Institute of Environment and Health

Cranfield UNIVERSITY

Aircraft Cabin Air Sampling Study; Part 2 of the Final Report

Tabulated raw data

Continuous data recordings

April 2011

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This document is an unpublished report by the Institute of Environment and Health for the Department for Transport.

Prepared by Derrick Crump, Paul Harrison and Christopher Walton

Institute of Environment and Health
Cranfield University
Vincent Building
Cranfield
Bedfordshire
MK43 0AL
UK

www.cranfield.ac.uk/health/ieh

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Introduction

Background

This is the second part of the report on aircraft cabin air quality prepared by Cranfield University for the Department for Transport. The study was set up in light of concerns about possible adverse impacts on the health and well-being of air crew resulting from exposure to substances in cabin air. Part 1 of the report describes in detail the methodology used in the study, summarises the results obtained and assesses cabin air quality against available exposure limits and the quality of air encountered in domestic settings. This second part comprises principally a record of the data obtained on individual flight sectors.

Sampling

Monitoring of the total volatile organic compound (VOC) concentration was carried out using a photo-ionisation detector (PID). Samples were also collected onto sorbent tubes using a portable pump for subsequent laboratory analysis by thermal desorption/gas chromatography/mass spectrometry (TD/GC/MS) to determine specific VOCs and semi-volatile organic compounds (SVOCs). The PID was additionally used as a real-time detector of possible fume events. Carbon monoxide (CO) concentration and ultrafine particle count were determined using a gas monitor (electrochemical sensor) and P-Trak ultrafine particle counter, respectively.

Sampling was carried out on 100 flights, with 20 sectors being undertaken on each of five different aircraft types (Parts 1-5 of the study respectively):

1. Boeing 757 cargo
2. Boeing 757 passenger
3. Airbus A320/1
4. BAe 146
5. Airbus A319

Also included here are results from two trial flights undertaken within Part 2 which were carried out to establish the sampling procedure on passenger aircraft. These were not subject to the blinded analytical protocol which was applied to the bulk of the data and were therefore not included in Part 1.

Data are presented sector-by-sector, each sector being identified by part of study (1-5) and sector number within that part (1-20). Data pertaining to air quality events are included within the relevant sectors.

Volatile organic compounds and organophosphates

Sorbent tube samples were analysed for the following target compounds:

1. Tri-*ortho* cresyl phosphate (TOCP); one of a number of TCP isomers,
2. Other tri-cresyl phosphate (TCP) isomers; applications include a minor component of engine oil,
3. Tri-butyl phosphate (TBP); applications include a component of hydraulic fluid,
4. Toluene,
5. m+p- xylenes,
6. Limonene,
7. Tetrachloroethylene (TCE),
8. Undecane.

Results are reported below in tabular form; Table 1 lists organophosphate compounds (1-3 above) while VOCs (4-8 above) are shown in Table 2. Concentrations below the limits of detection of the method are shown as 0.0.

Monitoring instruments

The gas monitor and particle counter instruments were configured to record data continuously throughout each flight with a logging interval of one second. These data are presented in their entirety as a set of graphs with each measurand plotted against time and date.

Three graphs are presented for each flight sector, for VOCs, CO and particle count, except where instrument failure meant that no data were recorded. A number of points are to be borne in mind when inspecting the data:

1. The dynamic range of the data was high which has made it impracticable to plot the graphs for a given measurand to a common axis.
2. For the same reason, the minimum extent of the axes for volatile organic compounds and carbon monoxide was set at 5ppm.
3. A majority of the CO readings were in the range 0-2ppm, and many of the graphs at these concentrations have an “inky” appearance. However, this does not imply rapid changes in low-level CO concentration: rather the resolution of the CO monitor was 1ppm and this is simply quantisation error (“jitter”) between adjacent levels.
4. Similarly, some apparent negative readings of CO concentration represent a slight error in the zero point of the instrument and do not imply any significant under-reading of CO concentration.
5. In many sectors a small increase in VOC recorded by PID from close to zero to a maximum of around 1ppm was noted between take-off and cruise with a corresponding decrease on descent to landing. This is thought to represent the effect of cabin conditions (mainly pressure change) on the instrument and not any real change in VOC levels. This assertion is supported by the lack of any corresponding change in VOCs analysed by TD/GC/MS.
6. In a few sectors, flight time was longer than the battery life of the instruments, which were accordingly switched off during cruise and back on for descent and landing. This is reflected by gaps in the data on the corresponding graphs.

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	**Analyte concentrations in µg.m^{-3}**											
	Tri-ortho-cresyl phosphate (TOCP)			**Other tricresyl phosphates (TCP)**			**Total tricresyl phosphates (TOCP+TCP)**			**Tributyl phosphate**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
Part 1												
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	2.2
2	2.4	0.0	7.8	3.2	0.0	17.7	5.6	0.0	25.5	7.6	5.0	12.4
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	4.8
4	0.3	0.0	2.8	0.5	0.0	4.6	0.7	0.0	7.4	4.1	0.7	21.8
5	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	1.6	1.0	3.7
6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	1.0	0.0	4.6
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	4.1	8.6
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	4.9
9	0.3	0.0	2.6	0.5	0.0	2.3	0.7	0.0	3.2	3.9	2.5	5.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.7	2.5
11	0.1	0.0	0.6	0.0	0.0	0.5	0.1	0.0	1.1	0.9	0.0	3.1
12	1.5	0.0	7.4	6.6	0.0	28.5	8.0	0.0	36.0	6.5	4.1	9.3
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	3.8
14	0.0	0.0	0.0	0.2	0.0	1.5	0.2	0.0	1.5	2.7	1.4	5.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	4.5

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	Analyte concentrations in $\mu g.m^{-3}$											
	Tri-ortho-cresyl phosphate (TOCP)			Other tricresyl phosphates (TCP)			Total tricresyl phosphates (TOCP+TCP)			Tributyl phosphate		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
16	0.3	0.0	2.7	0.4	0.0	3.2	0.7	0.0	5.9	7.3	5.4	14.5
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	3.3	15.2
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.8
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	2.6	9.1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	3.0	6.2
Part 2												
Trial 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trial 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.7	0.0	6.4	0.3	0.0	3.1	1.0	0.0	9.4	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	Analyte concentrations in µg.m^{-3}											
	Tri-ortho-cresyl phosphate (TOCP)			Other tricresyl phosphates (TCP)			Total tricresyl phosphates (TOCP+TCP)			Tributyl phosphate		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.9
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.9
14	2.5	0.0	22.8	1.7	0.0	14.9	4.2	0.0	37.7	1.2	0.9	1.5
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
16	0.0	0.0	0.0	0.1	0.0	1.0	0.1	0.0	1.0	0.3	0.0	1.3
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	1.5
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Part 3												
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.4
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	2.9
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	2.7

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	Analyte concentrations in µg.m^{-3}											
	Tri-ortho-cresyl phosphate (TOCP)			Other tricresyl phosphates (TCP)			Total tricresyl phosphates (TOCP+TCP)			Tributyl phosphate		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.7
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.9
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	2.4
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.7	1.4
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.9	1.6
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	1.1
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.7	2.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.7	1.6
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	1.7
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	1.6
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	2.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5	1.1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.6	1.7
Part 4												
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	1.5	6.5

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	**Analyte concentrations in µg.m^{-3}**											
	Tri-ortho-cresyl phosphate (TOCP)			**Other tricresyl phosphates (TCP)**			**Total tricresyl phosphates (TOCP+TCP)**			**Tributyl phosphate**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
2	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.8	0.5	1.1
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.9
5	0.0	0.0	0.1	0.1	0.0	0.6	0.1	0.0	0.7	2.0	1.0	3.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	1.9
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.1	0.0	0.6	0.1	0.0	0.6	2.9	0.8	9.1
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.4	1.7
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.1	3.8
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.2	0.1	0.0	1.4	0.2	0.0	1.4	0.2	0.0	2.1
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.8
15	0.0	0.0	0.0	0.1	0.0	0.5	0.1	0.0	0.5	2.2	1.6	3.7
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	1.5	3.6
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.8
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	2.5

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	Analyte concentrations in µg.m^{-3}											
	Tri-ortho-cresyl phosphate (TOCP)			Other tricresyl phosphates (TCP)			Total tricresyl phosphates (TOCP+TCP)			Tributyl phosphate		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.4	0.0	1.8
Part 5												
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.8
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4[1]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.7
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	2.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.8
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.7
12	0.0	0.0	0.2	0.1	0.0	0.6	0.1	0.0	0.8	0.7	0.5	0.9
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	1.4
14	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.4	1.8

Table 1: Concentrations of organophosphate compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	**Analyte concentrations in µg.m^{-3}**											
	Tri-ortho-cresyl phosphate (TOCP)			**Other tricresyl phosphates (TCP)**			**Total tricresyl phosphates (TOCP+TCP)**			**Tributyl phosphate**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	1.8
16	0.0	0.0	0.0	0.2	0.0	1.0	0.2	0.0	1.0	0.8	0.5	1.6
17	0.0	0.0	0.0	0.2	0.0	0.6	0.2	0.0	0.6	1.1	0.2	1.5
18	0.1	0.0	0.7	0.4	0.0	2.5	0.5	0.0	3.2	0.9	0.5	1.5
19	0.0	0.0	0.1	0.1	0.0	0.5	0.1	0.0	0.6	1.2	0.6	5.6
20	0.0	0.0	0.0	0.1	0.0	0.5	0.1	0.0	0.5	0.9	0.7	1.7

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	**Analyte concentrations in µg.m^{-3}**														
	Toluene			**Xylene**			**Limonene**			**Trichloroethylene**			**Undecane**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
Part 1															
1	9.6	0.0	94.0	0.5	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.9	0.8	6.6	1.0	0.1	2.7	1.4	1.0	1.8	0.0	0.0	0.0	0.1	0.0	0.6
3	0.8	0.0	7.7	0.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
4	2.2	0.3	12.8	0.6	0.1	3.8	2.7	0.6	20.5	0.0	0.0	0.0	0.0	0.0	0.0
5	1.8	0.5	5.2	0.1	0.0	0.6	0.2	0.0	1.0	0.0	0.0	0.0	0.9	0.0	2.1
6	2.6	0.0	8.6	1.0	0.0	3.7	0.0	0.0	0.0	0.5	0.0	2.0	0.0	0.0	0.0
7	9.6	0.7	49.1	1.3	0.2	3.9	1.2	0.7	1.7	0.2	0.0	0.8	0.5	0.0	1.6
8	1.4	0.0	10.2	0.8	0.0	3.6	0.5	0.0	5.0	0.4	0.0	1.7	0.9	0.0	6.1
9	2.1	0.2	8.2	0.7	0.0	3.0	0.3	0.0	0.7	0.2	0.0	1.1	0.4	0.0	1.8
10	1.8	0.1	5.2	0.3	0.0	1.1	0.2	0.0	0.5	0.0	0.0	0.0	1.1	0.4	3.9
11	13.2	0.0	107.6	0.8	0.0	3.1	0.0	0.0	0.0	0.1	0.0	0.5	0.4	0.0	4.1
12	2.8	0.7	7.0	1.2	0.1	2.5	1.8	1.0	3.5	0.0	0.0	0.0	1.0	0.0	4.8
13	1.6	0.0	5.6	0.3	0.0	1.2	0.0	0.0	0.0	1.0	0.0	4.7	0.0	0.0	0.0
14	2.2	0.4	6.2	0.8	0.2	1.9	0.6	0.0	1.1	0.5	0.0	1.7	0.8	0.0	2.5
15	11.9	0.0	48.1	2.3	0.0	9.2	0.0	0.0	0.0	0.7	0.0	2.6	0.0	0.0	0.0

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	Analyte concentrations in µg.m^{-3}														
	Toluene			Xylene			Limonene			Trichloroethylene			Undecane		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
16	3.1	0.7	9.1	1.5	0.3	3.9	1.2	1.0	1.5	0.1	0.0	0.8	1.1	0.0	2.2
17	5.4	0.0	14.8	2.8	0.0	7.4	0.0	0.0	0.0	0.3	0.0	0.7	1.2	0.0	6.4
18	37.3	0.0	170.2	1.1	0.0	2.4	0.0	0.0	0.0	0.2	0.0	0.9	0.4	0.0	3.6
19	5.3	0.0	28.5	1.3	0.0	3.9	1.5	0.0	11.9	0.2	0.0	0.7	1.6	0.0	12.6
20	9.9	5.4	17.1	1.0	0.3	1.9	1.6	0.8	3.7	0.0	0.0	0.0	0.5	0.0	1.0
Part 2															
Trial 1	9.1	0.0	39.6	0.9	0.0	3.9	1.3	0.5	4.0	0.0	0.0	0.0	1.3	0.0	7.6
Trial 2	1.8	0.0	7.0	0.8	0.0	3.1	0.0	0.0	0.0	0.3	0.0	1.2	0.0	0.0	0.0
1	2.0	0.7	5.4	0.4	0.0	1.6	2.4	0.4	6.5	0.0	0.0	0.0	0.9	0.0	3.1
2	6.4	0.0	15.4	1.2	0.0	7.2	0.6	0.0	6.5	0.3	0.0	2.2	0.4	0.0	3.9
3	2.2	1.1	3.9	0.6	0.1	1.6	3.5	1.5	11.2	0.1	0.0	1.4	0.8	0.0	3.6
4	2.4	1.0	6.2	0.8	0.1	3.4	1.6	0.5	3.7	0.0	0.0	0.0	2.1	1.0	3.5
5	2.5	0.0	14.4	0.1	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.6	0.3	0.0	3.3
6	1.6	0.5	4.2	0.3	0.0	1.2	2.4	1.0	4.2	0.1	0.0	0.7	0.6	0.0	3.4
7	0.6	0.0	3.4	0.5	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1.6	0.0	9.2	1.3	0.0	5.5	0.0	0.0	0.0	0.4	0.0	1.8	0.0	0.0	0.0

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	Analyte concentrations in µg.m^{-3}														
	Toluene			Xylene			Limonene			Trichloroethylene			Undecane		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
10	2.2	0.0	6.8	0.5	0.0	3.5	0.7	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
11	2.9	0.8	6.6	1.0	0.2	1.8	2.0	0.6	7.0	0.0	0.0	0.4	0.7	0.0	2.4
12	4.3	1.2	18.4	1.0	0.2	2.4	2.9	0.6	13.6	3.2	1.5	6.1	0.9	0.0	3.8
13	2.0	0.0	7.3	1.2	0.0	4.3	0.0	0.0	0.0	0.3	0.0	1.3	1.8	0.0	14.7
14	5.1	1.4	9.9	0.4	0.0	1.3	1.7	0.4	5.9	0.0	0.0	0.4	0.6	0.0	2.5
15	3.1	0.7	9.9	0.9	0.2	2.9	1.4	0.4	4.6	0.6	0.0	1.9	0.5	0.0	3.0
16	1.7	0.2	4.5	0.6	0.1	2.1	1.3	0.0	4.1	1.2	0.0	2.9	0.6	0.0	2.2
17	3.2	0.0	11.6	2.0	0.0	5.9	1.5	0.0	8.3	0.4	0.0	1.8	0.3	0.0	2.9
18	1.2	0.5	2.7	0.3	0.0	1.2	3.3	0.5	17.7	0.0	0.0	0.0	1.1	0.0	3.6
19	1.7	0.0	10.5	1.3	0.0	8.1	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.0
20	3.8	0.0	12.2	2.9	0.0	8.4	15.1	0.0	150.7	0.2	0.0	0.8	0.0	0.0	0.0
Part 3															
1	4.1	2.5	6.3	0.7	0.0	1.8	41.8	25.1	63.9	0.0	0.0	0.0	3.4	0.0	8.5
2	0.8	0.0	2.8	0.0	0.0	0.0	23.2	12.2	42.6	0.0	0.0	0.0	0.6	0.0	3.1
3	19.5	14.3	26.4	1.3	0.0	2.3	11.9	7.2	22.3	0.1	0.0	0.5	1.0	0.0	5.8
4	39.5	15.8	82.8	1.1	0.0	2.8	44.2	27.0	65.9	0.0	0.0	0.0	13.5	6.8	22.0
5	4.5	2.8	7.3	0.8	0.0	2.8	6.0	0.0	8.8	0.0	0.0	0.0	0.8	0.0	5.3

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	**Analyte concentrations in µg.m^{-3}**														
	Toluene			**Xylene**			**Limonene**			**Trichloroethylene**			**Undecane**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
6	6.4	3.1	8.9	0.5	0.0	1.7	34.3	20.0	53.3	0.0	0.0	0.0	11.2	6.8	20.5
7	8.8	5.3	16.0	0.4	0.0	1.8	5.7	0.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0
8	3.6	2.7	4.8	0.4	0.0	1.4	9.8	7.3	13.6	0.0	0.0	0.0	0.0	0.0	0.0
9	12.7	4.5	27.1	0.9	0.0	2.6	30.5	17.6	60.0	0.0	0.0	0.4	2.4	0.0	10.2
10	6.4	3.2	11.8	1.0	0.0	2.1	21.7	8.4	41.0	3.7	0.0	20.1	1.1	0.0	5.1
11	17.8	10.3	25.9	0.4	0.0	1.6	10.1	5.3	16.0	0.1	0.0	0.4	2.8	0.7	5.7
12	5.4	2.6	8.7	0.8	0.0	2.9	11.9	6.3	17.4	0.1	0.0	0.5	2.8	0.8	5.0
13	9.4	3.2	24.1	1.4	0.2	3.4	14.7	6.7	22.1	0.0	0.0	0.0	2.0	1.0	4.1
14	2.0	1.0	3.6	0.8	0.3	1.6	11.0	5.3	16.1	0.0	0.0	0.0	1.4	0.6	2.4
15	25.9	6.6	74.8	0.5	0.0	2.9	342.7	202.1	540.3	0.9	0.0	1.9	47.1	23.1	87.3
16	5.9	1.9	12.5	0.3	0.0	1.8	257.2	143.7	487.3	1.5	0.0	8.4	36.7	21.4	55.1
17	6.5	0.1	12.3	0.3	0.0	0.8	36.2	22.8	49.7	0.0	0.0	0.3	12.3	6.6	17.4
18	4.3	1.0	10.0	0.4	0.0	1.5	37.7	17.0	76.6	0.1	0.0	0.5	13.6	5.4	27.7
19	12.8	8.2	24.8	0.5	0.0	1.4	16.3	7.9	29.3	0.0	0.0	0.0	3.5	1.5	6.2
20	3.1	1.1	5.0	0.3	0.0	1.2	17.1	10.2	24.3	0.0	0.0	0.0	3.1	1.1	5.4
Part 4															
1	17.2	5.3	47.4	0.3	0.0	2.5	3.7	1.9	7.5	0.0	0.0	0.0	1.6	0.4	6.5

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	**Analyte concentrations in µg.m^{-3}**														
	Toluene			**Xylene**			**Limonene**			**Trichloroethylene**			**Undecane**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
2	25.2	6.2	45.0	0.3	0.0	0.8	5.7	1.5	10.3	0.0	0.0	0.0	1.0	0.5	1.5
3	20.1	4.3	37.3	0.5	0.0	1.7	2.2	0.0	6.6	1.0	0.5	1.7	0.0	0.0	0.0
4	38.5	10.7	82.5	0.5	0.0	2.1	2.0	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0
5	45.8	8.8	82.9	3.4	0.0	29.6	11.9	0.7	83.5	2.5	1.2	4.9	1.1	0.5	2.5
6	70.1	13.7	159.0	0.5	0.0	1.1	7.3	4.1	13.7	0.4	0.0	0.9	1.7	0.5	3.2
7	20.3	4.0	73.2	0.9	0.0	1.8	0.9	0.0	6.8	0.1	0.0	0.5	0.5	0.0	3.8
8	27.3	4.6	59.4	0.5	0.0	1.8	3.1	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0
9	27.2	2.7	72.9	0.5	0.0	1.9	4.4	1.0	10.1	0.1	0.0	0.3	1.0	0.0	4.0
10	14.6	2.3	31.6	0.5	0.0	3.4	2.7	1.4	3.6	0.0	0.0	0.3	1.0	0.0	6.9
11	24.8	4.5	48.9	0.4	0.0	1.1	4.3	2.2	7.9	0.1	0.0	0.4	0.5	0.0	1.1
12	18.0	4.2	78.7	1.0	0.0	5.2	4.2	0.0	20.7	1.0	0.6	1.9	1.6	0.0	12.9
13	27.4	10.6	63.7	1.0	0.0	2.6	1.7	0.0	6.0	1.0	0.0	1.6	0.3	0.0	3.4
14	18.2	3.7	42.4	0.6	0.0	1.8	3.6	0.0	9.3	1.5	0.0	4.5	0.0	0.0	0.0
15	26.8	10.3	68.4	0.3	0.0	0.8	7.2	2.8	15.0	0.1	0.0	0.4	1.6	0.6	2.9
16	36.2	7.1	73.3	0.2	0.0	1.2	10.3	1.5	23.3	0.0	0.0	0.0	1.1	0.5	2.5
17	56.7	22.0	118.1	0.4	0.0	1.4	6.1	2.6	19.9	0.0	0.0	0.0	0.9	0.4	2.0
18	40.0	8.1	150.8	2.5	0.0	7.9	5.8	0.0	16.4	0.8	0.0	2.6	3.1	0.0	18.3

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	**Analyte concentrations in µg.m^{-3}**														
	Toluene			**Xylene**			**Limonene**			**Trichloroethylene**			**Undecane**		
	Mean	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
19	26.4	0.0	106.9	0.3	0.0	1.2	10.8	0.0	35.8	1.0	0.0	2.1	0.0	0.0	0.0
20	31.2	9.2	63.0	1.3	0.0	3.1	2.4	0.0	10.4	0.3	0.0	0.7	0.0	0.0	0.0
Part 5															
1	9.2	2.5	34.3	1.1	0.0	3.7	0.0	0.0	0.0	0.6	0.0	1.3	0.0	0.0	0.0
2	4.0	0.0	12.9	1.5	0.0	4.5	0.6	0.0	5.9	1.1	0.0	1.9	0.6	0.0	3.2
3	27.9	7.6	82.4	8.4	4.2	16.3	0.0	0.0	0.0	0.3	0.0	1.0	5.1	0.0	34.5
4[1]	11.2	3.4	25.5	1.3	0.0	4.2	0.0	0.0	0.0	0.7	0.5	1.2	0.6	0.0	5.8
5	31.8	9.0	82.9	8.0	4.1	16.3	1.0	0.0	5.3	1.1	0.5	2.1	3.4	0.0	12.6
6	7.6	0.0	17.5	5.4	0.0	16.8	0.0	0.0	0.0	1.2	0.5	1.8	6.8	0.0	35.2
7	19.0	7.6	44.0	6.3	3.8	10.8	0.0	0.0	0.0	0.4	0.0	0.9	0.7	0.0	4.4
8	31.2	13.1	48.0	3.7	0.0	13.3	0.0	0.0	0.0	1.3	0.5	1.8	7.4	0.0	29.4
9	12.0	5.9	22.1	7.9	4.1	15.1	0.0	0.0	0.0	0.2	0.0	2.0	4.7	0.0	18.0
10	17.3	6.3	41.1	5.1	0.0	23.8	0.0	0.0	0.0	1.4	0.8	3.2	10.0	0.0	49.2
11	3.3	2.8	4.5	0.2	0.0	0.5	2.1	0.9	3.2	0.1	0.0	0.3	0.8	0.0	1.5
12	12.5	3.9	29.3	1.0	0.2	2.6	2.4	1.1	5.4	0.5	0.3	0.9	2.1	0.6	4.5
13	47.3	5.4	152.2	0.4	0.0	1.6	1.3	0.2	2.5	0.3	0.2	0.5	1.0	0.6	1.6
14	7.9	2.0	22.4	2.6	0.0	13.5	1.8	0.9	4.5	0.2	0.0	0.7	5.8	0.5	32.4

Table 2: Concentrations of volatile organic compounds determined using thermal desorption-gas chromatography-mass spectrometry for individual flight sectors

Part/sector	Analyte concentrations in µg.m^{-3}														
	Toluene			Xylene			Limonene			Trichloroethylene			Undecane		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
15	37.7	14.7	127.5	7.7	4.1	13.5	1.9	1.0	3.7	0.5	0.4	0.7	6.5	0.9	49.2
16	28.4	11.2	104.5	11.3	3.5	52.3	3.7	1.5	10.5	0.9	0.3	3.5	3.7	1.2	10.5
17	21.8	12.4	41.5	9.2	4.5	16.6	2.7	1.5	4.5	1.5	0.9	2.0	2.3	1.0	4.6
18	20.5	11.9	40.7	8.5	3.4	20.2	4.0	2.0	14.6	2.1	0.8	3.2	2.6	0.0	6.1
19	38.6	13.7	70.7	8.9	3.5	13.2	5.3	2.0	22.0	0.4	0.2	0.6	1.6	0.4	2.8
20	17.2	9.0	38.1	10.9	3.7	19.1	2.7	1.9	4.7	0.1	0.0	0.4	3.9	1.0	16.4

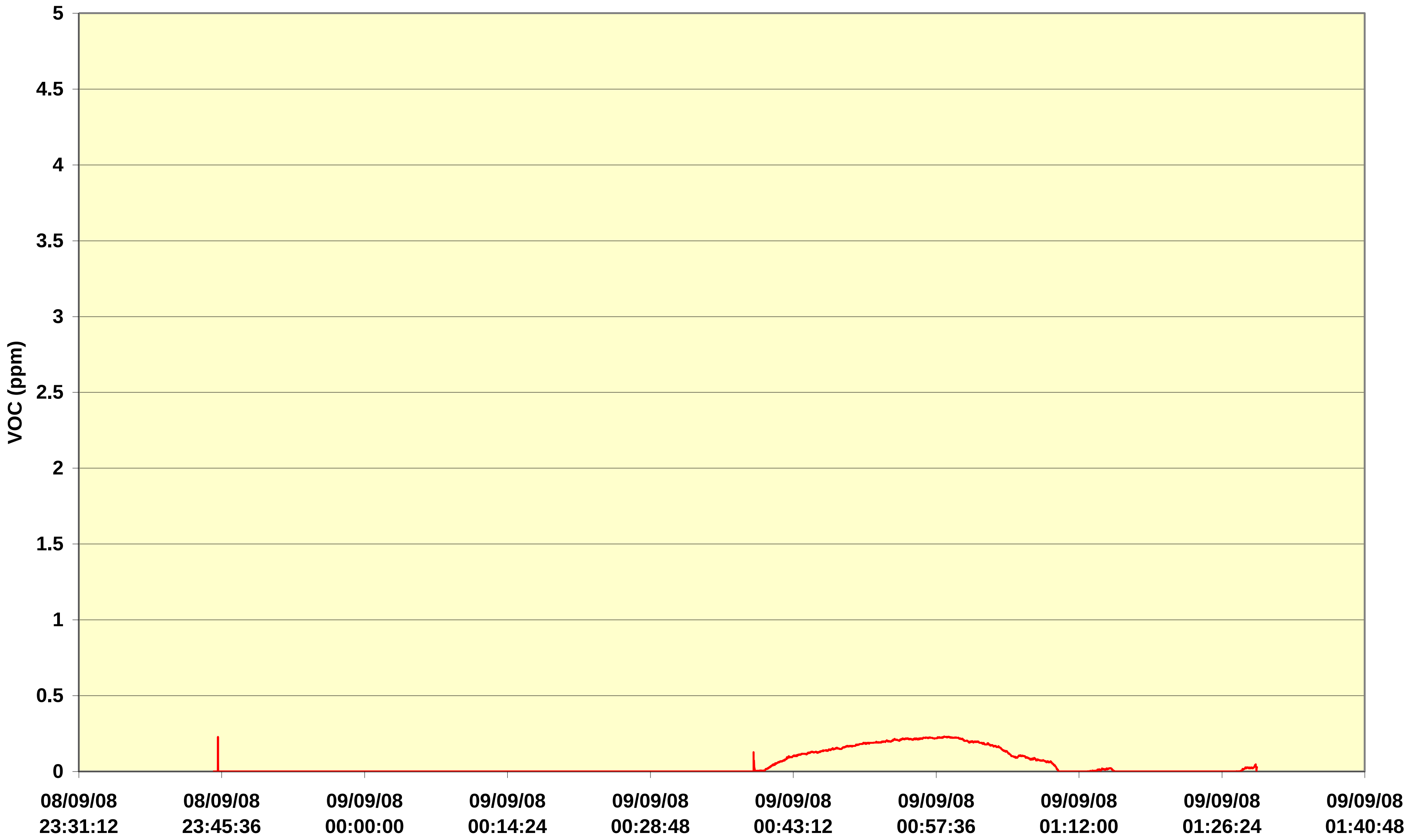
Continuous-recording data:

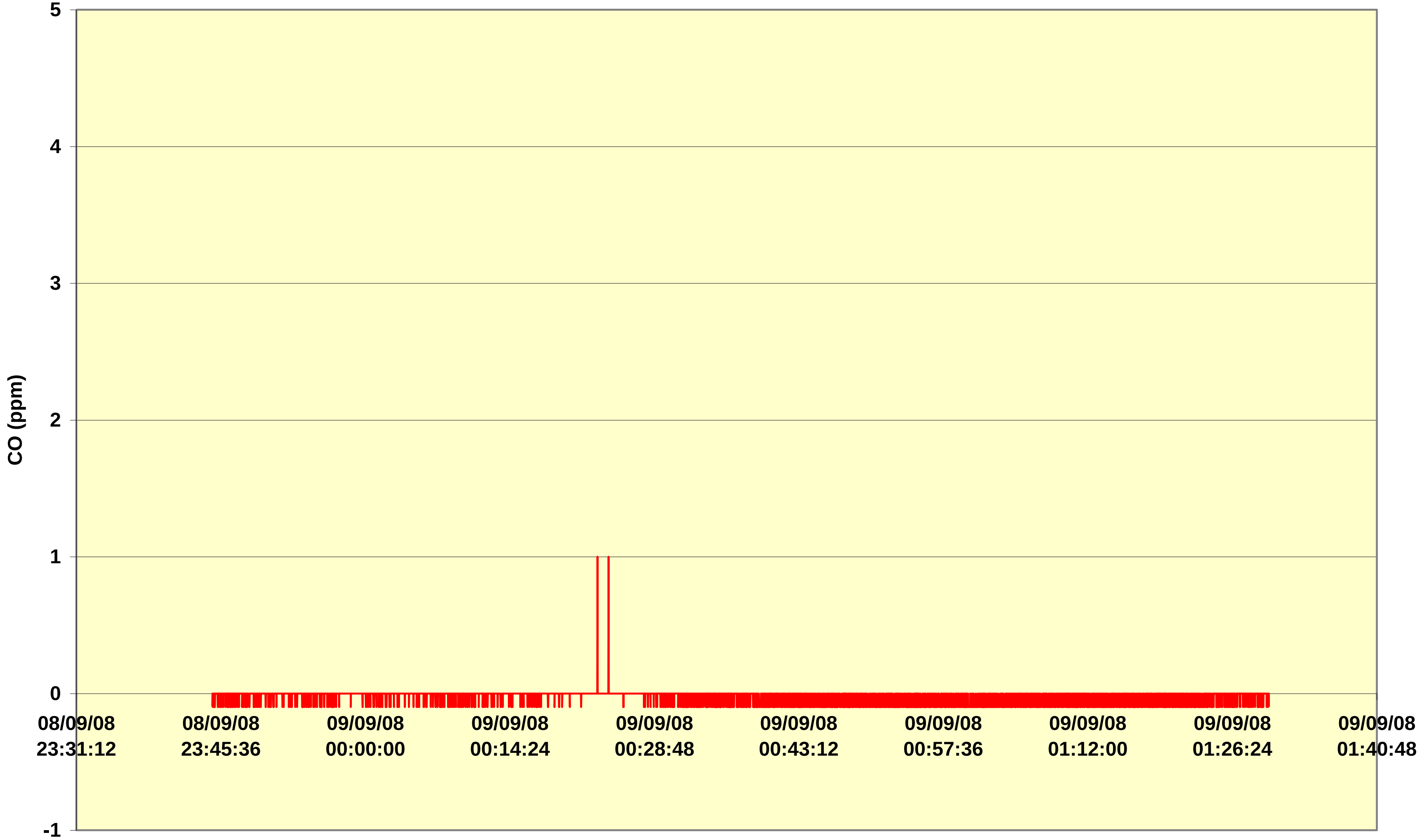
Volatile organic compounds

Carbon monoxide

Ultrafine particles

Part 1 Sector 1.

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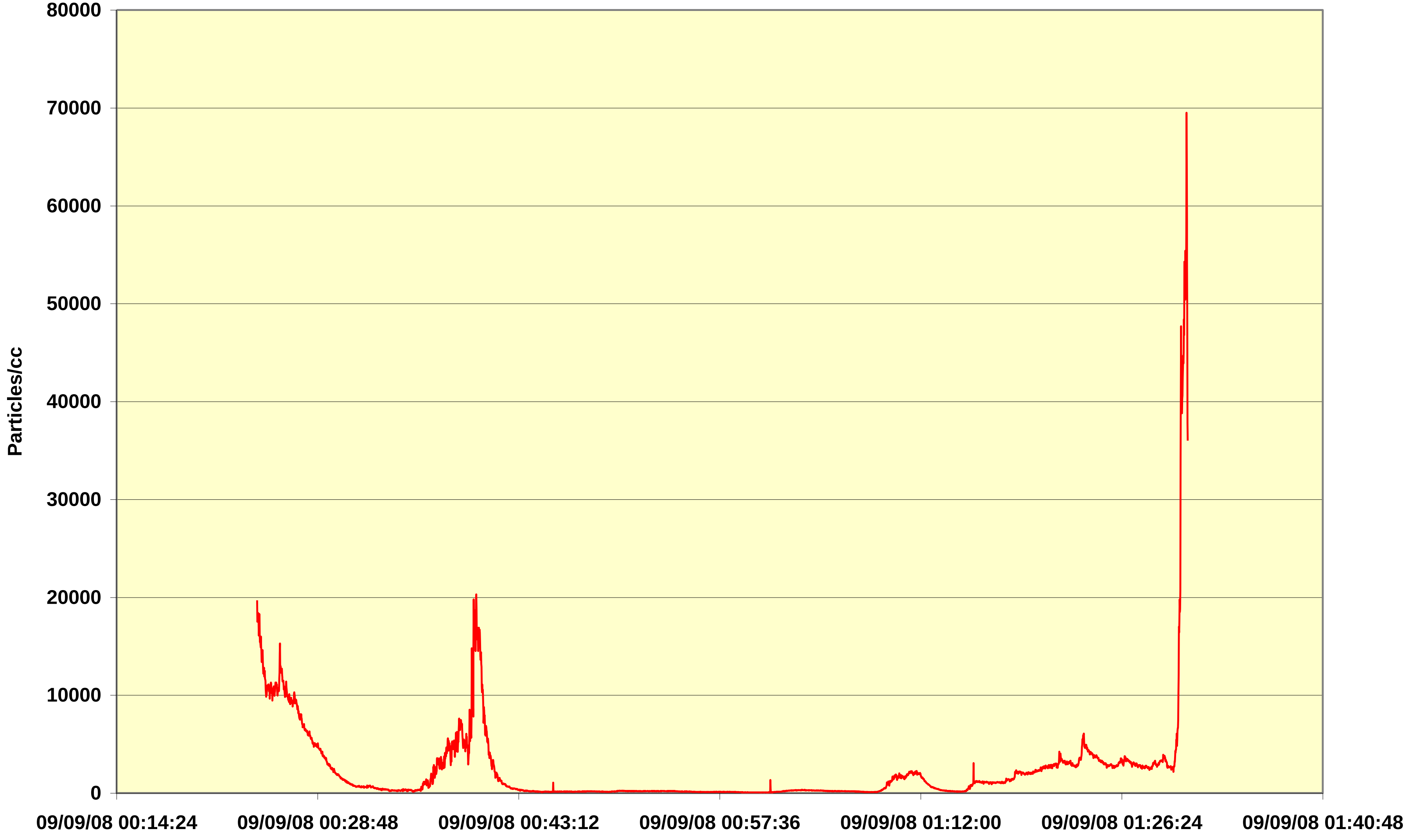
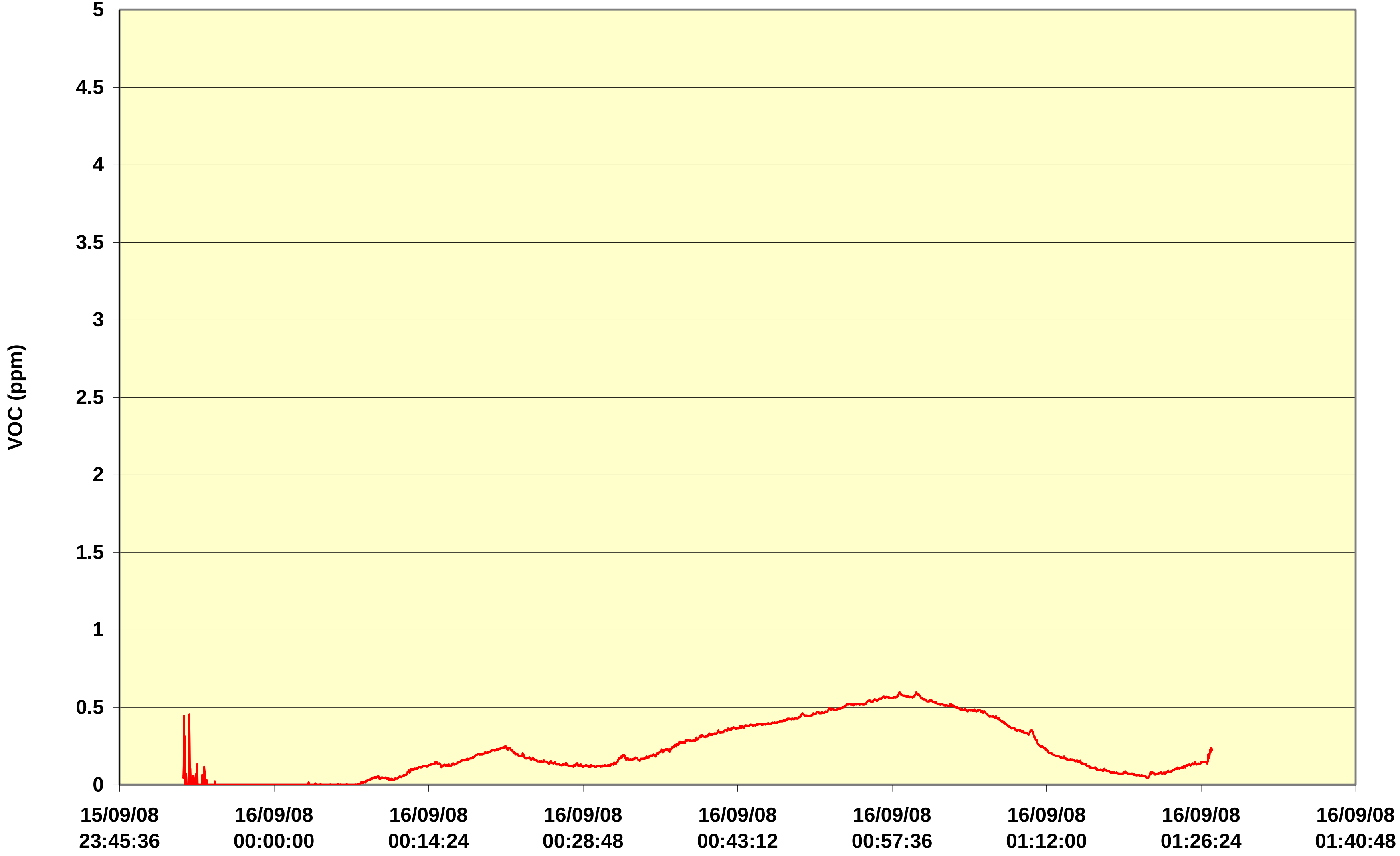
Part 1 Sector 1.





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3
2.5
2
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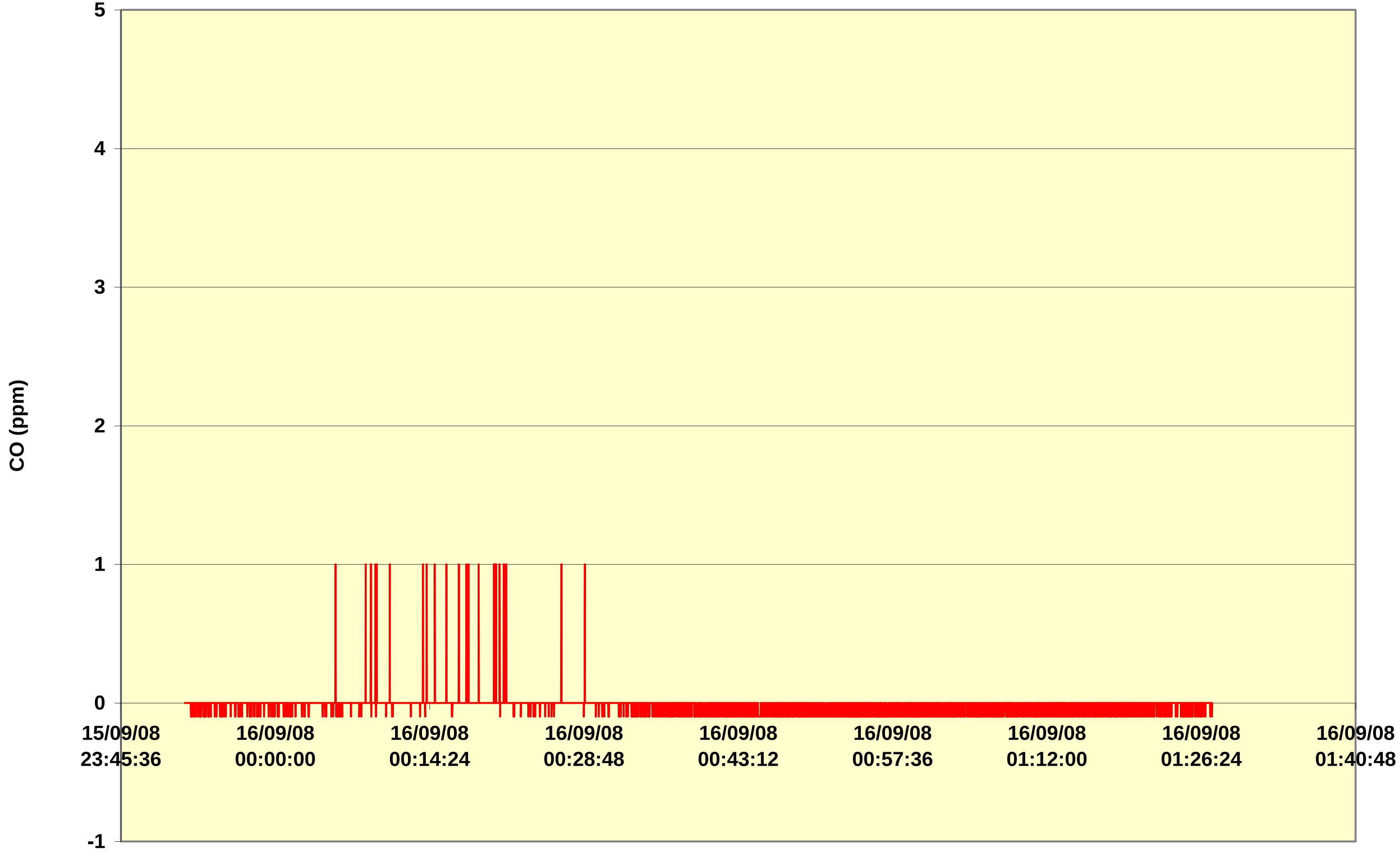
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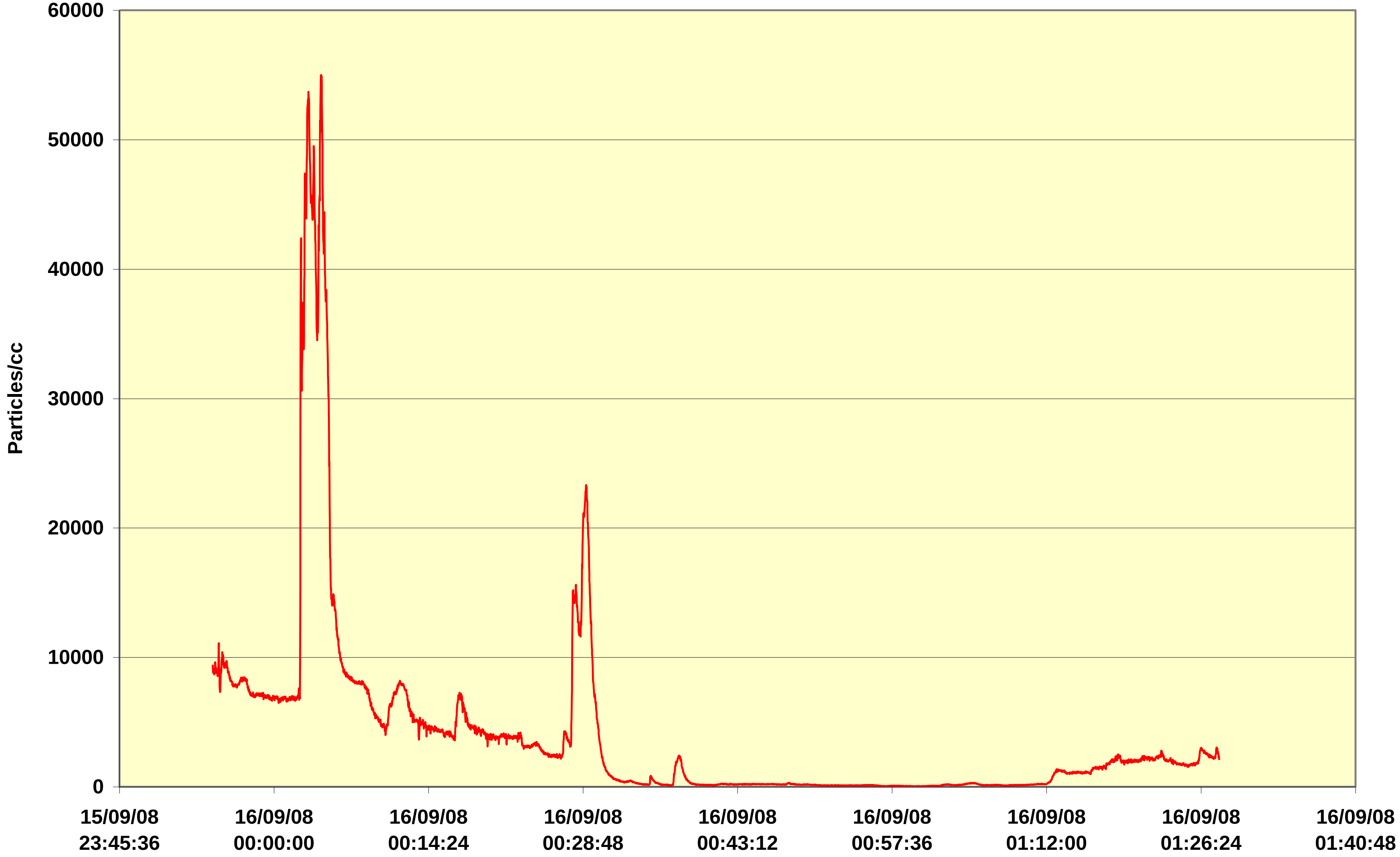
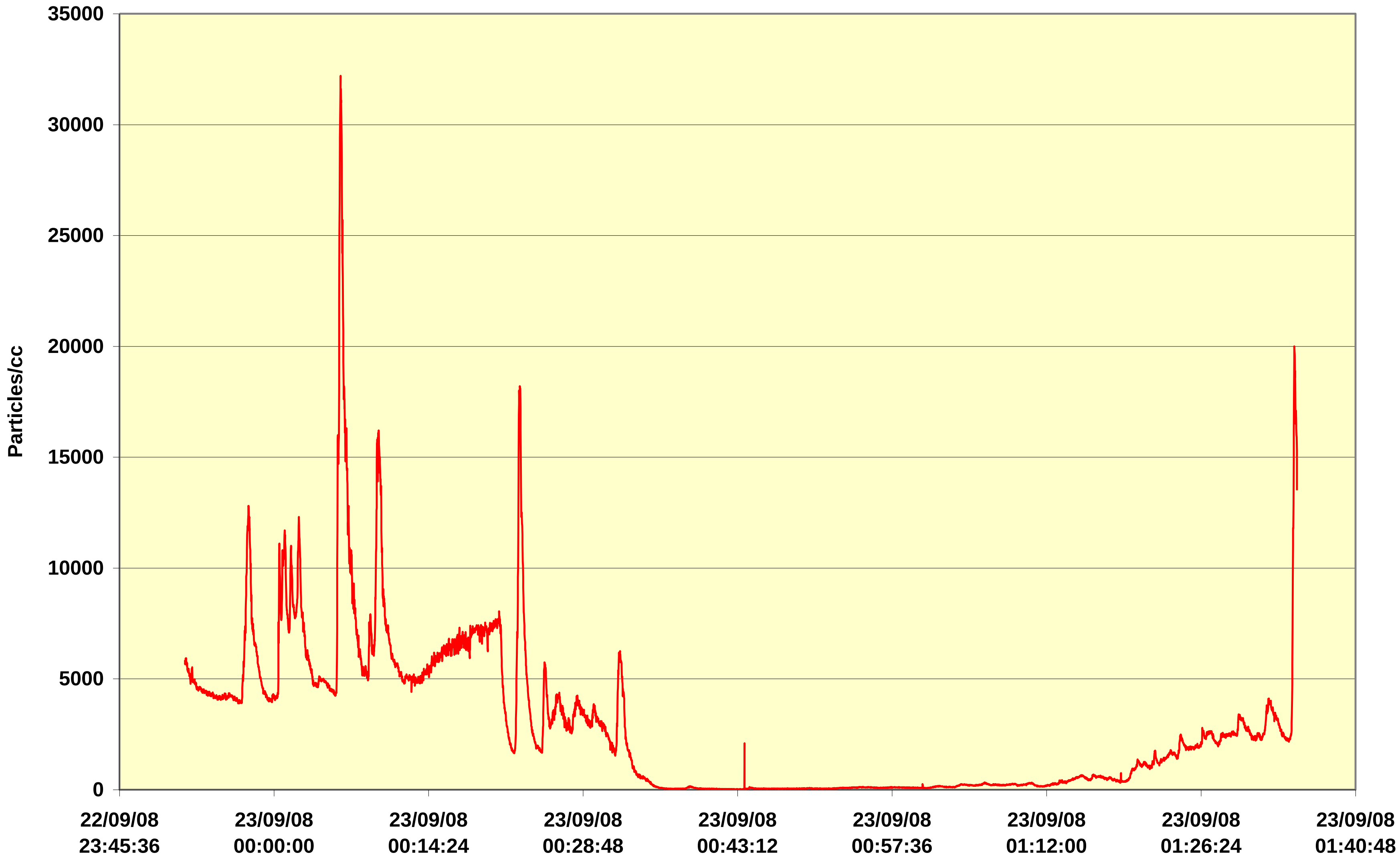
Part 1 Sector 2



Part 1 Sector 3

VOC & CO no data recorded – instrument failure.[2]



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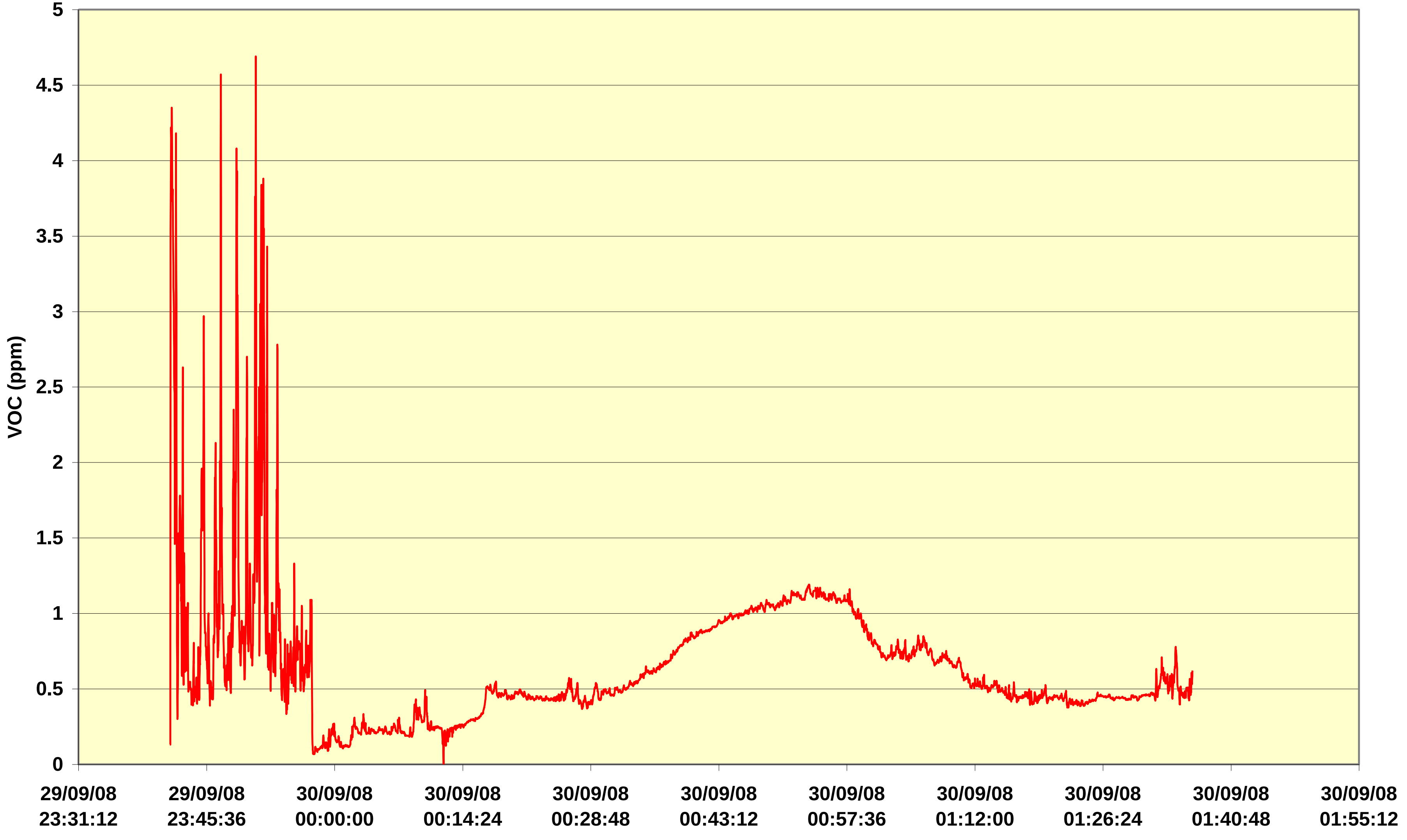
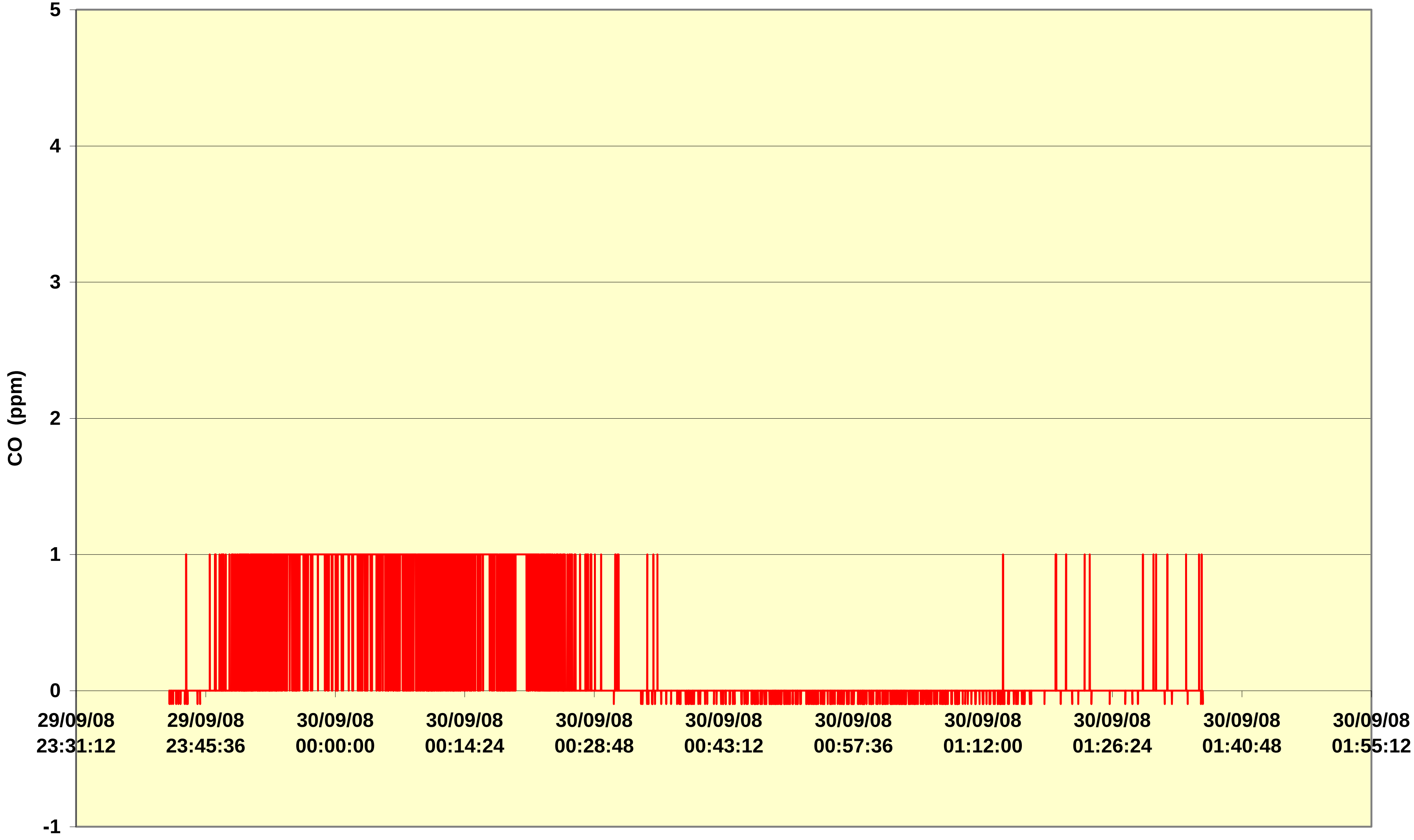
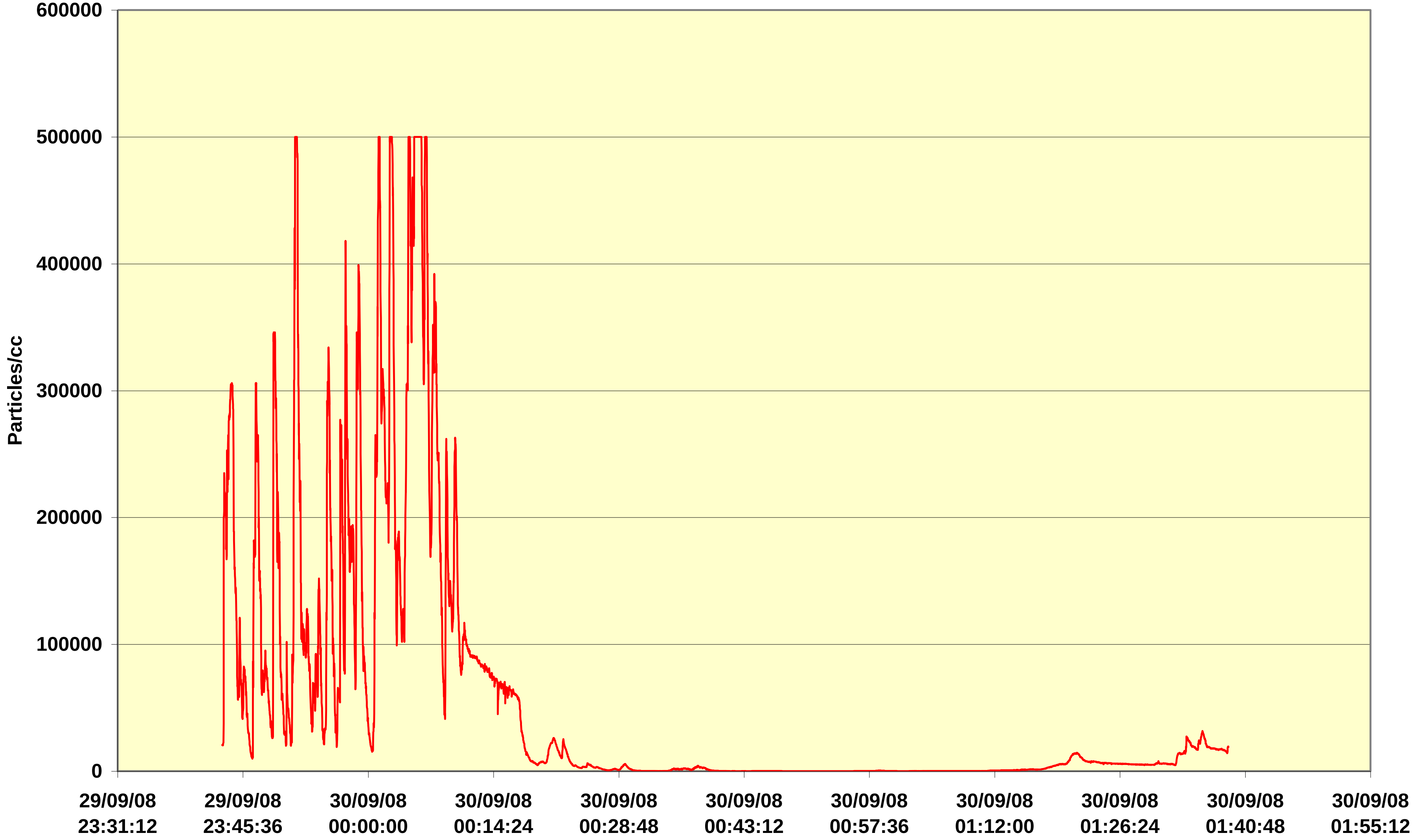
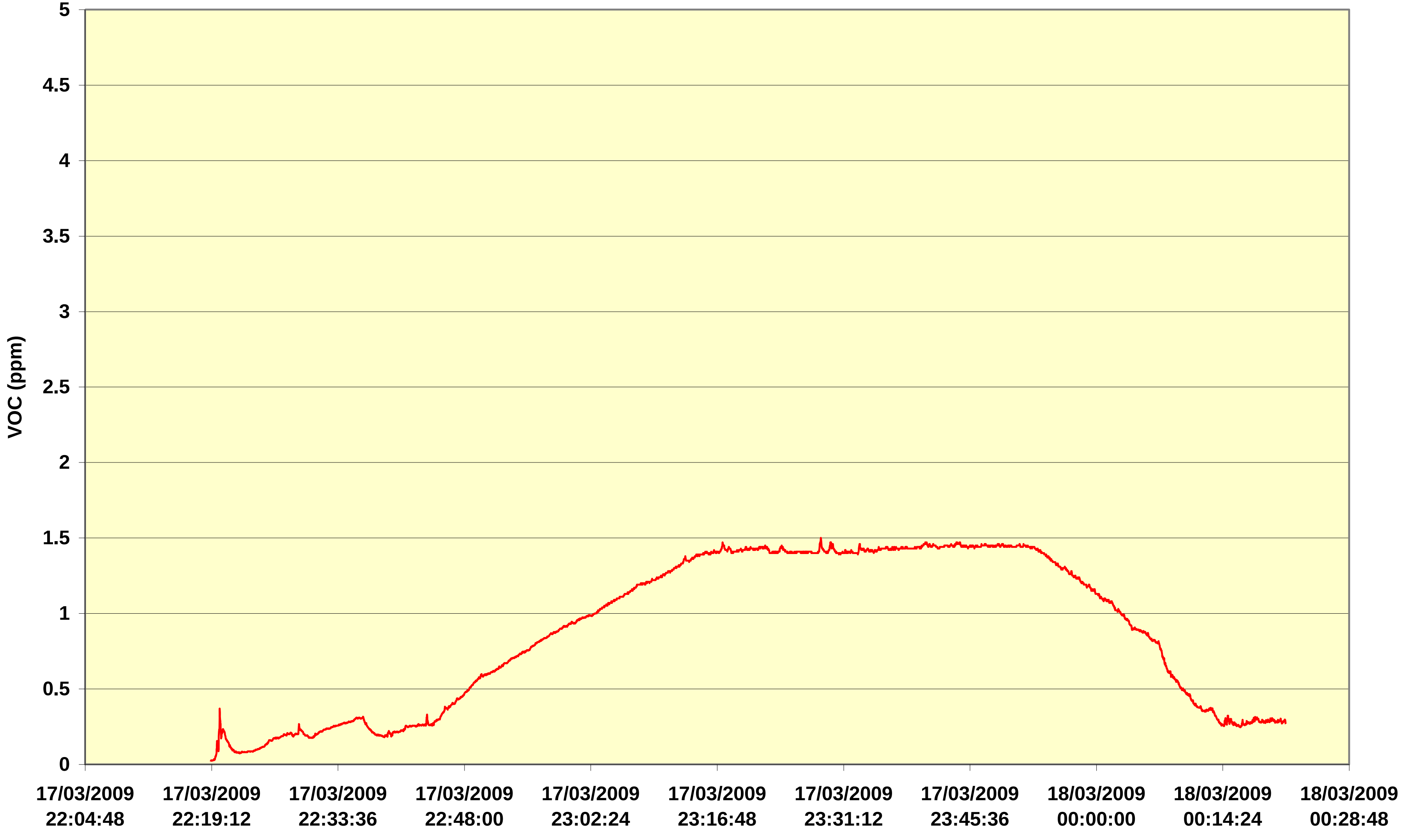
22/09/08 23:45:36
23/09/08 00:00:00
23/09/08 00:14:24
23/09/08 00:28:48
23/09/08 00:43:12
23/09/08 00:57:36
23/09/08 01:12:00
23/09/08 01:26:24
23/09/08 01:40:48


VOC (ppm)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
29/09/08 23:31:12
29/09/08 23:45:36
30/09/08 00:00:00
30/09/08 00:14:24
30/09/08 00:28:48
30/09/08 00:43:12
30/09/08 00:57:36
30/09/08 01:12:00
30/09/08 01:26:24
30/09/08 01:40:48
30/09/08 01:55:12

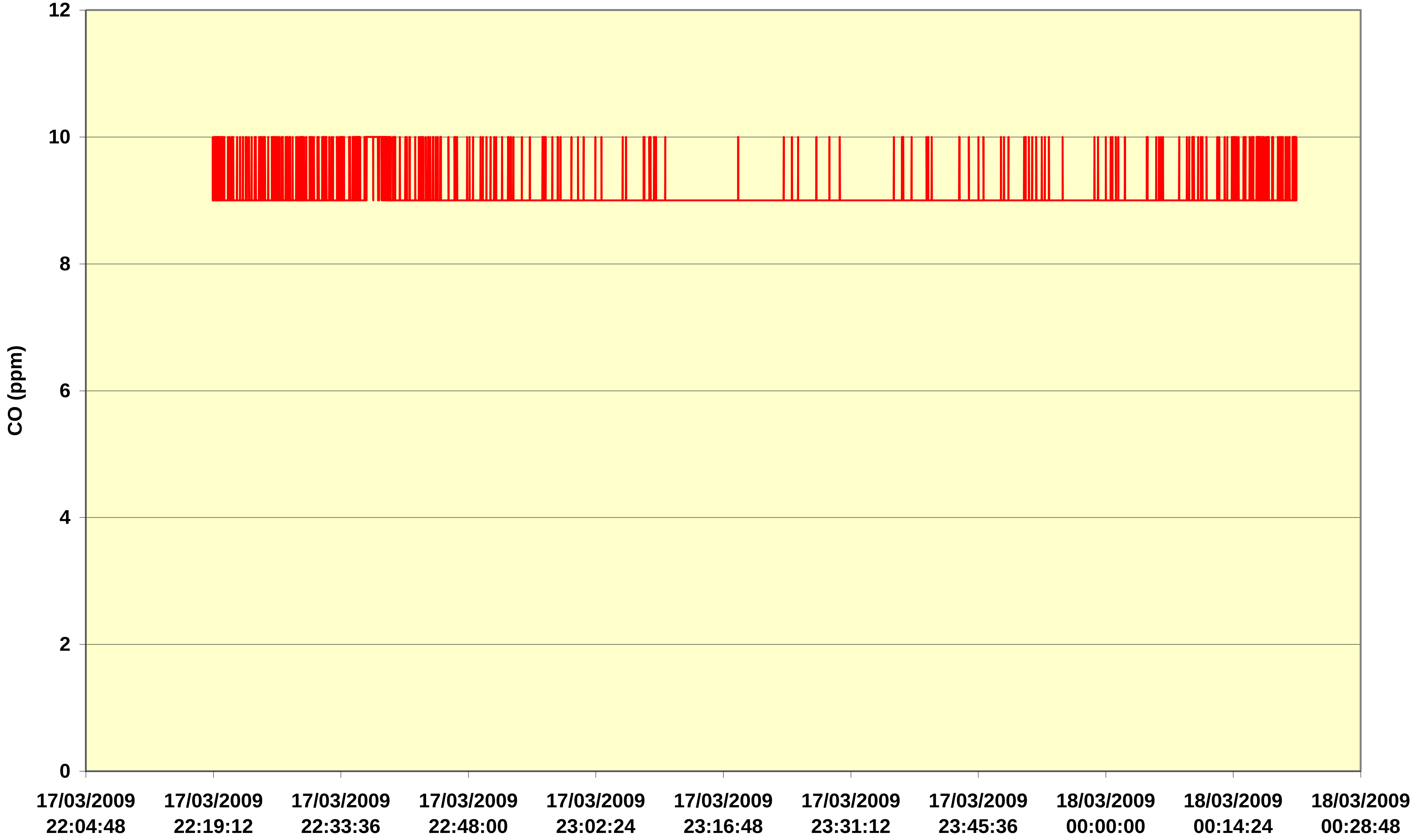


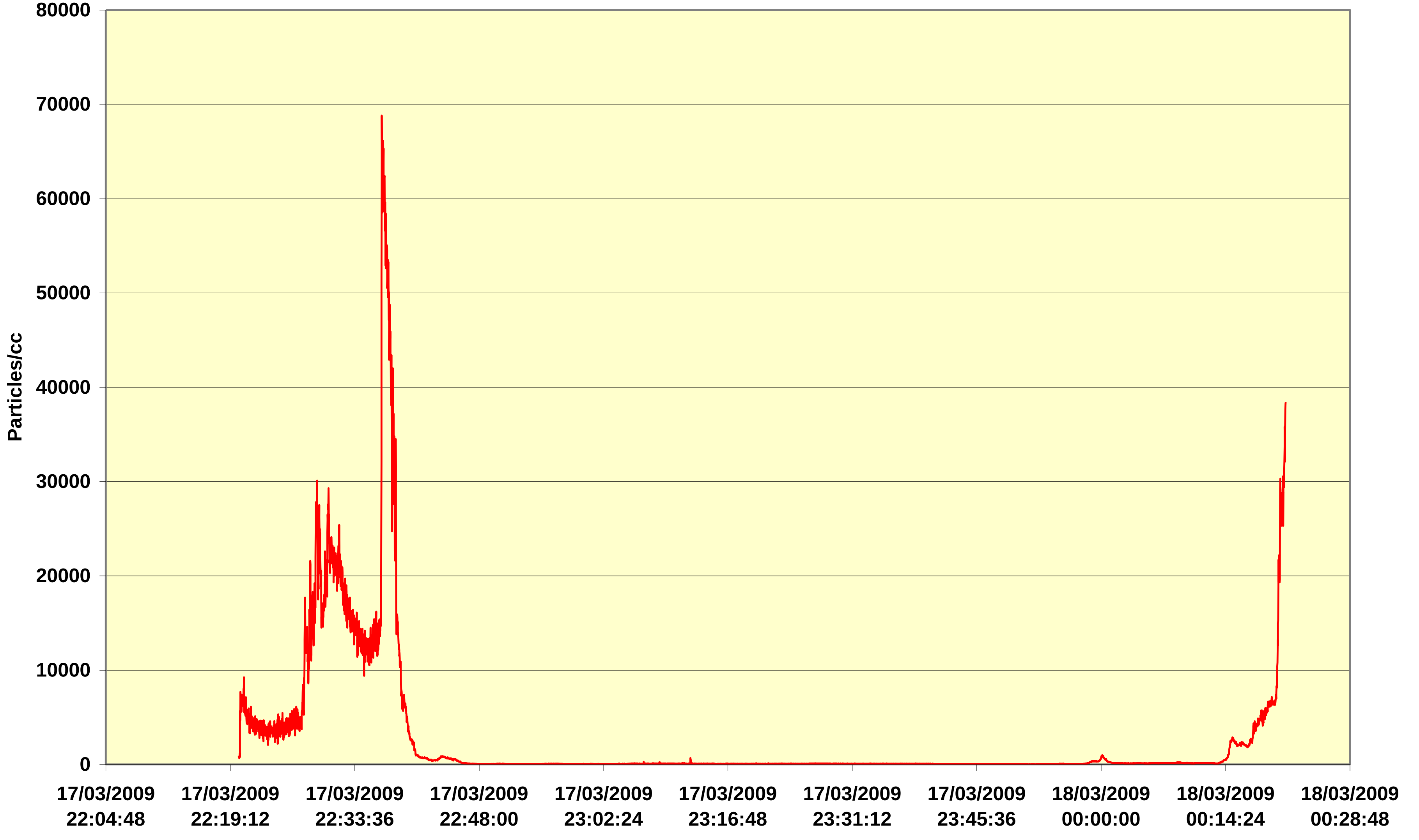
CO (ppm)
5
4
3
2
1
0
-1
29/09/08 23:31:12
29/09/08 23:45:36
30/09/08 00:00:00
30/09/08 00:14:24
30/09/08 00:28:48
30/09/08 00:43:12
30/09/08 00:57:36
30/09/08 01:12:00
30/09/08 01:26:24
30/09/08 01:40:48
30/09/08 01:55:12

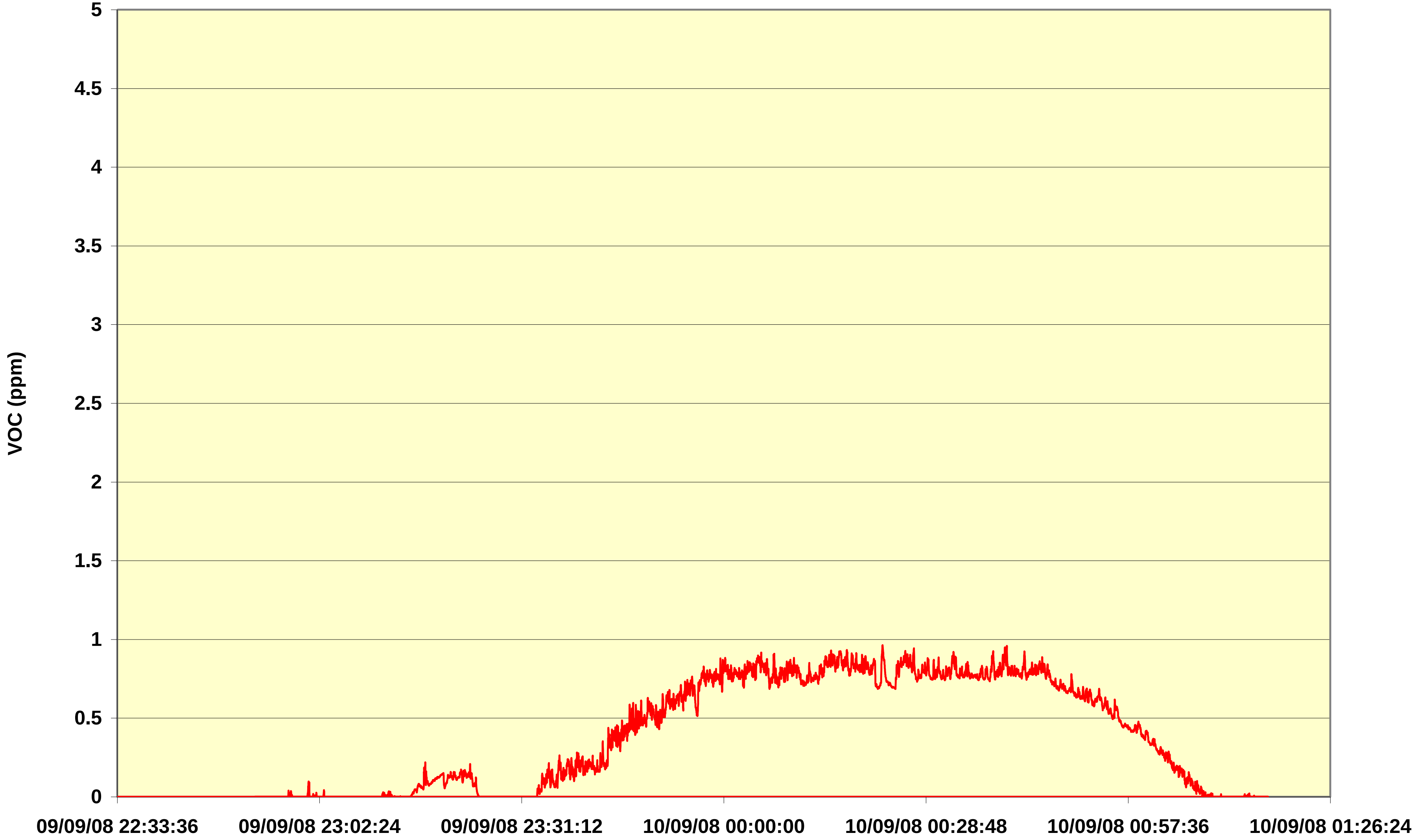

600000
500000
400000
300000
200000
100000
0
Particles/cc
29/09/08 23:31:12
29/09/08 23:45:36
30/09/08 00:00:00
30/09/08 00:14:24
30/09/08 00:28:48
30/09/08 00:43:12
30/09/08 00:57:36
30/09/08 01:12:00
30/09/08 01:26:24
30/09/08 01:40:48
30/09/08 01:55:12



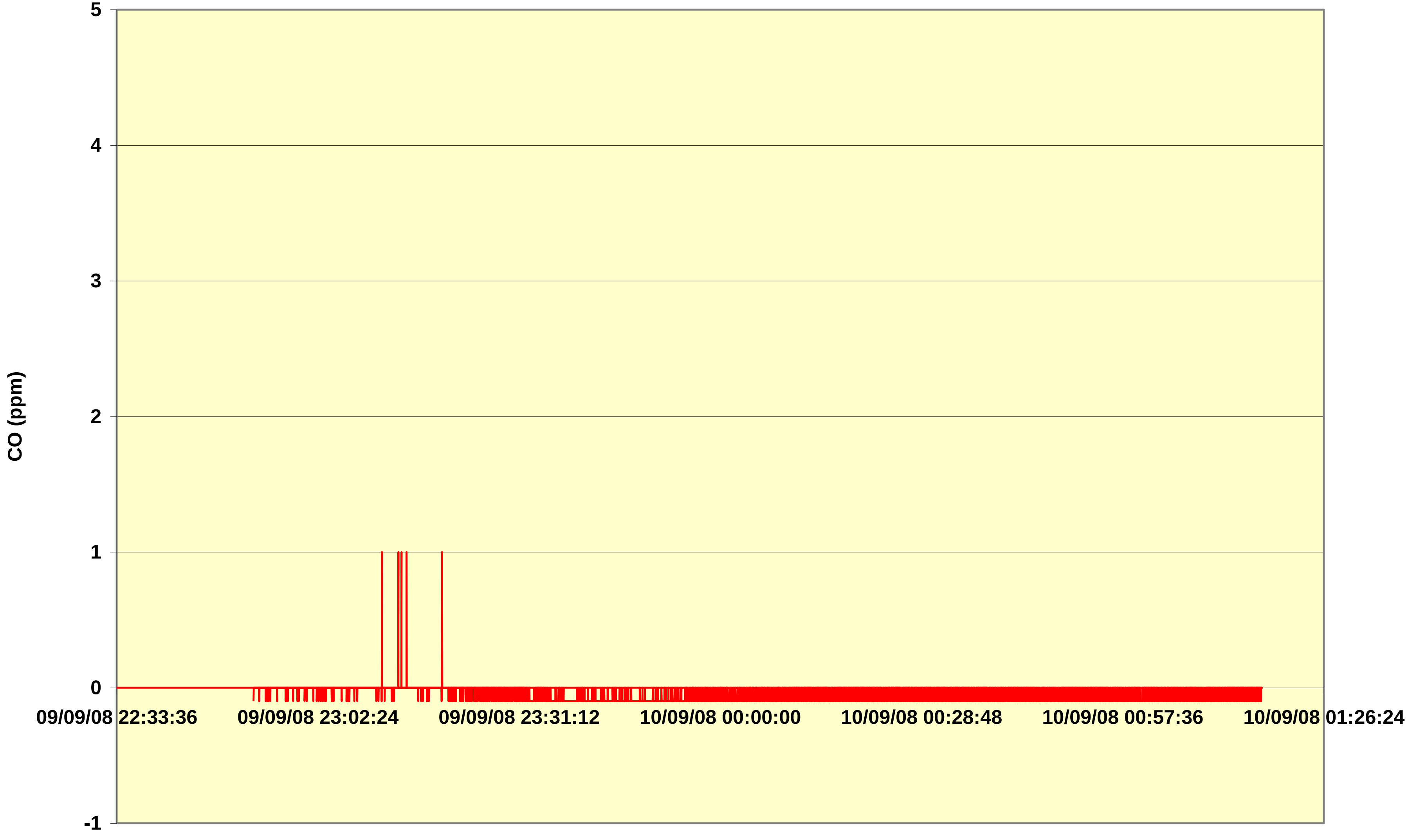
VOC (ppm)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
17/03/2009 22:04:48
17/03/2009 22:19:12
17/03/2009 22:33:36
17/03/2009 22:48:00
17/03/2009 23:02:24
17/03/2009 23:16:48
17/03/2009 23:31:12
17/03/2009 23:45:36
18/03/2009 00:00:00
18/03/2009 00:14:24
18/03/2009 00:28:48

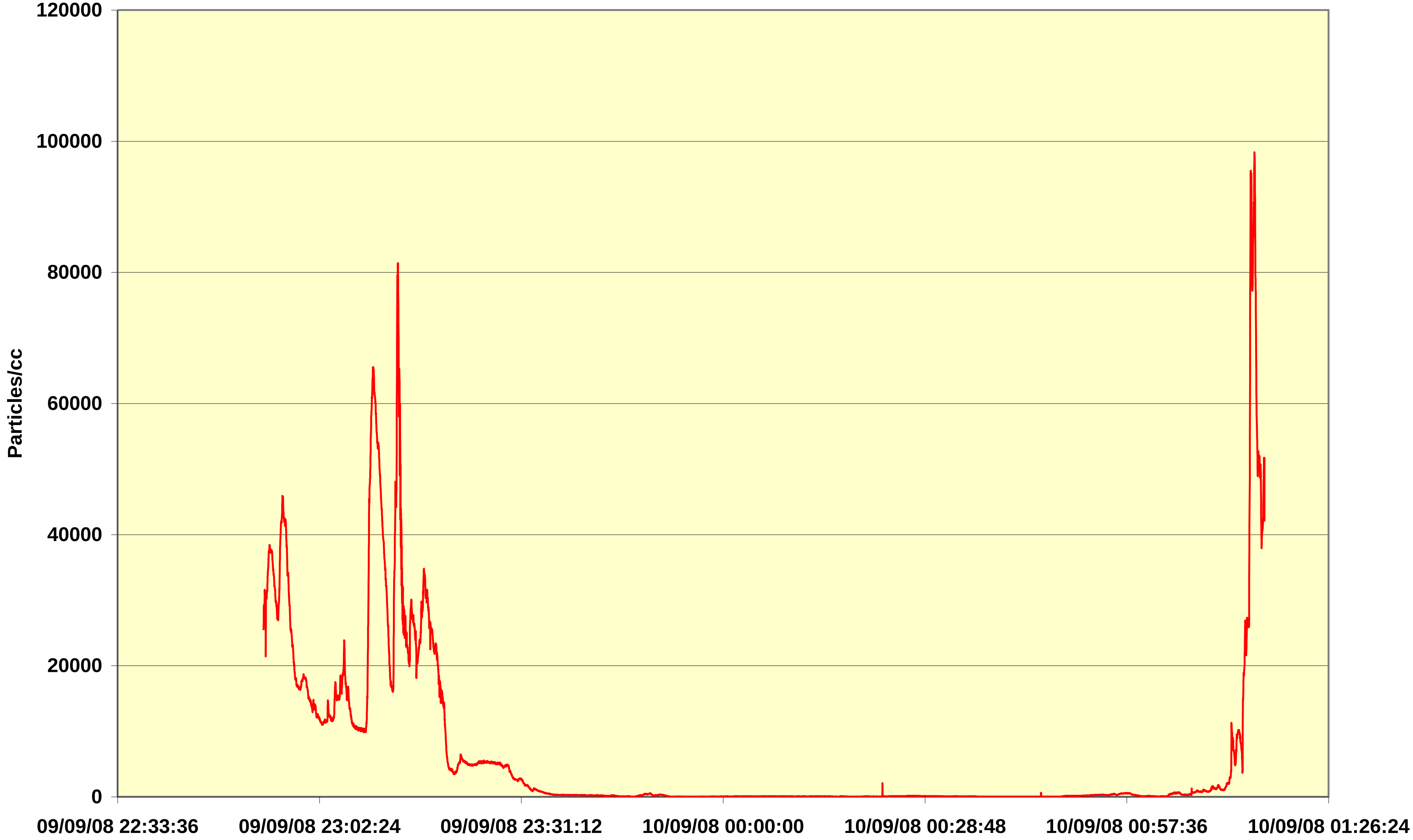

12
10
8
6
4
2
0
CO (ppm)
17/03/2009 22:04:48
17/03/2009 22:19:12
17/03/2009 22:33:36
17/03/2009 22:48:00
17/03/2009 23:02:24
17/03/2009 23:16:48
17/03/2009 23:31:12
17/03/2009 23:45:36
18/03/2009 00:00:00
18/03/2009 00:14:24
18/03/2009 00:28:48

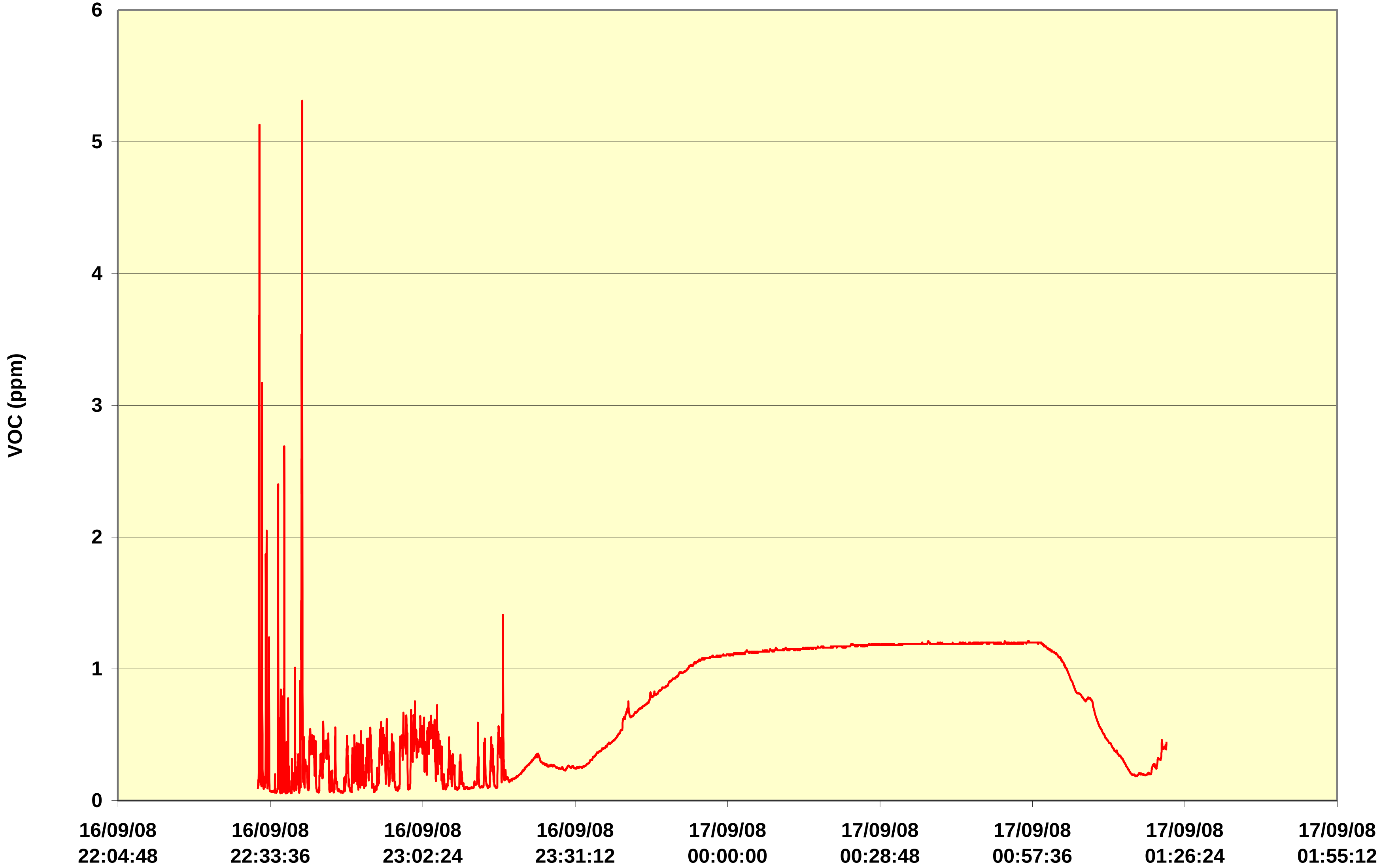

Particles/cc
80000
70000
60000
50000
40000
30000
20000
10000
0
17/03/2009 22:04:48
17/03/2009 22:19:12
17/03/2009 22:33:36
17/03/2009 22:48:00
17/03/2009 23:02:24
17/03/2009 23:16:48
17/03/2009 23:31:12
17/03/2009 23:45:36
18/03/2009 00:00:00
18/03/2009 00:14:24
18/03/2009 00:28:48

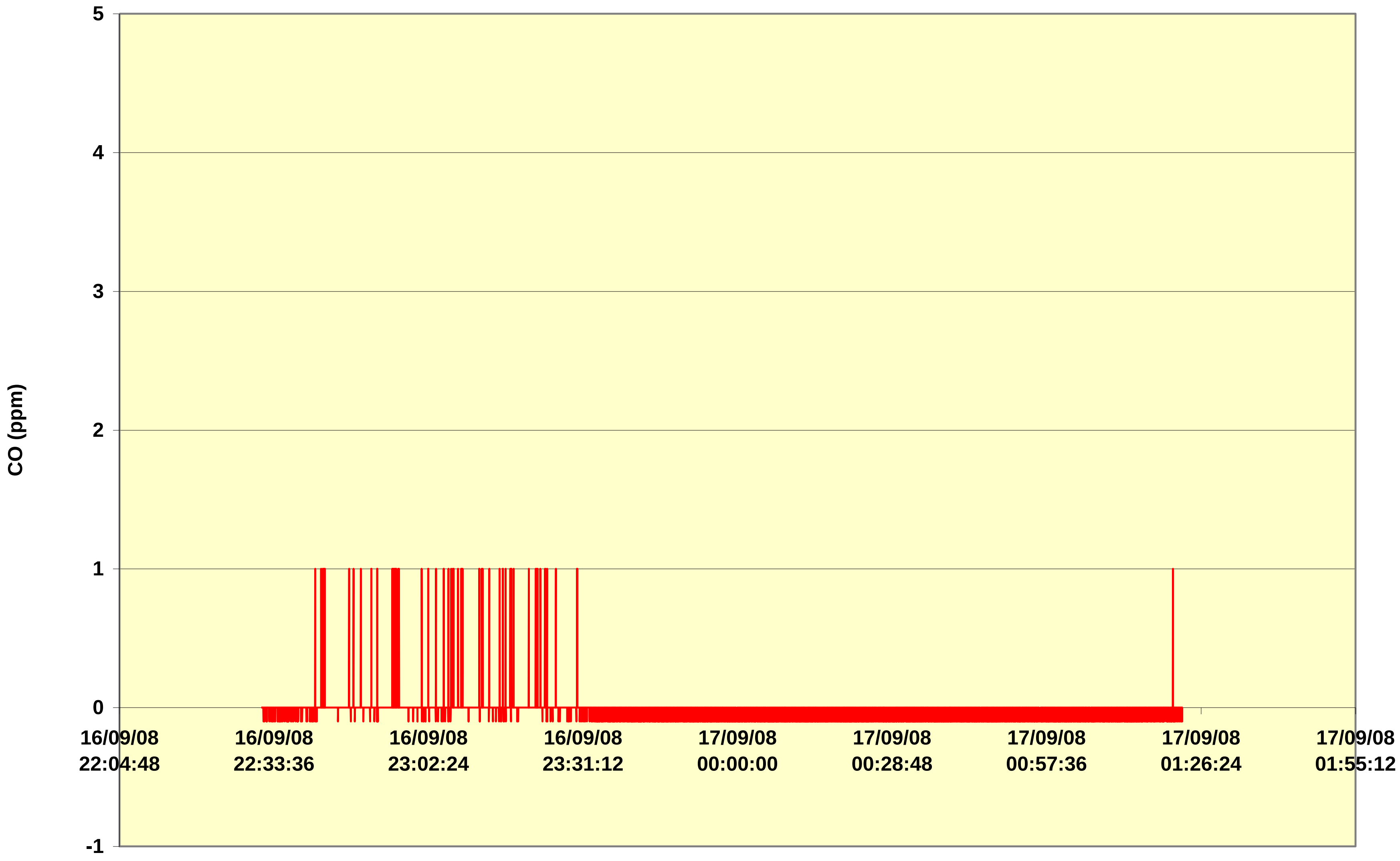


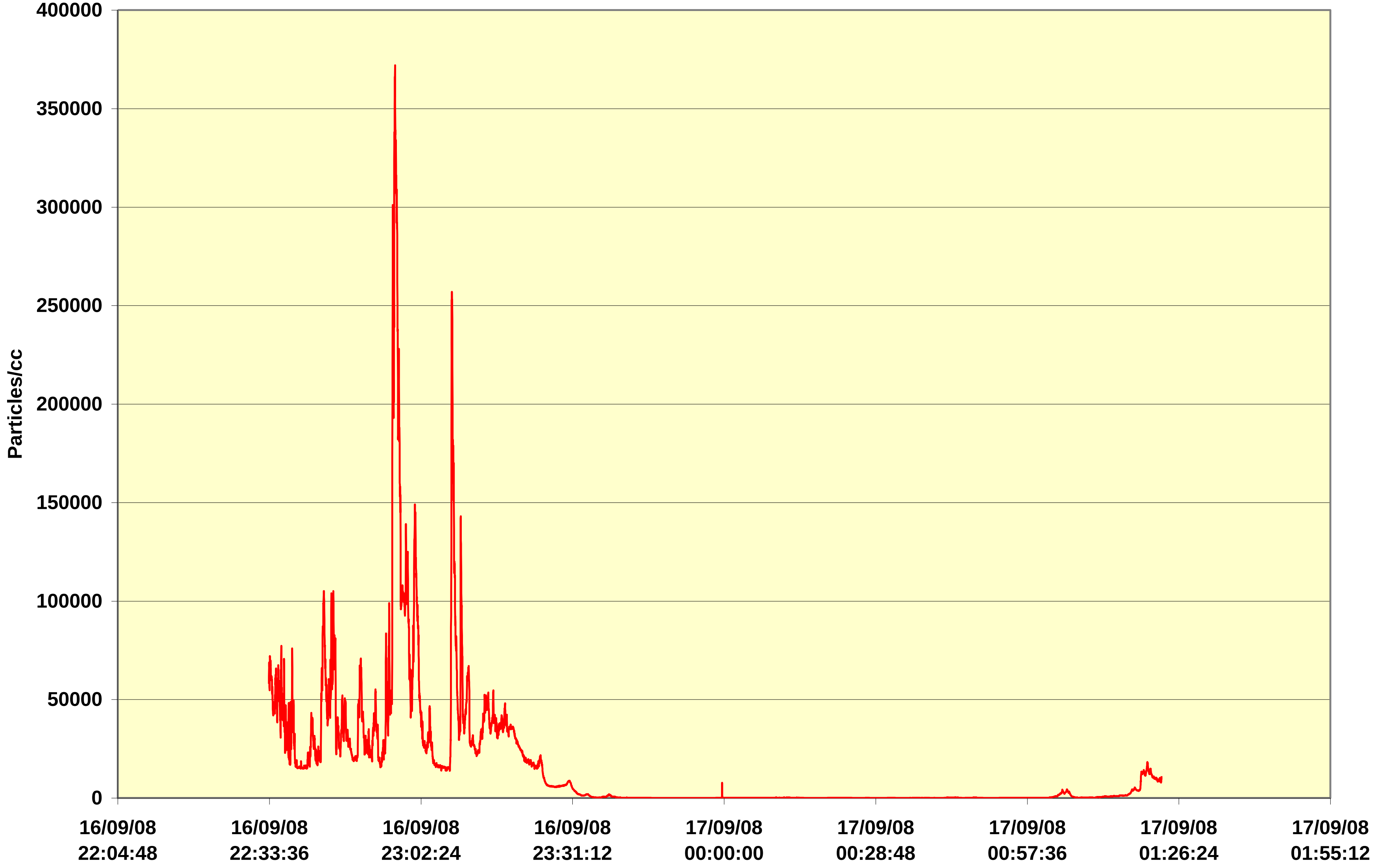
VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
09/09/08 22:33:36
09/09/08 23:02:24
09/09/08 23:31:12
10/09/08 00:00:00
10/09/08 00:28:48
10/09/08 00:57:36
10/09/08 01:26:24


