

Appendix 2.5AA Earthquake Source Catalog

The updated earthquake catalog prepared for the Fermi 3 project constitutes this appendix. The development of this catalog is described in [Subsection 2.5.2.1](#).

The headings for the data in [Table 2.5AA-201](#) are described below:

Year – Year in Coordinated Universal Time (UTC)

Month – Month in Coordinated Universal Time (UTC)

Day – Day in Coordinated Universal Time (UTC)

Hour – Hour in Coordinated Universal Time (UTC)

Minute – Minute in Coordinated Universal Time (UTC)

Second – Second in Coordinated Universal Time (UTC)

Latitude – Latitude, Degrees North

Longitude – Longitude, Degrees East (West negative)

Depth – Hypocentral depth in km (n.a.= not available)

ERH – Estimated Horizontal Location Uncertainty in km (provides a measure of the uncertainty in location of the earthquake).

E[**M**] – Expected moment magnitude.

E_{fac} – Equivalent earthquake count.

SM – Standard error associated with E[**M**].

R [km] – Distance in km from the Fermi 3 site.

Table 2.5AA-201 Fermi 3 Earthquake Catalog (Sheet 1 of 7)

ID	Year	Month	Day	Hour	Minute	Second	Latitude	Longitude	Depth	Erh	E[M]	Efac	SM	R [km]
TMP00277	1776	1	1	14	0	0	39.9	-82	n.a.	40	3.98	1.877	0.513	252.7
TMP00287	1779	2	13	0	0	0	40.2	-81.9	n.a.	45	3.98	1.877	0.513	226.83
TMP00702	1822	11	9	15	30	0	39.952	-82.012	n.a.	34	3.98	1.877	0.513	247.01
TMP00757	1833	2	4	0	0	0	42.3	-85.6	n.a.	30	3.83	1.106	0.205	196.62
TMP00781	1836	7	9	2	15	0	41.5	-81.7	n.a.	30	2.65	1.886	0.515	139.5
TMP00796	1840	4	8	0	0	0	41.12	-83.18	n.a.	38	2.98	1.877	0.513	93.83
TMP00799	1840	9	10	0	0	0	43.2	-79.85	n.a.	38	3.31	1.872	0.512	311.78
TMP00822	1843	6	19	23	0	0	40.1	-83.8	n.a.	38	3.02	1.129	0.225	211.95
TMP00884	1848	4	6	11	0	0	39.5	-82.4	n.a.	38	3.76	1.09	0.19	283.33
TMP00913	1850	10	1	10	25	0	41.5	-81.7	n.a.	30	2.65	1.886	0.515	139.5
TMP00933	1852	1	26	0	0	0	39.34	-82.99	n.a.	38	2.65	1.886	0.515	292.56
TMP00948	1852	9	15	0	0	0	41.63	-80.17	n.a.	30	3.98	1.877	0.513	259.2
TMP00979	1854	1	11	2	0	0	39.4	-83.7	n.a.	34	3.6	1.093	0.193	287.37
TMP01047	1857	2	27	20	30	0	42.22	-81.05	n.a.	30	3.82	1.106	0.205	184.94
TMP01049	1857	3	1	1	40	0	41.8	-80.6	n.a.	30	3.11	1.373	0.364	221.31
TMP01068	1858	4	10	11	30	0	41.7	-81.3	n.a.	30	2.65	1.886	0.515	165.26
TMP01146	1865	1	25	0	0	0	40.763	-82.527	n.a.	34	3.98	1.877	0.513	146.76
TMP01199	1869	6	1	0	0	0	39.634	-84.927	n.a.	38	3.31	1.872	0.512	294.49
TMP01222	1870	11	1	21	55	0	42	-80	n.a.	38	3.31	1.872	0.512	269.93
TMP01277	1873	1	4	23	40	0	39.96	-83	n.a.	30	2.65	1.886	0.515	223.75
TMP01285	1873	4	23	4	14	0	39.7	-84.2	n.a.	30	2.71	1.238	0.299	263.7
TMP01287	1873	4	30	0	0	0	43.3	-79.9	n.a.	38	2.65	1.886	0.515	313.05
TMP01344	1875	6	18	13	43	0	40.2	-84	n.a.	30	4.6	1.27	0.316	205.5
TMP01377	1876	6	1	0	0	0	40.4	-84.2	n.a.	30	3.27	1.371	0.363	190.64
TMP01409	1877	8	17	16	50	0	42.3	-83.3	n.a.	30	3.13	1.097	0.197	37.85
TMP01502	1881	4	20	0	0	0	41.6	-85.8	n.a.	30	2.65	1.886	0.515	214.43
TMP01525	1882	2	9	20	0	0	40.4	-84.2	n.a.	30	2.92	1.154	0.245	190.64
TMP01561	1883	1	6	7	30	0	41.35	-82.1	n.a.	34	4.63	1.896	0.517	118.14
TMP01568	1883	2	4	11	0	0	42.3	-85.6	n.a.	30	4.73	1.108	0.207	196.62
TMP01625	1884	9	19	20	14	0	40.7	-84.1	n.a.	30	4.69	1.049	0.141	156.82

