LCSN
202	715862	489305 Mendham, NJ	MORRIS TWP	MORRIS	9/25/2017	22:35:07	40.7987	74.5138	5.00	1.71 3.7 km SW of Morris Plains, NJ	LCSN
203	719723	489495 Mendham, NJ	MORRIS TWP	MORRIS	9/30/2017	12:05:54	40.8093	74.5095	11.50	0.98 2.7 km SW of Morris Plains, NJ	LCSN
204	596569	589774 Keyport, NJ-NY	KEANSBURG BORO	MONMOUTH	11/8/2017	13:33:44	40.471	74.149	4.34	1.38 3.5 km NW of Keansburg, NJ	LCSN
205	350819	455235 Indian Mills, NJ	TABERNACLE TWP	BURLINGTON	6/21/2018	0:28:38	39.797	74.631	12.00	1.65 23.0 km NE of Hammonton, NJ	LCSN
206	317853	456958 Atison, NJ	WASHINGTON TWP	BURLINGTON	9/17/2018	10:21:38	39.706	74.625	5.00	1.2 17.1 km NE of Hammonton, NJ	LCSN
207	581949	686152 Atlantic Ocean	MIDDLETOWN TWP	MONMOUTH	11/15/2018	8:23:43	40.429	-73.803	5.00	1.4 21.3 km NE of Long Branch, NJ	LCSN

Earthquakes Epicentered In New Jersey, DGS 04-1, Edition 20181115

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification_Information:

Citation:

Citation_Information:

Originator:

New Jersey Department of Environmental Protection NJDEP, New Jersey Geological Survey NJGS

Publication_Date: 20041217

Title:

Earthquakes Epicentered In New Jersey, DGS 04-1, Edition 20181115

Edition: 20181115

Geospatial_Data_Presentation_Form: Vector Digital Data Set (Point)

Series_Information:

Series_Name: Digital Geodata Series

Issue_Identification: DGS04-1

Publication_Information:

Publication_Place: Trenton, New Jersey

Publisher: New Jersey Geological Survey

Online_Linkage: <<http://www.state.nj.us/dep/njgs/geodata/dgs04-1.htm>>

Description:

Abstract:

The New Jersey Geological Survey Digital Geodata Series DGS04-1 dataset shows earthquakes that had epicenters in New Jersey. This data has 207 earthquakes with epicenters in New Jersey. Most are minor with magnitudes ranging from 0.4 to 5.3 and depths up to 25 km below sea level. Earthquakes with magnitude of 0 (zero) implies that the magnitude is unknown.

Following earthquake added since Nov. 15, 2018 version:

1) 21.3 km NE of Long Branch, NJ on 11-15-2018, 03:23:43 (EST), Magnitude 1.4, Depth 5.00 km.

Purpose:

To provide information on earthquakes which had epicenters in New Jersey.

Supplemental_Information:

Various Data Sources and References:

- Coffman, J. L. and von Hake, C. A., ed., 1973, Earthquake history of the United States: U. S. Department of Commerce, National Oceanic and Atmospheric Administration Publication 41-1, Revised edition (through 1970).
- Dombroski, D. R., 1992, Catalog of NJ Earthquakes Through 1990: N.J. Geological Survey, Geological Survey Report 31, 16p.
- Eppley, R. A., ed., 1965, Earthquake history of the United States: U.S. Department of Commerce, Coast and Geodetic Survey Publication 41-1 Revised (through 1963).
- Richter, C.F., 1935, An instrumental earthquake magnitude scale: Seismological Society of America Bulletin, v. 25 p.1-32.
- Smith, W.E.T., 1962, Earthquakes of eastern Canada and adjacent areas, 1534-1927: Publication of the Dominion Observatory, Ottawa, v.24, no. 5.
- Smith, W.E.T., 1966, Earthquakes of eastern Canada and adjacent areas, 1928-1959: Publication of the Dominion Observatory, Ottawa, v.32, no. 3.
- Sykes, Lynn R., John Ambruster, Won-Young Kim , Leonardo Seeber and Klaus Jacob, Appendices to paper Earthquakes in the Greater NY City-Philadelphia Area: 1677-2004. (<http://www.ldeo.columbia.edu/~sykes/pages/EqCatNYC-Phil.html>)
- Stover, C.W., and Coffman, J.L., 1993, Seismicity of the United States, 1568-1989 (Revised) U.S. Geological Survey Professional Paper 1527.
- Stover, C.W., Reagor, G., and Algermissen, S.T., 1984, United States earthquake data file: U.S. Geological Survey, Open-file Report 84-225, 123p.
- Wood, H. O., and Neumann, Frank, 1931, Modified Mercalli scale of 1931: Seismological Society of America Bulletin, v.21 no. 4, p. 277-283.
- LCSN - Lamont Doherty Cooperative Seismographic Network. (<http://www.ldeo.columbia.edu/LCSN/>)
- NEIC- National Earthquake Information Center. (<http://earthquake.usgs.gov/regional/neic/index.php>)
- NESN - New England Seismic Network. Weston Observatory. (<http://www.bc.edu/research/westonobservatory/>)
- PDE (Preliminary Determination of Epicenters) -USGS/NEIC PDE Monthly list. (<ftp://hazards.cr.usgs.gov/pde/manuscript/>)