CO (ppm)
5
4
3
2
1
0
-1
09/09/08 22:33:36
09/09/08 23:02:24
09/09/08 23:31:12
10/09/08 00:00:00
10/09/08 00:28:48
10/09/08 00:57:36
10/09/08 01:26:24


120000
100000
80000
60000
40000
20000
0
Particles/cc
09/09/08 22:33:36
09/09/08 23:02:24
09/09/08 23:31:12
10/09/08 00:00:00
10/09/08 00:28:48
10/09/08 00:57:36
10/09/08 01:26:24


VOC (ppm)
0
1
2
3
4
5
6
16/09/08 22:04:48
16/09/08 22:33:36
16/09/08 23:02:24
16/09/08 23:31:12
17/09/08 00:00:00
17/09/08 00:28:48
17/09/08 00:57:36
17/09/08 01:26:24
17/09/08 01:55:12

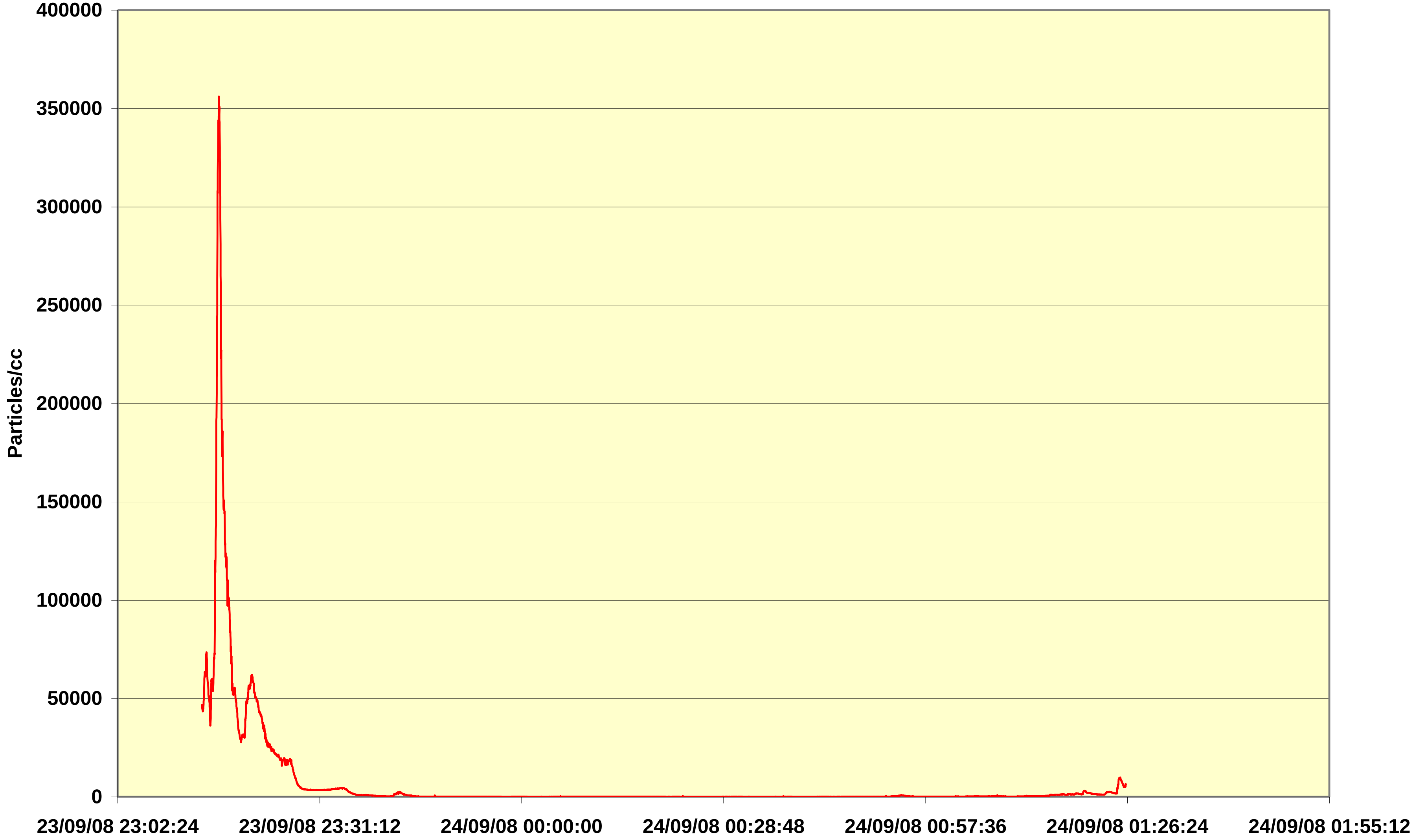

CO (ppm)
5
4
3
2
1
0
-1
16/09/08 22:04:48
16/09/08 22:33:36
16/09/08 23:02:24
16/09/08 23:31:12
17/09/08 00:00:00
17/09/08 00:28:48
17/09/08 00:57:36
17/09/08 01:26:24
17/09/08 01:55:12



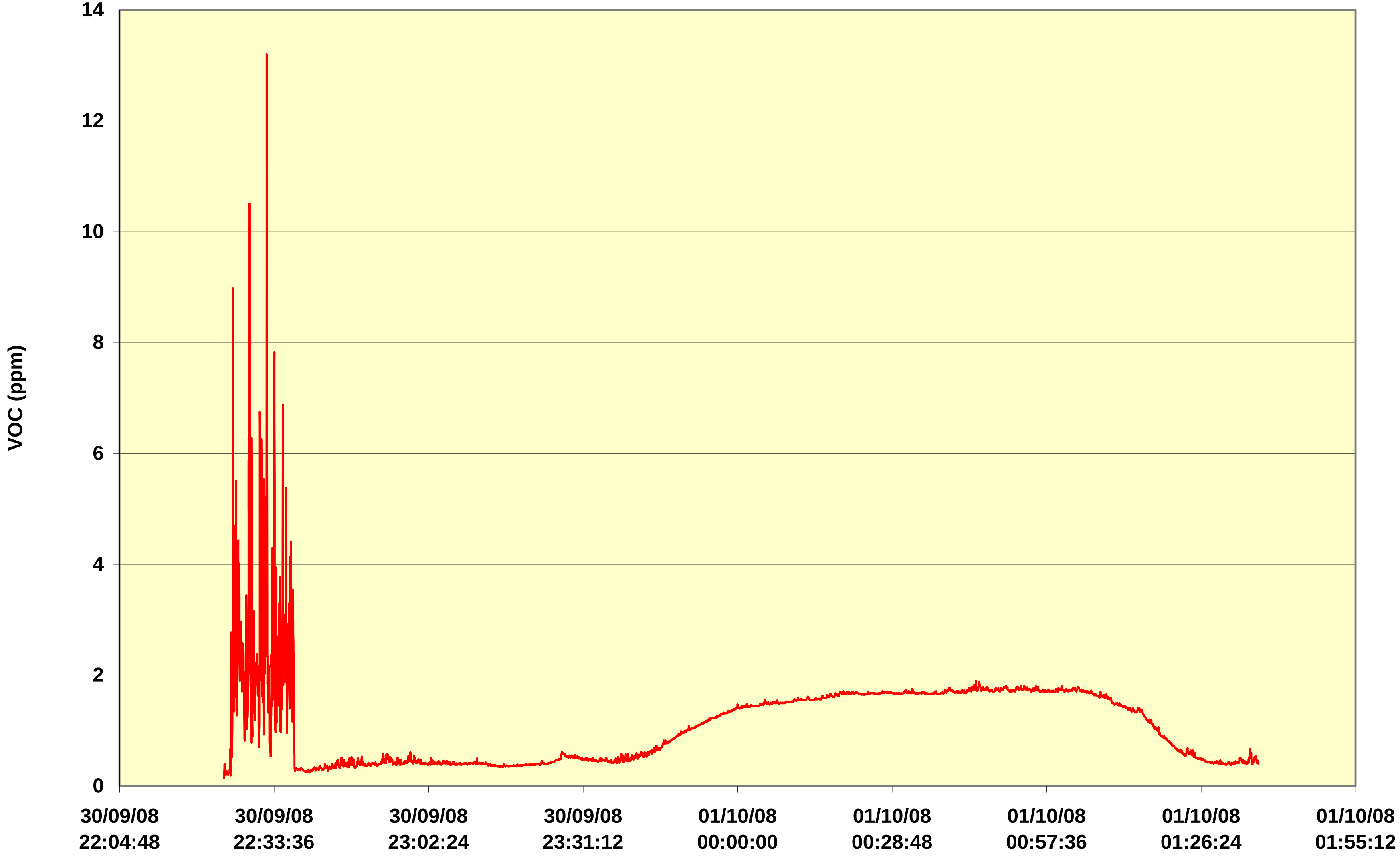
Particles/cc
400000
350000
300000
250000
200000
150000
100000
50000
0
16/09/08 22:04:48
16/09/08 22:33:36
16/09/08 23:02:24
16/09/08 23:31:12
17/09/08 00:00:00
17/09/08 00:28:48
17/09/08 00:57:36
17/09/08 01:26:24
17/09/08 01:55:12

Part 1 Sector 8

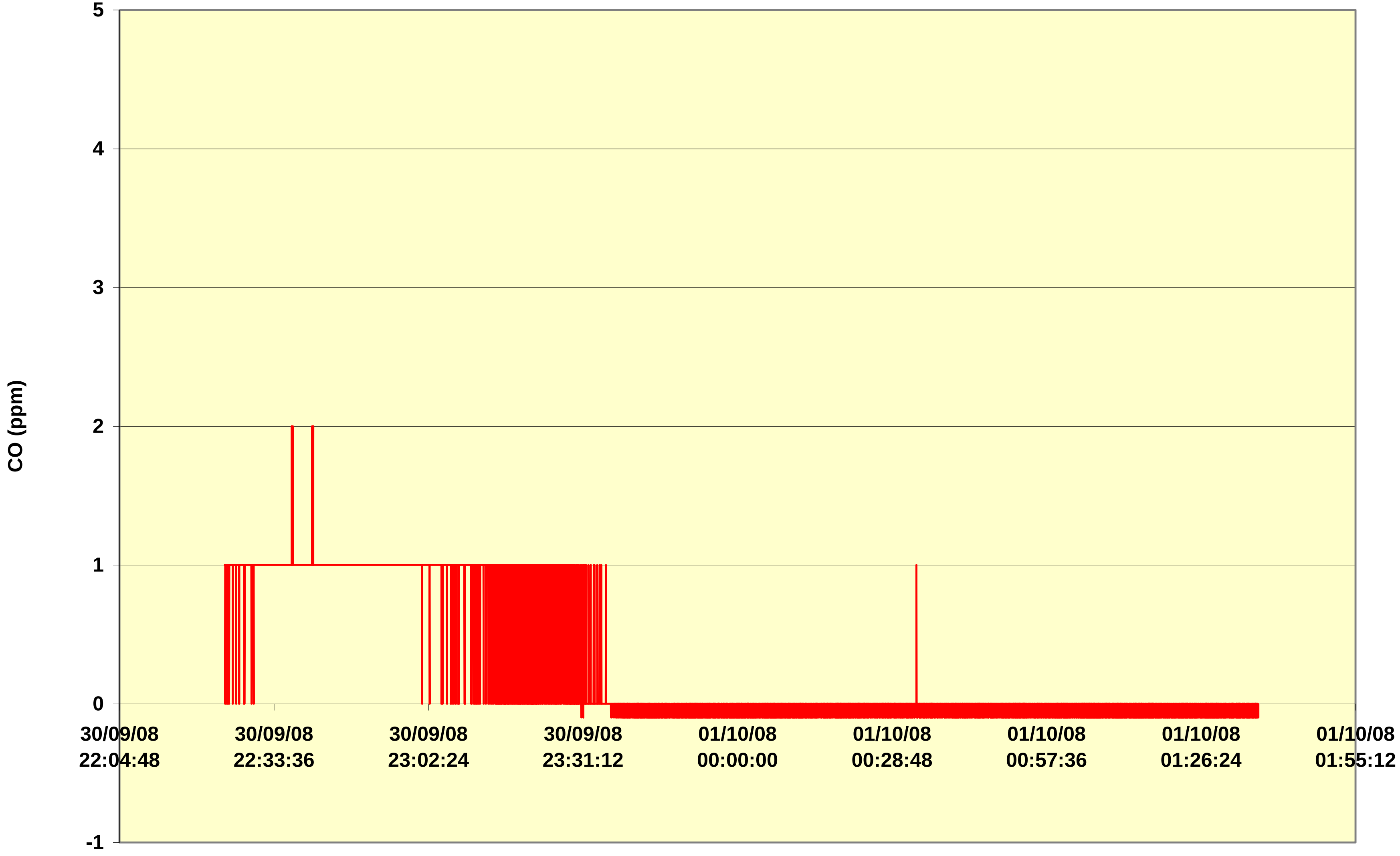
VOC & CO no data recorded – instrument failure.[2]



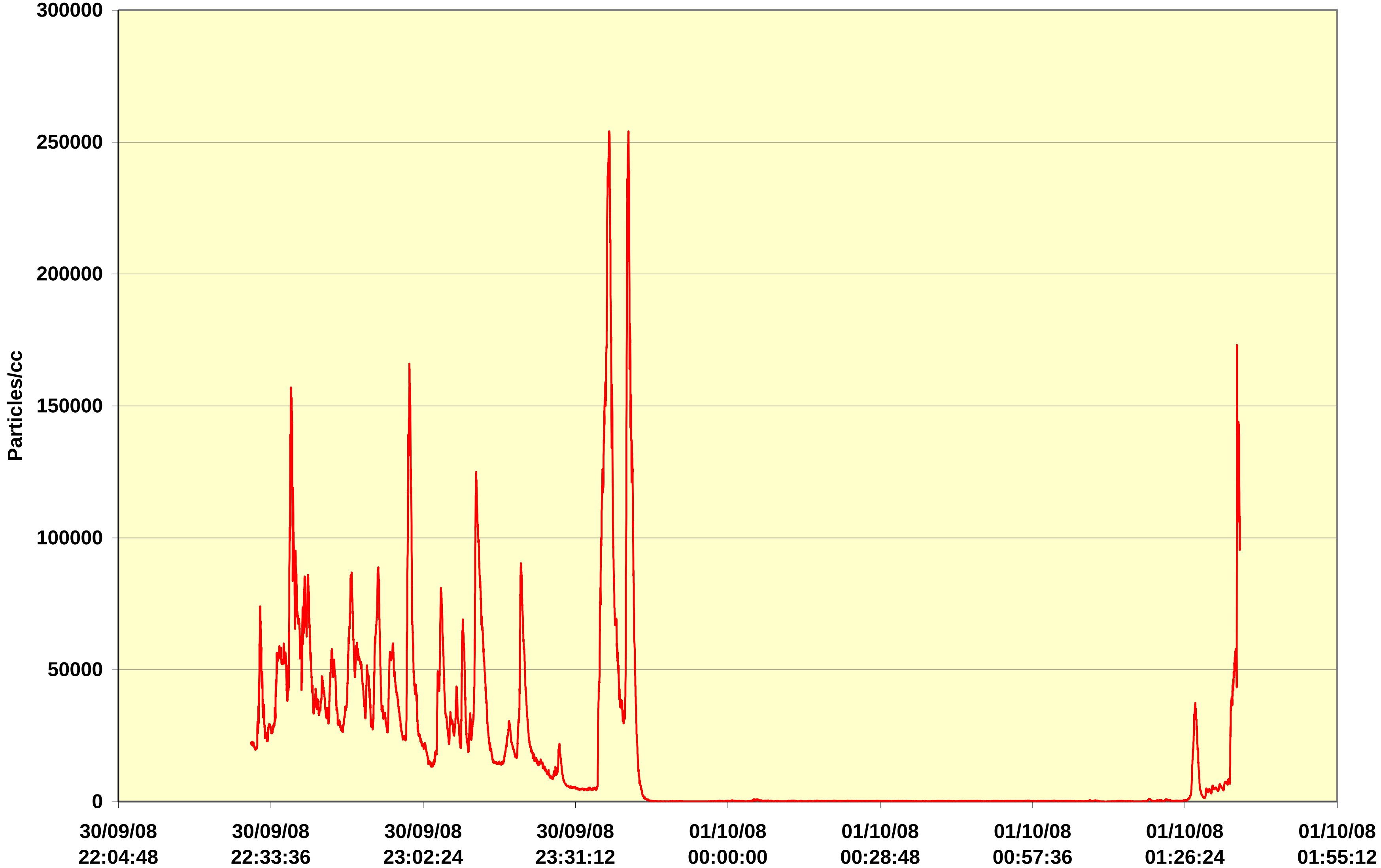
Particles/cc
400000
350000
300000
250000
200000
150000
100000
50000
0
23/09/08 23:02:24
23/09/08 23:31:12
24/09/08 00:00:00
24/09/08 00:28:48
24/09/08 00:57:36
24/09/08 01:26:24
24/09/08 01:55:12



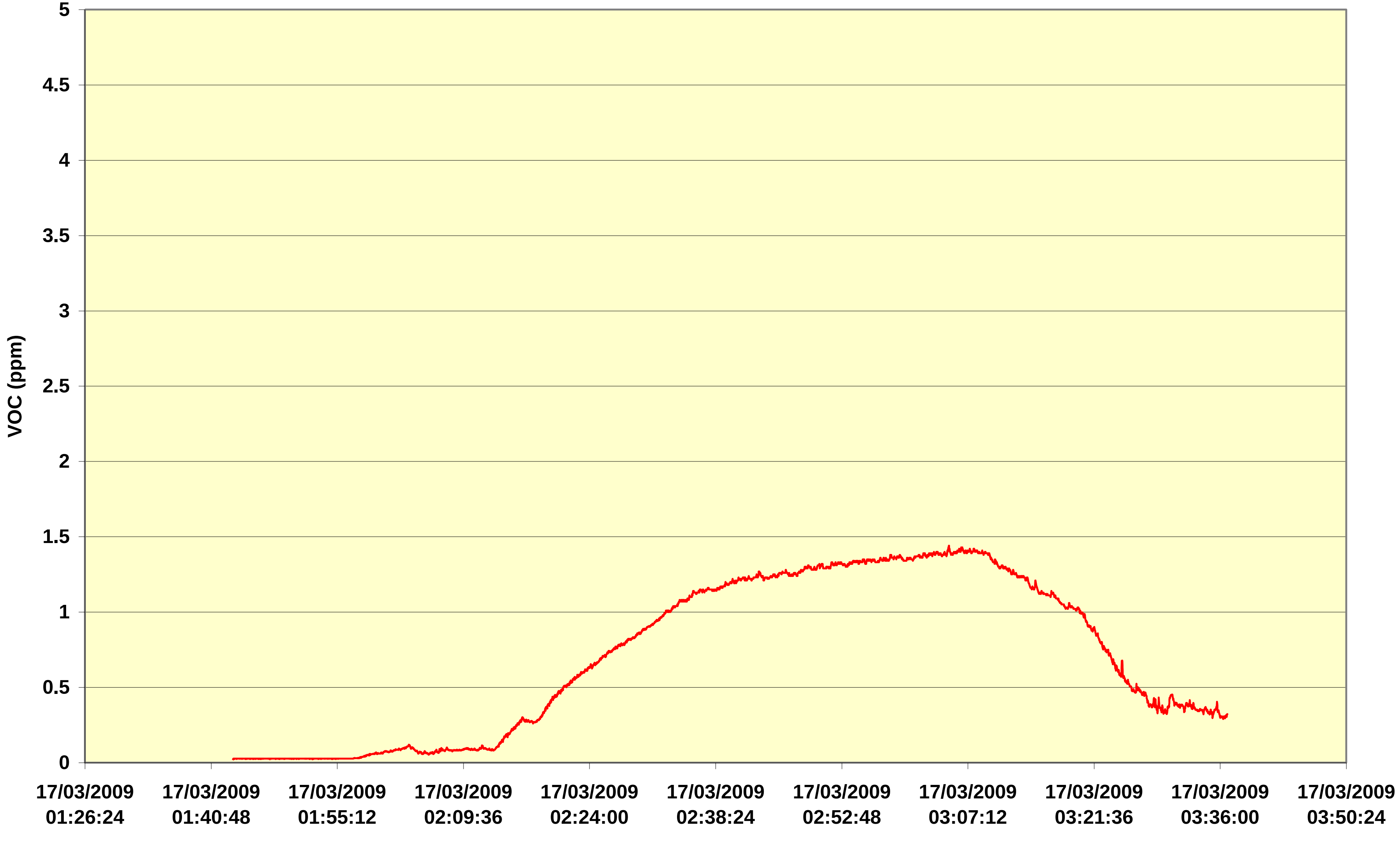
VOC (ppm)
14
12
10
8
6
4
2
0
30/09/08 22:04:48
30/09/08 22:33:36
30/09/08 23:02:24
30/09/08 23:31:12
01/10/08 00:00:00
01/10/08 00:28:48
01/10/08 00:57:36
01/10/08 01:26:24
01/10/08 01:55:12

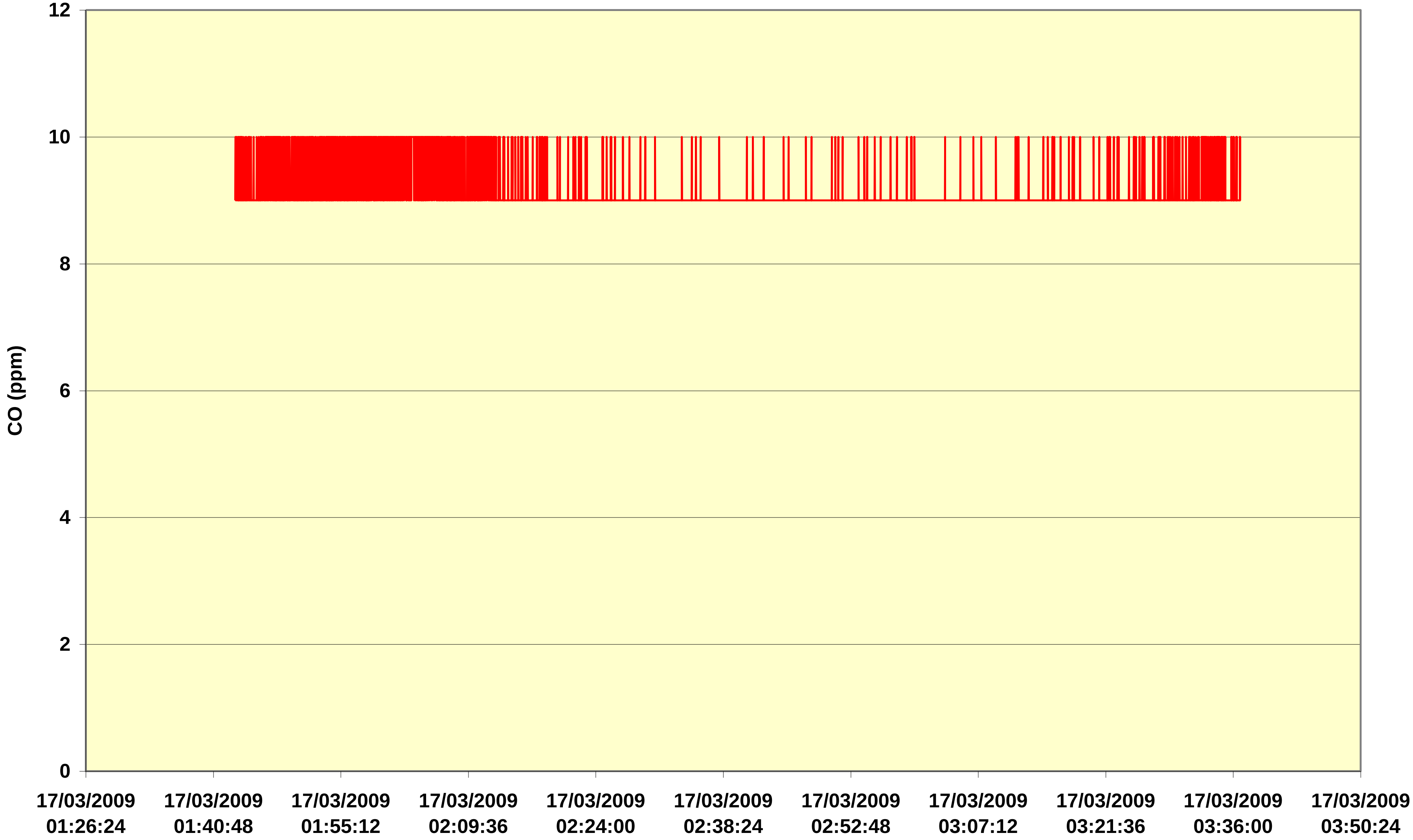


CO (ppm)
5
4
3
2
1
0
-1
30/09/08 22:04:48
30/09/08 22:33:36
30/09/08 23:02:24
30/09/08 23:31:12
01/10/08 00:00:00
01/10/08 00:28:48
01/10/08 00:57:36
01/10/08 01:26:24
01/10/08 01:55:12

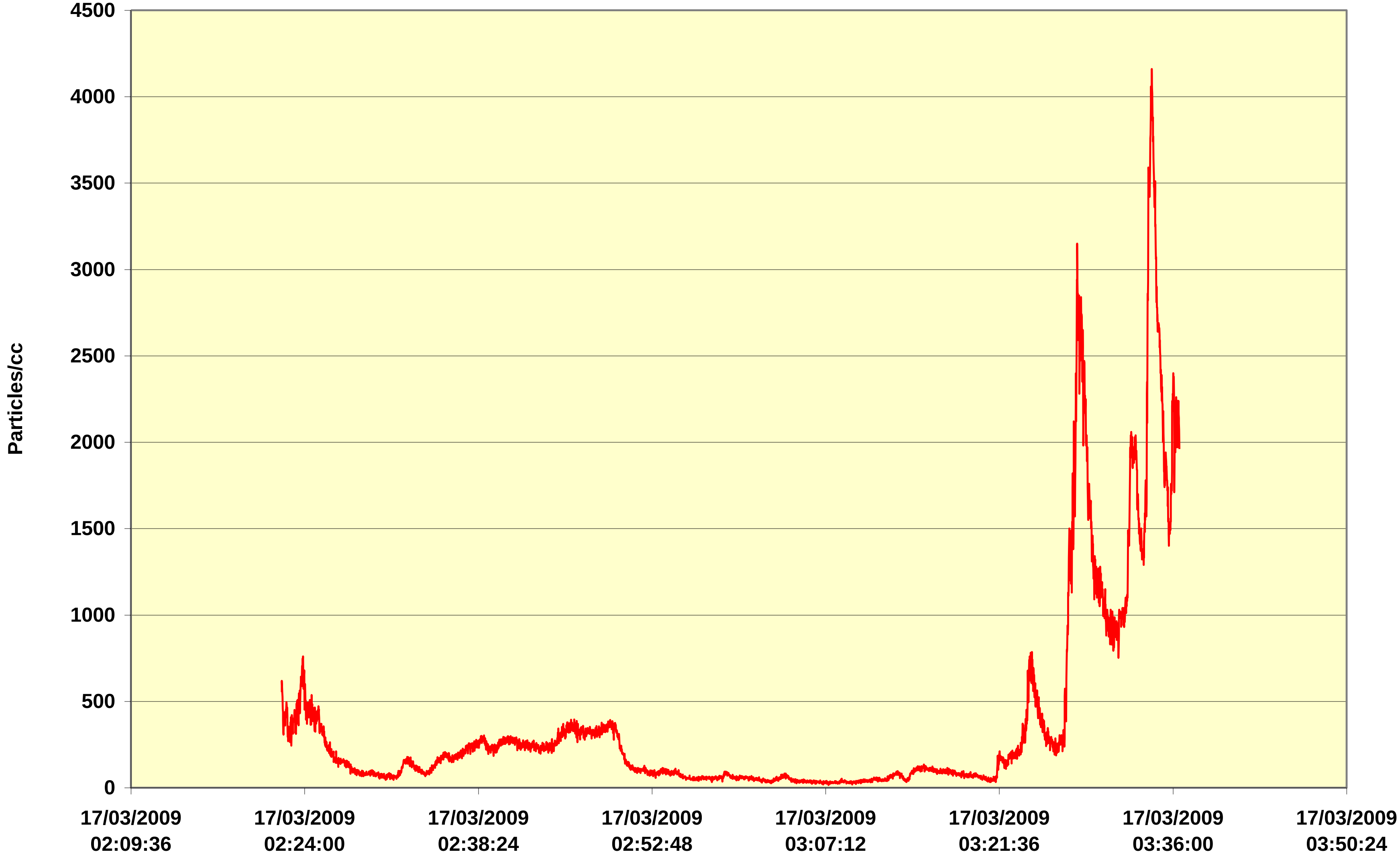


Particles/cc
300000
250000
200000
150000
100000
50000
0
30/09/08 22:04:48
30/09/08 22:33:36
30/09/08 23:02:24
30/09/08 23:31:12
01/10/08 00:00:00
01/10/08 00:28:48
01/10/08 00:57:36
01/10/08 01:26:24
01/10/08 01:55:12

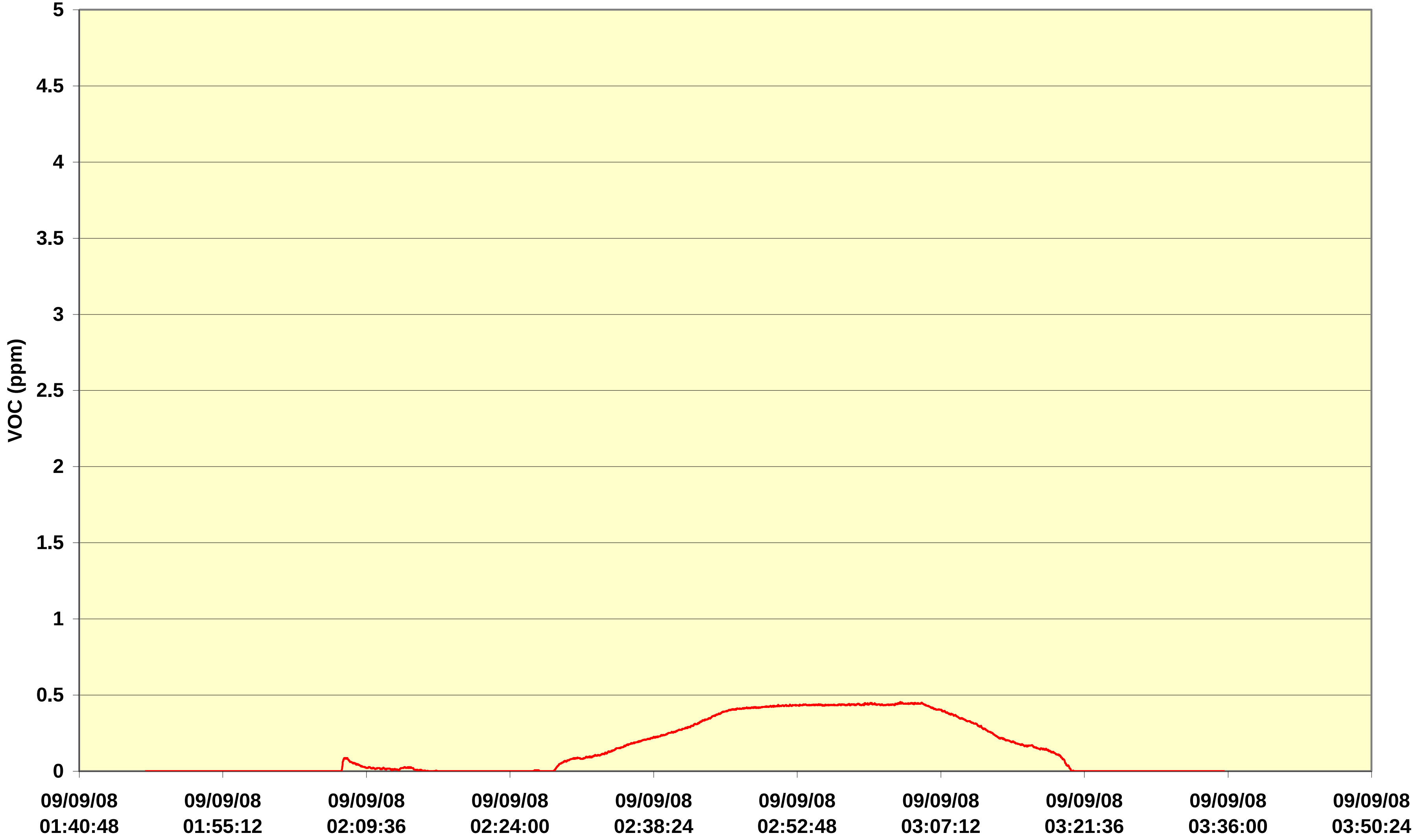

VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
17/03/2009 01:26:24
17/03/2009 01:40:48
17/03/2009 01:55:12
17/03/2009 02:09:36
17/03/2009 02:24:00
17/03/2009 02:38:24
17/03/2009 02:52:48
17/03/2009 03:07:12
17/03/2009 03:21:36
17/03/2009 03:36:00
17/03/2009 03:50:24

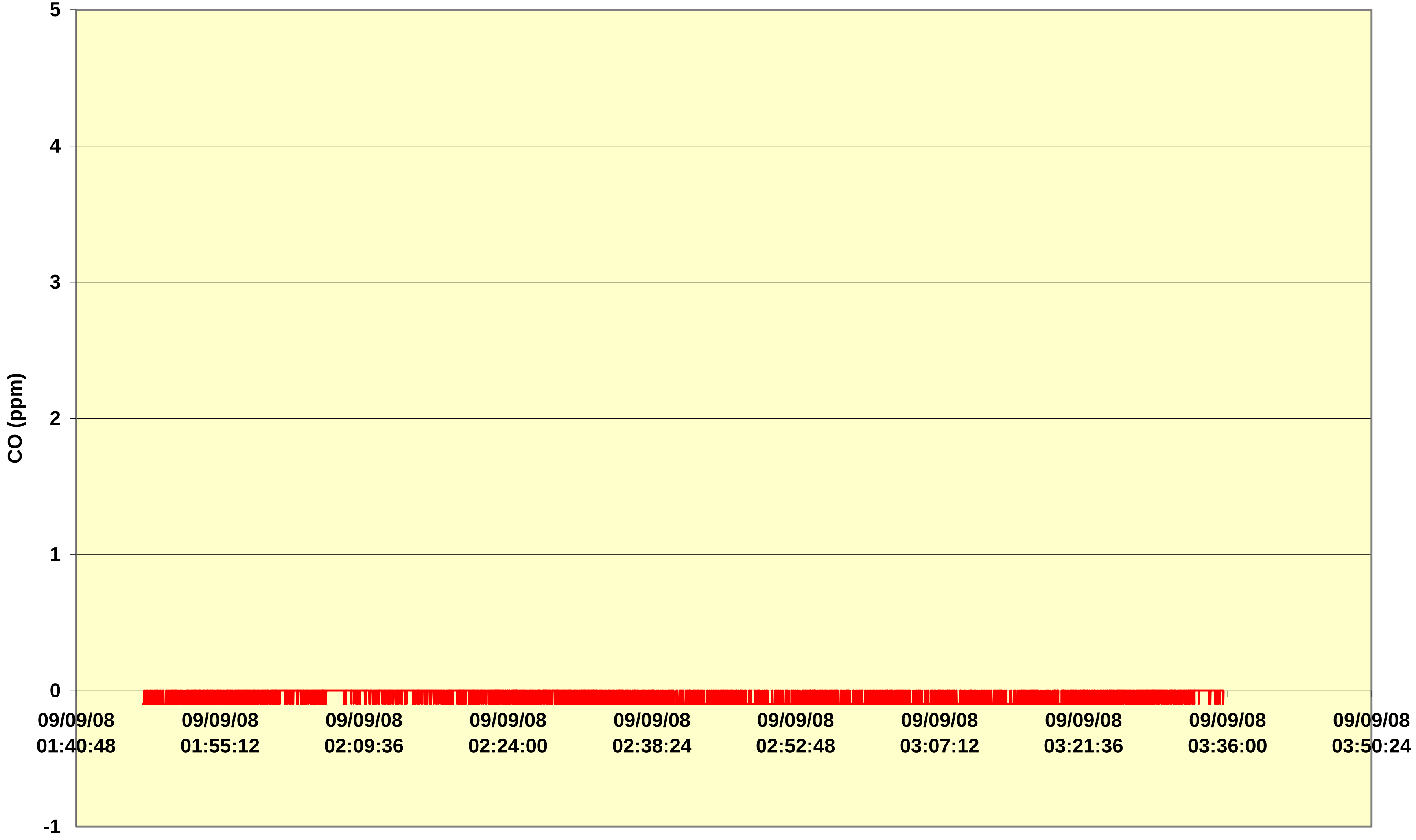


CO (ppm)
0
2
4
6
8
10
12
17/03/2009 01:26:24
17/03/2009 01:40:48
17/03/2009 01:55:12
17/03/2009 02:09:36
17/03/2009 02:24:00
17/03/2009 02:38:24
17/03/2009 02:52:48
17/03/2009 03:07:12
17/03/2009 03:21:36
17/03/2009 03:36:00
17/03/2009 03:50:24

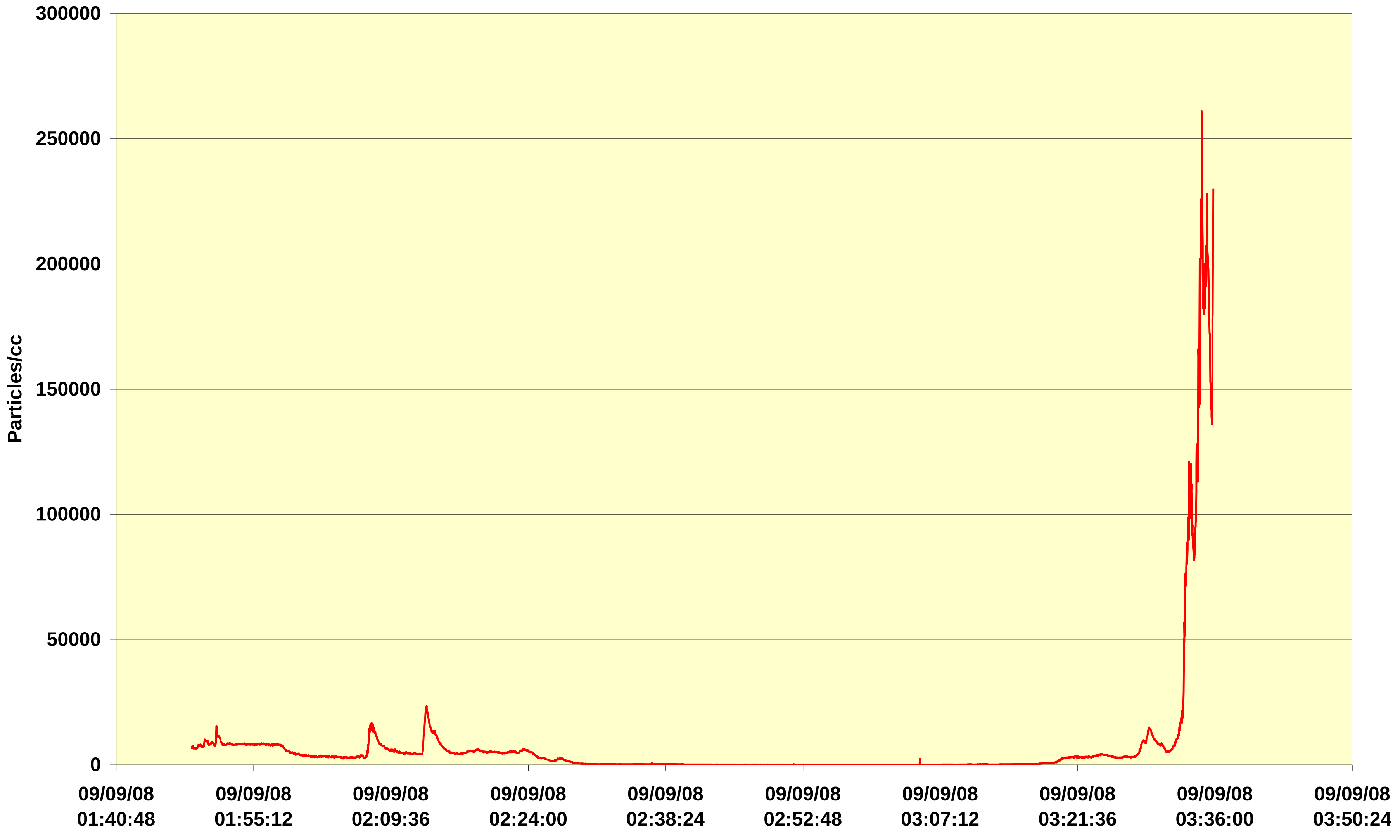


4500
4000
3500
3000
2500
2000
1500
1000
500
0
Particles/cc
17/03/2009 02:09:36
17/03/2009 02:24:00
17/03/2009 02:38:24
17/03/2009 02:52:48
17/03/2009 03:07:12
17/03/2009 03:21:36
17/03/2009 03:36:00
17/03/2009 03:50:24

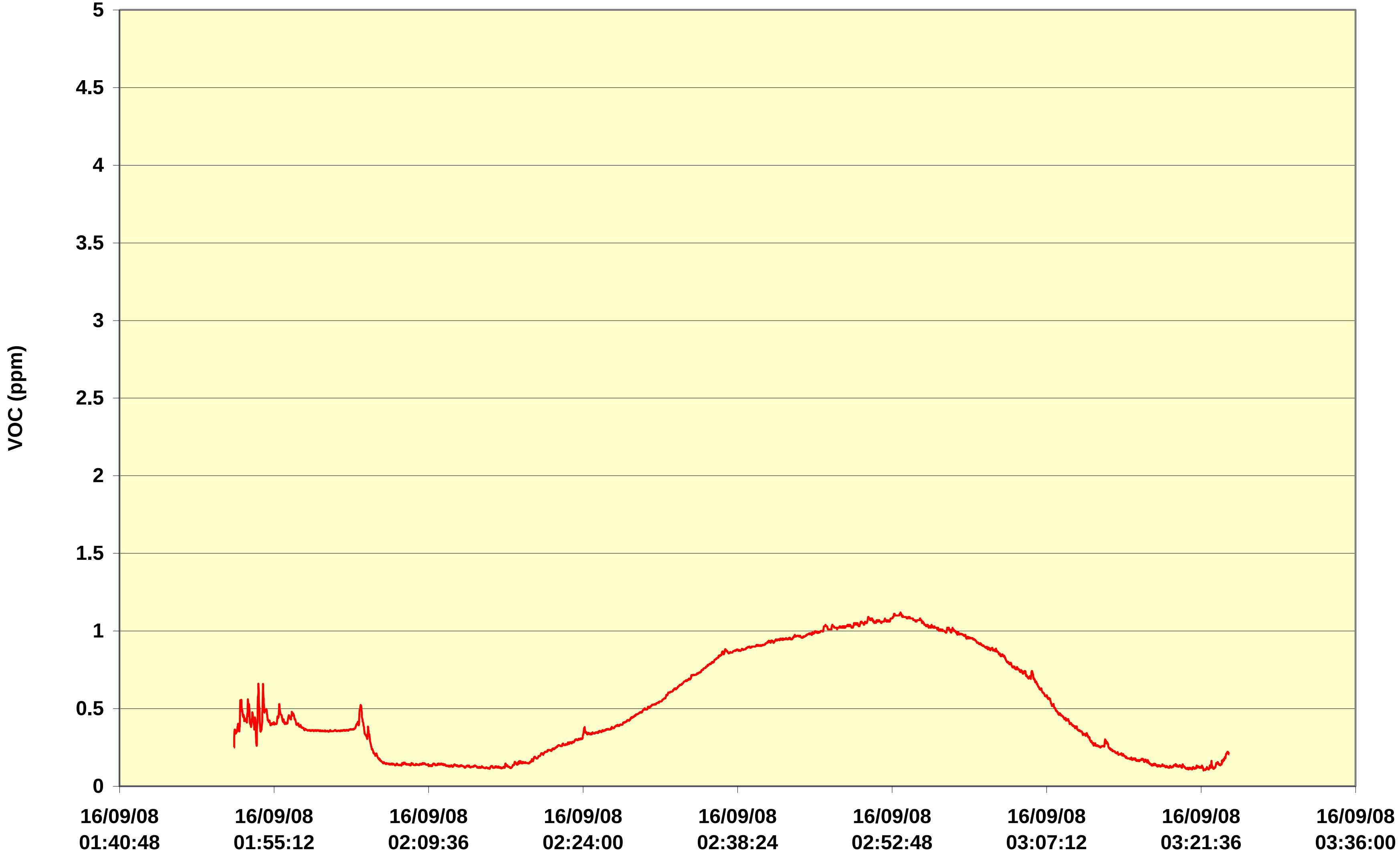

5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
09/09/08 01:40:48
09/09/08 01:55:12
09/09/08 02:09:36
09/09/08 02:24:00
09/09/08 02:38:24
09/09/08 02:52:48
09/09/08 03:07:12
09/09/08 03:21:36
09/09/08 03:36:00
09/09/08 03:50:24

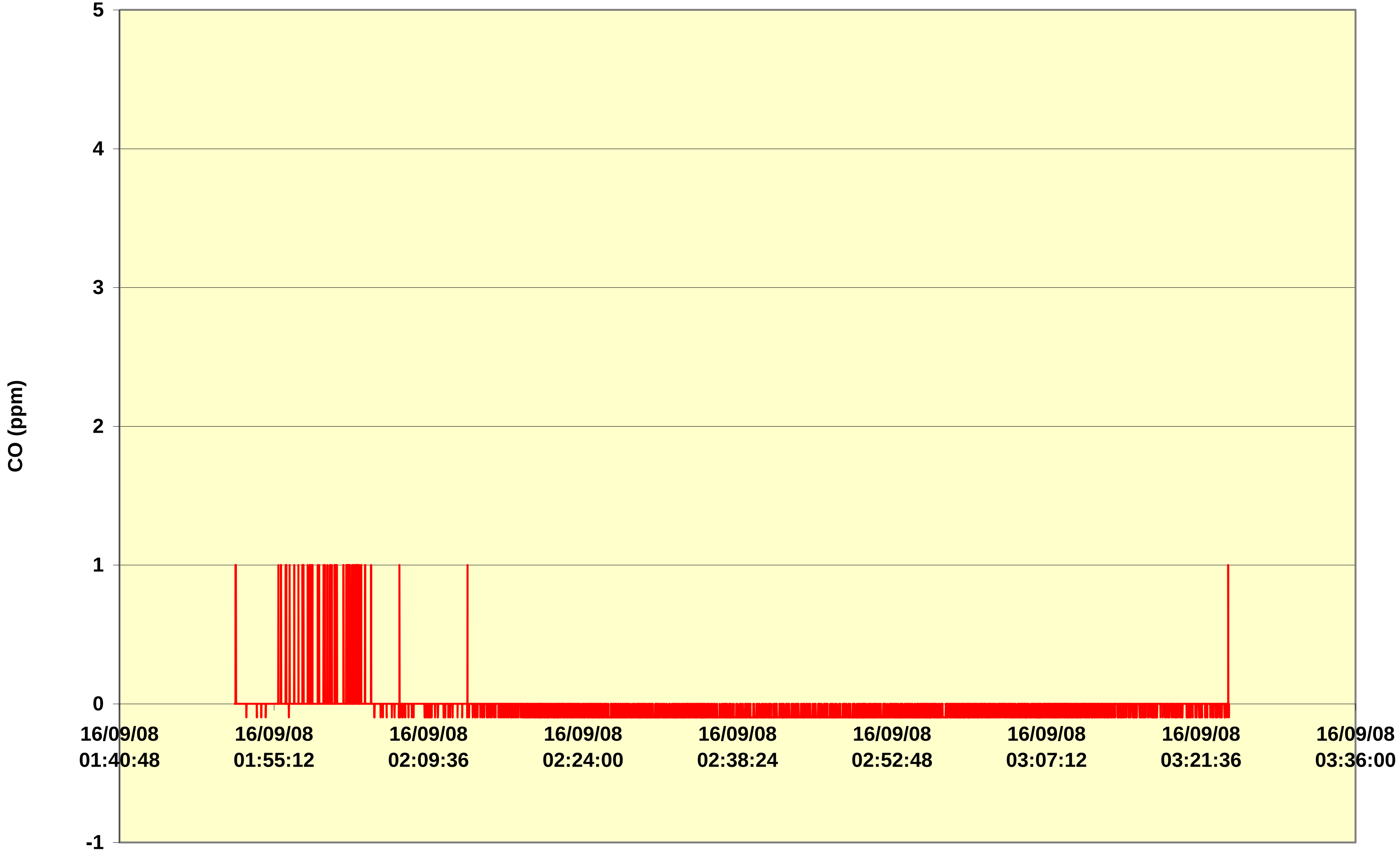


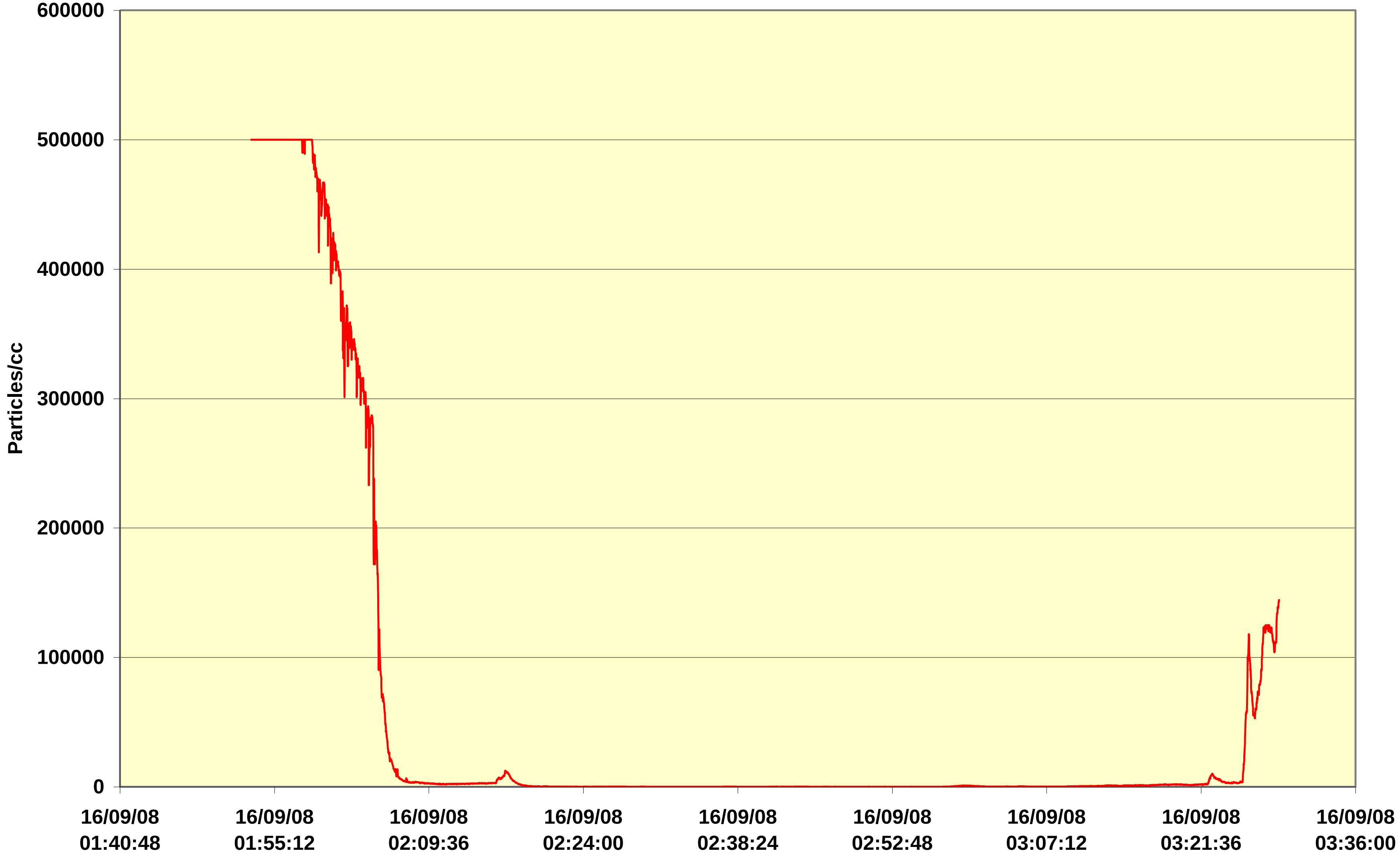
CO (ppm)
5
4
3
2
1
0
-1
09/09/08 01:40:48
09/09/08 01:55:12
09/09/08 02:09:36
09/09/08 02:24:00
09/09/08 02:38:24
09/09/08 02:52:48
09/09/08 03:07:12
09/09/08 03:21:36
09/09/08 03:36:00
09/09/08 03:50:24



300000
250000
200000
150000
100000
50000
0
Particles/cc
09/09/08 01:40:48
09/09/08 01:55:12
09/09/08 02:09:36
09/09/08 02:24:00
09/09/08 02:38:24
09/09/08 02:52:48
09/09/08 03:07:12
09/09/08 03:21:36
09/09/08 03:36:00
09/09/08 03:50:24

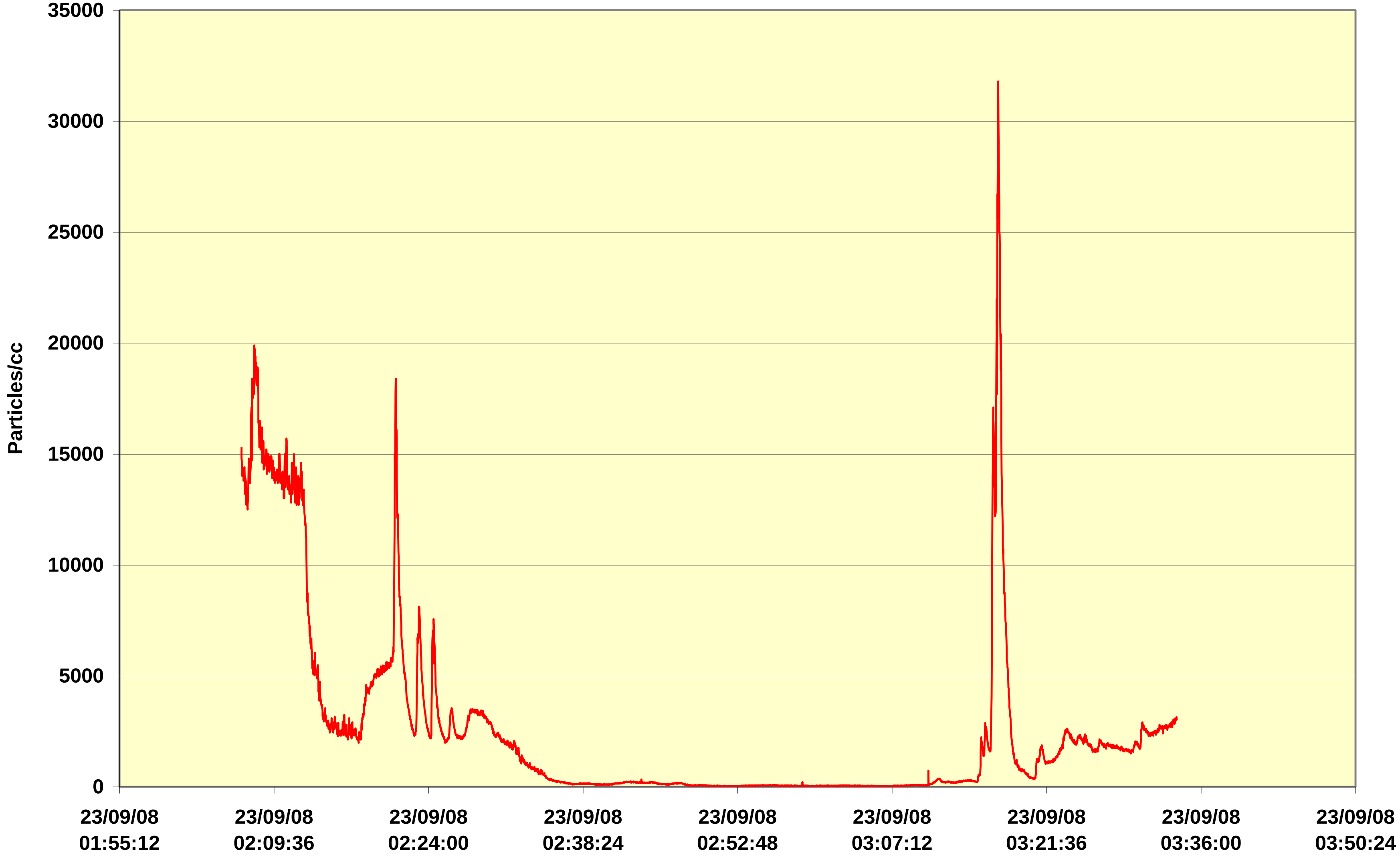

5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
16/09/08 01:40:48
16/09/08 01:55:12
16/09/08 02:09:36
16/09/08 02:24:00
16/09/08 02:38:24
16/09/08 02:52:48
16/09/08 03:07:12
16/09/08 03:21:36
16/09/08 03:36:00


5
4
3
2
1
0
-1
CO (ppm)
16/09/08 01:40:48
16/09/08 01:55:12
16/09/08 02:09:36
16/09/08 02:24:00
16/09/08 02:38:24
16/09/08 02:52:48
16/09/08 03:07:12
16/09/08 03:21:36
16/09/08 03:36:00

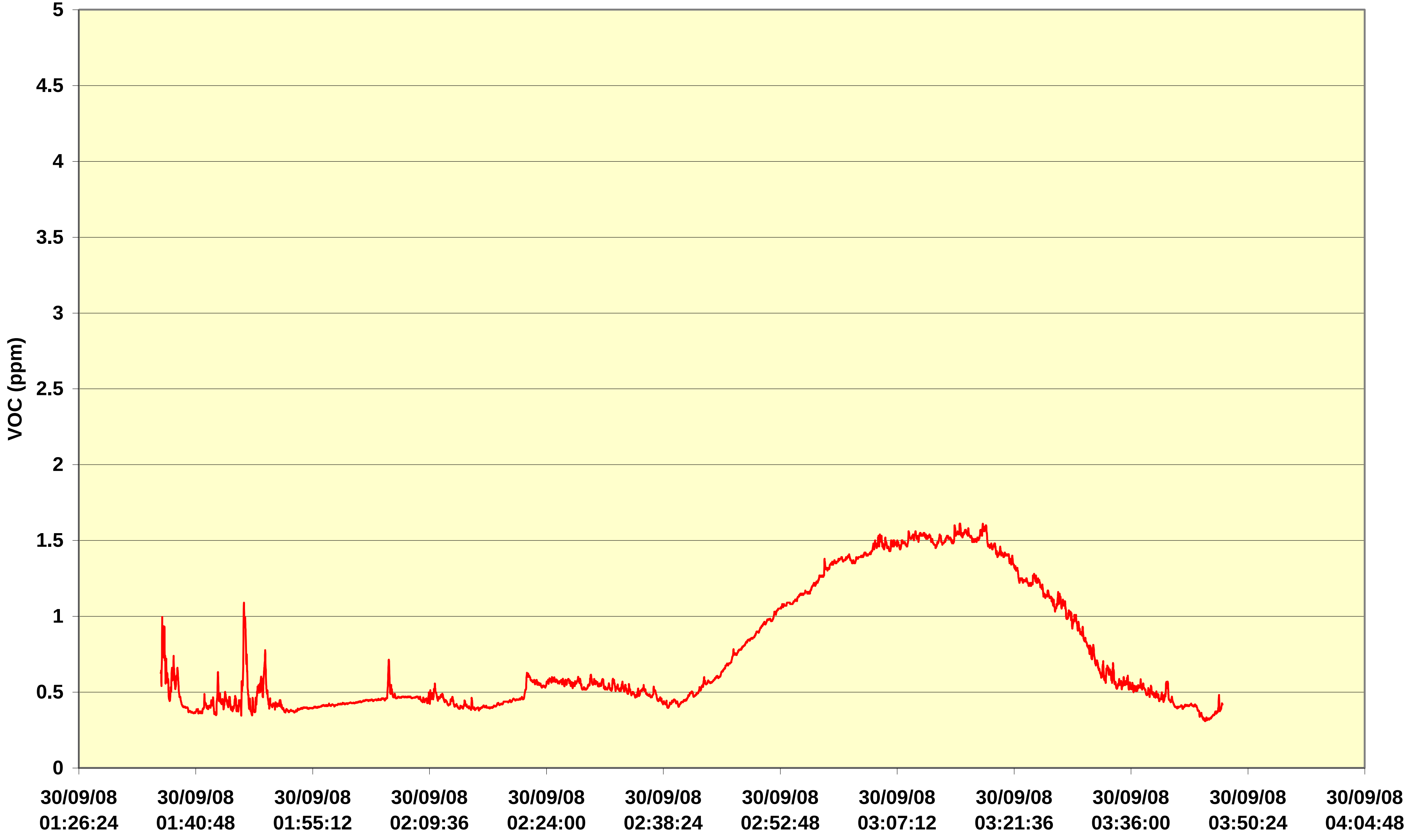

600000
500000
400000
300000
200000
100000
0
Particles/cc
16/09/08 01:40:48
16/09/08 01:55:12
16/09/08 02:09:36
16/09/08 02:24:00
16/09/08 02:38:24
16/09/08 02:52:48
16/09/08 03:07:12
16/09/08 03:21:36
16/09/08 03:36:00

Part 1 Sector 13

VOC & CO no data recorded – instrument failure.[2]

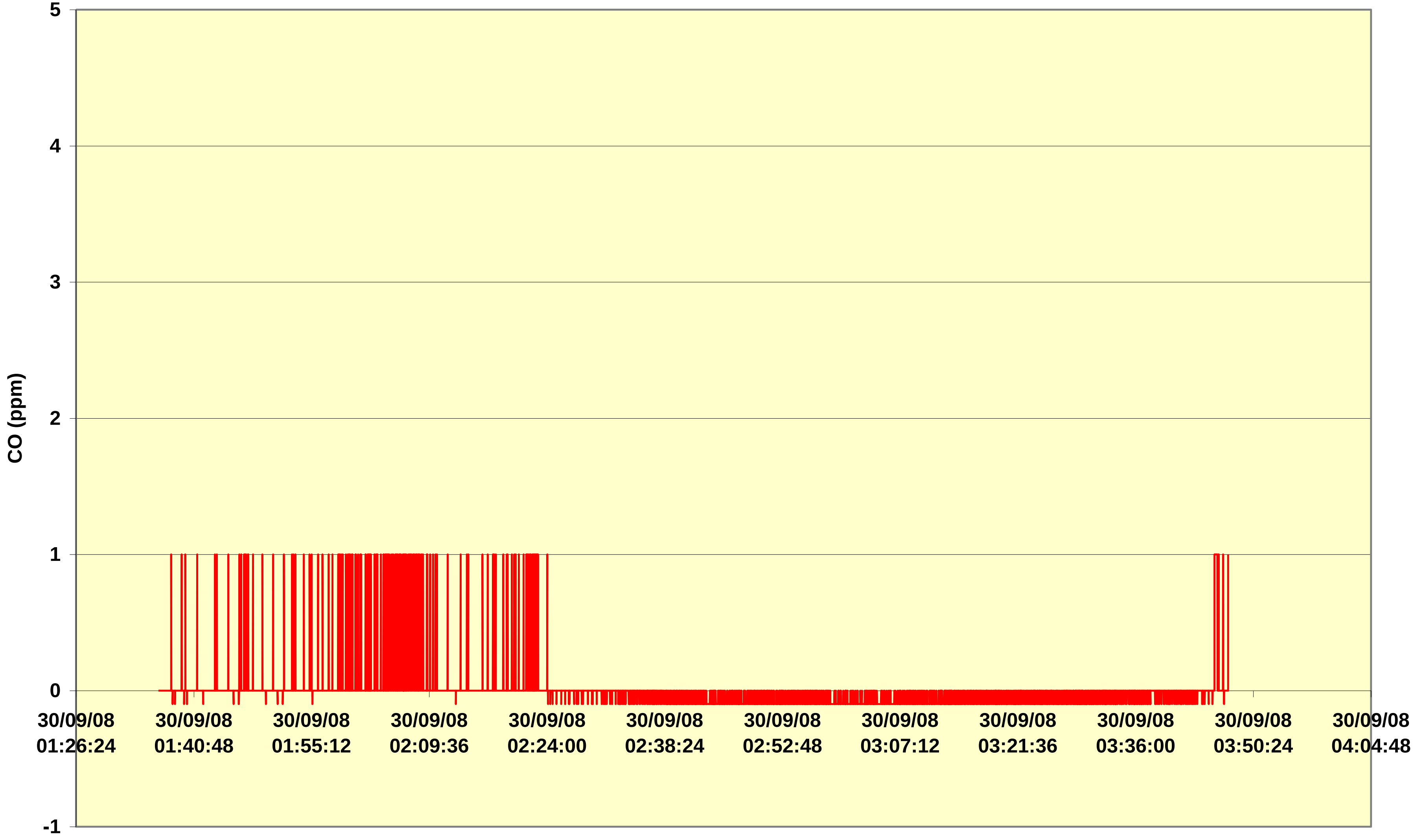


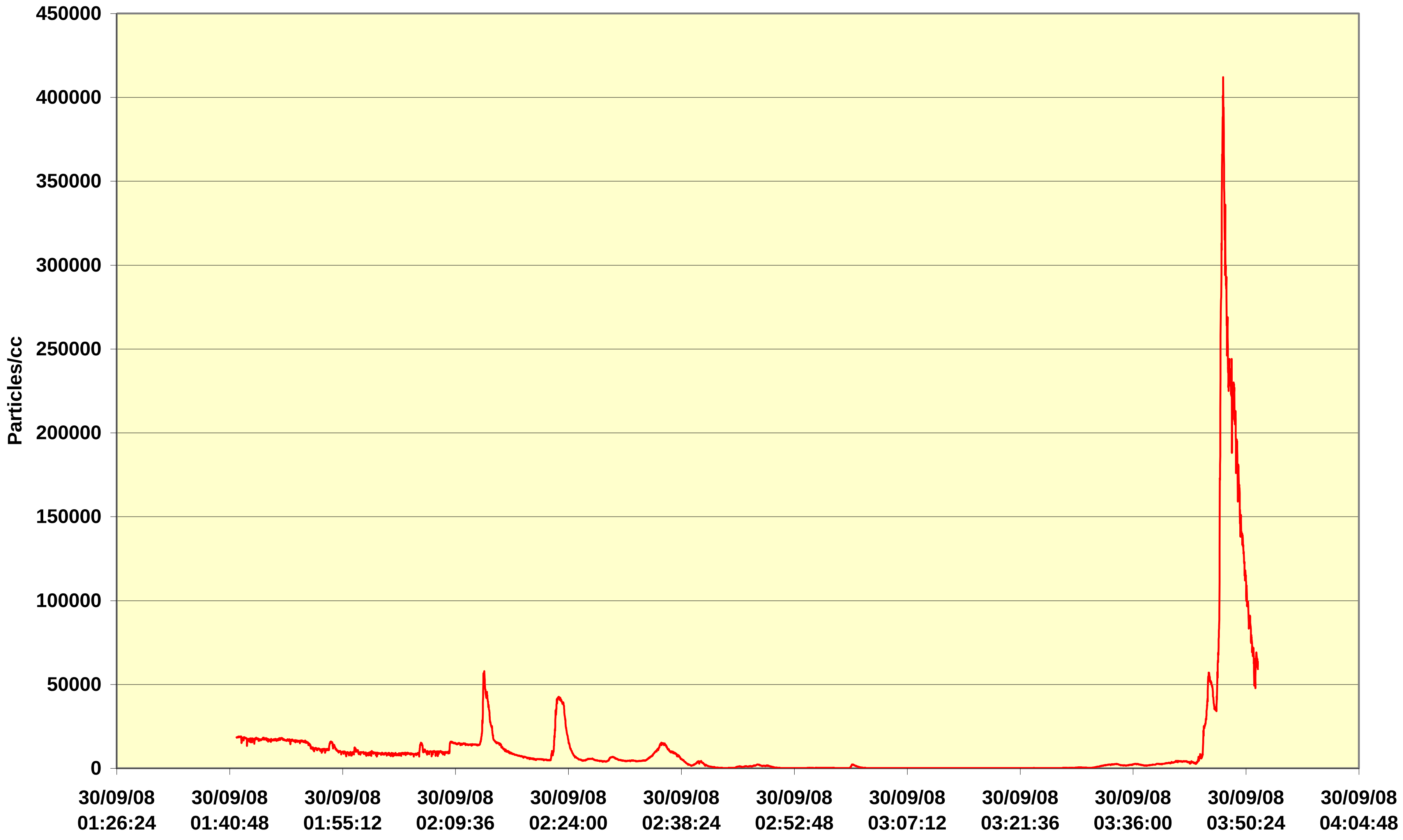
Particles/cc
35000
30000
25000
20000
15000
10000
5000
0
23/09/08 01:55:12
23/09/08 02:09:36
23/09/08 02:24:00
23/09/08 02:38:24
23/09/08 02:52:48
23/09/08 03:07:12
23/09/08 03:21:36
23/09/08 03:36:00
23/09/08 03:50:24



VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
30/09/08 01:26:24
30/09/08 01:40:48
30/09/08 01:55:12
30/09/08 02:09:36
30/09/08 02:24:00
30/09/08 02:38:24
30/09/08 02:52:48
30/09/08 03:07:12
30/09/08 03:21:36
30/09/08 03:36:00
30/09/08 03:50:24
30/09/08 04:04:48

Part 1 Sector 14

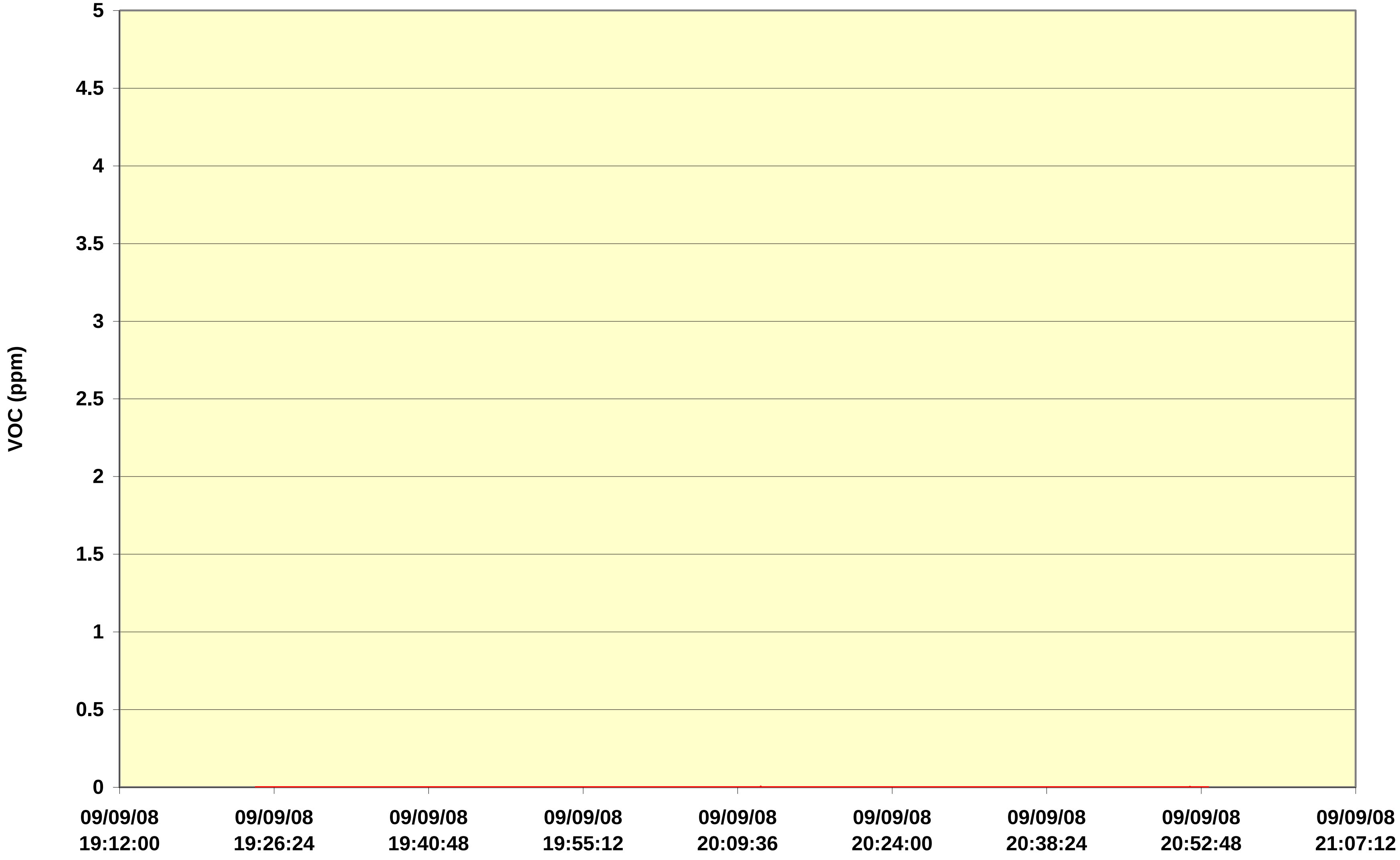


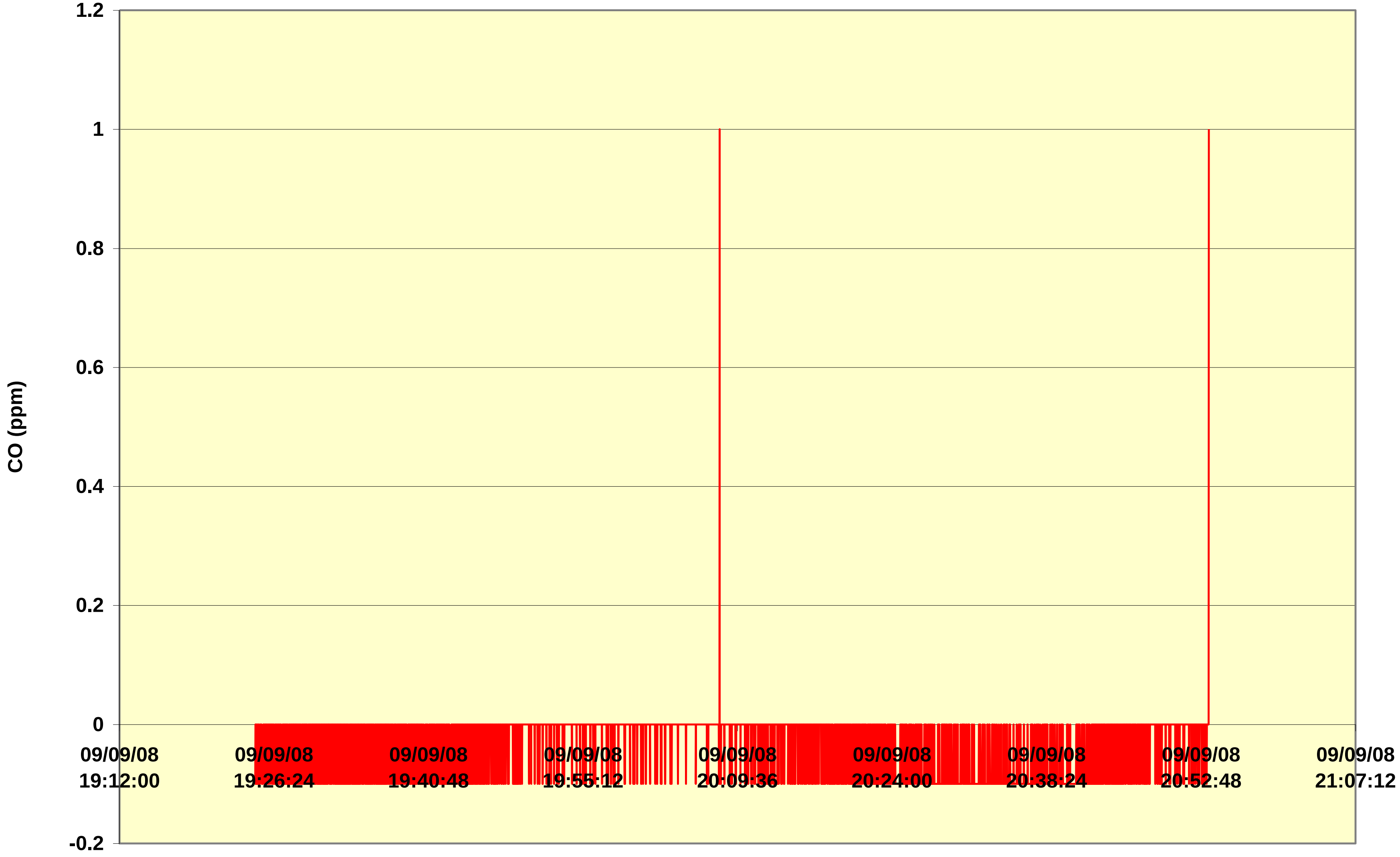


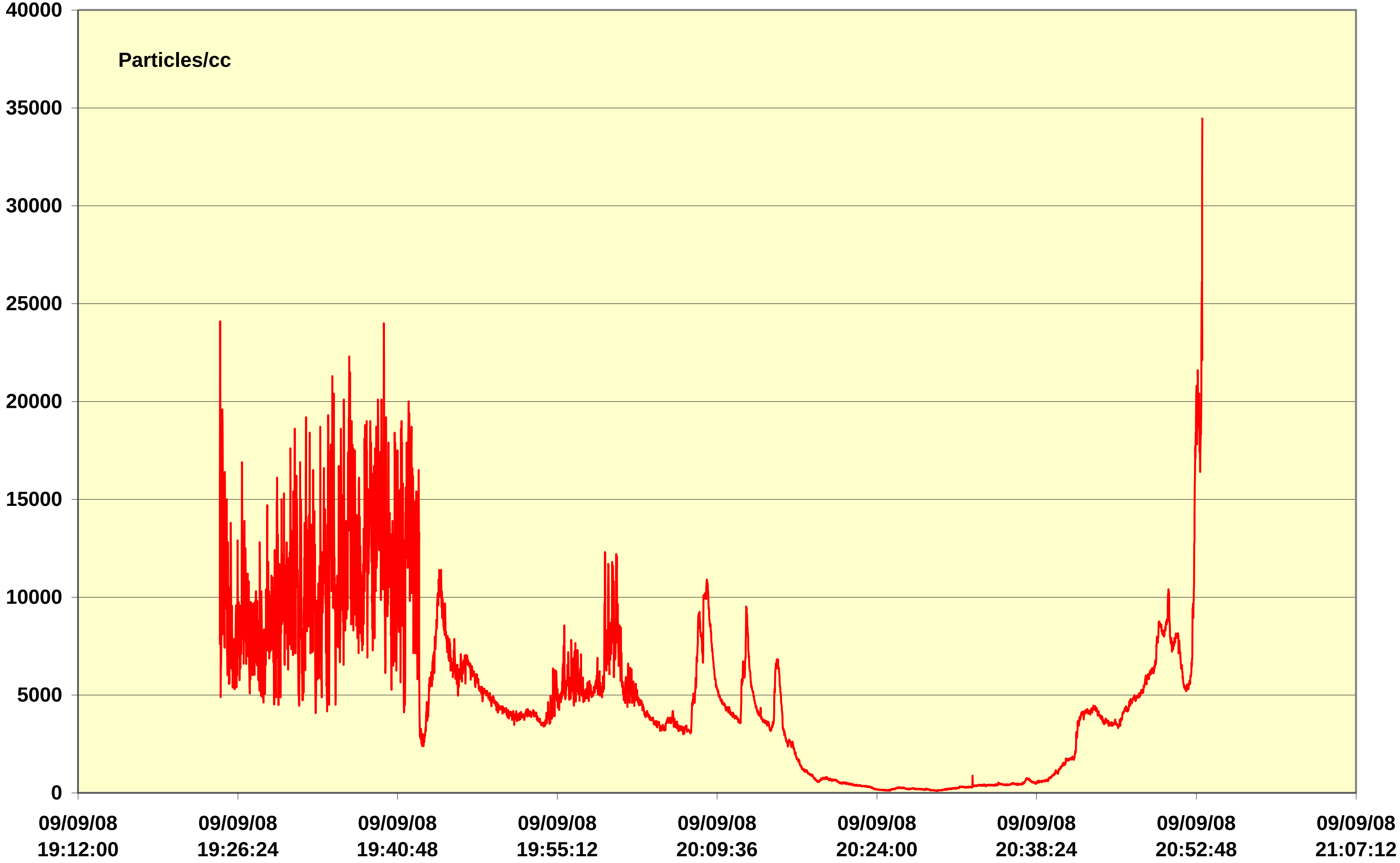
Particles/cc
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
30/09/08 01:26:24
30/09/08 01:40:48
30/09/08 01:55:12
30/09/08 02:09:36
30/09/08 02:24:00
30/09/08 02:38:24
30/09/08 02:52:48
30/09/08 03:07:12
30/09/08 03:21:36
30/09/08 03:36:00
30/09/08 03:50:24
30/09/08 04:04:48

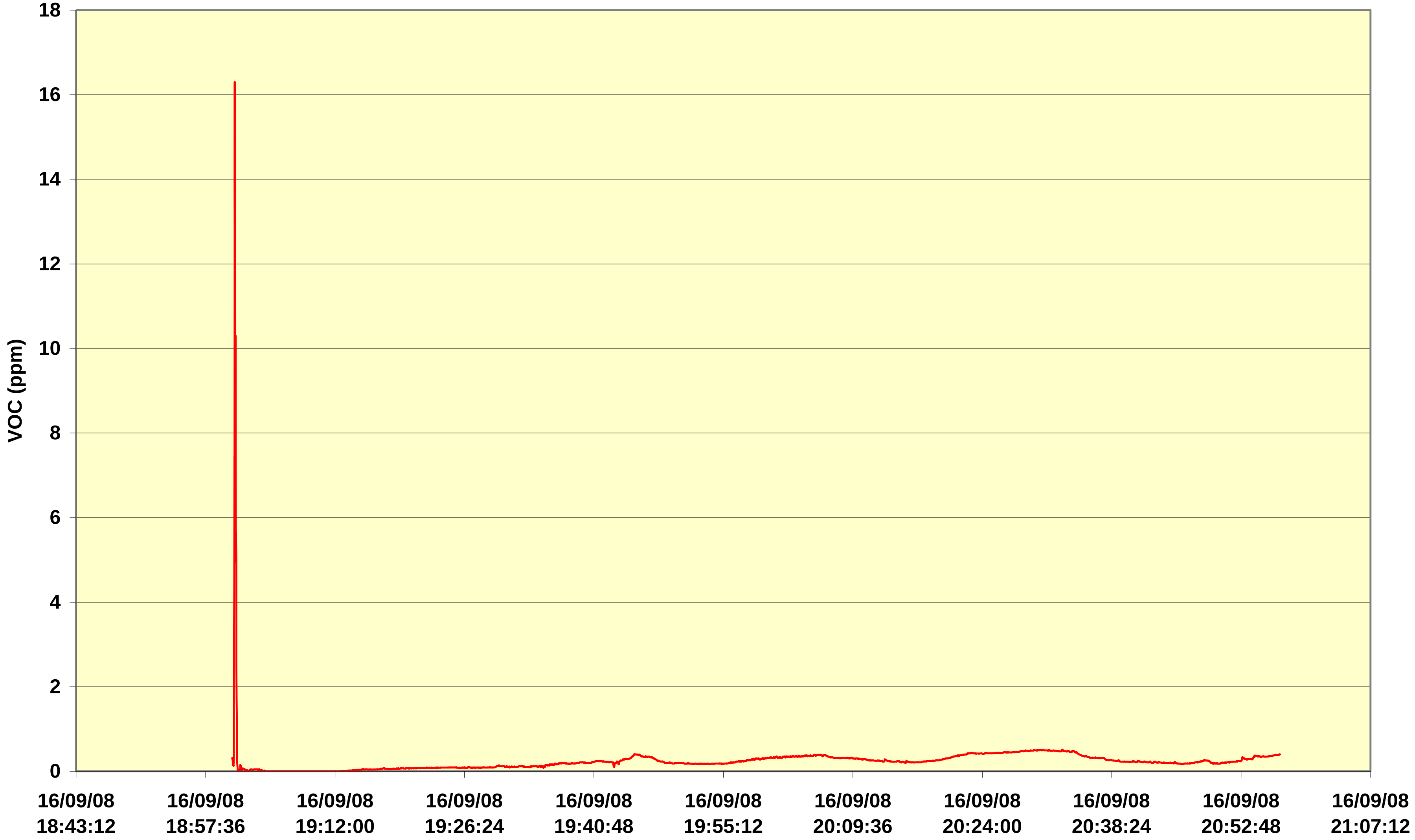
Part 1 Sector 15

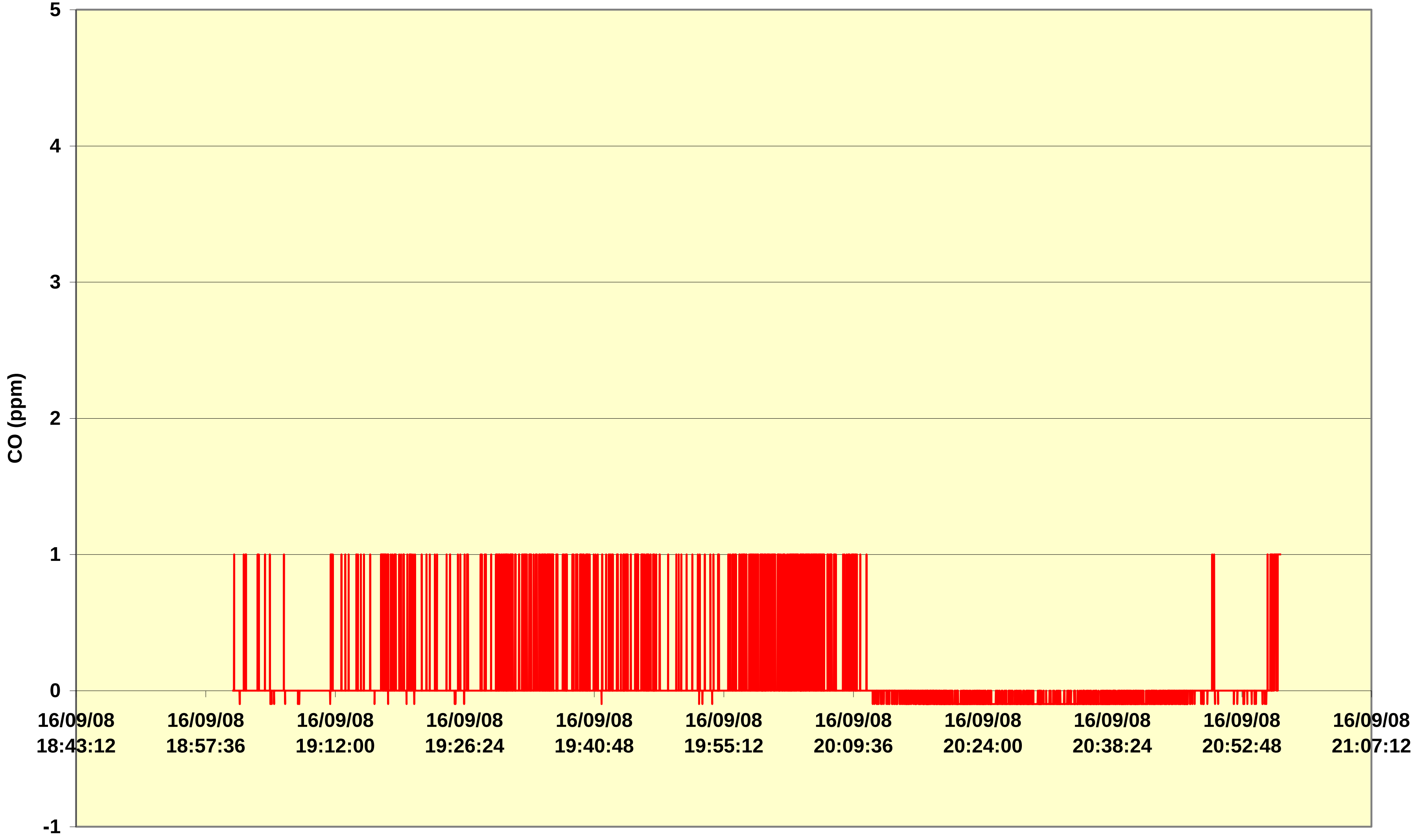
See Endnote [3]



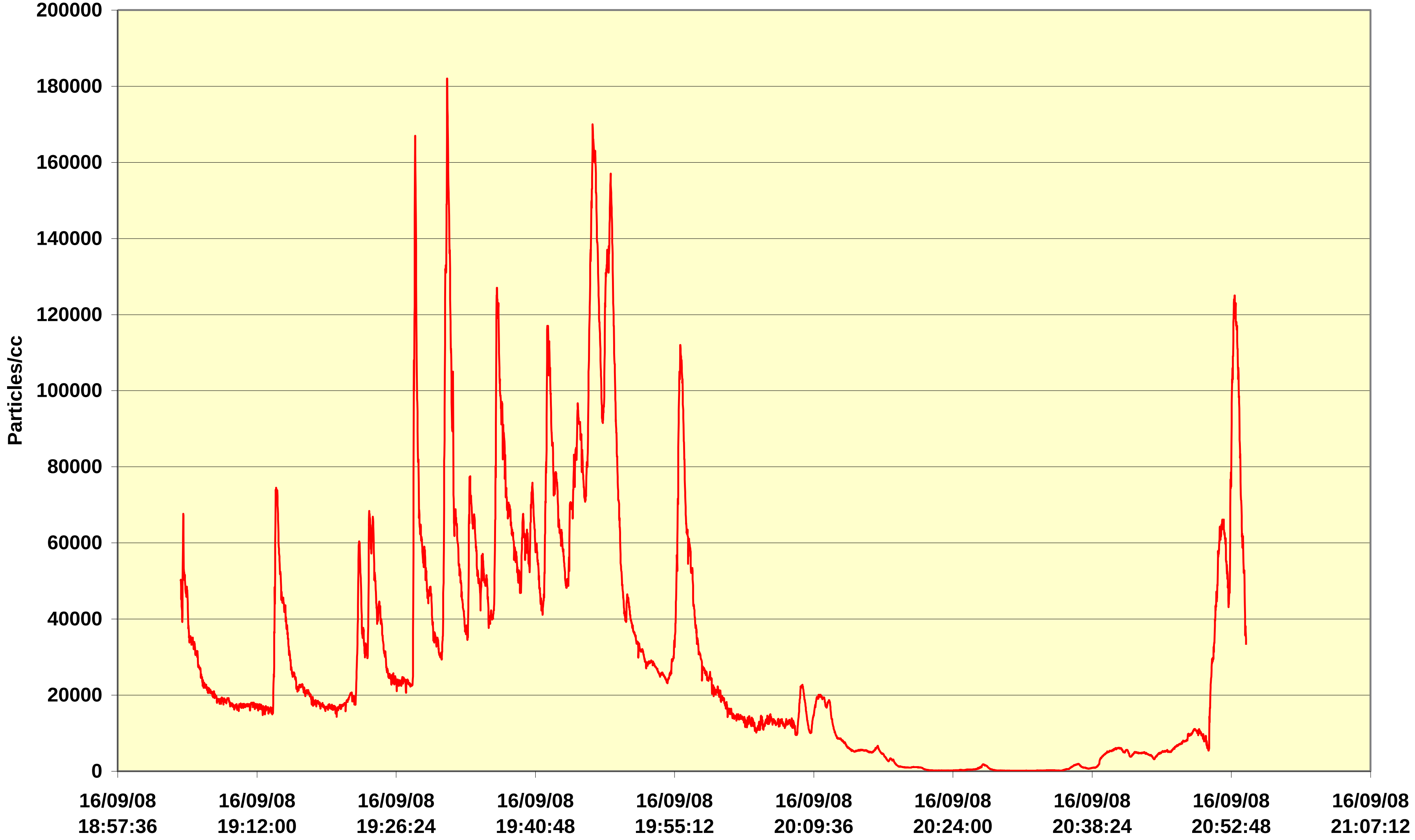

1.2
1
0.8
0.6
0.4
0.2
0
-0.2
CO (ppm)
09/09/08 19:12:00
09/09/08 19:26:24
09/09/08 19:40:48
09/09/08 19:55:12
09/09/08 20:09:36
09/09/08 20:24:00
09/09/08 20:38:24
09/09/08 20:52:48
09/09/08 21:07:12


Particles/cc
40000
35000
30000
25000
20000
15000
10000
5000
0
09/09/08 19:12:00
09/09/08 19:26:24
09/09/08 19:40:48
09/09/08 19:55:12
09/09/08 20:09:36
09/09/08 20:24:00
09/09/08 20:38:24
09/09/08 20:52:48
09/09/08 21:07:12


18
16
14
12
10
8
6
4
2
0
VOC (ppm)
16/09/08 18:43:12
16/09/08 18:57:36
16/09/08 19:12:00
16/09/08 19:26:24
16/09/08 19:40:48
16/09/08 19:55:12
16/09/08 20:09:36
16/09/08 20:24:00
16/09/08 20:38:24
16/09/08 20:52:48
16/09/08 21:07:12



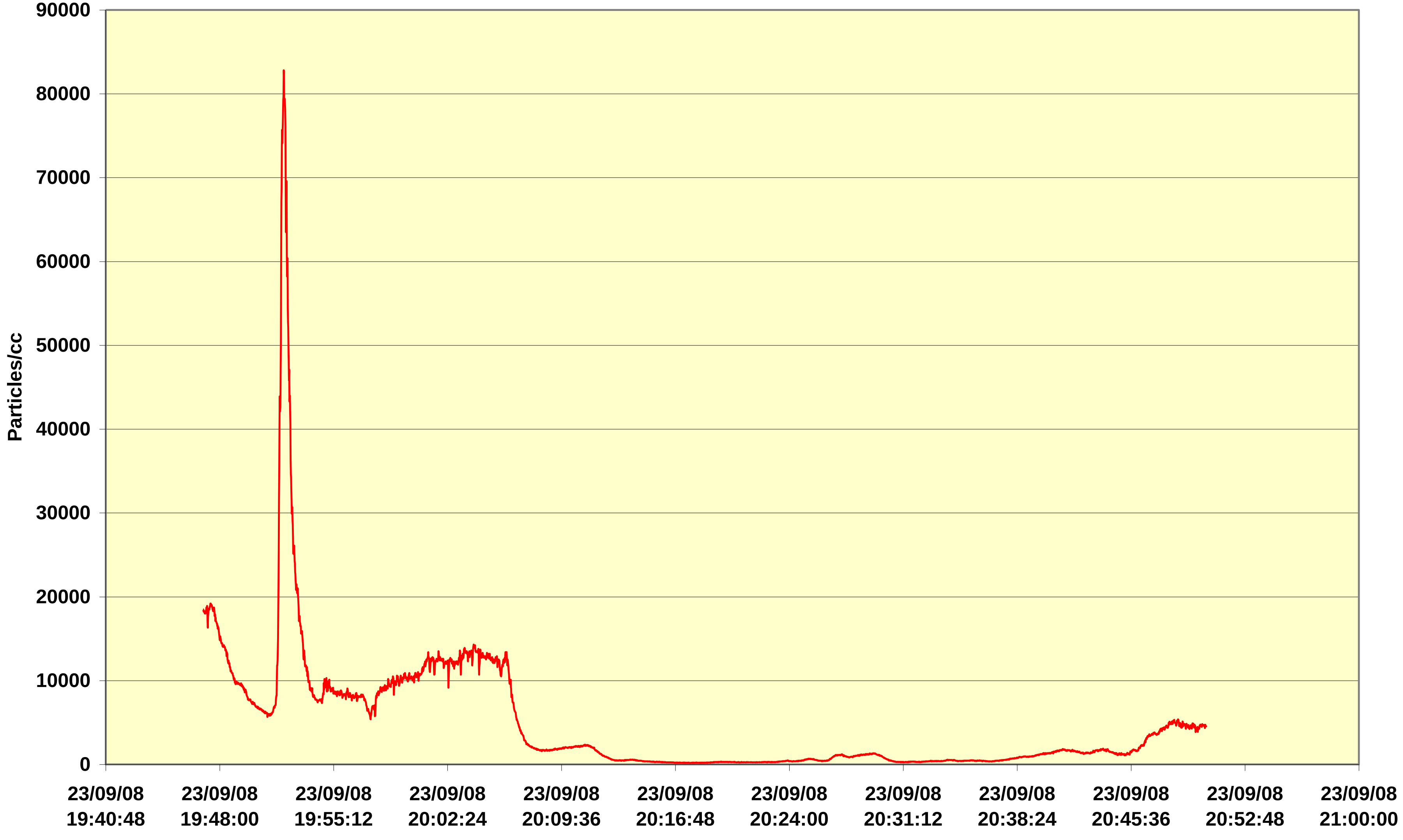
CO (ppm)
5
4
3
2
1
0
-1
16/09/08 18:43:12
16/09/08 18:57:36
16/09/08 19:12:00
16/09/08 19:26:24
16/09/08 19:40:48
16/09/08 19:55:12
16/09/08 20:09:36
16/09/08 20:24:00
16/09/08 20:38:24
16/09/08 20:52:48
16/09/08 21:07:12