Table 2.5AA-201 Fermi 3 Earthquake Catalog (Sheet 2 of 7)

ID	Year	Month	Day	Hour	Minute	Second	Latitude	Longitude	Depth	Erh	E[M]	Efac	SM	R [km]
TMP01645	1885	1	18	10	30	0	41.16	-81.6	n.a.	30	3.36	1.093	0.193	164.61
TMP01691	1886	5	3	3	0	0	39.36	-82.24	n.a.	30	3.45	1.057	0.152	302.02
TMP01865	1886	9	11	9	0	0	40.97	-81.7	n.a.	38	2.65	1.886	0.515	170.67
TMP02379	1888	2	11	2	0	0	41	-81.5	n.a.	38	3.31	1.872	0.512	181.7
TMP02454	1889	2	26	15	30	0	40.65	-85.4	n.a.	38	3.57	1.108	0.207	230.72
TMP02513	1891	1	3	22	0	0	40.3	-85.7	n.a.	38	2.65	1.886	0.515	275.56
TMP02552	1892	4	15	5	25	0	40.55	-84.57	n.a.	30	2.65	1.886	0.515	191.38
TMP02680	1893	12	20	2	0	0	41.62	-85.95	n.a.	34	3.96	1.106	0.205	226.25
TMP02706	1894	2	27	22	0	0	42.12	-86.46	n.a.	30	2.65	1.886	0.515	264.94
TMP02745	1894	11	9	3	0	0	42.12	-86.46	n.a.	30	2.65	1.886	0.515	264.94
TMP02832	1896	3	15	7	0	0	40.3	-84.2	n.a.	30	2.65	1.886	0.515	200.86
TMP03000	1899	2	11	0	0	0	43.35	-85.4	n.a.	30	2.67	1.168	0.255	233.47
TMP03001	1899	2	11	10	0	0	41.6	-86.8	n.a.	38	4.11	1.106	0.205	296.4
TMP03015	1899	8	28	19	15	0	40.799	-85.825	n.a.	38	3.31	1.872	0.512	250.06
TMP03020	1899	10	11	4	0	0	42.1	-86.5	n.a.	30	3.15	1.066	0.163	268.14
TMP03023	1899	11	12	14	0	0	39.3	-83	n.a.	30	2.65	1.886	0.515	296.93
TMP03078	1902	3	10	6	0	0	39.9	-85.2	n.a.	20	2.71	1.238	0.299	281.33
TMP03091	1902	6	14	7	0	0	40.3	-81.4	n.a.	20	2.98	1.877	0.513	241.92
TMP03227	1906	4	23	7	12	0	40.7	-83.6	n.a.	20	3.31	1.872	0.512	143.13
TMP03409	1910	2	25	0	0	0	43.2	-79.8	n.a.	25	2.65	1.886	0.515	315.46
TMP03633	1918	2	22	0	0	0	42.8	-84.2	n.a.	20	2.65	1.886	0.515	121.08
TMP03872	1925	3	27	4	6	0	39.5	-83.9	n.a.	20	3.31	1.872	0.512	279.09
TMP03965	1926	10	28	11	0	0	41.7	-83.6	n.a.	20	2.65	1.886	0.515	40.36
TMP03990	1927	2	17	5	30	0	40.7	-82.5	n.a.	20	2.65	1.886	0.515	154.09
TMP04026	1927	10	29	0	0	0	40.9	-81.2	n.a.	20	3.31	1.872	0.512	208.66
TMP04088	1928	10	27	0	0	0	40.4	-84.1	n.a.	20	2.62	1.156	0.246	187.35
TMP04117	1929	3	8	9	6	0	40.4	-84.2	n.a.	39	3.62	1.107	0.206	190.64
TMP04184	1930	6	26	21	45	0	40.5	-84	n.a.	20	3.13	1.122	0.219	173.91
TMP04186	1930	7	11	0	15	0	40.6	-83.2	n.a.	20	2.65	1.886	0.515	151.54
TMP04204	1930	9	30	20	40	0	40.3	-84.3	n.a.	39	3.13	1.176	0.26	204.28

