

GROUND LEVEL ENHANCEMENTS

Data taken from:

1. NOAA National Centers for Environmental Information (<https://www.ngdc.noaa.gov/stp/space-weather/interplanetary-data/cosmic-rays/ground-level-enhancements/>)
2. GLE database (<http://gle oulu.fi/#/>).

EVENT №	EVENT DATE			BASELINE DATE	BASELINE TIME:		NOTES	SOURCES
					START	END (UT)		
1	28	February	1942	420228				1
2	7	March	1942	420307				1
3	25	July	1946	460725				1
4	19	November	1949	491119				1
5	23	February	1956	560223	020000	030000		1
6	31	August	1956	560831	110000	120000		1
7	17	July	1959	590716	220000	240000		1
8	4	May	1960	600504	090000	100000		1
9	3	September	1960	600902	230000	240000		1
10	12	November	1960	601112	120000	130000		1
11	15	November	1960	601115	010000	020000		1
12	20	November	1960	601120	190000	200000		1
13	18	July	1961	610718	090000	100000		1
14	20	July	1961	610720	150000	160000		1
15	7	July	1966	660706	230000	240000		1
16	28	January	1967	670128	010000	020000		1
17	28	January	1967	670128	060000	070000		1
18	29	September	1968	680929	150000	160000		1
19	18	November	1968	681118	090000	100000		1
20	25	February	1969	690225	080000	090000		1
21	30	March	1969	690330	020000	030000		1
22	24	January	1971	710124	220000	230000		1
23	1	September	1971	710901	180000	190000		1
24	4	August	1972	720804	110000	120000		1
25	7	August	1972	720807	140000	150000		1
26	29	April	1973	730429	200000	210000		1
27	30	April	1976	760430	200000	210000		1
28	19	September	1977	770919	090000	100000		1
29	24	September	1977	770924	050000	060000		1
30	22	November	1977	771122	090000	100000		1
31	7	May	1978	780507	020000	030000		1
32	23	September	1978	780923	090000	100000		1
33	21	August	1979	790821	050000	060000		1
34	10	April	1981	810410	150000	160000		1
35	10	May	1981	810510	060000	070000		1
36	12	October	1981	811012	050000	060000		1

37	26	November	1982	821126	020000	030000		1
38	7	December	1982	821207	220000	230000		1
39	16	February	1984	840216	080000	090000		1
40	25	July	1989	890725	070000	080000		1
41	16	August	1989	890815	230000	000000		1
42	29	September	1989	890929	100000	110000		1
43	19	October	1989	891019	110000	120000		1
44	22	October	1989	891022	160000	170000		1
45	24	October	1989	891024	160000	170000		1
46	15	November	1989	891115	050000	060000		1
47	21	May	1990	900521	210000	220000		1
48	24	May	1990	900524	190000	200000		1
49	26	May	1990	900526	190000	200000		1
50	28	May	1990	900528	030000	040000		1
51	11	June	1991	910611	000000	010000		1
52	15	June	1991	910615	070000	080000		1
53	25	June	1992	920625	180000	190000		1
54	2	November	1992	921102	020000	030000		1
55	6	November	1997	971106	110000	120000		1
56	2	May	1998	980502	110000	120000		1
57	6	May	1998	980506	070000	080000		1
58	24	August	1998	980824	190000	200000		1
59	14	July	2000	000714	090000	100000		1
60	15	April	2001	010415	110000	120000		1
61	18	April	2001	010418	010000	020000		1
62	4	November	2001	011104	150000	160000		1
63	26	December	2001	011226	040000	050000		1
64	24	August	2002	020824	010000	020000		1
65	28	October	2003	031028	100000	110000		1
66	29	October	2003	031029	190000	200000		1
67	2	November	2003	031102	160000	170000		1
68	17	January	2005	050117	090000	100000	Very small, max increase at S. Pole (2%)	1
69	20	January	2005	050120	053000	063000	First increase seen by S. Pole @0649 UT	1
70	13	December	2006	061213	010000	020000		1
71	17	May	2012	120517				1
72	10	September	2017	170910				2
Sub-GLE	27	January	2012	120127				2
Sub-GLE	7	March	2012	120307				2
Sub-GLE	6	January	2014	140106				2
ACRE	7	June	2015	150607				2
Sub-GLE	29	October	2015	151029				2
ACRE	26	August	2018	180826				2