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SVIRCO DATA FOR GLE N° 71

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Abstract. *The arrival of solar energetic particles (SEPs) in the terrestrial environment can induce Ground Level Enhancements (GLEs). In this paper the data recorded in Rome by the SVIRCO neutron monitor, during the GLE N° 71 [May 17, 2012], have been collected and reported in the standard international format to be used in the evaluation of SEP spectra.*

1. Introduction

The phenomenon of the so-called Solar Energetic Particle (**SEP**) emission is named Solar Particle Event (SPE; note that the acronym SPE is also used for a Solar Proton Event, i.e. if only the solar proton population of the event is considered) when an intensity increase of several hours is identified in the time series of the solar particle flux, registered by an instrument in space or in a planetary environment. There is a wide interest of the scientific community on the identification of such kind of events in the Earth's atmosphere. In fact, both the atmospheric and cosmic-ray physics communities are involved in SEP studies. The first ones are mainly interested on the role of SEP impact on ozone (O₃) abundances and they look at these phenomena as precious opportunity for testing their general circulation and chemistry-transport models. The others are looking for information on the particle source conditions, acceleration mechanisms and their propagation in the Solar System. In particular, nowadays, efforts are addressed to the SPE forecast for Space Weather purposes and Space Mission Planning.

When SEP particles reach relativistic energies they can be identified in the ground-based registrations and they are known as **Ground Level Enhancements**.

In this paper the data recorded in Rome by the SVIRCO neutron monitor, during the **GLE N° 71** [May 17, 2012], were collected and reported in the standard international format to be used in the evaluation of SEP spectra. Moreover the time history of the percentage increase, above the pre-increase average counting rate determined from the baseline time interval, was plotted in Figure 1.

2. IQSY-NM64 of SVIRCO-Rome

The SVIRCO-Rome neutron monitor is managed by the joint collaboration between the Research Unit: S.V.I.R.CO. Observatory and Terrestrial Physics Laboratory of INAF/IAPS-Roma and the Physics Department of Roma Tre University. The IQSY-NM64 has been operating at the Department of Physics "E. Amaldi" of Roma Tre University since May 1997.

The main characteristic parameters of the measurement site are:

- Geographic latitude: 41.86°N
- Geographic longitude: 12.47°E
- Height: sea level
- Effective vertical cutoff rigidity (Epoch 1995): 6.27 GV
- Number of proportional counters: 17 [1997-2004] and 20 [2005 to present]

The detector is an integral part of the world wide network of neutron monitors, and the recorded data are published monthly in form of prompt reports and yearly as comprehensive final papers (e.g. : *Signoretti, F. and Re F.: "SVIRCO Prompt Report: May 2012", Report INAF/IAPS-2012-30, June 2012, Rome, Italy. Signoretti, F., Re, F., Massetti, S., Storini, M. and Parisi, M.: "SVIRCO DATA: January to December 2012", Report INAF/IAPS-2013-04, February 2013, Rome, Italy.*)

While the data reported in this paper are accurate to the best of our knowledge, we reserve the right to correct them. The users may contact Mr. Fabrizio Signoretti [signoretti@fis.uniroma3.it] for final ASCII files.

3. The Standard International Format for GLE data

A standard format for collecting GLE data from the world network of neutron monitors was suggested (Shea et al. 1985) at the 19th ICRC in La Jolla, California to the purpose of archiving these data in a unique computerized format suitable for scientific analysis. A revised standard format was produced at the 20th ICRC in Moscow (Shea et al. 1987). The new format added a nine line header of accurate station information including geographic coordinates, altitude, standard pressure and barometric pressure coefficient, type of monitor and data counts converted in counts per second.

The data presented in this paper were prepared in accord with the Standard International Format for the GLE data, as reported in table 1 and table 2, except for the unit of atmospheric pressure in the "Header Information". The hectopascals (hPa), which are equivalent to millibars, have been used since they are worldwide adopted for measuring atmospheric or barometric pressure after the introduction of the International System of Units (SI).

Table 1: Header Information

Line 1	Columns 1-10 :	Station Name (abbreviated if necessary).
	Columns 12-19 :	The word "LATITUDE".
	Columns 22-27 :	Station latitude (F6.2). Indicate southern latitudes by a minus sign in Col. 22.
	Columns 32-40 :	The word "LONGITUDE".