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ID	Year	Month	Day	Hour	Minute	Second	Latitude	Longitude	Depth	Erh	E[M]	Efac	SM	R [km]
TMP04244	1931	3	21	15	48	0	40.4	-84.2	n.a.	20	2.65	1.152	0.243	190.64
TMP04260	1931	6	10	8	30	0	41.3	-84	n.a.	20	3.08	1.091	0.191	95.8
TMP04277	1931	9	20	23	4	54	40.43	-84.27	n.a.	22	4.58	1.723	0.477	190.13
TMP04300	1932	1	21	0	0	0	41.1	-81.6	n.a.	20	2.62	1.38	0.367	168.37
TMP04331	1933	2	23	3	20	0	40.3	-84.2	n.a.	20	3.31	1.112	0.211	200.86
TMP04396	1934	10	29	20	7	0	42	-80.2	n.a.	20	3.07	1.135	0.23	253.38
TMP04501	1936	1	31	19	30	0	41.2	-83.2	n.a.	20	2.65	1.886	0.515	84.84
TMP04527	1936	8	26	9	55	0	41.4	-80.4	n.a.	25	2.65	1.886	0.515	245.96
TMP04537	1936	10	8	16	30	0	39.3	-84.4	n.a.	20	2.99	1.123	0.22	311.31
TMP04560	1937	3	9	5	44	35.5	40.4	-84.2	3	17	5.11	1.27	0.316	190.64
TMP04569	1937	4	23	17	15	0	40.7	-84	n.a.	20	2.91	1.073	0.172	153.27
TMP04610	1938	2	12	6	27	0	41.6	-87	n.a.	20	3.69	1.107	0.206	312.86
TMP04612	1938	3	13	16	10	0	42.4	-83.2	n.a.	28	2.85	1.24	0.3	49.12
TMP04725	1939	1	14	8	10	0	43.25	-79.85	n.a.	25	3.11	1.055	0.15	314.18
TMP04753	1939	3	18	13	3	0	40.4	-84.1	n.a.	25	2.93	1.128	0.224	187.35
TMP04860	1940	6	16	4	30	0	40.9	-82.3	n.a.	20	2.65	1.886	0.515	142.76
TMP04999	1943	3	9	3	25	24.9	41.63	-81.31	7	17	4.31	1.019	0.089	166.09
TMP05105	1944	11	13	11	52	0	40.4	-84.4	n.a.	20	3.71	1.107	0.206	198.13
TMP05222	1947	8	10	2	46	41.3	41.93	-85	2	17	4.43	1.03	0.112	143.9
TMP05329	1950	4	20	0	0	0	39.8	-84.2	n.a.	20	2.65	1.886	0.515	253.09
TMP05368	1951	12	3	7	2	0	41.6	-81.4	n.a.	20	2.8	1.083	0.183	159.66
TMP05416	1952	6	20	9	38	8.6	39.64	-82.02	9	17	3.76	1.057	0.152	278.66
TMP05449	1952	12	25	4	28	0	43.725	-81.147	20	20	3.04	1.055	0.15	261.37
TMP05474	1953	5	7	23	32	0	39.7	-82.1	n.a.	20	2.43	1.117	0.215	269.95
TMP05479	1953	6	12	4	45	0	41.7	-83.6	n.a.	20	3.31	1.063	0.16	40.36
TMP05604	1955	5	26	18	9	0	41.3	-81.4	n.a.	20	3.14	1.063	0.16	171.46
TMP05640	1956	1	27	11	3	27	40.5	-84	n.a.	20	3.52	1.092	0.192	173.91
TMP05713	1957	6	29	11	25	0	43.353	-81.003	18	20	3.4	1.055	0.15	241.2
TMP05769	1958	8	4	20	25	0	43.13	-80	n.a.	25	3.2	1.079	0.178	297.44
TMP05797	1959	2	9	2	0	0	43	-81	n.a.	20	2.33	1.089	0.189	218.71