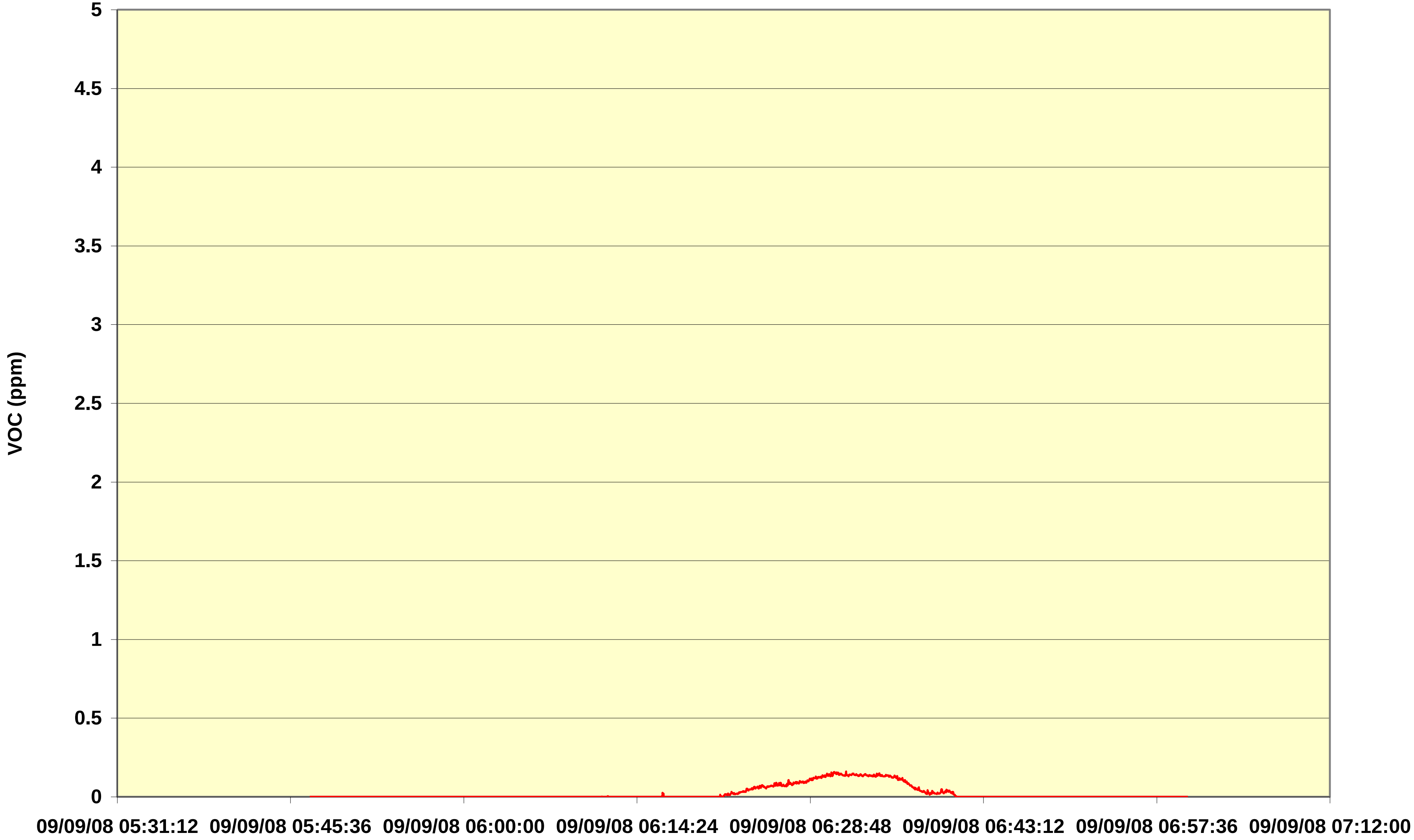


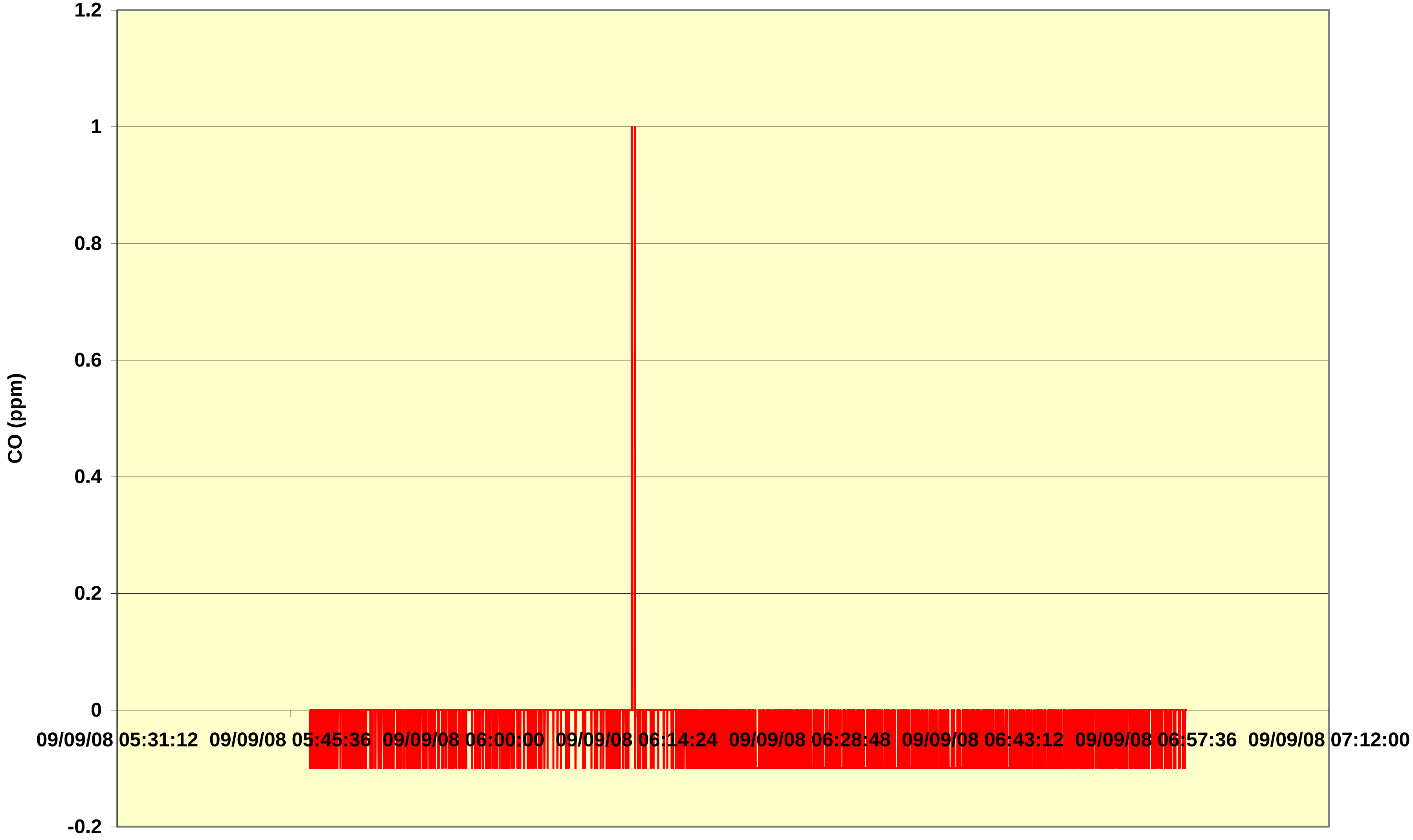
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
Particles/cc
16/09/08 18:57:36
16/09/08 19:12:00
16/09/08 19:26:24
16/09/08 19:40:48
16/09/08 19:55:12
16/09/08 20:09:36
16/09/08 20:24:00
16/09/08 20:38:24
16/09/08 20:52:48
16/09/08 21:07:12

Part 1 Sector 17

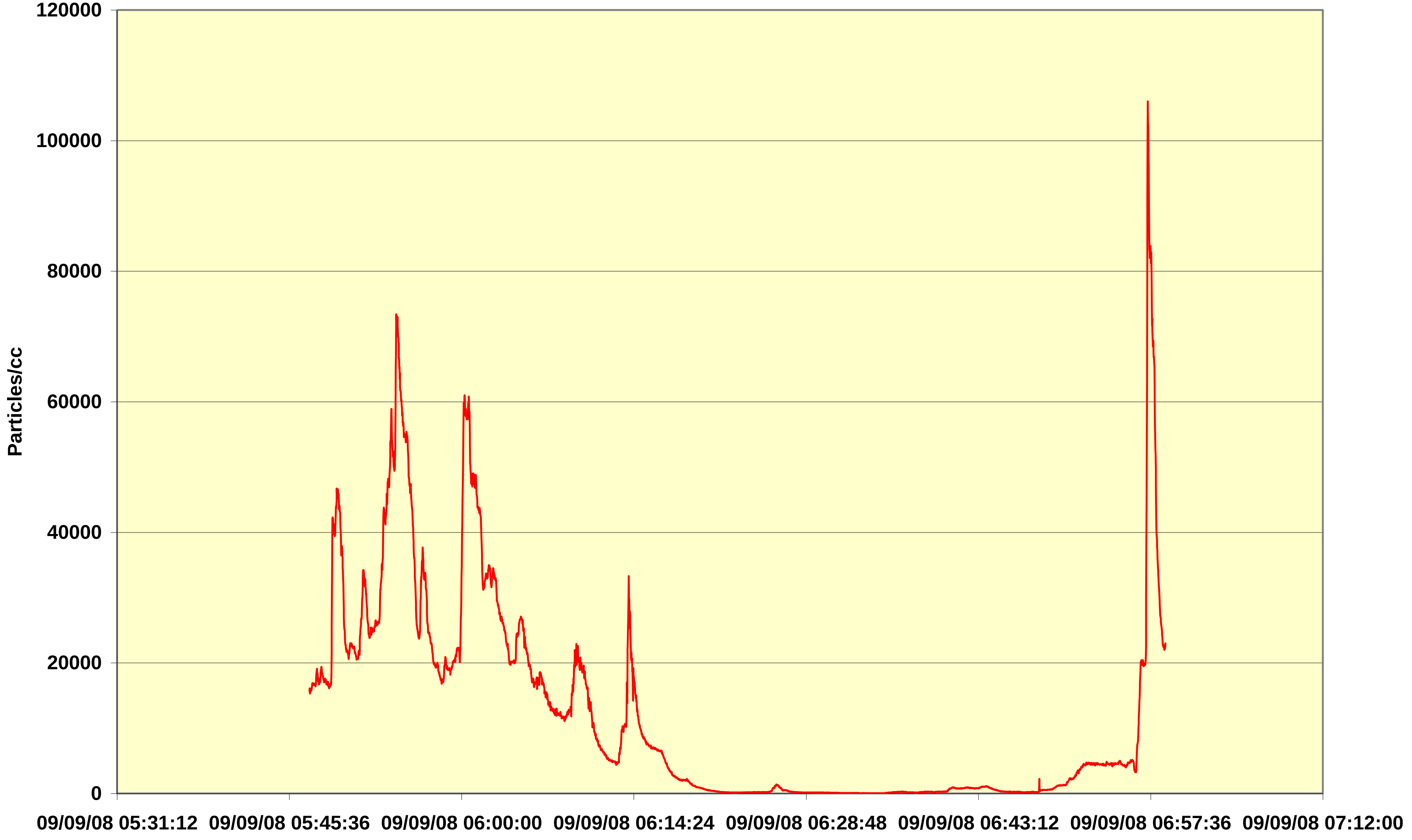
VOC & CO no data recorded – instrument failure. [2]


90000
80000
70000
60000
50000
40000
30000
20000
10000
0
Particles/cc
23/09/08 19:40:48
23/09/08 19:48:00
23/09/08 19:55:12
23/09/08 20:02:24
23/09/08 20:09:36
23/09/08 20:16:48
23/09/08 20:24:00
23/09/08 20:31:12
23/09/08 20:38:24
23/09/08 20:45:36
23/09/08 20:52:48
23/09/08 21:00:00


5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
09/09/08 05:31:12
09/09/08 05:45:36
09/09/08 06:00:00
09/09/08 06:14:24
09/09/08 06:28:48
09/09/08 06:43:12
09/09/08 06:57:36
09/09/08 07:12:00

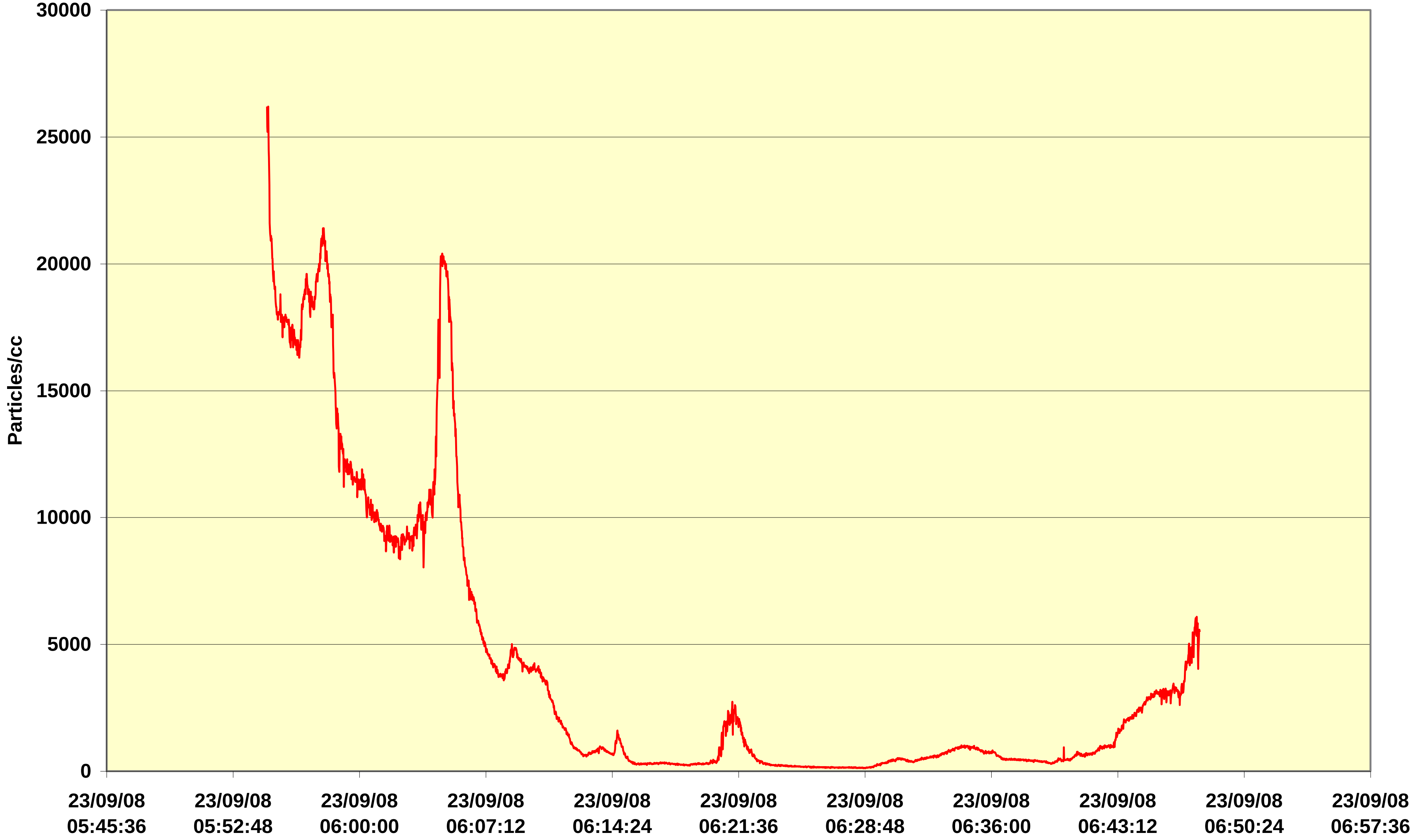


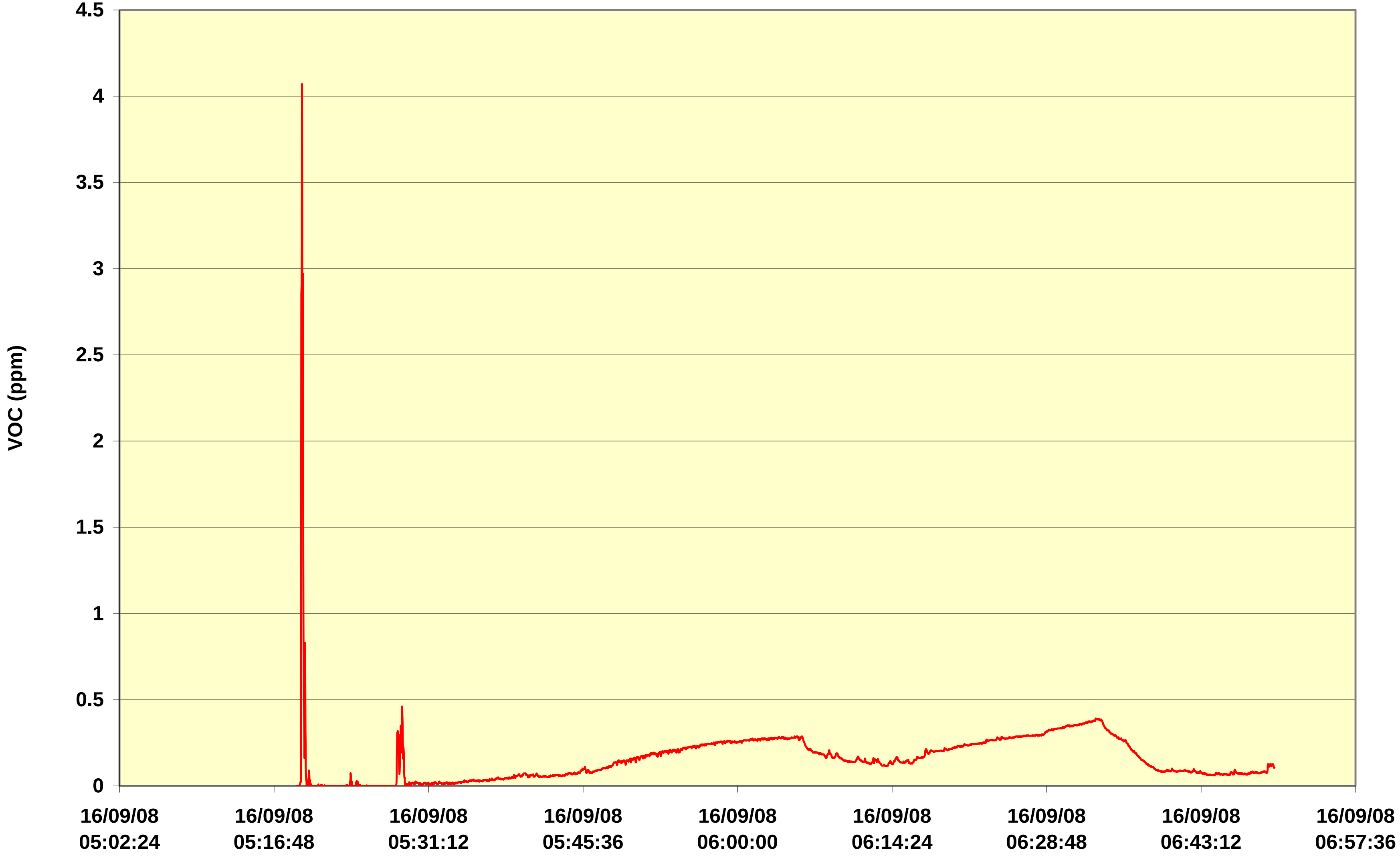
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
CO (ppm)
09/09/08 05:31:12
09/09/08 05:45:36
09/09/08 06:00:00
09/09/08 06:14:24
09/09/08 06:28:48
09/09/08 06:43:12
09/09/08 06:57:36
09/09/08 07:12:00

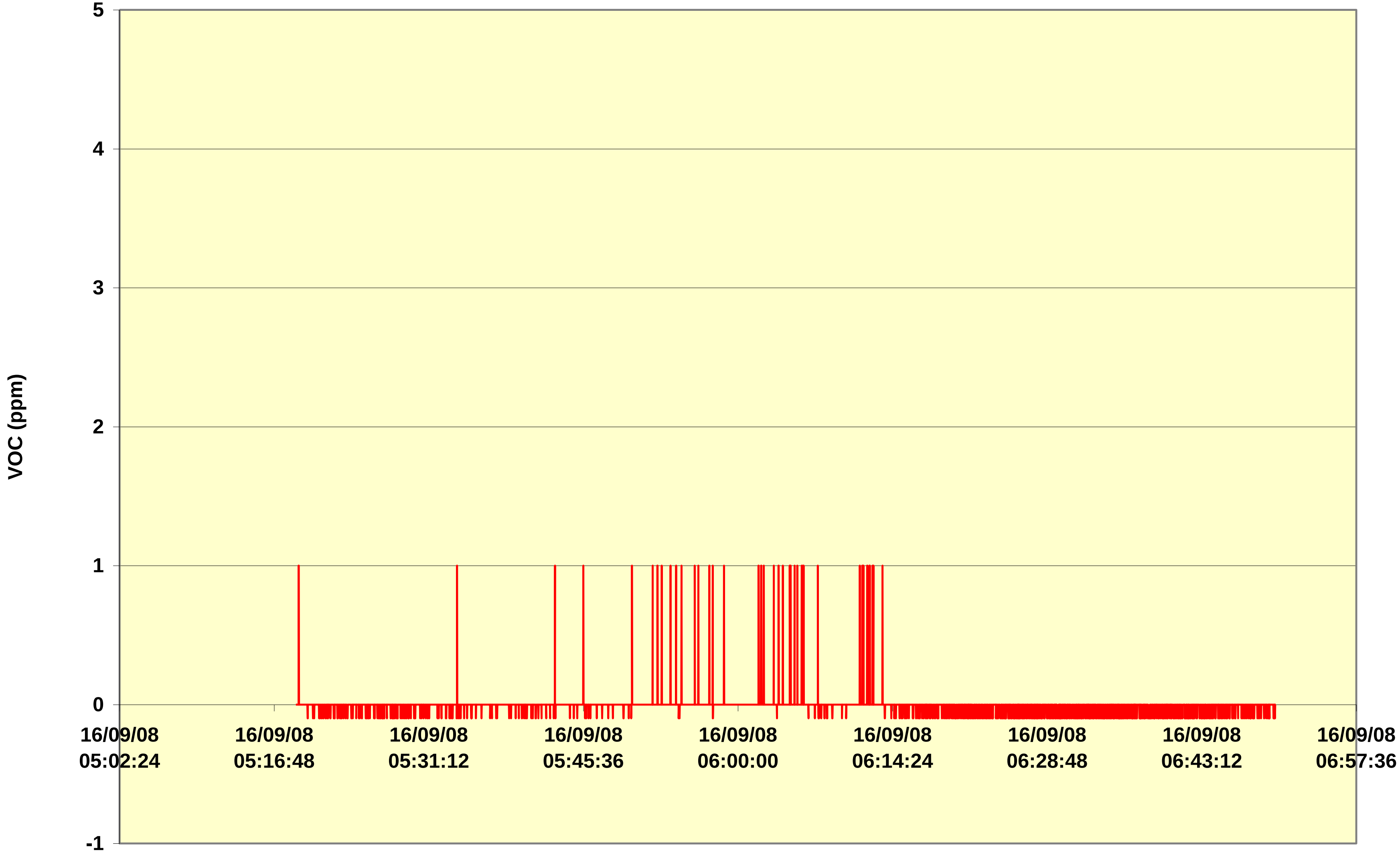

120000
100000
80000
60000
40000
20000
0
Particles/cc
09/09/08 05:31:12
09/09/08 05:45:36
09/09/08 06:00:00
09/09/08 06:14:24
09/09/08 06:28:48
09/09/08 06:43:12
09/09/08 06:57:36
09/09/08 07:12:00

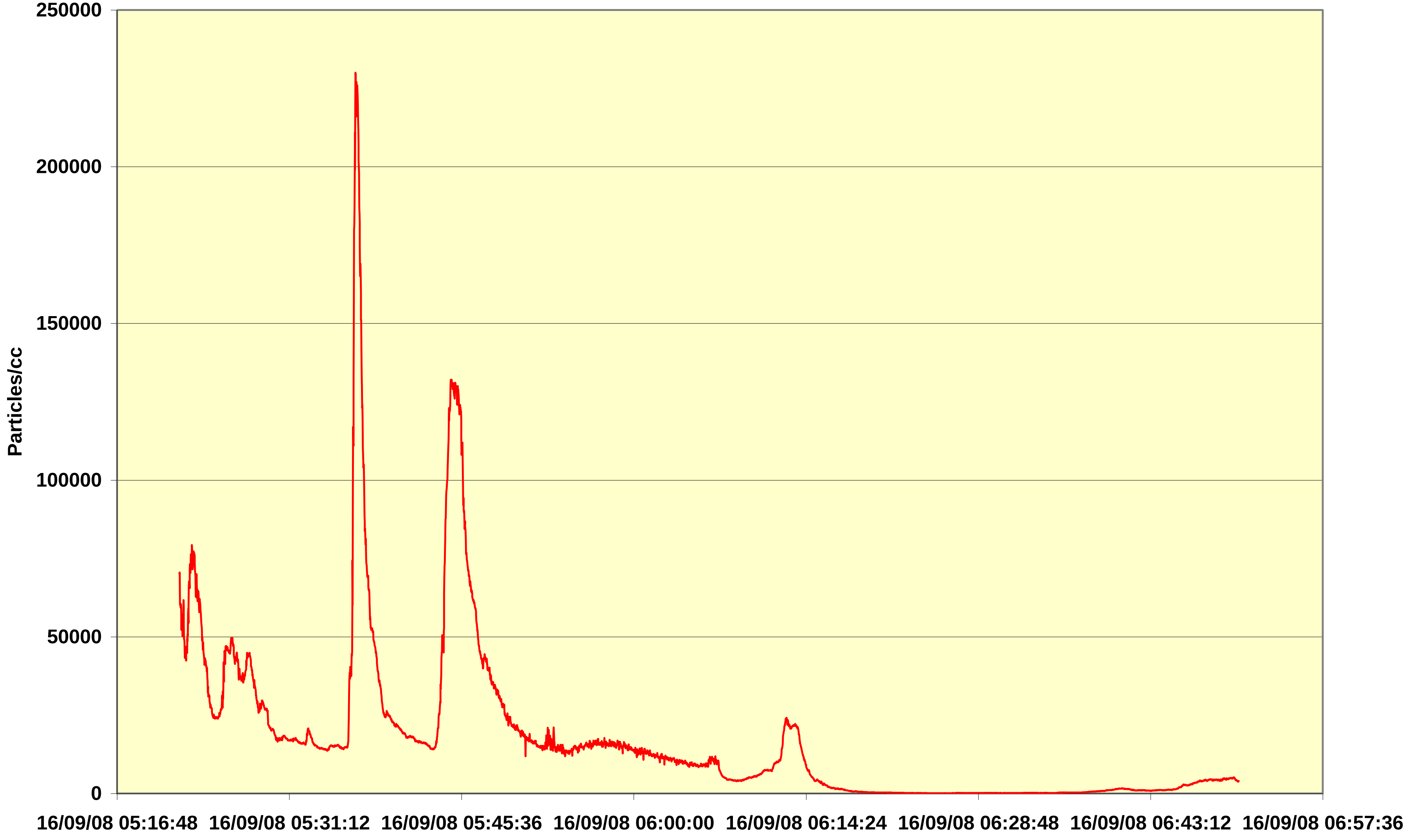
Part 1 Sector 19

VOC & CO no data recorder – instrument failure. [2]


30000
25000
20000
15000
10000
5000
0
Particles/cc
23/09/08 05:45:36
23/09/08 05:52:48
23/09/08 06:00:00
23/09/08 06:07:12
23/09/08 06:14:24
23/09/08 06:21:36
23/09/08 06:28:48
23/09/08 06:36:00
23/09/08 06:43:12
23/09/08 06:50:24
23/09/08 06:57:36

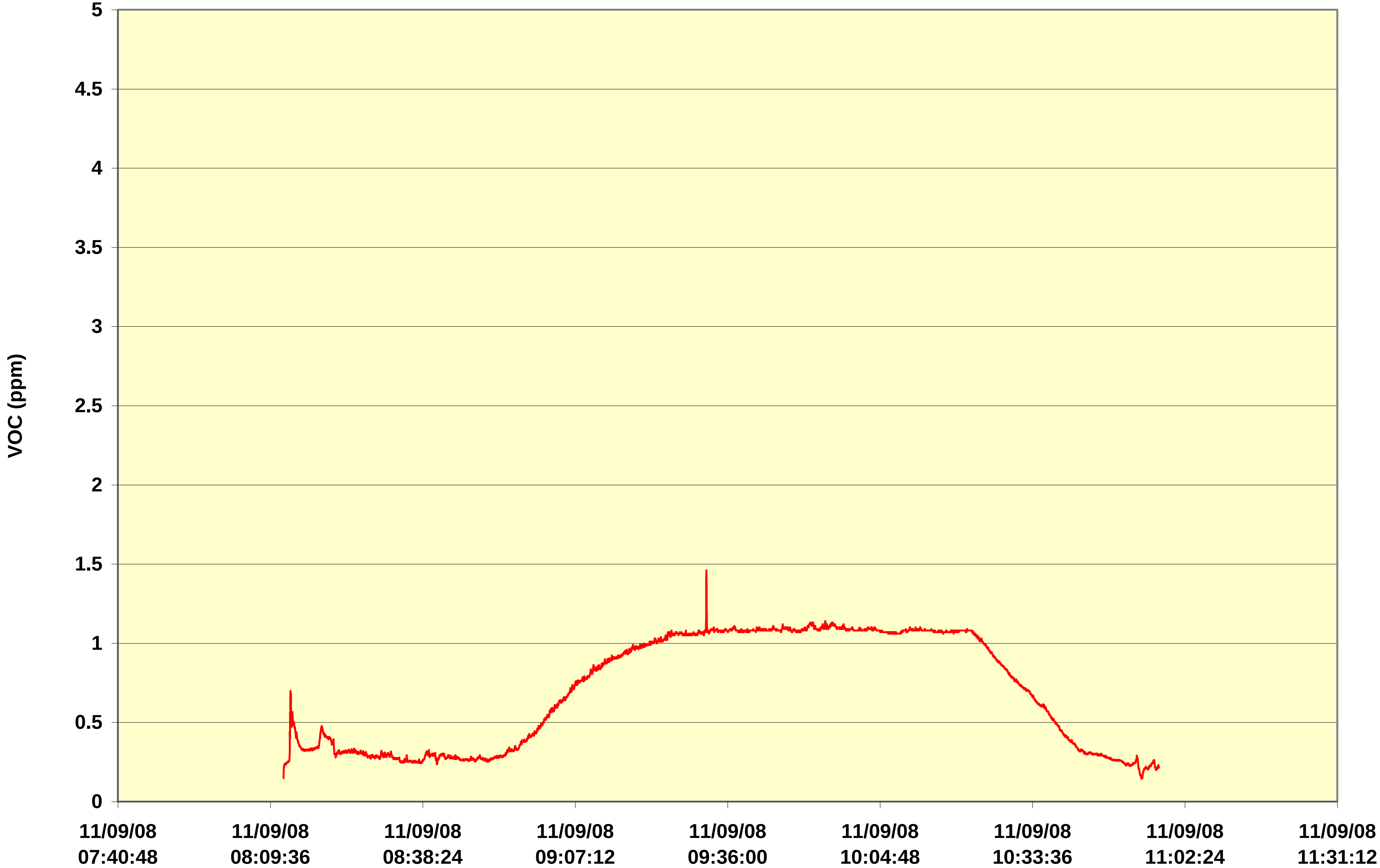

VOC (ppm)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
16/09/08 05:02:24
16/09/08 05:16:48
16/09/08 05:31:12
16/09/08 05:45:36
16/09/08 06:00:00
16/09/08 06:14:24
16/09/08 06:28:48
16/09/08 06:43:12
16/09/08 06:57:36


VOC (ppm)
5
4
3
2
1
0
-1
16/09/08 05:02:24
16/09/08 05:16:48
16/09/08 05:31:12
16/09/08 05:45:36
16/09/08 06:00:00
16/09/08 06:14:24
16/09/08 06:28:48
16/09/08 06:43:12
16/09/08 06:57:36

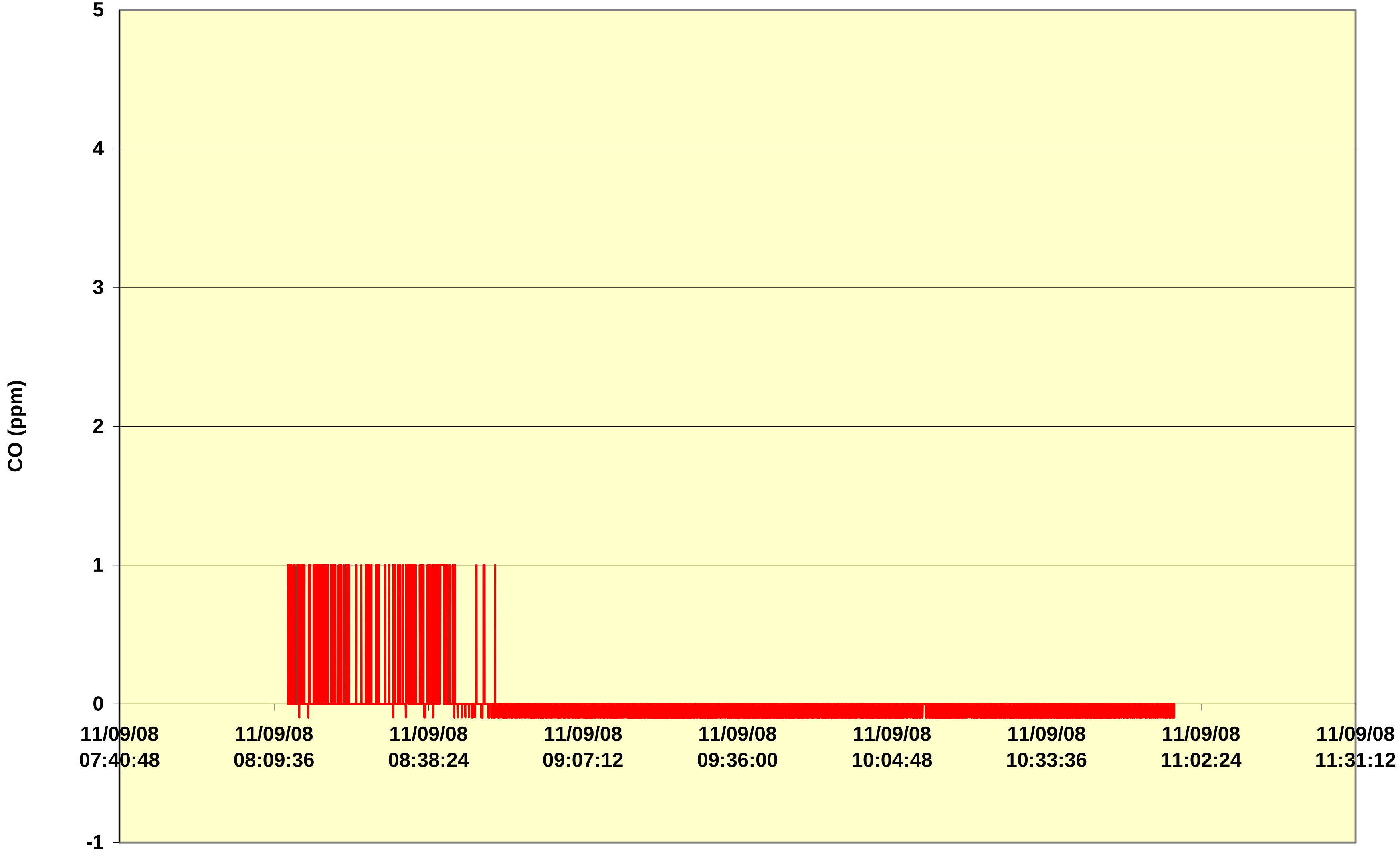


Particles/cc
250000
200000
150000
100000
50000
0
16/09/08 05:16:48
16/09/08 05:31:12
16/09/08 05:45:36
16/09/08 06:00:00
16/09/08 06:14:24
16/09/08 06:28:48
16/09/08 06:43:12
16/09/08 06:57:36

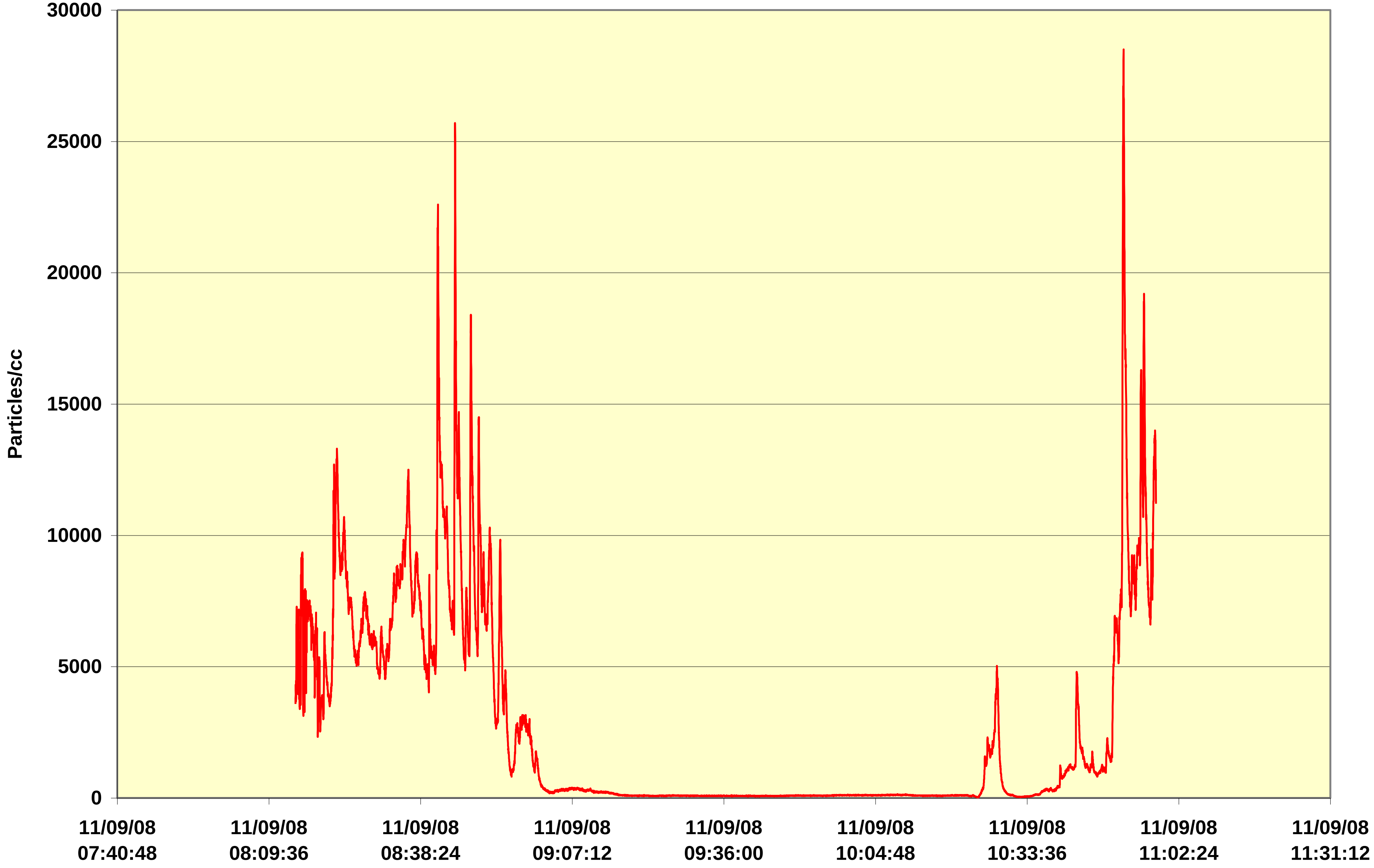
Part 2 Trial 1

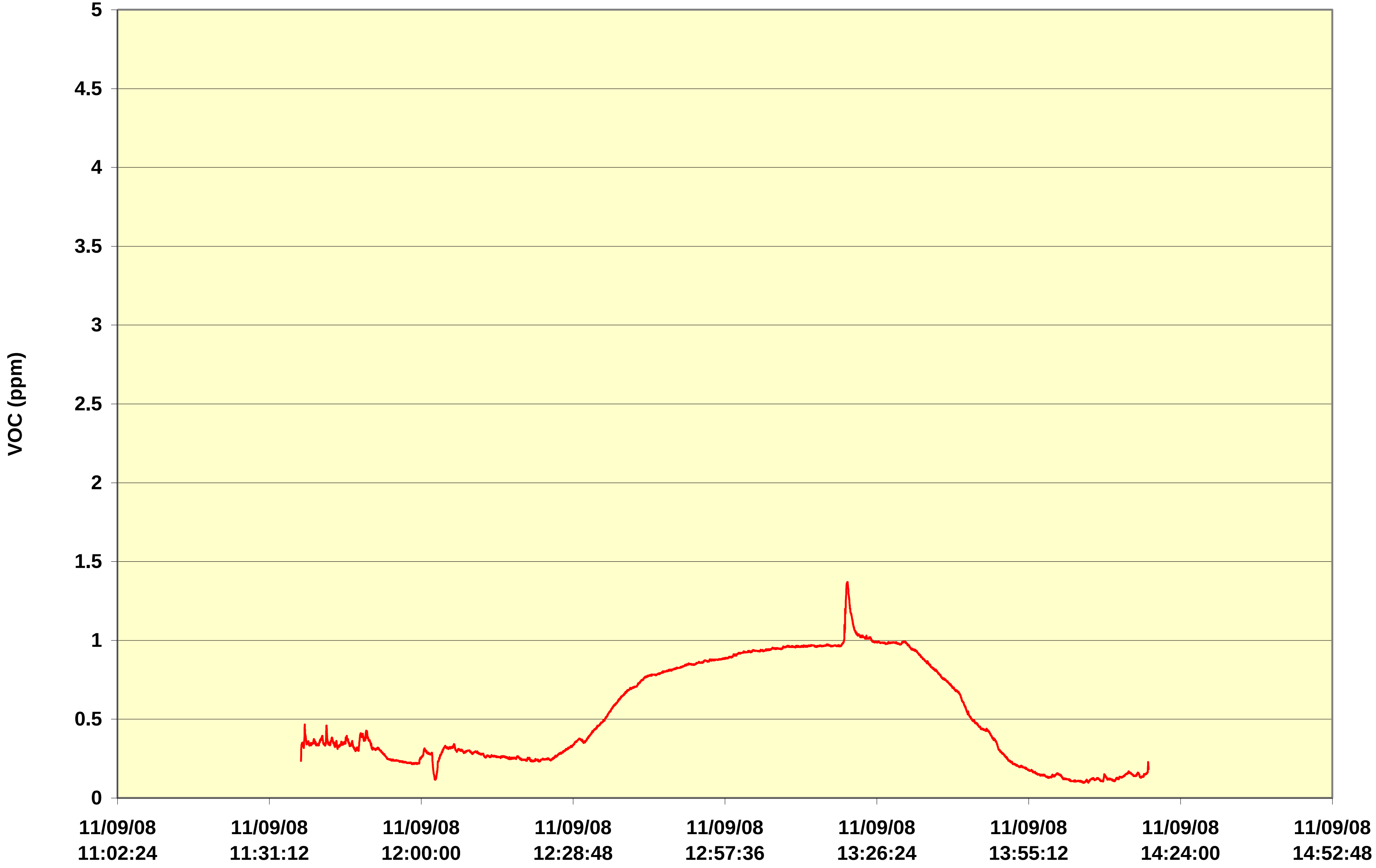


Part 2 Trial 1



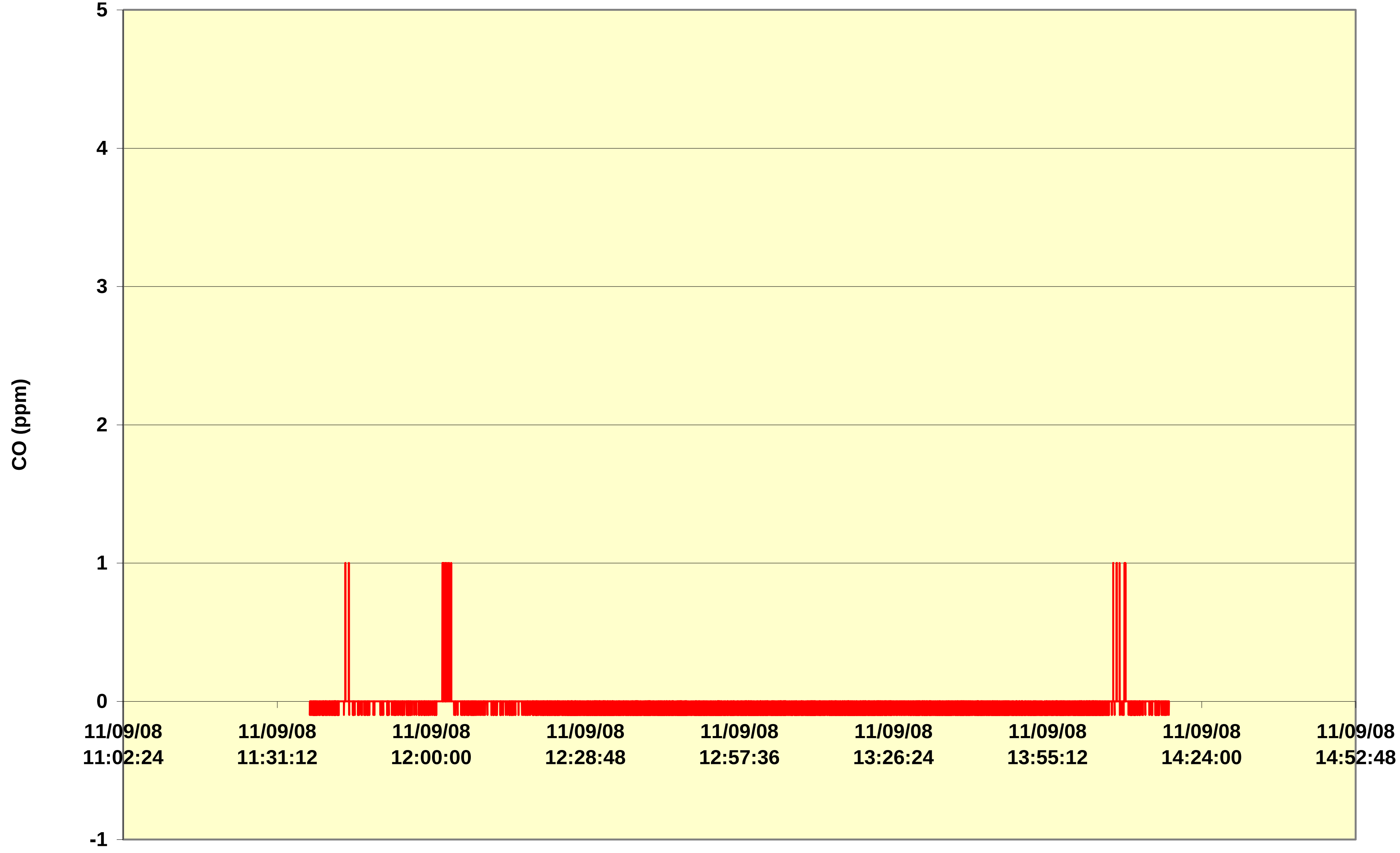
Part 2 Trial 1



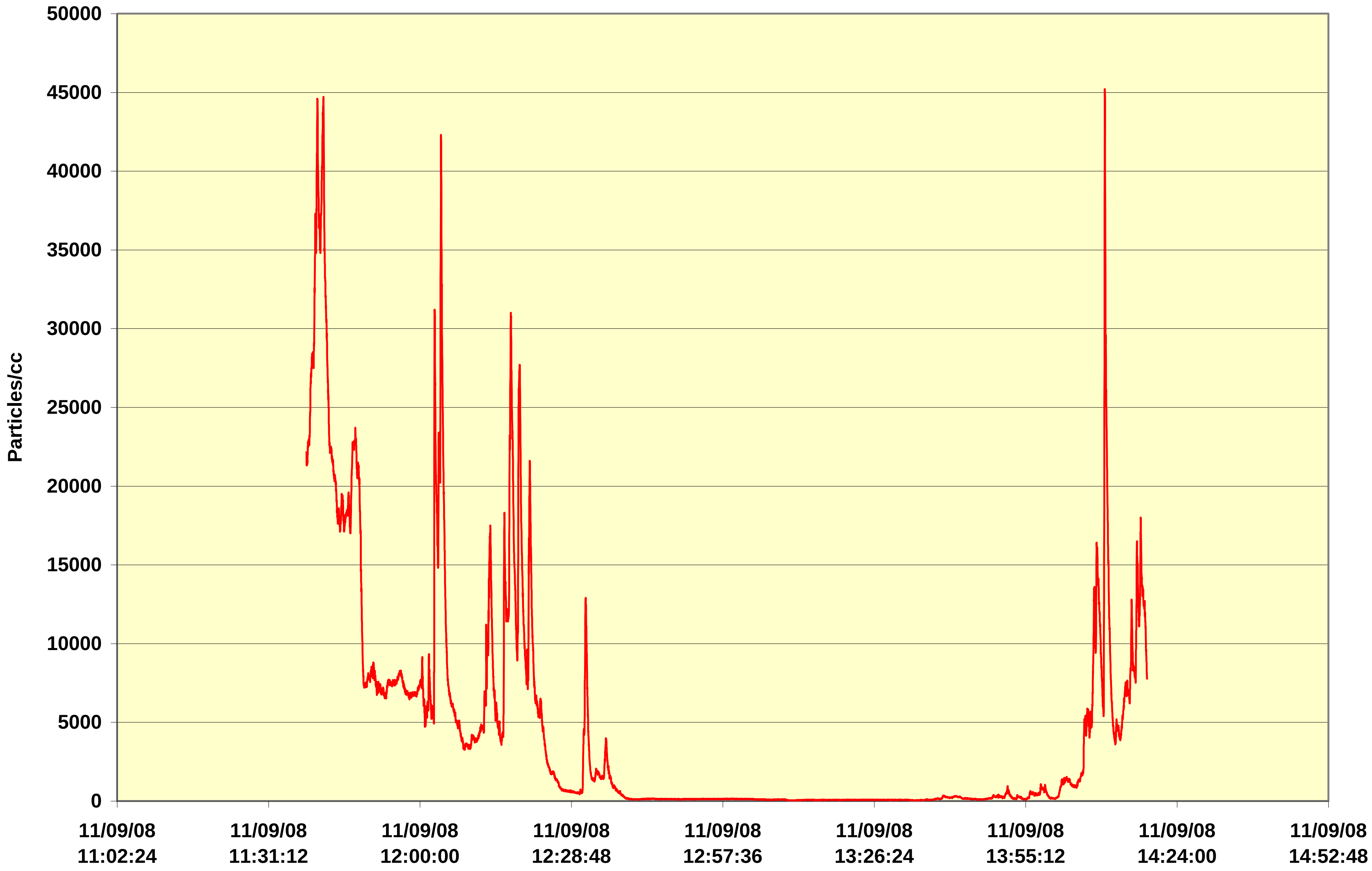


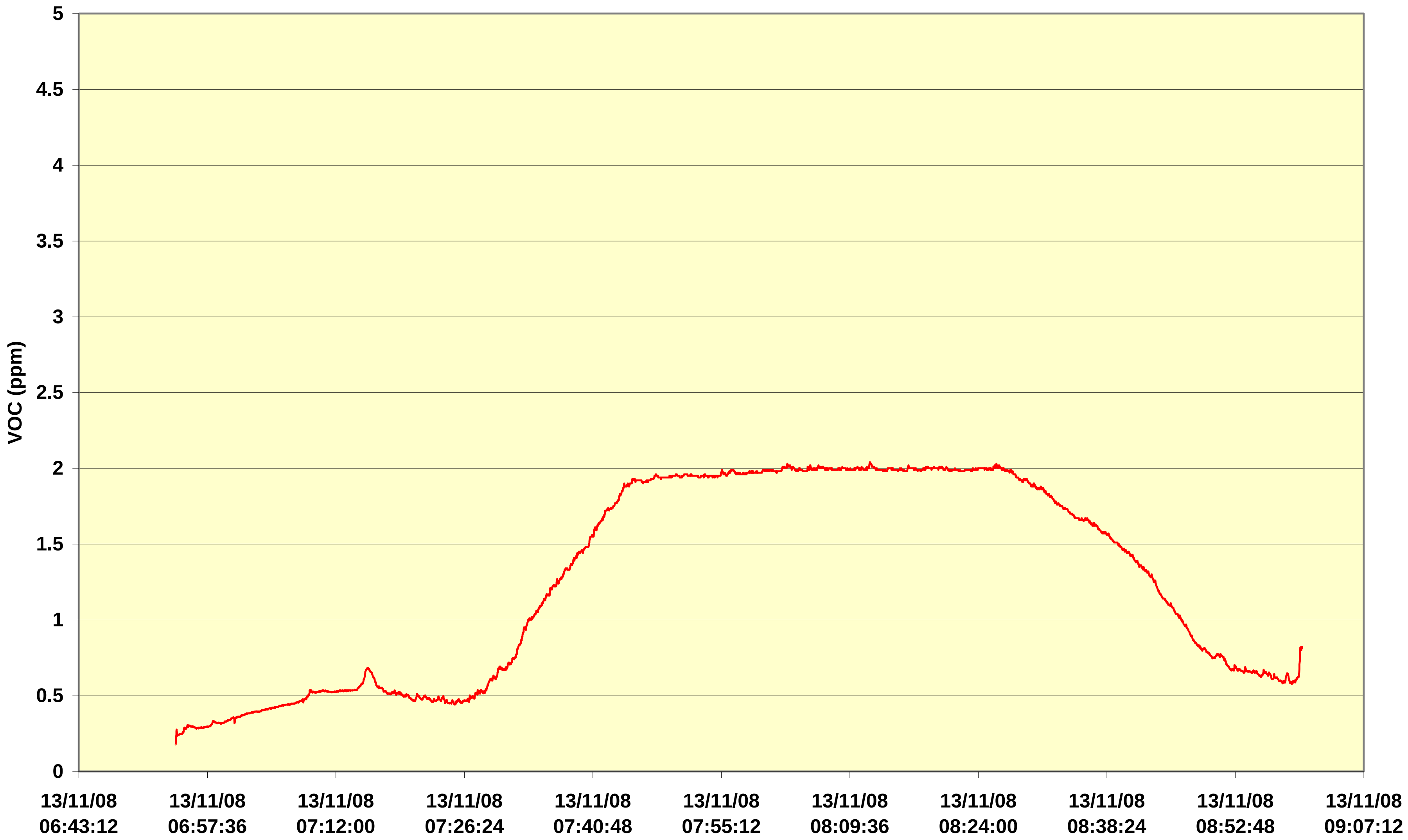
VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
11/09/08 11:02:24
11/09/08 11:31:12
11/09/08 12:00:00
11/09/08 12:28:48
11/09/08 12:57:36
11/09/08 13:26:24
11/09/08 13:55:12
11/09/08 14:24:00
11/09/08 14:52:48

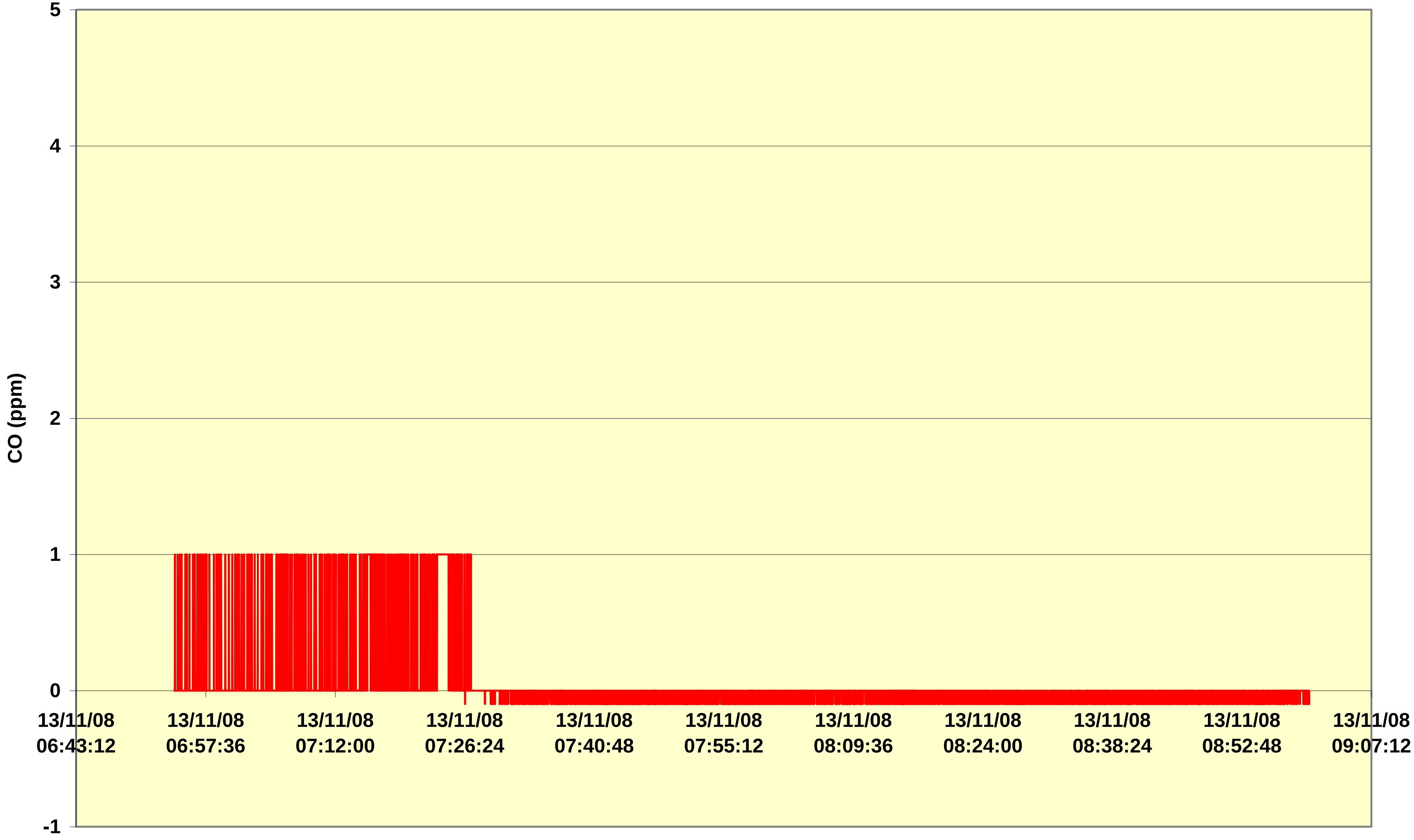
Part 2 Trial 2



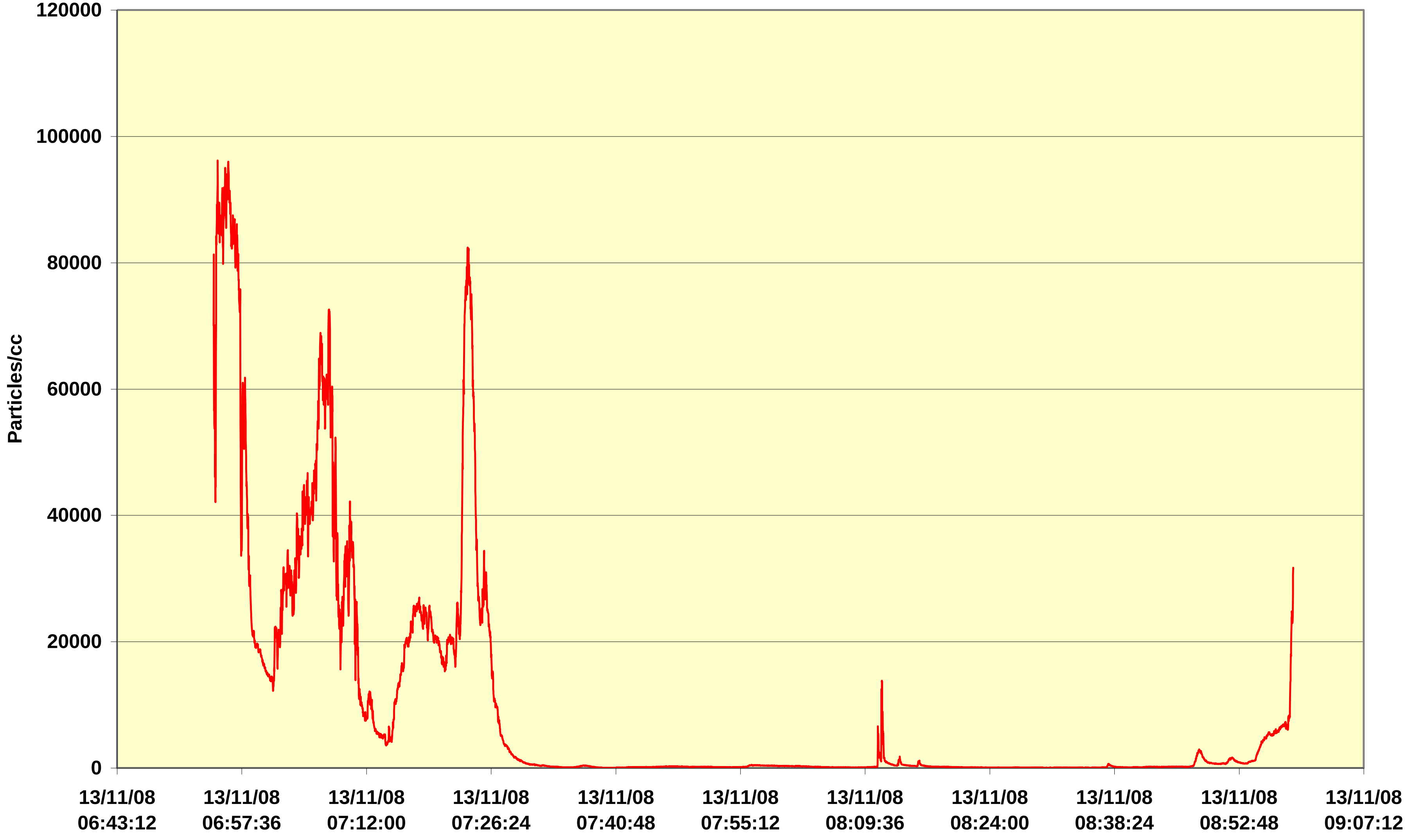
Part 2 Trial 2




VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
13/11/08 06:43:12
13/11/08 06:57:36
13/11/08 07:12:00
13/11/08 07:26:24
13/11/08 07:40:48
13/11/08 07:55:12
13/11/08 08:09:36
13/11/08 08:24:00
13/11/08 08:38:24
13/11/08 08:52:48
13/11/08 09:07:12



CO (ppm)
5
4
3
2
1
0
-1
13/11/08 06:43:12
13/11/08 06:57:36
13/11/08 07:12:00
13/11/08 07:26:24
13/11/08 07:40:48
13/11/08 07:55:12
13/11/08 08:09:36
13/11/08 08:24:00
13/11/08 08:38:24
13/11/08 08:52:48
13/11/08 09:07:12


120000
100000
80000
60000
40000
20000
0
Particles/cc
13/11/08 06:43:12
13/11/08 06:57:36
13/11/08 07:12:00
13/11/08 07:26:24
13/11/08 07:40:48
13/11/08 07:55:12
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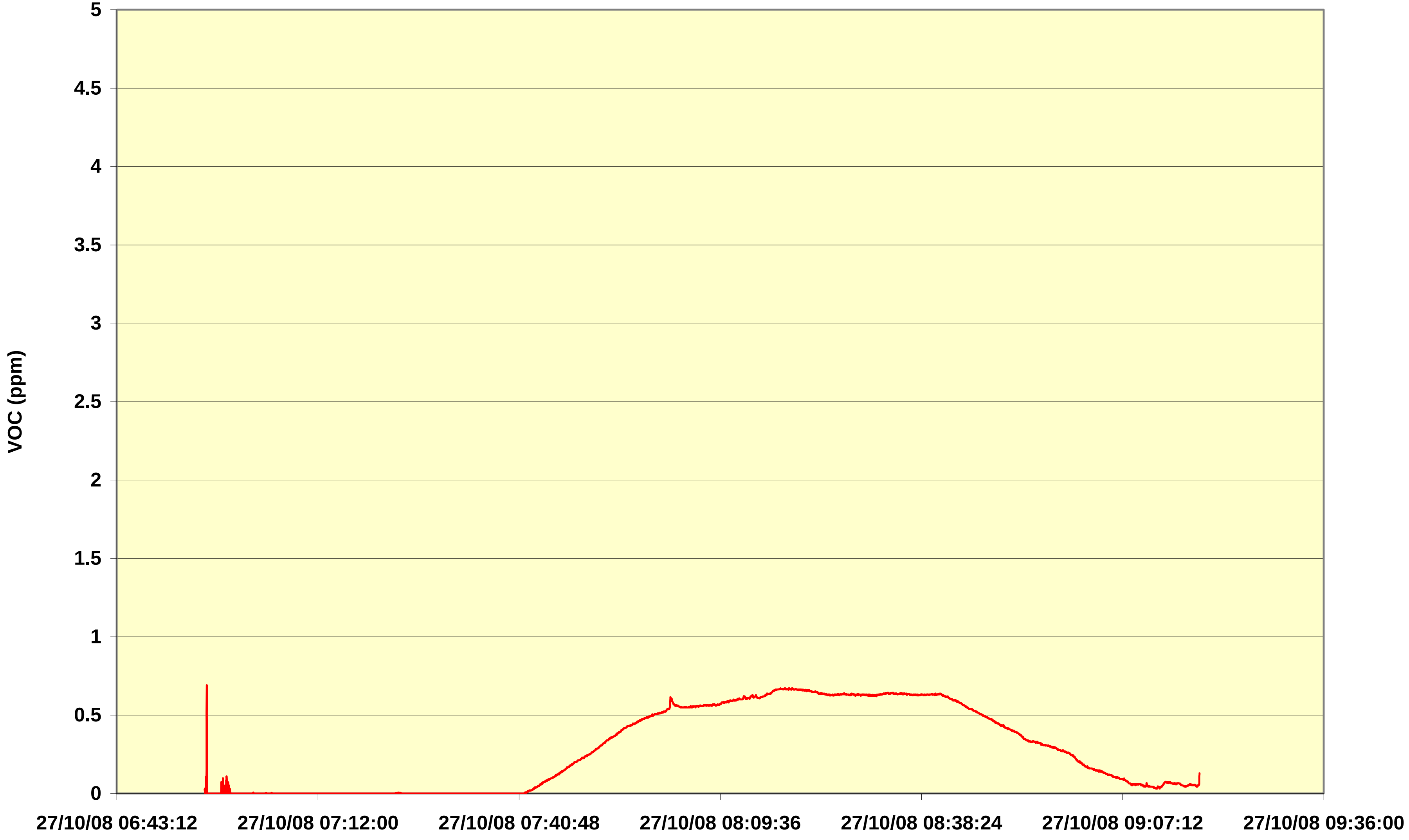
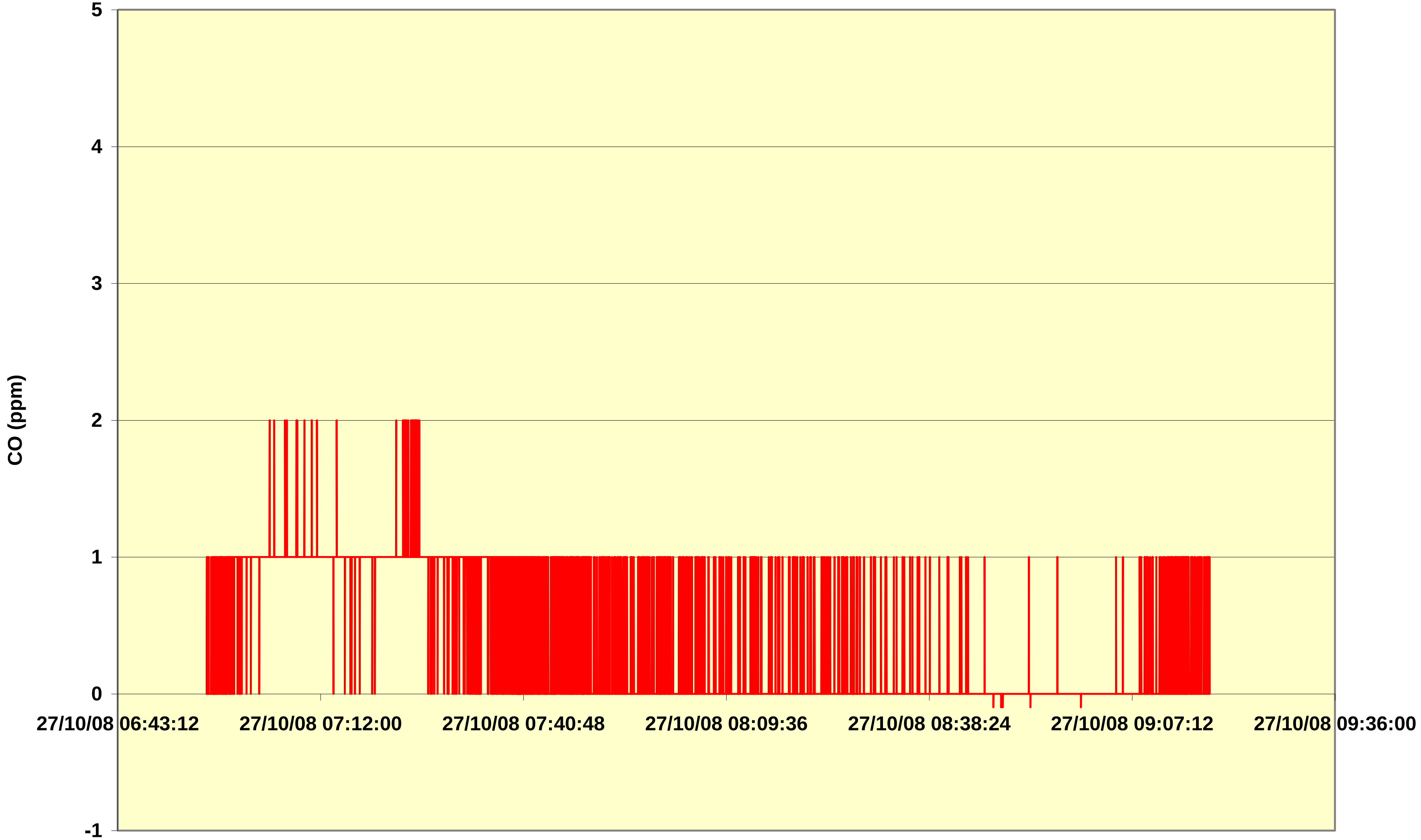
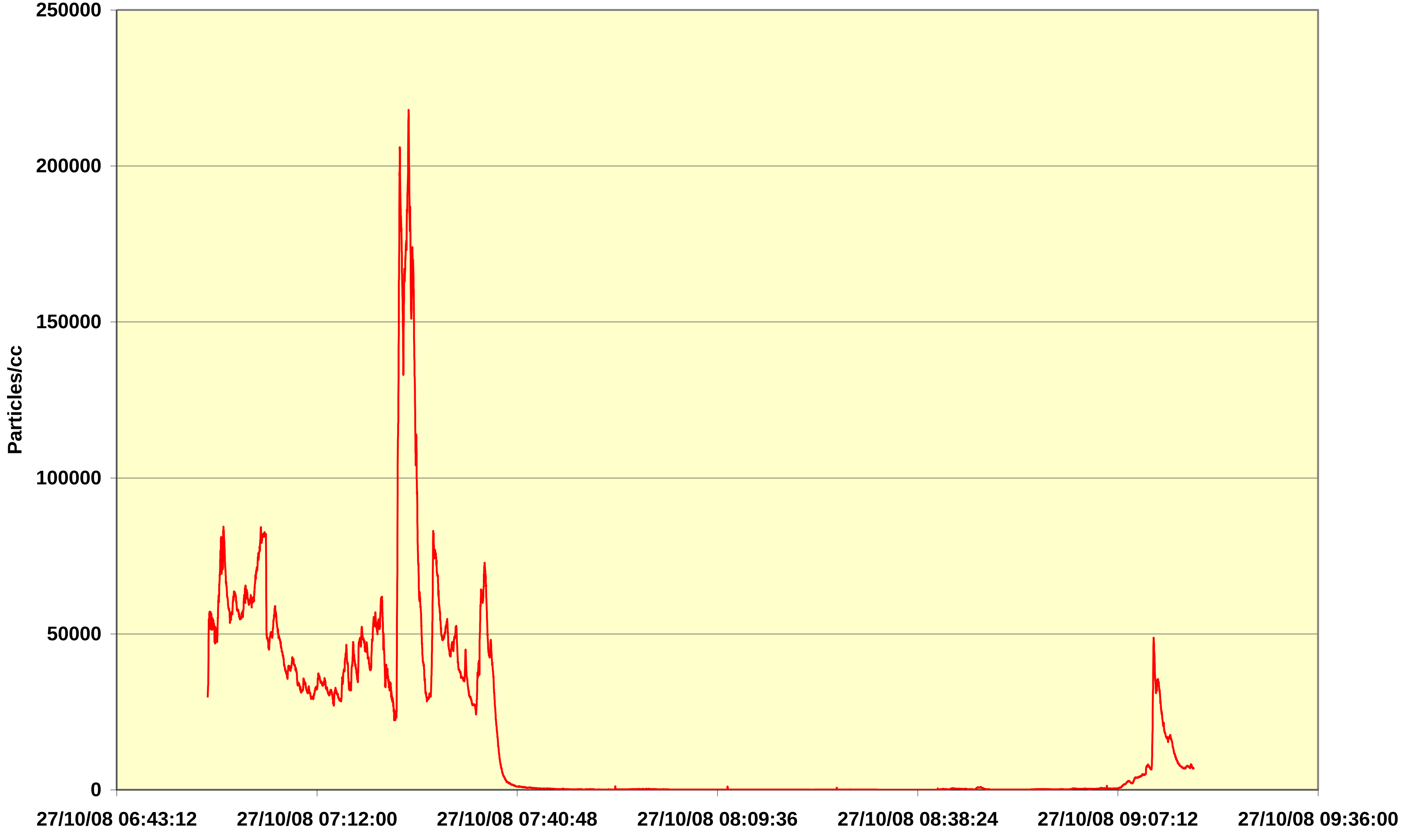
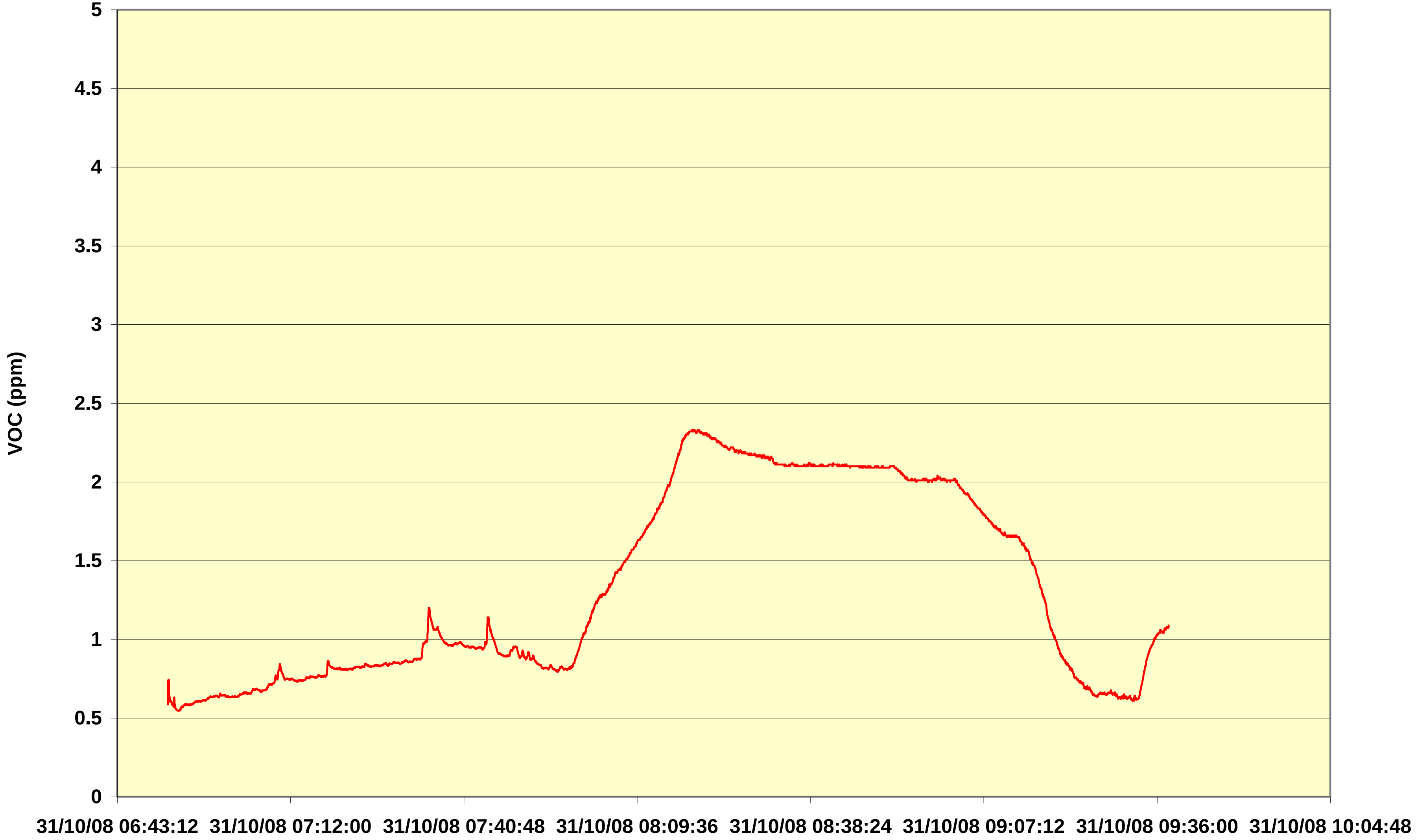
13/11/08 08:24:00
13/11/08 08:38:24
13/11/08 08:52:48
13/11/08 09:07:12

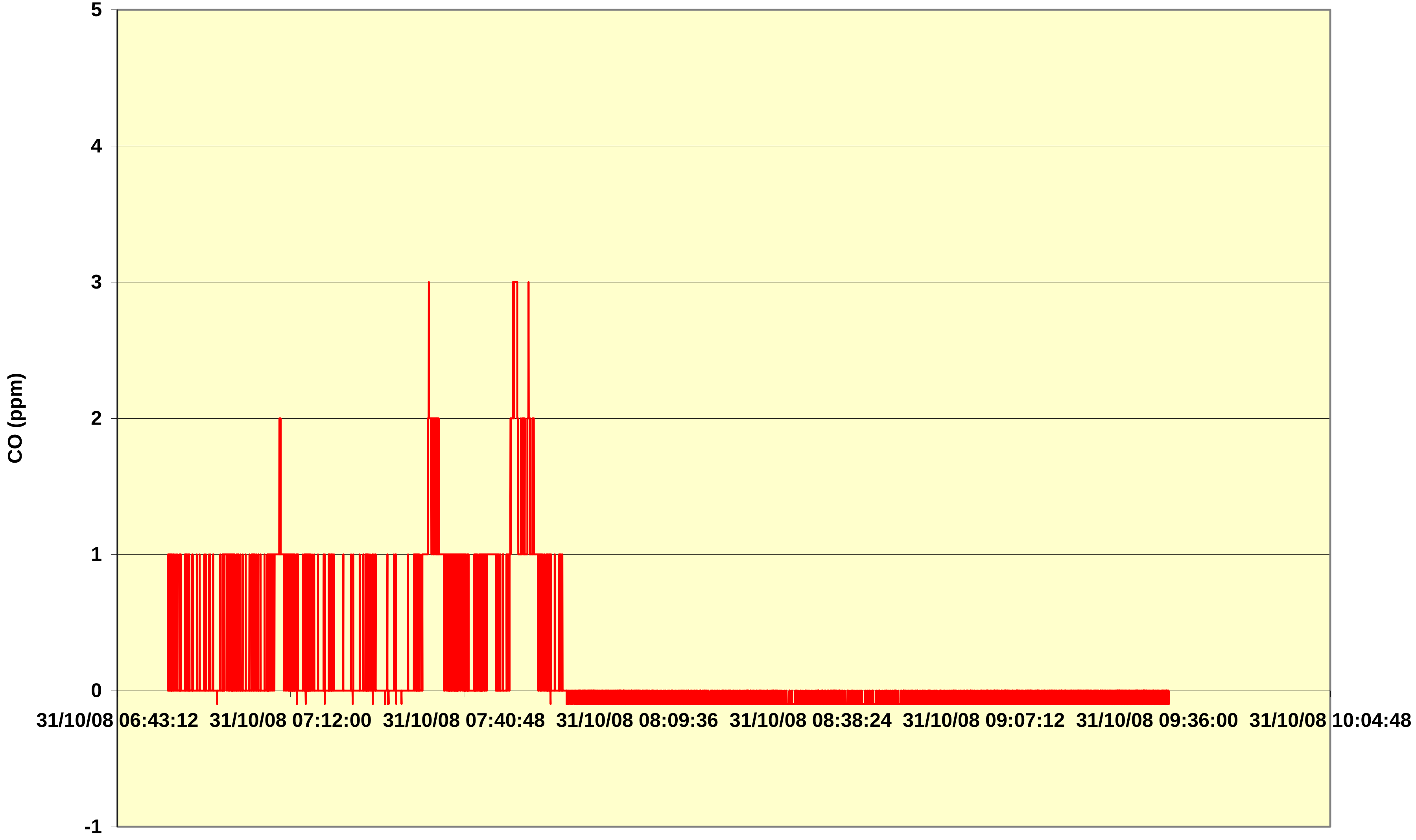

VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
27/10/08 06:43:12
27/10/08 07:12:00
27/10/08 07:40:48
27/10/08 08:09:36
27/10/08 08:38:24
27/10/08 09:07:12
27/10/08 09:36:00

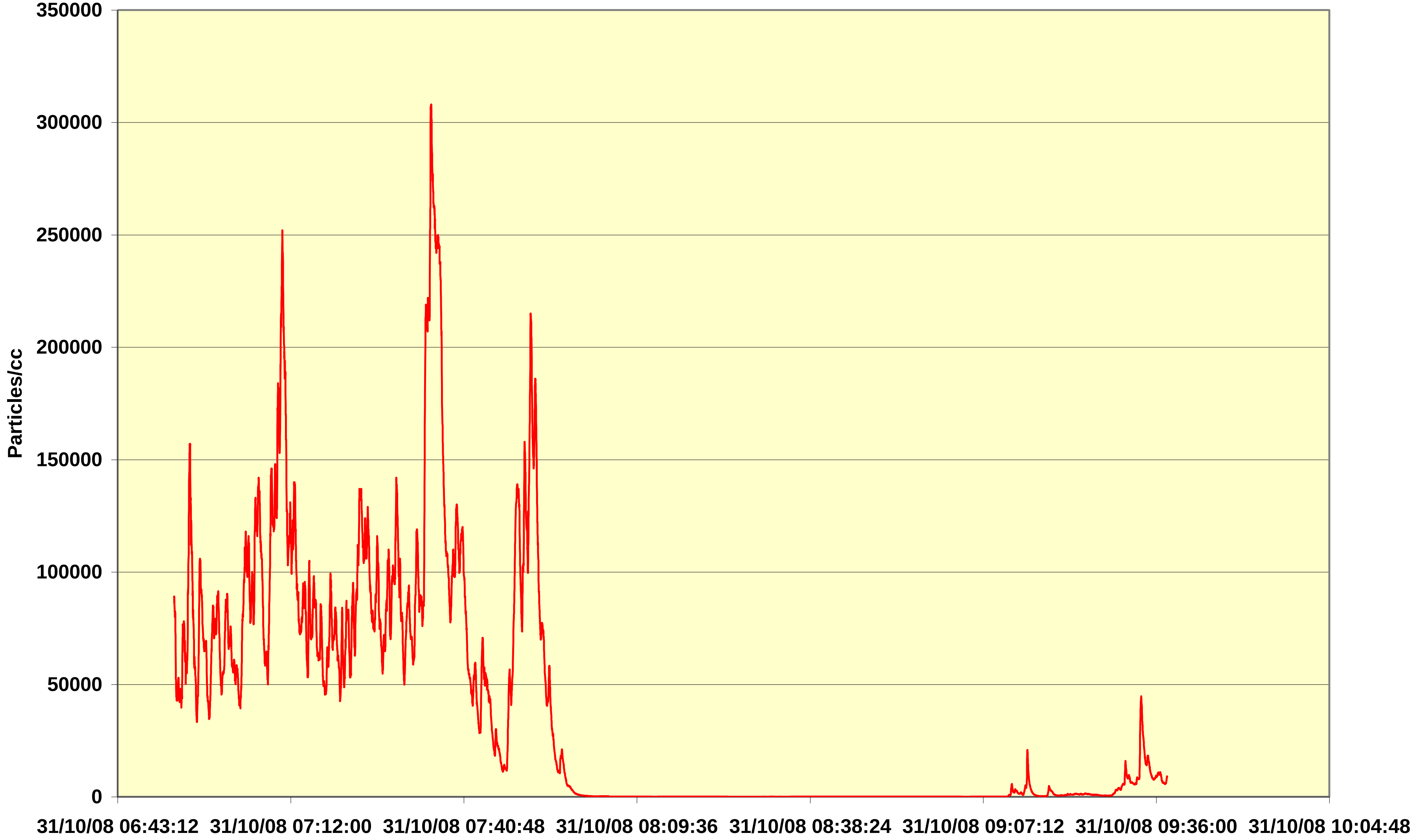


5
4
3
2
1
0
-1
CO (ppm)
27/10/08 06:43:12
27/10/08 07:12:00
27/10/08 07:40:48
27/10/08 08:09:36
27/10/08 08:38:24
27/10/08 09:07:12
27/10/08 09:36:00


250000
200000
150000
100000
50000
0
Particles/cc
27/10/08 06:43:12
27/10/08 07:12:00
27/10/08 07:40:48
27/10/08 08:09:36
27/10/08 08:38:24
27/10/08 09:07:12
27/10/08 09:36:00


5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
31/10/08 06:43:12
31/10/08 07:12:00
31/10/08 07:40:48
31/10/08 08:09:36
31/10/08 08:38:24
31/10/08 09:07:12
31/10/08 09:36:00
31/10/08 10:04:48


5
4
3
2
1
0
-1
CO (ppm)
31/10/08 06:43:12
31/10/08 07:12:00
31/10/08 07:40:48
31/10/08 08:09:36
31/10/08 08:38:24
31/10/08 09:07:12
31/10/08 09:36:00
31/10/08 10:04:48


350000
300000
250000
200000
150000
100000
50000
0
Particles/cc
31/10/08 06:43:12
31/10/08 07:12:00
31/10/08 07:40:48
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31/10/08 08:38:24
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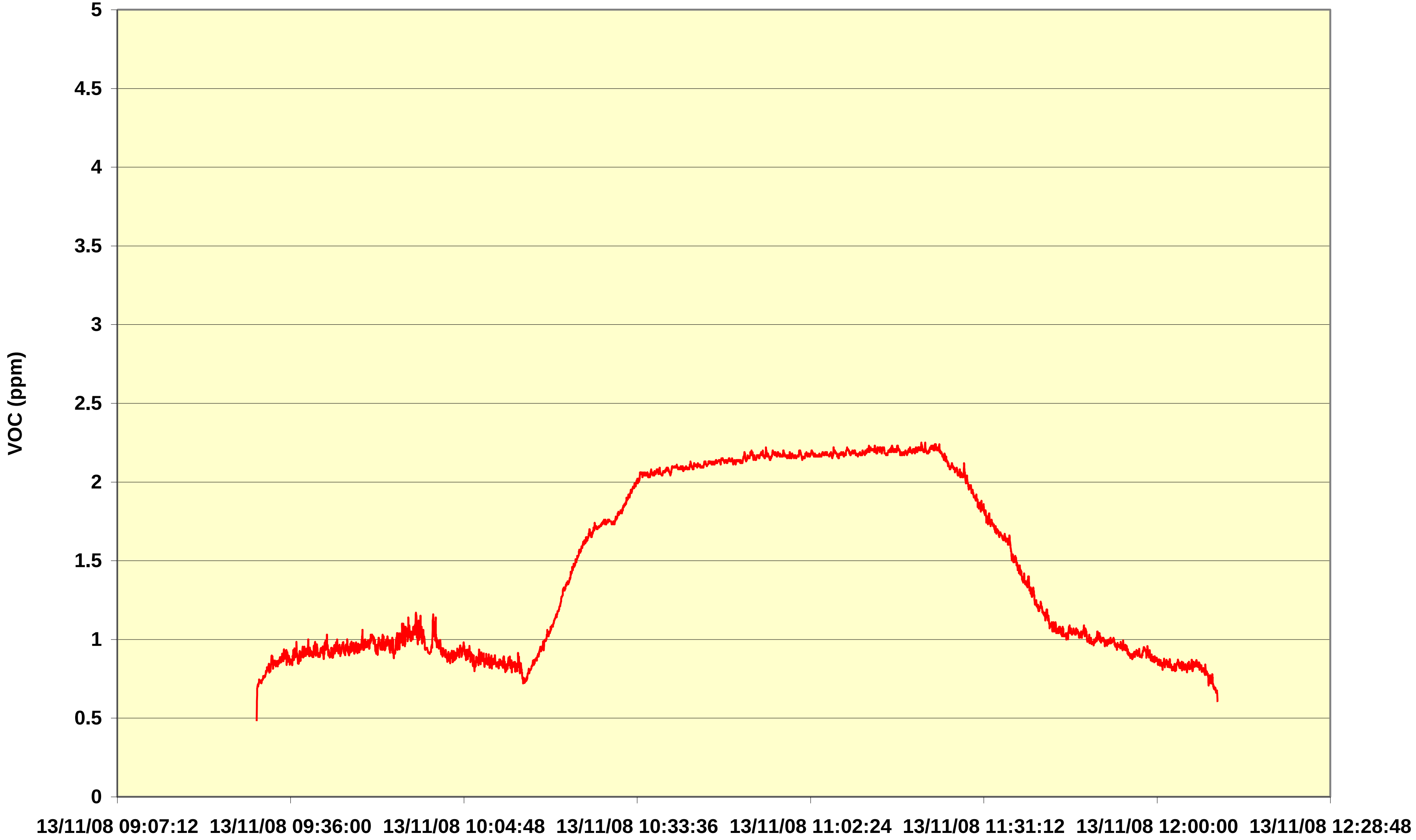
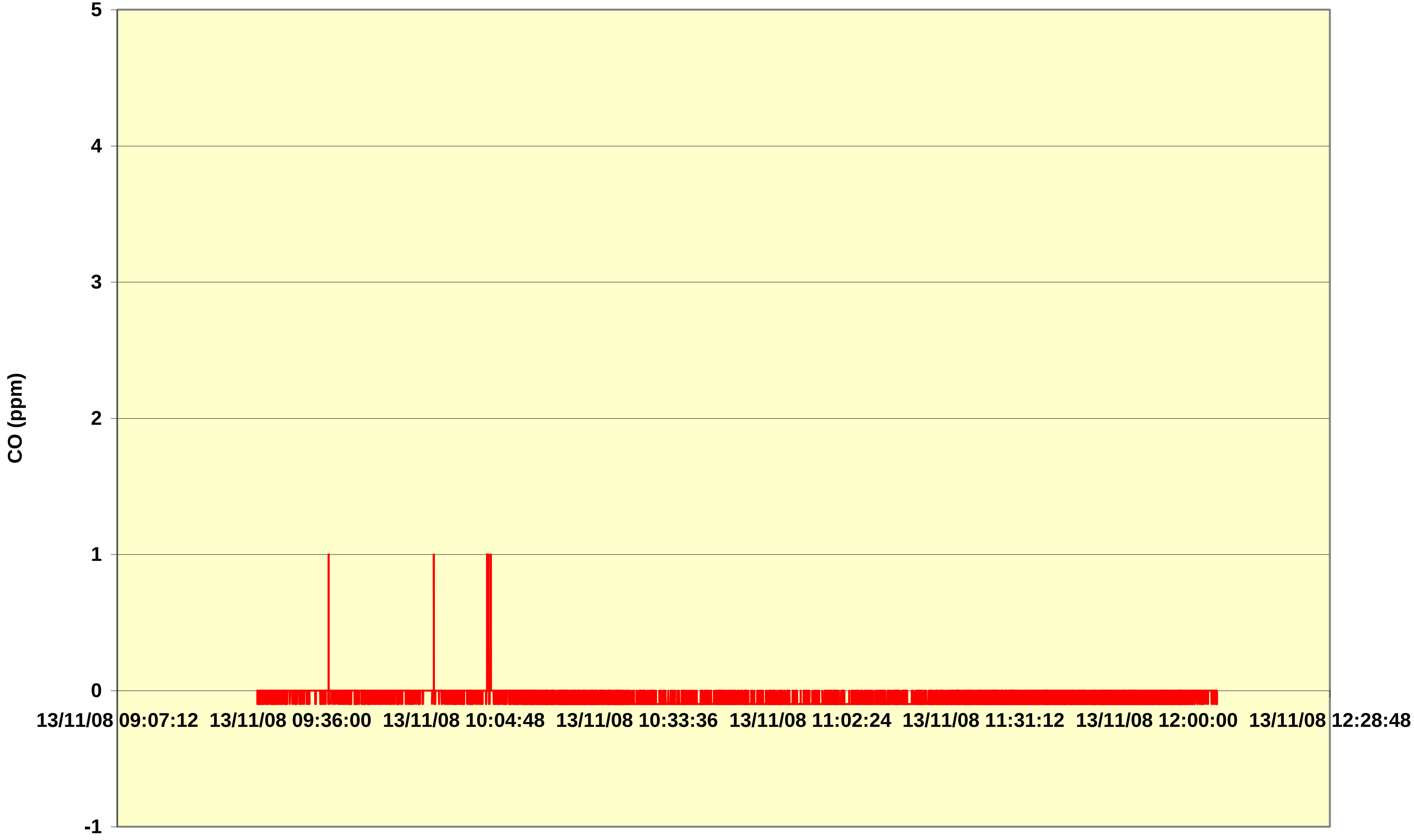
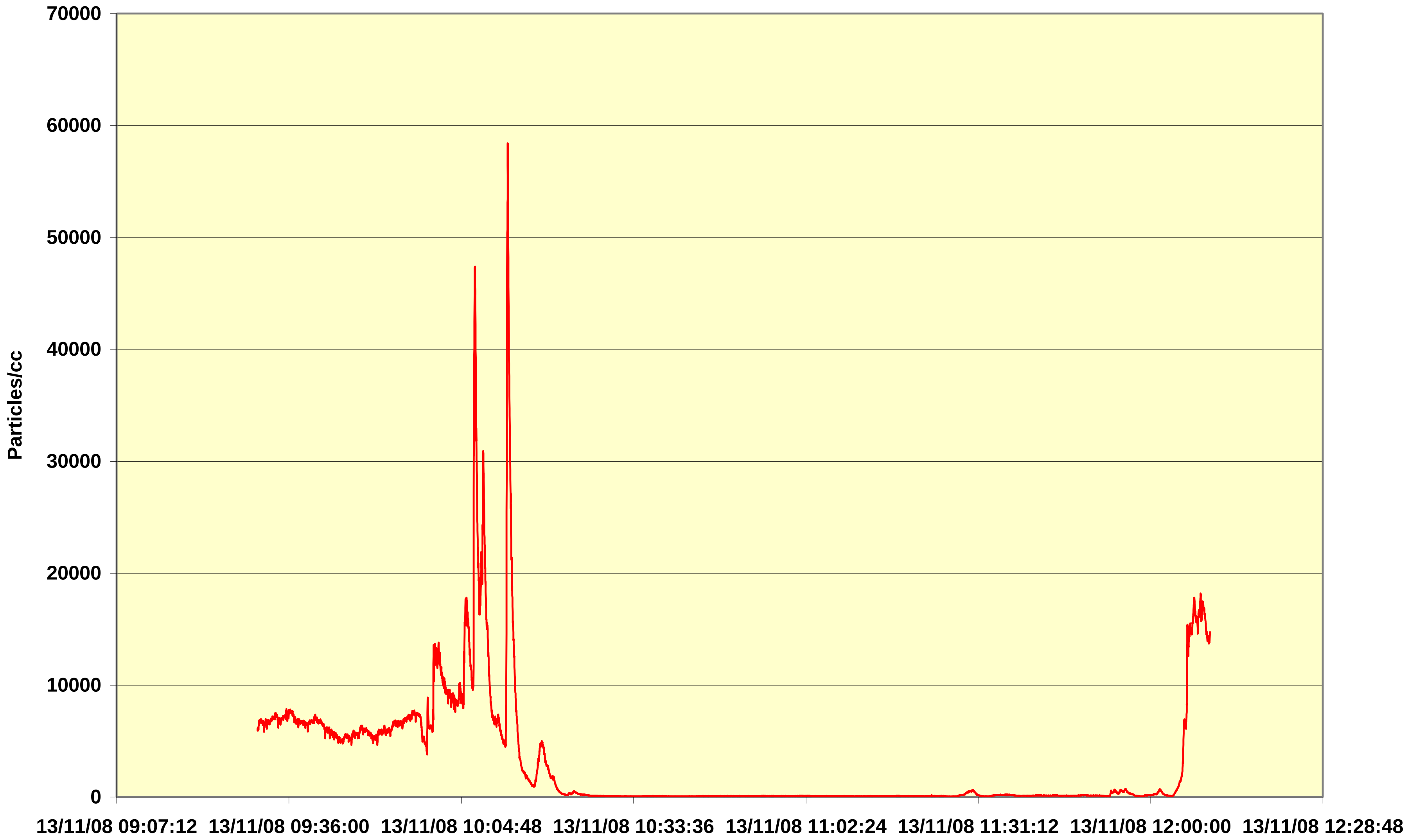
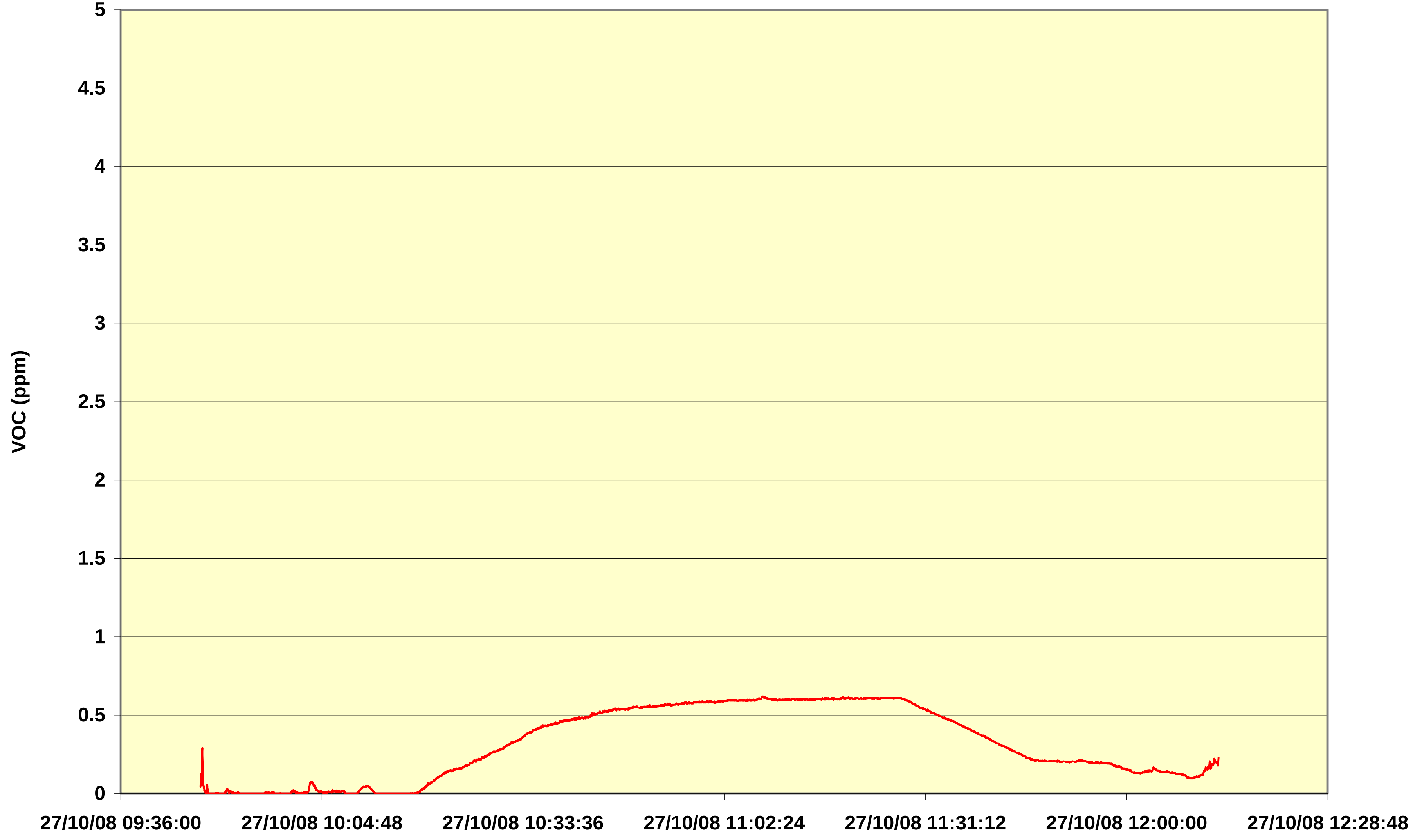
31/10/08 09:36:00
31/10/08 10:04:48


VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
13/11/08 09:07:12
13/11/08 09:36:00
13/11/08 10:04:48
13/11/08 10:33:36
13/11/08 11:02:24
13/11/08 11:31:12
13/11/08 12:00:00
13/11/08 12:28:48

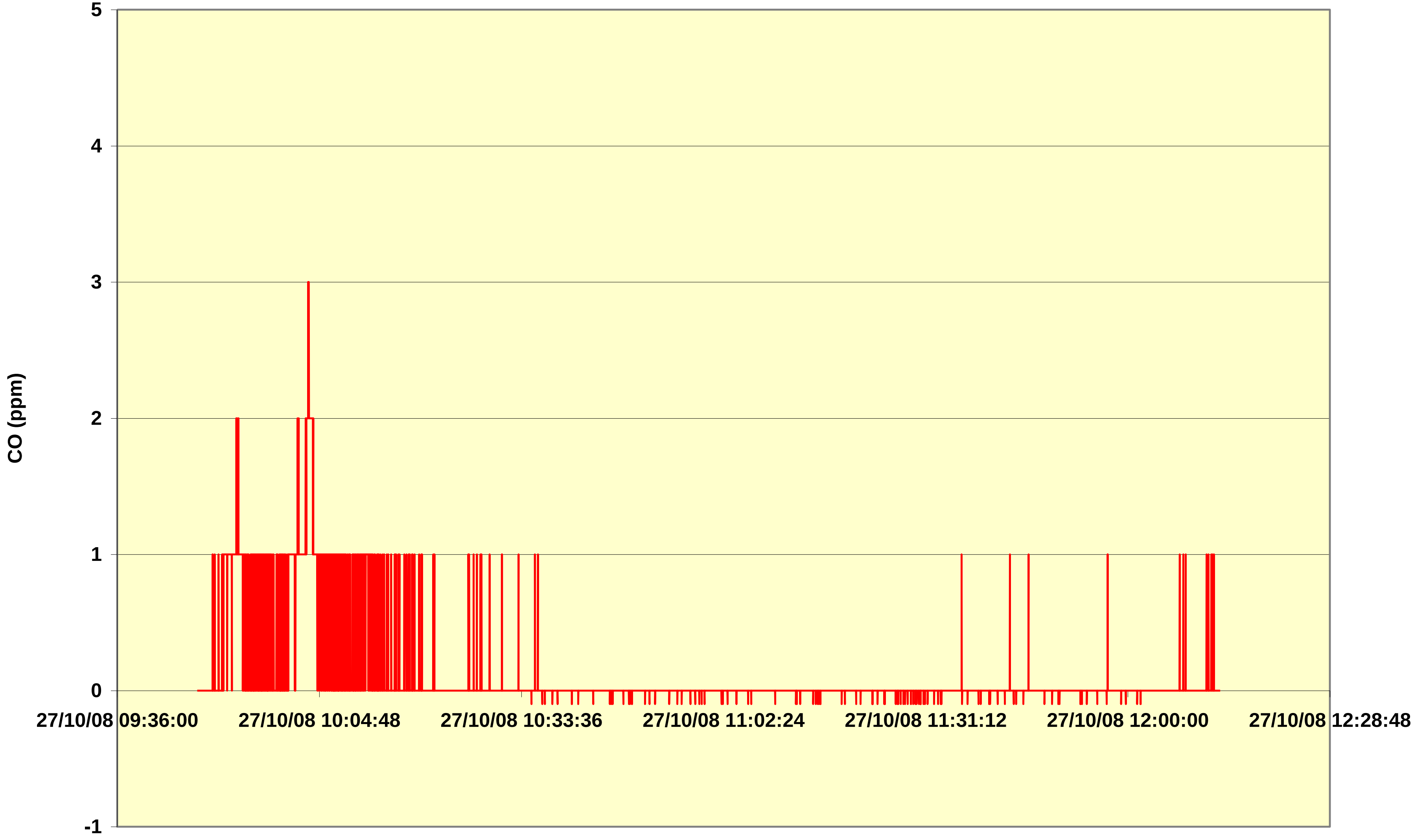


CO (ppm)
5
4
3
2
1
0
-1
13/11/08 09:07:12
13/11/08 09:36:00
13/11/08 10:04:48
13/11/08 10:33:36
13/11/08 11:02:24
13/11/08 11:31:12
13/11/08 12:00:00
13/11/08 12:28:48

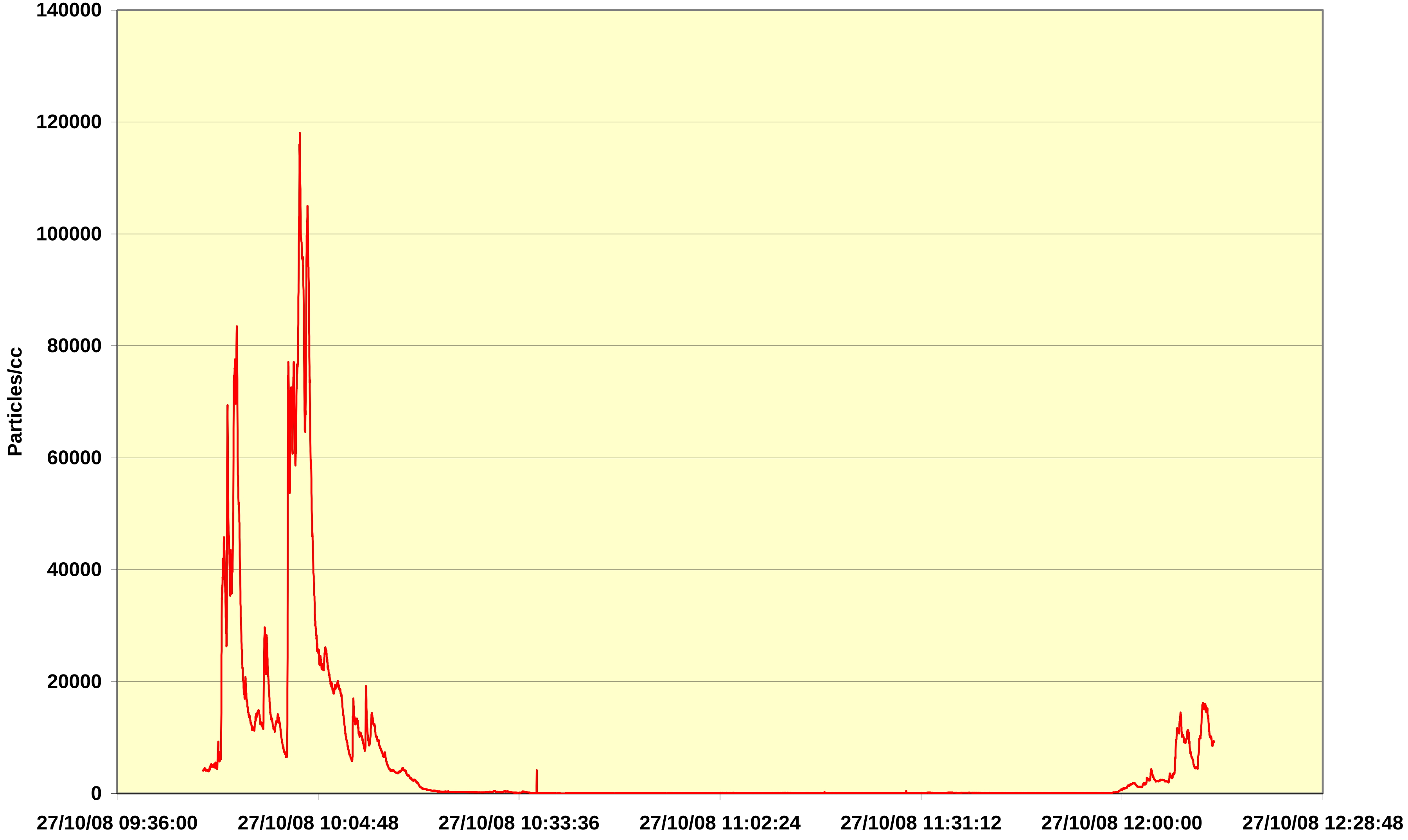

70000
60000
50000
40000
30000
20000
10000
0
Particles/cc
13/11/08 09:07:12
13/11/08 09:36:00
13/11/08 10:04:48
13/11/08 10:33:36
13/11/08 11:02:24
13/11/08 11:31:12
13/11/08 12:00:00
13/11/08 12:28:48

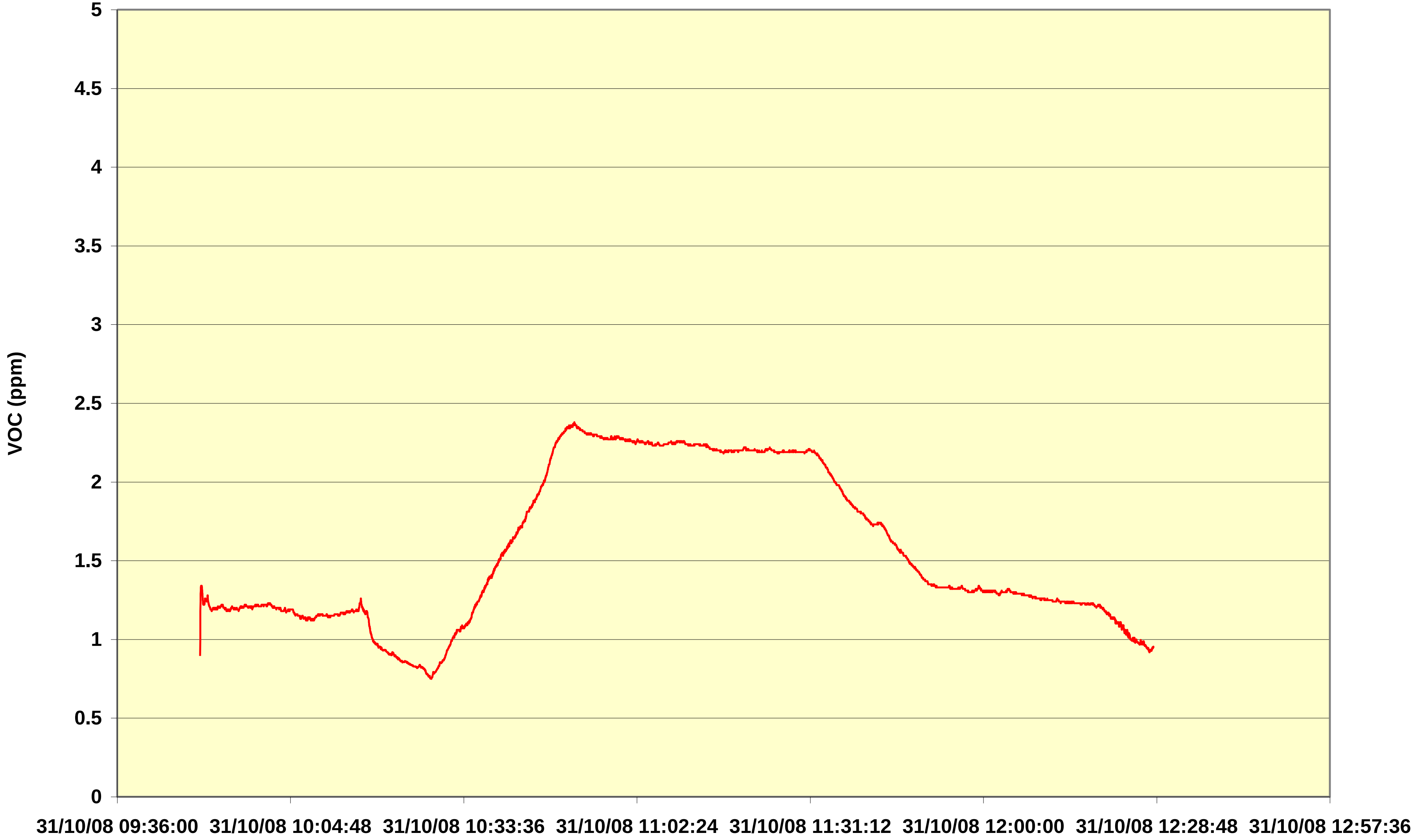


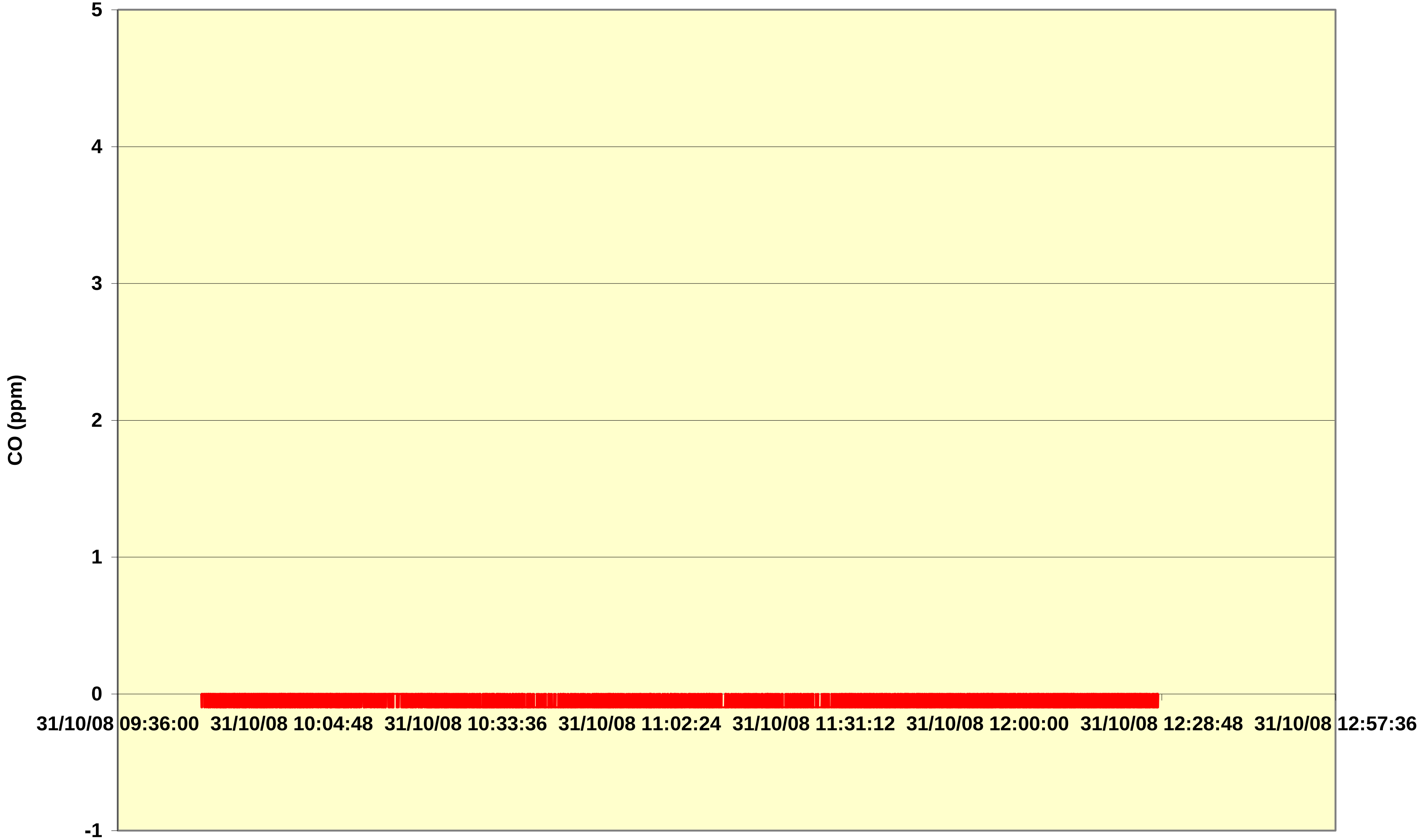
VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
27/10/08 09:36:00
27/10/08 10:04:48
27/10/08 10:33:36
27/10/08 11:02:24
27/10/08 11:31:12
27/10/08 12:00:00
27/10/08 12:28:48

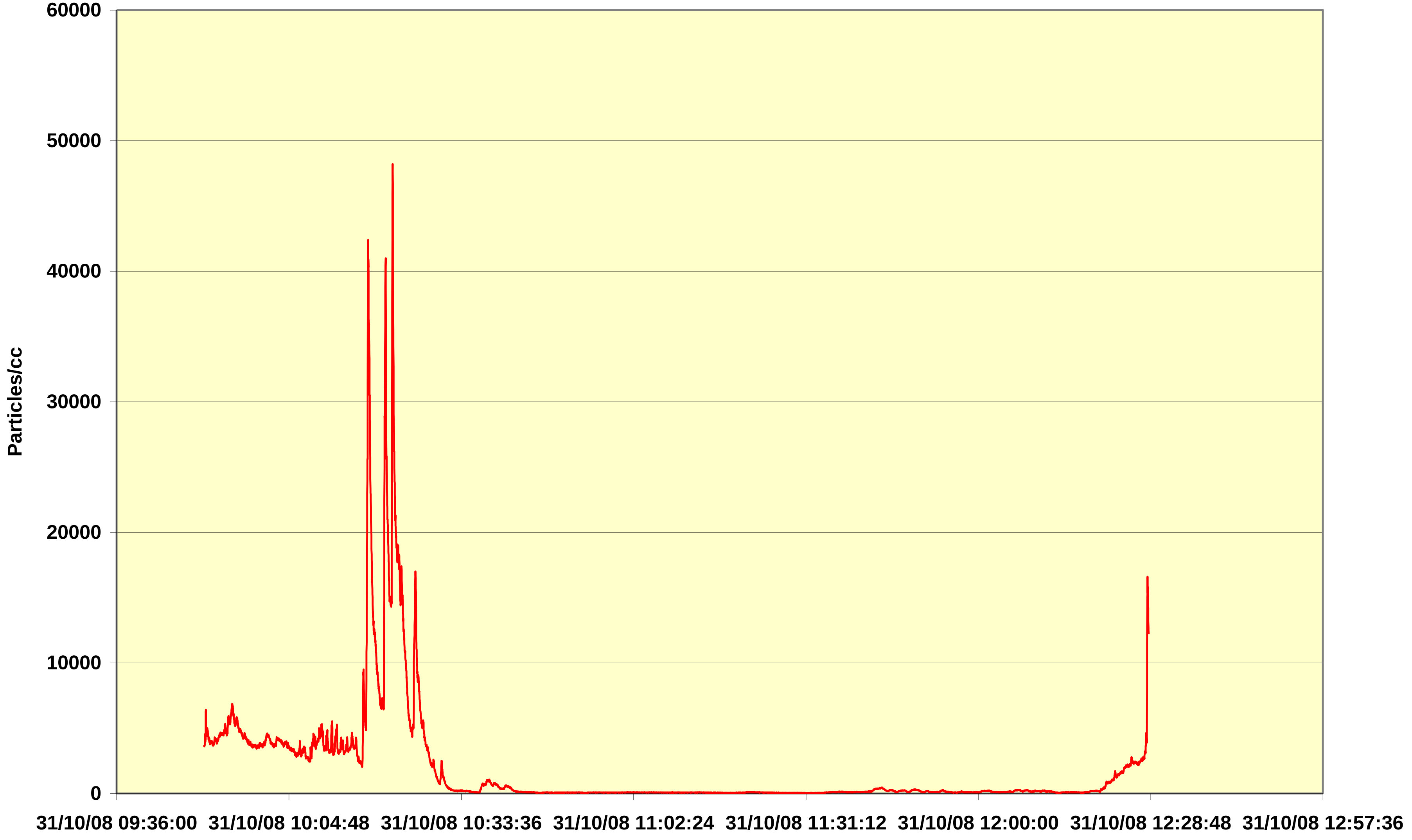


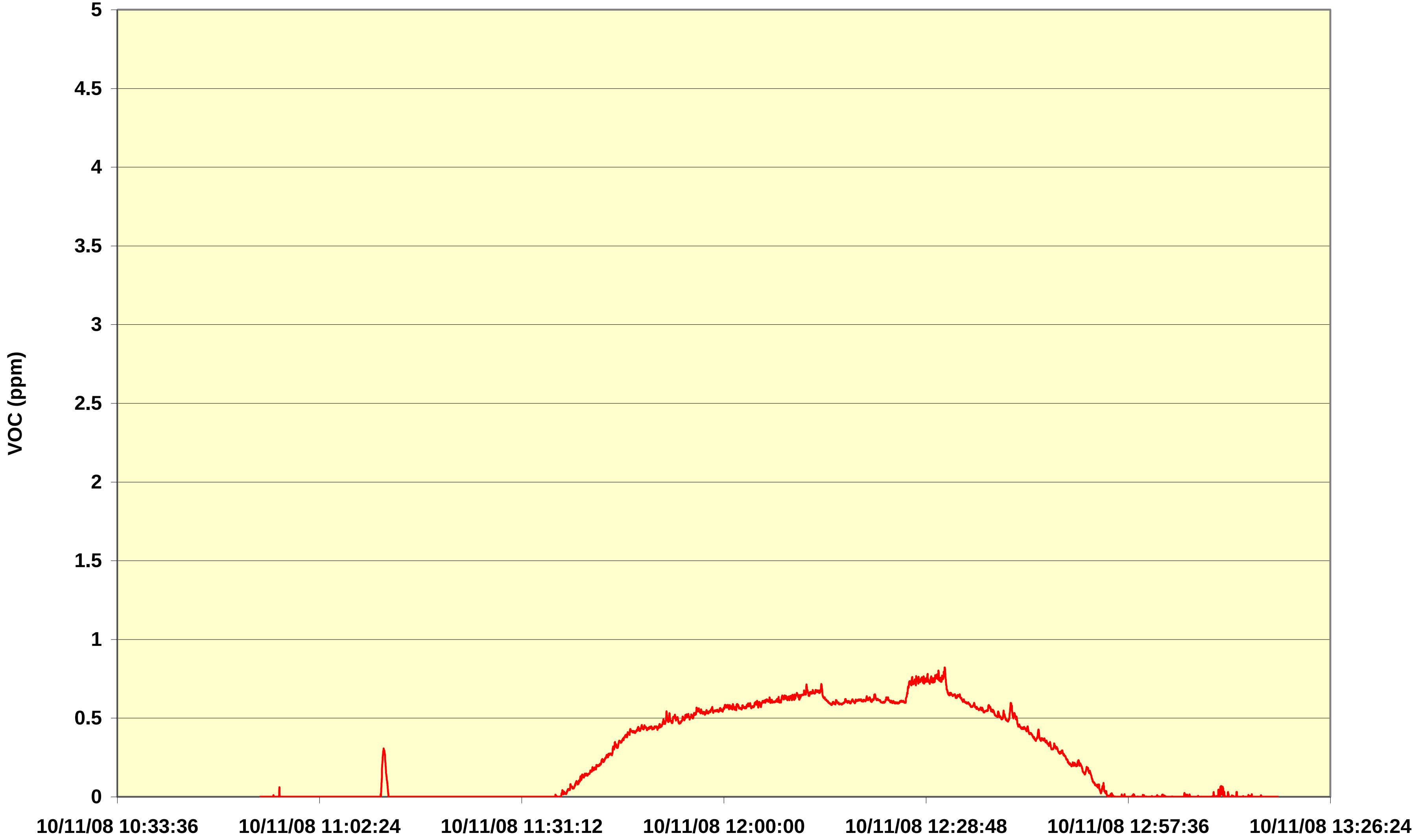
5
4
3
2
1
0
-1
CO (ppm)
27/10/08 09:36:00
27/10/08 10:04:48
27/10/08 10:33:36
27/10/08 11:02:24
27/10/08 11:31:12
27/10/08 12:00:00
27/10/08 12:28:48


140000
120000
100000
80000
60000
40000
20000
0
Particles/cc
27/10/08 09:36:00
27/10/08 10:04:48
27/10/08 10:33:36
27/10/08 11:02:24
27/10/08 11:31:12
27/10/08 12:00:00
27/10/08 12:28:48

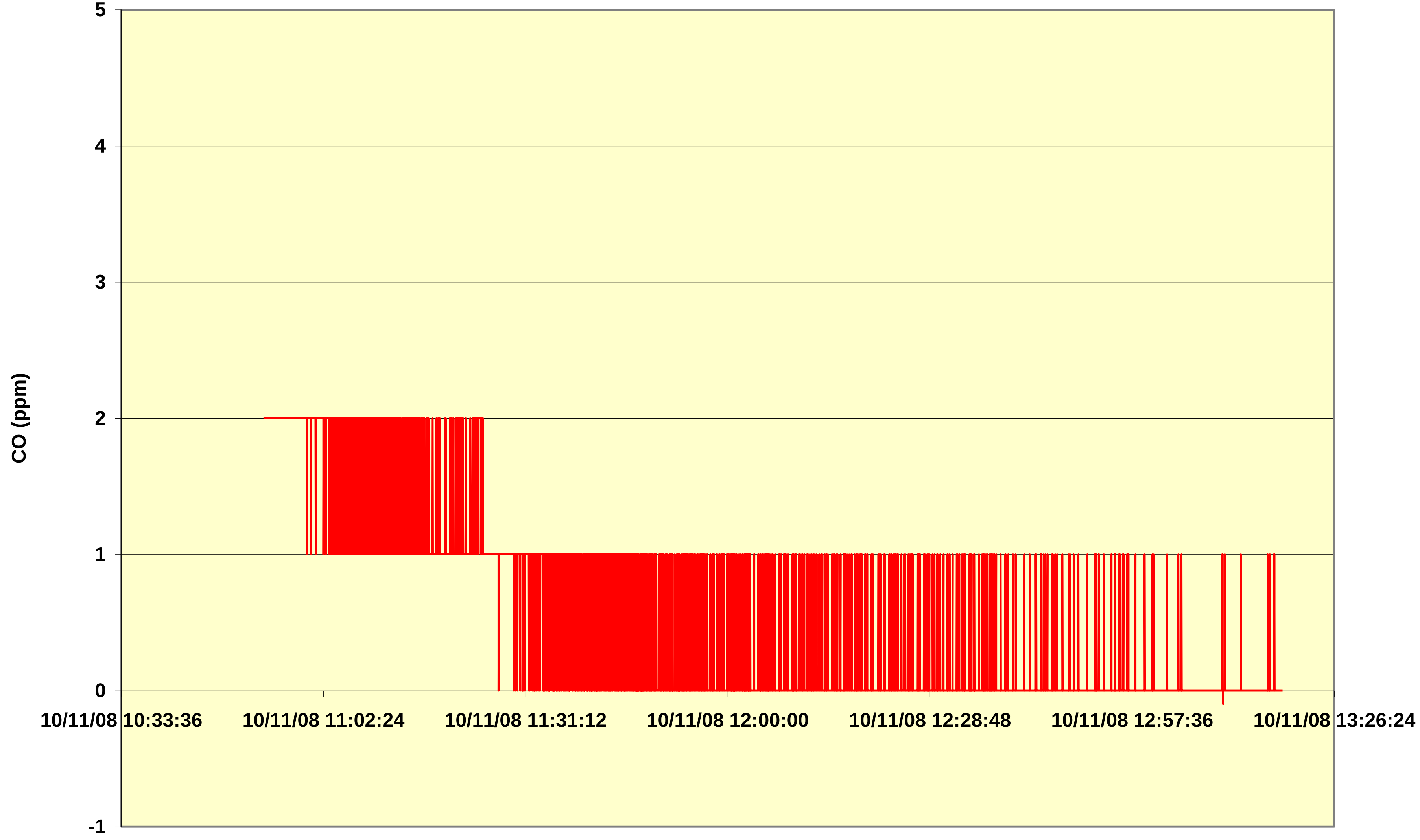

VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
31/10/08 09:36:00
31/10/08 10:04:48
31/10/08 10:33:36
31/10/08 11:02:24
31/10/08 11:31:12
31/10/08 12:00:00
31/10/08 12:28:48
31/10/08 12:57:36


5
4
3
2
1
0
-1
CO (ppm)
31/10/08 09:36:00
31/10/08 10:04:48
31/10/08 10:33:36
31/10/08 11:02:24
31/10/08 11:31:12
31/10/08 12:00:00
31/10/08 12:28:48
31/10/08 12:57:36


60000
50000
40000
30000
20000
10000
0
Particles/cc
31/10/08 09:36:00
31/10/08 10:04:48
31/10/08 10:33:36
31/10/08 11:02:24
31/10/08 11:31:12
31/10/08 12:00:00
31/10/08 12:28:48
31/10/08 12:57:36



VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
10/11/08 10:33:36
10/11/08 11:02:24
10/11/08 11:31:12
10/11/08 12:00:00
10/11/08 12:28:48
10/11/08 12:57:36
10/11/08 13:26:24



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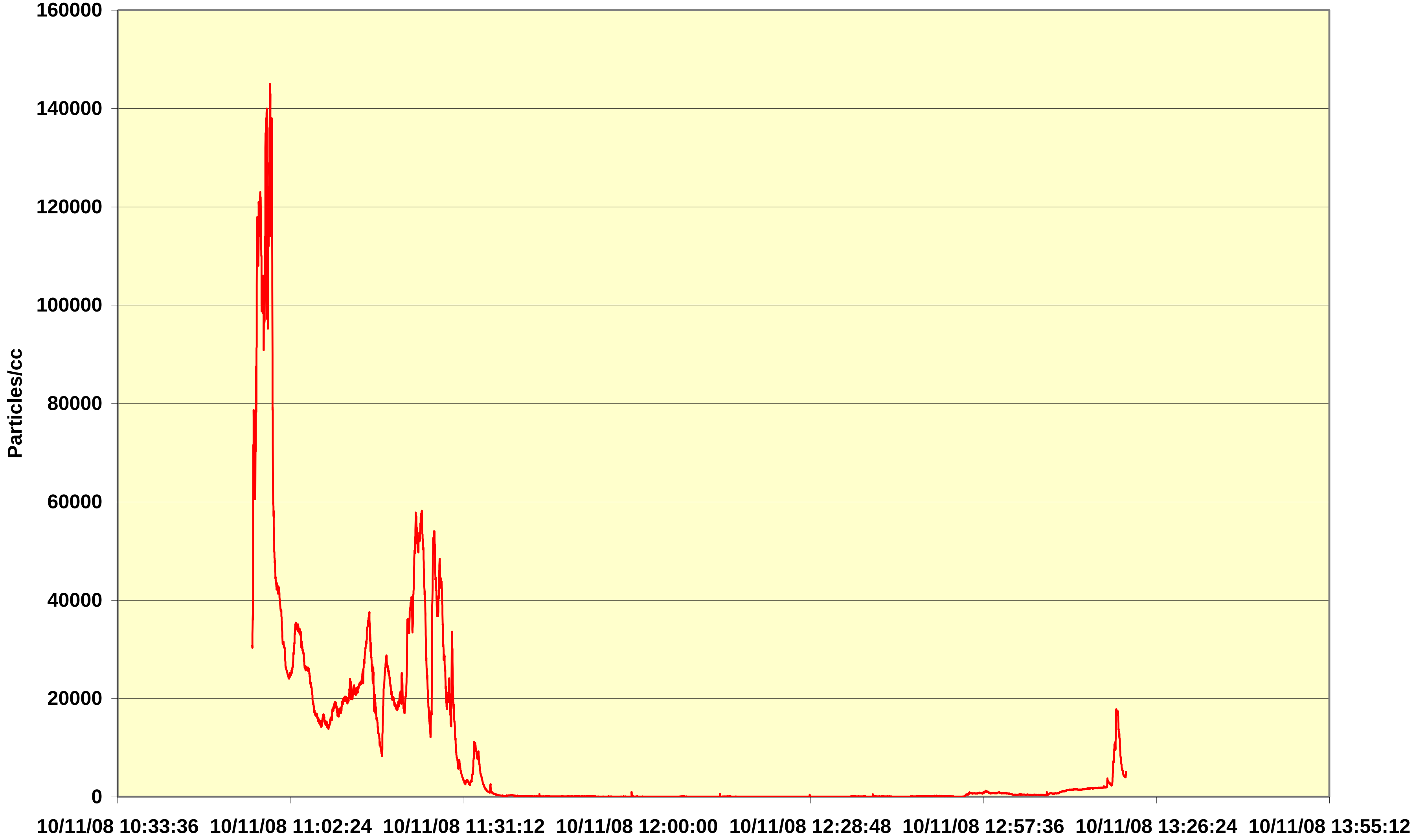
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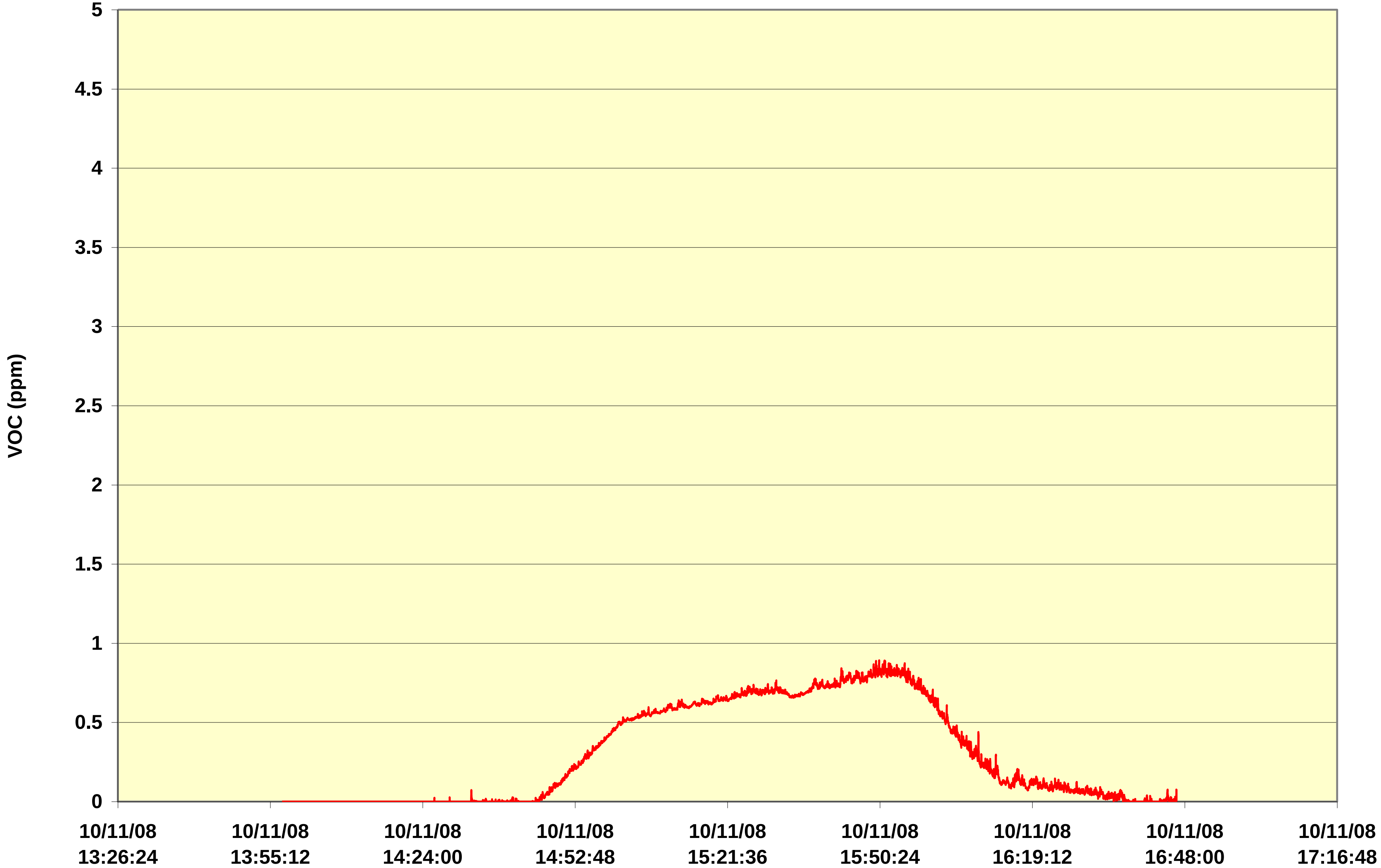

VOC (ppm)
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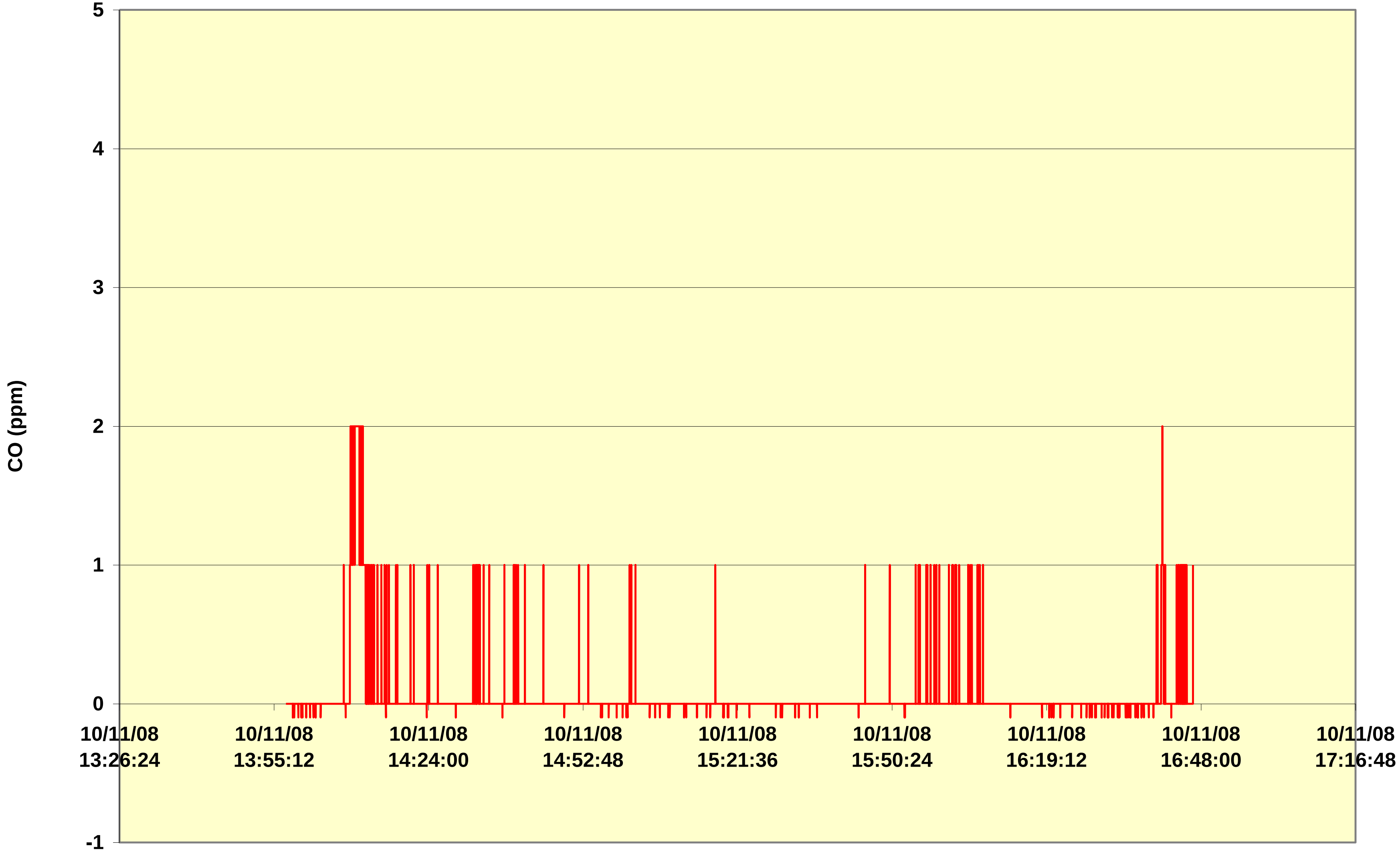
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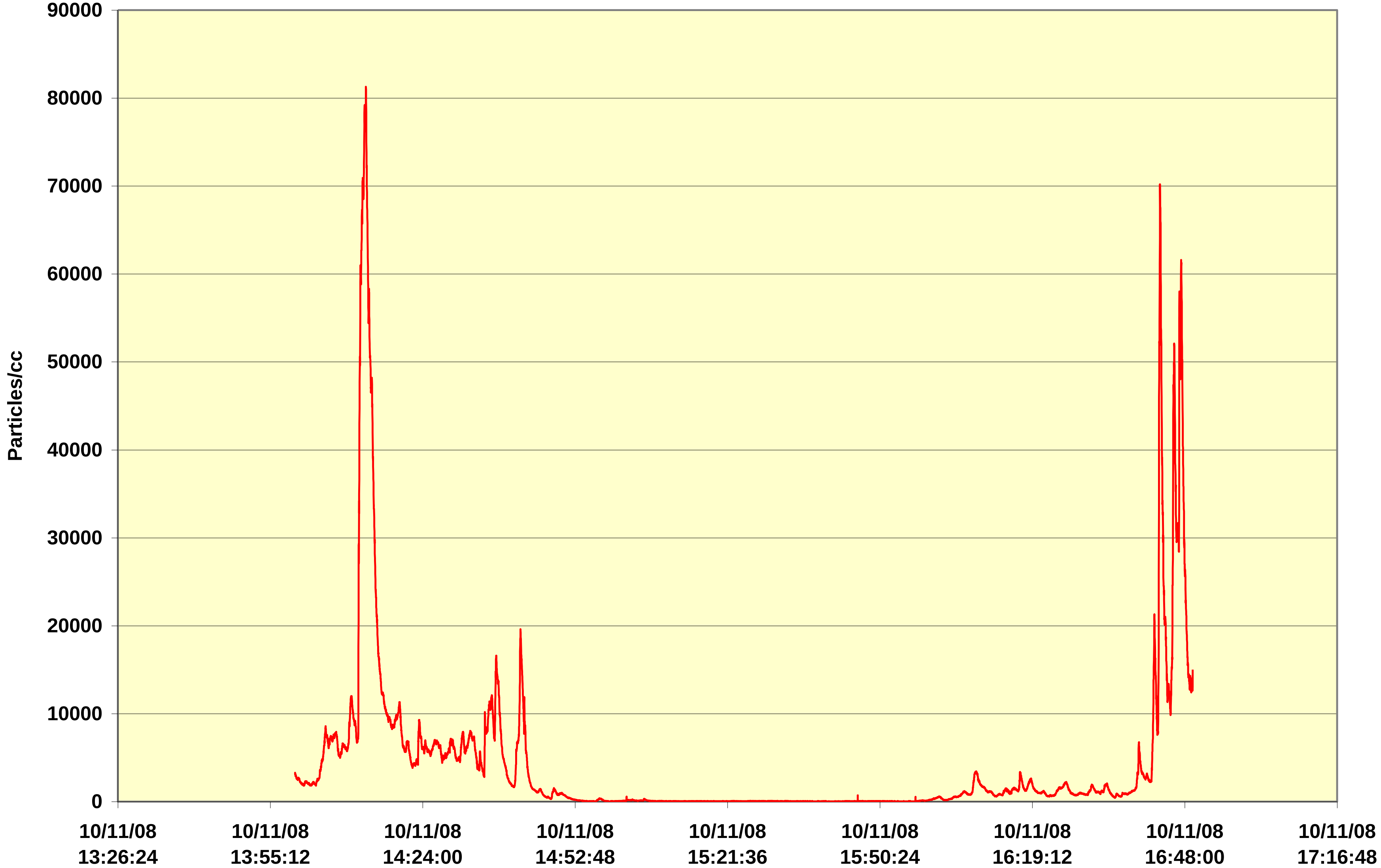
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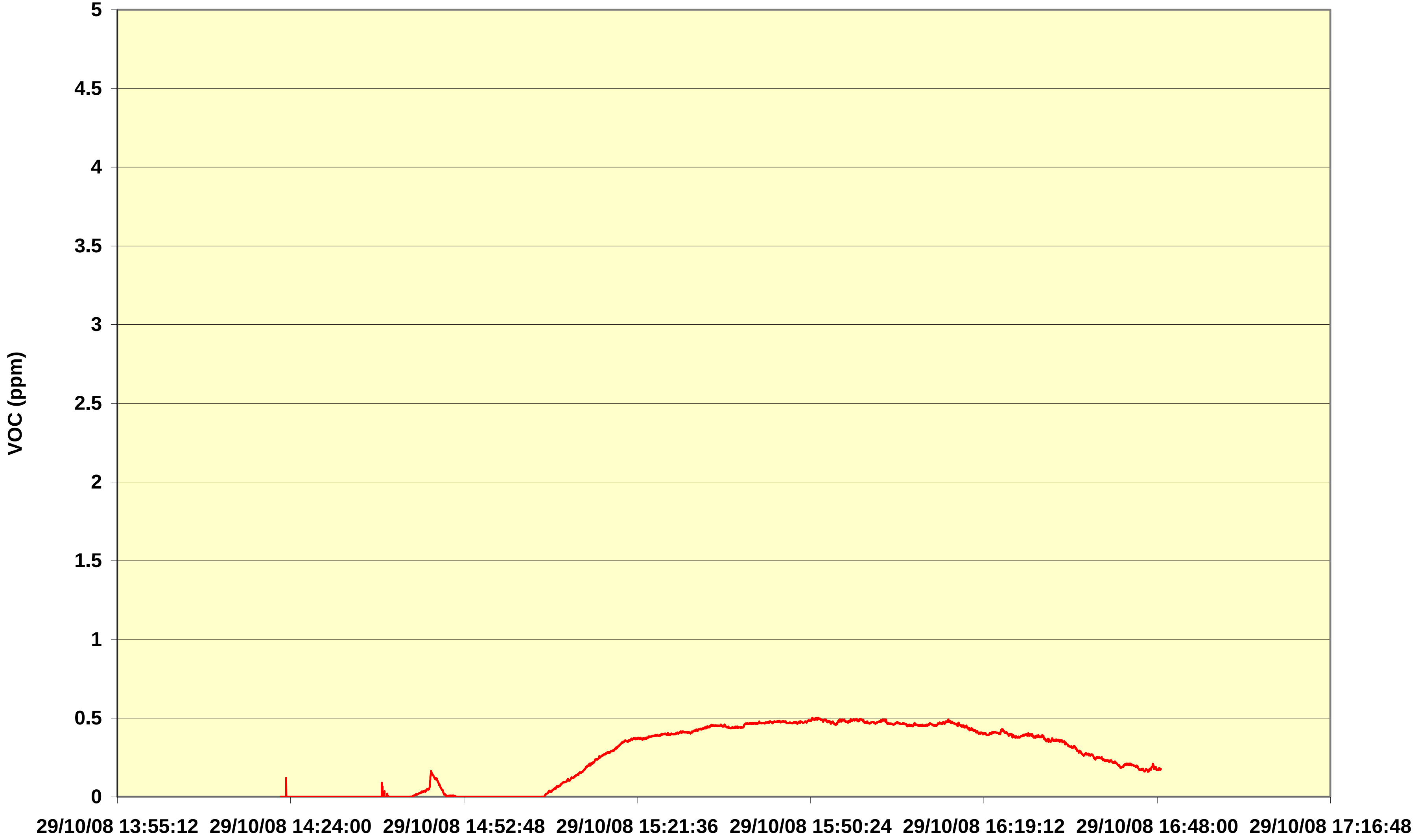

VOC (ppm)
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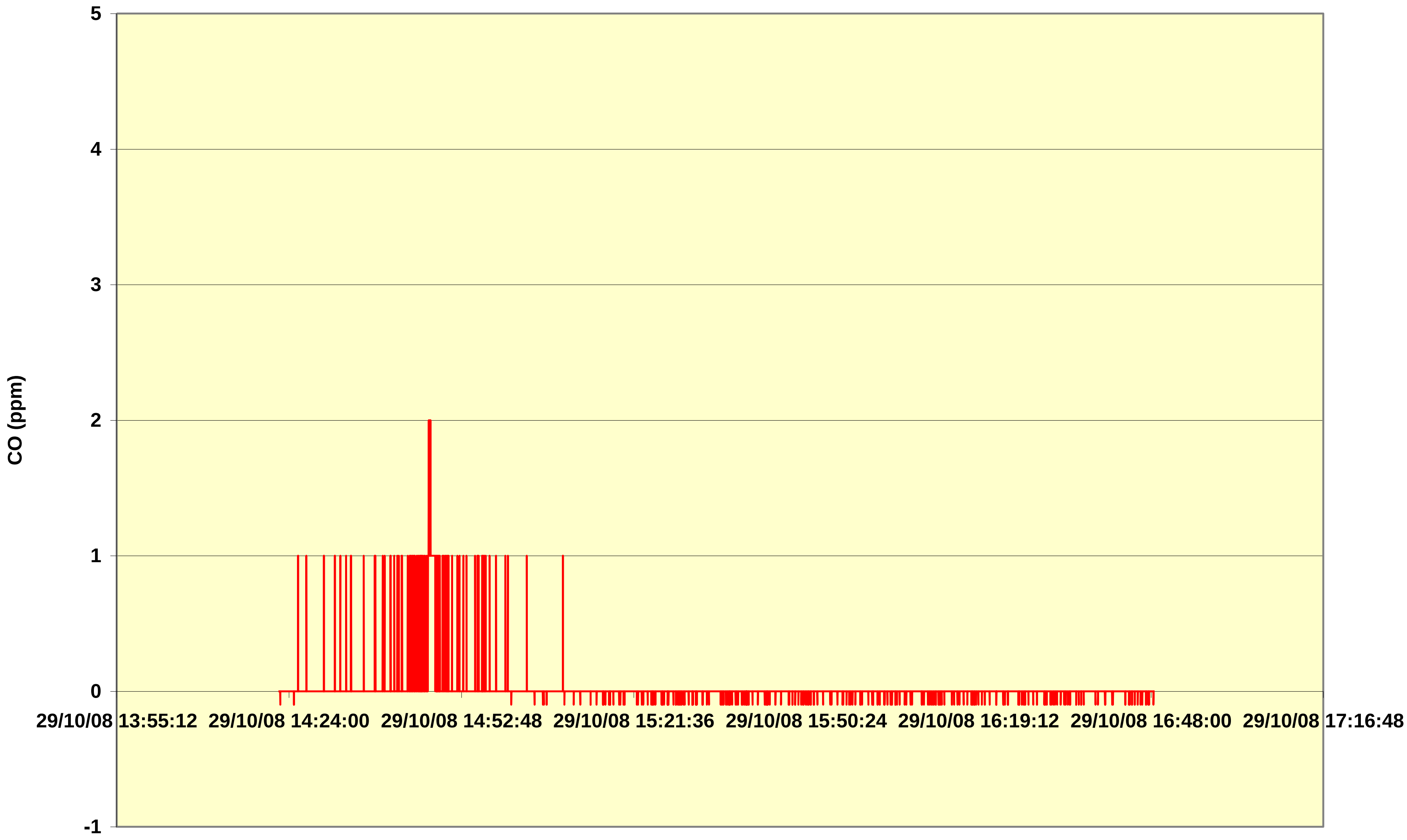
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-1
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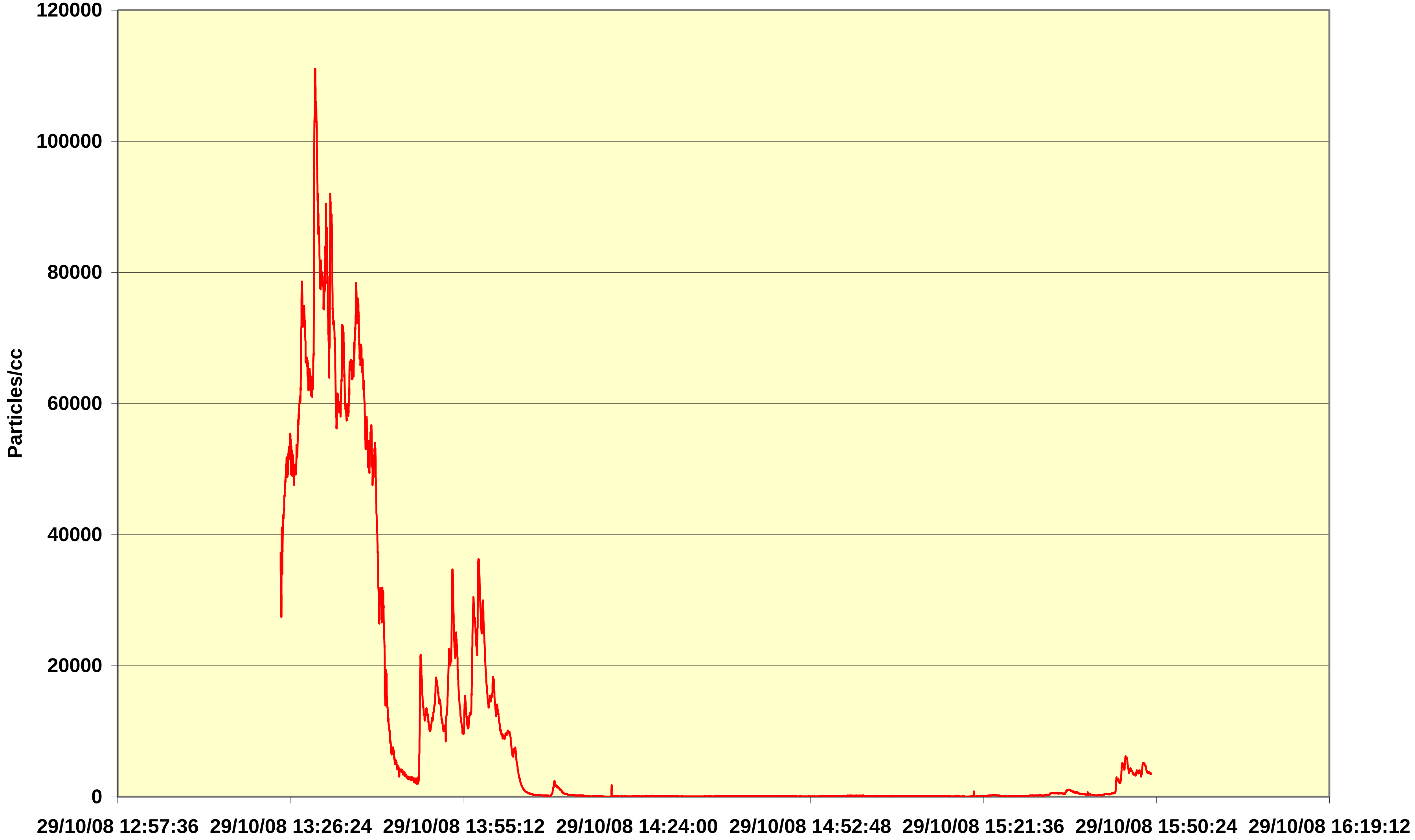

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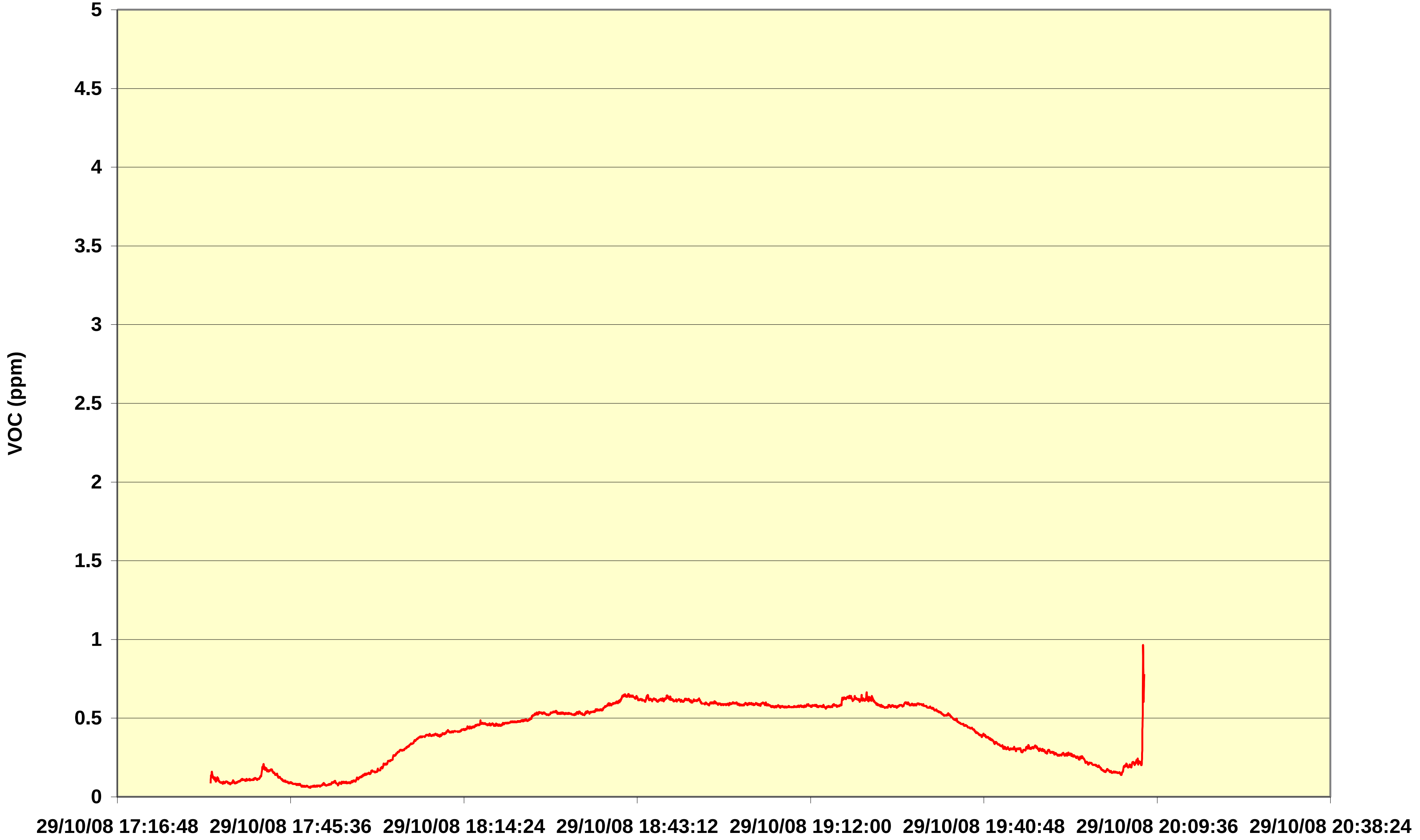
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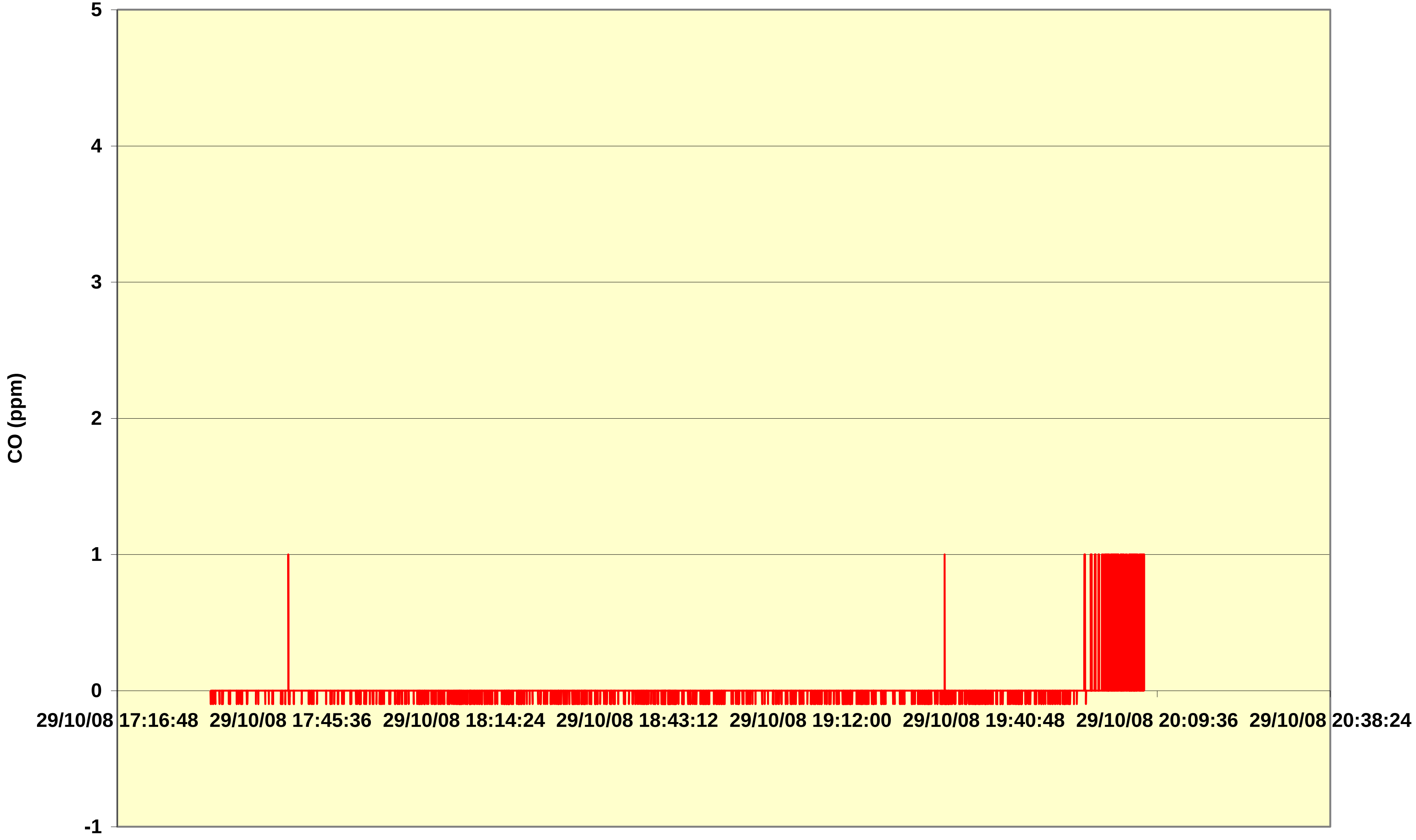

CO (ppm)
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29/10/08 17:16:48
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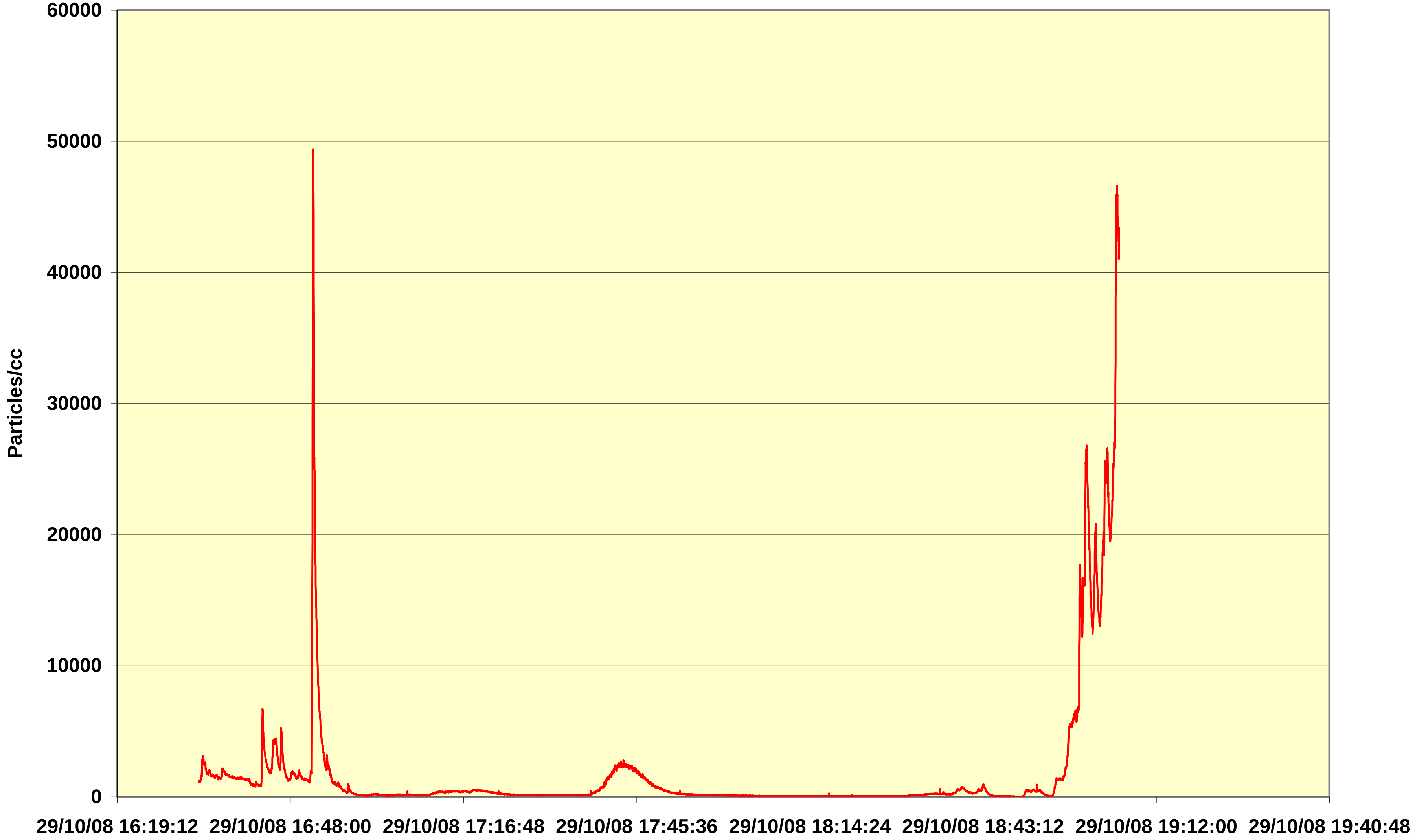

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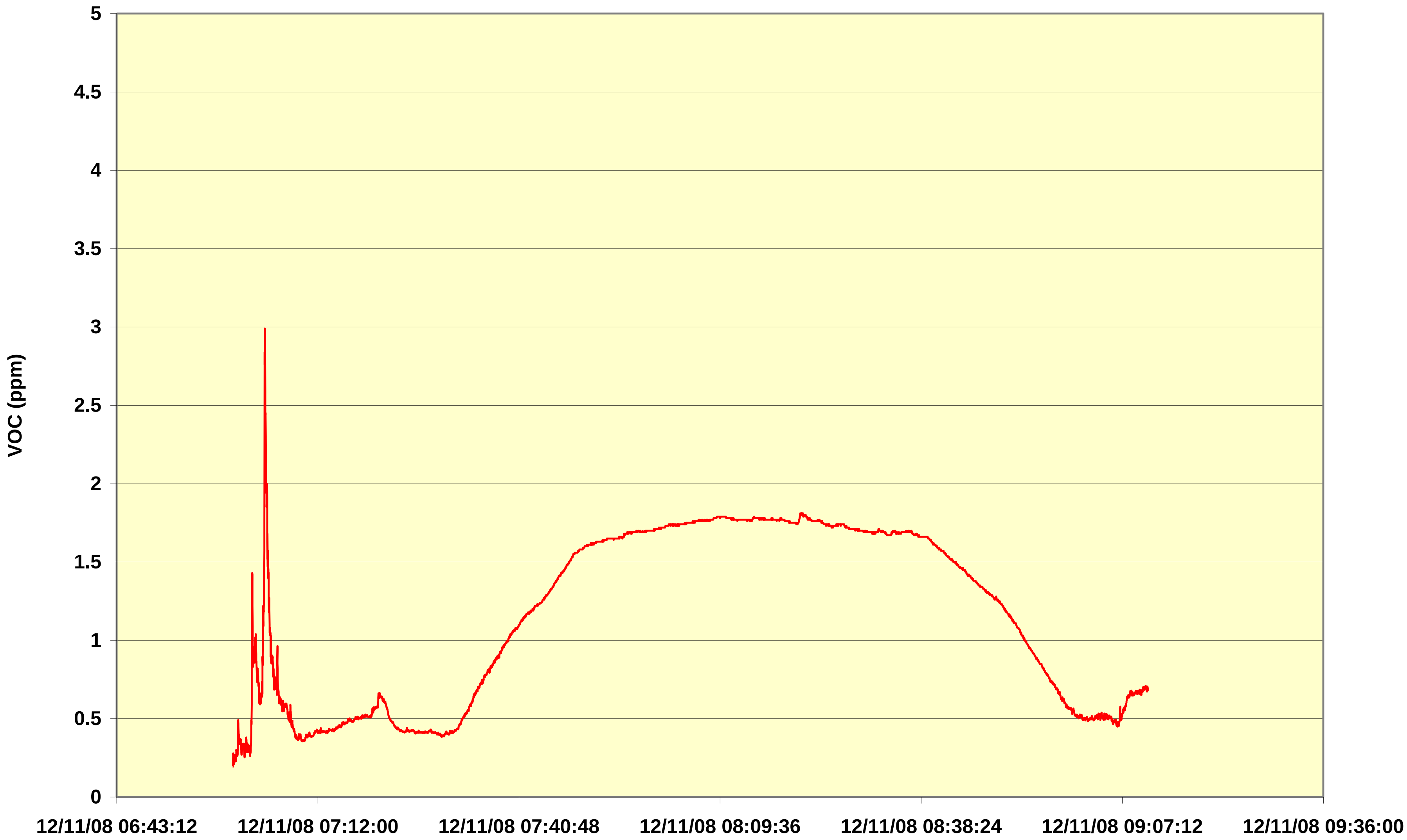
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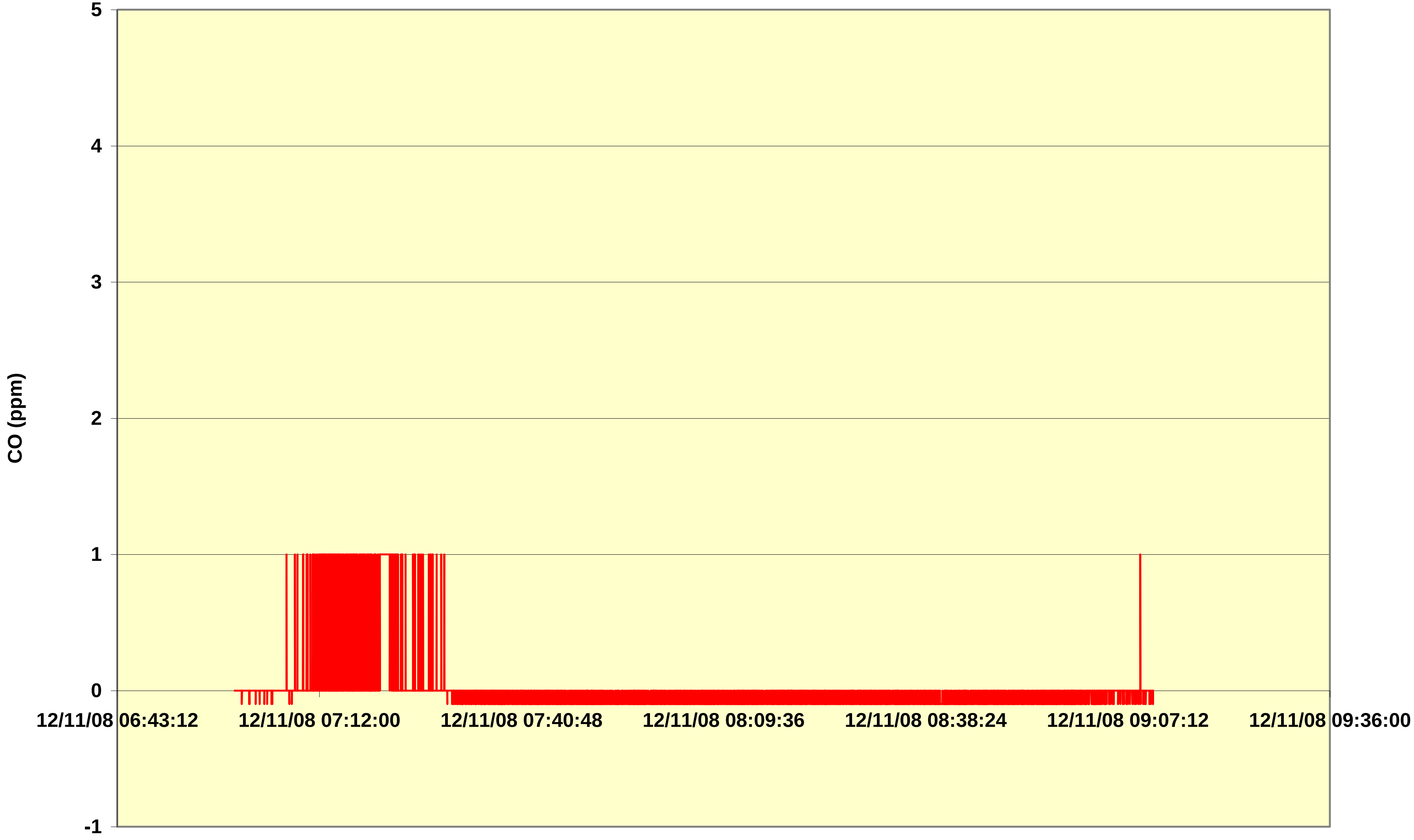

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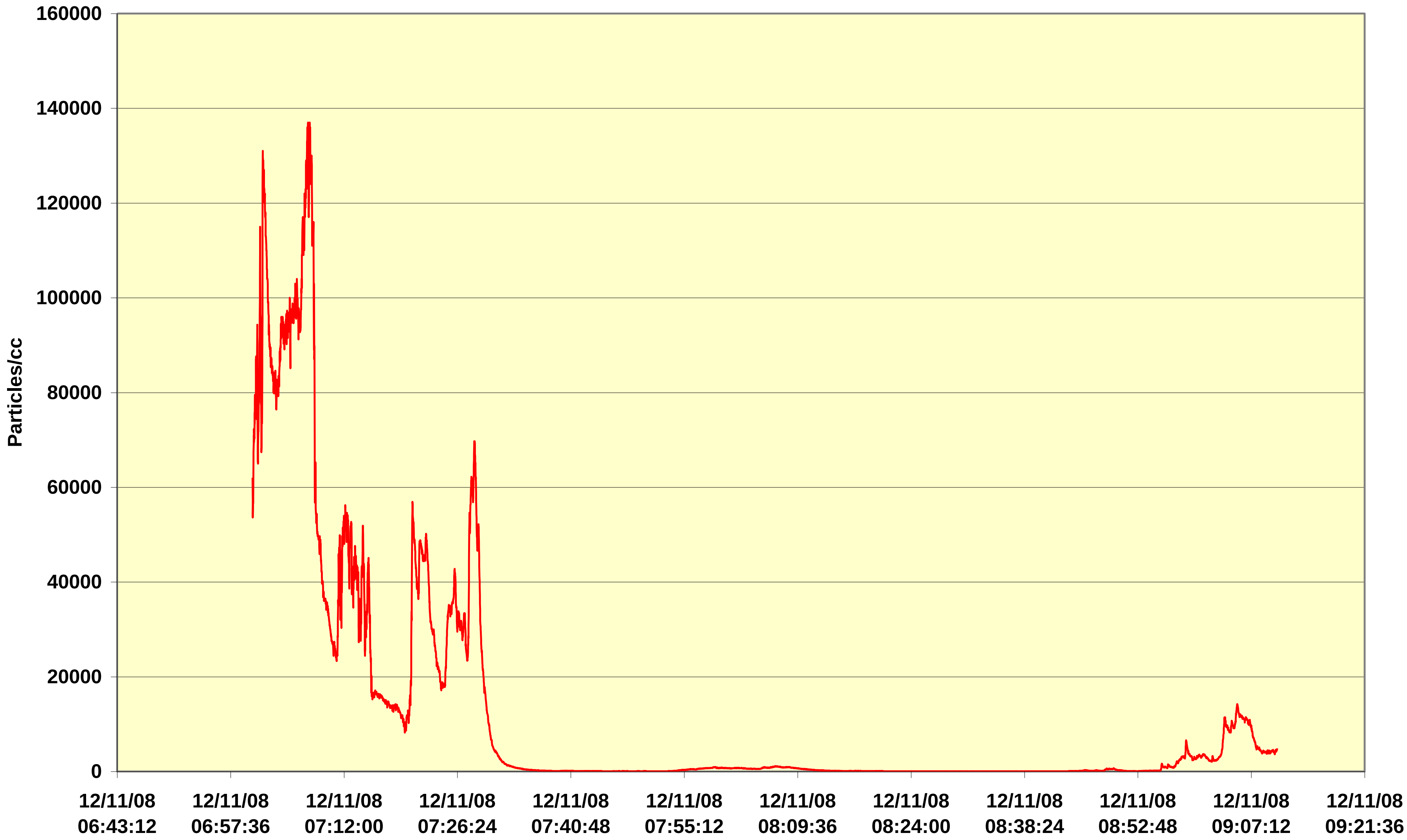
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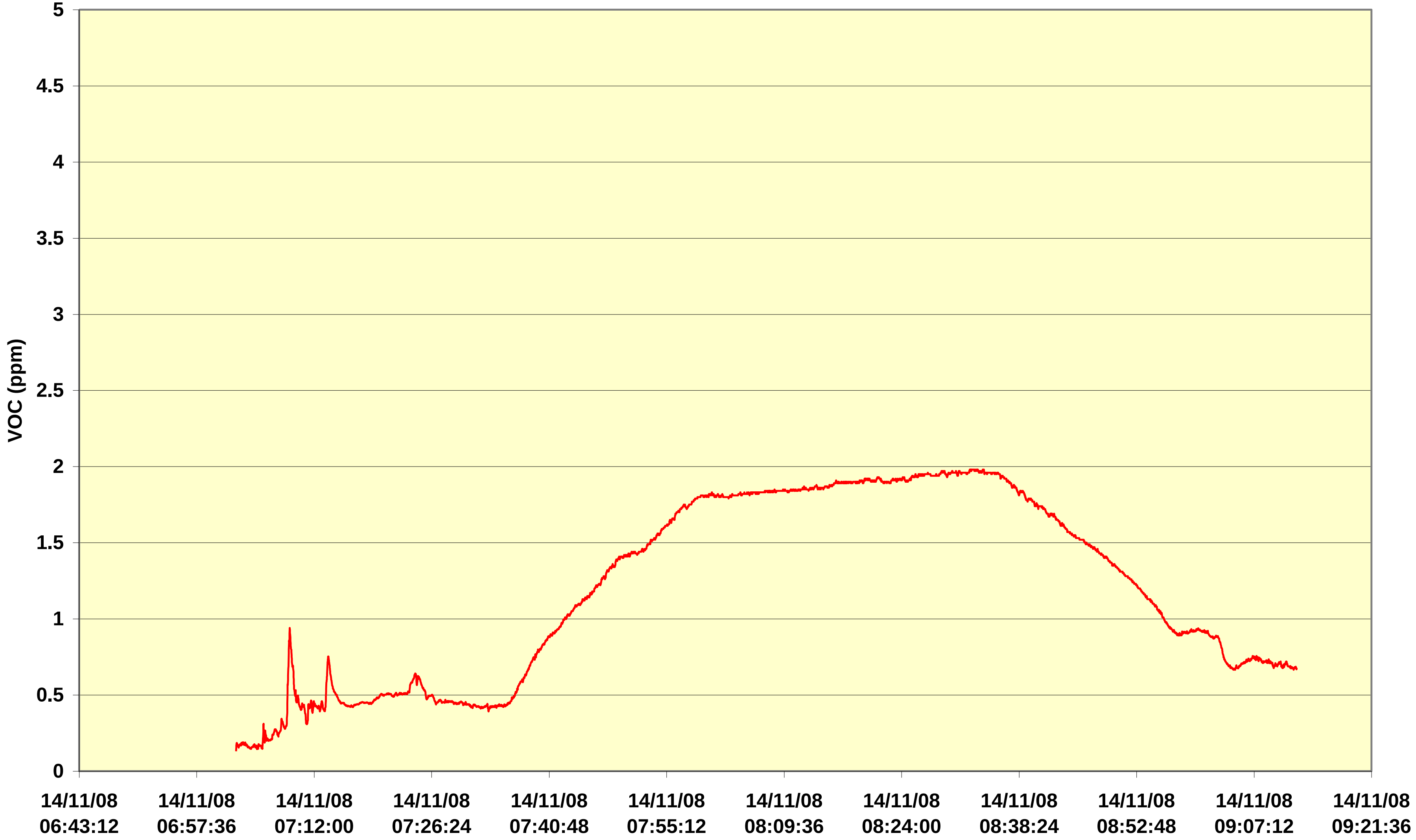

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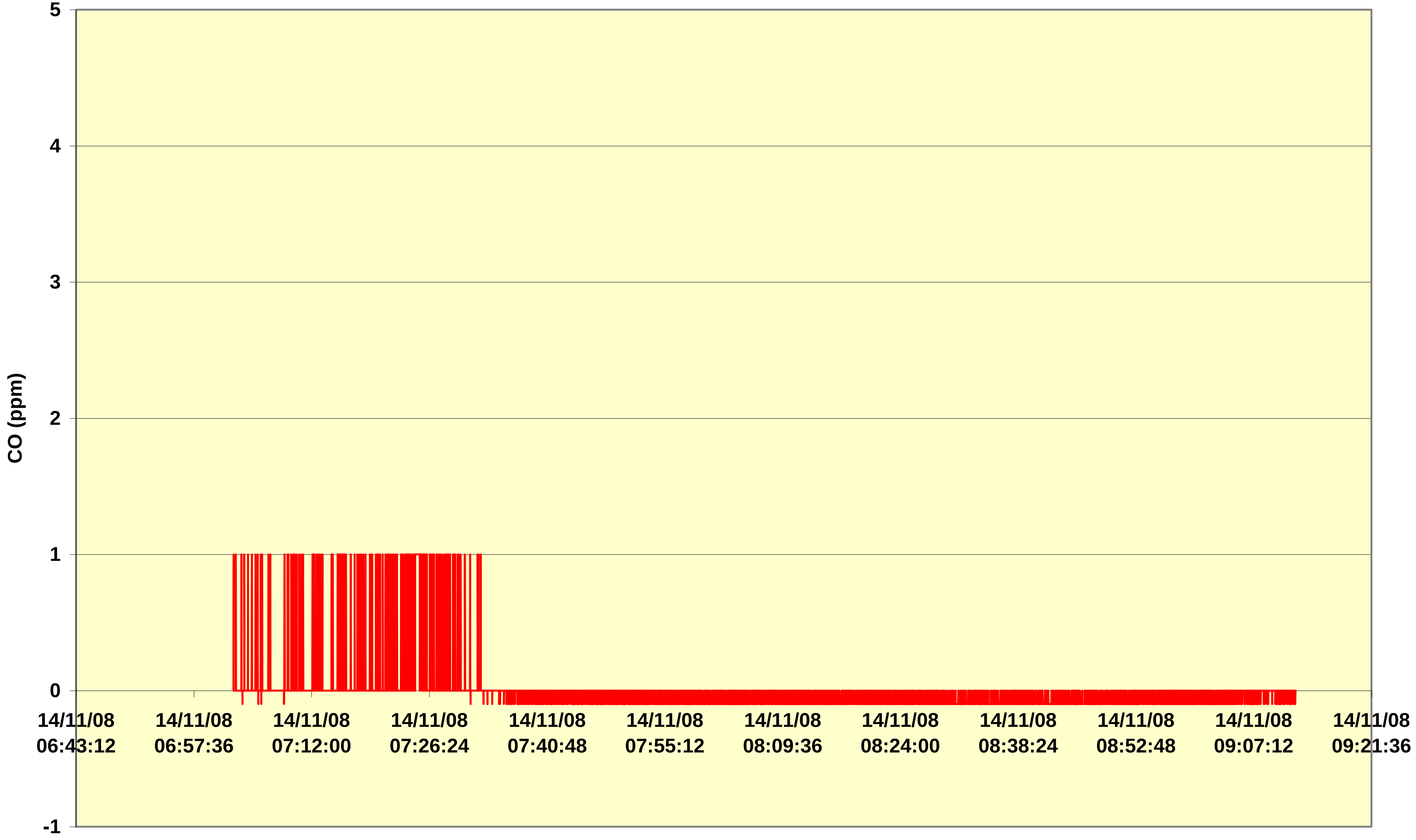
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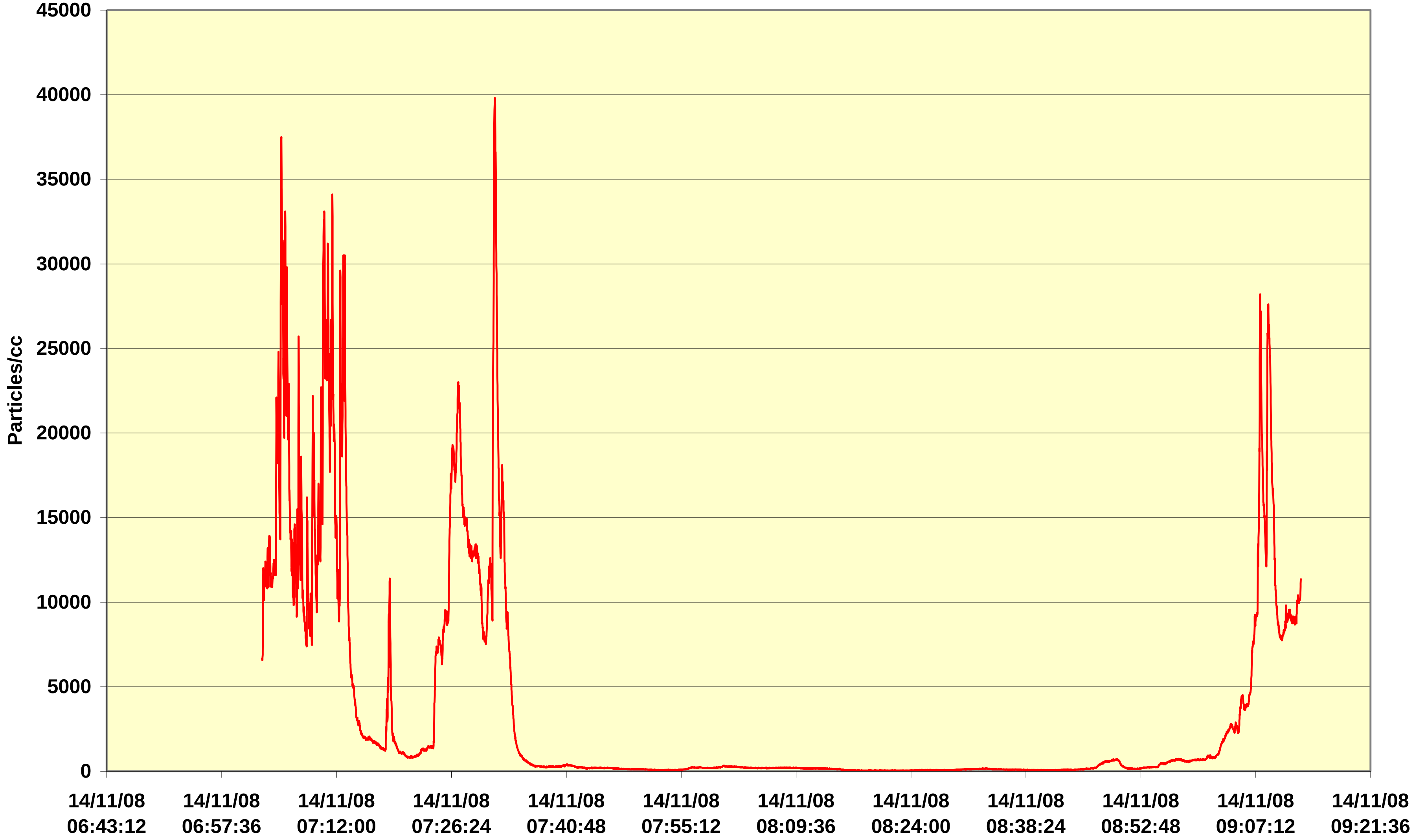
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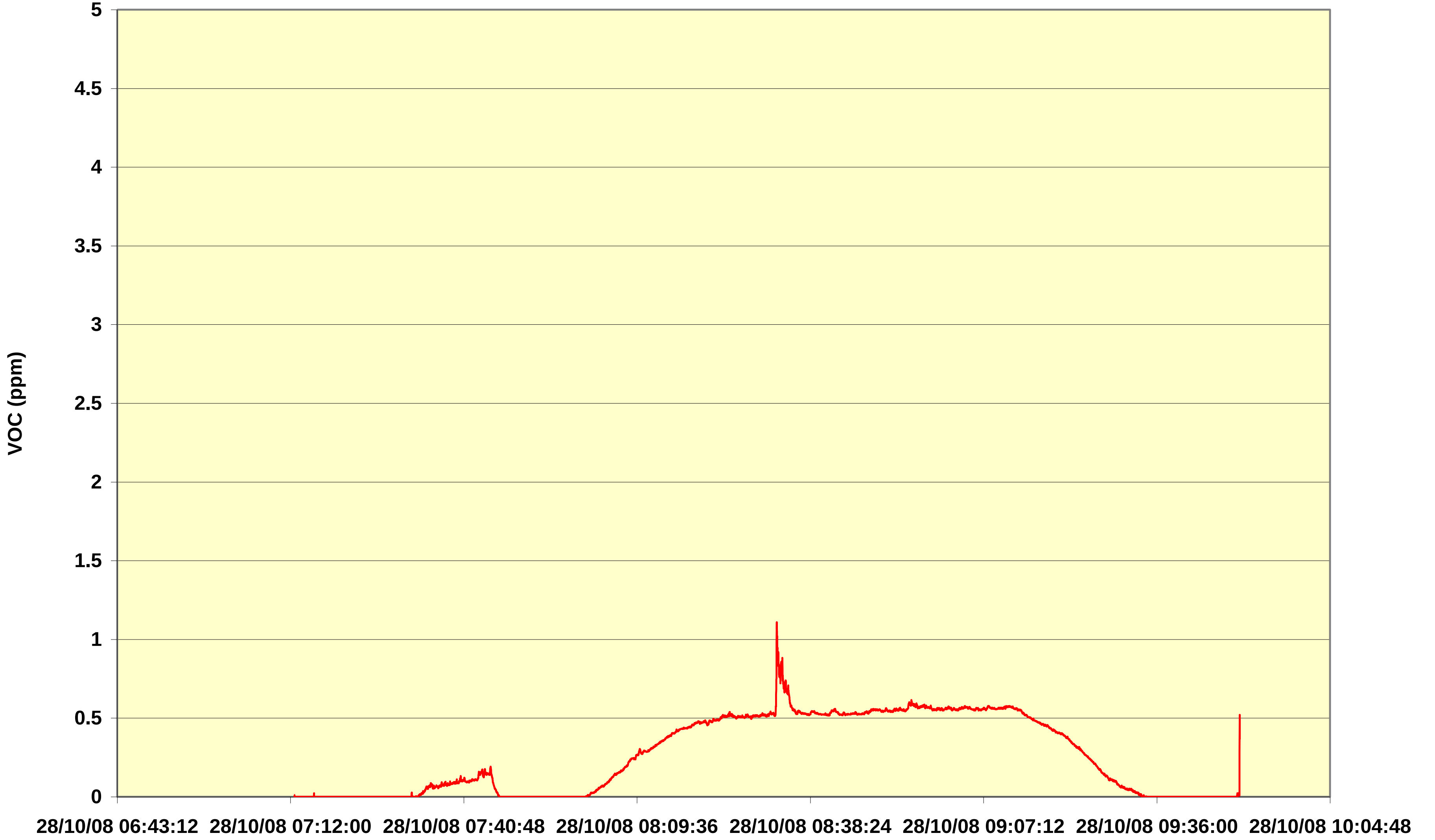