	Columns 44-49 :	Station longitude (F6.2) in degrees east of Greenwich; all positive numbers.
	Columns 54-61 :	The word "ALTITUDE".
	Columns 64-67 :	Station altitude (I4) in meters above sea level.
	Column 69 :	The letter "M" to designate meters.
Line 2	Columns 1-10 :	Station Name (abbreviated if necessary).
	Columns 12-21 :	The word "INSTRUMENT".
	Columns 24-31 :	Start of instrument description as follows: For a NM-64 the designation is XX-NM-64 where XX, the number of tubes, is in columns 24-25. For an IGY monitor, IGY appears in columns 26-28 and the remaining columns are blank. For other instrumentation leave columns 24-31 blank and utilize columns 34-75 as indicated.
	Columns 34-75 :	The type of detector (e.g. neutron monitor). If the detector is an ionization chamber, a muon telescope, or a specialized instrument such as a bare counter or multiplicity counter, it would be indicated here and columns 24-31 would be blank.
Line 3	Columns 1-10 :	Station Name (abbreviated if necessary).
	Columns 12-28 :	The words "STANDARD PRESSURE".
	Columns 31-37 :	The standard pressure (F7.2). If the standard pressure is in centimeters or inches use (F7.2); if in millimeters or millibars, use (F6.1, 1X).
	Columns 41-44 :	The units of the pressure: "MMHG", "CMHG" or "INHG" as appropriate. If "MB" is used, the letters go in columns 42 and 43 with columns 41 and 44 blank.
	Columns 47-57 :	The word "COEFFICIENT".
	Columns 60-66 :	The value of the barometric pressure coefficient in percent per unit pressure (F7.4).
	Column 68 :	The percent sign (i.e. %).
	Column 70 :	The slash sign (i.e. /).
	Columns 72-75 :	The units of pressure: "MMHG", "CMHG", or "INHG" as appropriate. If "MB" is used, the letters go in columns 73 and 74 with columns 72 and 75 blank.
Line 4	Columns 1-10 :	Station Name (abbreviated if necessary).
	Columns 12-46 :	The words "PRE-INCREASE BASELINE TIME INTERVAL".
	Columns 50-55 :	The year, month and day of the pre-increase baseline time interval (3I2).
	Columns 59-64 :	The hour, minutes and seconds of the start of the baseline time interval (3I2).
	Column 65 :	The hyphen (i.e. -).
	Columns 66-71 :	The hour, minutes and seconds of the end of the baseline time interval (3I2).
	Columns 74-75 :	The letters "UT".
<p><i>Note that the baseline time interval is the interval from which the percentage increase is calculated. The complete hour (in UT) before the onset of the particle increase at the Earth would be the commonly used time interval (e.g. the earliest onset for the increase for the event on 7 May 1978 was approximately 0335-0338 UT; thus the baseline from which percentage increases would be determined is the average counting rate for the hourly interval 0200-0300 UT. For historical data where only bi-hourly records are available, the baseline would be the two-hour interval prior to the earliest onset).</i></p>		
Line 5	Columns 1-10 :	Station Name (abbreviated if necessary).
	Columns 12-45 :	The words "PRE-INCREASE AVERAGE COUNTING RATE".
	Columns 50-56 :	The value of the pre-increase average counting rate in counts per second (F7.2).
	Columns 59-75 :	The words "COUNTS PER SECOND".
Line 6	Columns 1-10 :	Station Name (abbreviated if necessary).

	Columns 12-25 :	The words "TIME INTERVALS".
	Columns 29-32 :	The number of seconds (I4) in the largest time interval of data in this dataset (i.e. 3600 for hourly data).
	Columns 33-72 :	The number of seconds in the various time intervals used in the dataset in a 5(4X,I4) format. (For example if both 5-minute and 1-minute data are included the following would appear: bbbbb300bbbbbb60 where b indicates blanks). A total of 6 time intervals can be given.
Line 7	Columns 1-10 :	Station Name (abbreviated if necessary).
	Columns 12-24 :	The words "SCALE FACTORS".
	Columns 30-35 :	The scale factor used in the largest time interval (F6.2). (For example if the scale factor for the hourly counting rate is 128, this is given as 128.00).
	Columns 36-75 :	The scale factors used for each of the various time intervals given in columns 33-72 of Line 6 in the same order as given on that line. The format is 5(2X,F6.2).
<i>Lines 8 and 9 are column headers for the data that follow.</i>		
Line 8	Columns 1-7 :	The word "STATION".
	Columns 12-17 :	The letters "YYMMDD" indicating year, month, and day.
	Columns 20-22 :	The letters "SEC" indicating the number of seconds in the time interval.
	Columns 26-34 :	The words "TIME (UT)".
	Columns 37-40 :	The word "CODE".
	Columns 44-50 :	The letters "UNCORR." Indicating values not corrected for barometric pressure.
	Columns 52-57 :	The letters "PRESS." indicating barometric pressures.
	Columns 63-67 :	The letters "CORR." indicating values corrected for barometric pressure.
	Columns 70-75 :	The identification "% INC." indicating percentage increase (i.e. above baseline).
Line 9	Columns 26-33 :	The word "INTERVAL".
	Column 38 :	The letter "T" for the Time code (see below).
	Column 39 :	The letter "DH for the Data code (see below).
	Columns 46-48 :	The designation "C/S" indicating counts per second.
	Columns 52-57 :	The units of pressure within parentheses as follows: "(MMHG)", "(CMHG)", "(INHG)", or "(MB) ~
	Columns 64-66 :	The designation "C/S" indicating counts per second.

Table 2: Data Format

Columns 1-10 :	Station identification (alphanumeric; abbreviated if necessary, and identical to identification in header).
Columns 12-17 :	Year, month and day (3I2).
Columns 19-22 :	Number of seconds in this time interval (I4).
Columns 24-36 :	The hour, minutes, and seconds of the beginning and end of this time interval (3I2, 1H-, 3I2).
Column 38 :	Time code as follows: 0 - Time accurate to nearest minute. 1 - Time accurate to nearest second. 2 - Time accurate to nearest 10 seconds. 3 - Time accurate to nearest 30 seconds. 7 - Time uncertainty 1 to 5 minutes. 8 - Time uncertainty greater than or equal to 5 minutes. 9 - Probable time error of unknown amount in source data; time given has been adjusted.