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ID	Year	Month	Day	Hour	Minute	Second	Latitude	Longitude	Depth	Erh	E[M]	Efac	SM	R [km]
TMP05867	1961	2	22	9	45	3	41.2	-83.3	n.a.	20	3.62	1.107	0.206	84.74
TMP06684	1967	4	8	5	40	30.5	39.65	-82.53	1	6	3.47	1.062	0.158	264.45
TMP06862	1968	7	26	15	2	53.7	40.4	-84.2	n.a.	28	2.85	1.068	0.166	190.64
TMP06890	1968	10	31	0	0	0	43	-83	n.a.	20	3.27	1.082	0.181	117.6
TMP07628	1974	9	29	2	26	19.1	41.21	-83.49	1	17	2.56	1.105	0.204	85.7
TMP07767	1975	2	3	10	31	0	41.3	-83.2	n.a.	28	3.21	1.117	0.215	73.73
TMP08175	1976	2	2	21	14	0	41.968	-82.679	10	6	3.01	1.124	0.221	48.24
TMP08176	1976	2	2	21	14	0	41.88	-83.73	5	6	3.14	1.045	0.136	39.78
TMP08697	1977	6	17	15	39	46.9	40.71	-84.71	1	39	3.07	1.037	0.123	184.44
TMP10544	1980	8	20	9	34	0	42	-83.03	5	8	3.25	1.026	0.103	19.68
TMP10644	1980	10	14	0	58	55	43.16	-80.56	5	8	3.11	1.049	0.141	258.58
TMP10823	1981	1	7	5	2	0	43.18	-80.38	6.7	8	2.38	1.06	0.156	272.4
TMP11275	1981	8	28	10	51	0	43.15	-80.59	1	8	2.82	1.124	0.221	255.91
TMP11312	1981	9	5	5	49	0	42.8	-81.41	9	8	2.67	1.153	0.244	178.59
TMP12431	1982	12	23	7	6	0	42.76	-81.39	10	8	2.48	1.074	0.173	177.77
TMP12489	1983	1	22	7	46	58	41.75	-81.02	10	2	2.66	1.066	0.164	187.32
TMP13176	1984	1	14	20	14	31	41.65	-83.43	n.a.	2	2.68	1.066	0.163	37.31
TMP14144	1985	4	14	3	44	0	42.96	-80.04	18	2	2.68	1.074	0.173	286.97
TMP14147	1985	4	14	11	39	54	41.59	-80.4	18	2	2.23	1.074	0.173	241.11
TMP14278	1985	7	11	10	13	0	42.3	-80.79	18	2	2.29	1.049	0.141	207.49
TMP14710	1986	1	31	16	46	42.3	41.65	-81.162	2	2	4.65	1.103	0.202	177.61
TMP15027	1986	7	12	8	19	37.9	40.537	-84.371	10	2	4.37	1.035	0.12	183.62
TMP15878	1987	7	13	5	49	17.43	41.9	-80.77	5	25	3.61	1.013	0.073	206.44
TMP16394	1988	3	31	16	30	3.87	41.313	-81.046	n.a.	2	2.37	1.153	0.244	197.92
TMP16575	1988	6	27	4	46	31.34	41.818	-81.229	n.a.	2	2.33	1.074	0.173	169.18
TMP16761	1988	10	22	16	46	29.1	40.44	-84.11	10.8	2	2.5	1.117	0.215	183.54
TMP16926	1988	12	28	23	28	0	41.636	-81.166	5	2	2.37	1.153	0.244	177.61
TMP17339	1989	8	1	16	12	48.75	41.898	-80.758	n.a.	2	2.37	1.153	0.244	207.44
TMP17823	1990	4	17	10	27	34.7	40.46	-84.852	5	2	2.77	1.078	0.177	213.58
TMP17910	1990	6	4	11	26	47.06	41.098	-83.638	5	2	2.39	1.05	0.143	101.01