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 20181115

Currentness_Reference: Publication date

Status:

Progress: In work

Maintenance_and_Update_Frequency: As needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -75.546016802

East_Bounding_Coordinate: -73.791860951

North_Bounding_Coordinate: 41.239949622

South_Bounding_Coordinate: 39.195749044

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: Earthquake

Theme_Keyword: Magnitude

Theme_Keyword: Depth

Theme_Keyword: Epicenter
Theme_Keyword: Foreshock
Theme_Keyword: Aftershock
Theme_Keyword: Fault
Theme_Keyword: Seismic
Theme_Keyword: Seismograph
Theme_Keyword: Intensity
Theme_Keyword: Seismological
Theme_Keyword: Seismicity

Theme:

Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: geoscientificInformation

Place:

Place_Keyword_Thesaurus: USGS Place Names Gazetteer
Place_Keyword: New Jersey
Place_Keyword: State of New Jersey

Stratum:

Stratum_Keyword_Thesaurus: none
Stratum_Keyword: Underground

Access_Constraints: None

Use_Constraints:

New Jersey Department of Environmental Protection (NJDEP) Data Distribution Agreement
The data provided herein are distributed subject to the following conditions and restrictions:
NJDEP assumes no responsibility to maintain them in any manner or form and disclaims any duty or obligation to either maintain availability of or to update the data.

Terms of Agreement

1. All data is provided, as is, without any representation or warranty of any kind, implied, expressed or statutory including, but not limited to, the warranties of non-infringement of third party rights, title, merchantability or fitness for a particular use, freedom from computer virus nor are any such warranties to be implied with respect to the digital data layers furnished hereunder. User is responsible for understanding the accuracy limitations of all digital data layers provided herein, as documented in the accompanying cross-reference files (see SUPPLEMENTAL INFORMATION). Any reproduction or manipulation of the above data must ensure that the coordinate reference system remains intact.
2. Digital data received from the NJDEP may not be reproduced or redistributed without all the metadata provided.
3. Any maps, publications, reports, or other documents produced as a result of this project that utilize this digital data will credit the NJDEP's Geographic Information System (GIS) as the source of the data with the following credit/disclaimer: "This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized or endorsed."
4. NJDEP makes no warranty that digital data are free of Copyright or Trademark claims or other restrictions or limitations on free use or display. Making a copy of this data may be subject to the copyright of trademark laws.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:
Contact_Person: Ronald Pristas
Contact_Organization:

New Jersey Department of Environmental Protection, New Jersey Geological

Survey

Contact_Position: Geographic Information Specialist

Contact_Address:

Address_Type: mailing and physical address

Address: 29 Arctic Parkway P.O. Box 420, Mail Code: 29-01

City: Trenton

State_or_Province: New Jersey

Postal_Code: 08625-420

Contact_Voice_Telephone: (609) 292-1185

Contact_Facsimile_Telephone: (609) 633-1004

Contact_Electronic_Mail_Address: ron.pristas@dep.nj.gov

Browse_Graphic:

Browse_Graphic_File_Name: <<http://www.state.nj.us/dep/njgs/geodata/dgs04-1.htm#image>>

Browse_Graphic_File_Description: image

Browse_Graphic_File_Type: JPEG

Security_Information:

Security_Classification_System: none

Security_Classification: Unclassified

Security_Handling_Description: none

Native_Data_Set_Environment:

Environment as of Metadata Creation: Microsoft [Unknown] Version 6.2 (Build 9200) ; Esri ArcGIS 10.4 (Build 5524) Service Pack N/A (Build N/A)

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: unknown

Logical_Consistency_Report: unknown

Completeness_Report:

Some earthquake locations were in Latitude and Longitude degrees and minutes, rounded to the nearest minute and converted to decimal degrees. Others were in decimal degree and they were converted to NJ State Plane coordinate system. Earthquakes with magnitude of 0 (zero) implies that the magnitude is unknown.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

Instrumental epicenter accuracy is estimated to be within 0.0 degrees to 0.5 degrees and non-instrumental accuracy ranges from 0 degrees to 2.0 degrees (Stover, 1984 and NEIC).

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:

A formal accuracy assessment of the vertical positional information in the data set has either not been conducted, or is not applicable.

Lineage:

Process_Step:

Process_Description:

Data on earthquake epicenters were gathered from the regional seismic network at Lamont Doherty Observatory, Bulletins of the Northeast Seismic Network, New England Seismic Network, information from the U.S. Geological Survey and other books and reports. A table was created with this information in Microsoft Excel software. The tabular information was then imported into ESRI ArcMap software

and converted into a shapefile.

Most of the earthquakes in this database were recorded with seismic equipment. The older earthquakes, included were not recorded by seismic equipment but were documented by NEIC, and the USGS. Instrumental epicenter accuracy is estimated to be within 0.0 degrees to 0.5 degrees and non-instrumental accuracy ranges from 0 degrees to 2.0 degrees (Stover, 1984 and NEIC). Earthquakes with magnitude of 0 (zero) implies that the magnitude is unknown.

Process_Date: 20040322

Process_Step:

Process_Description:

Following earthquake added since July 13, 2015 version:

1) 3.5 km N of Bernardsville, NJ on 08-14-2015, 03:41 (EDT), Magnitude 2.7, Depth 3.5 km.

Process_Date: 20150814

Process_Step:

Process_Description:

Following earthquake added since Aug 14, 2015 version:

1) 5 km WNW of Fairfield, NJ on 08-24-2015, 03:17 (EDT), Magnitude 1.4, Depth 8 km.

Process_Date: 20150824

Process_Step:

Process_Description:

Following earthquake added since Jan 4, 2016 version:

1) 1.1 km NW of Butler, NJ on 02-18-2016, 20:17 (EST), Magnitude 1.1, Depth 4.11 km.

Process_Date: 20160219

Process_Step:

Process_Description:

Following earthquake added since Feb 19, 2016 version:

1) 1 km NW of Butler, NJ on 07-4-2016, 00:06:49 (EDT), Magnitude 1.1, Depth 2 km.

Process_Date: 20160705

Process_Step:

Process_Description:

Following earthquake added since July 5, 2016 version:

1) 4.4 km NW of Butler, NJ on 05-27-2016, 12:48:43 (EDT), Magnitude 0.8, Depth 2.9 km.

2) 2.2 km SW of Clifton, NJ on 07-30-2016, 20:34:45 (EDT), Magnitude 0.8, Depth 4.7 km.

Process_Date: 20160801

Process_Step:

Process_Description:

The following earthquakes added since Aug. 1, 2016 version:

1) 2 km N of Wanaque, NJ on 08-8-2016, 22:01:45 (EDT), Magnitude 1.0, Depth 5.61 km.

2) 1 km N of Butler, NJ on 08-8-2016, 22:33:00 (EDT), Magnitude 0.54, Depth 1.62 km.

Process_Date: 20160809

Process_Step:

Process_Description:

Following earthquake added since Aug. 9, 2016 version:

1) 5 km NE of Wanaque, NJ on 09-19-2016, 23:04:04 (EDT), Magnitude 0.6, Depth 7.91 km.

Process_Date: 20160921

Process_Step:

Process_Description:

Following earthquakes added since Sep. 20, 2016 version:

- 1) 2.6 km W of Bellmawr, NJ on 11-06-2016, 05:11:15 (EST), Magnitude 1.46, Depth 5 km.
- 2) 16.3 km E of Highlands, NJ on 11-06-2016, 07:15:02 (EST), Magnitude 1.98, Depth 4.48 km.