Column 39 :	Data code as follows: 0 - Uncorrected, pressure (measured) and corrected cosmic ray data given. 1 - Uncorrected, pressure (interpolated) and corrected data given. 2 - Only corrected cosmic ray data given. 3 - Only uncorrected cosmic ray data given. 4 - Corrected and uncorrected cosmic ray data only. (No pressure given for observation period; insufficient information for pressure interpolation). 5 - only percentage increase given. (Baseline time interval used may be different from standard). 6 - Cosmic ray data do not exist (e.g. due to calibration, equipment failure, etc.). 9 - Existence of cosmic ray data unknown.
Column 40 :	Optional comment code * to indicate time intervals during which specific problems have occurred, such as equipment failure or reduced precision in the data. Comments should be added at the end of the data file, following the end-of-data indicator, and preceding the end-of-dataset indicator as described.
Columns 42-50 :	Uncorrected counting rate; counts per second (F9.2).
Columns 52-58 :	Barometric pressure. Use (F7.2) if pressure is in centimeters or inches; use (F6.1, 1X) if pressure is in millimeters or millibars.
Columns 60-68 :	Corrected counting rate; counts per second (F9.2).
Columns 70-75 :	Percentage increase (F6.1) above the pre-increase average counting rate determined from the baseline time interval.
<i>Line following the last data entry:</i>	
Column 1 :	End-of-data indicator *. Remainder of line is blank.
<i>Line(s) following the end-of-data indicator:</i>	
Columns 1-7 :	The word "COMMENT".
Columns 12-17 :	Year, month, and day of the data marked by the comment code.
Columns 19-31 :	Time interval of the data marked by the comment code.
Columns 33-75 :	Description of the data marked by the comment code. The comment lines may also be used to indicate that the data have been verified by the principal investigator.
<i>Final line of the datafile:</i>	
Columns 1-75 :	A full line of asterisks to indicate the end-of-dataset.

References

Shea, M.A., Smart, D.F., Wada, M., and Inoue, A.: 19th ICRC, vol. 5, 510, 1985.

Shea, M.A., Smart, D.F., Humble, J.E., Flückiger, E.O., Gentile, L.C., and Nichol, M.R.: 20th ICRC, vol. 3, 171, 1987

ROME_GLE_71_2012_05_17_5MIN_VER1.TXT

ROME	LATITUDE	+41.86	LONGITUDE	+12.47	ALTITUDE	0 M
ROME	INSTRUMENT	20-NM-64 NEUTRON MONITOR				
ROME	STANDARD PRESSURE	1009.25	HPA	COEFFICIENT	-0.698 % / HPA	
ROME	PRE-INCREASE BASELINE TIME INTERVAL	120517	000000-010000 UT			
ROME	PRE-INCREASE AVERAGE COUNTING RATE	155.47	COUNTS PER SECOND			
ROME	TIME INTERVALS	3600	300			
ROME	SCALE FACTORS	1.00	1.00			
STATION	YYMMDD	SEC	TIME (UT)	CODE	UNCORR. PRESS.	CORR. % INC.
			INTERVAL	TD	C/S (HPA)	C/S
ROME	120516	3600	000000-010000	10	154.21 1008.3	153.16 -1.5
ROME	120516	3600	010000-020000	10	154.66 1008.0	153.33 -1.4
ROME	120516	3600	020000-030000	10	155.58 1007.5	153.70 -1.1
ROME	120516	3600	030000-040000	10	155.82 1007.2	153.59 -1.2
ROME	120516	3600	040000-050000	10	155.71 1007.1	153.36 -1.4
ROME	120516	3600	050000-060000	10	156.29 1007.1	153.92 -1.0
ROME	120516	3600	060000-070000	10	155.91 1007.1	153.57 -1.2
ROME	120516	3600	070000-080000	10	156.14 1007.0	153.71 -1.1
ROME	120516	3600	080000-090000	10	155.98 1007.3	153.83 -1.1
ROME	120516	3600	090000-100000	10	155.49 1007.5	153.57 -1.2
ROME	120516	3600	100000-110000	10	156.43 1007.7	154.76 -0.5
ROME	120516	3600	110000-120000	10	154.96 1008.3	153.91 -1.0
ROME	120516	3600	120000-130000	10	155.01 1008.3	153.94 -1.0
ROME	120516	3600	130000-140000	10	155.26 1008.0	153.96 -1.0
ROME	120516	3600	140000-150000	10	155.61 1007.8	154.04 -0.9
ROME	120516	3600	150000-160000	10	154.49 1008.5	153.68 -1.2
ROME	120516	3600	160000-170000	10	153.89 1009.2	153.87 -1.0
ROME	120516	3600	170000-180000	10	153.29 1010.0	154.11 -0.9
ROME	120516	3600	180000-190000	10	152.35 1011.1	154.29 -0.8
ROME	120516	3600	190000-200000	10	151.32 1011.9	154.13 -0.9
ROME	120516	3600	200000-210000	10	150.49 1012.7	154.14 -0.9
ROME	120516	3600	210000-220000	10	150.65 1013.2	154.81 -0.4
ROME	120516	3600	220000-230000	10	150.08 1013.6	154.74 -0.5
ROME	120516	3600	230000-240000	10	150.94 1013.8	155.81 0.2
ROME	120517	300	000000-000500	10	150.23 1013.8	155.09 -0.2
ROME	120517	300	000500-001000	10	149.77 1013.8	154.60 -0.6
ROME	120517	300	001000-001500	10	150.53 1013.8	155.39 -0.1
ROME	120517	300	001500-002000	10	150.07 1013.8	154.94 -0.3
ROME	120517	300	002000-002500	10	151.57 1013.9	156.51 0.7
ROME	120517	300	002500-003000	10	151.03 1013.8	155.94 0.3
ROME	120517	300	003000-003500	10	149.17 1013.8	154.02 -0.9
ROME	120517	300	003500-004000	10	152.33 1013.9	157.30 1.2
ROME	120517	300	004000-004500	10	150.57 1013.9	155.49 0.0
ROME	120517	300	004500-005000	10	150.07 1013.9	155.00 -0.3
ROME	120517	300	005000-005500	10	150.90 1013.9	155.84 0.2
ROME	120517	300	005500-010000	10	150.60 1013.8	155.47 0.0
ROME	120517	300	010000-010500	10	150.37 1013.8	155.18 -0.2
ROME	120517	300	010500-011000	10	150.27 1013.7	155.03 -0.3
ROME	120517	300	011000-011500	10	148.93 1013.7	153.61 -1.2
ROME	120517	300	011500-012000	10	150.53 1013.7	155.23 -0.2
ROME	120517	300	012000-012500	10	150.13 1013.6	154.77 -0.4
ROME	120517	300	012500-013000	10	150.20 1013.6	154.85 -0.4
ROME	120517	300	013000-013500	10	149.63 1013.7	154.31 -0.7
ROME	120517	300	013500-014000	10	151.03 1013.7	155.75 0.2
ROME	120517	300	014000-014500	10	149.83 1013.7	154.51 -0.6
ROME	120517	300	014500-015000	10	149.27 1013.7	153.94 -1.0
ROME	120517	300	015000-015500	10	149.73 1013.7	154.43 -0.7
ROME	120517	300	015500-020000	10	151.03 1013.7	155.82 0.2
ROME	120517	300	020000-020500	10	149.33 1013.8	154.11 -0.9
ROME	120517	300	020500-021000	10	151.23 1013.8	156.08 0.4
ROME	120517	300	021000-021500	10	151.67 1013.8	156.51 0.7
ROME	120517	300	021500-022000	10	151.87 1013.7	156.70 0.8
ROME	120517	300	022000-022500	10	149.37 1013.7	154.10 -0.9
ROME	120517	300	022500-023000	10	149.43 1013.7	154.17 -0.8
ROME	120517	300	023000-023500	10	149.63 1013.7	154.38 -0.7
ROME	120517	300	023500-024000	10	150.90 1013.7	155.67 0.1
ROME	120517	300	024000-024500	10	149.63 1013.7	154.38 -0.7