VOC (ppm)
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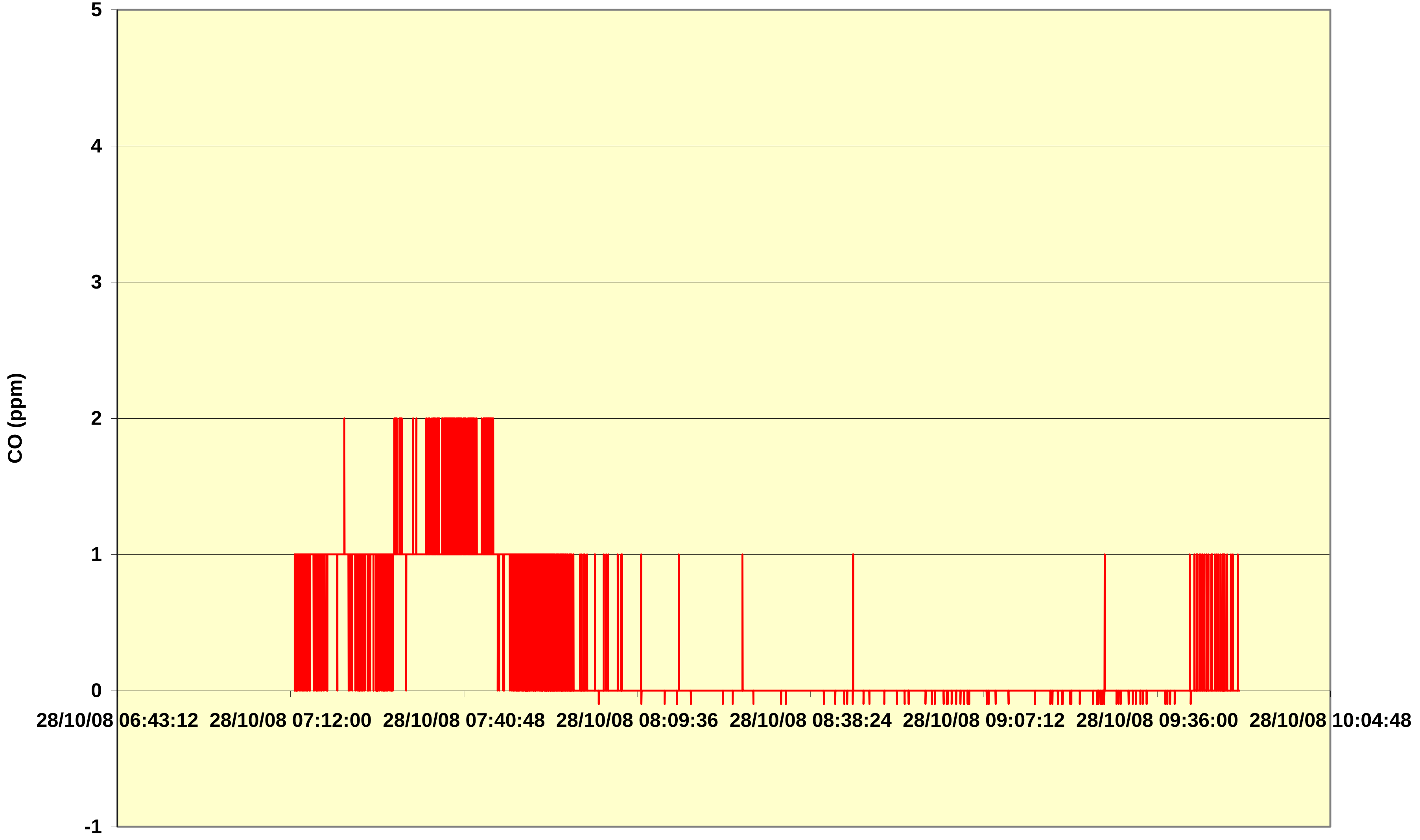

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0
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CO (ppm)
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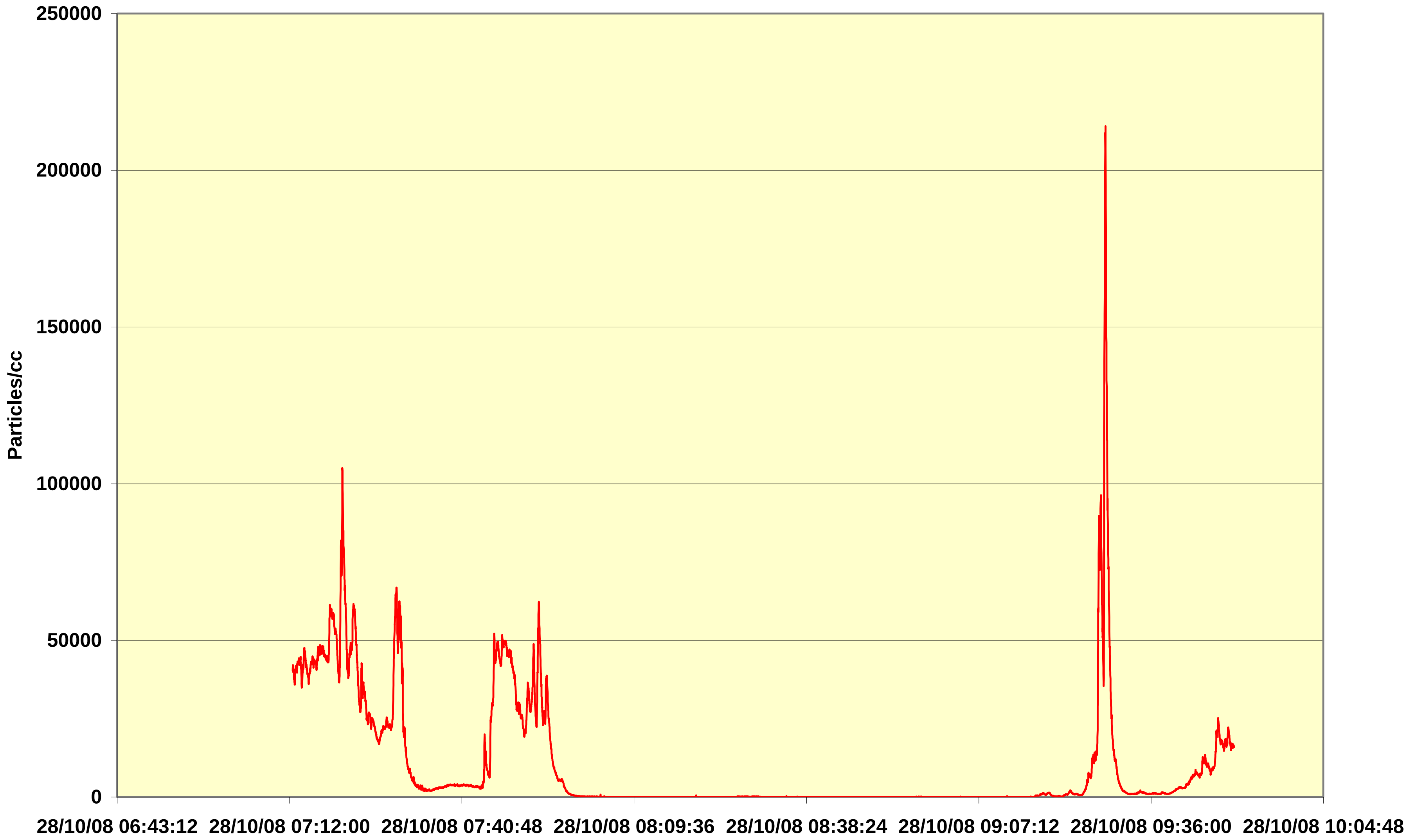

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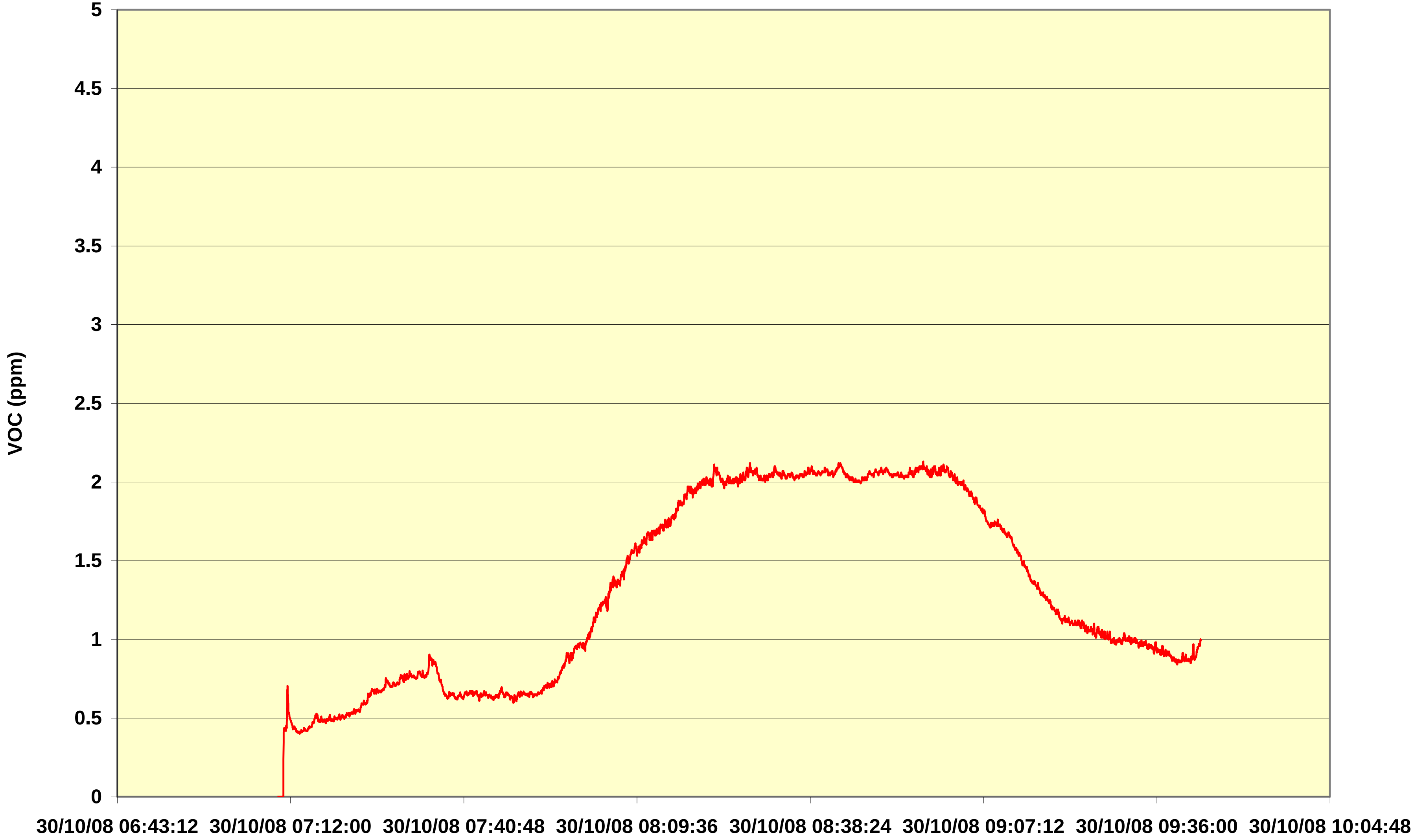
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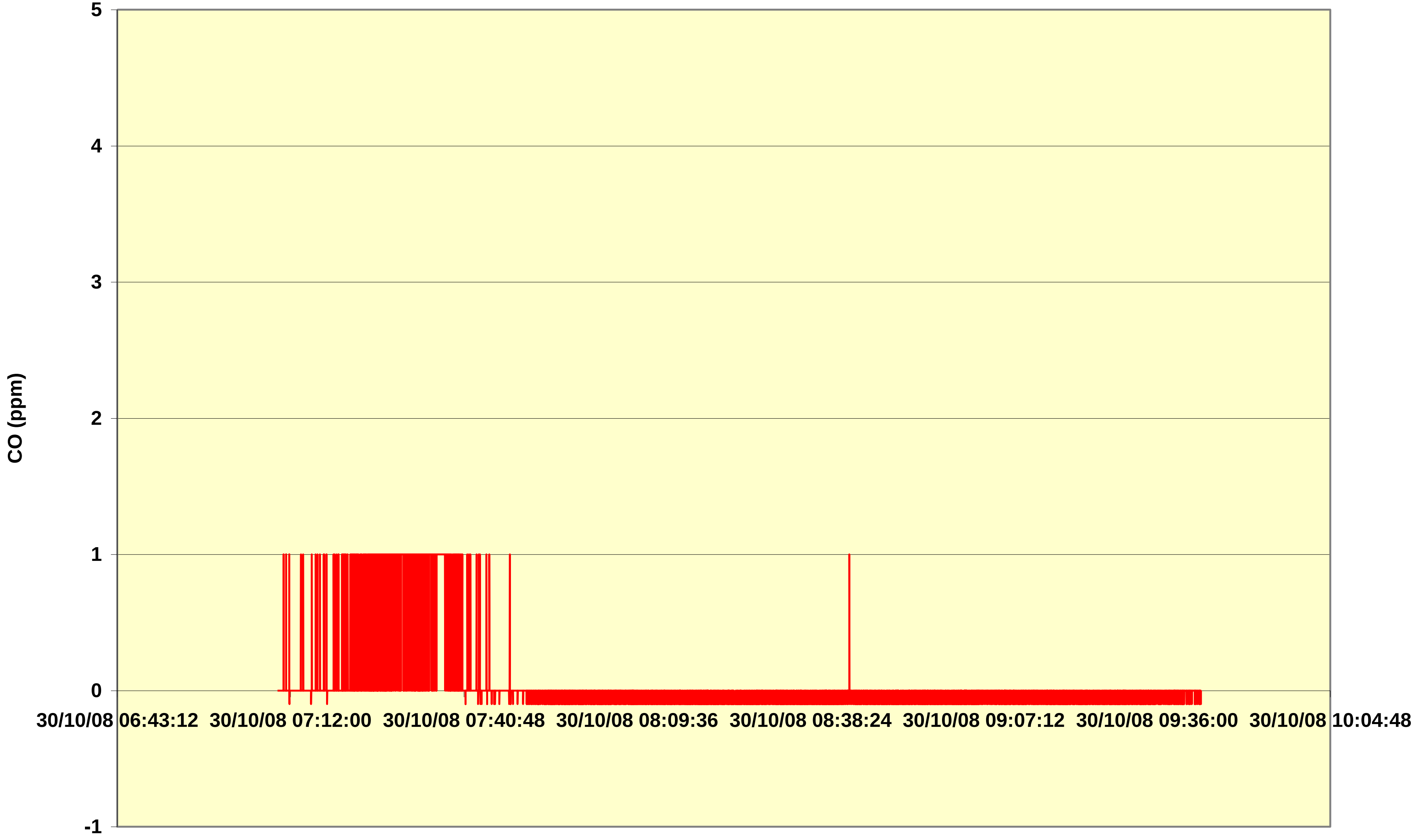
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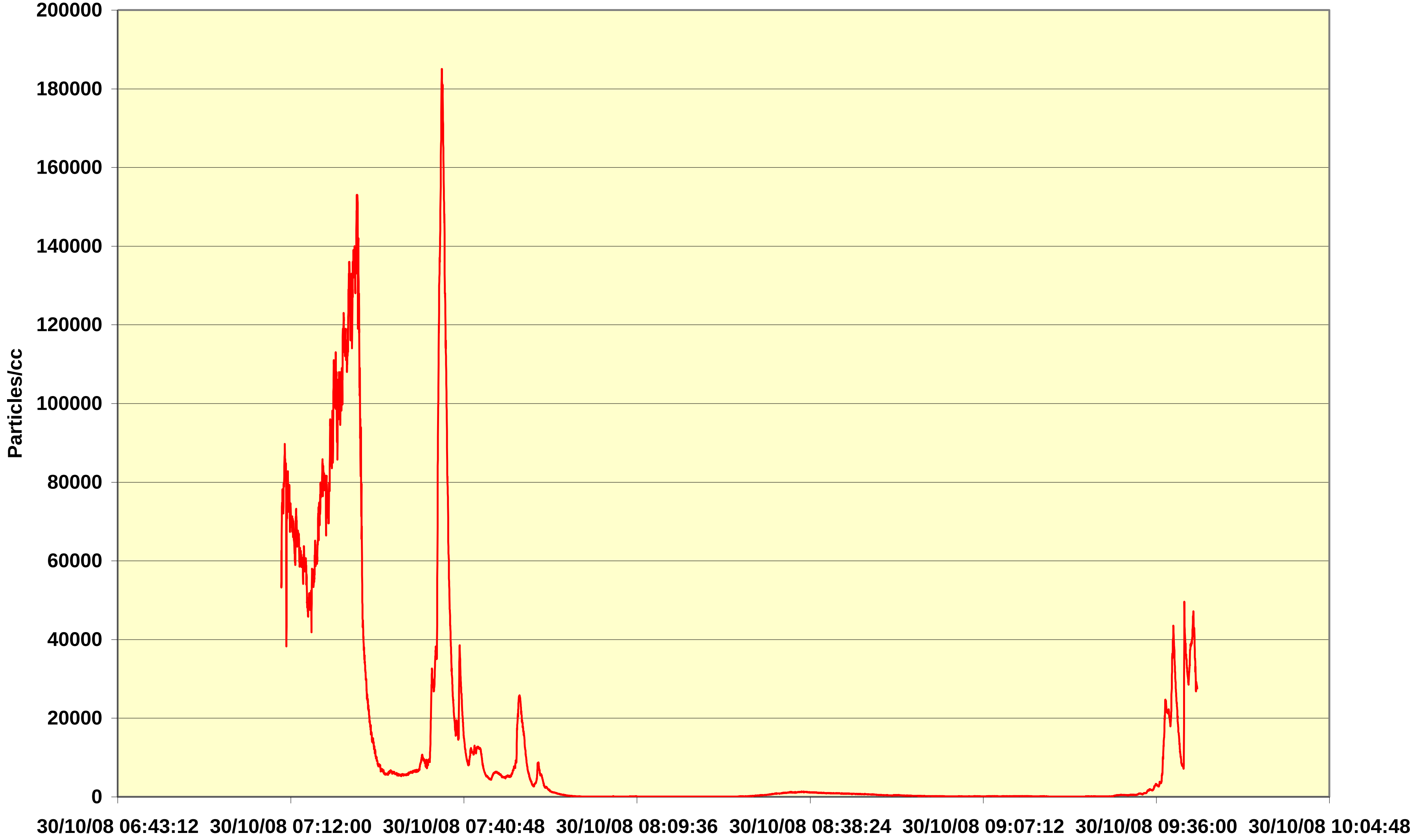

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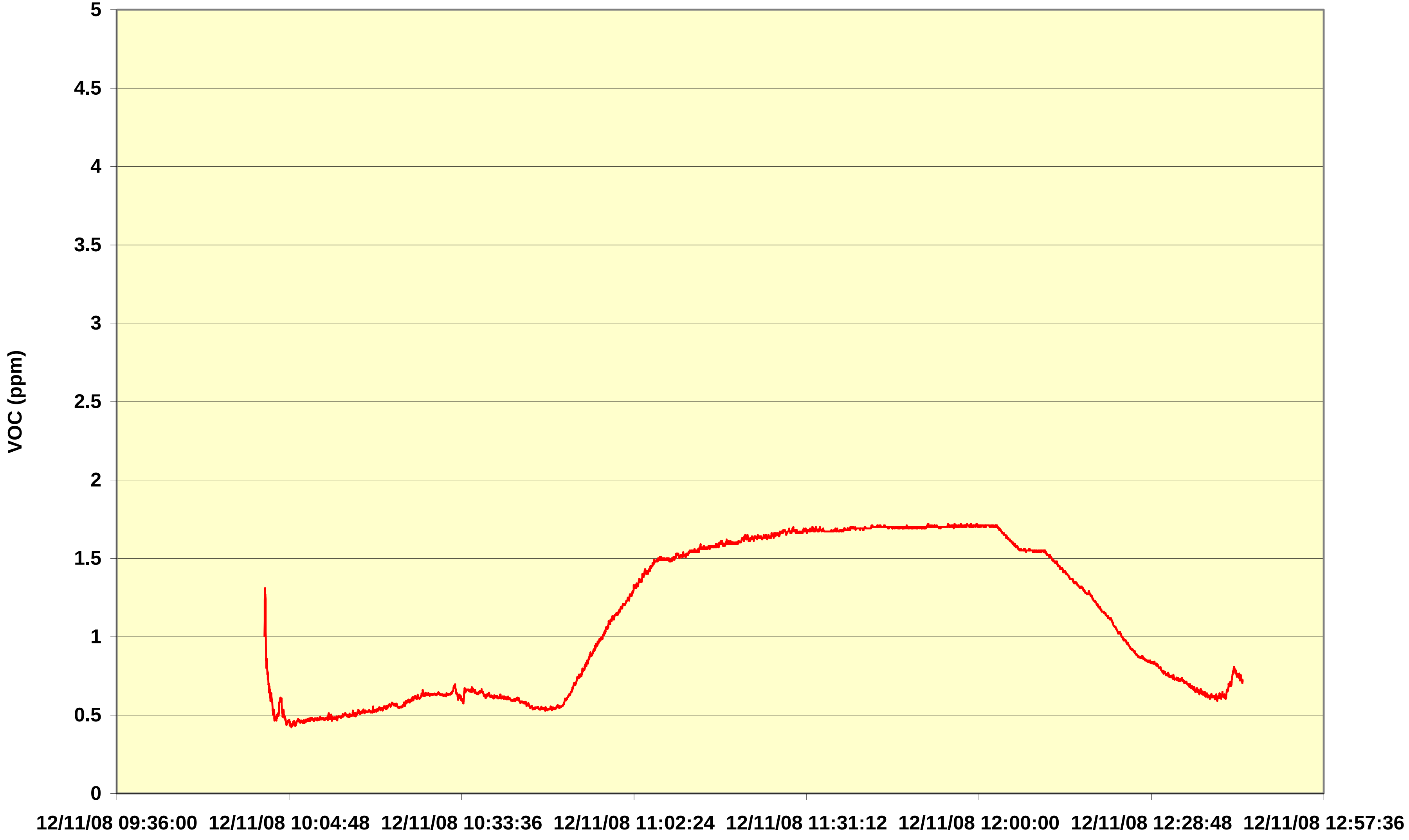
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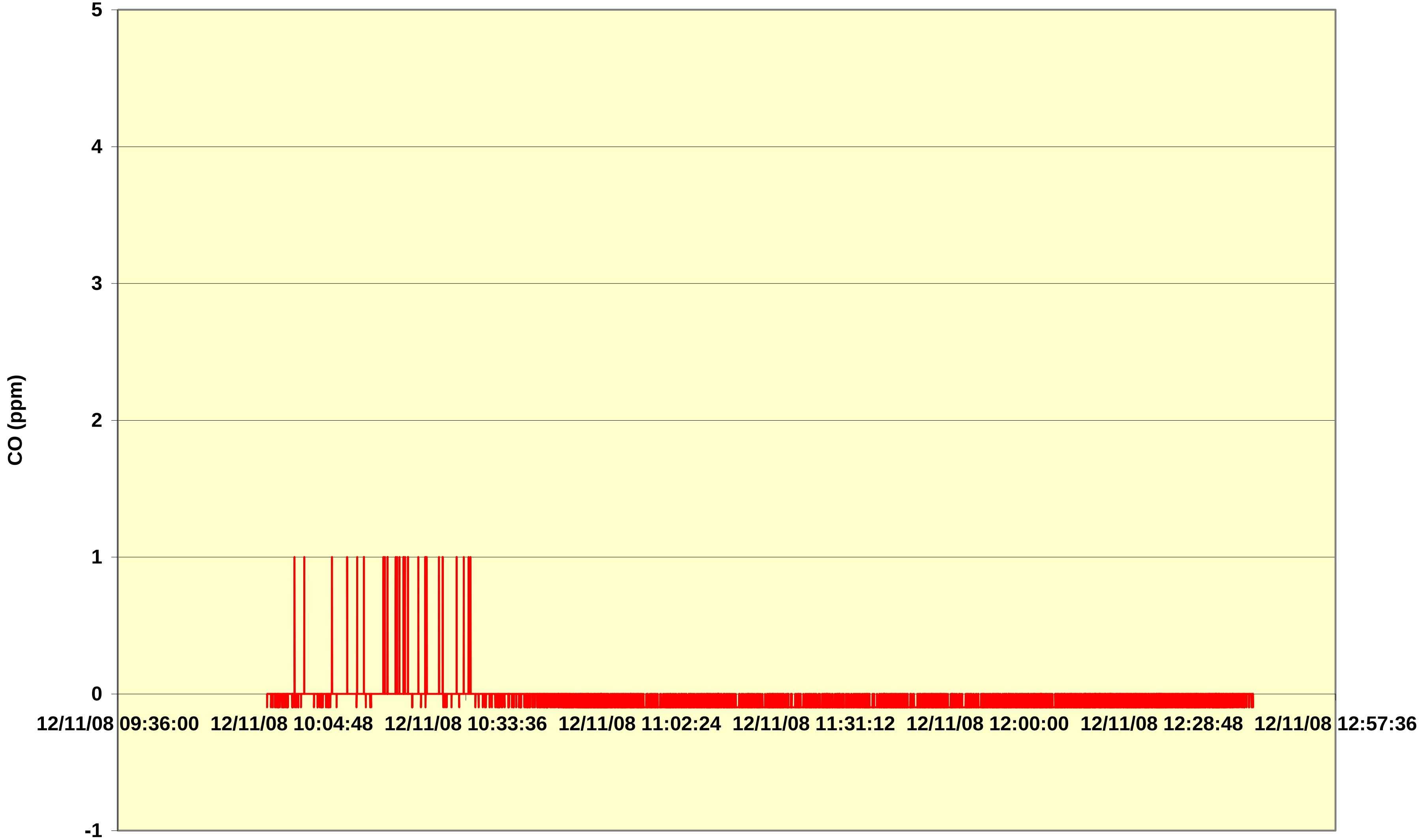

CO (ppm)
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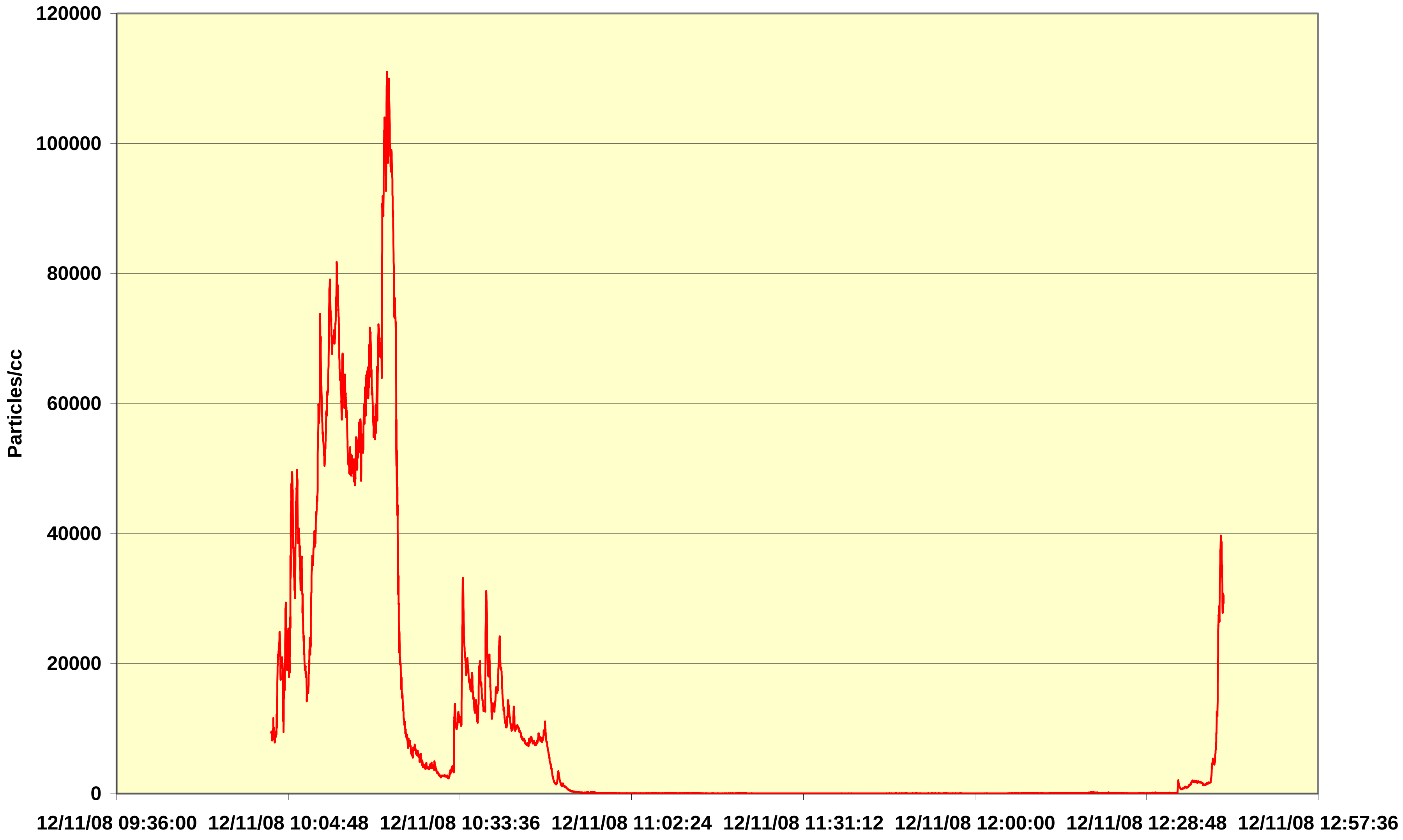
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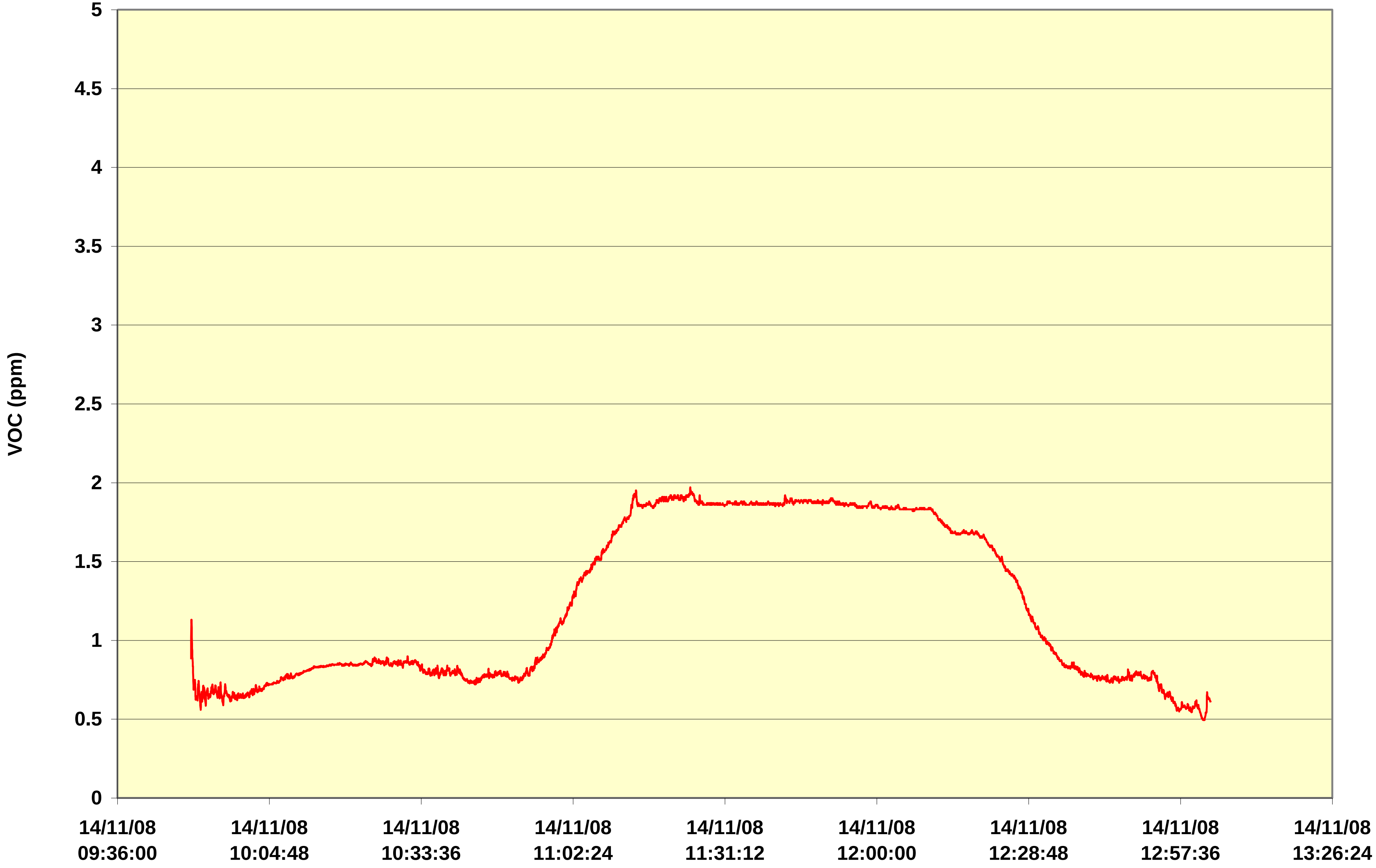
VOC (ppm)
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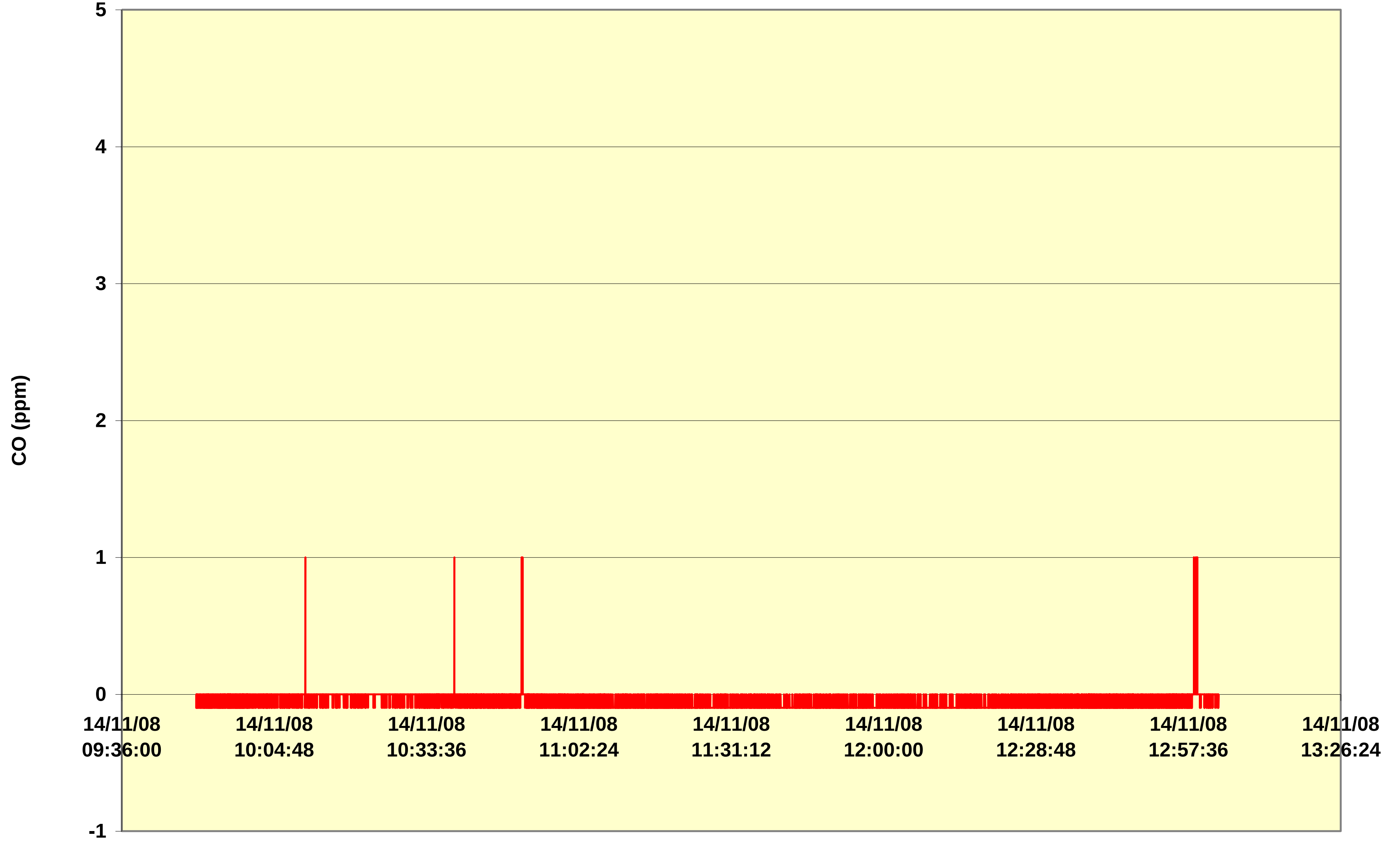
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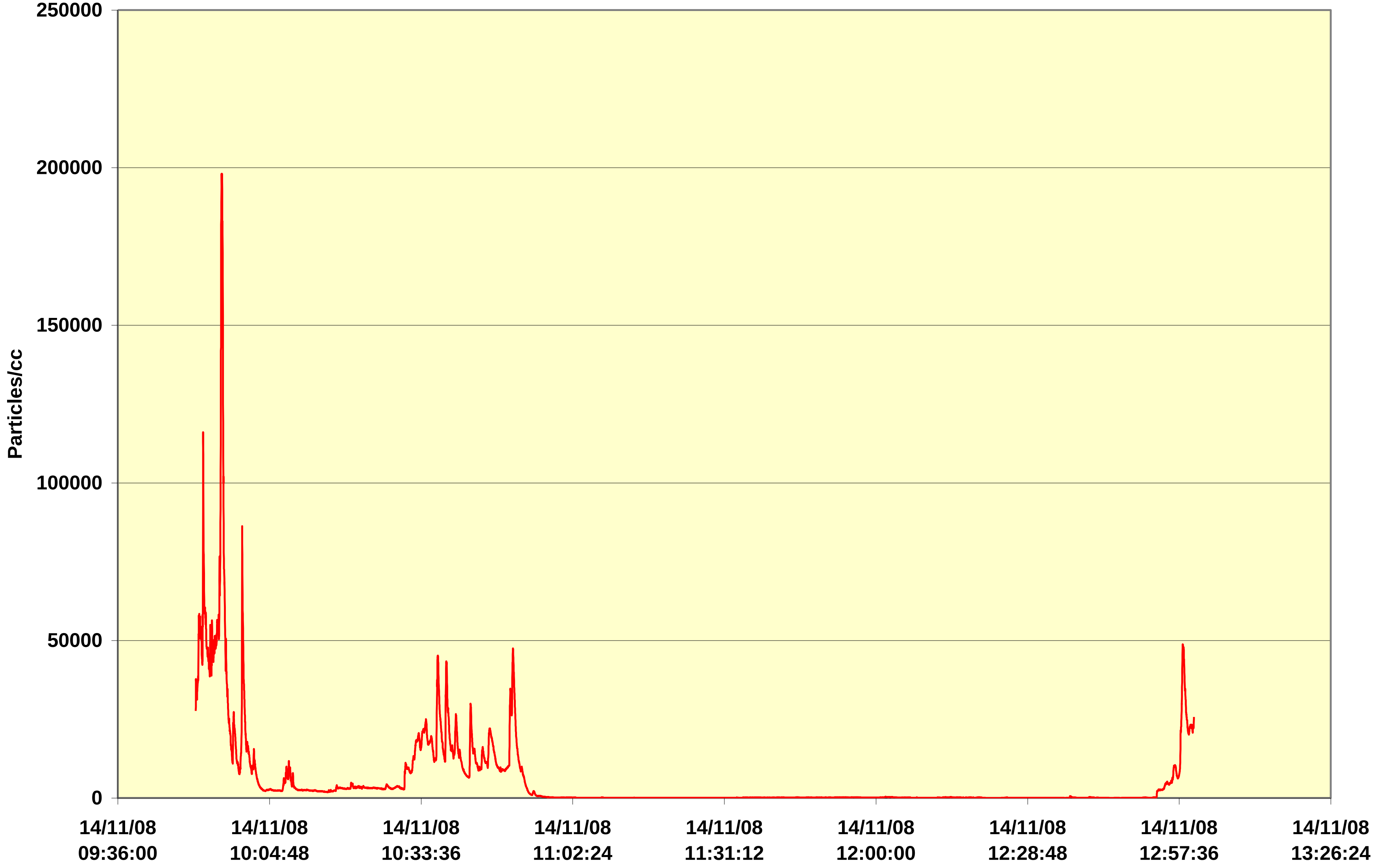
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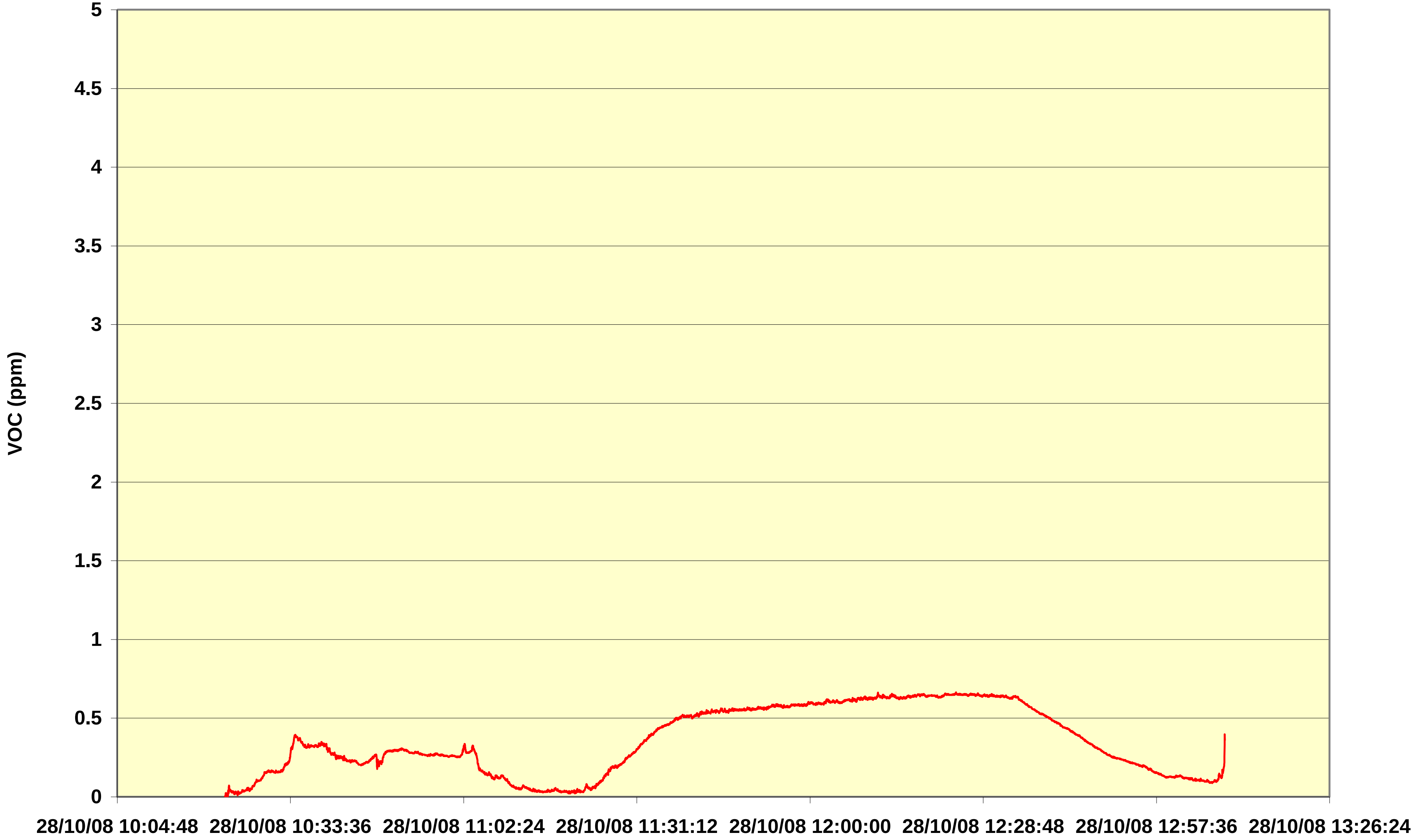

VOC (ppm)
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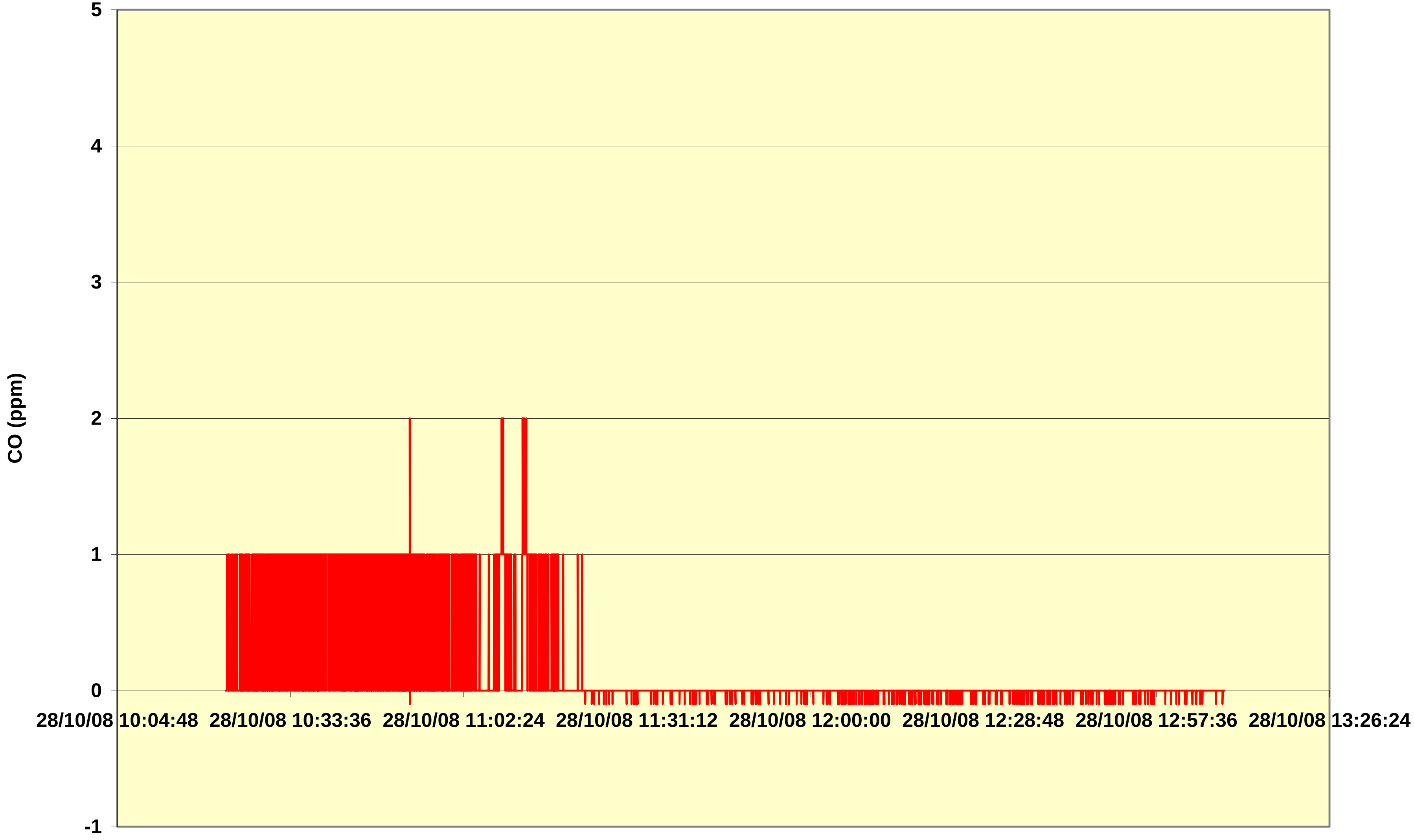
CO (ppm)
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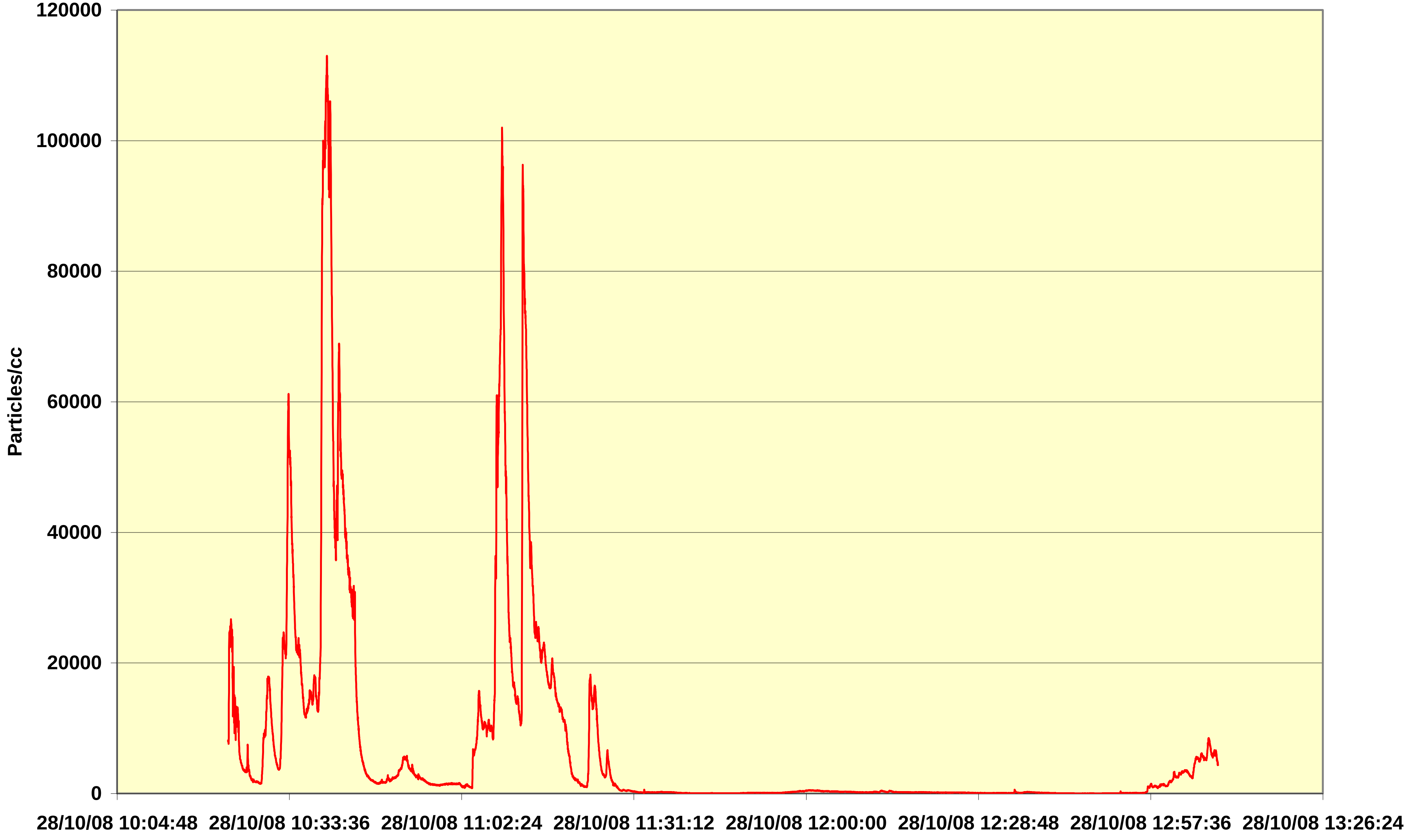
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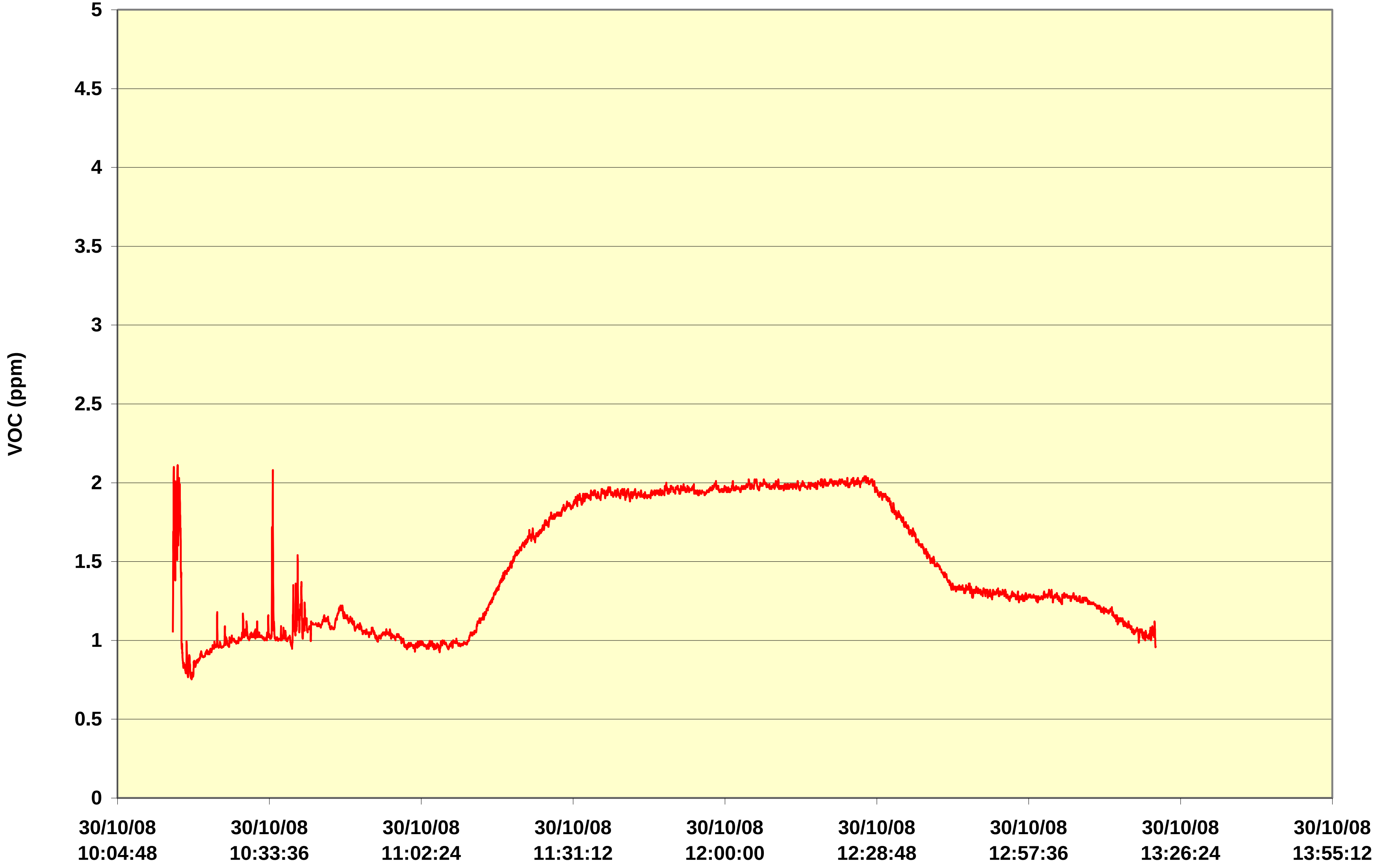

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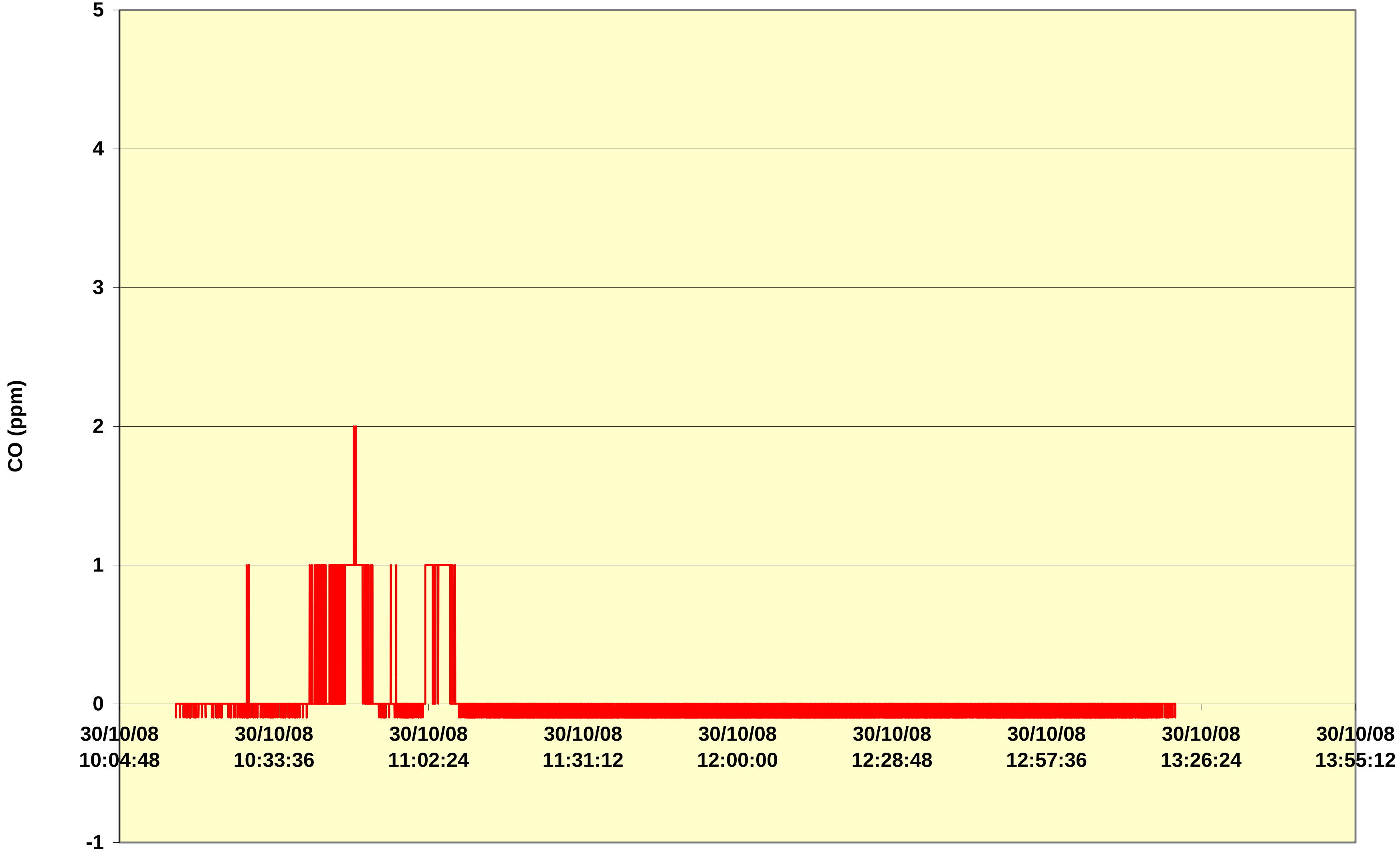
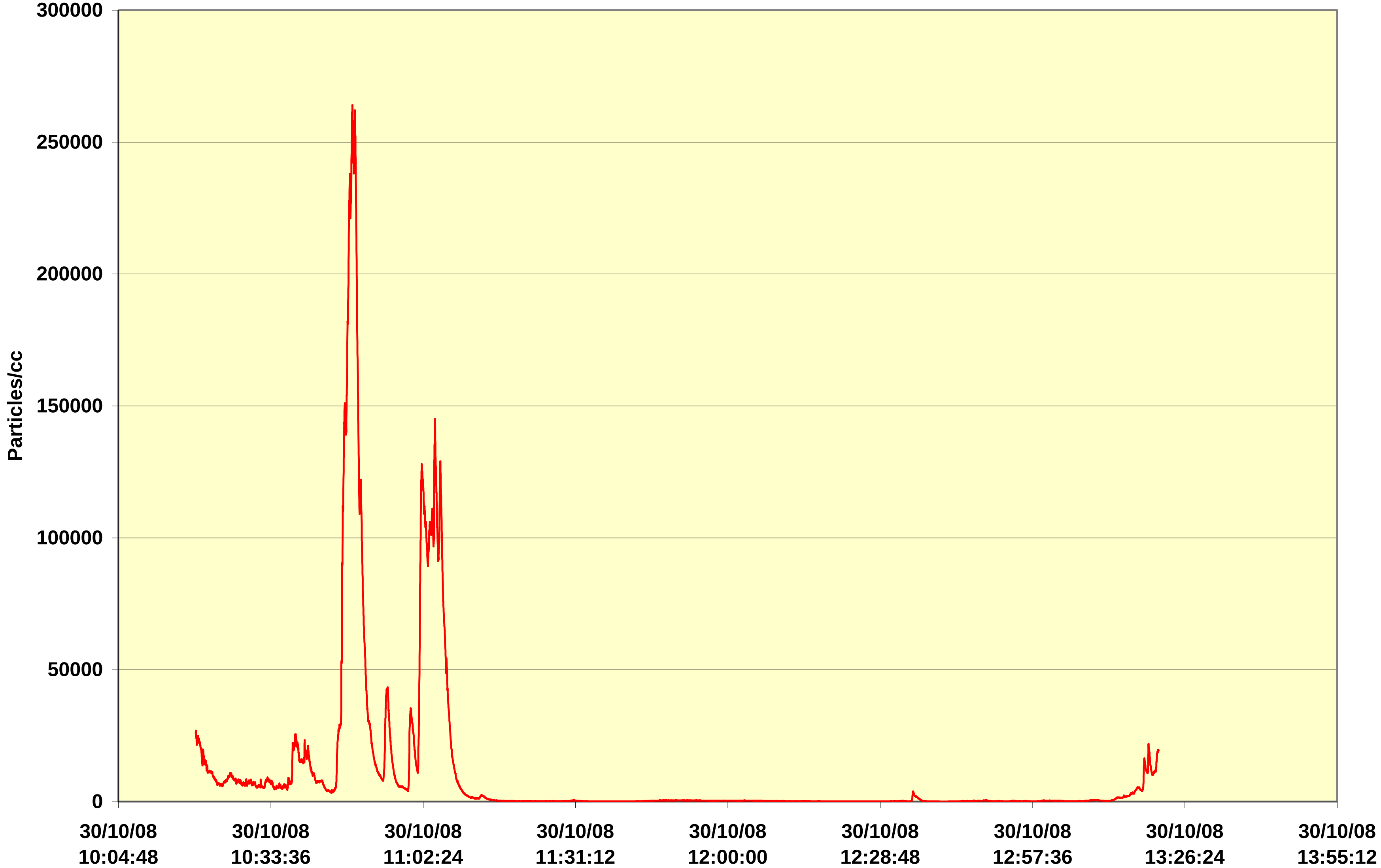
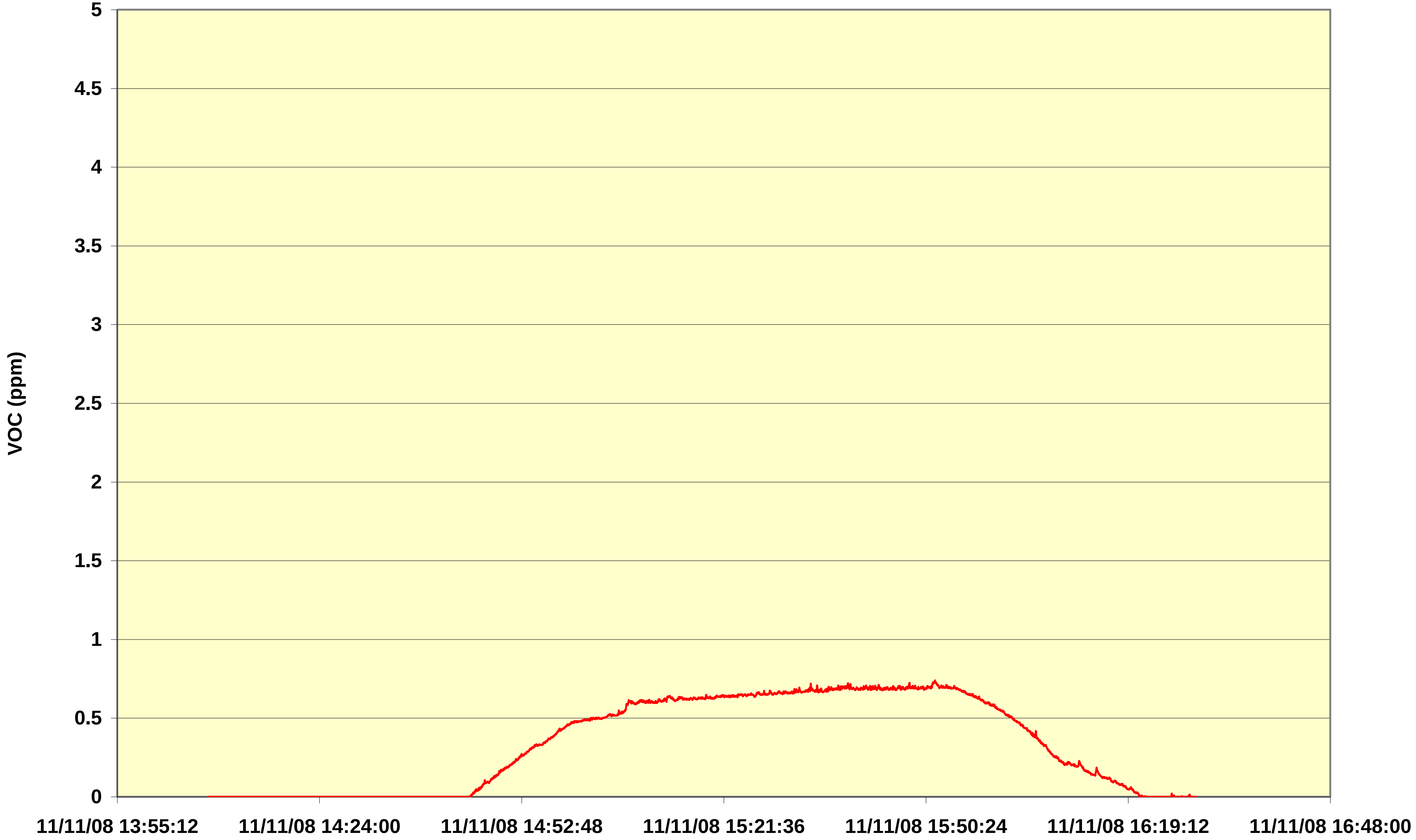
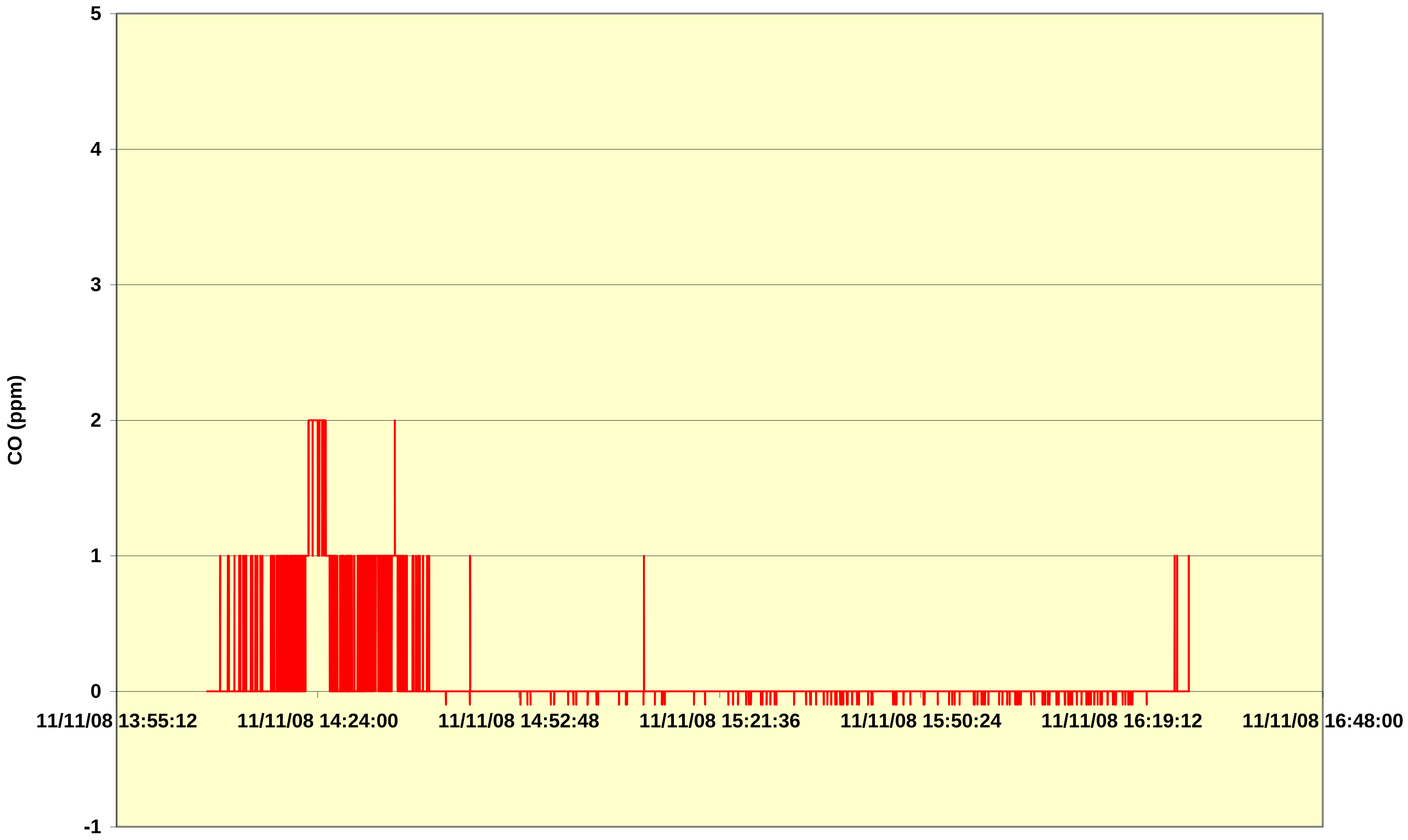
30/10/08 13:26:24
30/10/08 13:55:12

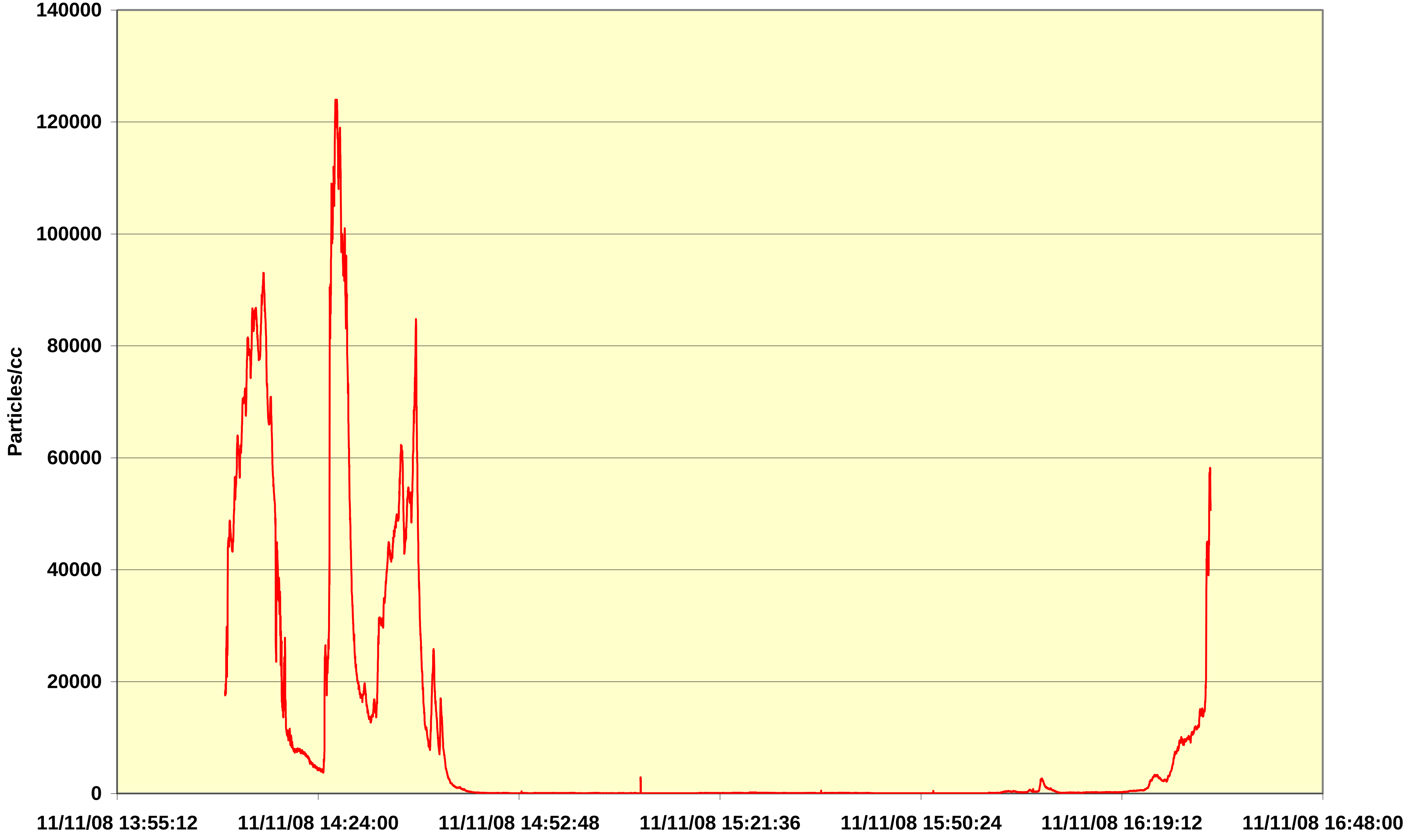

5
4
3
2
1
0
-1
CO (ppm)
30/10/08 10:04:48
30/10/08 10:33:36
30/10/08 11:02:24
30/10/08 11:31:12
30/10/08 12:00:00
30/10/08 12:28:48
30/10/08 12:57:36
30/10/08 13:26:24
30/10/08 13:55:12

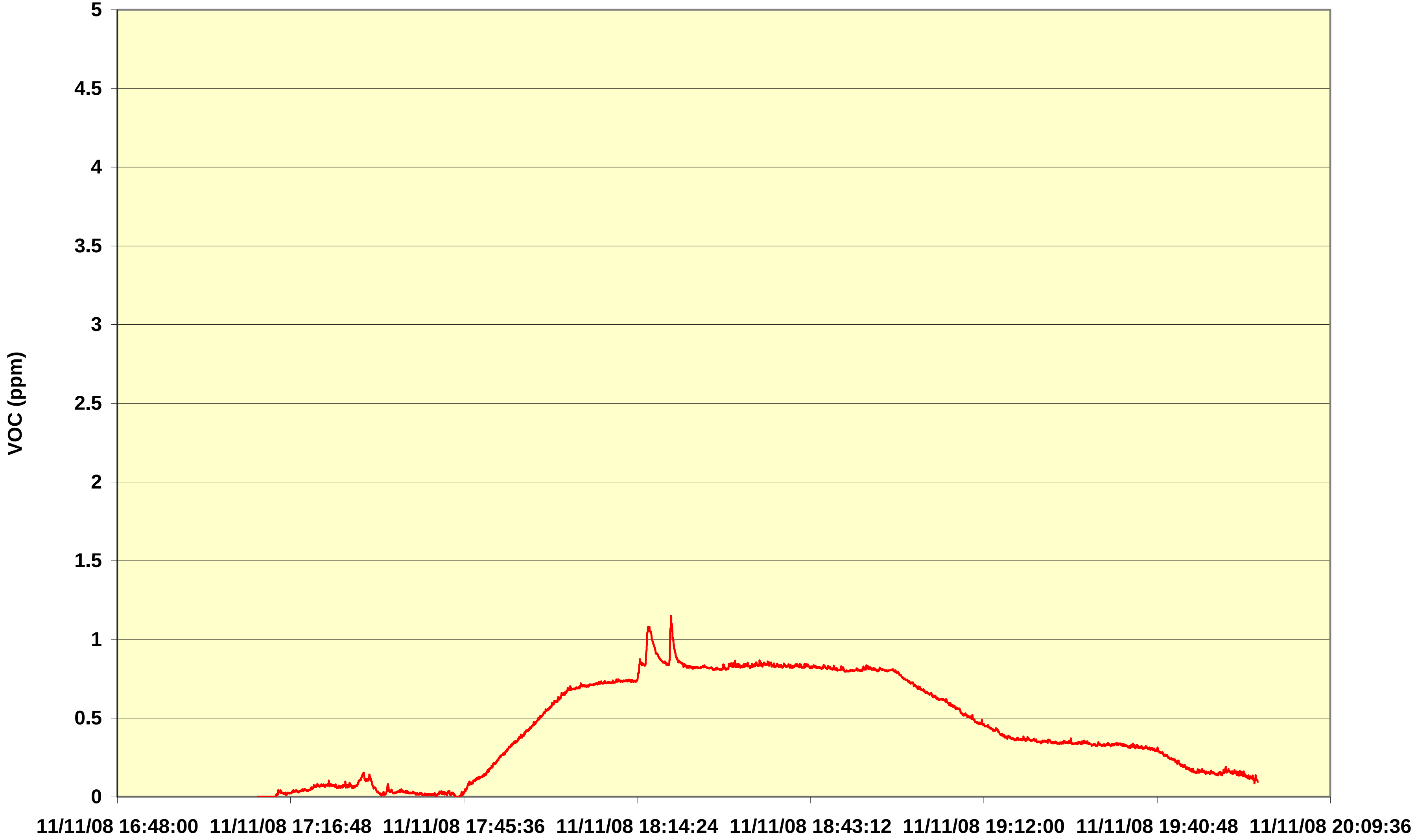


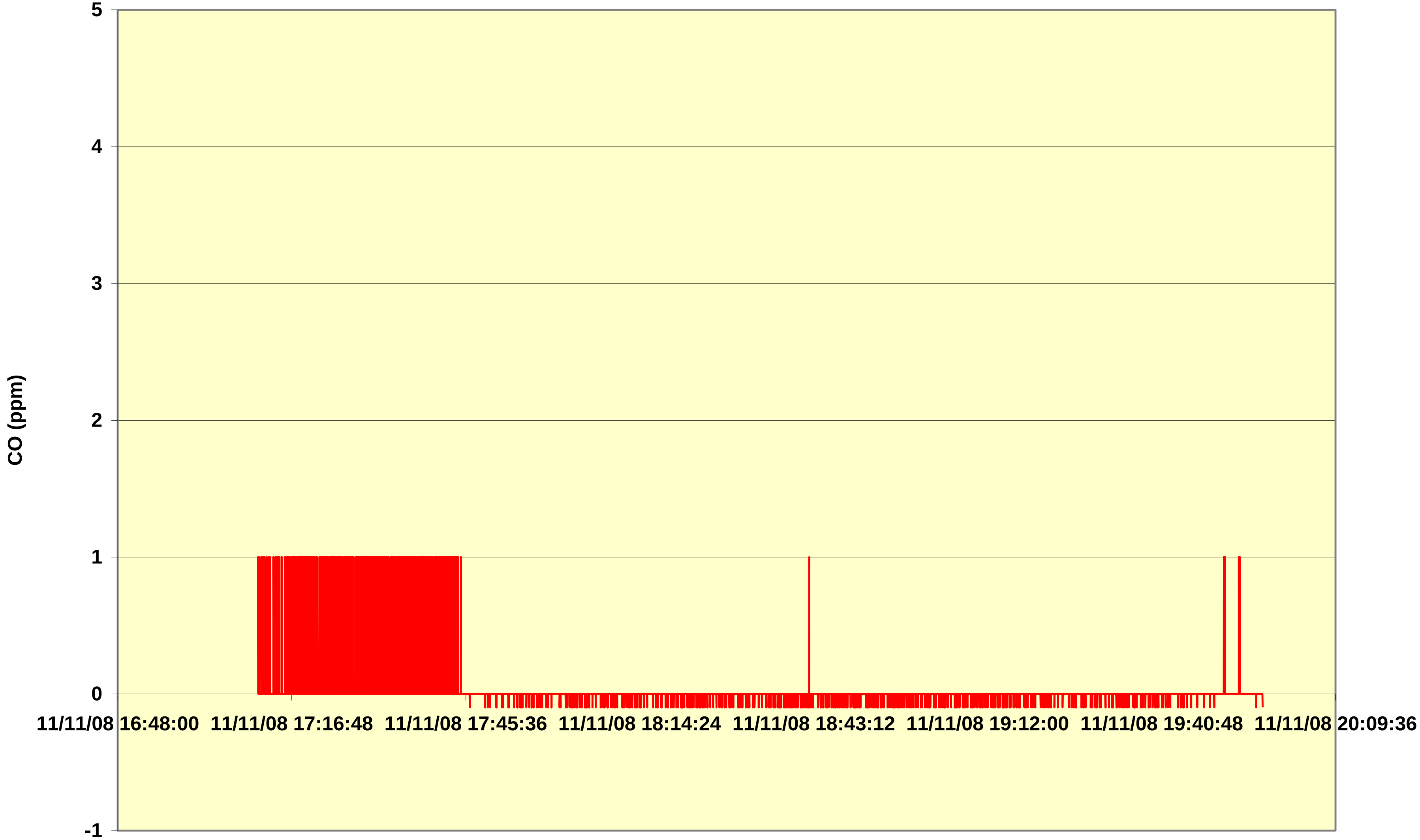
300000
250000
200000
150000
100000
50000
0
Particles/cc
30/10/08 10:04:48
30/10/08 10:33:36
30/10/08 11:02:24
30/10/08 11:31:12
30/10/08 12:00:00
30/10/08 12:28:48
30/10/08 12:57:36
30/10/08 13:26:24
30/10/08 13:55:12

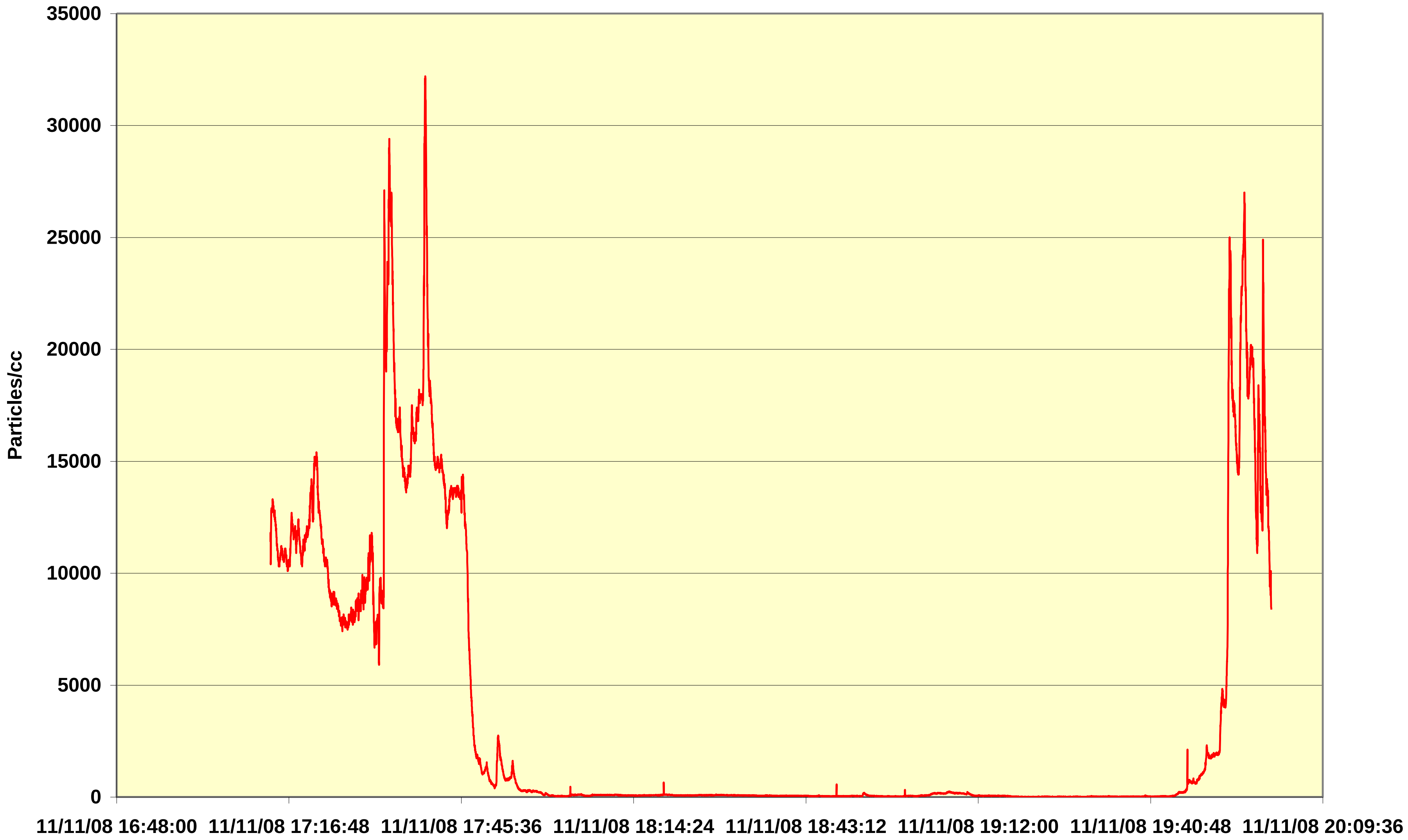

5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
11/11/08 13:55:12
11/11/08 14:24:00
11/11/08 14:52:48
11/11/08 15:21:36
11/11/08 15:50:24
11/11/08 16:19:12
11/11/08 16:48:00


5
4
3
2
1
0
-1
CO (ppm)
11/11/08 13:55:12
11/11/08 14:24:00
11/11/08 14:52:48
11/11/08 15:21:36
11/11/08 15:50:24
11/11/08 16:19:12
11/11/08 16:48:00


Particles/cc
140000
120000
100000
80000
60000
40000
20000
0
11/11/08 13:55:12
11/11/08 14:24:00
11/11/08 14:52:48
11/11/08 15:21:36
11/11/08 15:50:24
11/11/08 16:19:12
11/11/08 16:48:00


VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
11/11/08 16:48:00
11/11/08 17:16:48
11/11/08 17:45:36
11/11/08 18:14:24
11/11/08 18:43:12
11/11/08 19:12:00
11/11/08 19:40:48
11/11/08 20:09:36

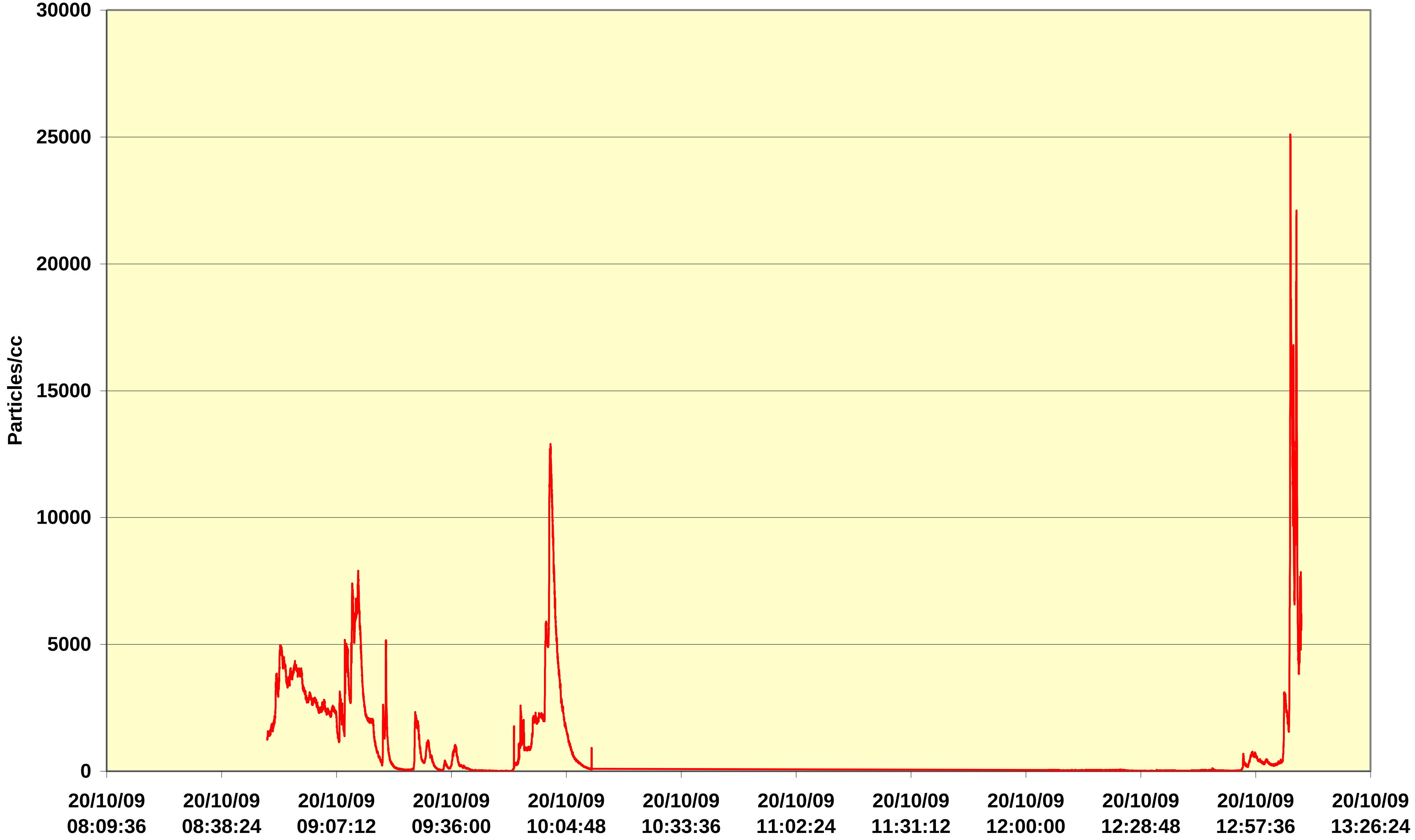

CO (ppm)
5
4
3
2
1
0
-1
11/11/08 16:48:00
11/11/08 17:16:48
11/11/08 17:45:36
11/11/08 18:14:24
11/11/08 18:43:12
11/11/08 19:12:00
11/11/08 19:40:48
11/11/08 20:09:36



Particles/cc
35000
30000
25000
20000
15000
10000
5000
0
11/11/08 16:48:00
11/11/08 17:16:48
11/11/08 17:45:36
11/11/08 18:14:24
11/11/08 18:43:12
11/11/08 19:12:00
11/11/08 19:40:48
11/11/08 20:09:36

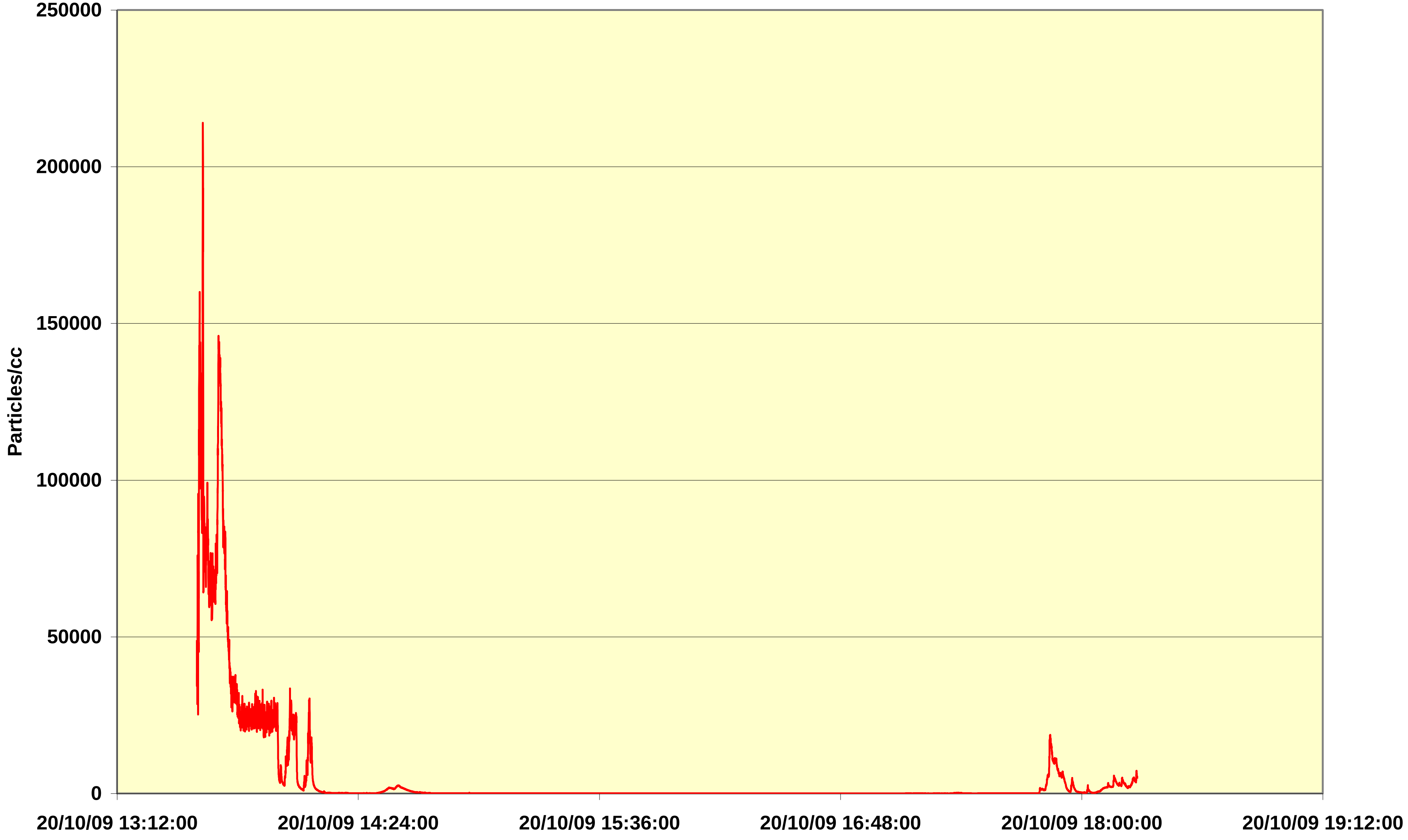
Part 3 Sector 1

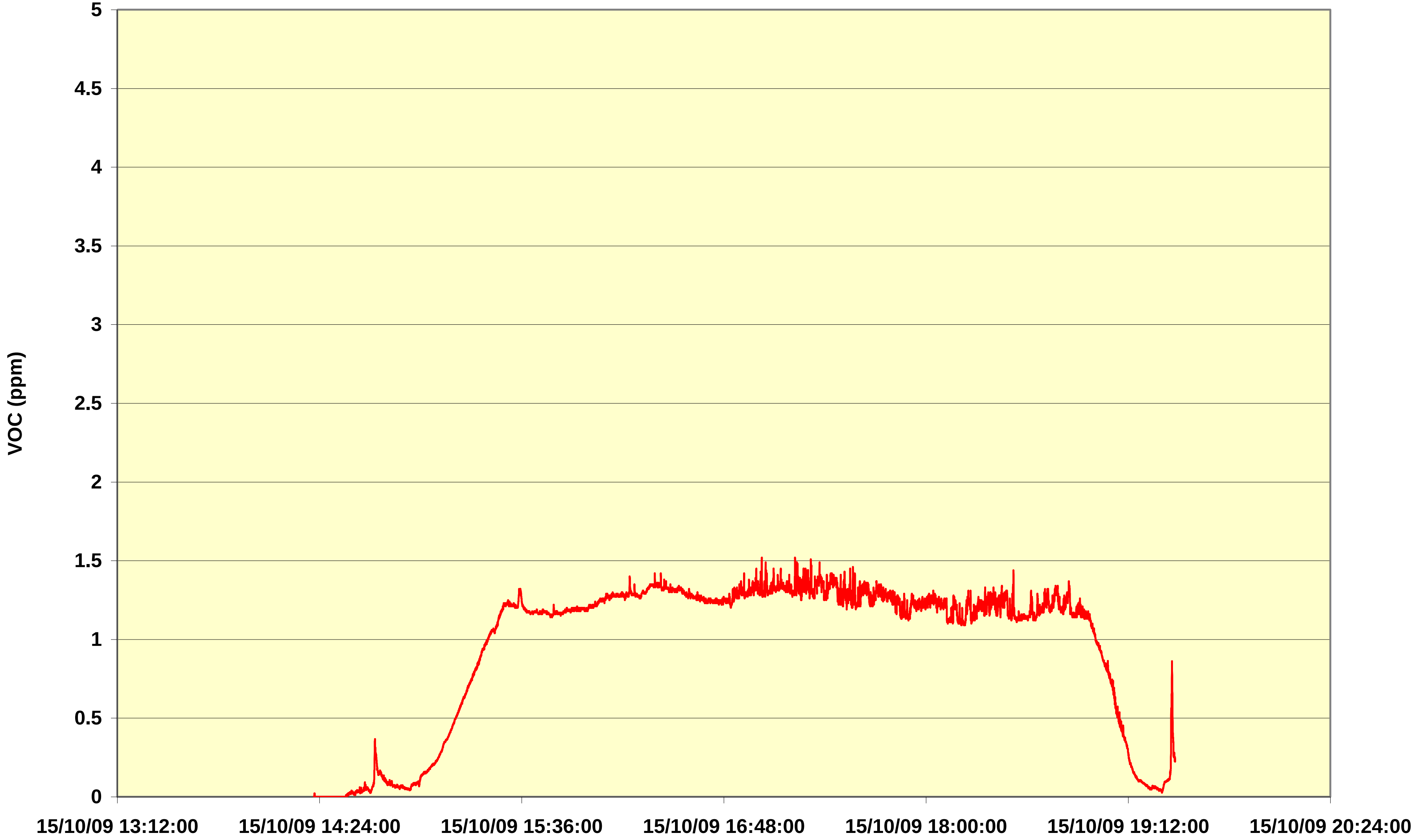
VOC & CO no data recorded – instrument failure. [2]