Process_Date: 20161107

Process_Step:

Process_Description:

Following earthquake added since Nov. 7, 2016 version:

- 1) 1.4 km S of Morris Plains, NJ on 3-25-2017, 13:14:50 (EDT), Magnitude 1.31, Depth 6.03 km.

Process_Date: 20170327

Process_Step:

Process_Description:

Following earthquake added since Mar. 27, 2017 version:

- 1) 3.7 km SW of Morris Plains, NJ on 9-25-2017, 18:35:07 (EDT), Magnitude 1.71, Depth 5 km.

Process_Date: 20170926

Process_Step:

Process_Description:

Following earthquake added since Sept. 26, 2017 version:

- 1) 2.7 km SW of Morris Plains, NJ on 9-30-2017, 08:05:54 (EDT), Magnitude 0.98, Depth 11.5 km.

Process_Date: 20171002

Process_Step:

Process_Description:

Following earthquake added since Oct. 2, 2017 version:

- 1) 3.5 km NW of Keansburg, NJ on 11-08-2017, 08:33:44 (EST), Magnitude 1.38, Depth 4.34 km.

Process_Date: 20171108

Process_Step:

Process_Description:

Following earthquake added since Nov. 8, 2017 version:

- 1) 23.0 km NE of Hammonton, NJ on 06-21-2018, 00:28:38 (EST), Magnitude 1.65, Depth 12 km.

Process_Date: 20180621

Process_Step:

Process_Description:

Following earthquake added since Jun. 21, 2018 version:

- 1) 17.1 km NE of Hammonton, NJ on 09-17-2018, 10:21:38 (EST), Magnitude 1.2, Depth 5 km.

Process_Date: 20180917

Process_Step:

Process_Description:

Following earthquake added since Sept. 17, 2018 version: 1) 21.3 km NE of Long Branch, NJ on 11-15-2018, 03:23:43 (EST), Magnitude 1.4, Depth 5 km.

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Point

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Point

Point_and_Vector_Object_Count: 207

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: [Unknown]

Ordinate_Resolution: [Unknown]

Planar_Distance_Units: Foot_US

Geodetic_Model:

Horizontal_Datum_Name: D_North_American_1983

Ellipsoid_Name: GRS_1980

Semi-major_Axis: 6378137.0

Denominator_of_Flattening_Ratio: 298.257222101

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Attribute Table

Entity_Type_Definition:

Table containing attribute information associated with the data set.

Entity_Type_Definition_Source: Producer defined

Attribute:

Attribute_Label: FID

Attribute_Definition: Internal feature number.

Attribute_Definition_Source: Esri

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition: Feature geometry.

Attribute_Definition_Source: Esri

Attribute_Domain_Values:

Unrepresentable_Domain: Coordinates defining the features.

Attribute:

Attribute_Label: ID

Attribute_Definition: Unique ID for each earthquake.

Attribute_Definition_Source: New Jersey Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: NORTHING

Attribute_Definition: In NJ State Plane feet.

Attribute_Definition_Source: New Jersey Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: EASTING

Attribute_Definition: In NJ State Plane feet.

Attribute_Definition_Source: New Jersey Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: QUAD

Attribute_Definition:

USGS 7.5 minute quadrangle the earthquake epicenter was located.

Attribute_Definition_Source: New Jersey Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: unique input

Attribute:

Attribute_Label: MUN

Attribute_Definition: Municipality

Attribute_Definition_Source: New Jersey Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: unique input

Attribute:

Attribute_Label: COUNTY

Attribute_Definition: County

Attribute_Definition_Source: New Jersey Geological Survey

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: DATE

Attribute_Definition: Unknown

Attribute_Definition_Source: Producer defined

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: TIME

Attribute_Definition:

Time earthquake was recorded in UTC or GMT (-5 hours for EST, -4 for EDT)

Attribute_Definition_Source: NJDEP/NJGS

Attribute_Domain_Values:

Unrepresentable_Domain: unique input

Attribute:

Attribute_Label: LAT_N

Attribute_Definition: Latitude of the earthquake in decimal degrees.

Attribute_Definition_Source: NJDEP/NJGS

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: LON_W

Attribute_Definition: Longitude of the earthquake in decimal degrees.

