



Earthquake Epicenters of West Virginia

1824 through 2016

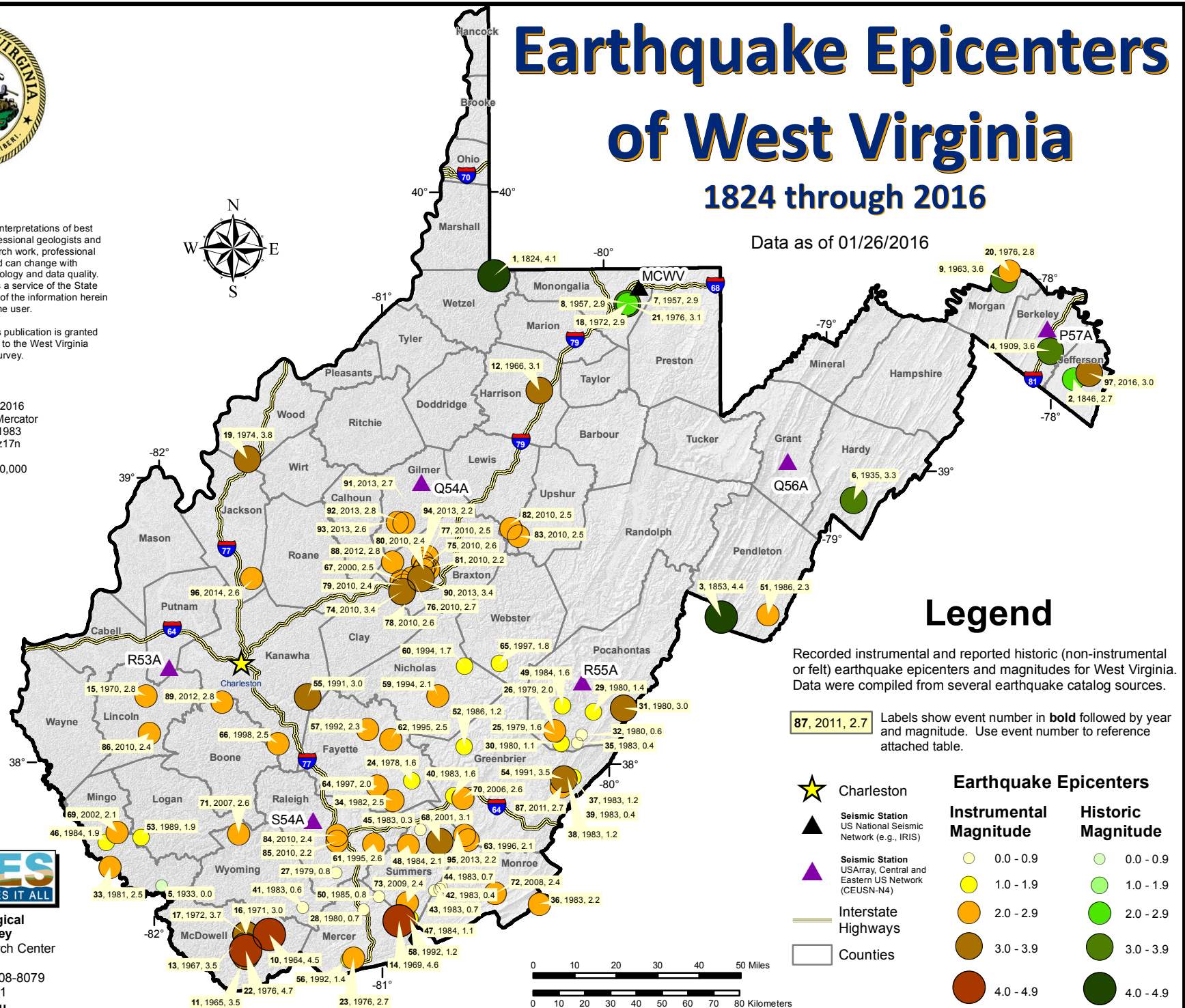
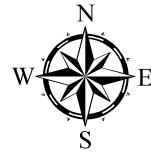
Data as of 01/26/2016

Publications Policy:

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Map Date: January 26, 2016
Projection: Transverse Mercator
Horizontal Datum: NAD 1983
Coordinate System: UTMz17n
Map scale for full
8.5" x 11" display: 1:2,000,000