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ID	Year	Month	Day	Hour	Minute	Second	Latitude	Longitude	Depth	Erh	E[M]	Efac	SM	R [km]
TMP18376	1991	1	26	3	21	22.6	41.536	-81.453	5	2	3.35	1.049	0.141	157.46
TMP19066	1992	3	15	6	13	55.2	41.911	-81.245	5	2	3.19	1.045	0.136	167.07
TMP19088	1992	3	26	3	43	16.6	41.883	-80.806	2	2	2.33	1.074	0.173	203.56
TMP19945	1993	10	16	6	30	5.3	41.796	-81.28	5.7	2	3.31	1.029	0.109	165.25
TMP19974	1993	11	1	0	14	15.3	42.704	-81.286	8.5	2	2.37	1.153	0.244	182.38
TMP20202	1994	4	4	15	14	44	40.4	-84.4	5	2	2.58	1.124	0.221	198.13
TMP20381	1994	7	24	22	12	0	43.15	-79.887	4.5	2	2.27	1.153	0.244	306.72
TMP20425	1994	9	2	21	23	6.52	42.798	-84.604	5	2	3.16	1.066	0.164	144.38
TMP20636	1995	1	12	21	25	51	40.8	-82.68	n.a.	2	2.98	1.153	0.244	138.03
TMP20712	1995	2	19	12	57	6	39.12	-83.47	10	2	3.55	1.071	0.169	316.62
TMP20719	1995	2	23	9	32	14.4	41.995	-80.917	15	2	2.58	1.083	0.183	194.05
TMP21291	1995	12	30	10	32	0	42.849	-82.313	5	2	2.27	1.153	0.244	125.87
TMP22810	1998	1	27	0	38	25.6	41.862	-81.197	12	2	2.54	1.074	0.173	171.37
TMP23346	1998	9	25	19	52	53.2	41.478	-80.411	5	2	4.55	1.072	0.171	242.86
TMP23468	1998	11	25	2	55	6	41.071	-82.405	5	2	2.48	1.074	0.173	122.09
TMP23514	1998	12	25	21	22	3.1	41.15	-81.46	n.a.	2	2.34	1.074	0.173	175.11
TMP24182	1999	9	22	10	2	19.9	41.72	-81.508	1.1	2	2.48	1.049	0.141	147.87
TMP25431	2000	8	6	2	2	31.5	40.77	-81.264	28.5	2	2.67	1.157	0.247	213.1
TMP25441	2000	8	7	2	2	30.4	40.96	-81.15	5	25	2.82	1.025	0.101	208.41
TMP26201	2001	1	26	3	3	22.2	41.906	-80.788	7	2	3.86	1.024	0.1	204.92
TMP27287	2001	7	26	10	46	51.4	41.01	-82.55	n.a.	2	2.57	1.048	0.14	121.33
TMP27840	2001	10	23	1	33	18.8	42.34	-84.76	n.a.	2	2.45	1.067	0.165	130.59
TMP29128	2002	4	28	0	7	20.9	41.85	-81.37	5	2	2.36	1.049	0.141	157.19
TMP30908	2003	3	18	6	4	24	44.69	-82.89	5	2	3.45	1.198	0.275	305.16
TMP31284	2003	6	30	19	21	17.2	41.8	-81.2	4	2	3.22	1.036	0.121	171.79
TMP31327	2003	7	17	0	44	10	41.86	-80.76	2	2	2.29	1.049	0.141	207.53
TMP31973	2004	1	30	12	10	4.1	40.67	-84.65	5	2	2.51	1.072	0.171	184.65
TMP32105	2004	3	14	5	5	10.29	41.77	-81.24	5	2	2.36	1.074	0.173	168.92
TMP32605	2004	6	30	4	3	14.5	41.78	-81.08	5	2	2.81	1.067	0.165	181.94
TMP35119	2006	1	6	3	2	3.27	41.77	-81.45	5	2	2.24	1.074	0.173	151.67