ROME	120517	300	024500-025000	10	149.67	1013.7	154.43	-0.7
ROME	120517	300	025000-025500	10	150.00	1013.7	154.76	-0.5
ROME	120517	300	025500-030000	10	148.17	1013.7	152.85	-1.7
ROME	120517	300	030000-030500	10	150.07	1013.7	154.82	-0.4
ROME	120517	300	030500-031000	10	151.80	1013.7	156.61	0.7
ROME	120517	300	031000-031500	10	147.90	1013.7	152.57	-1.9
ROME	120517	300	031500-032000	10	148.87	1013.7	153.57	-1.2
ROME	120517	300	032000-032500	10	151.13	1013.7	155.91	0.3
ROME	120517	300	032500-033000	10	151.20	1013.7	155.99	0.3
ROME	120517	300	033000-033500	10	149.33	1013.8	154.10	-0.9
ROME	120517	300	033500-034000	10	151.63	1013.8	156.49	0.7
ROME	120517	300	034000-034500	10	150.23	1013.8	155.06	-0.3
ROME	120517	300	034500-035000	10	150.57	1013.8	155.42	0.0
ROME	120517	300	035000-035500	10	149.47	1013.8	154.28	-0.8
ROME	120517	300	035500-040000	10	151.37	1013.8	156.25	0.5
ROME	120517	300	040000-040500	10	150.63	1013.9	155.57	0.1
ROME	120517	300	040500-041000	10	151.63	1013.9	156.66	0.8
ROME	120517	300	041000-041500	10	152.07	1013.9	157.12	1.1
ROME	120517	300	041500-042000	10	148.50	1014.0	153.47	-1.3
ROME	120517	300	042000-042500	10	151.73	1014.0	156.83	0.9
ROME	120517	300	042500-043000	10	149.17	1014.0	154.19	-0.8
ROME	120517	300	043000-043500	10	150.27	1014.1	155.38	-0.1
ROME	120517	300	043500-044000	10	150.20	1014.1	155.37	-0.1
ROME	120517	300	044000-044500	10	150.97	1014.1	156.20	0.5
ROME	120517	300	044500-045000	10	147.27	1014.2	152.41	-2.0
ROME	120517	300	045000-045500	10	149.93	1014.2	155.20	-0.2
ROME	120517	300	045500-050000	10	152.20	1014.2	157.54	1.3
ROME	120517	300	050000-050500	10	151.13	1014.2	156.43	0.6
ROME	120517	300	050500-051000	10	150.37	1014.2	155.67	0.1
ROME	120517	300	051000-051500	10	150.93	1014.3	156.30	0.5
ROME	120517	300	051500-052000	10	150.50	1014.3	155.87	0.3
ROME	120517	300	052000-052500	10	150.10	1014.3	155.47	0.0
ROME	120517	300	052500-053000	10	151.03	1014.3	156.46	0.6
ROME	120517	300	053000-053500	10	150.60	1014.4	156.07	0.4
ROME	120517	300	053500-054000	10	149.20	1014.4	154.65	-0.5
ROME	120517	300	054000-054500	10	147.47	1014.4	152.91	-1.6
ROME	120517	300	054500-055000	10	150.93	1014.5	156.58	0.7
ROME	120517	300	055000-055500	10	151.67	1014.6	157.41	1.2
ROME	120517	300	055500-060000	10	150.07	1014.6	155.82	0.2
ROME	120517	300	060000-060500	10	150.67	1014.7	156.45	0.6
ROME	120517	300	060500-061000	10	149.57	1014.7	155.32	-0.1
ROME	120517	300	061000-061500	10	150.97	1014.7	156.77	0.8
ROME	120517	300	061500-062000	10	150.03	1014.6	155.79	0.2
ROME	120517	300	062000-062500	10	150.47	1014.7	156.26	0.5
ROME	120517	300	062500-063000	10	150.63	1014.7	156.44	0.6
ROME	120517	300	063000-063500	10	151.13	1014.7	156.98	1.0
ROME	120517	300	063500-064000	10	150.23	1014.7	156.09	0.4
ROME	120517	300	064000-064500	10	149.73	1014.8	155.61	0.1
ROME	120517	300	064500-065000	10	150.33	1014.8	156.28	0.5
ROME	120517	300	065000-065500	10	150.60	1014.8	156.56	0.7
ROME	120517	300	065500-070000	10	151.23	1014.8	157.23	1.1
ROME	120517	300	070000-070500	10	149.77	1014.9	155.75	0.2
ROME	120517	300	070500-071000	10	150.90	1014.9	156.96	1.0
ROME	120517	300	071000-071500	10	148.23	1014.9	154.24	-0.8
ROME	120517	300	071500-072000	10	150.30	1015.0	156.42	0.6
ROME	120517	300	072000-072500	10	149.47	1015.0	155.58	0.1
ROME	120517	300	072500-073000	10	149.80	1015.0	155.96	0.3
ROME	120517	300	073000-073500	10	150.63	1015.0	156.82	0.9
ROME	120517	300	073500-074000	10	149.60	1015.0	155.72	0.2
ROME	120517	300	074000-074500	10	149.80	1015.0	155.94	0.3
ROME	120517	300	074500-075000	10	149.97	1015.0	156.06	0.4
ROME	120517	300	075000-075500	10	150.33	1014.9	156.40	0.6
ROME	120517	300	075500-080000	10	149.63	1014.9	155.68	0.1
ROME	120517	300	080000-080500	10	150.60	1014.9	156.68	0.8
ROME	120517	300	080500-081000	10	149.53	1014.9	155.54	0.0
ROME	120517	300	081000-081500	10	148.17	1014.9	154.13	-0.9
ROME	120517	300	081500-082000	10	148.83	1014.9	154.82	-0.4