Event Num	WVQID	County	UTC Year	UTC Month	UTC Day	UTC HH	UTC MM	UTC SS	Latitude (N)	Longitude (W)	Magnitude	Recorded	MMI	Magnitude Type	Source 1	Source 2	USGS Link
1	18240715160	Wood	1824	7	15	16	20	0.00	39.70000	-80.50000	4.1	Historic	4.0	Mb	VTSO	NCEER	
2	18461019020	Jefferson	1846	10	19	2	0	0.00	39.30000	-77.90000	2.7	Historic	3.0	<NULL>	VTSO	<NULL>	
3	18530502140	Pendleton	1853	5	2	14	20	0.00	38.50000	-79.50000	4.4	Historic	5.5	<NULL>	NCEER	Wheeler I-2737	
4	19090402070	Berkeley	1909	4	2	7	25	0.00	39.40000	-78.00000	3.6	Historic	5.0	Mb	VTSO	Wheeler I-2737	
5	19330615010	Mingo	1933	6	15	1	14	36.80	37.56800	-81.97300	0.0	Historic	0.0	<NULL>	VTSO	<NULL>	
6	19351101080	Hardy	1935	11	1	8	30	0.00	38.90000	-78.90000	3.3	Historic	4.0	<NULL>	VTSO	NCEER	
7	19570307210	Monongalia	1957	3	7	21	5	9.00	39.60000	-79.90000	2.9	Historic	3.0	Mb	VTSO	<NULL>	
8	19570313210	Monongalia	1957	3	13	21	0	41.00	39.60000	-79.90000	2.9	Historic	3.0	Mb	VTSO	<NULL>	
9	19631010000	Morgan	1963	10	10	0	0	0.00	39.65500	-78.19700	3.6	Historic	0.0	<NULL>	Wheeler I-2737	<NULL>	
10	19641125020	McDowell	1964	11	25	2	50	5.00	37.40000	-81.50000	4.5	Instrumental	0.0	Mb	ANSS	<NULL>	
11	19650426150	McDowell	1965	4	26	15	26	19.70	37.32500	-81.60200	3.5	Instrumental	0.0	MbLg	VTSO	NCEER	
12	19660928000	Harrison	1966	9	28	0	0	0.00	39.30000	-80.30000	3.1	Instrumental	4.0	<NULL>	NCEER	<NULL>	
13	19671216120	McDowell	1967	12	16	12	23	33.40	37.36000	-81.60400	3.5	Instrumental	0.0	Mb	VTSO	NCEER	
14	19691120010	Mercer	1969	11	20	1	0	9.30	37.44900	-80.93200	4.6	Instrumental	6.0	MbLg	VTSO	NCEER	
15	19700811060	Lincoln	1970	8	11	6	14	25.50	38.23000	-82.05000	2.8	Instrumental	4.0	MbLg	VTSO	NCEER	
16	19710401050	McDowell	1971	4	1	5	5	11.00	37.40000	-81.60000	3.0	Instrumental	0.0	Mb	NCEER	ANSS	
17	19720109230	McDowell	1972	1	9	23	24	29.00	37.40000	-81.60000	3.7	Instrumental	0.0	MbLg	NCEER	ANSS	
18	19720912150	Monongalia	1972	9	12	15	17	13.70	39.60000	-79.90000	2.9	Historic	3.0	Mb	VTSO	NCEER	
19	19741020150	Wood	1974	10	20	15	13	55.60	39.06000	-81.60900	3.8	Instrumental	5.0	Mb	VTSO	NCEER	Further Info
20	19760130180	Morgan	1976	1	30	18	58	49.80	39.68300	-78.17000	2.8	Instrumental	0.0	Lg	USGS	ANSS	Further Info
21	19760506180	Monongalia	1976	5	6	18	46	8.10	39.60000	-79.90000	3.1	Historic	4.0	Mb	VTSO	NCEER	
22	19760619050	McDowell	1976	6	19	5	54	13.40	37.34400	-81.60200	4.7	Instrumental	5.0	Mb	VTSO	NCEER	Further Info
23	19760703200	Mercer	1976	7	3	20	53	45.80	37.32000	-81.13000	2.7	Instrumental	0.0	MbLg	VTSO	<NULL>	
24	19780814040	Fayette	1978	8	14	4	50	5.40	37.93900	-80.87400	1.6	Instrumental	0.0	Mc	VTSO	ANSS	
25	19790916090	Pocahontas	1979	9	16	9	39	22.60	38.09900	-80.24000	1.6	Instrumental	0.0	Mc	ANSS	<NULL>	
26	19790919000	Pocahontas	1979	9	19	0	45	57.40	38.11000	-80.24300	2.0	Instrumental	0.0	Mc	ANSS	<NULL>	