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ID	Year	Month	Day	Hour	Minute	Second	Latitude	Longitude	Depth	Erh	E[M]	Efac	SM	R [km]
TMP35601	2006	5	12	1	51	11.1	40.74	-84.08	5	2	2.5	1.124	0.221	152.08
TMP35756	2006	6	20	20	11	18.5	41.84	-81.23	5	2	3.53	1.024	0.1	168.85
TMP35968	2006	8	15	6	8	54.9	40.71	-84.11	5	2	2.26	1.124	0.221	156.2
TMP36949	2007	3	12	23	18	16.41	41.28	-81.38	5	25	3.2	1.049	0.141	173.94
TMP37699	2007	9	28	8	46	5.91	41.969	-80.579	6.7	2	2.29	1.074	0.173	222.03
TMP37784	2007	10	17	20	4	9.74	41.75	-81.42	5	25	2.94	1.049	0.141	154.48
TMP38076	2008	1	9	1	34	46.7	41.72	-81.43	5	2	2.81	1.067	0.165	154.24
TMP38658	2008	5	31	19	3	12.4	41.4503	-79.586	25	2	2.28	1.084	0.184	310.72
TMP38969	2008	9	18	1	4	16.7	41.78	-81.43	5	28	2.4	1.049	0.142	153.15
TMP38997	2008	9	30	1	6	38.55	40.41	-84.31	5	2	3.05	1.062	0.159	193.62
ADD_001	2009	2	14	13	16	27.24	41.84	-81	5	2	2.17	1.148	0.240	187.85
ADD_003	2010	2	25	22	13	16	41.352	-83.407	5	2	2.37	1.148	0.240	68.83
ADD_004	2010	3	8	10	10	38	42.163	-83.07	18	2	1.87	1.148	0.240	27.51
ADD_005	2010	4	25	2	0	39.26	41.78	-81.08	5	2	2.49	1.064	0.161	181.94
ADD_006	2010	5	14	2	27	2	41.38	-83.284	5	2	2.18	1.071	0.170	64.68
ADD_007	2010	5	17	21	29	5.65	41.24	-81.51	5	2	2.13	1.071	0.170	166.41
ADD_008	2010	6	10	16	32	22.31	41.76	-81.43	5	2	2.06	1.064	0.161	153.48
ADD_011	2010	12	10	21	26	32.79	41.514	-80.333	5	2	2.36	1.080	0.179	248.29
ADD_012	2010	12	30	12	55	21.96	40.43	-85.914	5	1.06	3.79	1.020	0.091	279.91
ADD_013	2011	2	23	14	21	32.42	42.157	-82.43	5	2	2.41	1.119	0.216	72.12
ADD_014	2011	2	24	10	13	51	42.138	-82.373	5	2	2.07	1.148	0.240	76.05
ADD_015	2011	3	17	10	53	9.51	41.11	-80.68	5	2	2.18	1.071	0.170	235.02
ADD_016	2011	6	5	15	35	21.05	41.03	-82.08	5	2	2.76	1.064	0.161	142.96
ADD_017	2011	8	22	8	0	31	41.09	-80.713	5	2	2.07	1.148	0.240	233.46
ADD_018	2011	8	25	19	44	21	41.119	-80.733	5	2	1.97	1.148	0.240	230.57
ADD_020	2011	8	31	17	36	2.67	39.51	-81.47	5	2	2.74	1.119	0.216	311.81
ADD_021	2011	9	2	21	3	26	41.126	-80.711	1	2	1.97	1.148	0.240	231.92
ADD_023	2011	9	26	1	6	10.84	41.115	-80.682	5	2	2.26	1.043	0.133	234.64
ADD_024	2011	9	30	0	52	38.71	41.135	-80.685	5	2	2.66	1.038	0.125	233.5
ADD_025	2011	10	20	22	41	9	41.127	-80.683	1	2	1.97	1.148	0.240	234.01

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ID	Year	Month	Day	Hour	Minute	Second	Latitude	Longitude	Depth	Erh	E[M]	Efac	SM	R [km]
ADD_026	2011	11	25	6	47	27	41.173	-80.732	5	2	2.07	1.148	0.240	228.19
ADD_027	2011	12	24	6	24	57.38	41.11	-80.69	3	2	2.54	1.057	0.152	234.26
ADD_029	2011	12	31	20	4	59.01	41.11	-80.69	3.68	2	3.66	1.064	0.161	234.26
ADD_030	2012	1	26	22	35	55.79	41.576	-85.49	4	1.5	2.32	1.047	0.139	189.83
ADD_031	2012	9	7	21	56	35.1	41.864	-83.076	5	1.36	1.83	1.071	0.170	18.81