ROME	120517	300	082000-082500	10	148.53	1014.9	154.53	-0.6
ROME	120517	300	082500-083000	10	149.97	1015.0	156.07	0.4
ROME	120517	300	083000-083500	10	150.73	1015.0	156.87	0.9
ROME	120517	300	083500-084000	10	150.83	1015.0	156.96	1.0
ROME	120517	300	084000-084500	10	149.60	1014.9	155.64	0.1
ROME	120517	300	084500-085000	10	149.57	1014.9	155.58	0.1
ROME	120517	300	085000-085500	10	150.13	1014.9	156.19	0.5
ROME	120517	300	085500-090000	10	148.33	1015.0	154.35	-0.7
ROME	120517	300	090000-090500	10	150.40	1015.0	156.51	0.7
ROME	120517	300	090500-091000	10	149.23	1015.0	155.30	-0.1
ROME	120517	300	091000-091500	10	150.13	1015.0	156.24	0.5
ROME	120517	300	091500-092000	10	149.63	1015.0	155.71	0.2
ROME	120517	300	092000-092500	10	150.43	1014.9	156.52	0.7
ROME	120517	300	092500-093000	10	149.43	1015.0	155.50	0.0
ROME	120517	300	093000-093500	10	148.50	1015.0	154.62	-0.5
ROME	120517	300	093500-094000	10	149.83	1015.0	155.99	0.3
ROME	120517	300	094000-094500	10	148.43	1015.0	154.50	-0.6
ROME	120517	300	094500-095000	10	149.90	1015.0	156.05	0.4
ROME	120517	300	095000-095500	10	148.43	1015.1	154.58	-0.6
ROME	120517	300	095500-100000	10	148.60	1015.1	154.77	-0.4
ROME	120517	300	100000-100500	10	150.90	1015.0	157.10	1.1
ROME	120517	300	100500-101000	10	149.37	1015.0	155.47	0.0
ROME	120517	300	101000-101500	10	149.93	1015.0	156.07	0.4
ROME	120517	300	101500-102000	10	148.97	1015.1	155.14	-0.2
ROME	120517	300	102000-102500	10	150.47	1015.1	156.70	0.8
ROME	120517	300	102500-103000	10	148.77	1015.0	154.89	-0.4
ROME	120517	300	103000-103500	10	149.53	1015.1	155.76	0.2
ROME	120517	300	103500-104000	10	150.03	1015.1	156.23	0.5
ROME	120517	300	104000-104500	10	150.53	1015.0	156.68	0.8
ROME	120517	300	104500-105000	10	149.67	1015.0	155.82	0.2
ROME	120517	300	105000-105500	10	150.33	1015.0	156.48	0.6
ROME	120517	300	105500-110000	10	149.17	1014.9	155.18	-0.2
ROME	120517	300	110000-110500	10	148.63	1014.8	154.54	-0.6
ROME	120517	300	110500-111000	10	150.07	1014.8	156.01	0.3
ROME	120517	300	111000-111500	10	148.63	1014.7	154.43	-0.7
ROME	120517	300	111500-112000	10	150.60	1014.6	156.32	0.5
ROME	120517	300	112000-112500	10	150.07	1014.6	155.76	0.2
ROME	120517	300	112500-113000	10	150.40	1014.6	156.06	0.4
ROME	120517	300	113000-113500	10	148.97	1014.5	154.54	-0.6
ROME	120517	300	113500-114000	10	150.53	1014.5	156.17	0.5
ROME	120517	300	114000-114500	10	148.37	1014.5	153.91	-1.0
ROME	120517	300	114500-115000	10	150.50	1014.5	156.13	0.4
ROME	120517	300	115000-115500	10	149.63	1014.5	155.19	-0.2
ROME	120517	300	115500-120000	10	149.97	1014.4	155.50	0.0
ROME	120517	300	120000-120500	10	149.03	1014.5	154.55	-0.6
ROME	120517	300	120500-121000	10	149.00	1014.5	154.56	-0.6
ROME	120517	300	121000-121500	10	147.77	1014.5	153.26	-1.4
ROME	120517	300	121500-122000	10	150.50	1014.4	156.04	0.4
ROME	120517	300	122000-122500	10	150.37	1014.4	155.82	0.2
ROME	120517	300	122500-123000	10	147.23	1014.3	152.55	-1.9
ROME	120517	300	123000-123500	10	150.63	1014.4	156.09	0.4
ROME	120517	300	123500-124000	10	149.10	1014.3	154.49	-0.6
ROME	120517	300	124000-124500	10	148.23	1014.3	153.54	-1.2
ROME	120517	300	124500-125000	10	149.87	1014.2	155.15	-0.2
ROME	120517	300	125000-125500	10	149.83	1014.2	155.11	-0.2
ROME	120517	300	125500-130000	10	148.53	1014.3	153.81	-1.1
ROME	120517	300	130000-130500	10	150.03	1014.2	155.34	-0.1
ROME	120517	300	130500-131000	10	148.20	1014.2	153.37	-1.4
ROME	120517	300	131000-131500	10	147.47	1014.2	152.63	-1.8
ROME	120517	300	131500-132000	10	151.23	1014.2	156.54	0.7
ROME	120517	300	132000-132500	10	148.80	1014.1	153.92	-1.0
ROME	120517	300	132500-133000	10	148.10	1014.0	153.14	-1.5
ROME	120517	300	133000-133500	10	150.70	1014.0	155.81	0.2
ROME	120517	300	133500-134000	10	148.33	1014.0	153.32	-1.4
ROME	120517	300	134000-134500	10	150.90	1014.0	155.94	0.3
ROME	120517	300	134500-135000	10	148.67	1013.9	153.59	-1.2
ROME	120517	300	135000-135500	10	149.60	1013.9	154.48	-0.6