27	19791031080	Raleigh	1979	10	31	8	32	47.30	37.61700	-81.20700	0.8	Instrumental	0.0	Mc	ANSS	<NULL>	
28	19800410220	Mercer	1980	4	10	22	33	15.70	37.48700	-81.08600	0.7	Instrumental	0.0	Mc	VTSO	ANSS	
29	19800921100	Pocahontas	1980	9	21	10	2	46.30	38.17500	-80.07000	1.4	Instrumental	0.0	Mc	VTSO	ANSS	
30	19801016030	Pocahontas	1980	10	16	3	48	7.60	38.06600	-80.21500	1.1	Instrumental	0.0	Mc	VTSO	ANSS	
31	19801105210	Pocahontas	1980	11	5	21	48	14.20	38.18800	-79.93600	3.0	Instrumental	0.0	ML	ANSS	<NULL>	
32	19801125070	Pocahontas	1980	11	25	7	44	4.00	38.09500	-80.12300	0.6	Instrumental	0.0	Md	VTSO	ANSS	
33	19811130170	Mingo	1981	11	30	17	33	11.00	37.63000	-82.20000	2.5	Instrumental	0.0	Mc	VTSO	ANSS	
34	19820623160	Fayette	1982	6	23	16	17	34.10	37.87000	-80.95700	2.5	Instrumental	0.0	Md	VTSO	ANSS	
35	19830121050	Pocahontas	1983	1	21	5	33	20.40	38.06700	-80.14400	0.4	Instrumental	0.0	Md	VTSO	ANSS	
36	19830526010	Monroe	1983	5	26	1	4	44.80	37.50600	-80.31600	2.2	Instrumental	0.0	Md	VTSO	ANSS	
37	19830610000	Greenbrier	1983	6	10	0	18	40.40	37.94800	-80.16300	1.2	Instrumental	0.0	Md	VTSO	ANSS	
38	19830610001	Greenbrier	1983	6	10	0	24	57.00	37.95100	-80.18900	1.2	Instrumental	0.0	Md	VTSO	ANSS	
39	19830610002	Greenbrier	1983	6	10	0	31	8.30	37.93800	-80.16800	0.4	Instrumental	0.0	Md	VTSO	ANSS	
40	19830720040	Greenbrier	1983	7	20	4	41	40.90	37.88500	-80.69100	1.6	Instrumental	0.0	Md	VTSO	ANSS	
41	19830725030	Wyoming	1983	7	25	3	27	0.20	37.49600	-81.35200	0.6	Instrumental	0.0	Md	VTSO	ANSS	
42	19831113160	Summers	1983	11	13	16	51	6.70	37.55600	-80.77500	0.4	Instrumental	0.0	Md	VTSO	ANSS	
43	19831113170	Monroe	1983	11	13	17	50	50.10	37.55900	-80.75300	0.7	Instrumental	0.0	Md	VTSO	ANSS	
44	19831125160	Monroe	1983	11	25	16	27	47.80	37.56800	-80.74500	0.7	Instrumental	0.0	Md	VTSO	<NULL>	
45	19831223100	Summers	1983	12	23	10	51	21.90	37.76600	-80.83700	0.3	Instrumental	0.0	Md	VTSO	ANSS	
46	19840202050	Mingo	1984	2	2	5	10	19.70	37.71700	-82.21800	1.9	Instrumental	0.0	Md	VTSO	ANSS	
47	19840311040	Summers	1984	3	11	4	1	38.90	37.47400	-80.90000	1.1	Instrumental	0.0	Md	VTSO	ANSS	
48	19841009050	Summers	1984	10	9	5	33	31.50	37.71300	-80.89100	2.1	Instrumental	0.0	Md	VTSO	ANSS	
49	19841221130	Pocahontas	1984	12	21	13	12	21.90	38.19800	-80.20800	1.6	Instrumental	0.0	Md	VTSO	ANSS	
50	19850614070	Mercer	1985	6	14	7	57	10.20	37.53400	-81.02000	0.8	Instrumental	0.0	Md	VTSO	ANSS	
51	19860226210	Pendleton	1986	2	26	21	53	20.80	38.50700	-79.29200	2.3	Instrumental	0.0	Md	VTSO	ANSS	
52	19861220080	Greenbrier	1986	12	20	8	13	12.80	38.05800	-80.64300	1.2	Instrumental	0.0	Md	VTSO	ANSS	
53	19890319100	Logan	1989	3	19	10	7	55.80	37.73500	-82.06400	1.9	Instrumental	0.0	Md	VTSO	ANSS	
54	19910422010	Greenbrier	1991	4	22	1	1	20.20	37.94200	-80.20500	3.5	Instrumental	0.0	Md	VTSO	ANSS	Further Info