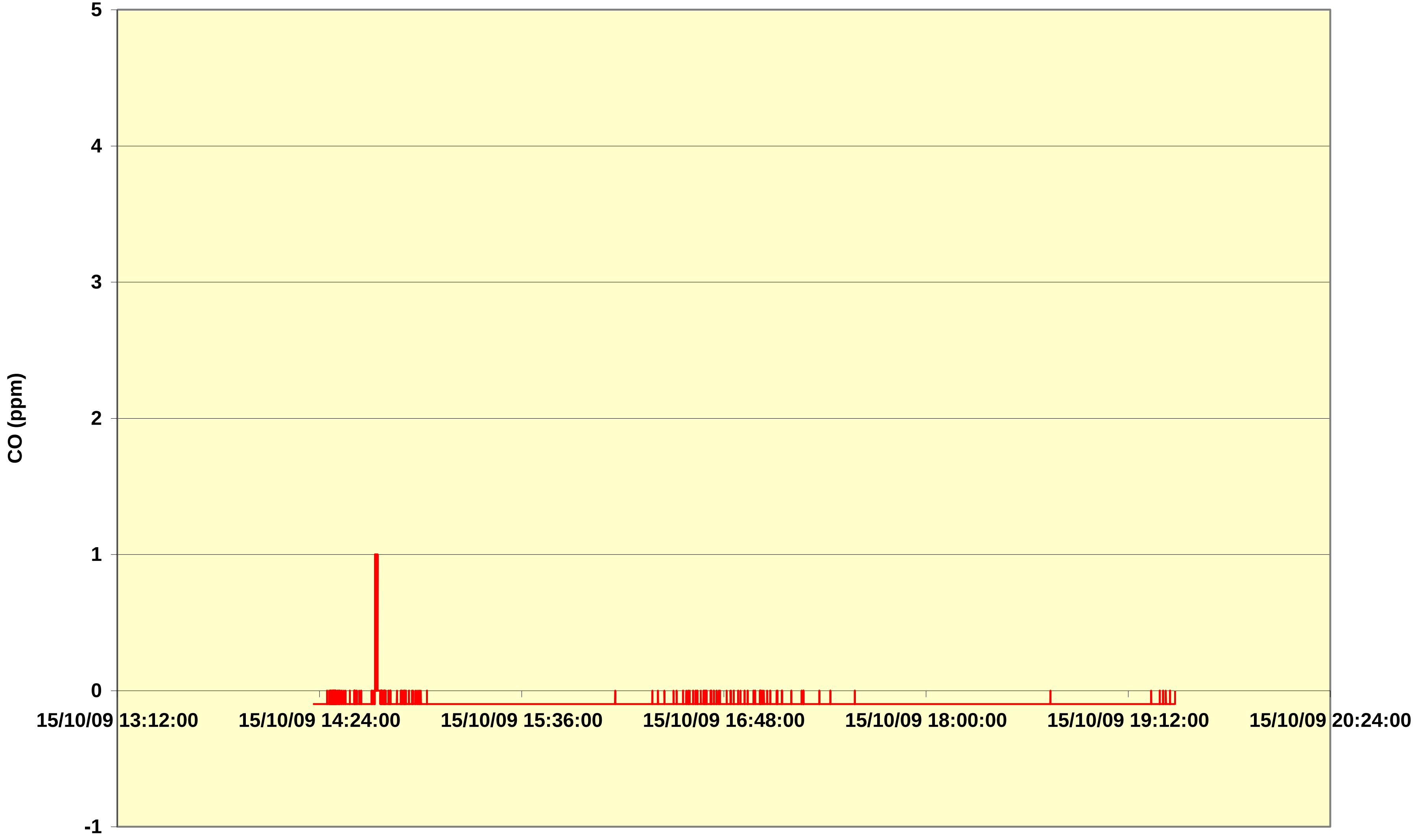

30000
25000
20000
15000
10000
5000
0
Particles/cc
20/10/09 08:09:36
20/10/09 08:38:24
20/10/09 09:07:12
20/10/09 09:36:00
20/10/09 10:04:48
20/10/09 10:33:36
20/10/09 11:02:24
20/10/09 11:31:12
20/10/09 12:00:00
20/10/09 12:28:48
20/10/09 12:57:36
20/10/09 13:26:24

Part 3 Sector 2

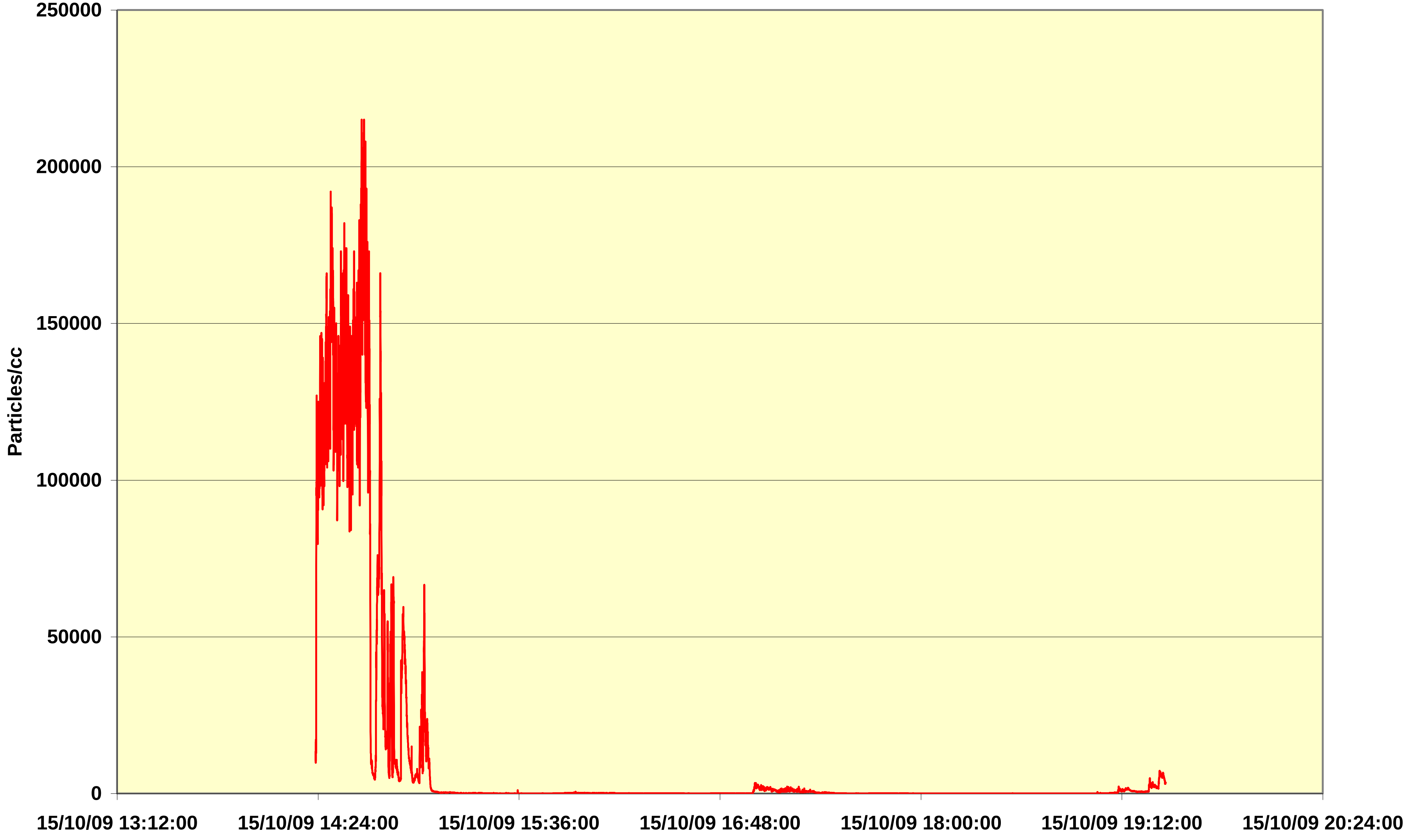
VOC & CO no data recorded – instrument failure. [2]


250000
200000
150000
100000
50000
0
Particles/cc
20/10/09 13:12:00
20/10/09 14:24:00
20/10/09 15:36:00
20/10/09 16:48:00
20/10/09 18:00:00
20/10/09 19:12:00


5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
15/10/09 13:12:00
15/10/09 14:24:00
15/10/09 15:36:00
15/10/09 16:48:00
15/10/09 18:00:00
15/10/09 19:12:00
15/10/09 20:24:00



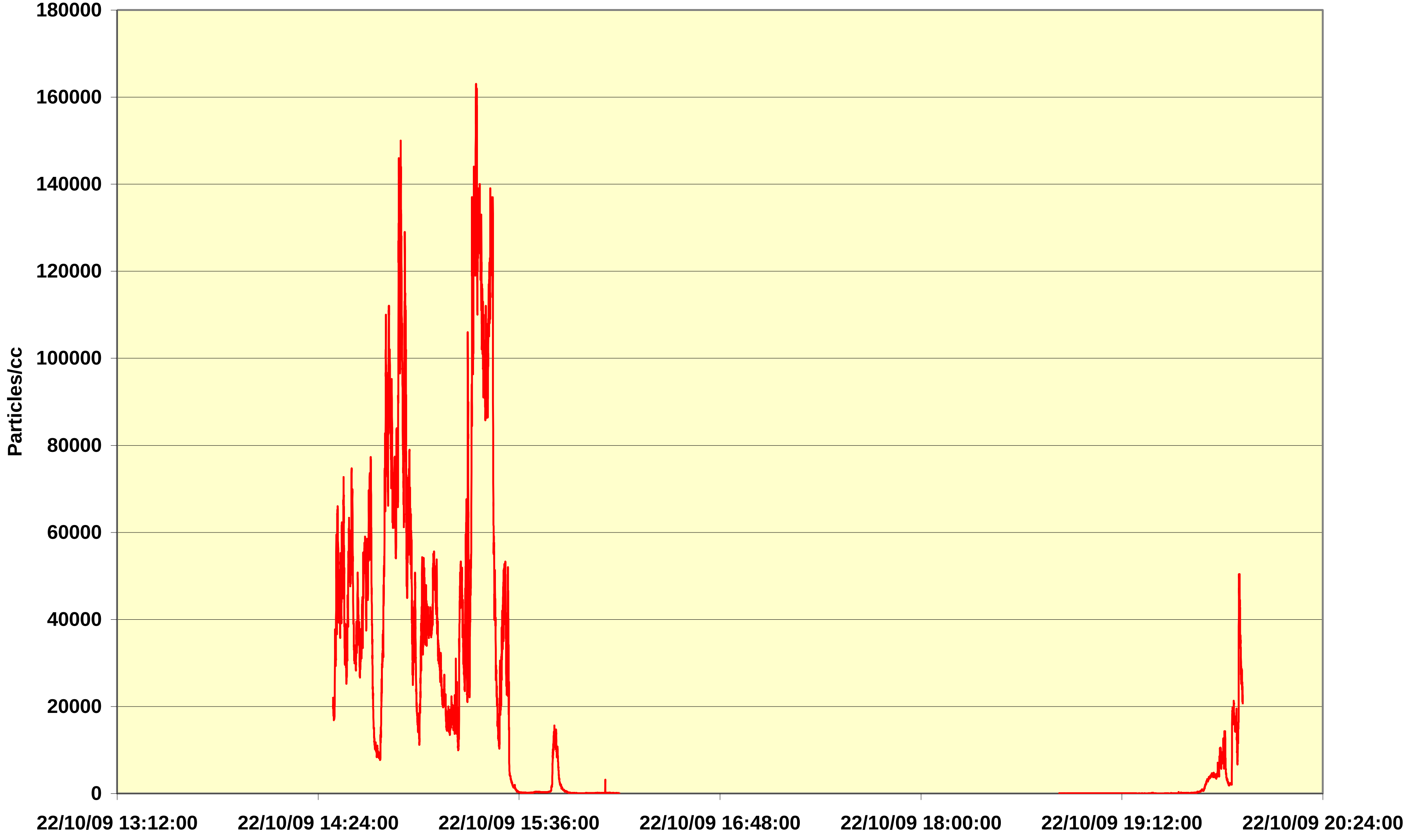
CO (ppm)
5
4
3
2
1
0
-1
15/10/09 13:12:00
15/10/09 14:24:00
15/10/09 15:36:00
15/10/09 16:48:00
15/10/09 18:00:00
15/10/09 19:12:00
15/10/09 20:24:00

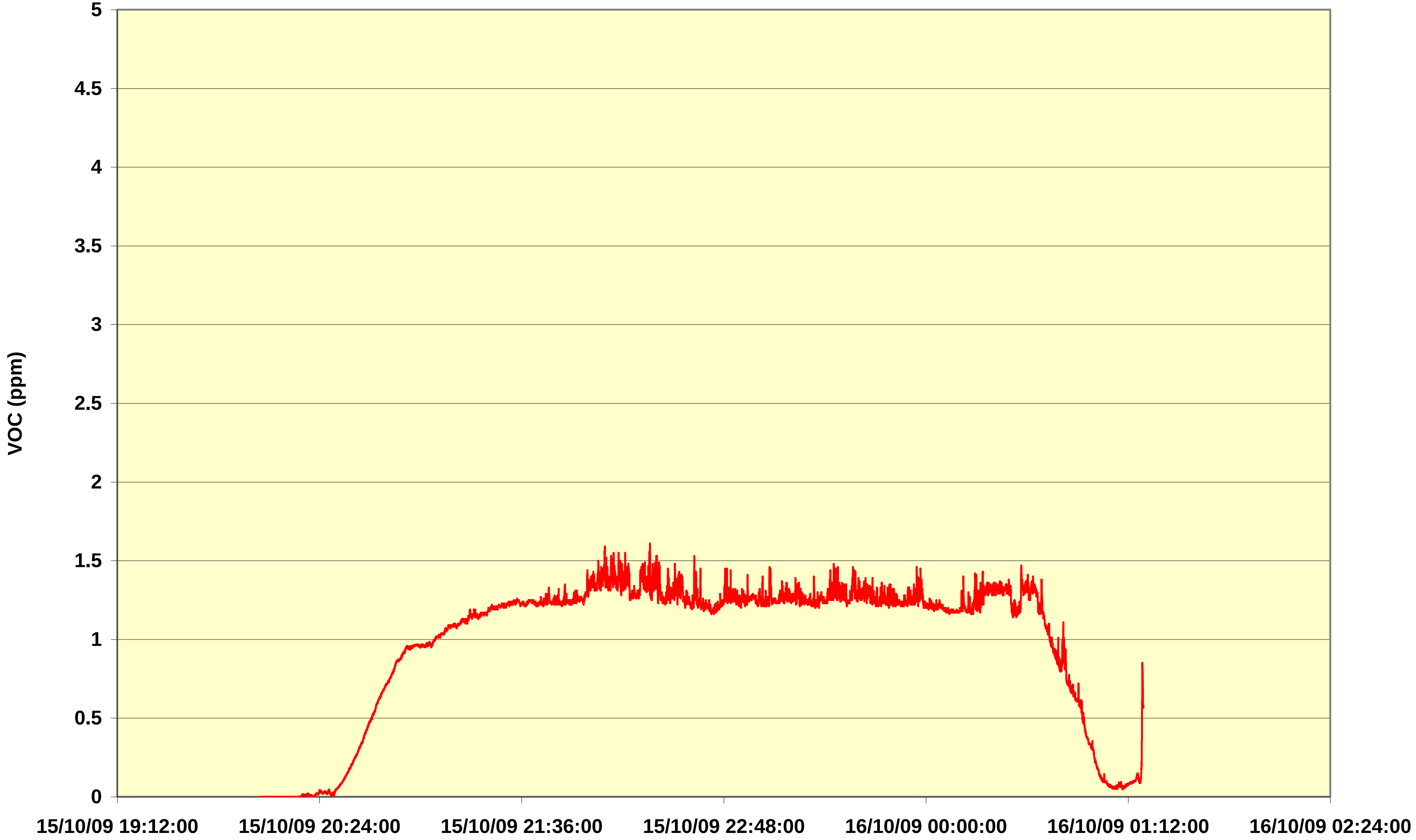


Particles/cc
250000
200000
150000
100000
50000
0
15/10/09 13:12:00
15/10/09 14:24:00
15/10/09 15:36:00
15/10/09 16:48:00
15/10/09 18:00:00
15/10/09 19:12:00
15/10/09 20:24:00

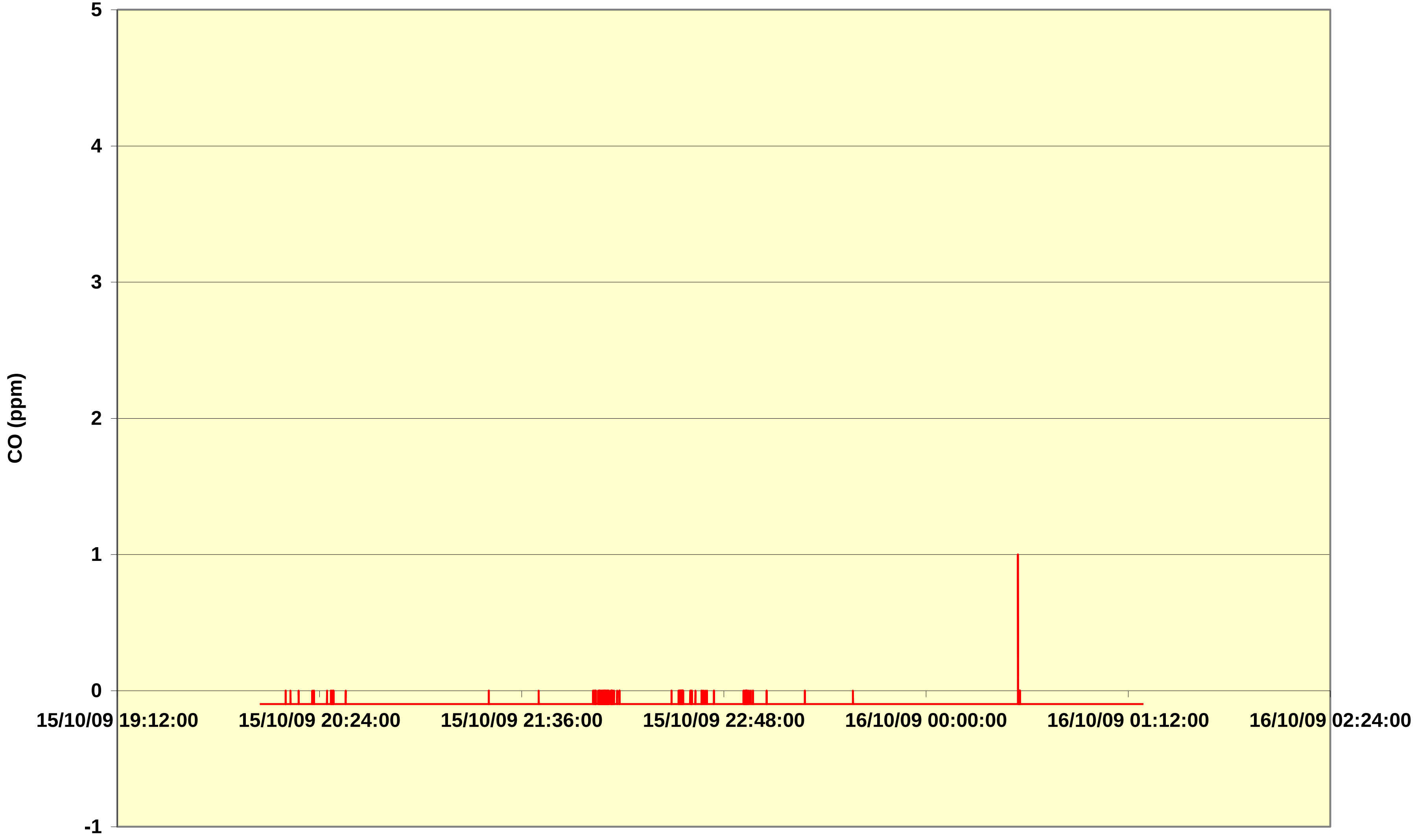
Part 3 Sector 4

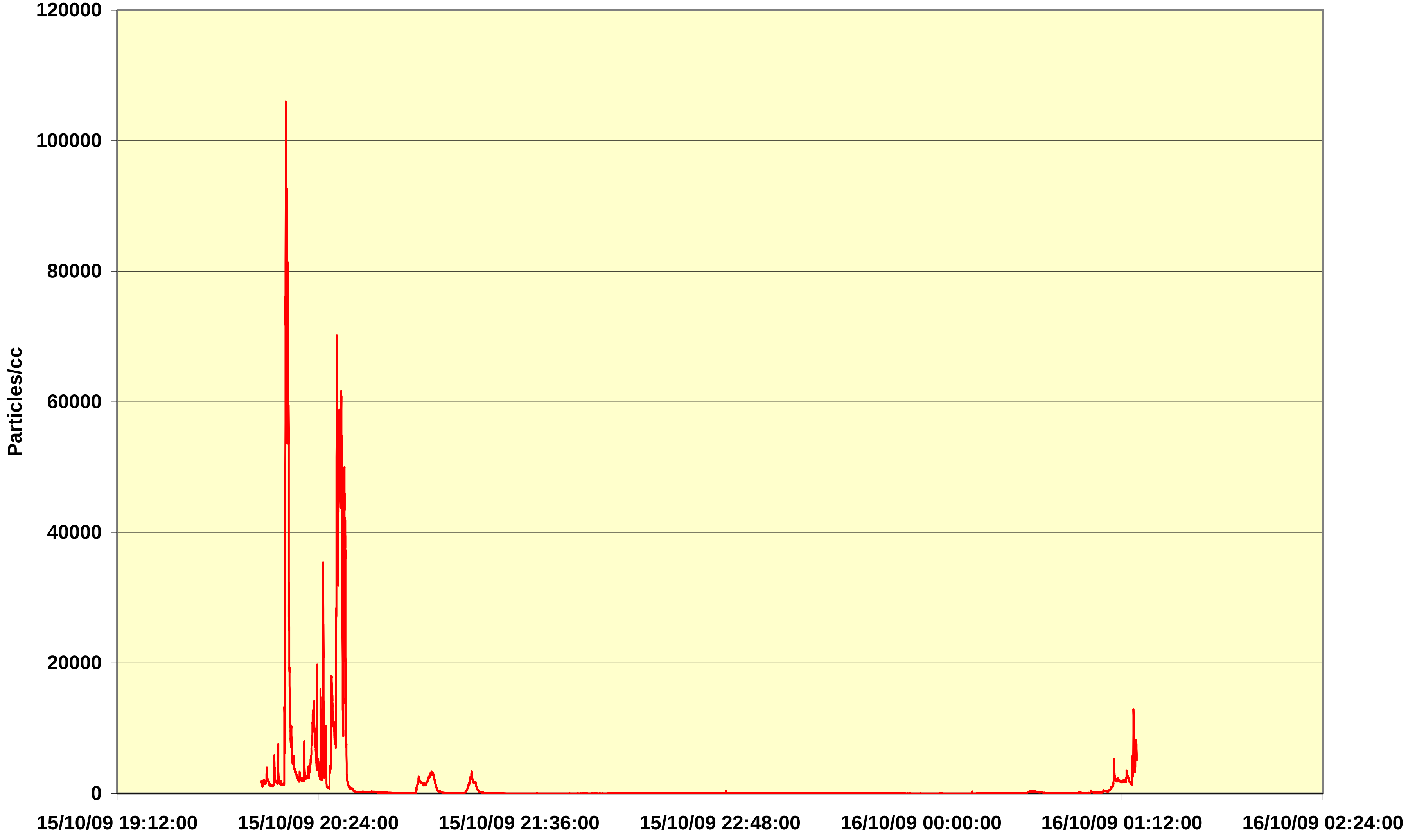
VOC and CO no data recorded – instrument failure. [2]
PID and P-Trak switched off during cruise.[4]


180000
160000
140000
120000
100000
80000
60000
40000
20000
0
Particles/cc
22/10/09 13:12:00
22/10/09 14:24:00
22/10/09 15:36:00
22/10/09 16:48:00
22/10/09 18:00:00
22/10/09 19:12:00
22/10/09 20:24:00



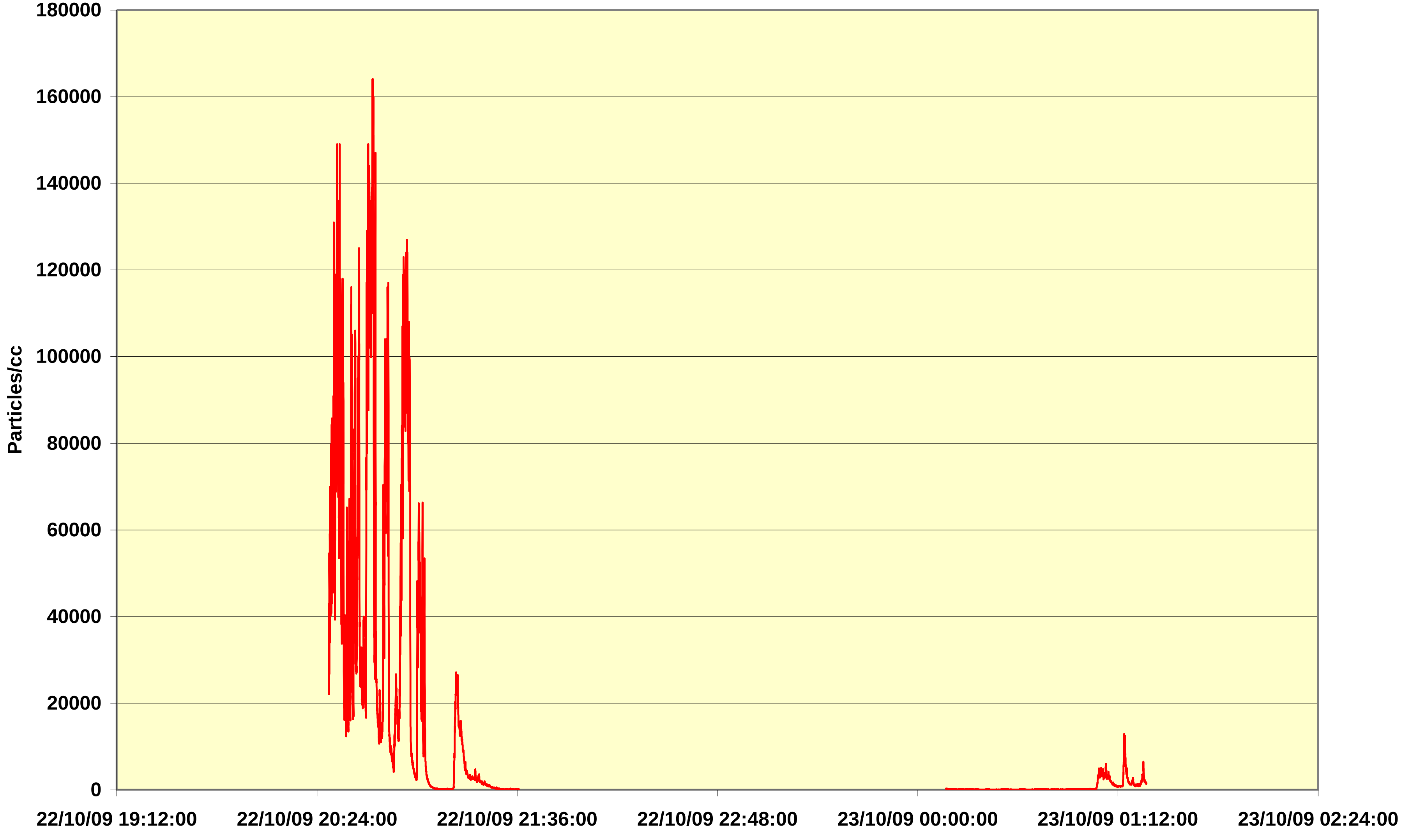
VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
15/10/09 19:12:00
15/10/09 20:24:00
15/10/09 21:36:00
15/10/09 22:48:00
16/10/09 00:00:00
16/10/09 01:12:00
16/10/09 02:24:00

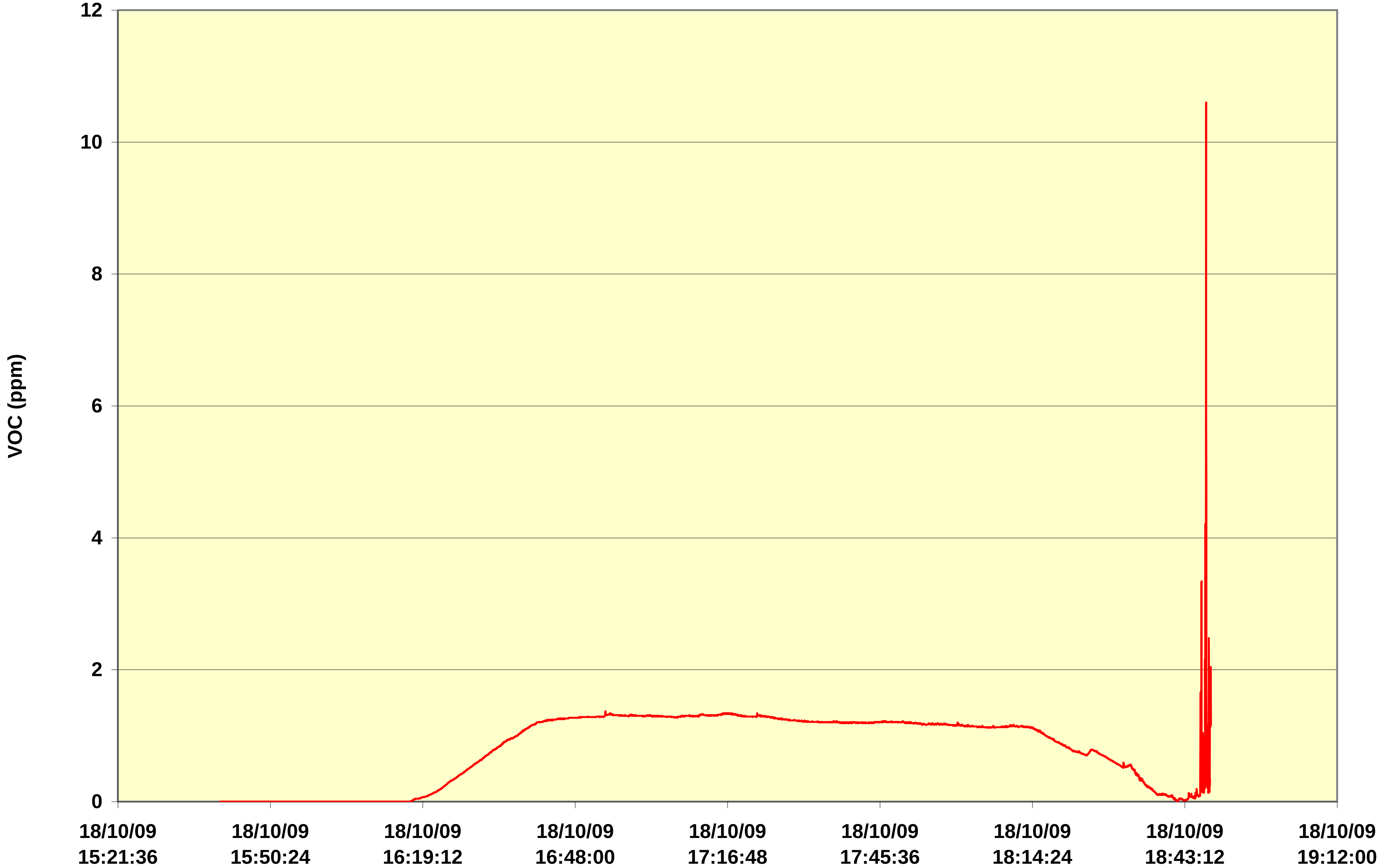

5
4
3
2
1
0
-1
CO (ppm)
15/10/09 19:12:00
15/10/09 20:24:00
15/10/09 21:36:00
15/10/09 22:48:00
16/10/09 00:00:00
16/10/09 01:12:00
16/10/09 02:24:00

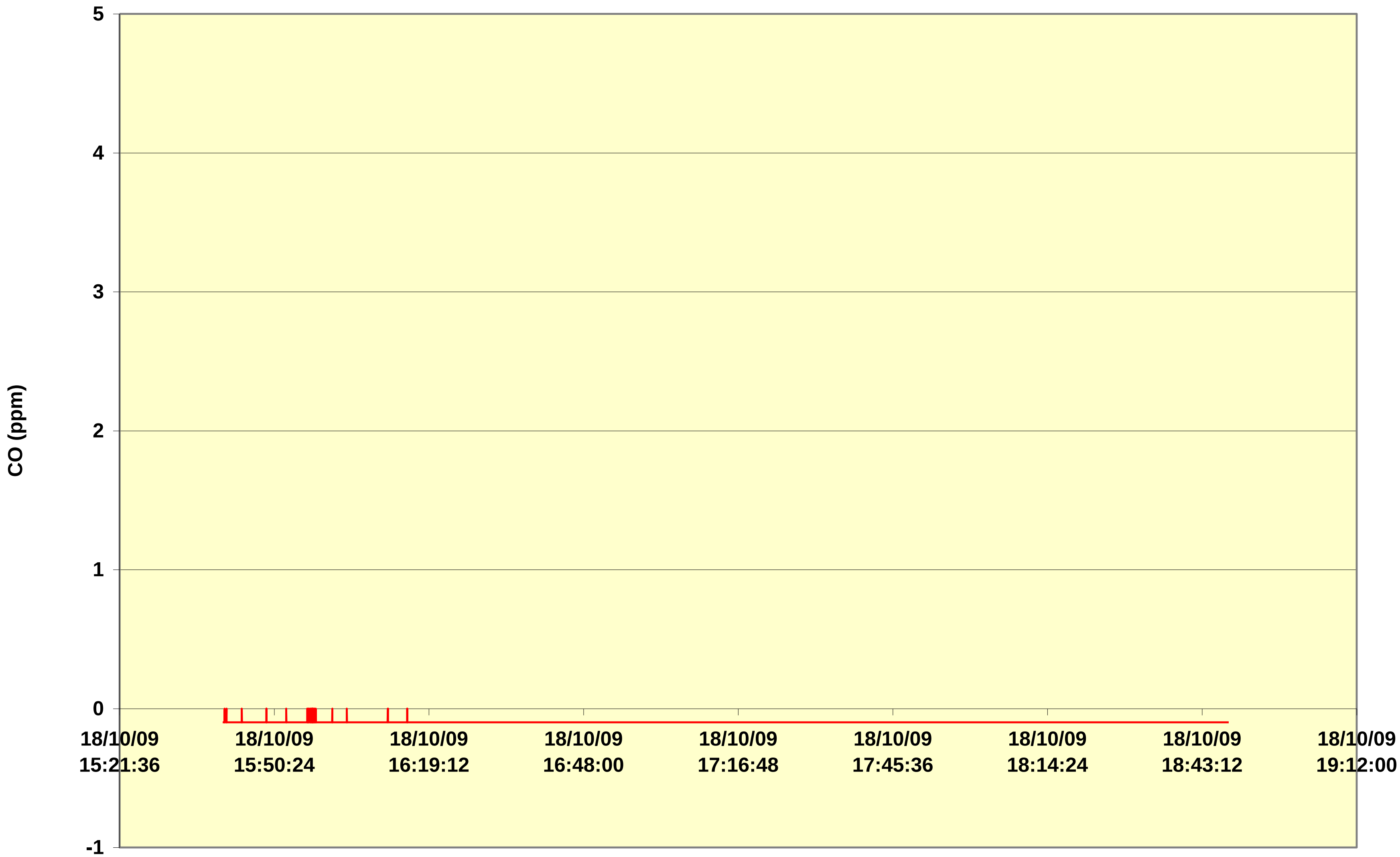

Particles/cc
120000
100000
80000
60000
40000
20000
0
15/10/09 19:12:00
15/10/09 20:24:00
15/10/09 21:36:00
15/10/09 22:48:00
16/10/09 00:00:00
16/10/09 01:12:00
16/10/09 02:24:00

Part 3 Sector 6

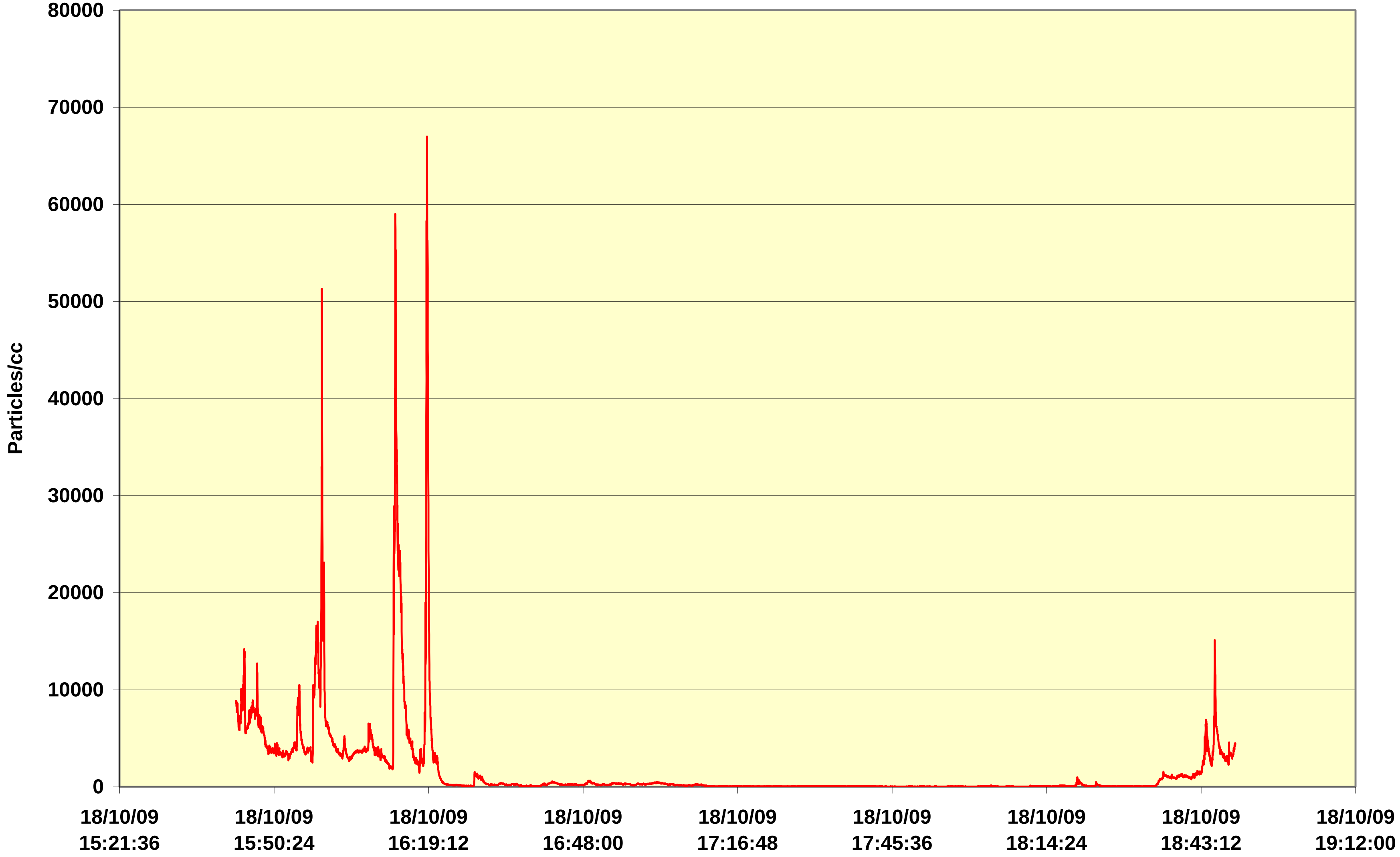
VOC and CO no data recorded – instrument failure. [2]
PID and P-Trak switched off during cruise.[4]


Particles/cc
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
22/10/09 19:12:00
22/10/09 20:24:00
22/10/09 21:36:00
22/10/09 22:48:00
23/10/09 00:00:00
23/10/09 01:12:00
23/10/09 02:24:00


VOC (ppm)
12
10
8
6
4
2
0
18/10/09 15:21:36
18/10/09 15:50:24
18/10/09 16:19:12
18/10/09 16:48:00
18/10/09 17:16:48
18/10/09 17:45:36
18/10/09 18:14:24
18/10/09 18:43:12
18/10/09 19:12:00

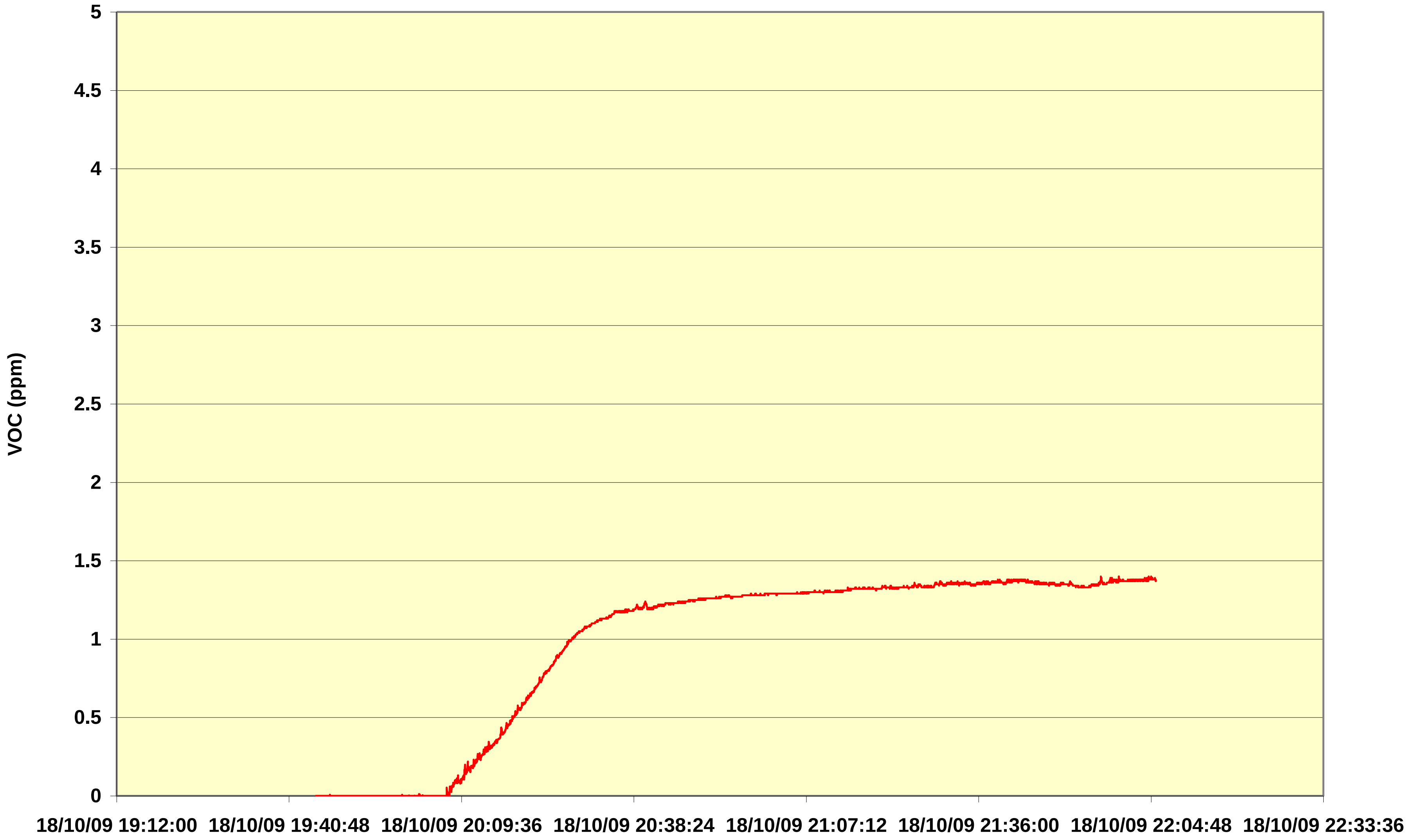


CO (ppm)
5
4
3
2
1
0
-1
18/10/09 15:21:36
18/10/09 15:50:24
18/10/09 16:19:12
18/10/09 16:48:00
18/10/09 17:16:48
18/10/09 17:45:36
18/10/09 18:14:24
18/10/09 18:43:12
18/10/09 19:12:00


80000
70000
60000
50000
40000
30000
20000
10000
0
Particles/cc
18/10/09 15:21:36
18/10/09 15:50:24
18/10/09 16:19:12
18/10/09 16:48:00
18/10/09 17:16:48
18/10/09 17:45:36
18/10/09 18:14:24
18/10/09 18:43:12
18/10/09 19:12:00

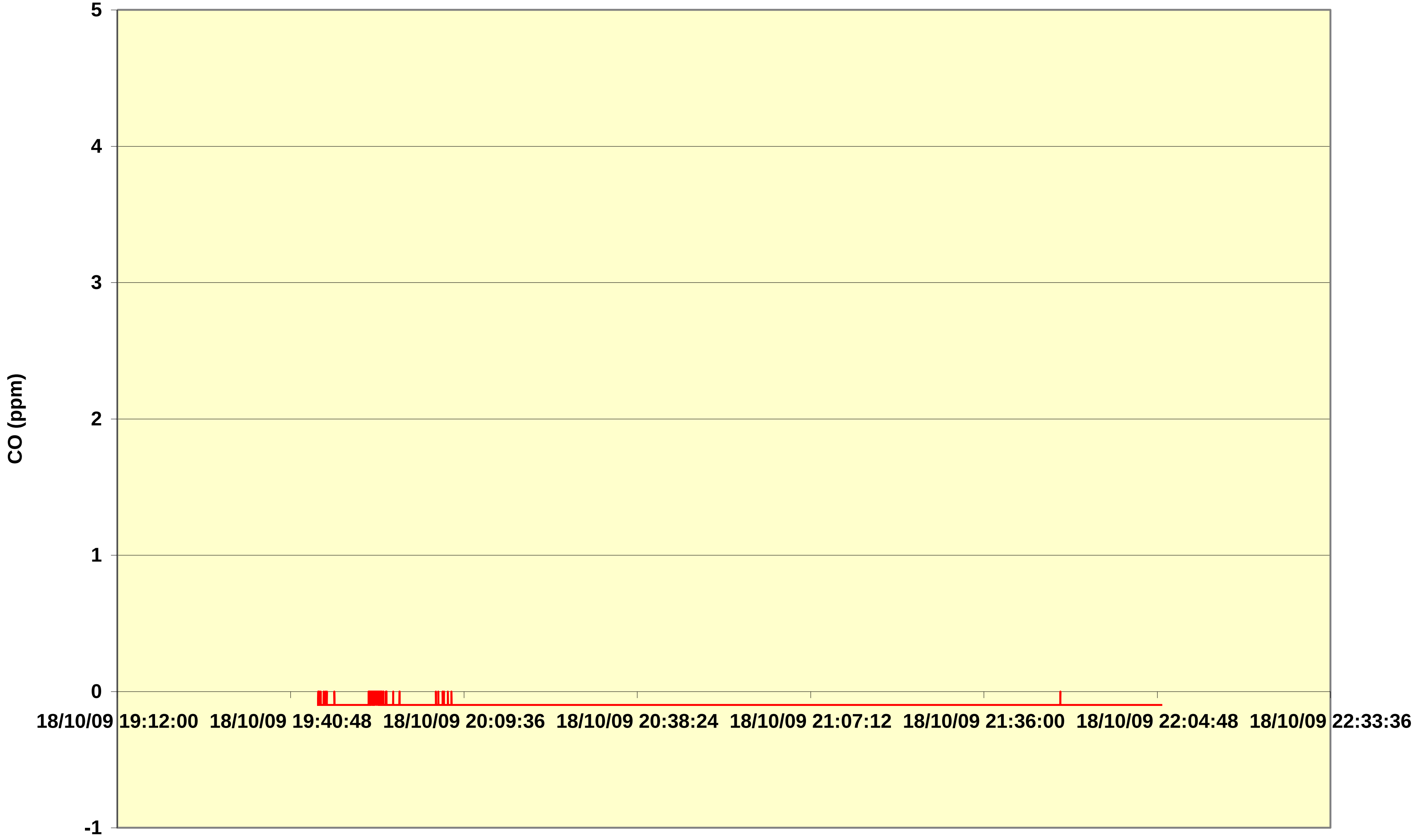
Part 3 Sector 8

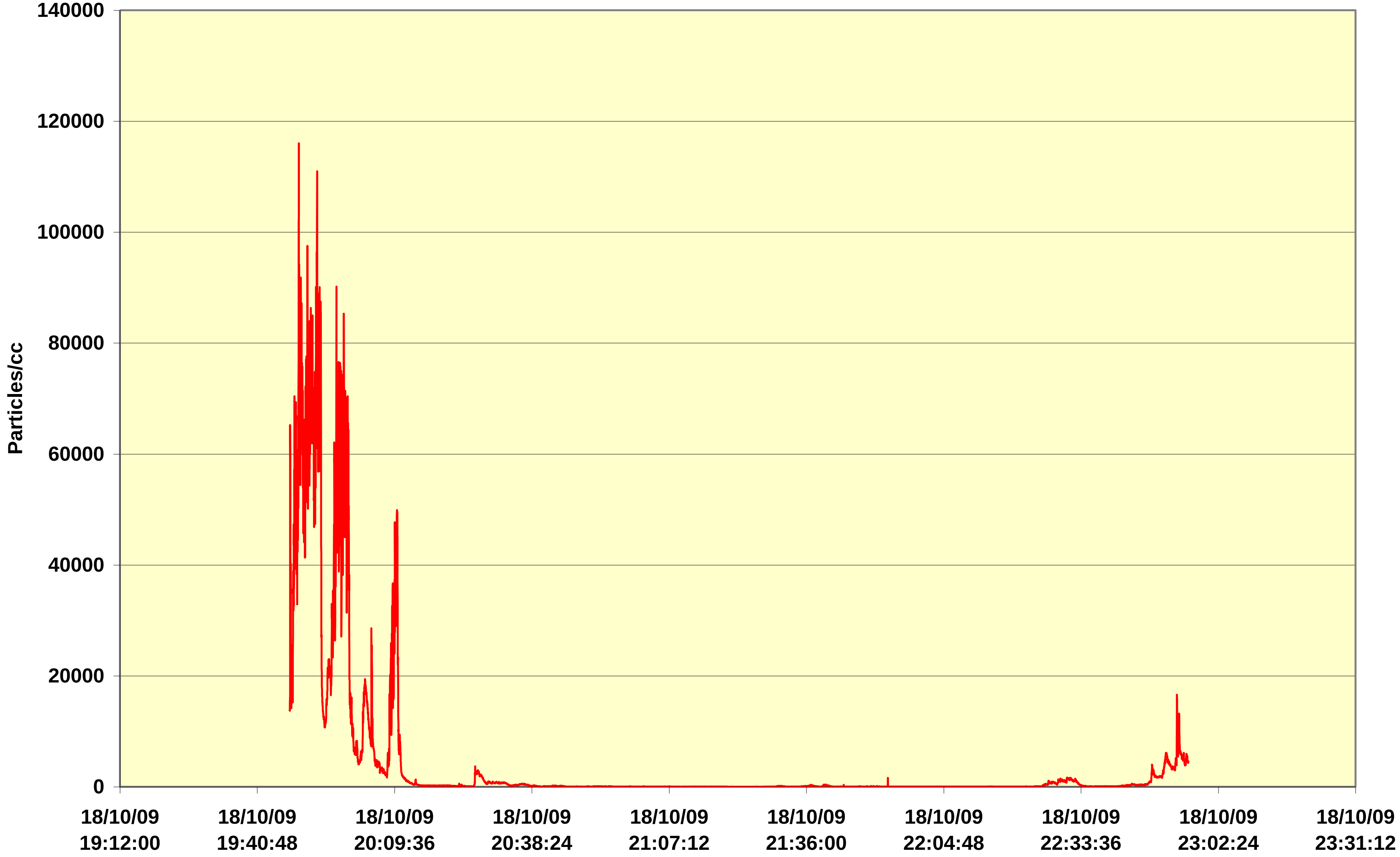
Data from PID stops early due to data logging error. See Endnote 2.



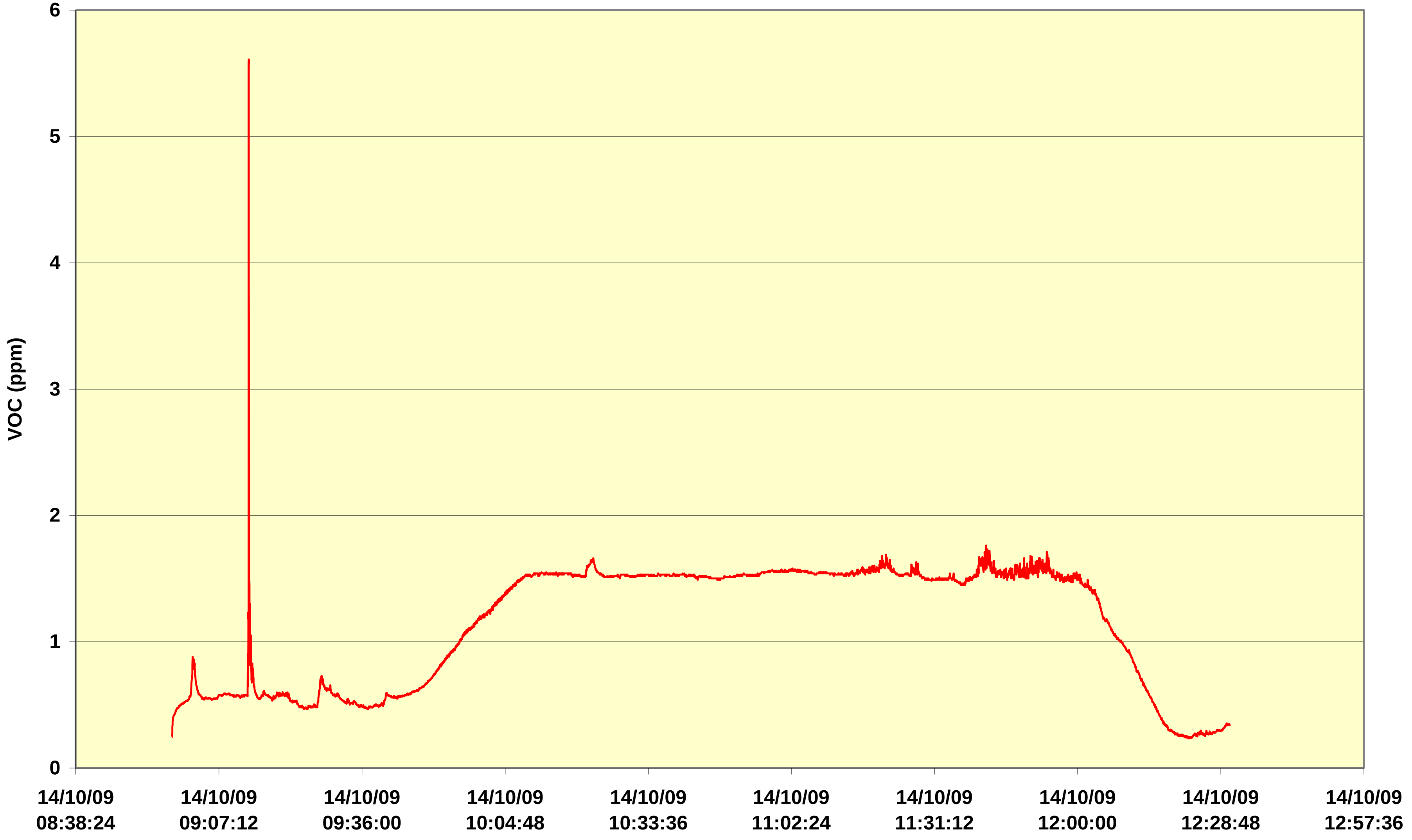
Part 3 Sector 8

Data from PID stops early due to data logging error. See Endnote 2.

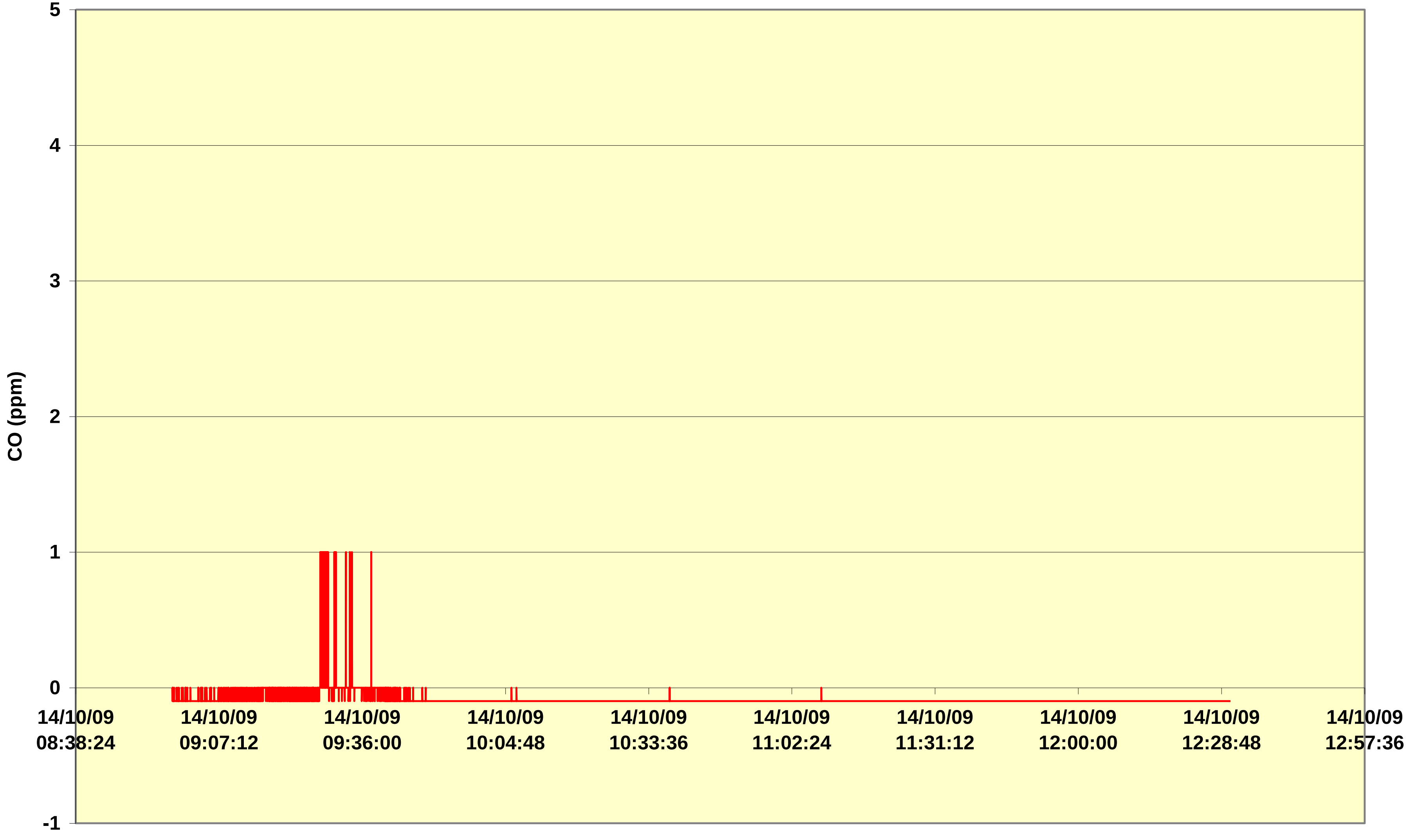




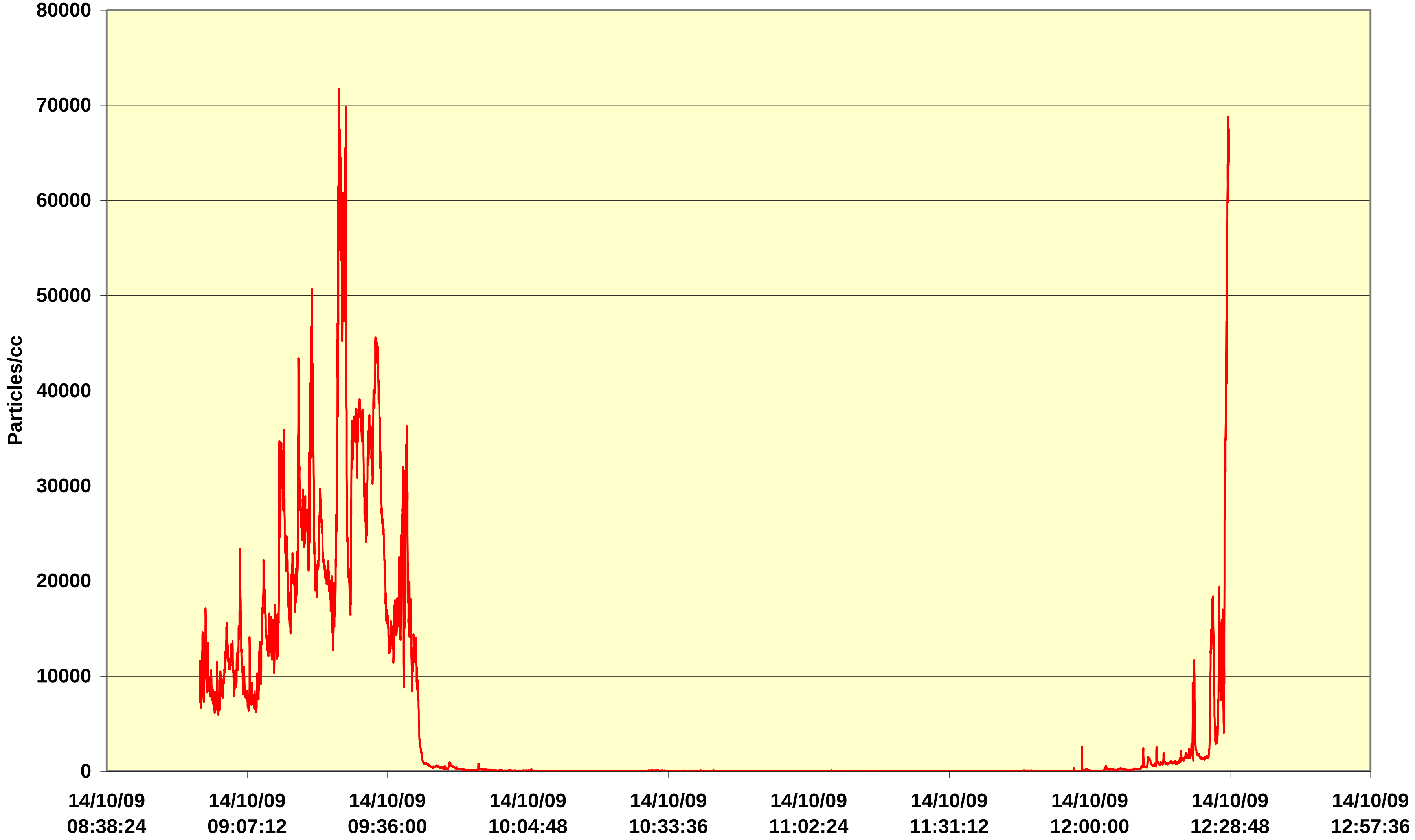
Particles/cc
140000
120000
100000
80000
60000
40000
20000
0
18/10/09 19:12:00
18/10/09 19:40:48
18/10/09 20:09:36
18/10/09 20:38:24
18/10/09 21:07:12
18/10/09 21:36:00
18/10/09 22:04:48
18/10/09 22:33:36
18/10/09 23:02:24
18/10/09 23:31:12



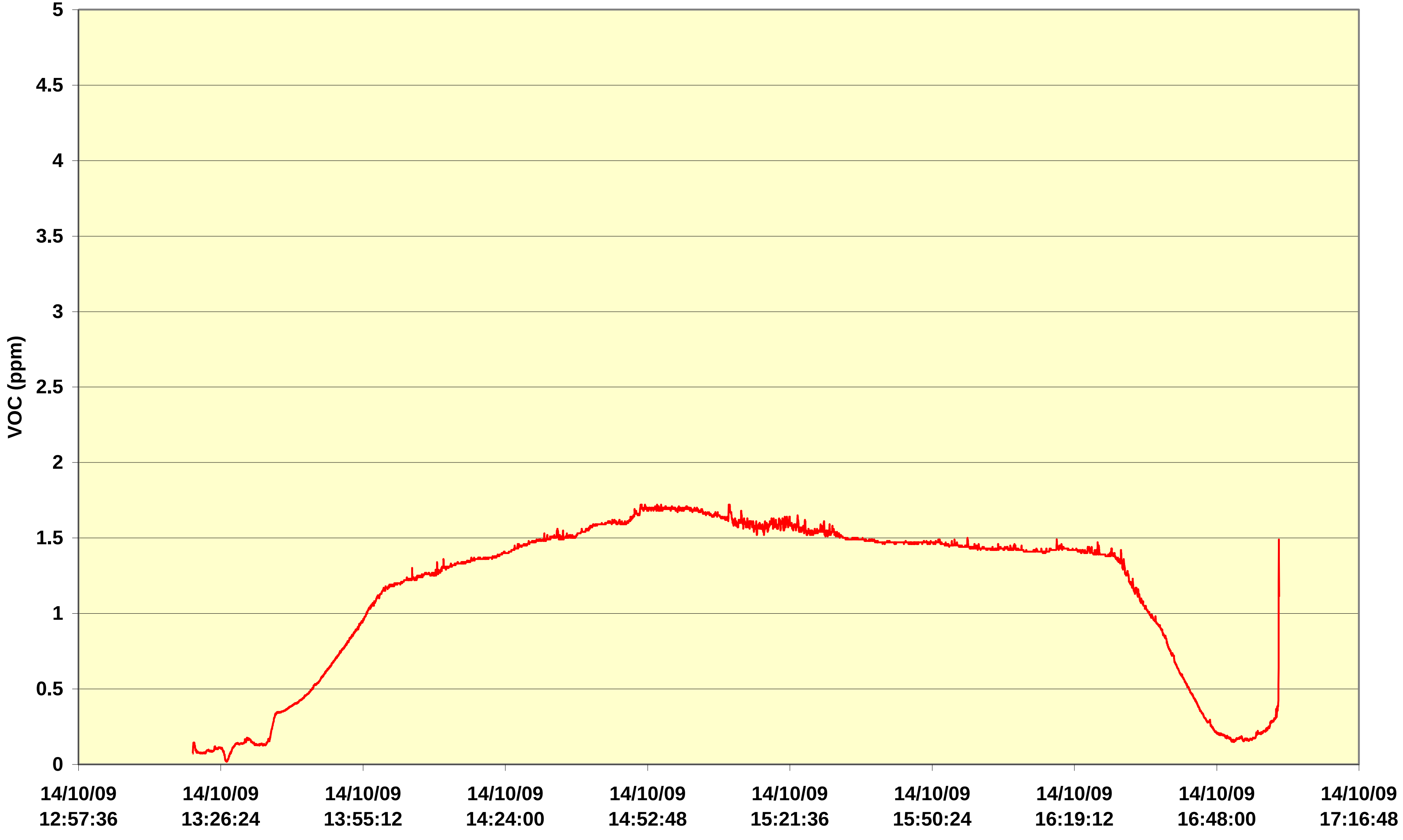
VOC (ppm)
6
5
4
3
2
1
0
14/10/09 08:38:24
14/10/09 09:07:12
14/10/09 09:36:00
14/10/09 10:04:48
14/10/09 10:33:36
14/10/09 11:02:24
14/10/09 11:31:12
14/10/09 12:00:00
14/10/09 12:28:48
14/10/09 12:57:36



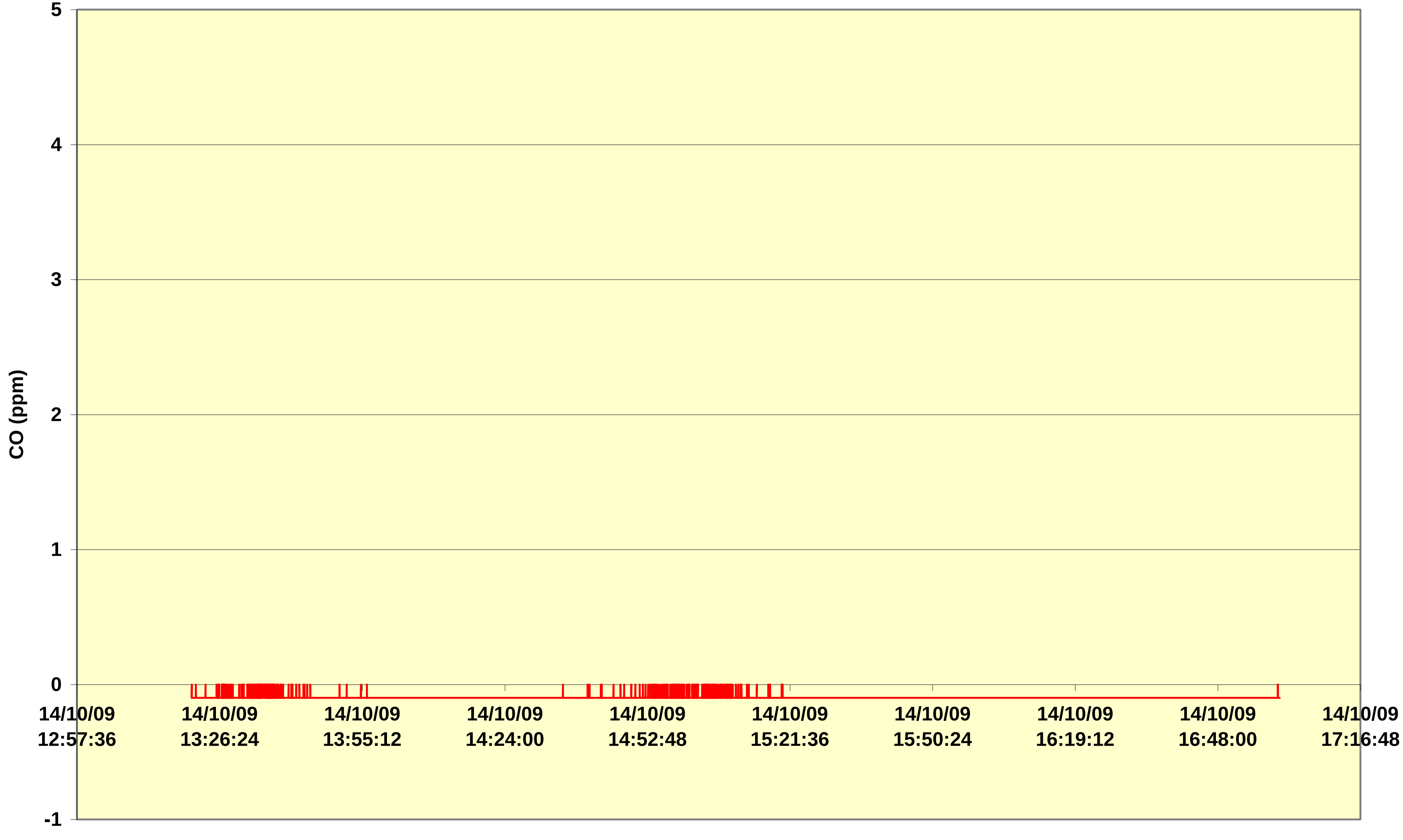
CO (ppm)
5
4
3
2
1
0
-1
14/10/09 08:38:24
14/10/09 09:07:12
14/10/09 09:36:00
14/10/09 10:04:48
14/10/09 10:33:36
14/10/09 11:02:24
14/10/09 11:31:12
14/10/09 12:00:00
14/10/09 12:28:48
14/10/09 12:57:36

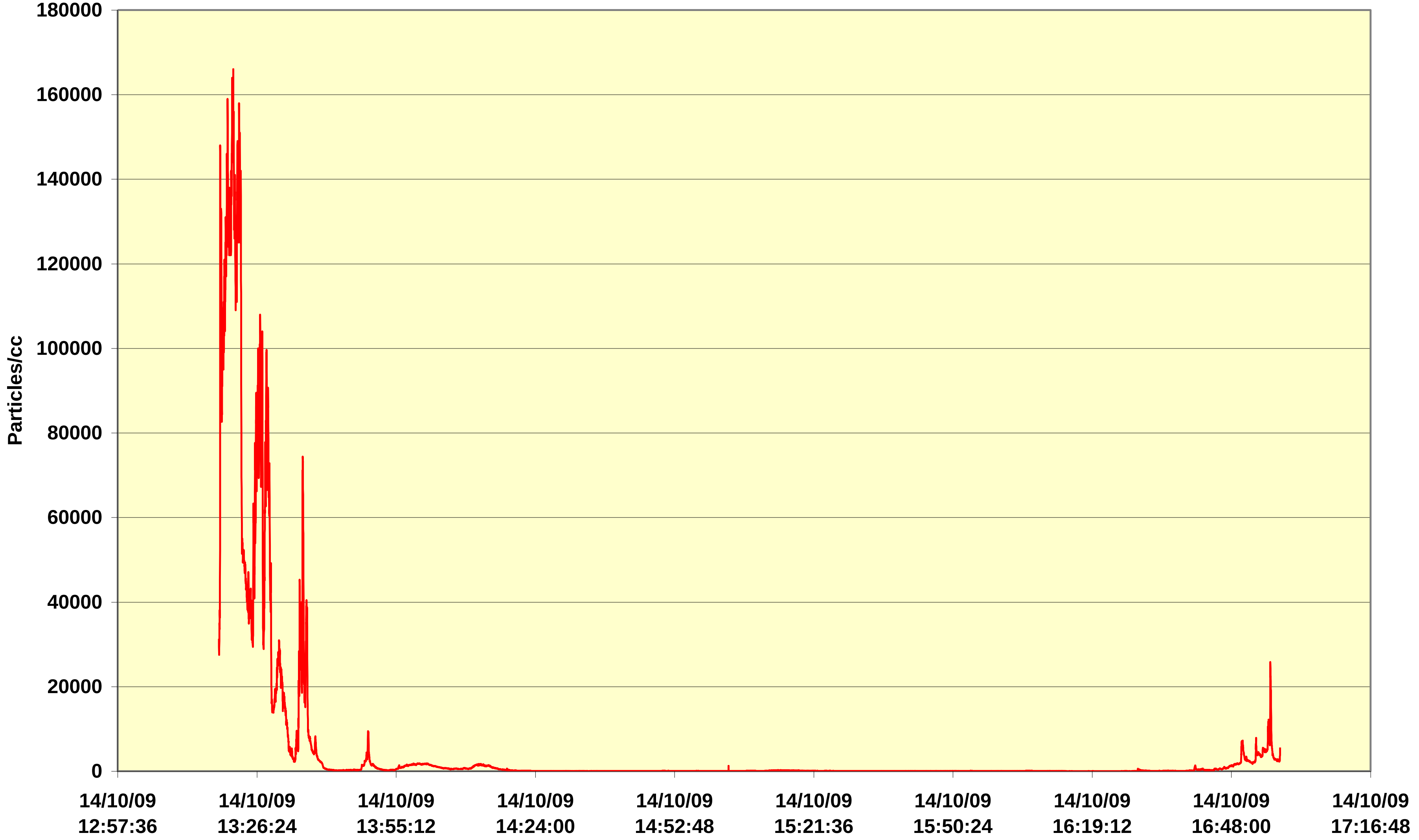


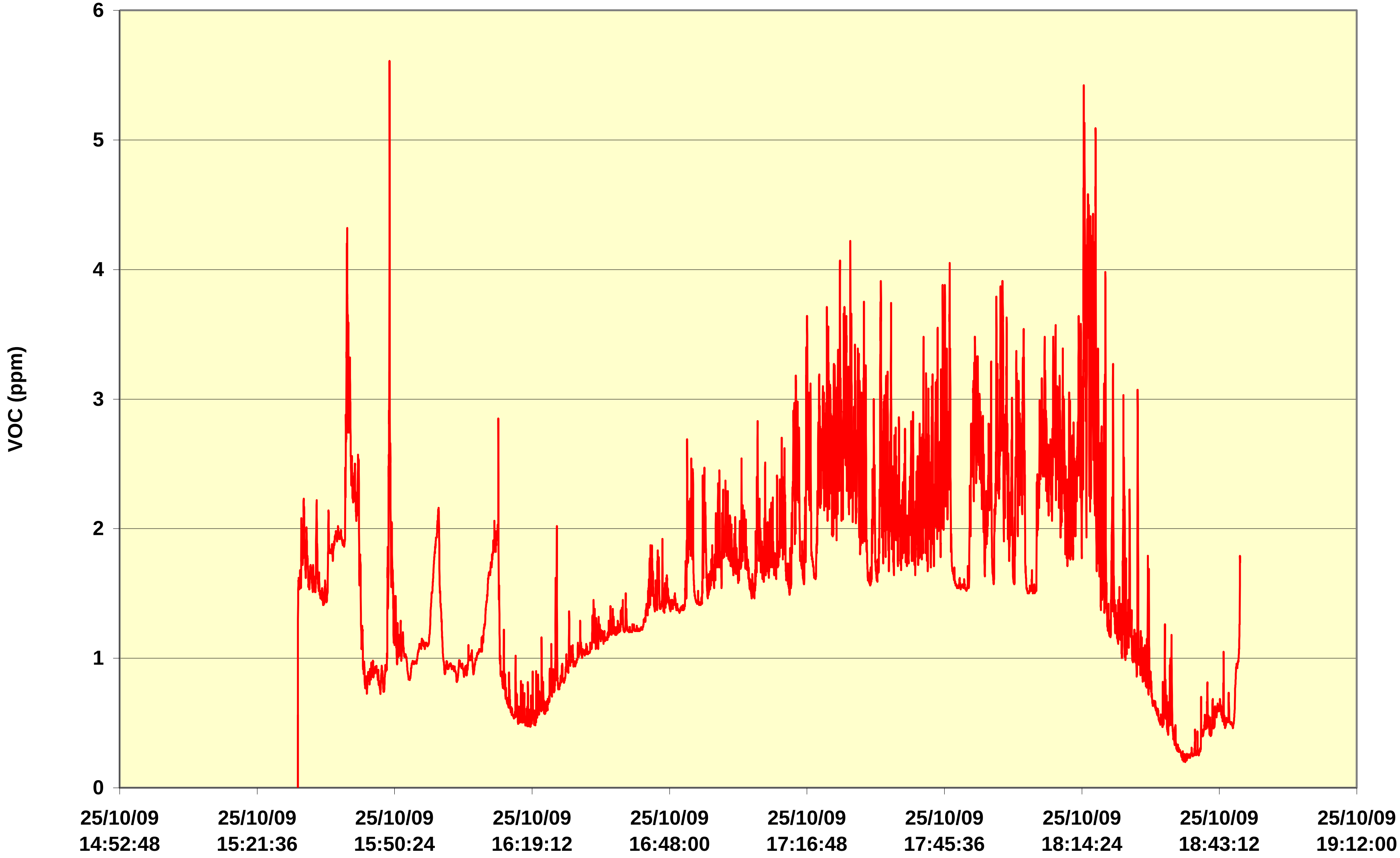
80000
70000
60000
50000
40000
30000
20000
10000
0
Particles/cc
14/10/09 08:38:24
14/10/09 09:07:12
14/10/09 09:36:00
14/10/09 10:04:48
14/10/09 10:33:36
14/10/09 11:02:24
14/10/09 11:31:12
14/10/09 12:00:00
14/10/09 12:28:48
14/10/09 12:57:36



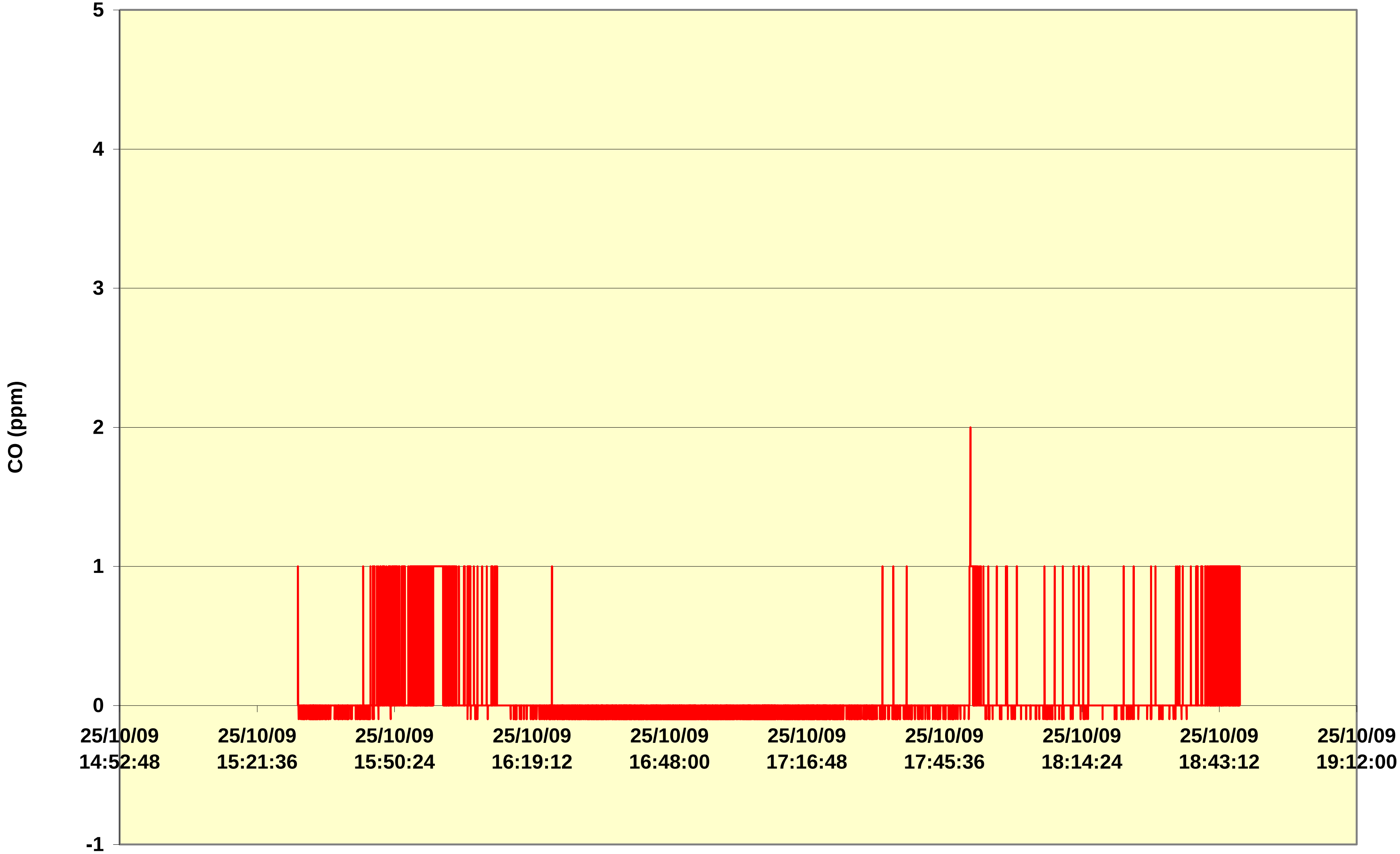
VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
14/10/09 12:57:36
14/10/09 13:26:24
14/10/09 13:55:12
14/10/09 14:24:00
14/10/09 14:52:48
14/10/09 15:21:36
14/10/09 15:50:24
14/10/09 16:19:12
14/10/09 16:48:00
14/10/09 17:16:48

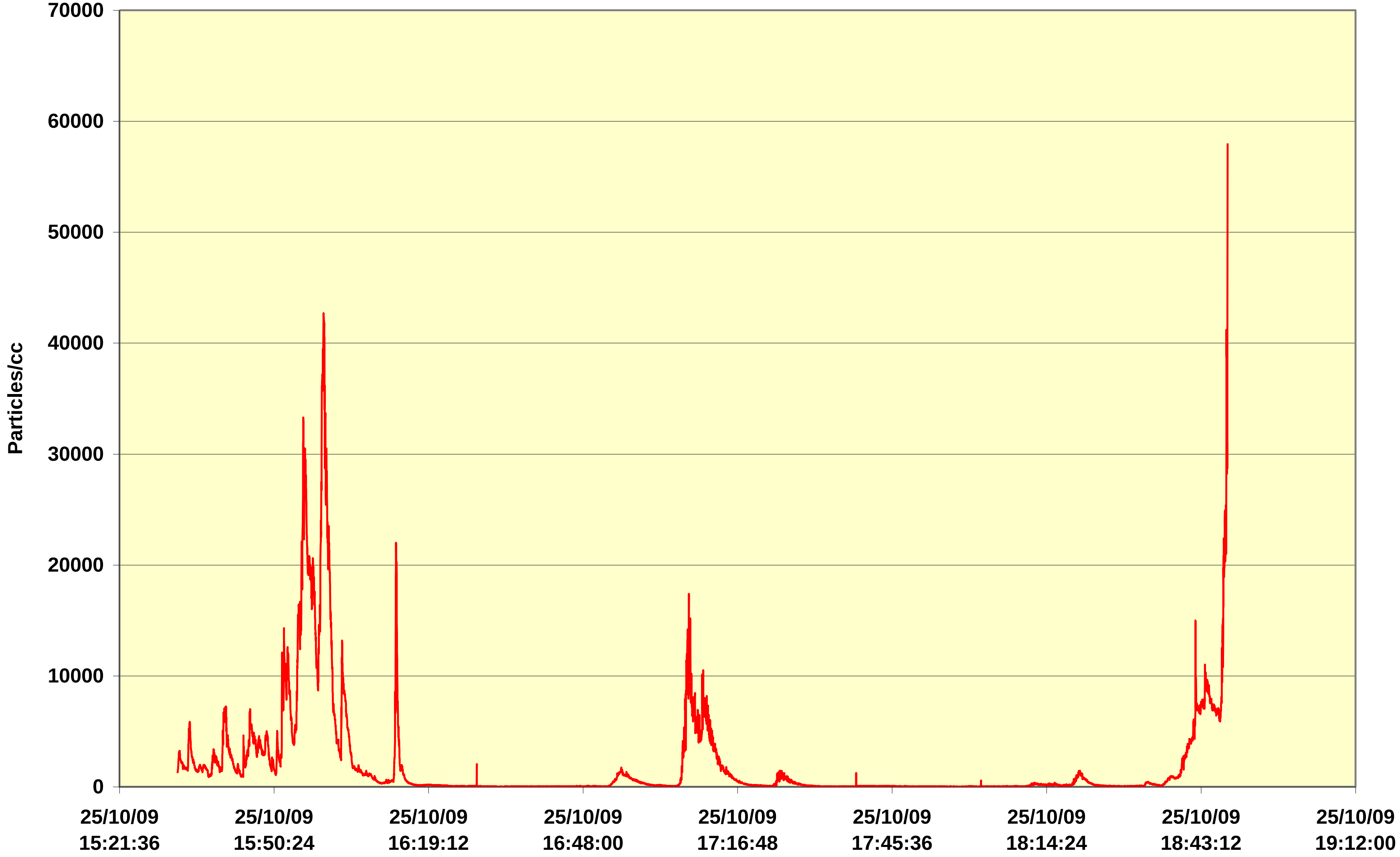

5
4
3
2
1
0
-1
CO (ppm)
14/10/09 12:57:36
14/10/09 13:26:24
14/10/09 13:55:12
14/10/09 14:24:00
14/10/09 14:52:48
14/10/09 15:21:36
14/10/09 15:50:24
14/10/09 16:19:12
14/10/09 16:48:00
14/10/09 17:16:48

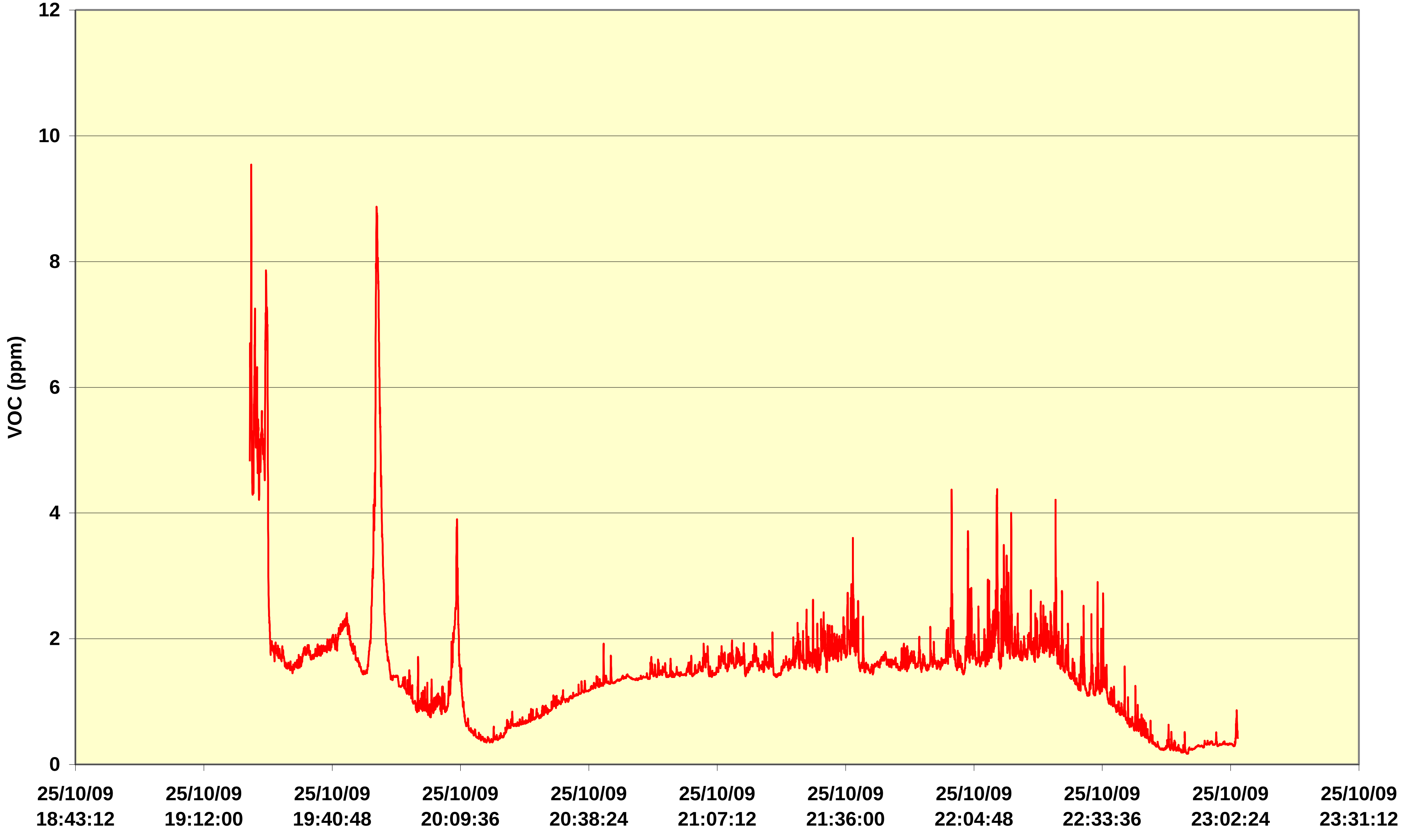

Particles/cc
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
14/10/09 12:57:36
14/10/09 13:26:24
14/10/09 13:55:12
14/10/09 14:24:00
14/10/09 14:52:48
14/10/09 15:21:36
14/10/09 15:50:24
14/10/09 16:19:12
14/10/09 16:48:00
14/10/09 17:16:48