ROME	120517	300	135500-140000	10	148.77	1013.8	153.55	-1.2
ROME	120517	300	140000-140500	10	150.23	1013.7	155.01	-0.3
ROME	120517	300	140500-141000	10	148.97	1013.7	153.71	-1.1
ROME	120517	300	141000-141500	10	151.10	1013.7	155.90	0.3
ROME	120517	300	141500-142000	10	150.57	1013.6	155.24	-0.1
ROME	120517	300	142000-142500	10	151.50	1013.6	156.12	0.4
ROME	120517	300	142500-143000	10	151.03	1013.5	155.62	0.1
ROME	120517	300	143000-143500	10	150.73	1013.5	155.29	-0.1
ROME	120517	300	143500-144000	10	148.40	1013.5	152.81	-1.7
ROME	120517	300	144000-144500	10	147.87	1013.4	152.21	-2.1
ROME	120517	300	144500-145000	10	148.77	1013.4	153.18	-1.5
ROME	120517	300	145000-145500	10	149.07	1013.5	153.55	-1.2
ROME	120517	300	145500-150000	10	151.60	1013.4	156.09	0.4
ROME	120517	300	150000-150500	10	150.80	1013.4	155.20	-0.2
ROME	120517	300	150500-151000	10	150.43	1013.4	154.83	-0.4
ROME	120517	300	151000-151500	10	147.93	1013.4	152.26	-2.1
ROME	120517	300	151500-152000	10	149.70	1013.4	154.08	-0.9
ROME	120517	300	152000-152500	10	148.60	1013.4	152.93	-1.6
ROME	120517	300	152500-153000	10	149.13	1013.4	153.46	-1.3
ROME	120517	300	153000-153500	10	150.53	1013.3	154.87	-0.4
ROME	120517	300	153500-154000	10	150.43	1013.3	154.70	-0.5
ROME	120517	300	154000-154500	10	148.63	1013.2	152.80	-1.7
ROME	120517	300	154500-155000	10	150.03	1013.2	154.27	-0.8
ROME	120517	300	155000-155500	10	149.33	1013.3	153.62	-1.2
ROME	120517	300	155500-160000	10	147.53	1013.3	151.78	-2.4
ROME	120517	300	160000-160500	10	151.67	1013.3	156.03	0.4
ROME	120517	300	160500-161000	10	151.30	1013.3	155.64	0.1
ROME	120517	300	161000-161500	10	147.90	1013.3	152.12	-2.2
ROME	120517	300	161500-162000	10	149.20	1013.3	153.45	-1.3
ROME	120517	300	162000-162500	10	150.27	1013.3	154.52	-0.6
ROME	120517	300	162500-163000	10	149.23	1013.2	153.40	-1.3
ROME	120517	300	163000-163500	10	150.93	1013.2	155.10	-0.2
ROME	120517	300	163500-164000	10	150.80	1013.1	154.95	-0.3
ROME	120517	300	164000-164500	10	150.00	1013.2	154.15	-0.8
ROME	120517	300	164500-165000	10	150.27	1013.2	154.49	-0.6
ROME	120517	300	165000-165500	10	150.30	1013.3	154.57	-0.6
ROME	120517	300	165500-170000	10	148.80	1013.3	153.04	-1.6
ROME	120517	300	170000-170500	10	149.27	1013.3	153.58	-1.2
ROME	120517	300	170500-171000	10	150.80	1013.4	155.22	-0.2
ROME	120517	300	171000-171500	10	149.83	1013.4	154.26	-0.8
ROME	120517	300	171500-172000	10	149.53	1013.5	154.02	-0.9
ROME	120517	300	172000-172500	10	148.83	1013.5	153.33	-1.4
ROME	120517	300	172500-173000	10	149.30	1013.5	153.81	-1.1
ROME	120517	300	173000-173500	10	149.20	1013.5	153.73	-1.1
ROME	120517	300	173500-174000	10	150.40	1013.6	155.03	-0.3
ROME	120517	300	174000-174500	10	149.17	1013.6	153.79	-1.1
ROME	120517	300	174500-175000	10	149.43	1013.7	154.09	-0.9
ROME	120517	300	175000-175500	10	147.90	1013.7	152.55	-1.9
ROME	120517	300	175500-180000	10	149.20	1013.7	153.91	-1.0
ROME	120517	300	180000-180500	10	148.90	1013.7	153.64	-1.2
ROME	120517	300	180500-181000	10	149.67	1013.8	154.45	-0.7
ROME	120517	300	181000-181500	10	149.73	1013.8	154.53	-0.6
ROME	120517	300	181500-182000	10	147.67	1013.8	152.44	-1.9
ROME	120517	300	182000-182500	10	148.37	1013.8	153.20	-1.5
ROME	120517	300	182500-183000	10	148.40	1013.9	153.26	-1.4
ROME	120517	300	183000-183500	10	147.00	1013.9	151.83	-2.3
ROME	120517	300	183500-184000	10	148.70	1013.9	153.61	-1.2
ROME	120517	300	184000-184500	10	146.90	1014.0	151.80	-2.4
ROME	120517	300	184500-185000	10	149.07	1014.0	154.08	-0.9
ROME	120517	300	185000-185500	10	147.87	1014.1	152.91	-1.6
ROME	120517	300	185500-190000	10	146.93	1014.1	152.03	-2.2
ROME	120517	300	190000-190500	10	148.37	1014.2	153.53	-1.2
ROME	120517	300	190500-191000	10	147.77	1014.2	152.92	-1.6
ROME	120517	300	191000-191500	10	151.87	1014.2	157.19	1.1
ROME	120517	300	191500-192000	10	144.50	1014.2	149.58	-3.8
ROME	120517	300	192000-192500	10	148.20	1014.2	153.44	-1.3
ROME	120517	300	192500-193000	10	148.30	1014.3	153.60	-1.2