Event Num	WVQID	County	UTC Year	UTC Month	UTC Day	UTC HH	UTC MM	UTC SS	Latitude (N)	Longitude (W)	Magnitude	Recorded	MMI	Magnitude Type	Source 1	Source 2	USGS Link
55	19910628180	Kanawha	1991	6	28	18	34	55.50	38.23100	-81.33500	3.0	Instrumental	0.0	Mb	VTSO	ANSS	
56	19920329200	Mercer	1992	3	29	20	16	48.20	37.31400	-81.14900	1.4	Instrumental	0.0	Md	VTSO	ANSS	
57	19920506210	Fayette	1992	5	6	21	20	23.90	38.11800	-81.06900	2.3	Instrumental	0.0	Md	VTSO	ANSS	
58	19921124020	Summers	1992	11	24	2	26	50.70	37.45700	-80.88400	1.2	Instrumental	0.0	Md	VTSO	ANSS	
59	19940204070	Nicholas	1994	2	4	7	40	32.40	38.23600	-80.75900	2.1	Instrumental	0.0	Md	VTSO	ANSS	
60	19940619080	Nicholas	1994	6	19	8	36	41.30	38.33900	-80.64000	1.7	Instrumental	0.0	Md	VTSO	ANSS	
61	19951115100	Raleigh	1995	11	15	10	29	24.80	37.71700	-81.04300	2.6	Instrumental	0.0	Md	VTSO	ANSS	
62	19951228230	Fayette	1995	12	28	23	48	30.40	38.08400	-80.96800	2.5	Instrumental	0.0	Md	VTSO	ANSS	
63	19960811090	Greenbrier	1996	8	11	9	11	21.30	37.73100	-80.62800	2.1	Instrumental	<NULL>	Mc	ANSS	<NULL>	
64	19970222140	Fayette	1997	2	22	14	32	33.10	37.92100	-81.02700	2.0	Instrumental	<NULL>	Mc	ANSS	<NULL>	
65	19970315050	Webster	1997	3	15	5	56	36.40	38.34700	-80.48400	1.8	Instrumental	0.0	Md	VTSO	ANSS	
66	19970315050	Kanawha	1998	10	2	10	1	6.90	38.06800	-81.46600	2.5	Instrumental	0.0	Md	VTSO	ANSS	
67	20001016170	Braxton	2000	10	16	17	56	13.80	38.63600	-80.92000	2.5	Instrumental	0.0	Md	VTSO	ANSS	
68	20011204210	Summers	2001	12	4	21	15	13.90	37.72600	-80.75200	3.1	Instrumental	0.0	Mb	VTSO	ANSS	
69	20020327080	Mingo	2002	3	27	8	25	3.30	37.75300	-82.17100	2.1	Instrumental	0.0	Md	VTSO	ANSS	
70	20060711120	Greenbrier	2006	7	11	12	1	43.10	37.87800	-80.64900	2.6	Instrumental	0.0	Mb	CERI	VTSO	
71	20070830120	Wyoming	2007	8	30	12	52	9.34	37.75300	-81.63600	2.6	Instrumental	0.0	Lg GS	CERI	USGS ENS	Further Info
72	20080129010	Monroe	2008	1	29	1	4	20.70	37.54480	-80.50980	2.4	Instrumental	<NULL>	Md	CERI	ANSS	
73	20090411180	Summers	2009	4	11	18	11	9.07	37.51330	-80.89570	2.4	Instrumental	<NULL>	Md	CERI	ANSS	
74	20100404090	Braxton	2010	4	4	9	19	14.01	38.59900	-80.91617	3.4	Instrumental	0.0	MbLg	CERI	USGS ENS	Further Info
75	20100129010	Braxton	2010	4	29	1	36	22.59	38.68567	-80.81483	2.6	Instrumental	0.0	MbLg	CERI	USGS ENS	Further Info
76	20100429120	Braxton	2010	4	29	12	38	53.43	38.64700	-80.87200	2.7	Instrumental	0.0	MbLg	USGS ENS	CERI	Further Info