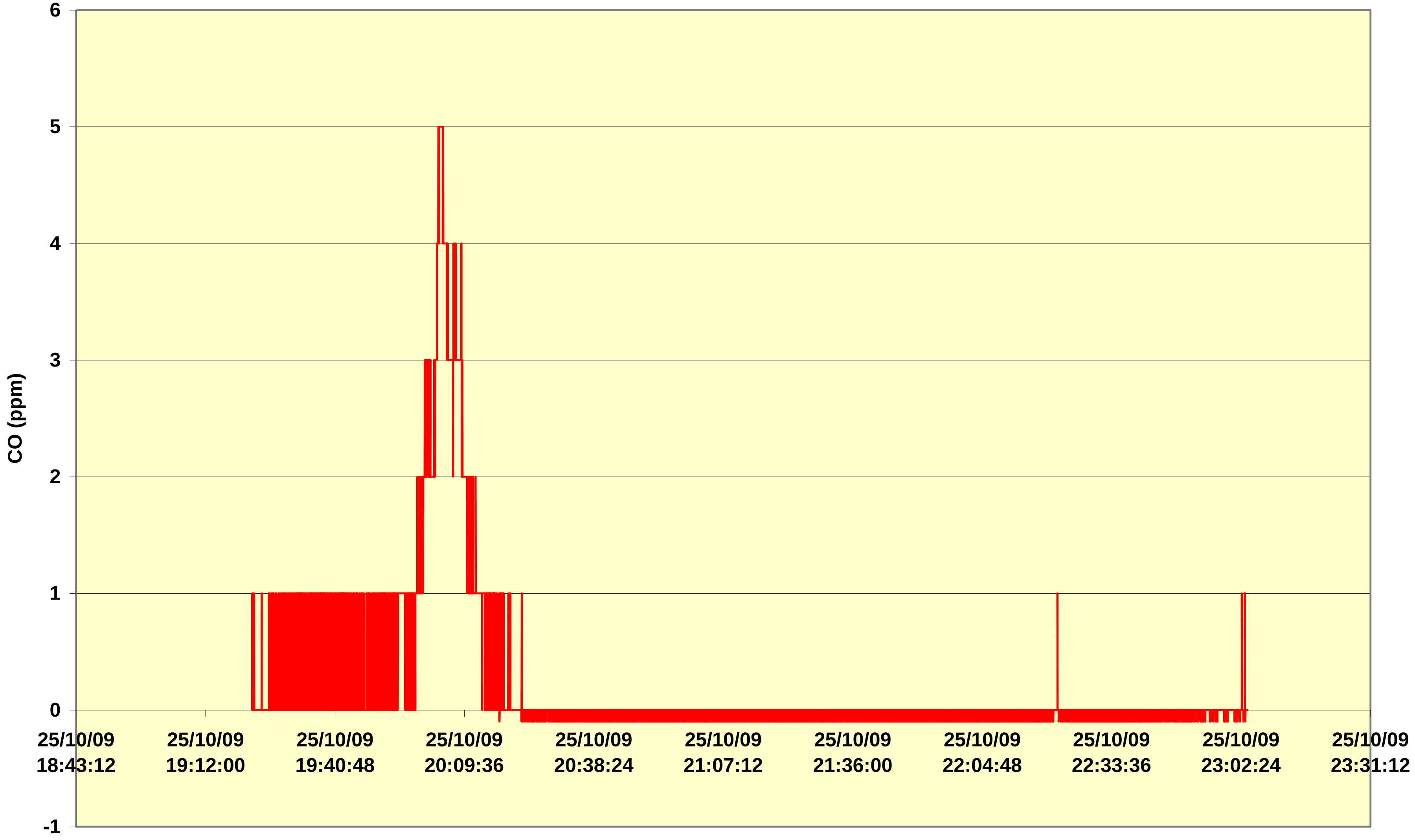
VOC (ppm)
0
1
2
3
4
5
6
25/10/09 14:52:48
25/10/09 15:21:36
25/10/09 15:50:24
25/10/09 16:19:12
25/10/09 16:48:00
25/10/09 17:16:48
25/10/09 17:45:36
25/10/09 18:14:24
25/10/09 18:43:12
25/10/09 19:12:00


CO (ppm)
5
4
3
2
1
0
-1
25/10/09 14:52:48
25/10/09 15:21:36
25/10/09 15:50:24
25/10/09 16:19:12
25/10/09 16:48:00
25/10/09 17:16:48
25/10/09 17:45:36
25/10/09 18:14:24
25/10/09 18:43:12
25/10/09 19:12:00


70000
60000
50000
40000
30000
20000
10000
0
Particles/cc
25/10/09 15:21:36
25/10/09 15:50:24
25/10/09 16:19:12
25/10/09 16:48:00
25/10/09 17:16:48
25/10/09 17:45:36
25/10/09 18:14:24
25/10/09 18:43:12
25/10/09 19:12:00



VOC (ppm)
0
2
4
6
8
10
12
25/10/09 18:43:12
25/10/09 19:12:00
25/10/09 19:40:48
25/10/09 20:09:36
25/10/09 20:38:24
25/10/09 21:07:12
25/10/09 21:36:00
25/10/09 22:04:48
25/10/09 22:33:36
25/10/09 23:02:24
25/10/09 23:31:12


CO (ppm)
6
5
4
3
2
1
0
-1
25/10/09 18:43:12
25/10/09 19:12:00
25/10/09 19:40:48
25/10/09 20:09:36
25/10/09 20:38:24
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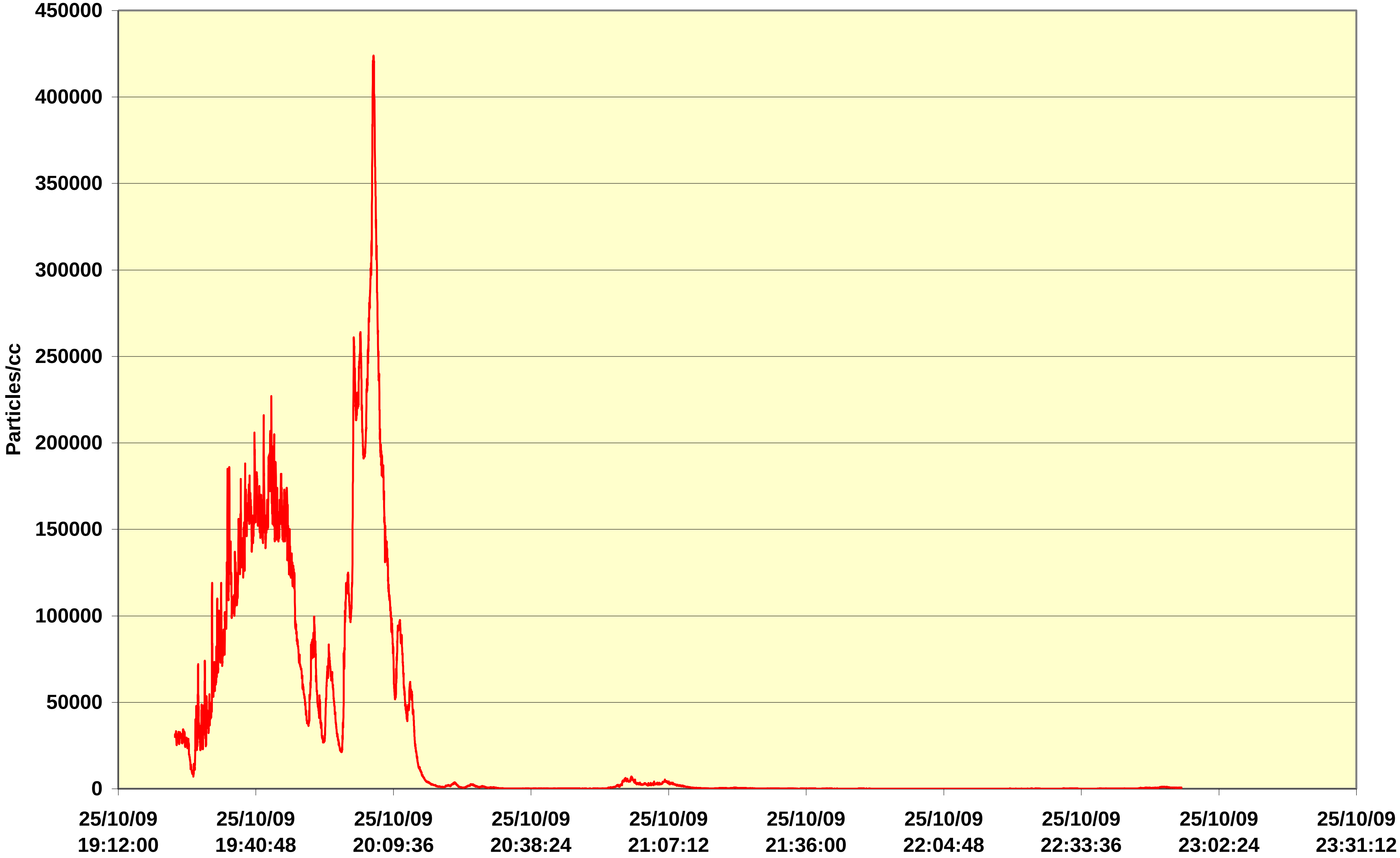
25/10/09 23:31:12



Particles/cc
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350000
300000
250000
200000
150000
100000
50000
0
25/10/09 19:12:00
25/10/09 19:40:48
25/10/09 20:09:36
25/10/09 20:38:24
25/10/09 21:07:12
25/10/09 21:36:00
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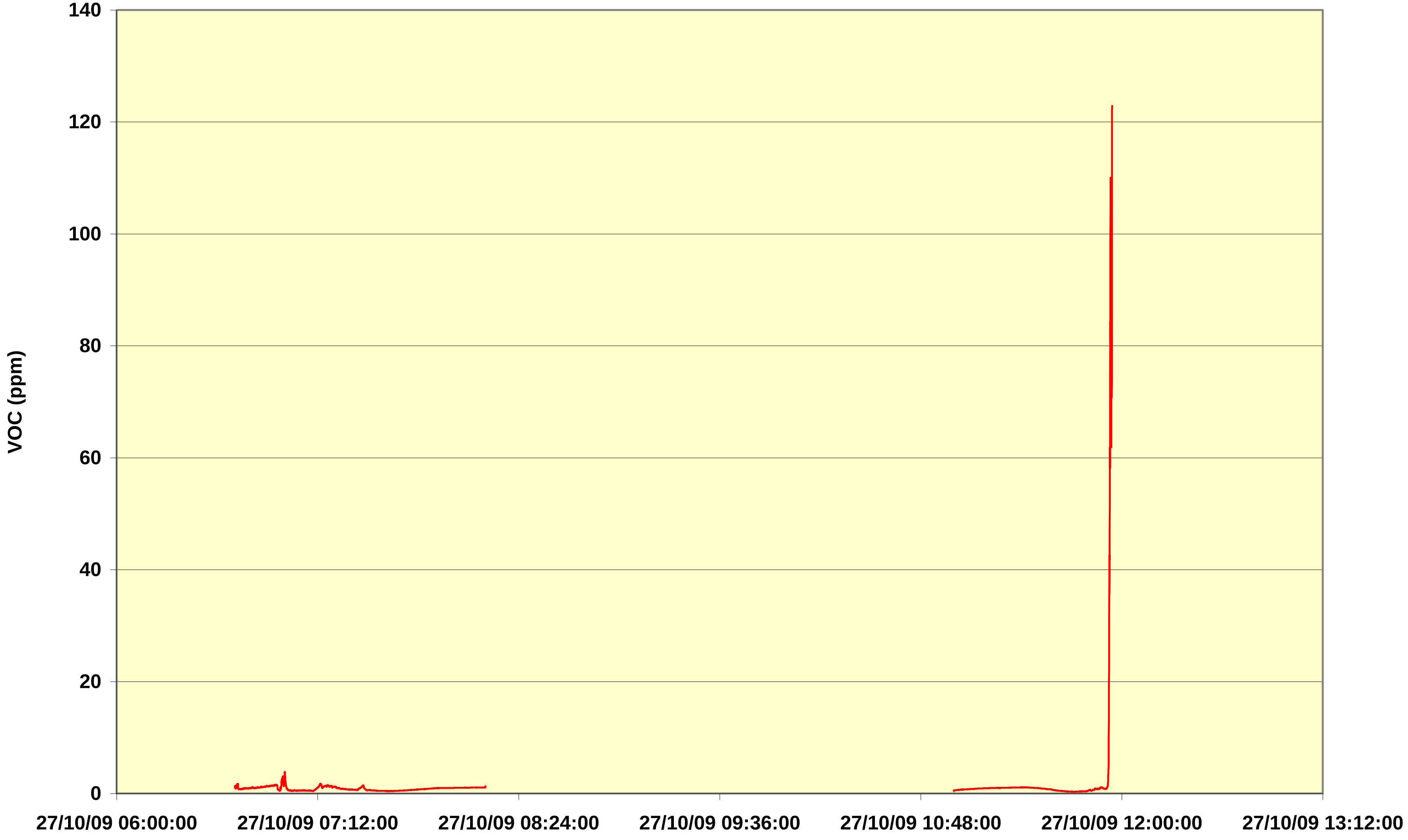
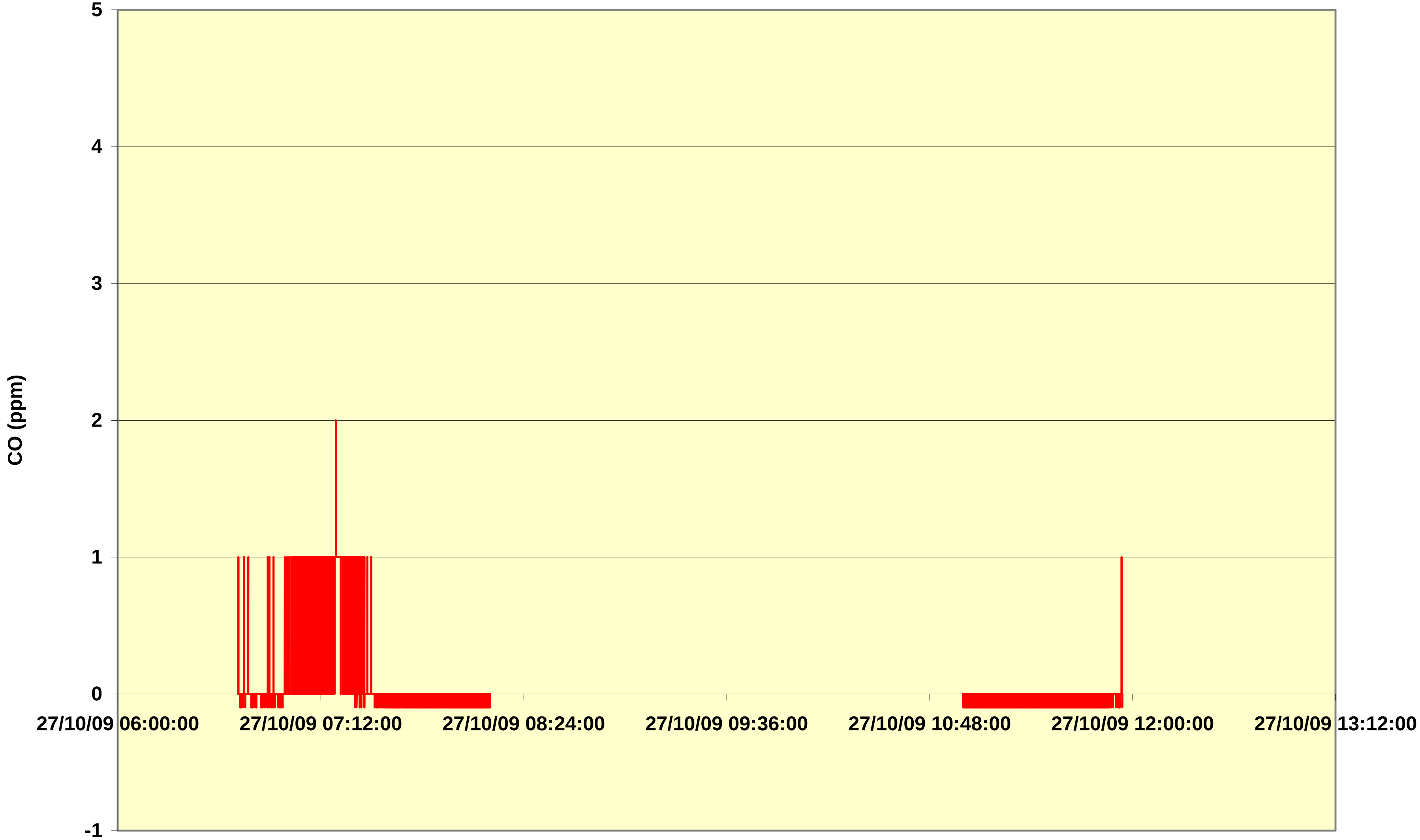
25/10/09 23:31:12



VOC (ppm)
140
120
100
80
60
40
20
0
27/10/09 06:00:00
27/10/09 07:12:00
27/10/09 08:24:00
27/10/09 09:36:00
27/10/09 10:48:00
27/10/09 12:00:00
27/10/09 13:12:00


5
4
3
2
1
0
-1
CO (ppm)
27/10/09 06:00:00
27/10/09 07:12:00
27/10/09 08:24:00
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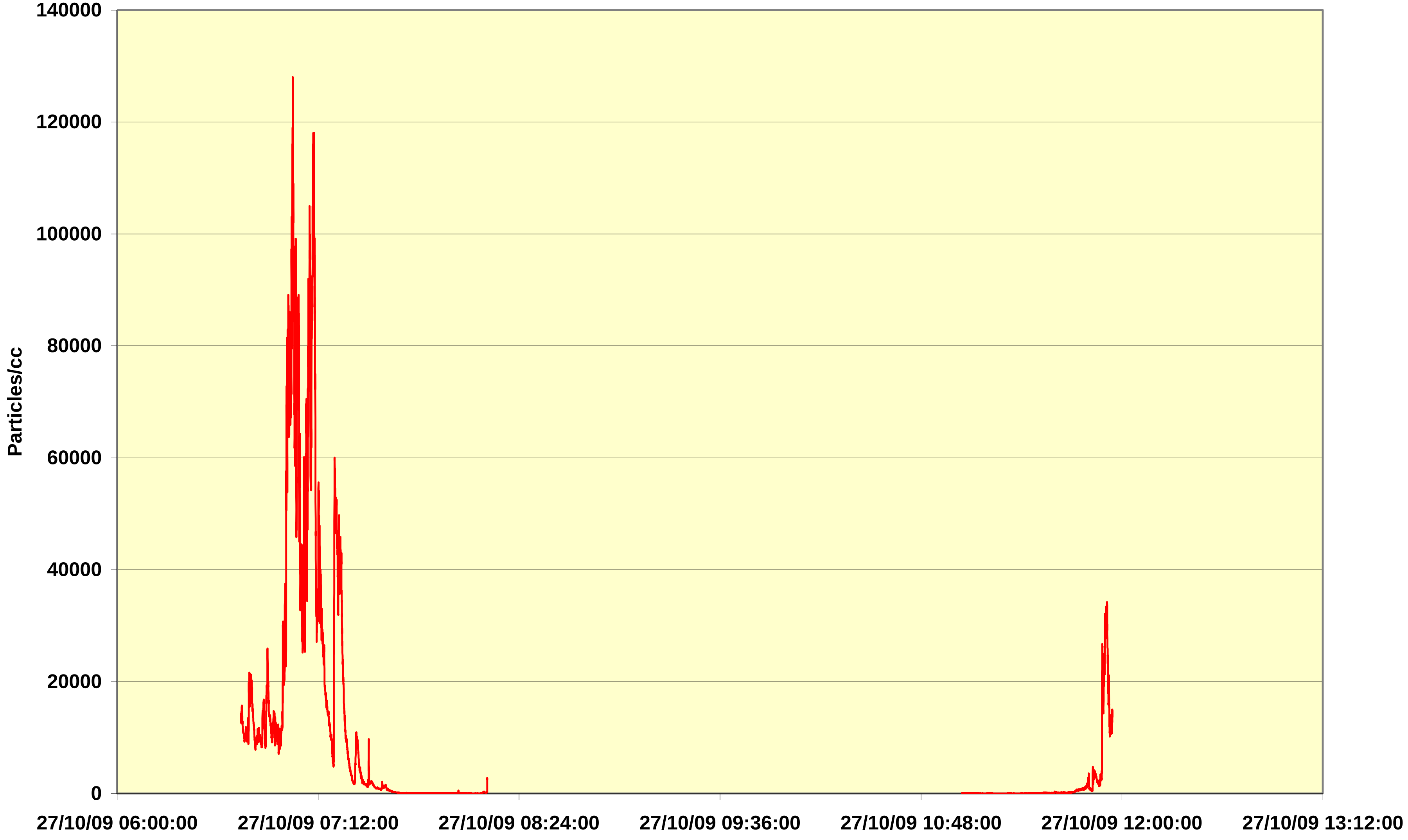
27/10/09 10:48:00
27/10/09 12:00:00
27/10/09 13:12:00



Particles/cc
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40000
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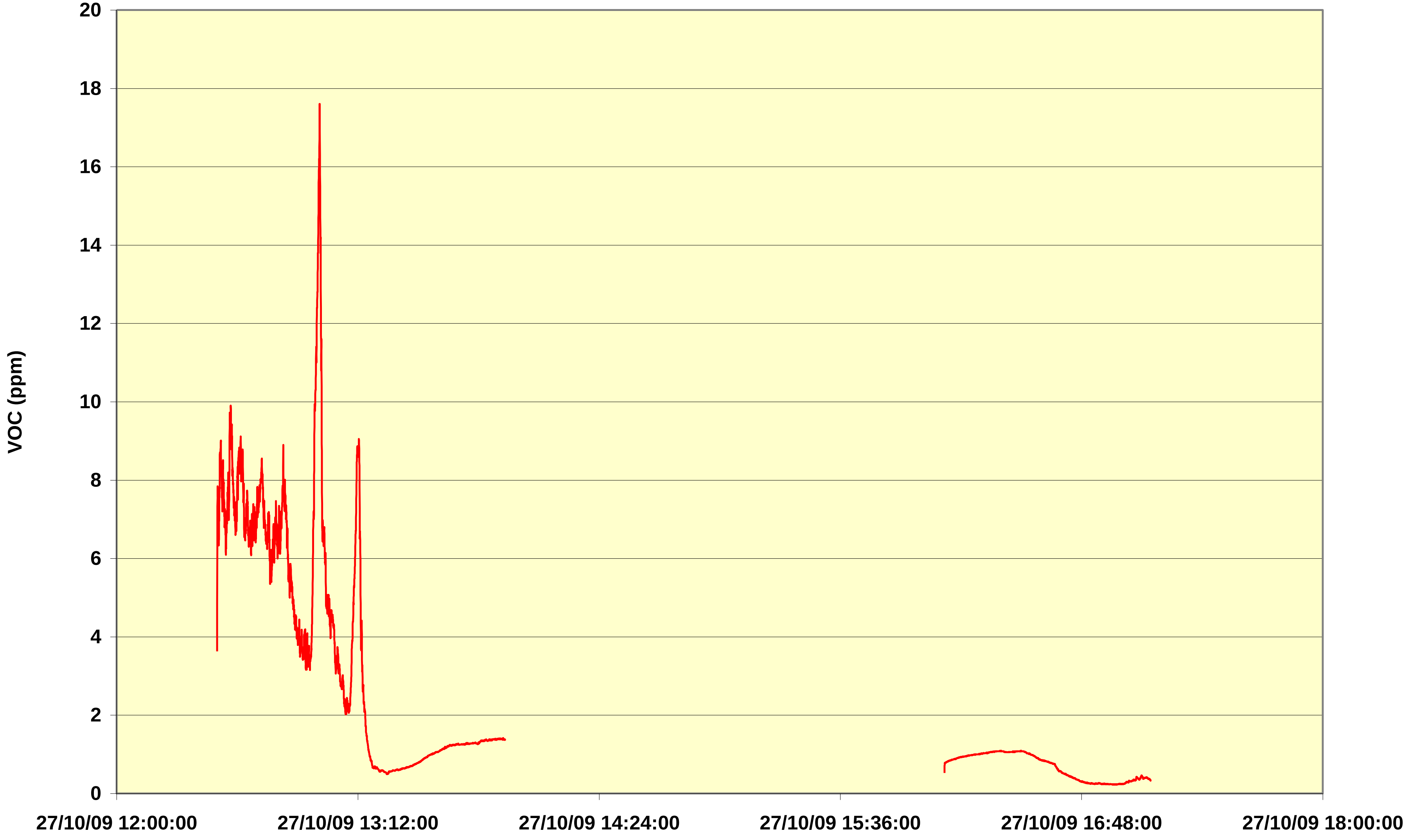
27/10/09 10:48:00
27/10/09 12:00:00
27/10/09 13:12:00



VOC (ppm)
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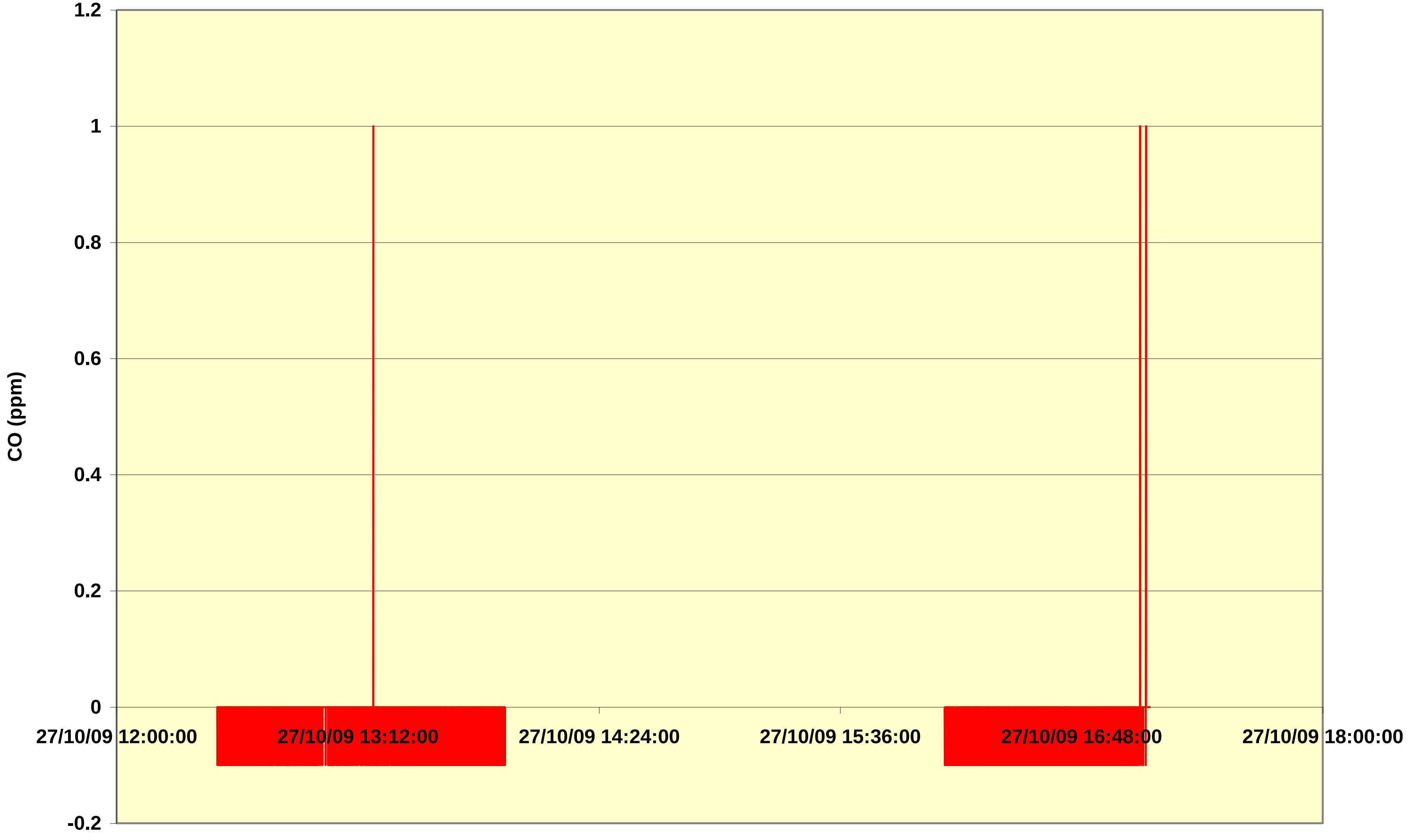
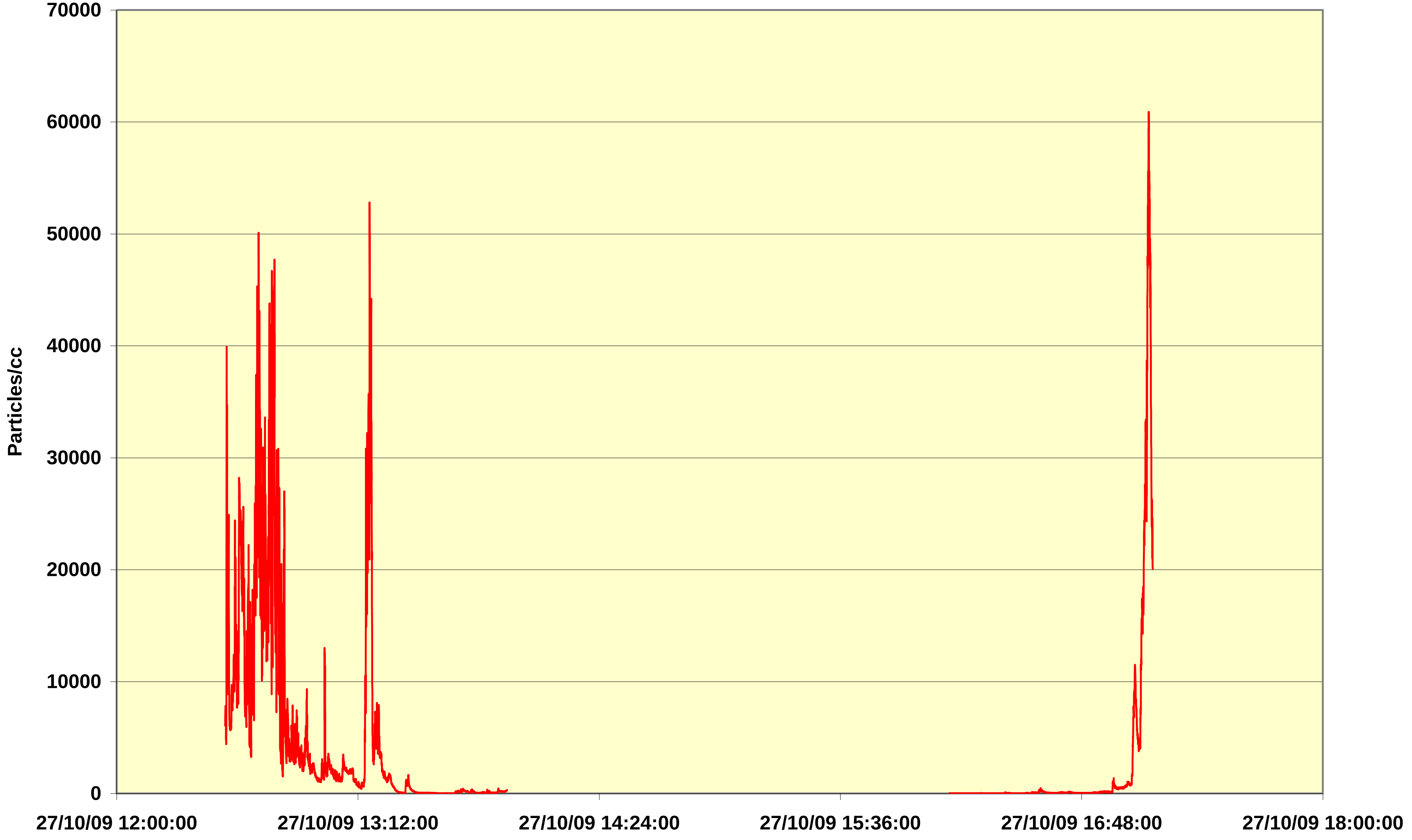
18
16
14
12
10
8
6
4
2
0
27/10/09 12:00:00
27/10/09 13:12:00
27/10/09 14:24:00
27/10/09 15:36:00
27/10/09 16:48:00
27/10/09 18:00:00



1.2
1
0.8
0.6
0.4
0.2
0
-0.2
CO (ppm)
27/10/09 12:00:00
27/10/09 13:12:00
27/10/09 14:24:00
27/10/09 15:36:00
27/10/09 16:48:00
27/10/09 18:00:00



Particles/cc
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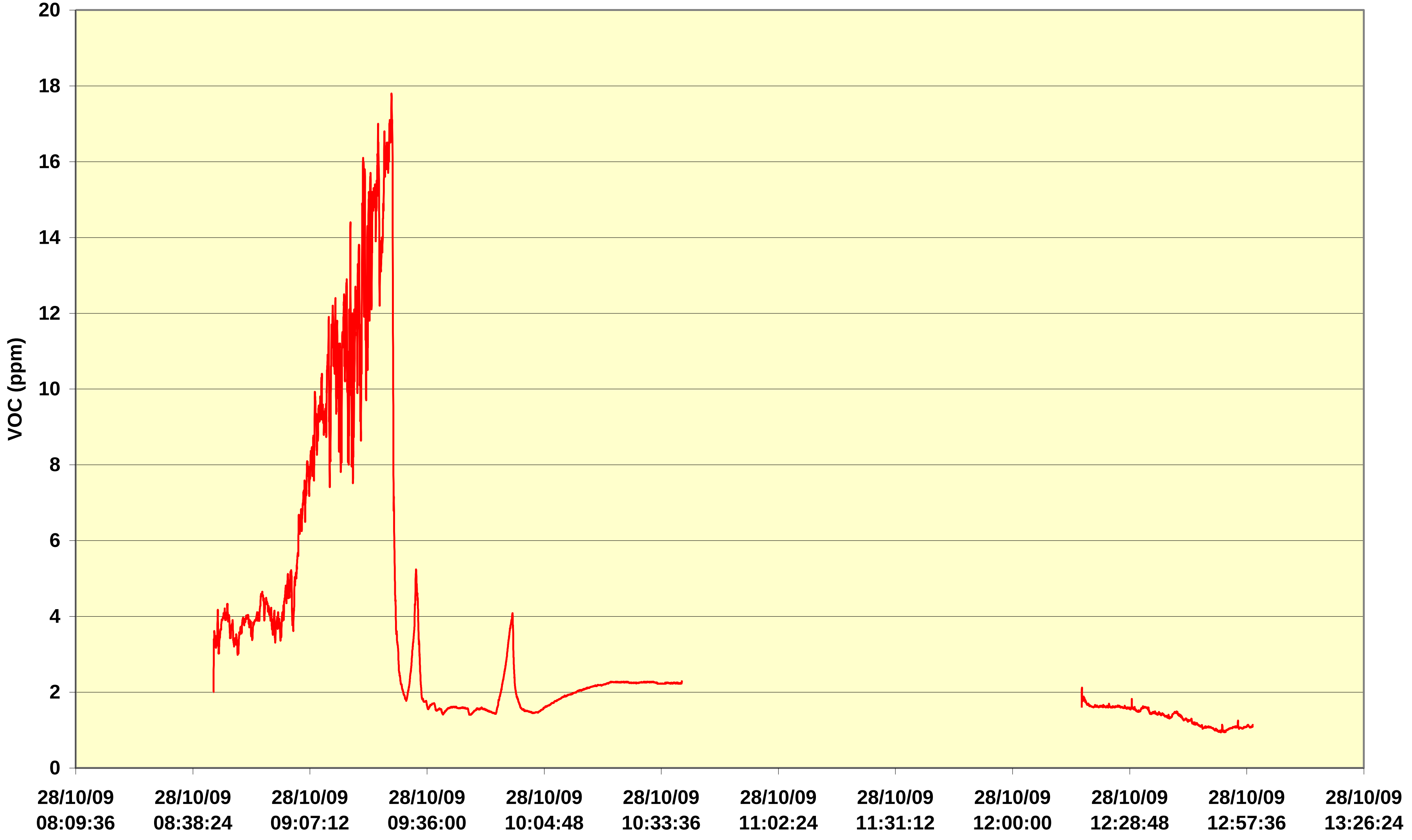
60000
50000
40000
30000
20000
10000
0
27/10/09 12:00:00
27/10/09 13:12:00
27/10/09 14:24:00
27/10/09 15:36:00
27/10/09 16:48:00
27/10/09 18:00:00



VOC (ppm)
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2
4
6
8
10
12
14
16
18
20
28/10/09 08:09:36
28/10/09 08:38:24
28/10/09 09:07:12
28/10/09 09:36:00
28/10/09 10:04:48
28/10/09 10:33:36
28/10/09 11:02:24
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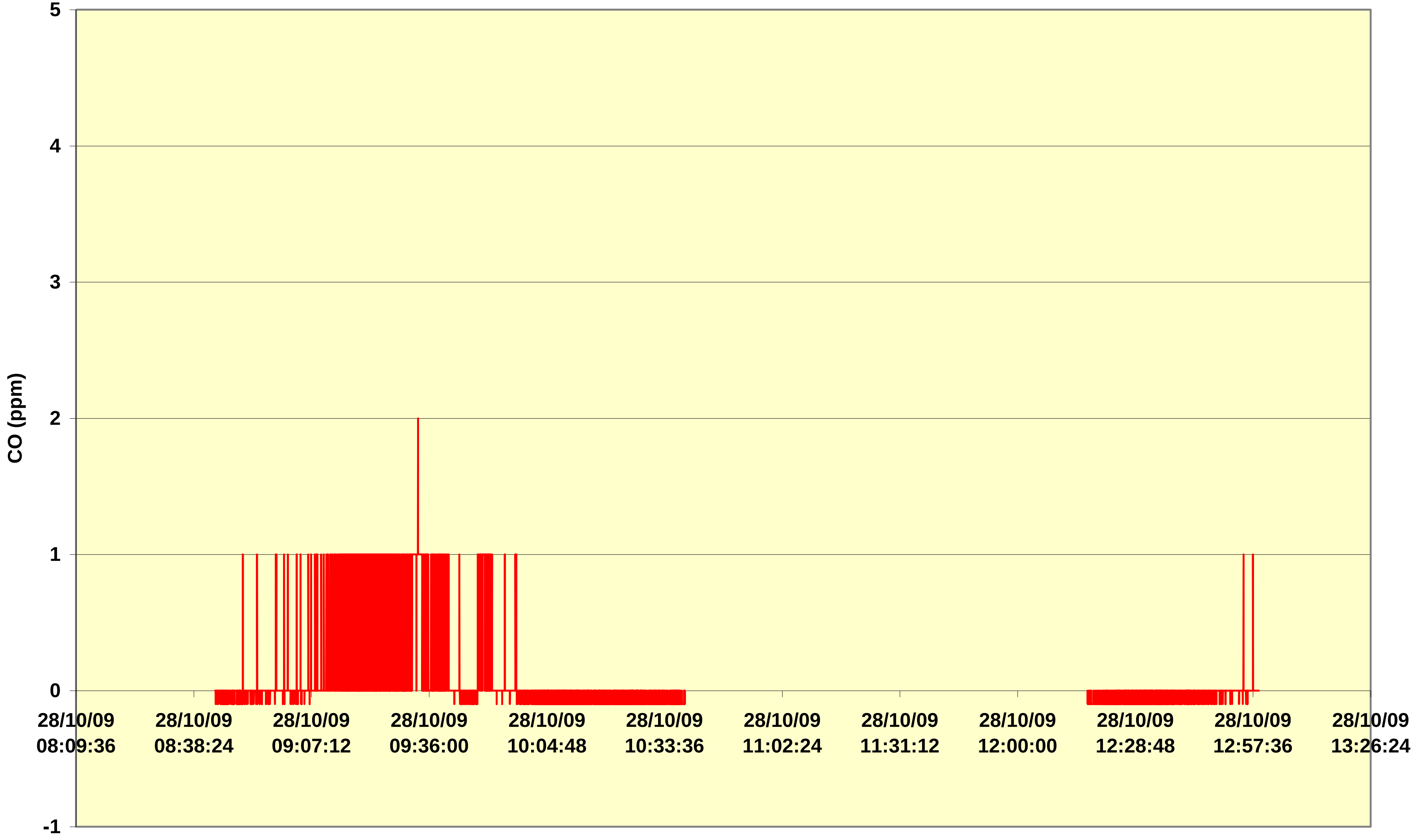
28/10/09 13:26:24


CO (ppm)
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4
3
2
1
0
-1
28/10/09 08:09:36
28/10/09 08:38:24
28/10/09 09:07:12
28/10/09 09:36:00
28/10/09 10:04:48
28/10/09 10:33:36
28/10/09 11:02:24
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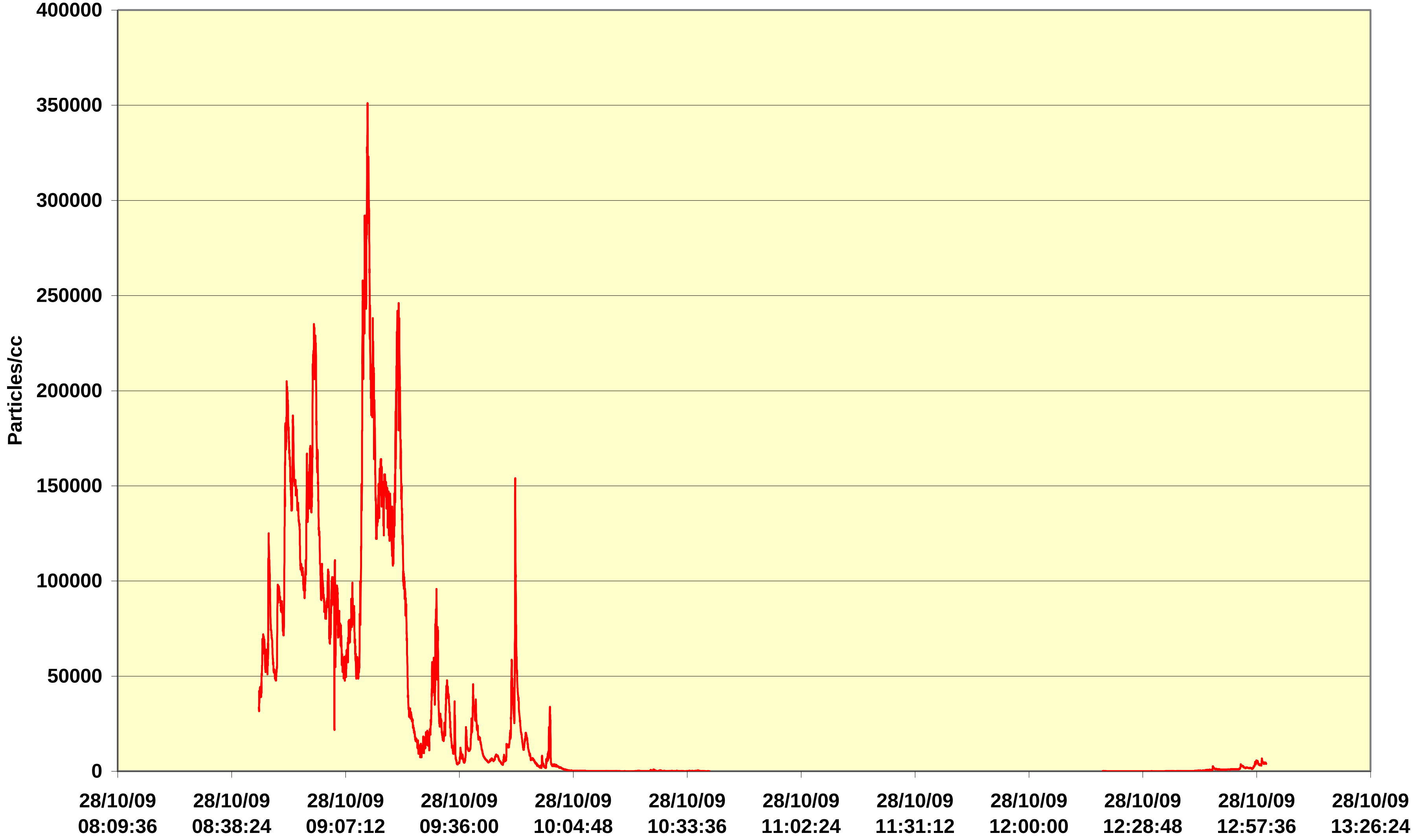
28/10/09 13:26:24


Particles/cc
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300000
250000
200000
150000
100000
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0
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28/10/09 08:38:24
28/10/09 09:07:12
28/10/09 09:36:00
28/10/09 10:04:48
28/10/09 10:33:36
28/10/09 11:02:24
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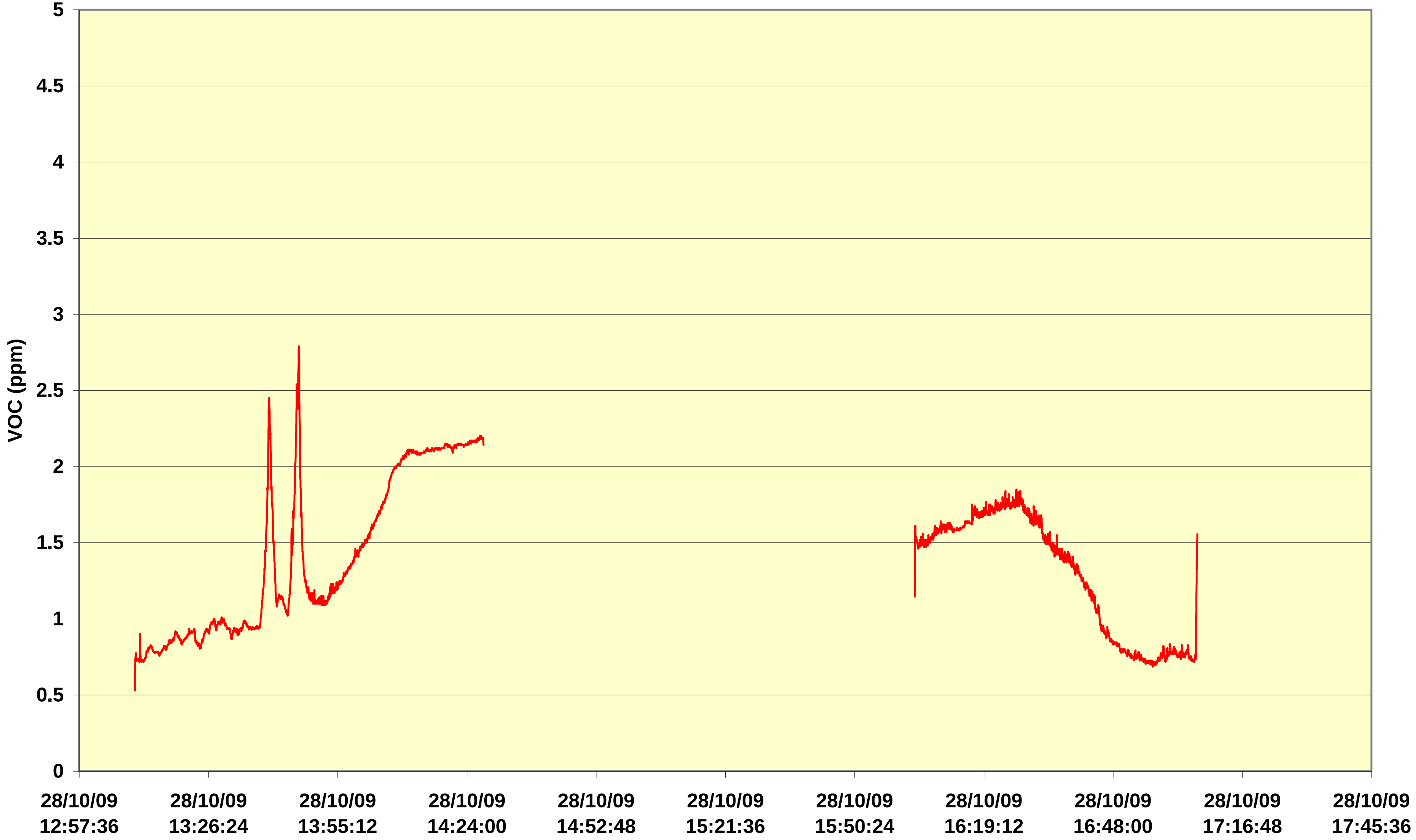
28/10/09 13:26:24



VOC (ppm)
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4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
28/10/09 12:57:36
28/10/09 13:26:24
28/10/09 13:55:12
28/10/09 14:24:00
28/10/09 14:52:48
28/10/09 15:21:36
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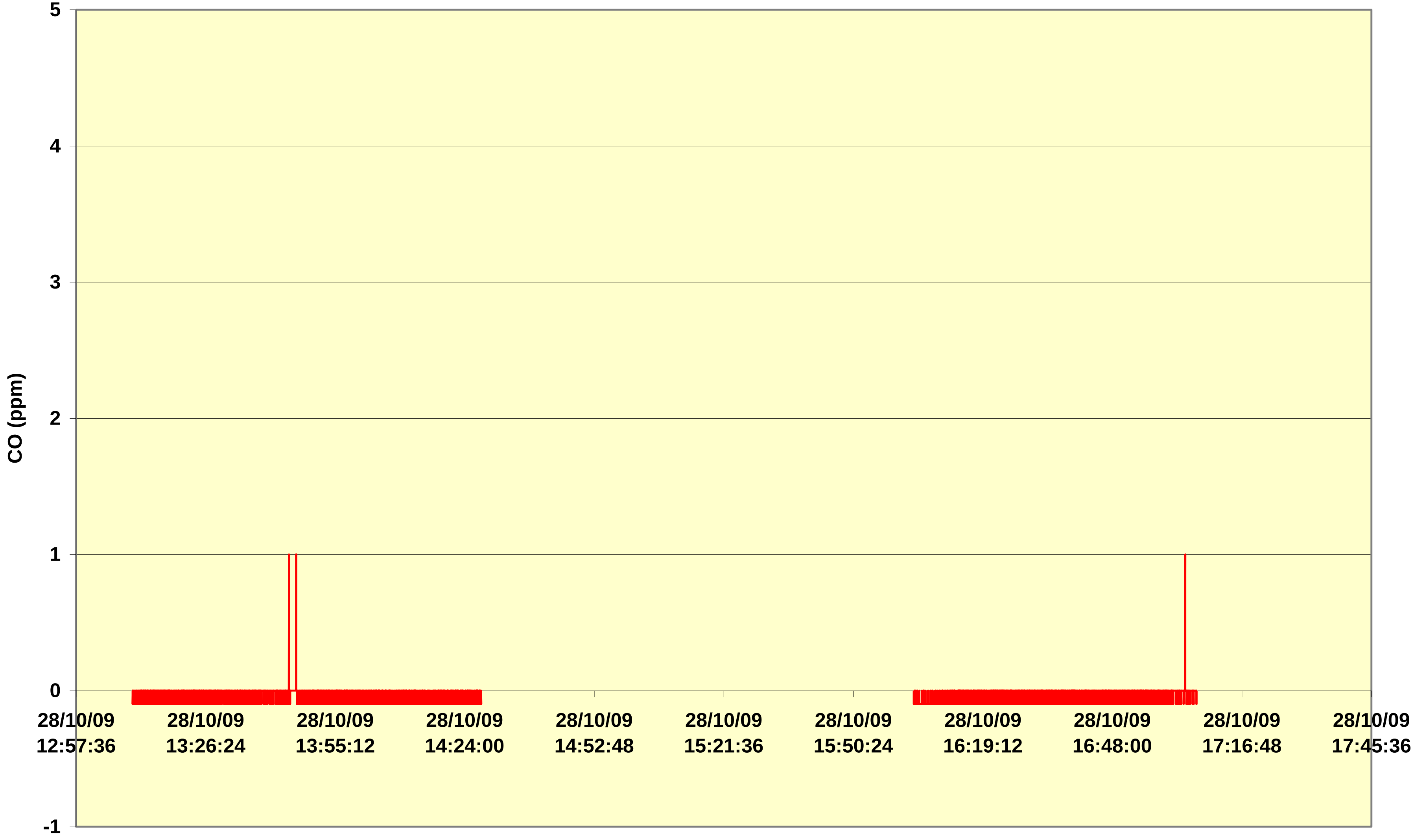
28/10/09 17:45:36



CO (ppm)
5
4
3
2
1
0
-1
28/10/09 12:57:36
28/10/09 13:26:24
28/10/09 13:55:12
28/10/09 14:24:00
28/10/09 14:52:48
28/10/09 15:21:36
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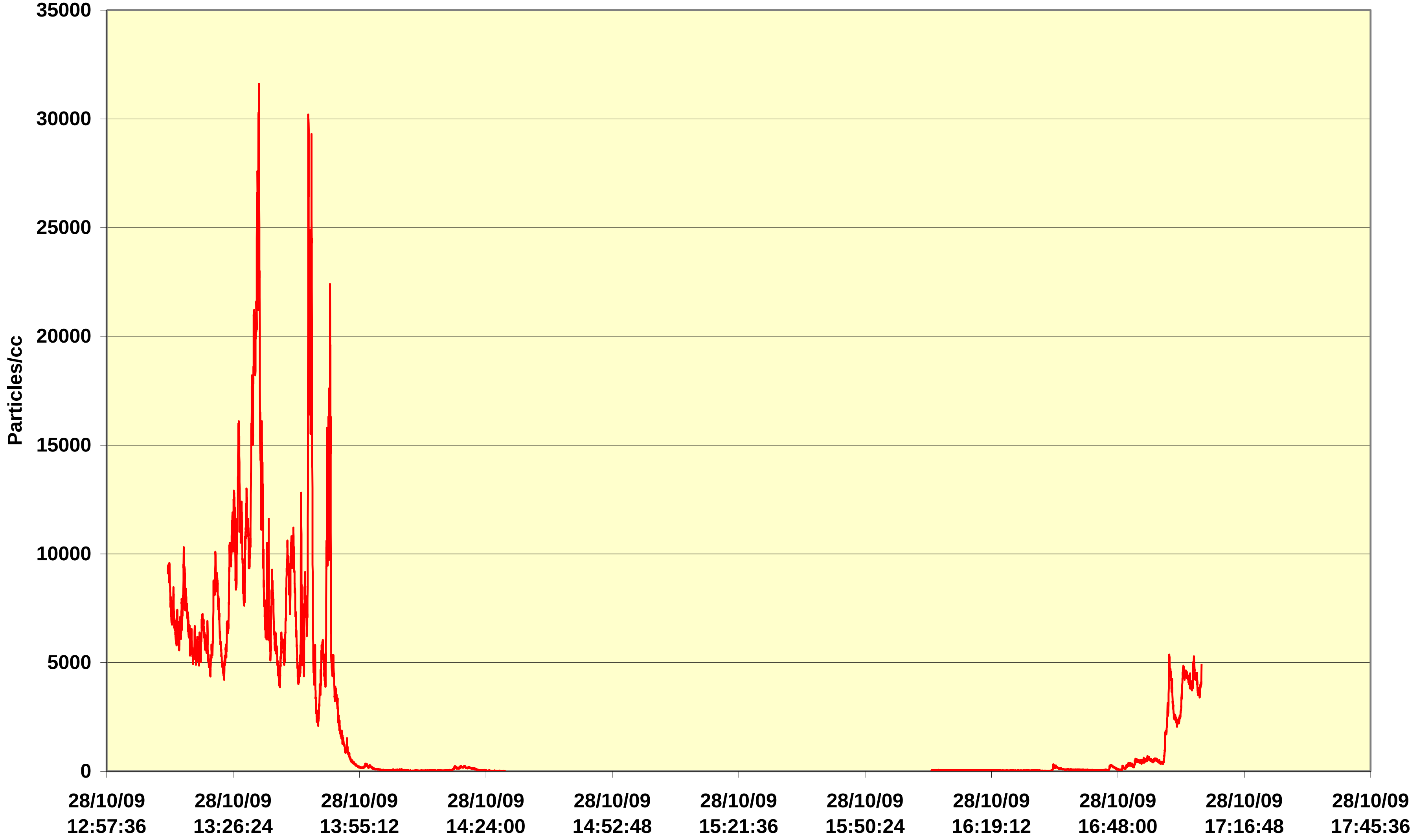
28/10/09 17:45:36



35000
30000
25000
20000
15000
10000
5000
0
Particles/cc
28/10/09 12:57:36
28/10/09 13:26:24
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28/10/09 14:24:00
28/10/09 14:52:48
28/10/09 15:21:36
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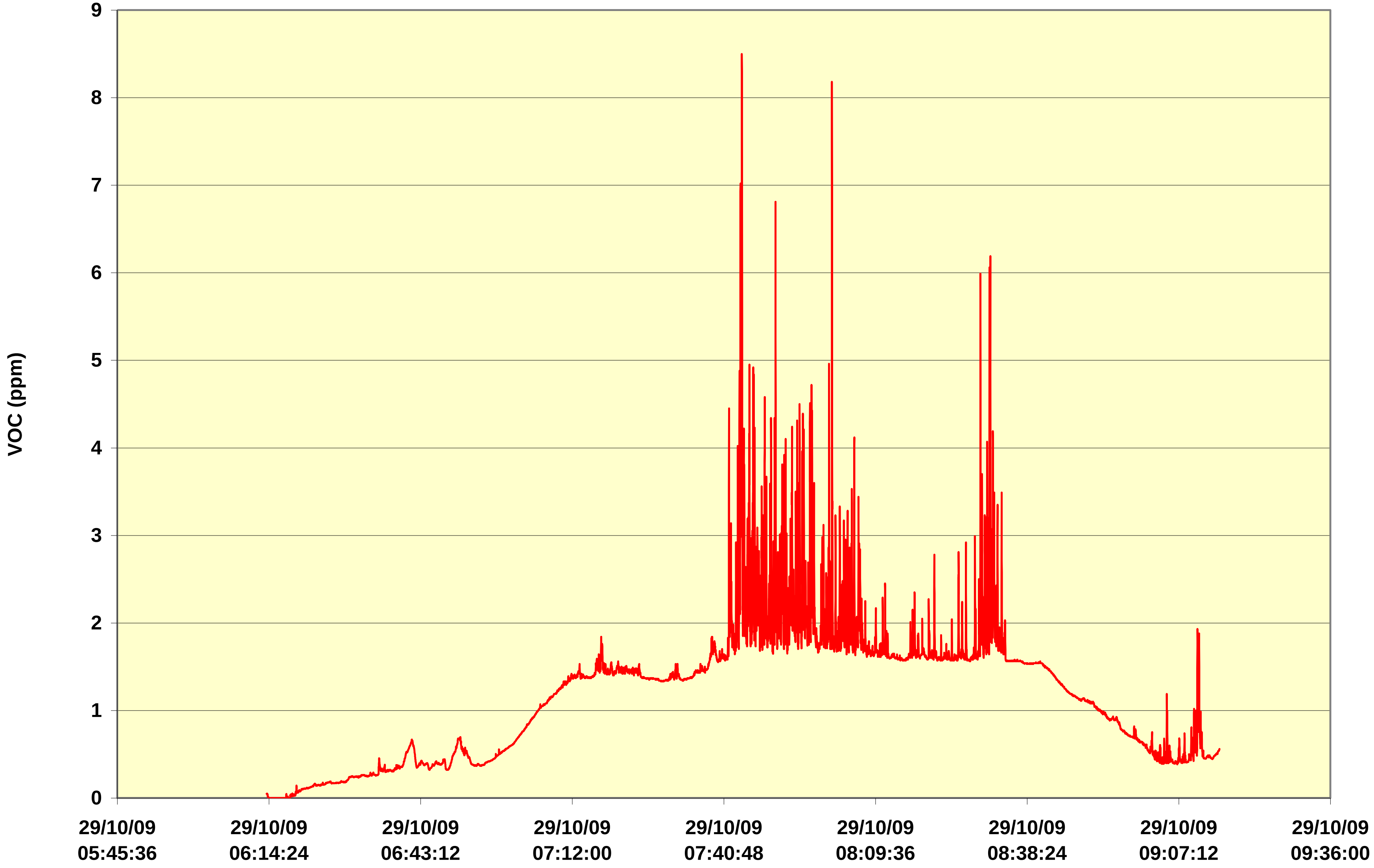
28/10/09 17:45:36



VOC (ppm)
9
8
7
6
5
4
3
2
1
0
29/10/09 05:45:36
29/10/09 06:14:24
29/10/09 06:43:12
29/10/09 07:12:00
29/10/09 07:40:48
29/10/09 08:09:36
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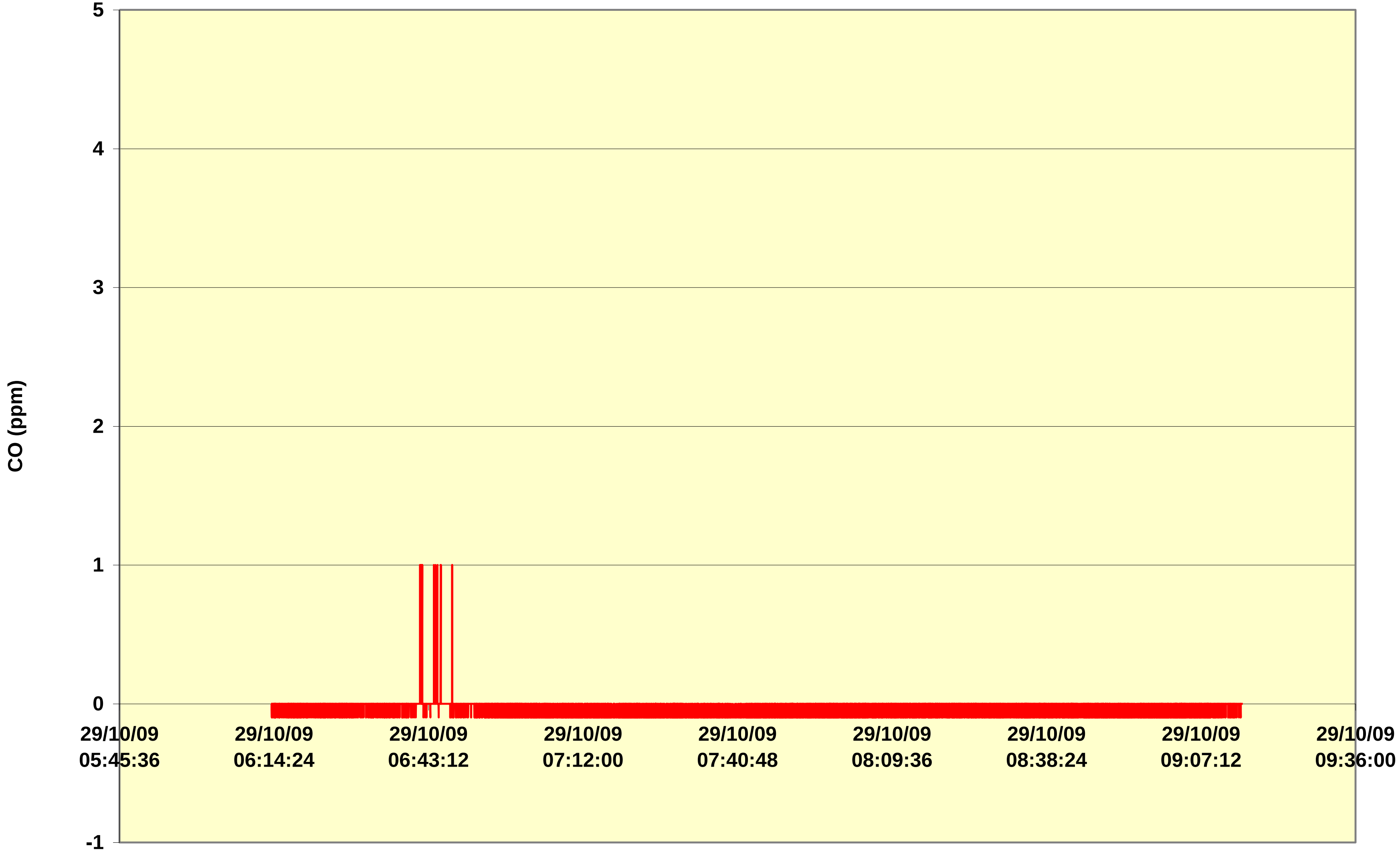
29/10/09 09:36:00


CO (ppm)
5
4
3
2
1
0
-1
29/10/09 05:45:36
29/10/09 06:14:24
29/10/09 06:43:12
29/10/09 07:12:00
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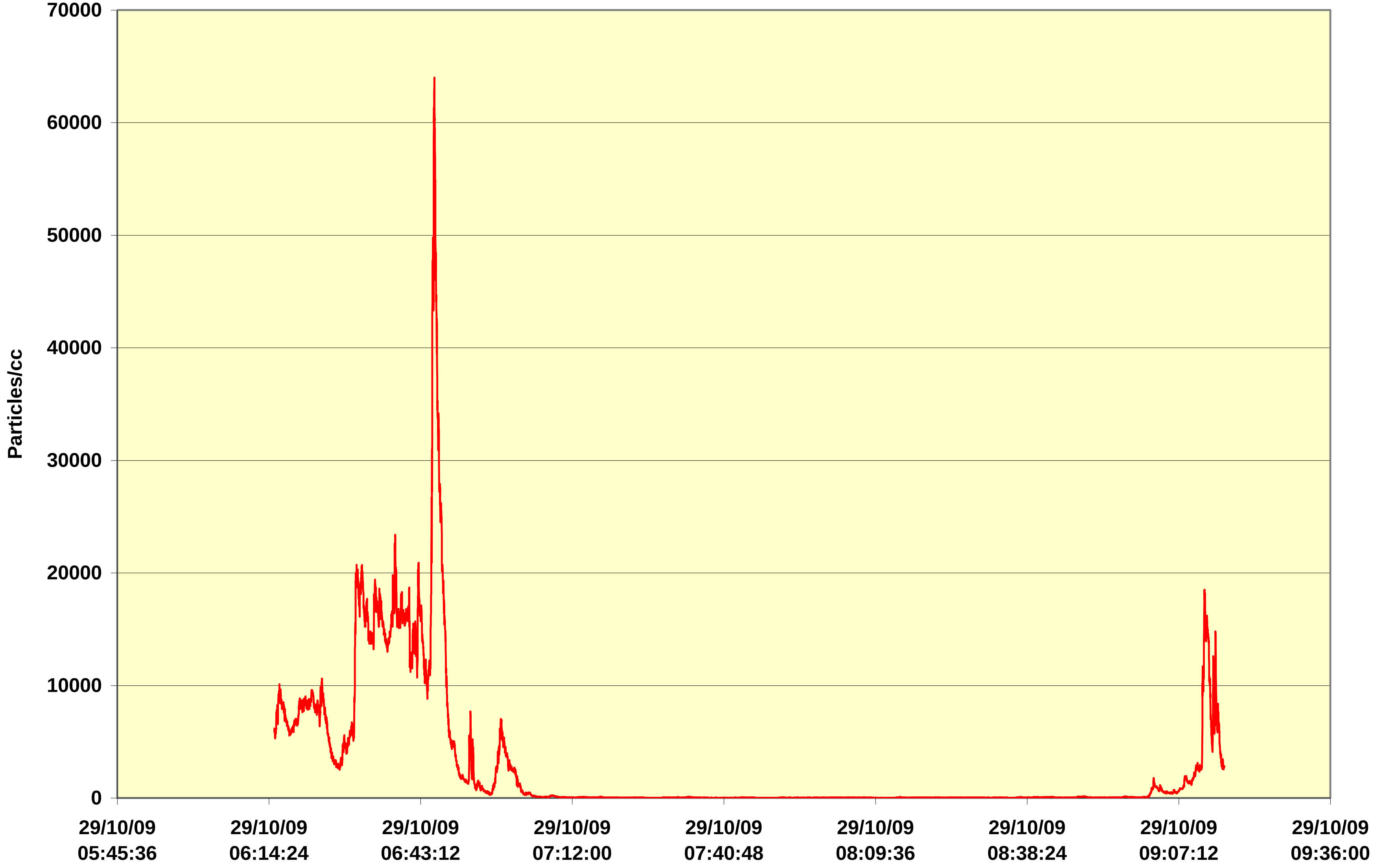
29/10/09 09:36:00



Particles/cc
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60000
50000
40000
30000
20000
10000
0
29/10/09 05:45:36
29/10/09 06:14:24
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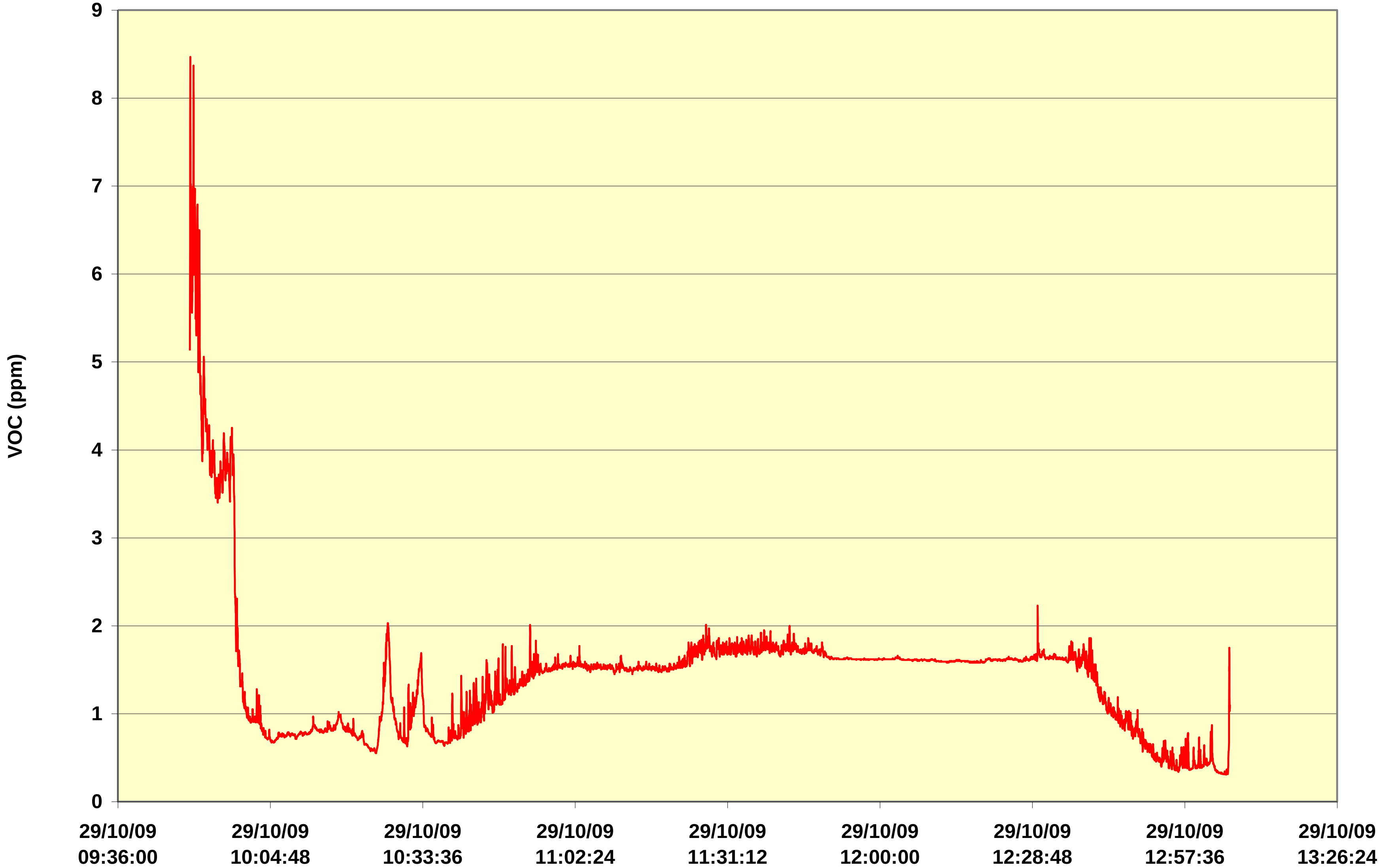
29/10/09 09:36:00



VOC (ppm)
0
1
2
3
4
5
6
7
8
9
29/10/09 09:36:00
29/10/09 10:04:48
29/10/09 10:33:36
29/10/09 11:02:24
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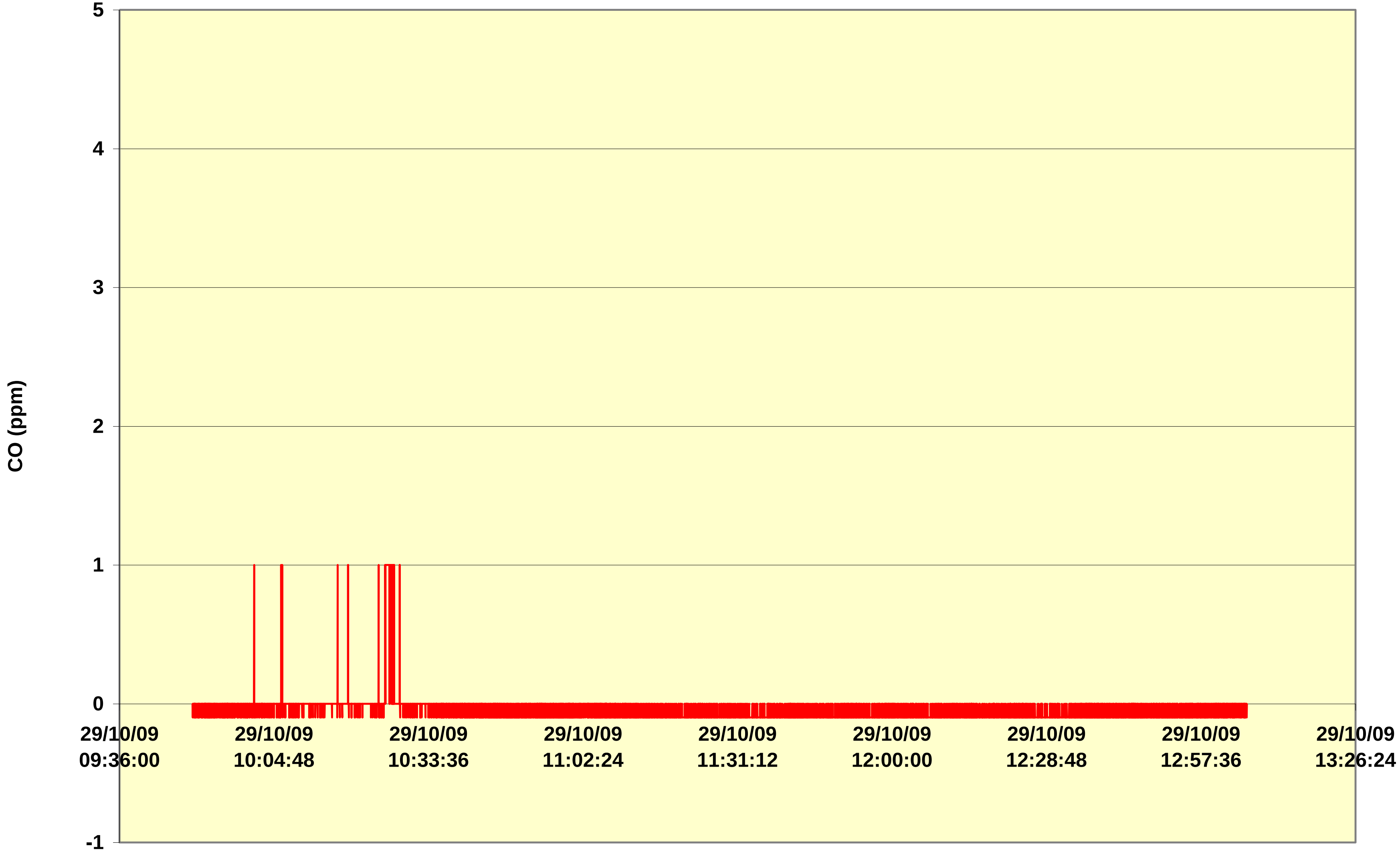
29/10/09 13:26:24


CO (ppm)
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4
3
2
1
0
-1
29/10/09 09:36:00
29/10/09 10:04:48
29/10/09 10:33:36
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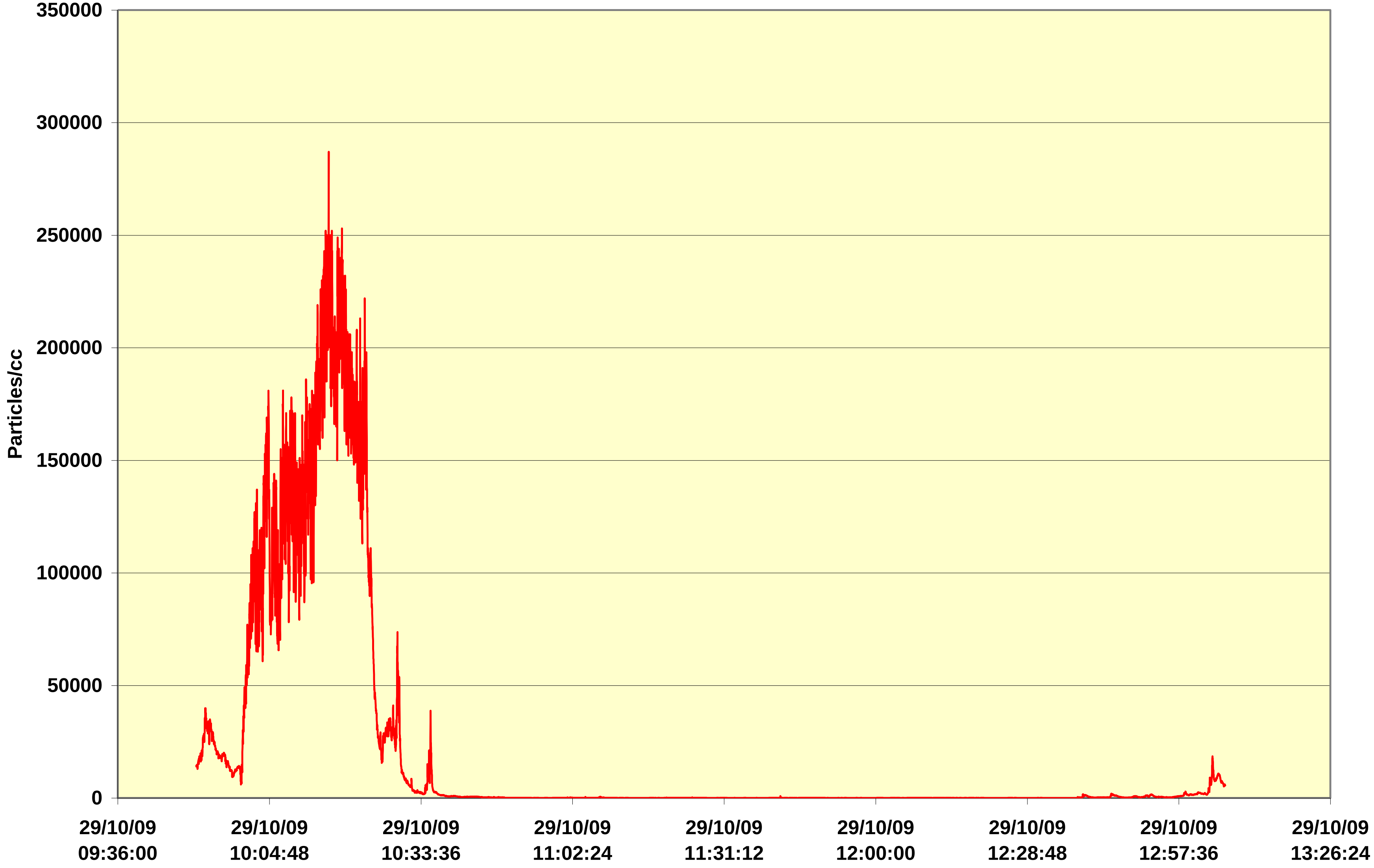
29/10/09 13:26:24



Particles/cc
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100000
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29/10/09 10:33:36
29/10/09 11:02:24
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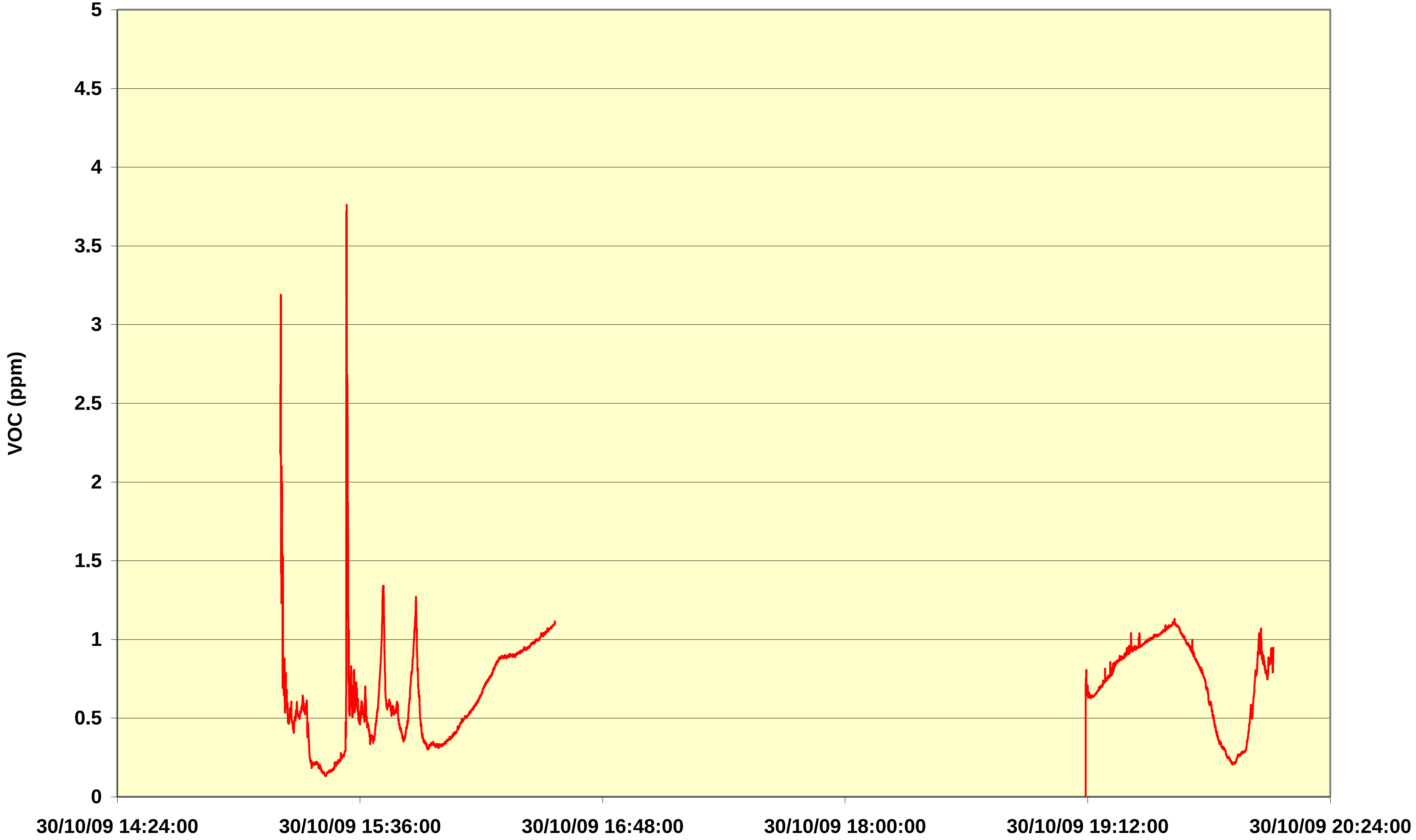
29/10/09 13:26:24



VOC (ppm)
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3.5
3
2.5
2
1.5
1
0.5
0
30/10/09 14:24:00
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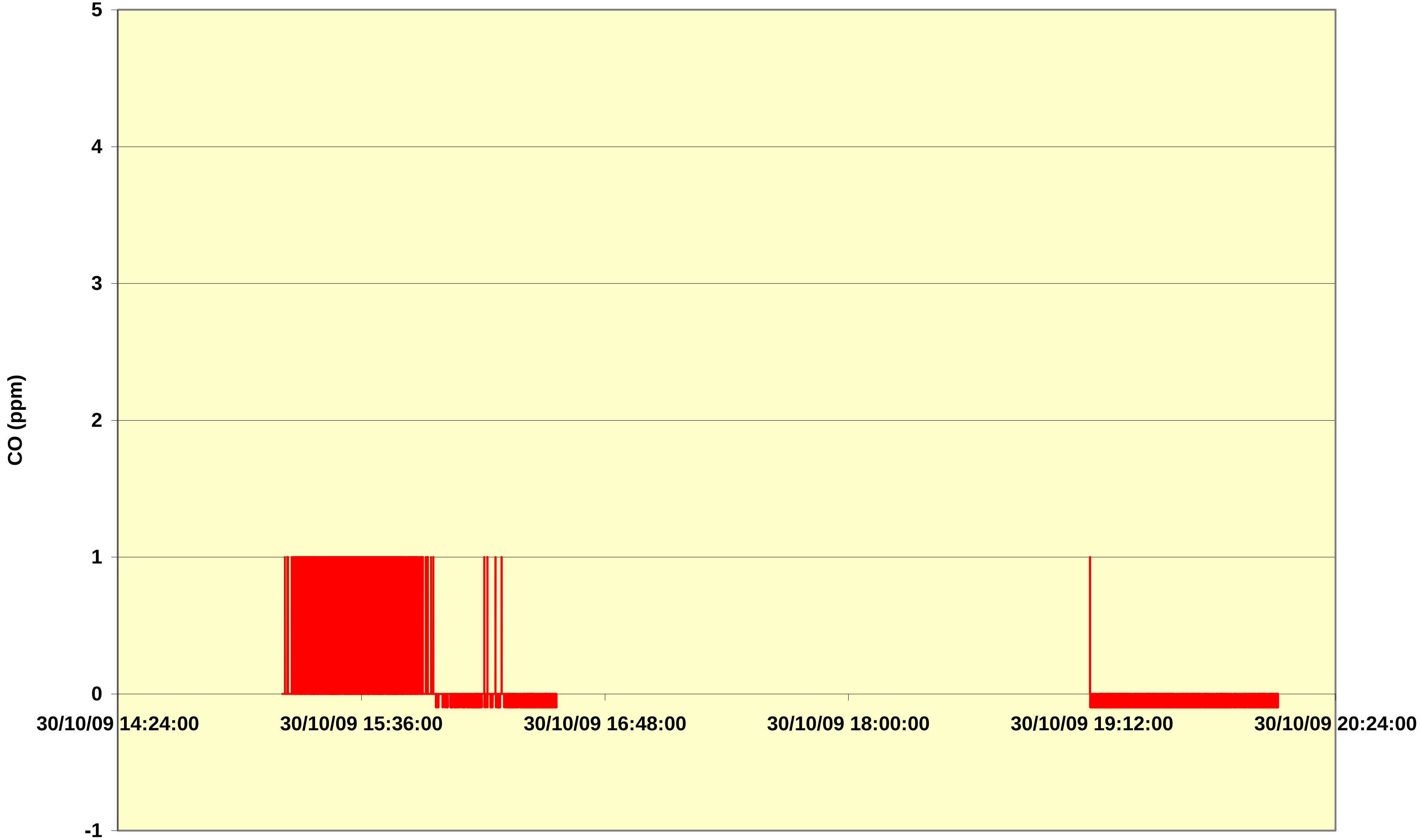
30/10/09 16:48:00
30/10/09 18:00:00
30/10/09 19:12:00
30/10/09 20:24:00


5
4
3
2
1
0
-1
CO (ppm)
30/10/09 14:24:00
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30/10/09 16:48:00
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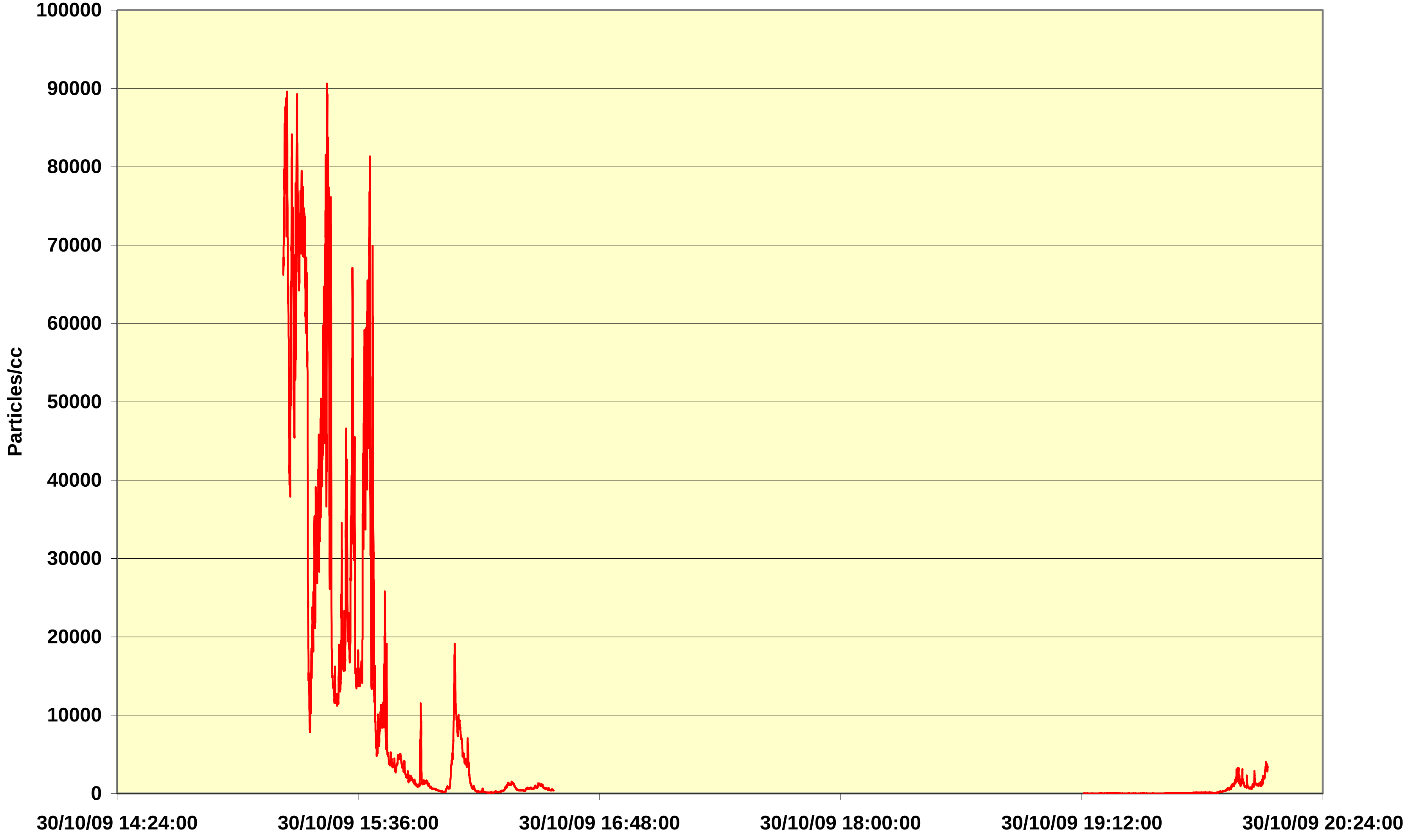
30/10/09 20:24:00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80000
70000
60000
50000
40000
30000
20000
10000
0
Particles/cc
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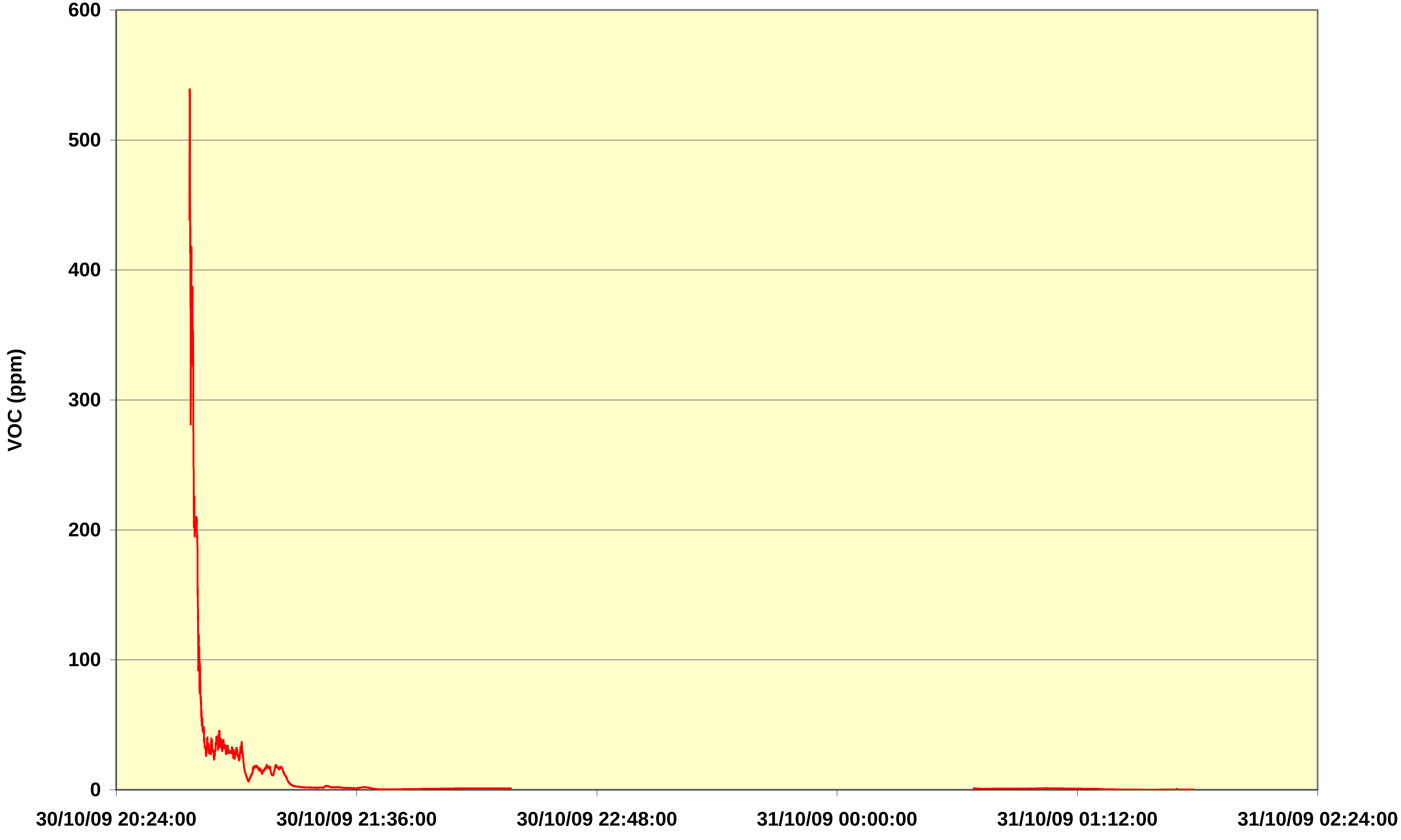
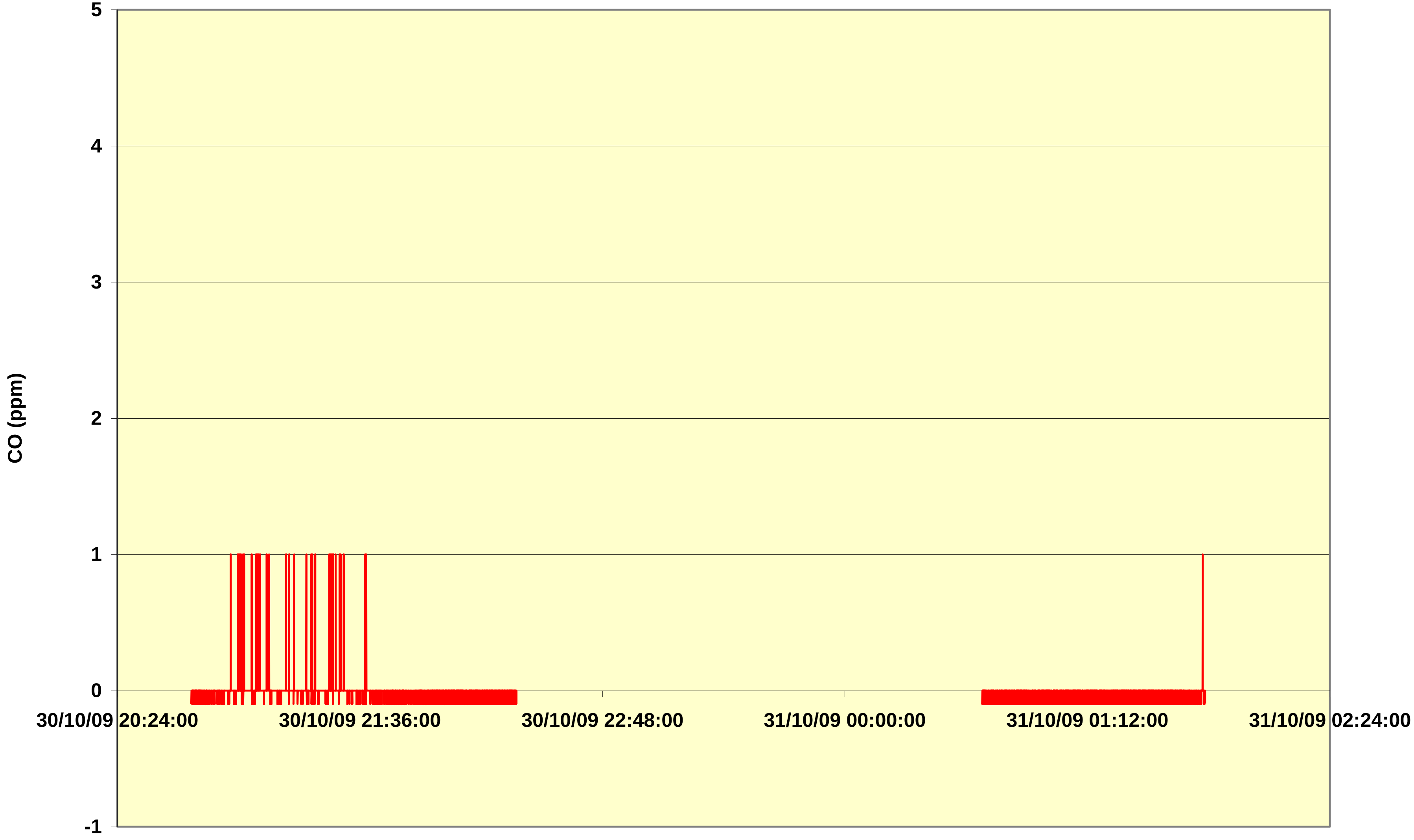
30/10/09 16:48:00
30/10/09 18:00:00
30/10/09 19:12:00
30/10/09 20:24:00