ROME	120517	300	193000-193500	10	147.97	1014.3	153.31	-1.4
ROME	120517	300	193500-194000	10	147.63	1014.4	153.04	-1.6
ROME	120517	300	194000-194500	10	147.87	1014.5	153.38	-1.3
ROME	120517	300	194500-195000	10	148.37	1014.6	154.04	-0.9
ROME	120517	300	195000-195500	10	148.10	1014.8	153.91	-1.0
ROME	120517	300	195500-200000	10	146.97	1014.8	152.82	-1.7
ROME	120517	300	200000-200500	10	150.03	1014.9	156.01	0.3
ROME	120517	300	200500-201000	10	147.77	1014.8	153.59	-1.2
ROME	120517	300	201000-201500	10	146.03	1014.8	151.76	-2.4
ROME	120517	300	201500-202000	10	146.90	1014.8	152.67	-1.8
ROME	120517	300	202000-202500	10	148.93	1014.8	154.82	-0.4
ROME	120517	300	202500-203000	10	147.57	1014.9	153.47	-1.3
ROME	120517	300	203000-203500	10	146.70	1014.9	152.55	-1.9
ROME	120517	300	203500-204000	10	147.63	1014.8	153.47	-1.3
ROME	120517	300	204000-204500	10	146.53	1014.8	152.30	-2.0
ROME	120517	300	204500-205000	10	147.13	1014.7	152.86	-1.7
ROME	120517	300	205000-205500	10	146.47	1014.7	152.15	-2.1
ROME	120517	300	205500-210000	10	145.00	1014.8	150.69	-3.1
ROME	120517	300	210000-210500	10	146.07	1014.8	151.85	-2.3
ROME	120517	300	210500-211000	10	148.03	1014.9	153.93	-1.0
ROME	120517	300	211000-212100	10	145.63	1014.9	151.43	-2.6
ROME	120517	300	212100-212000	10	148.30	1014.8	154.19	-0.8
ROME	120517	300	212000-212500	10	145.70	1014.8	151.49	-2.6
ROME	120517	300	212500-213000	10	146.13	1014.9	151.99	-2.2
ROME	120517	300	213000-213500	10	145.80	1015.0	151.71	-2.4
ROME	120517	300	213500-214000	10	146.77	1015.0	152.78	-1.7
ROME	120517	300	214000-214500	10	146.20	1015.0	152.23	-2.1
ROME	120517	300	214500-215000	10	147.83	1015.0	153.92	-1.0
ROME	120517	300	215000-215500	10	145.90	1015.0	151.92	-2.3
ROME	120517	300	215500-220000	10	146.17	1015.1	152.21	-2.1
ROME	120517	300	220000-220500	10	147.47	1015.0	153.53	-1.2
ROME	120517	300	220500-221000	10	147.03	1015.0	153.10	-1.5
ROME	120517	300	221000-221500	10	147.37	1015.1	153.55	-1.2
ROME	120517	300	221500-222000	10	148.00	1015.2	154.32	-0.7
ROME	120517	300	222000-222500	10	147.97	1015.3	154.37	-0.7
ROME	120517	300	222500-223000	10	145.03	1015.4	151.37	-2.6
ROME	120517	300	223000-223500	10	144.93	1015.4	151.30	-2.7
ROME	120517	300	223500-224000	10	147.30	1015.4	153.80	-1.1
ROME	120517	300	224000-224500	10	148.23	1015.5	154.86	-0.4
ROME	120517	300	224500-225000	10	146.27	1015.6	152.86	-1.7
ROME	120517	300	225000-225500	10	144.30	1015.6	150.79	-3.0
ROME	120517	300	225500-230000	10	145.80	1015.5	152.30	-2.0
ROME	120517	300	230000-230500	10	144.90	1015.4	151.27	-2.7
ROME	120517	300	230500-231000	10	146.53	1015.4	152.91	-1.6
ROME	120517	300	231000-231500	10	146.53	1015.3	152.90	-1.7
ROME	120517	300	231500-232000	10	147.10	1015.3	153.46	-1.3
ROME	120517	300	232000-232500	10	147.27	1015.3	153.59	-1.2
ROME	120517	300	232500-233000	10	148.13	1015.2	154.41	-0.7
ROME	120517	300	233000-233500	10	145.77	1015.1	151.88	-2.3
ROME	120517	300	233500-234000	10	147.57	1015.1	153.76	-1.1
ROME	120517	300	234000-234500	10	145.37	1015.1	151.46	-2.6
ROME	120517	300	234500-235000	10	146.73	1015.1	152.87	-1.7
ROME	120517	300	235000-235500	10	143.67	1015.1	149.66	-3.7
ROME	120517	300	235500-240000	10	145.10	1015.1	151.18	-2.8