77	20100429130	Braxton	2010	4	29	23	26	39.47	38.72200	-80.80300	2.5	Instrumental	0.0	Lg GS	CERI	USGS ENS	Further Info
78	20100507100	Braxton	2010	5	7	10	26	3.47	38.60650	-80.91317	2.6	Instrumental	0.0	MbLg	CERI	USGS ENS	Further Info
79	20100508030	Braxton	2010	5	8	3	3	0.62	38.62300	-80.91133	2.4	Instrumental	0.0	Md	CERI	USGS ENS	Further Info
80	20100724090	Braxton	2010	7	24	9	15	44.13	38.67533	-80.82017	2.4	Instrumental	0.0	Md	CERI	USGS ENS	Further Info
81	20100725030	Braxton	2010	7	25	3	48	70.00	38.67900	-80.79700	2.2	Instrumental	0.0	Md	USGS ENS	LDEO	
82	20100815040	Lewis	2010	8	15	4	38	47.38	38.81833	-80.42983	2.5	Instrumental	0.0	Md	CERI	USGS	Further Info
83	20100821030	Upshur	2010	8	21	3	16	21.99	38.79250	-80.39767	2.5	Instrumental	0.0	Md	USGS ENS	LDEO	Further Info
84	20100826040	Raleigh	2010	8	26	4	22	15.19	37.74833	-81.20467	2.4	Instrumental	0.0	Md	CERI	USGS	
85	20100826041	Raleigh	2010	8	26	4	24	55.39	37.72733	-81.20433	2.2	Instrumental	0.0	Md	CERI	USGS ENS	
86	20100913150	Lincoln	2010	9	13	15	8	46.47	38.10000	-82.03400	2.4	Instrumental	0.0	Md	CERI	ANSS	
87	20110825050	Greenbrier	2011	8	25	5	59	13.76	37.91600	-80.21533	2.7	Instrumental	4.0	Md	CERI	USGS	Further Info
88	20120111190	Braxton	2012	1	10	19	38	58.66	38.70400	-80.95900	2.8	Instrumental	4.0	unk	CERI	USGS	Further Info
89	20120316150	Boone	2012	3	16	15	5	55.00	38.21200	-81.71400	2.8	Instrumental	2.0	MbLg	CERI	USGS NEIC	Further Info
90	20130331140	Braxton	2013	3	31	14	1	24.03	38.64500	-80.83317	3.4	Instrumental	5.0	Mw	CERI	USGS NEIC	Further Info
91	20130720110	Gilmer	2013	7	20	11	38	46.18	38.89567	-80.88700	2.7	Instrumental	<NULL>	MbLg	CERI	USGS ENS	Further Info
92	20130730060	Gilmer	2013	7	30	6	9	4.85	38.83933	-80.90867	2.8	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
93	20130816110	Gilmer	2013	8	16	11	2	21.04	38.84150	-80.93867	2.6	Instrumental	3.0	MbLg	CERI	USGS ENS	Further Info
94	20131013090	Braxton	2013	10	13	9	20	58.55	38.70117	-80.82417	2.2	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
95	20131019080	Greenbrier	2013	10	19	8	41	57.43	37.74767	-80.64333	2.2	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
96	20140606220	Jackson	2014	6	6	22	15	40.79	38.64383	-81.58550	2.6	Instrumental	<NULL>	Md	CERI	USGS ENS	Further Info
97	20160117190	Jefferson	2016	1	17	19	12	49.00	39.319	-77.828	3.0	Instrumental	5.0	MI	LDEO	USGS ENS	