Attribute_Definition_Source: NJDEP/NJGS

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: DEPTH_KM

Attribute_Definition: Depth of the earthquake in kilometers.

Attribute_Definition_Source: NJDEP/NJGS

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: MAGNITUDES

Attribute_Definition:

Magnitude is a logarithmic measure of the size of the earthquake related to the energy released as seismic waves at the focus of an earthquake.

Attribute_Definition_Source: USGS

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: LOCATION

Attribute_Definition: Location of the earthquake.

Attribute_Definition_Source: NJDEP/NJGS

Attribute_Domain_Values:

Unrepresentable_Domain: unique input

Attribute:

Attribute_Label: COMMENTS

Attribute_Definition: Information about the earthquake if available.

Attribute_Definition_Source: NJDEP/NJGS

Attribute_Domain_Values:

Unrepresentable_Domain: Unique input

Attribute:

Attribute_Label: DATA_SOURC

Attribute_Definition: Source of the data.

Attribute_Definition_Source: NJDEP/NJGS

Attribute_Domain_Values:

Unrepresentable_Domain:

Source of the data. See "Supplemental Information" for definitions

Overview_Description:

Entity_and_Attribute_Overview:

The entity and attribute information provided here describes the tabular data associated with the data set. Please review the detailed descriptions that are provided (the individual attribute descriptions) for information on the values that appear as fields/table entries of the data set.

Entity_and_Attribute_Detail_Citation:

The entity and attribute information was generated by the individual and/or agency identified as the originator of the data set. Please review the rest of the metadata record for additional details and information.

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Organization:

New Jersey Department of Environmental Protection, New Jersey Geological Survey

Contact_Position: Webmaster

Contact_Address:

Address_Type: mailing and physical address

Address: 29 Arctic Parkway, P.O. Box 420, Mail Code: 29-01

City: Trenton

State_or_Province: New Jersey

Postal_Code: 08625-420

Contact_Voice_Telephone: (609) 292-1185

Contact_Facsimile_Telephone: (609) 633-1004

Contact_Electronic_Mail_Address: njgsweb@dep.nj.gov

Resource_Description: Downloadable Data

Distribution_Liability:

This organization provides the geographic data as is. This organization makes no guarantee or warranty concerning the accuracy of information contained in the geographic data. Also, this organization makes no warranty either expressed or implied, regarding the condition of the product or its fitness for any particular purpose. The burden for determining fitness for use lies entirely with the user. Although these files have been processed successfully on computers at this organization, no warranty is made by this organization regarding the use of these data on any other system, nor does the fact of distribution constitute or imply any such warranty.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: Vector Digital Data Set (Point)

Format_Version_Number: 9x

File-Decompression_Technique: WinZip

Transfer_Size: 0.004

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: <<http://www.state.nj.us/dep/njgs/geodata/dgs04-1.htm>>

Offline_Option:

Offline_Media: none

Recording_Format: none

Fees: None

Ordering_Instructions:

Available by downloading from New Jersey Geological Survey website.

Technical_Prerequisites:

Internet access and web browser for viewing in internet mapping applications and software capable of viewing ESRI shapefiles for the downloadable shapefile.

Available_Time_Period:

Time_Period_Information:

Single_Date/Time:

Metadata_Reference_Information:

Metadata_Date: 20180621

Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Ronald Pristas

Contact_Organization:

New Jersey Department of Environmental Protection (NJDEP), New Jersey
Geological Survey (NJGS)

Contact_Position: Geographic Information Systems Specialist 1

Contact_Address:

Address_Type: mailing and physical address

Address: 29 Arctic Parkway P.O box 420, Mail Code: 29-01

City: Trenton

State_or_Province: New Jersey

Postal_Code: 08625-420

Contact_Voice_Telephone: (609) 984-6587

Contact_Facsimile_Telephone: (609) 633-1004

Contact_Electronic_Mail_Address: ron.pristas@dep.nj.gov

Metadata_Standard_Name: FGDC Content Standard for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Access_Constraints: None

Metadata_Use_Constraints: None

Metadata_Security_Information:

Metadata_Security_Classification_System: none

Metadata_Security_Classification: Unclassified

Metadata_Security_Handling_Description: none