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COMMENT ALERT FROM M. STORINI (IAPS-Rome Coordinator for SVIRCO, LARC,
COMMENT ESO and OLC network)
COMMENT DATA PREPARED BY F. SIGNORETTI
COMMENT FROM JANUARY 1, 2005 THE DETECTOR WAS UPGRADED TO 20 COUNTERS
COMMENT GPS TIMER IN USE
COMMENT CITATION: F. Signoretti, F. Re,
COMMENT SVIRCO Prompt Report: May 2012, Report INAF/IAPS-2012-30
COMMENT TO ACKNOWLEDGE:IAPS-INAF/UNIromaTre COLLABORATION FOR SVIRCO

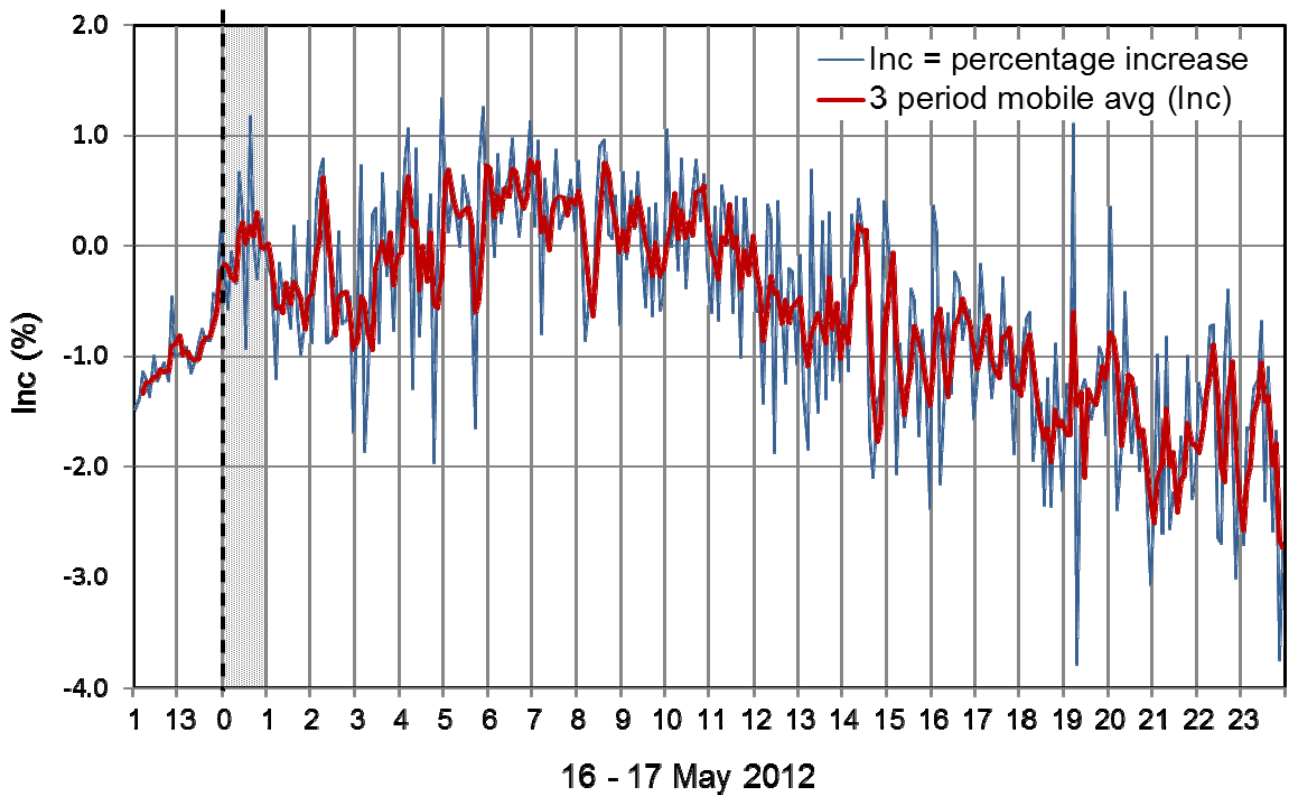


Figure 1. The blue line describes the time history of the percentage increase, above the pre-increase average counting rate determined from the baseline time interval (grey area of the graph) and equal to 155.47 counts per second. The red line shows the 3 period SMA of the same percentage increase. Hourly data were used for the 16th of May and 5 minute data for the 17th day.