Data as of **January 26, 2016**. For a more detailed listing, please download the West Virginia Earthquake spreadsheet from WVGES at <http://www.wvgs.wvnet.edu/www/earthquakes/seismic.html>

If you view this map and data as a PDF, you can click any of the blue hyperlinked text to view further information on a web site.

Please note that USGS Links, above, are considered "beta" at the time of this publication and USGS may change destinations, pages, etc. afterward.

Definition of terms on next page.



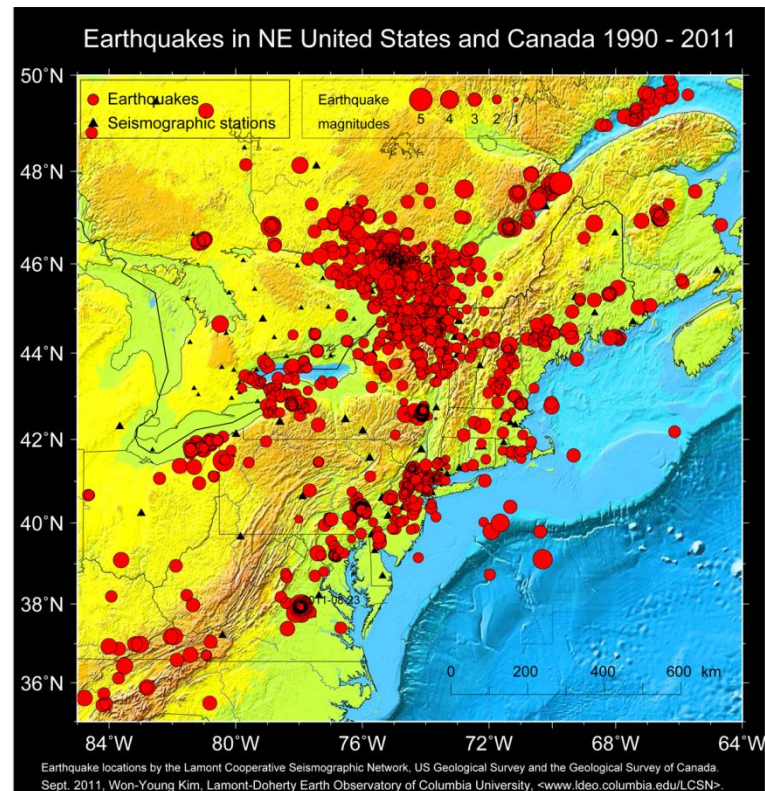
Definitions and Explanations:

- **County**: the name of the county where the epicenter was located, derived from spatial selection.
- Dates and times are in Coordinated Universal Time (UTC) for Year, Month, Day, Hours (HH), Minutes (MM) and Seconds (SS). (For Eastern Standard Time, the offset is - 5 hours).
- **Magnitude (Mag)**: Magnitude numbers indicative of an earthquake's relative size and is the measured maximum motion as recorded by a seismograph. The numbers are pulled from various sources; the primary source whenever possible.
- **Recorded**: refers to the means by which magnitudes were recorded: if they were reported as "felt" (Historical) or recorded via scientific instrumentation (Instrumental) as retrieved from Source1 or Source2.
- **Latitude** (Lat_N) and **Longitude** (Lon_W) values are expressed in decimal degrees for the northern (_N) and western (_W) hemispheres, respectively.
- **MMI**: The Modified Mercalli Intensity scale for epicenter intensity, usually designated with Roman numerals. Visit USGS at <http://earthquake.usgs.gov/learn/topics/mercalli.php> for further information.
- **Mag_Type**: Magnitude type code; the method used in measuring magnitudes (e.g., *Mb* for "body-wave", *Mc* for "coda amplitude", *Md* for "coda duration").
- **Depth_KM**: The reported depth of the earthquake hypocenter or focus (below the epicenter on the surface) in kilometers.

For other or more detailed earthquake and seismological definitions, please visit the USGS (<http://earthquake.usgs.gov/learn/glossary/>) and Rapid Earthquake Viewer (<http://rev.seis.sc.edu/definition.html>).

Sources (Source1 and Source2):

- VTSO – [Virginia Tech Seismological Observatory](#) (Primary Source)
- ANSS – [Advanced National Seismic System](#)
- CERI – [Center for Earthquake Research and Information](#)
- LDEO – [Lamont-Doherty Earth Observatory](#)
- NCEER – [National Center for Earthquake Engineering Research](#)
- USGS ENS – [United States Geological Survey, Earthquake Notification Service](#)
- Wheeler I-2737 – Wheeler, Russell L., *Earthquakes In and Near the Northeastern United States, 1638-1998* (Used only as reference here)



Northeastern United States and southeastern Canadian earthquakes from 1990 to 2011.

Image courtesy of the Lamont-Doherty Earth Observatory (Won-Young Kim) of Columbia University, New York. Used by permission.



West Virginia Geological and
Economic Survey
<http://www.wvgs.wvnet.edu/>