600
500
400
300
200
100
0
VOC (ppm)
30/10/09 20:24:00
30/10/09 21:36:00
30/10/09 22:48:00
31/10/09 00:00:00
31/10/09 01:12:00
31/10/09 02:24:00


5
4
3
2
1
0
-1
CO (ppm)
30/10/09 20:24:00
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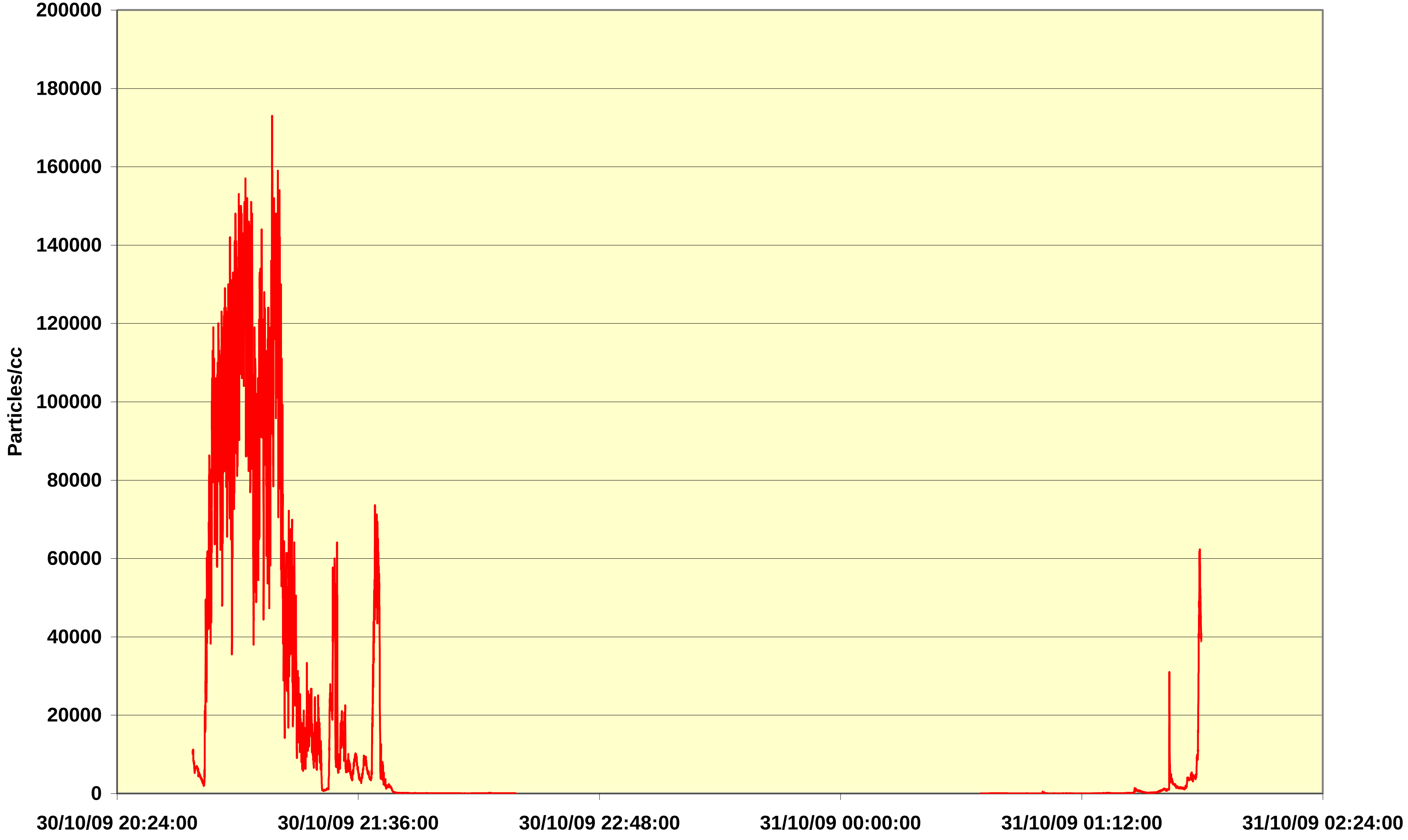
31/10/09 02:24:00


200000
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120000
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20000
0
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30/10/09 20:24:00
30/10/09 21:36:00
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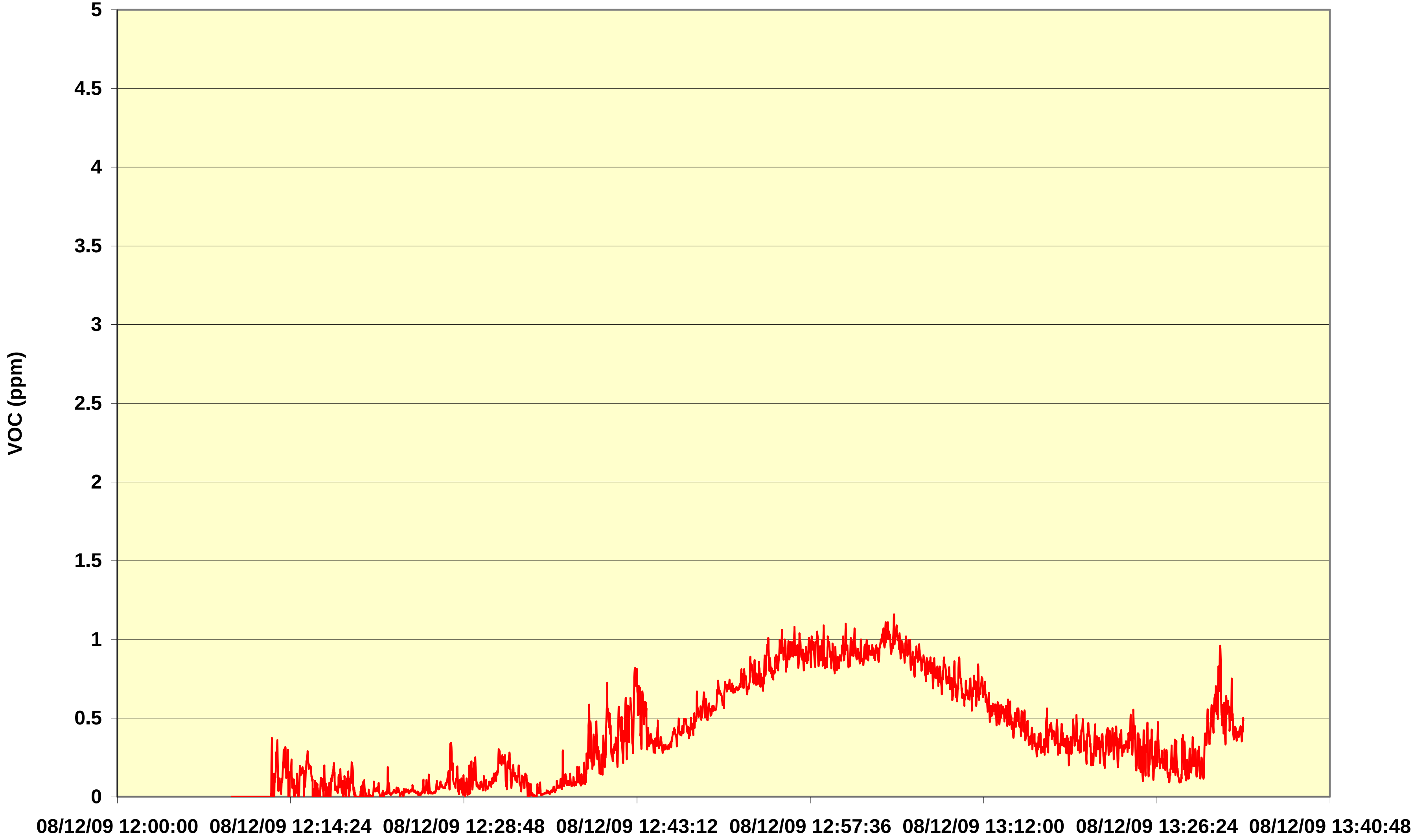
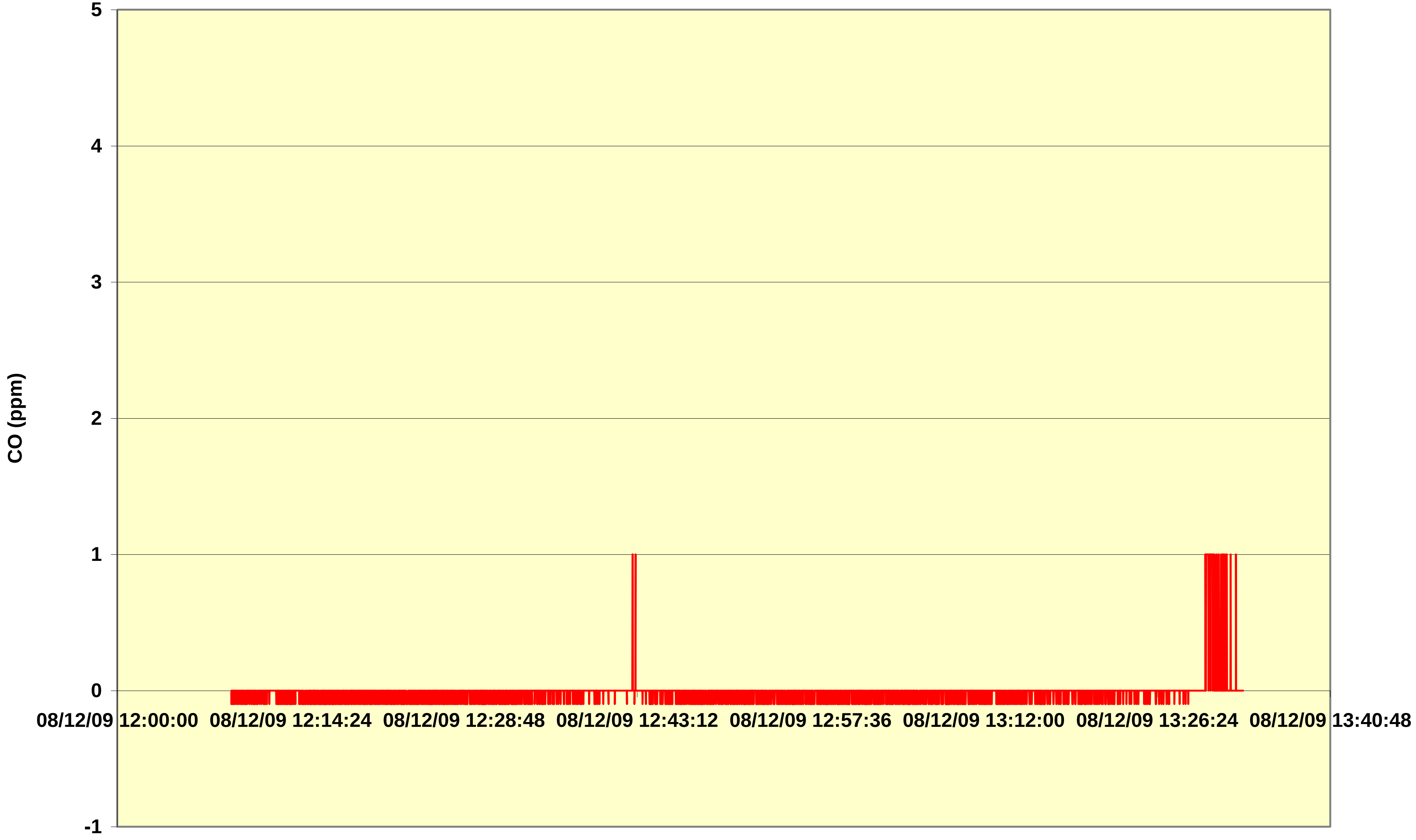
31/10/09 01:12:00
31/10/09 02:24:00



VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
08/12/09 12:00:00
08/12/09 12:14:24
08/12/09 12:28:48
08/12/09 12:43:12
08/12/09 12:57:36
08/12/09 13:12:00
08/12/09 13:26:24
08/12/09 13:40:48


CO (ppm)
5
4
3
2
1
0
-1
08/12/09 12:00:00
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08/12/09 12:28:48
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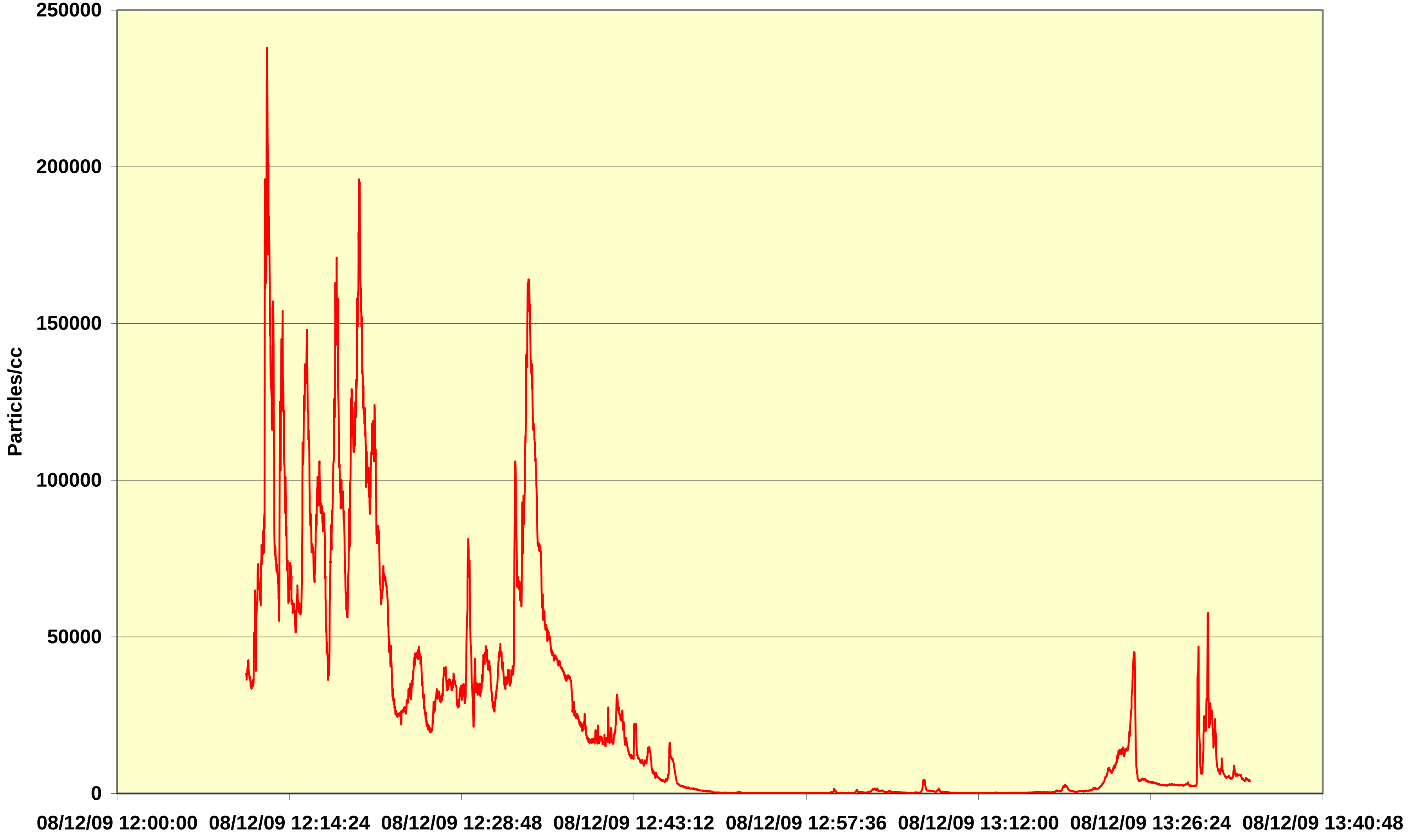
08/12/09 13:40:48


250000
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100000
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Particles/cc
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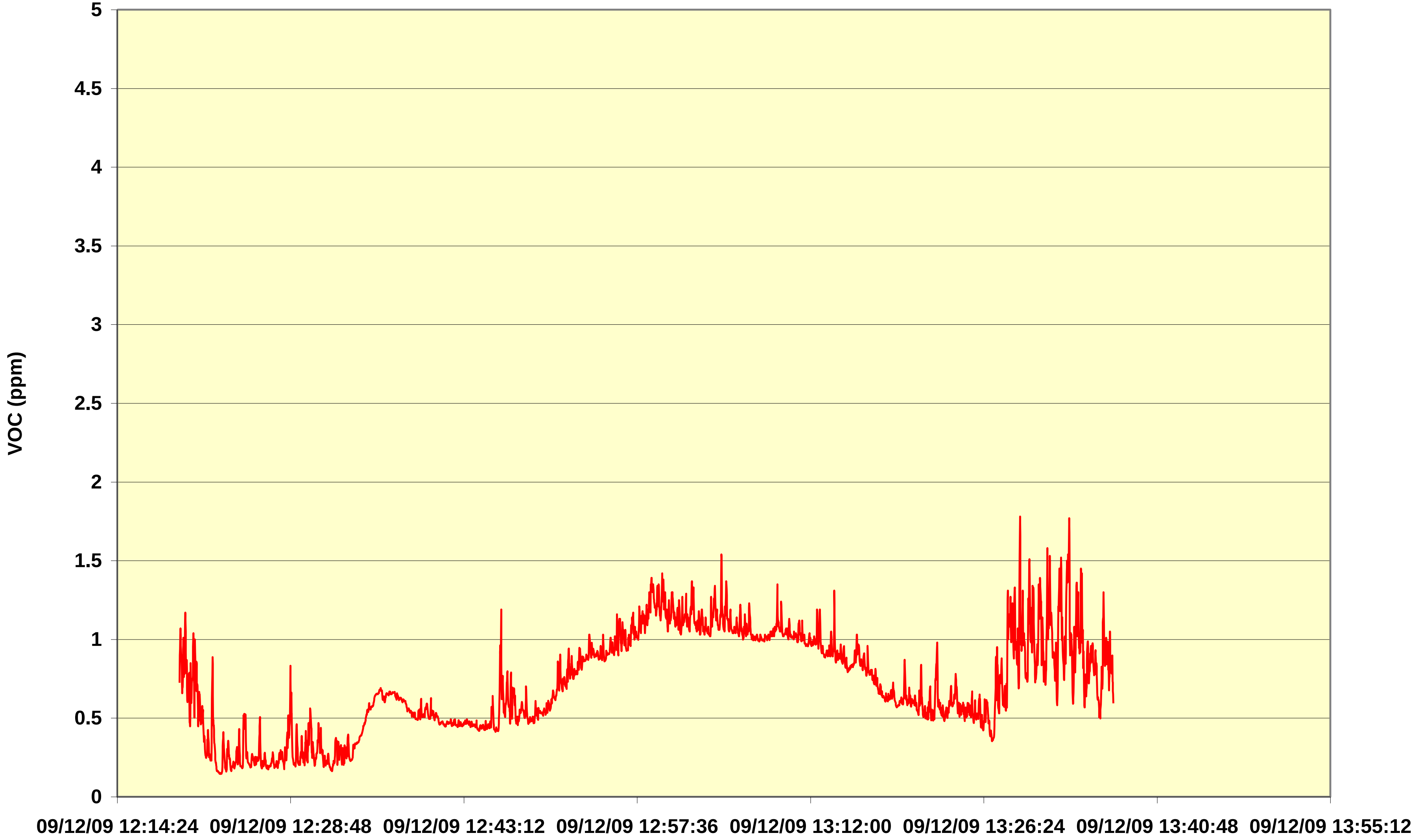
08/12/09 13:40:48



VOC (ppm)
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4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
09/12/09 12:14:24
09/12/09 12:28:48
09/12/09 12:43:12
09/12/09 12:57:36
09/12/09 13:12:00
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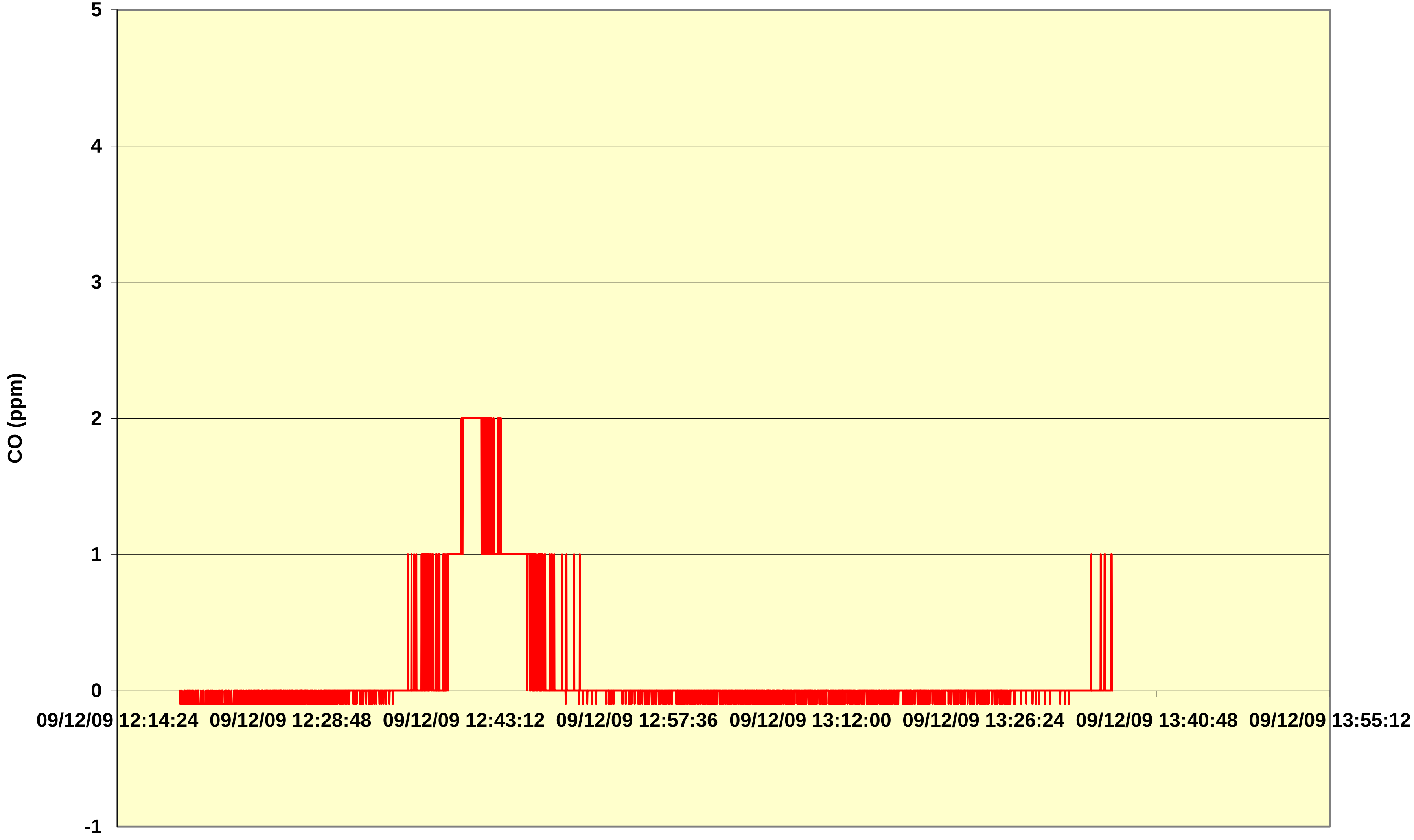
09/12/09 13:55:12


CO (ppm)
5
4
3
2
1
0
-1
09/12/09 12:14:24
09/12/09 12:28:48
09/12/09 12:43:12
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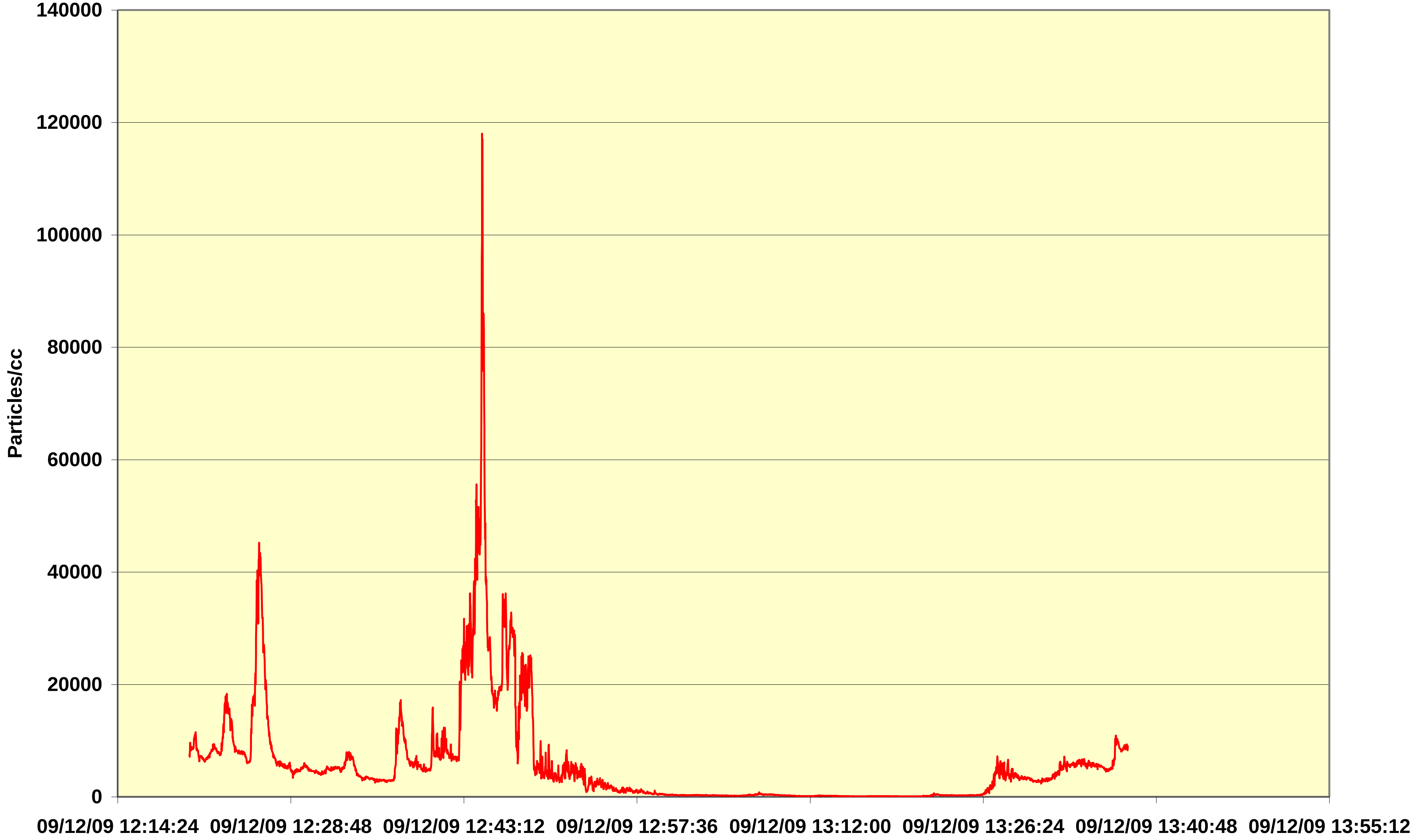
09/12/09 13:55:12


140000
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80000
60000
40000
20000
0
Particles/cc
09/12/09 12:14:24
09/12/09 12:28:48
09/12/09 12:43:12
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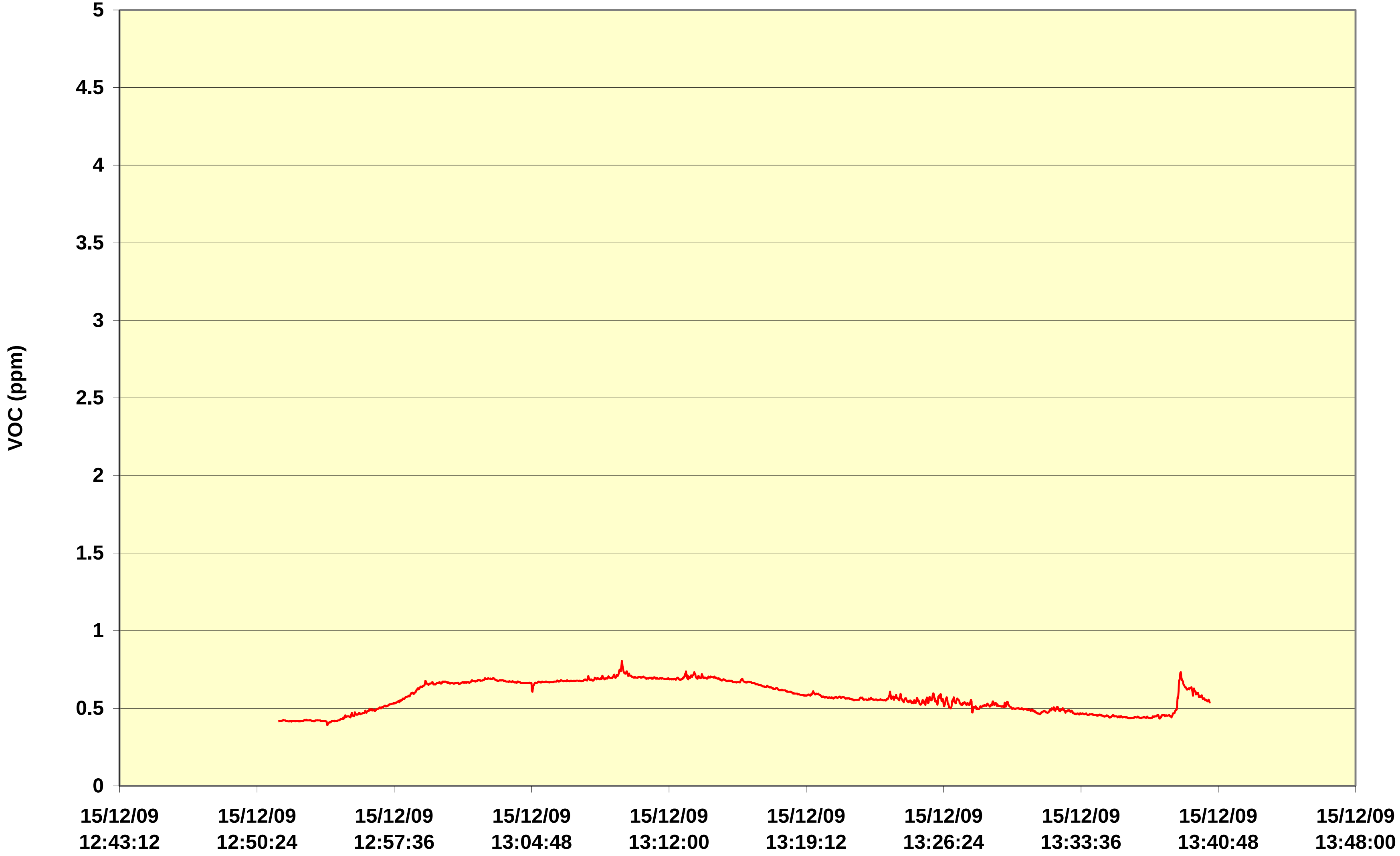
09/12/09 13:55:12



VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
15/12/09 12:43:12
15/12/09 12:50:24
15/12/09 12:57:36
15/12/09 13:04:48
15/12/09 13:12:00
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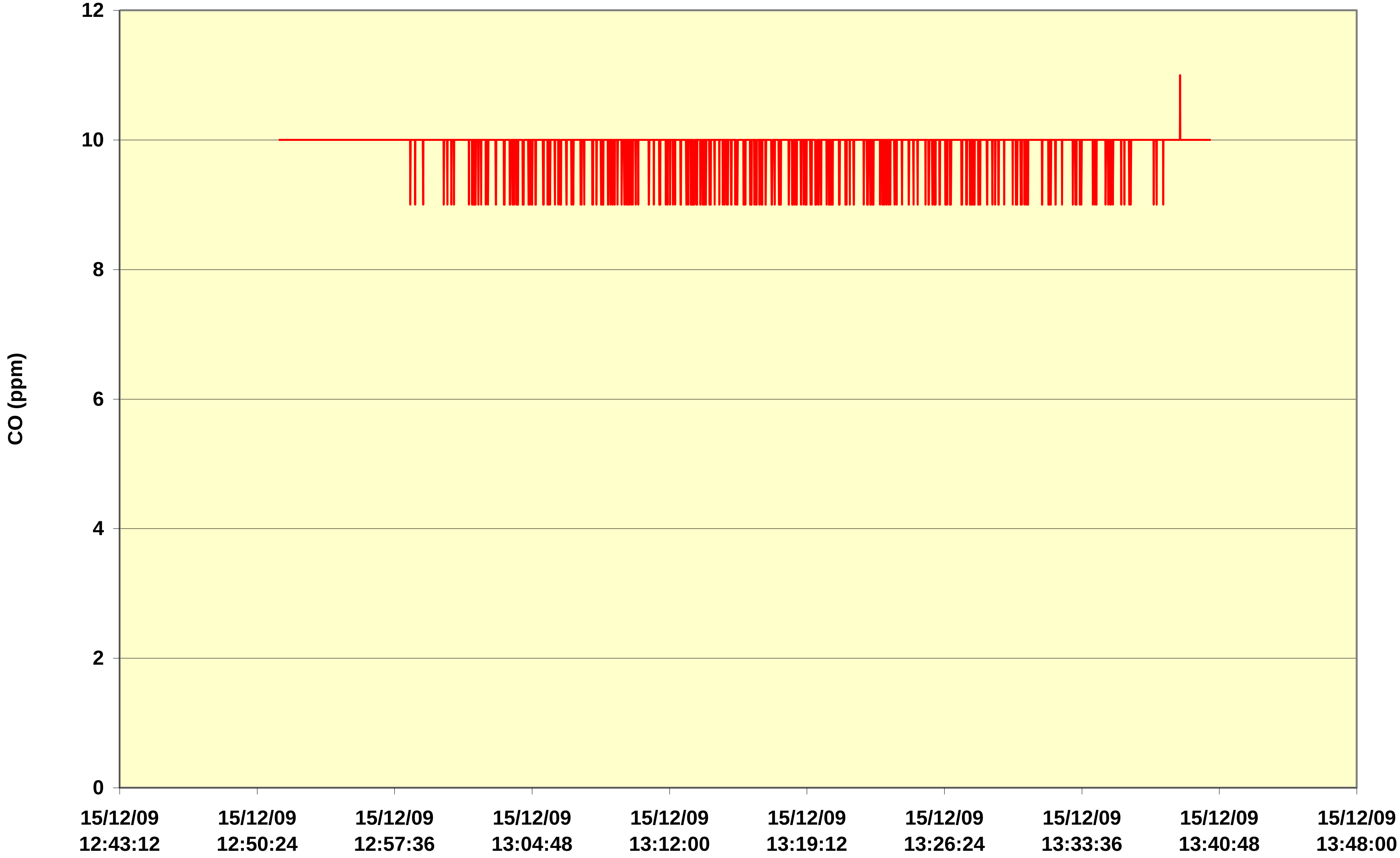
15/12/09 13:48:00


CO (ppm)
0
2
4
6
8
10
12
15/12/09 12:43:12
15/12/09 12:50:24
15/12/09 12:57:36
15/12/09 13:04:48
15/12/09 13:12:00
15/12/09 13:19:12
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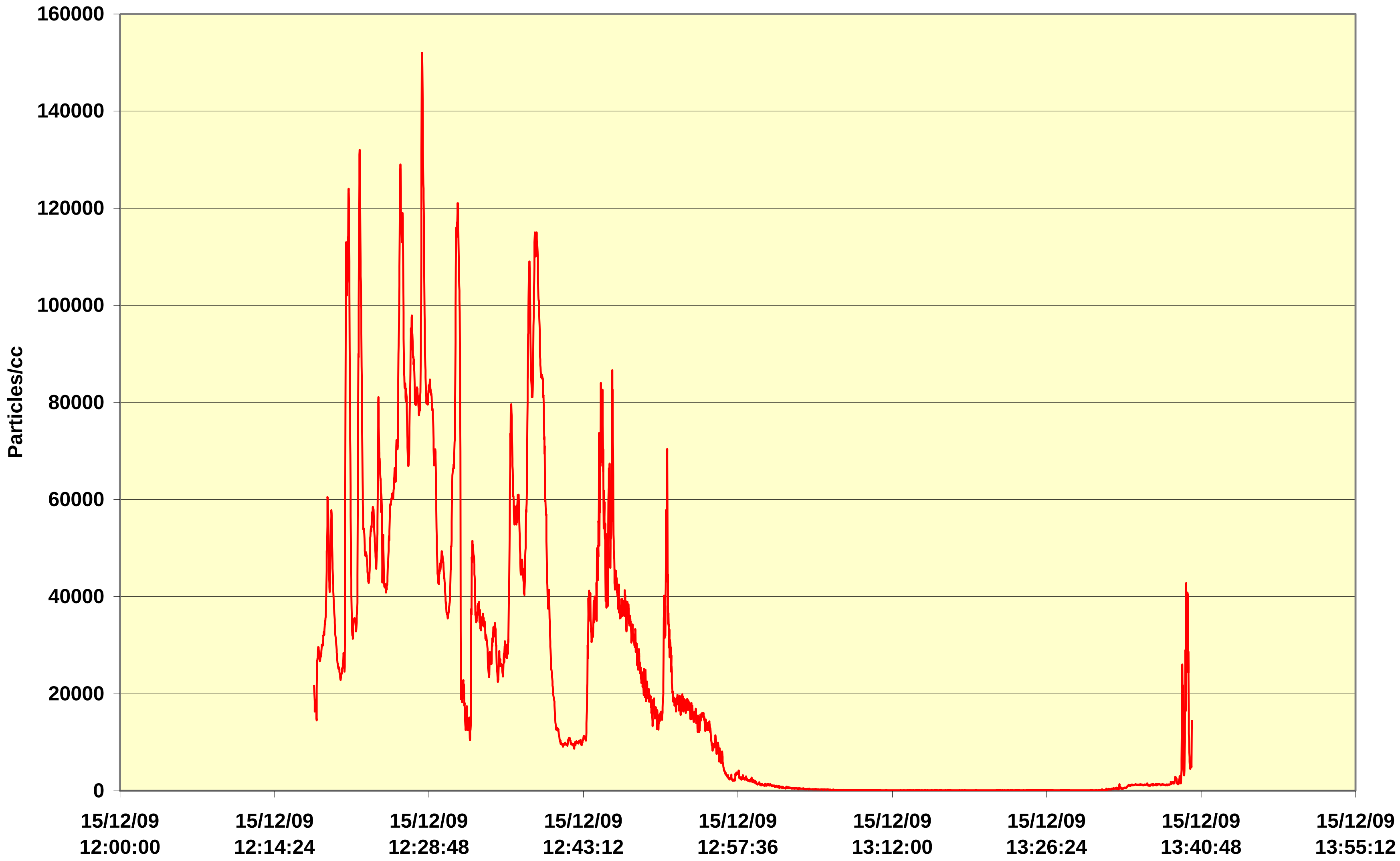
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40000
20000
0
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15/12/09 12:14:24
15/12/09 12:28:48
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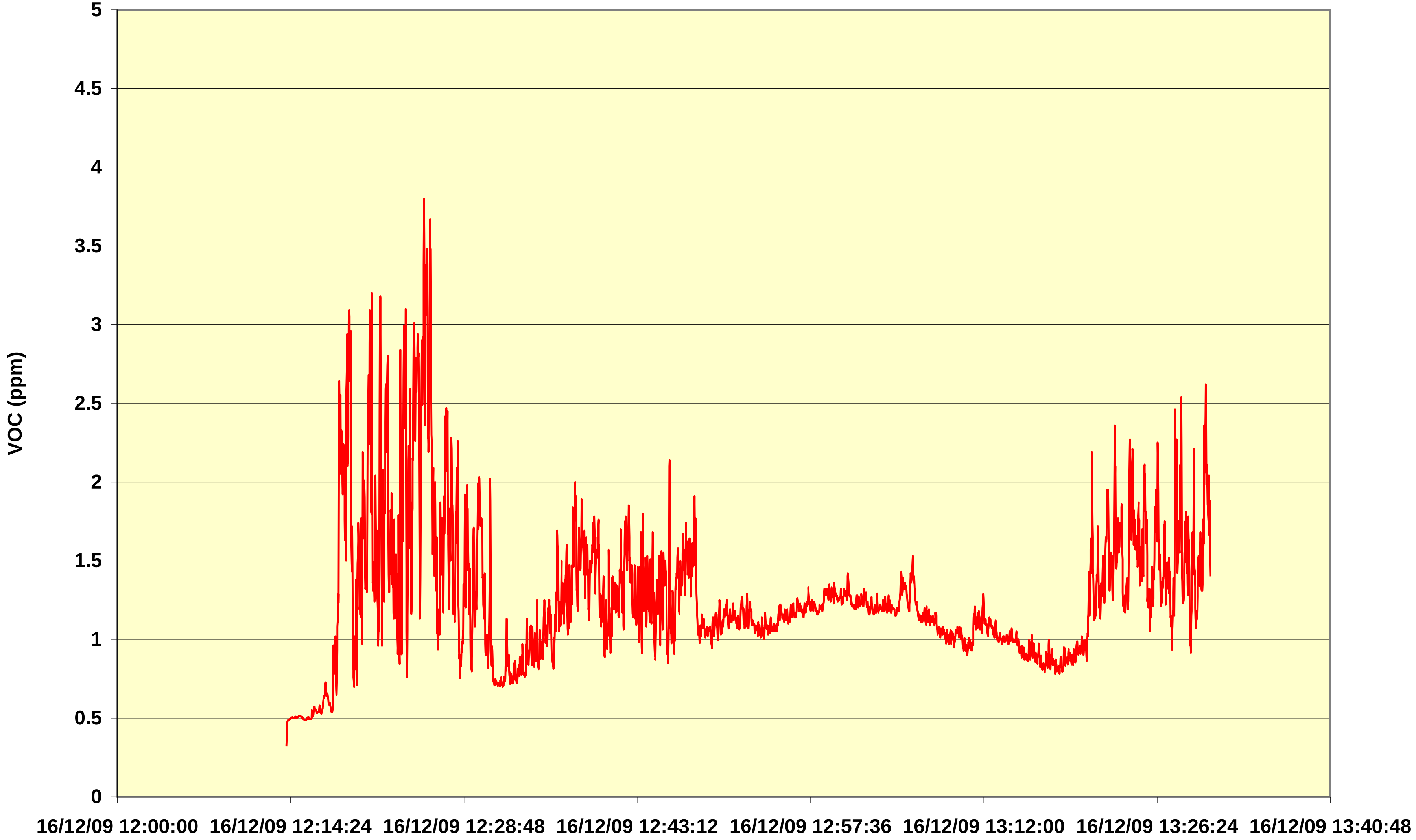
15/12/09 13:12:00
15/12/09 13:26:24
15/12/09 13:40:48
15/12/09 13:55:12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1
1.5
2
2.5
3
3.5
4
4.5
5
16/12/09 12:00:00
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16/12/09 12:28:48
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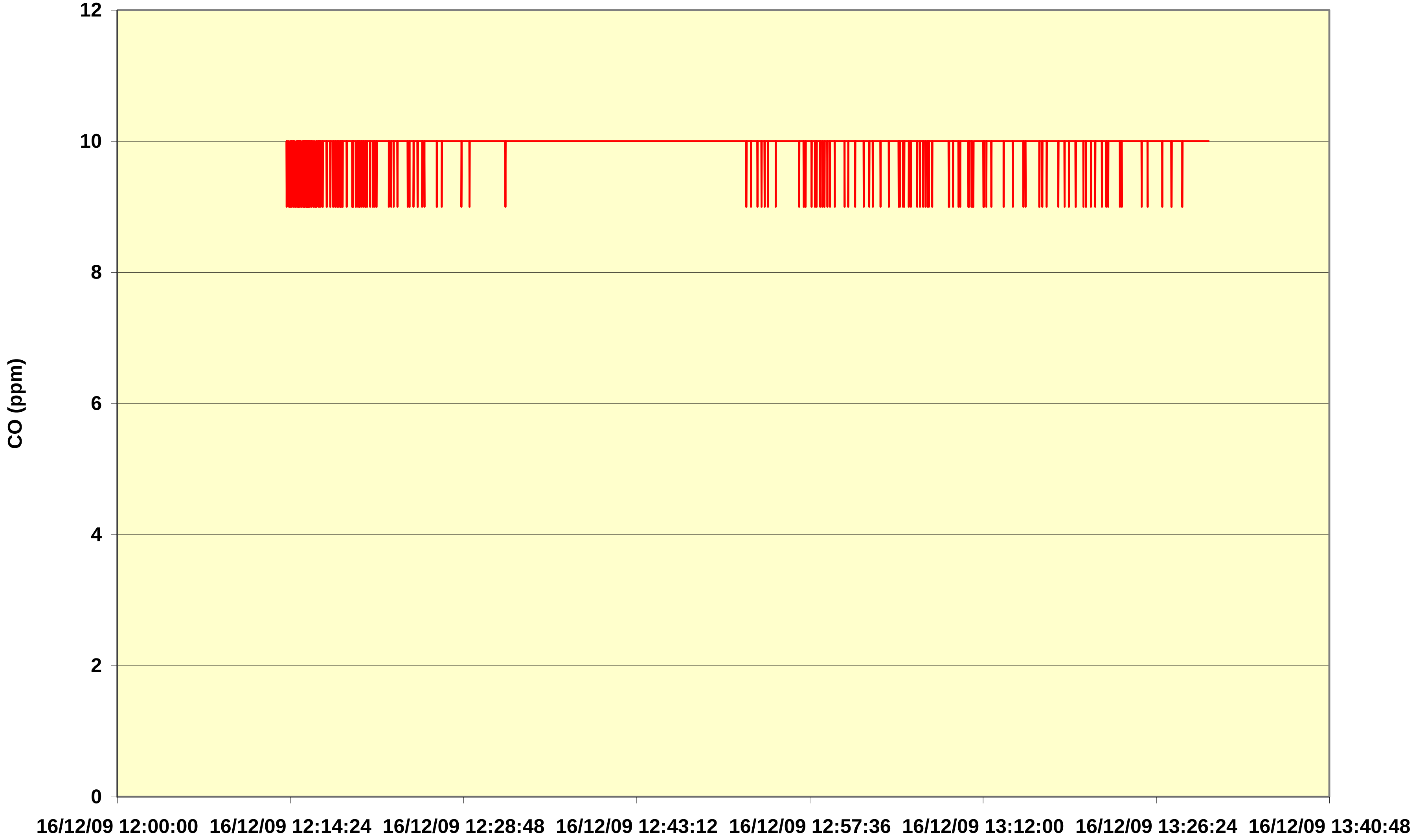
16/12/09 13:26:24
16/12/09 13:40:48



CO (ppm)
0
2
4
6
8
10
12
16/12/09 12:00:00
16/12/09 12:14:24
16/12/09 12:28:48
16/12/09 12:43:12
16/12/09 12:57:36
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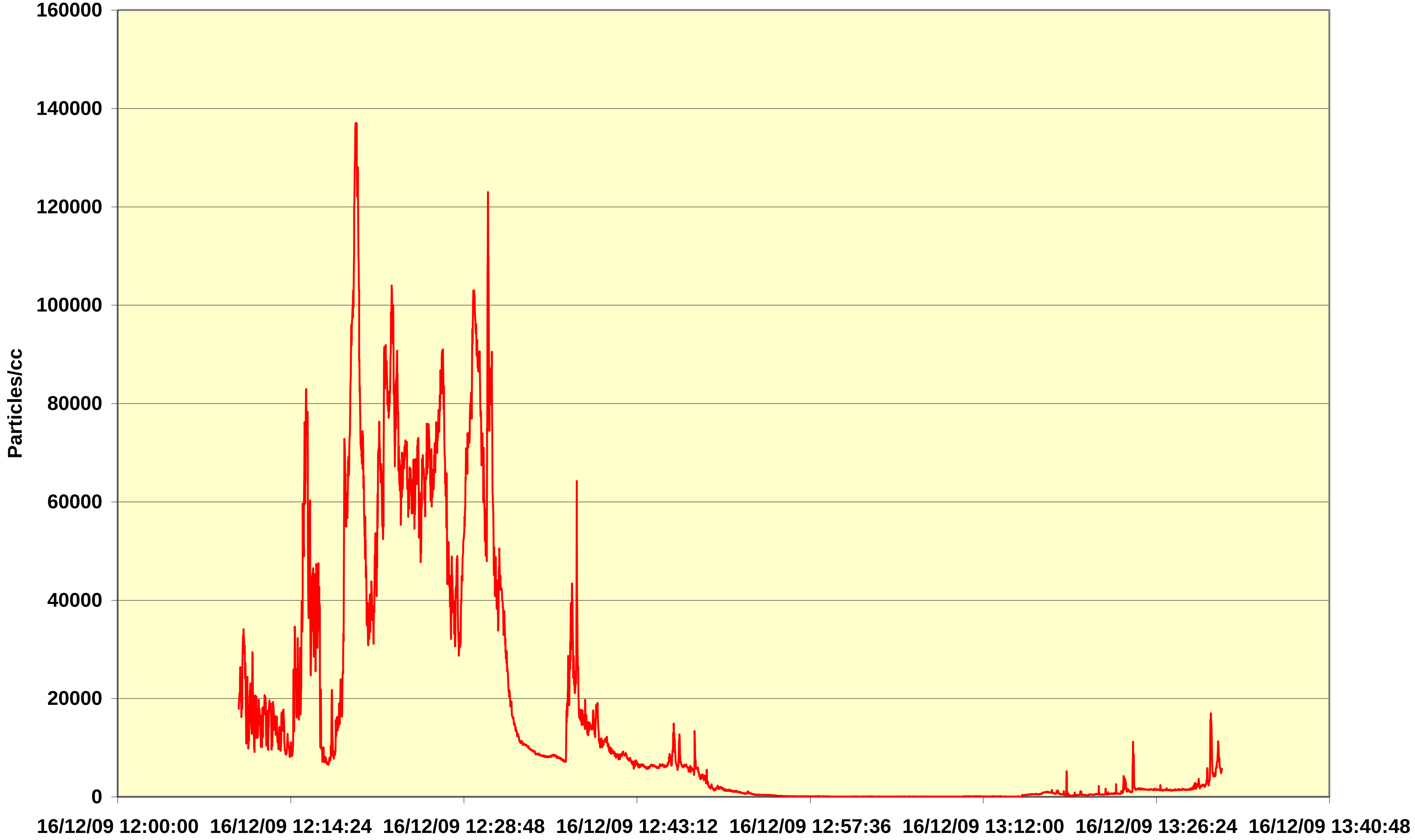
16/12/09 13:40:48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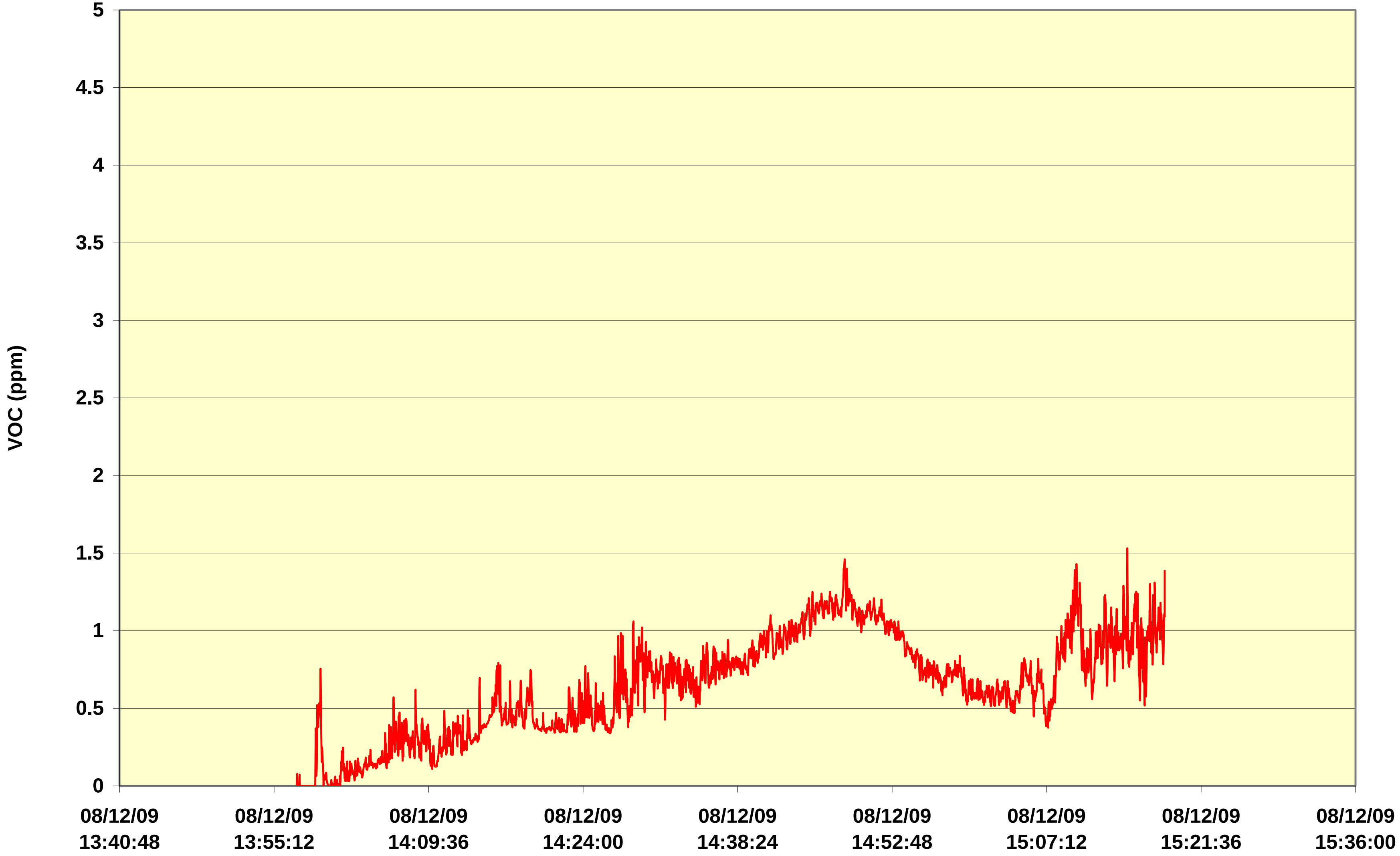
16/12/09 13:40:48



VOC (ppm)
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4
3.5
3
2.5
2
1.5
1
0.5
0
08/12/09 13:40:48
08/12/09 13:55:12
08/12/09 14:09:36
08/12/09 14:24:00
08/12/09 14:38:24
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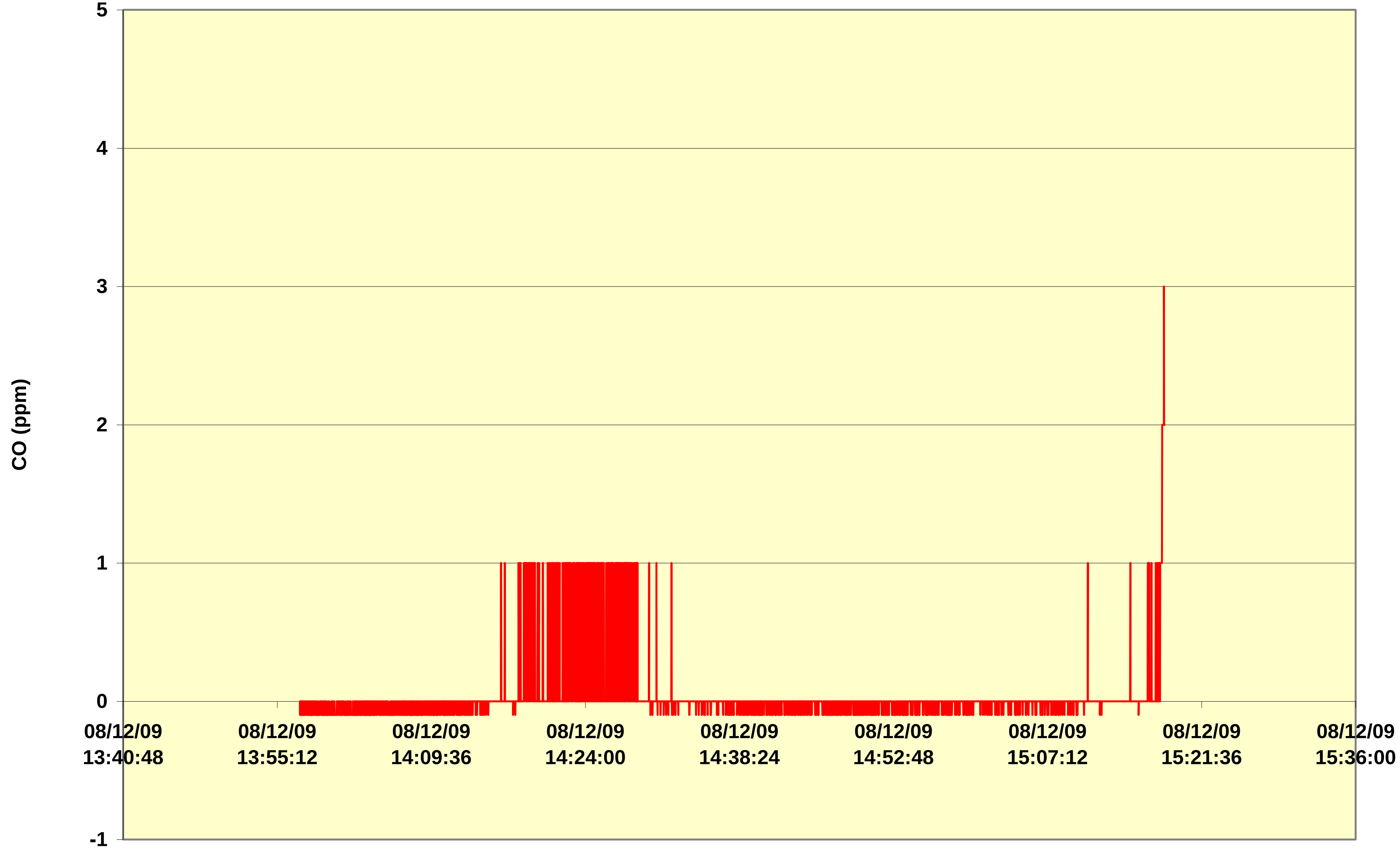
08/12/09 15:36:00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3
2
1
0
-1
08/12/09 13:40:48
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08/12/09 14:09:36
08/12/09 14:24:00
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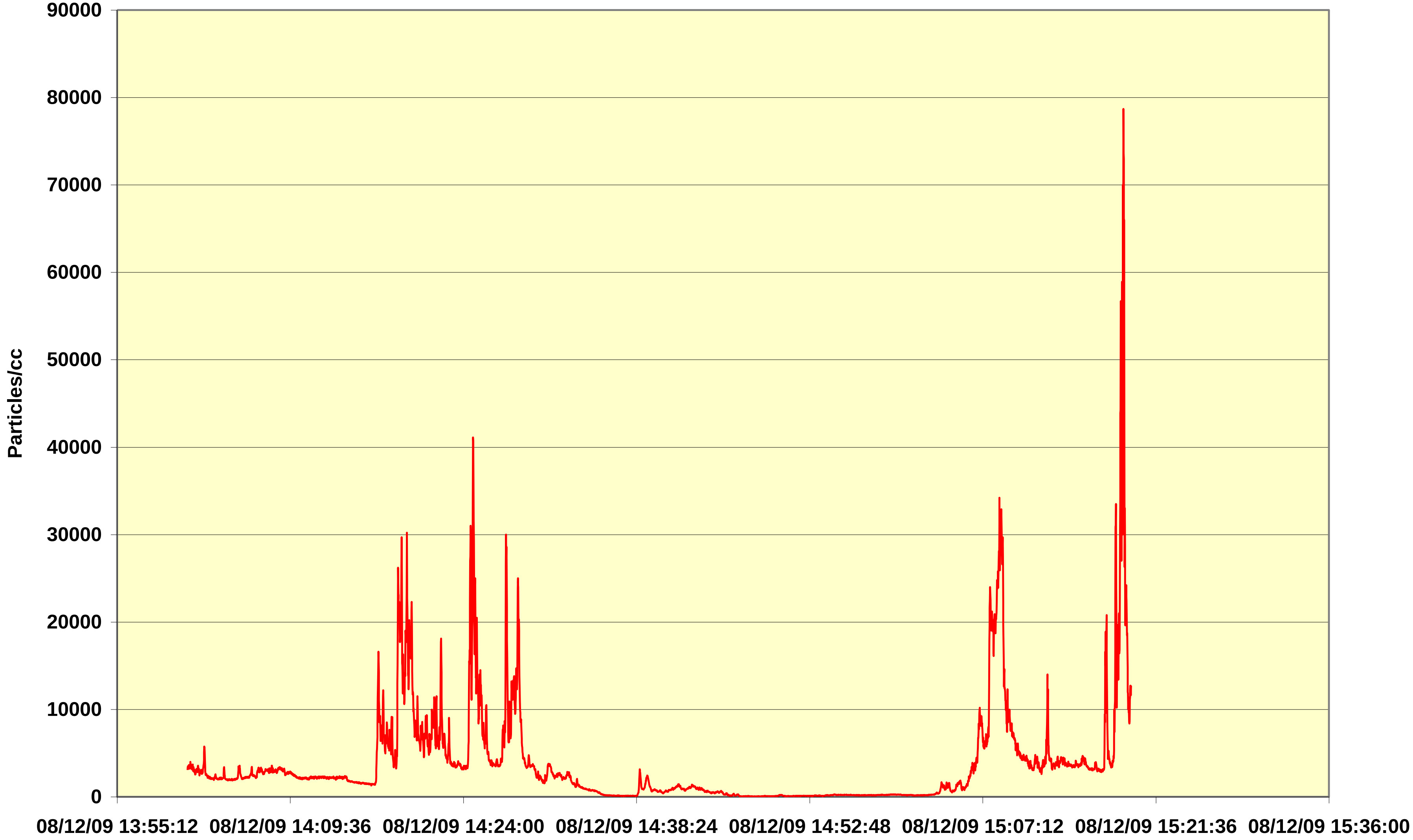
08/12/09 15:36:00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20000
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08/12/09 14:38:24
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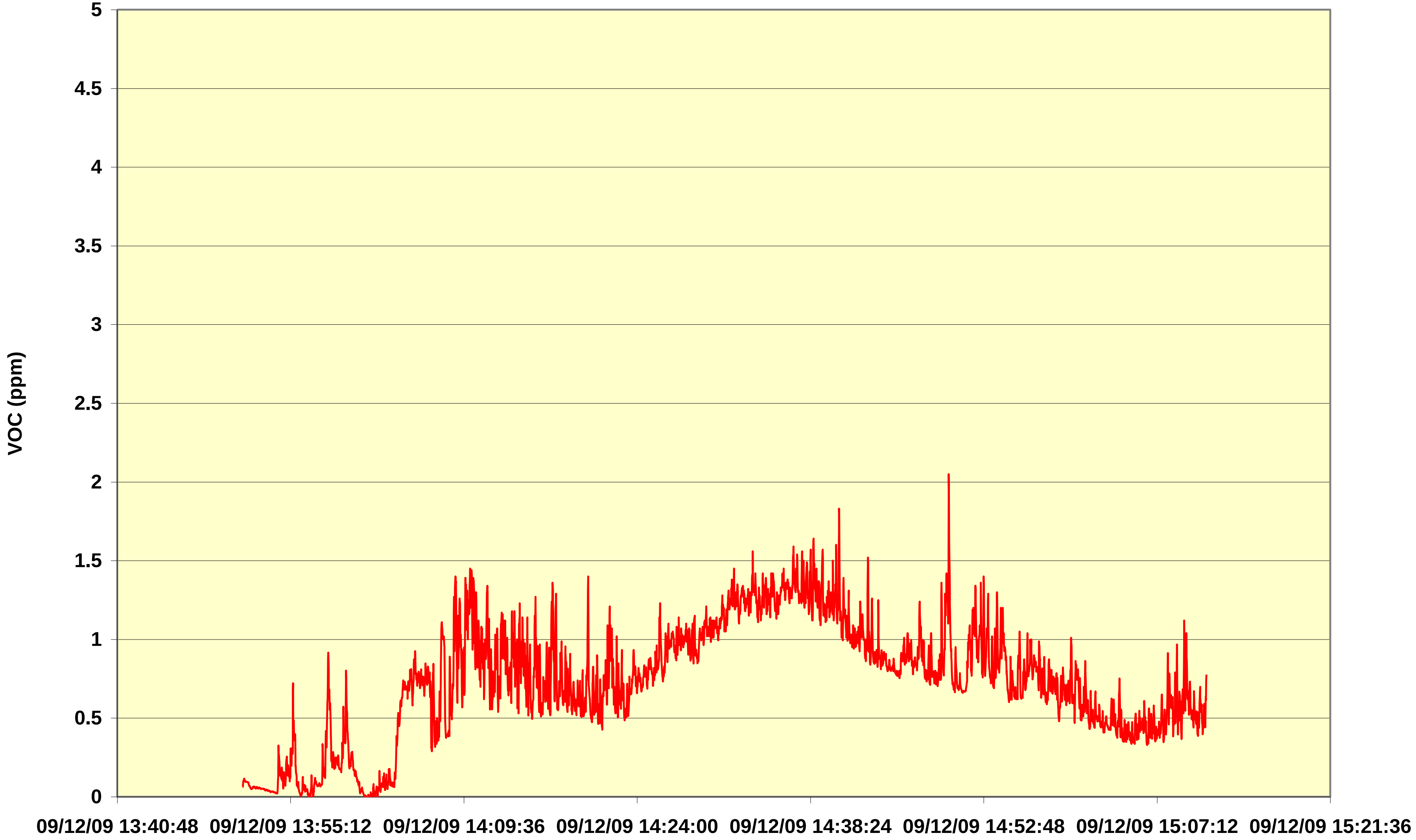
08/12/09 15:36:00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3.5
3
2.5
2
1.5
1
0.5
0
09/12/09 13:40:48
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09/12/09 14:24:00
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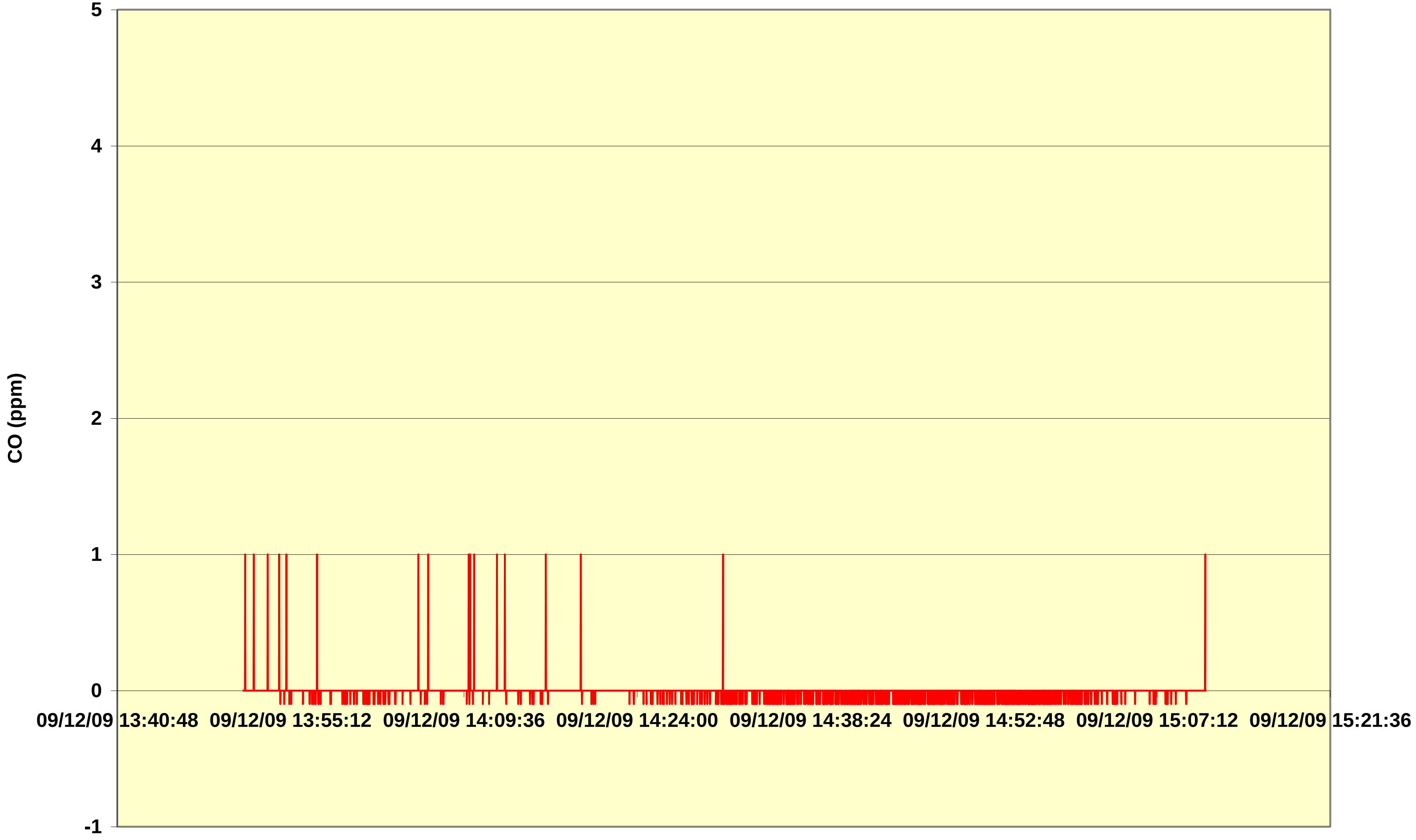
09/12/09 15:21:36


CO (ppm)
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2
1
0
-1
09/12/09 13:40:48
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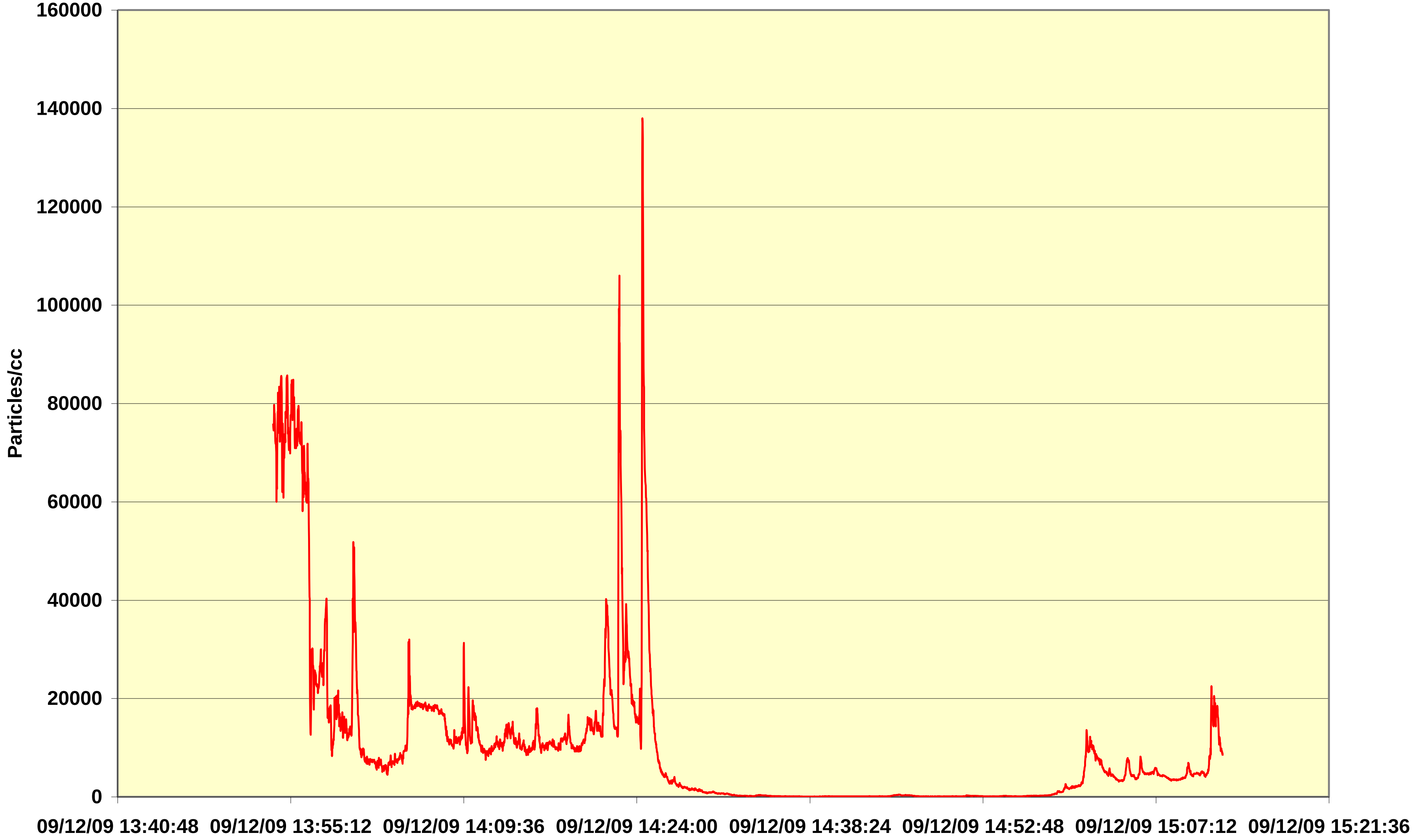
09/12/09 15:21:36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20000
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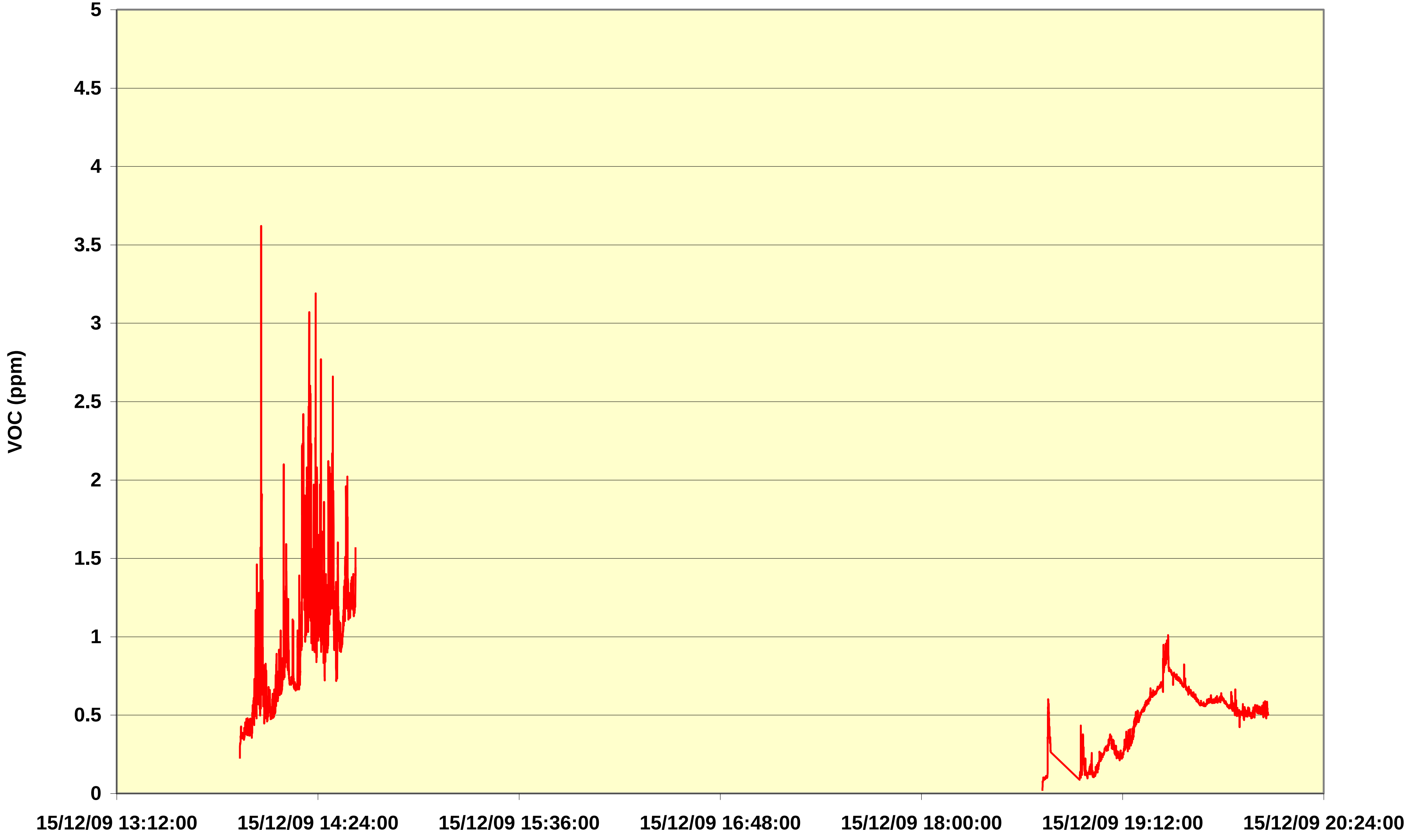
09/12/09 15:21:36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4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
15/12/09 13:12:00
15/12/09 14:24:00
15/12/09 15:36:00
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15/12/09 18:00:00
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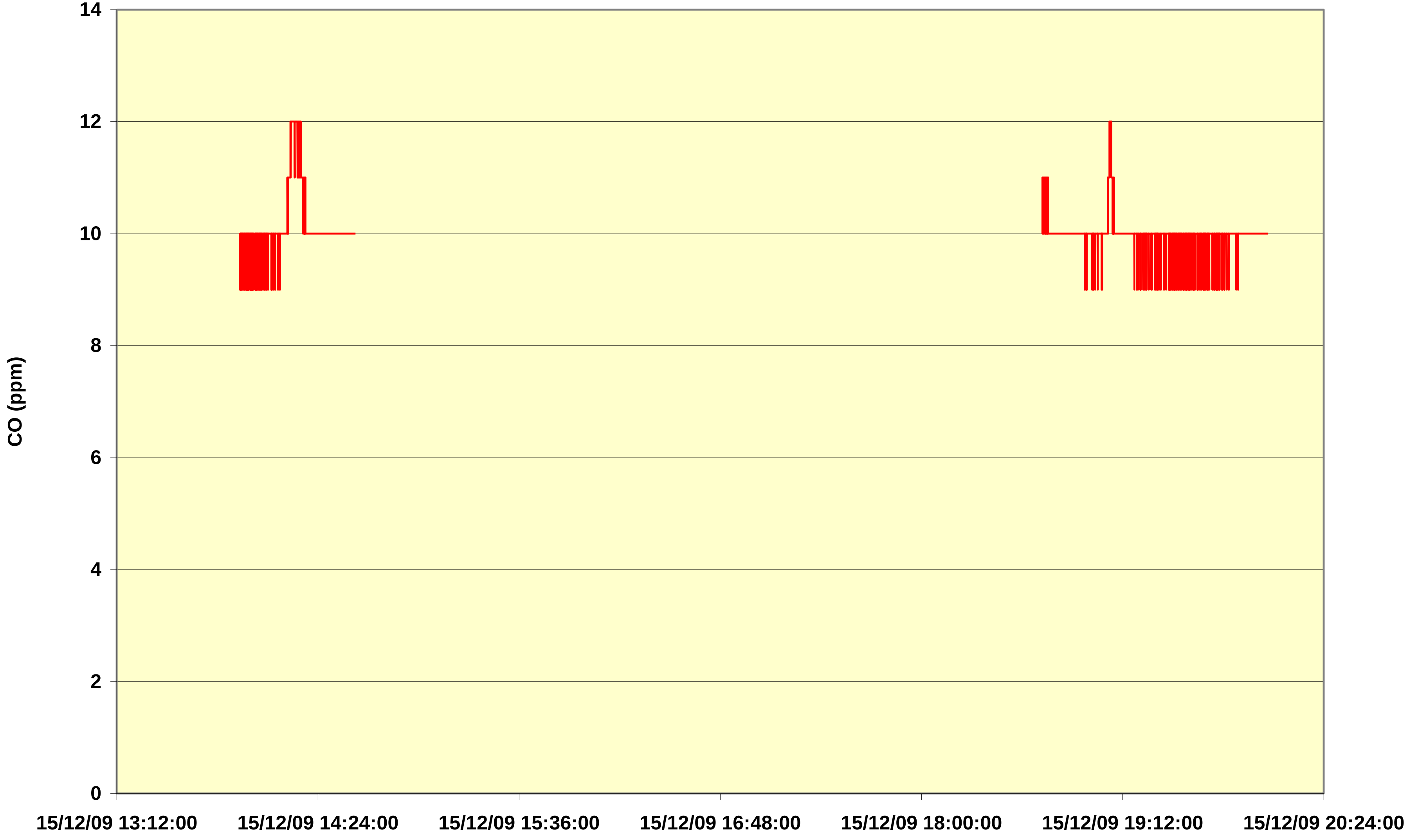
15/12/09 20:24:00



CO (ppm)
14
12
10
8
6
4
2
0
15/12/09 13:12:00
15/12/09 14:24:00
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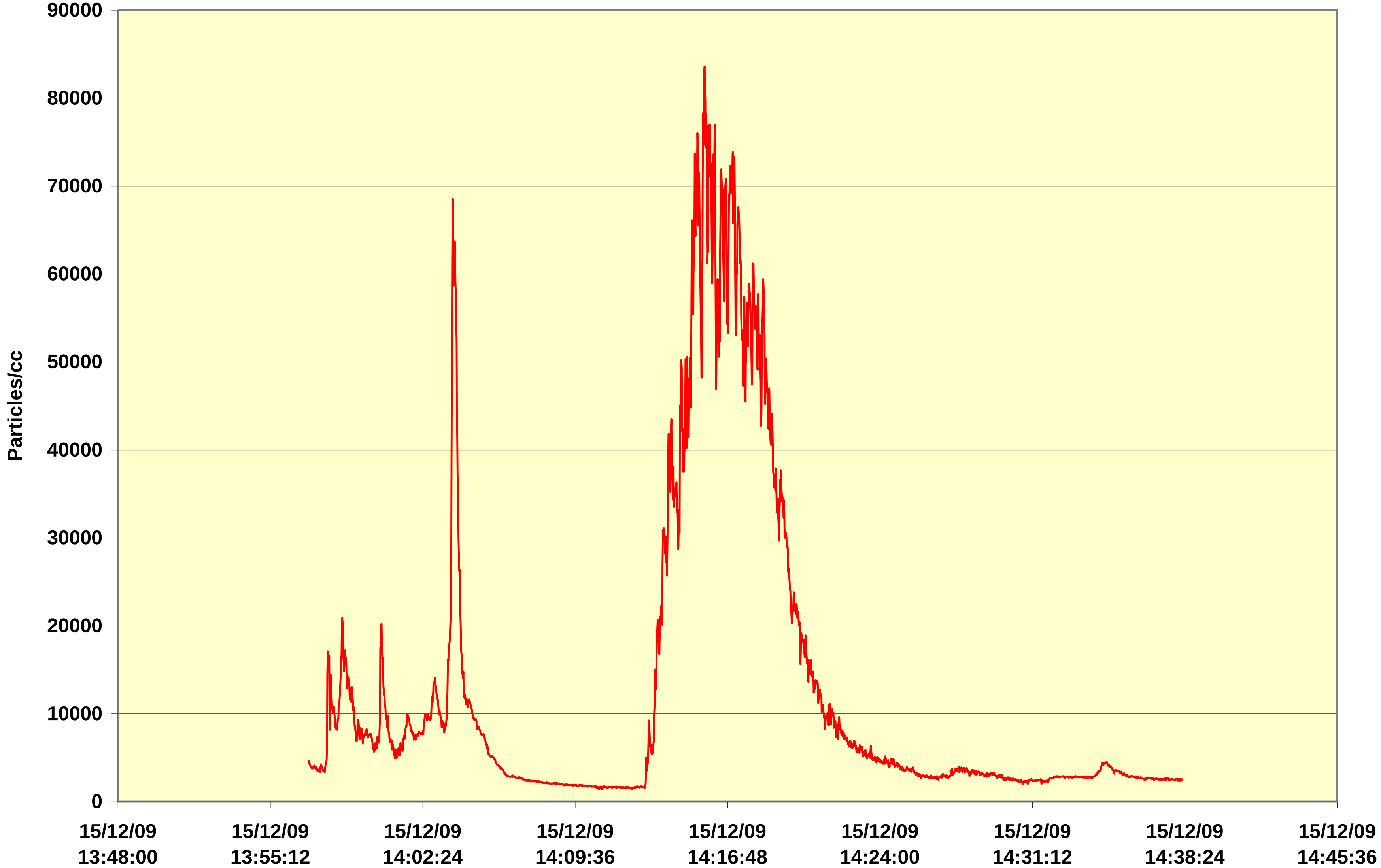
15/12/09 20:24:00



Particles/cc
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70000
60000
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40000
30000
20000
10000
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15/12/09 14:09:36
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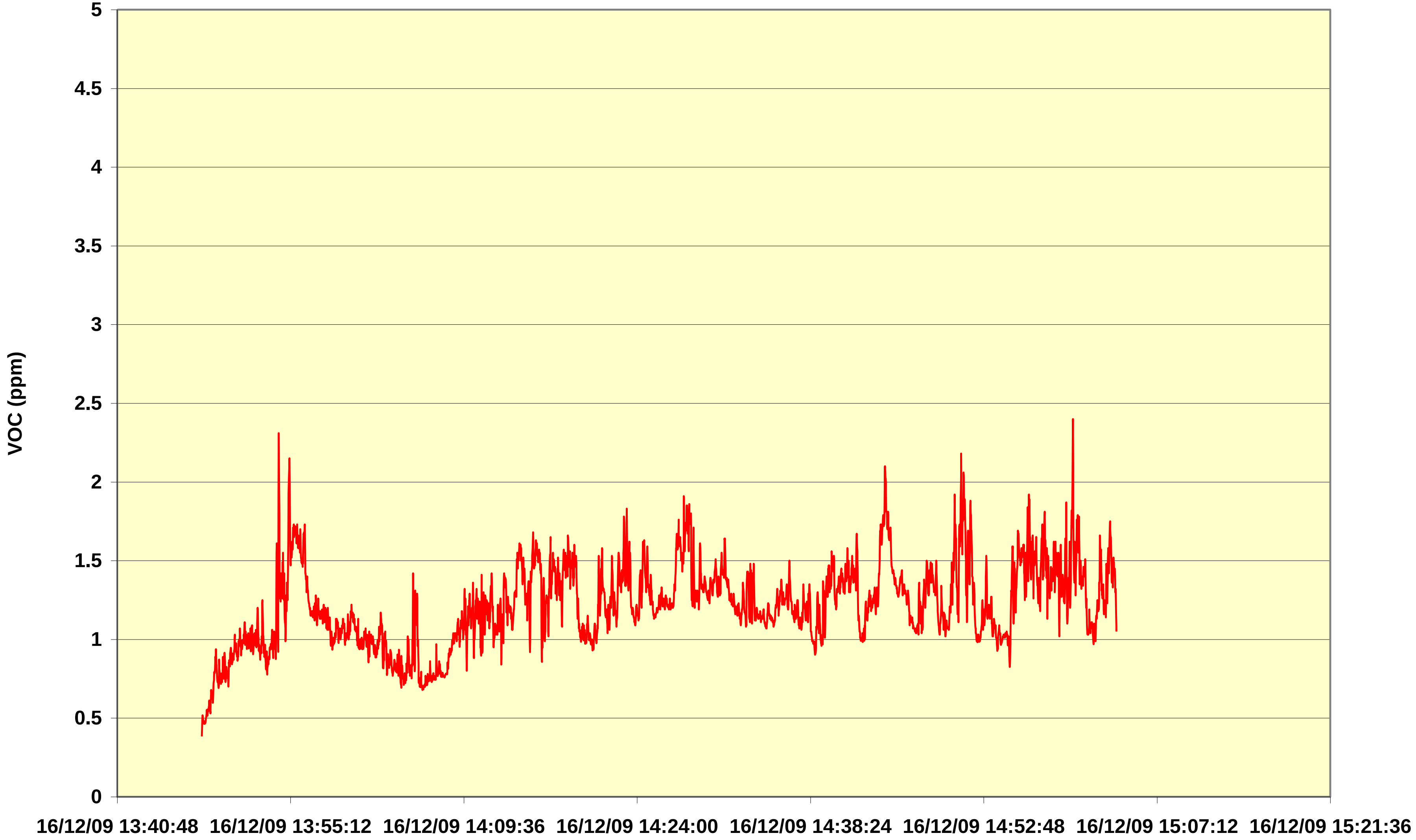
15/12/09 14:45:36


VOC (ppm)
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3
2.5
2
1.5
1
0.5
0
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16/12/09 14:24:00
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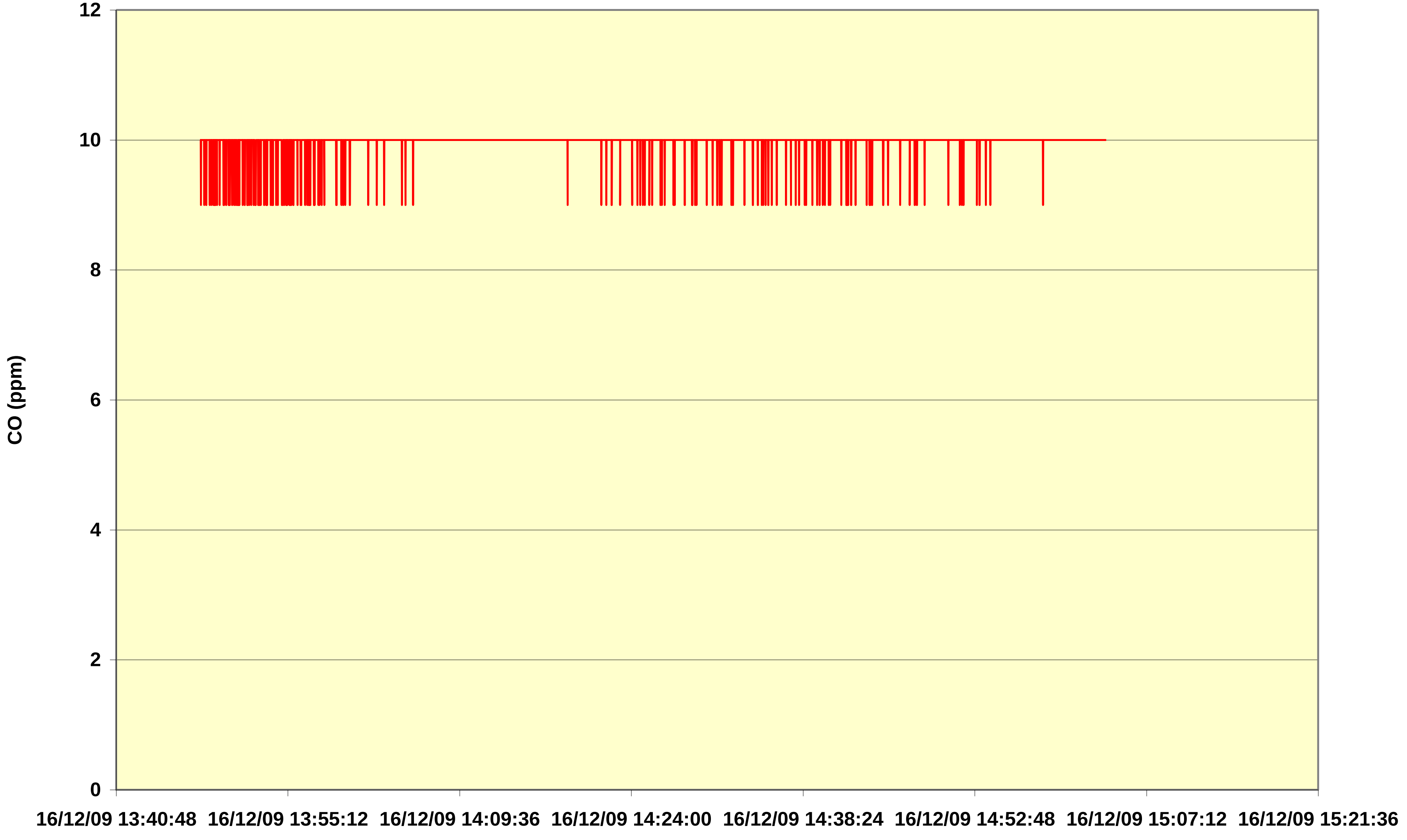
16/12/09 15:21:36


12
10
8
6
4
2
0
CO (ppm)
16/12/09 13:40:48
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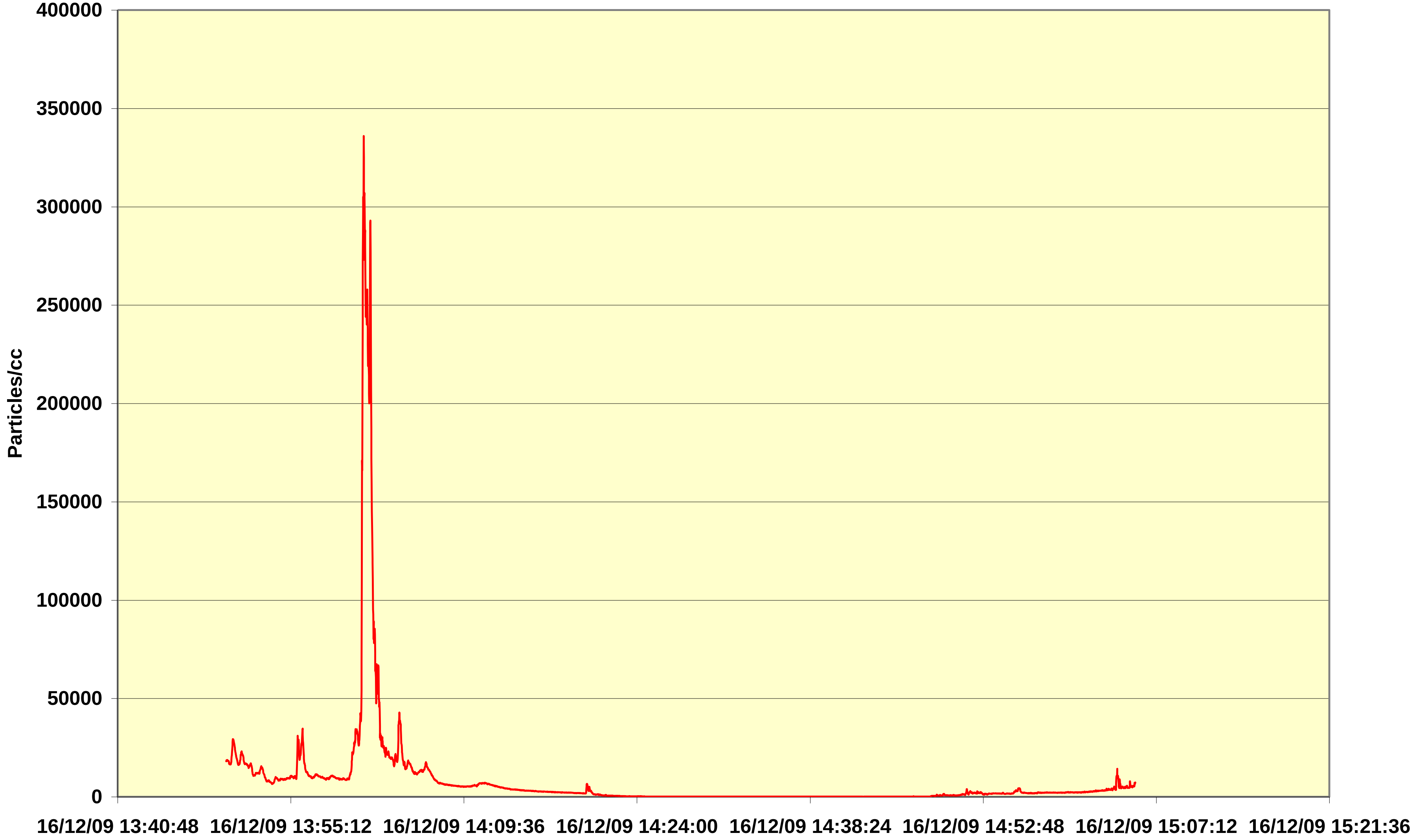
16/12/09 15:21:36



Particles/cc
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16/12/09 14:52:48
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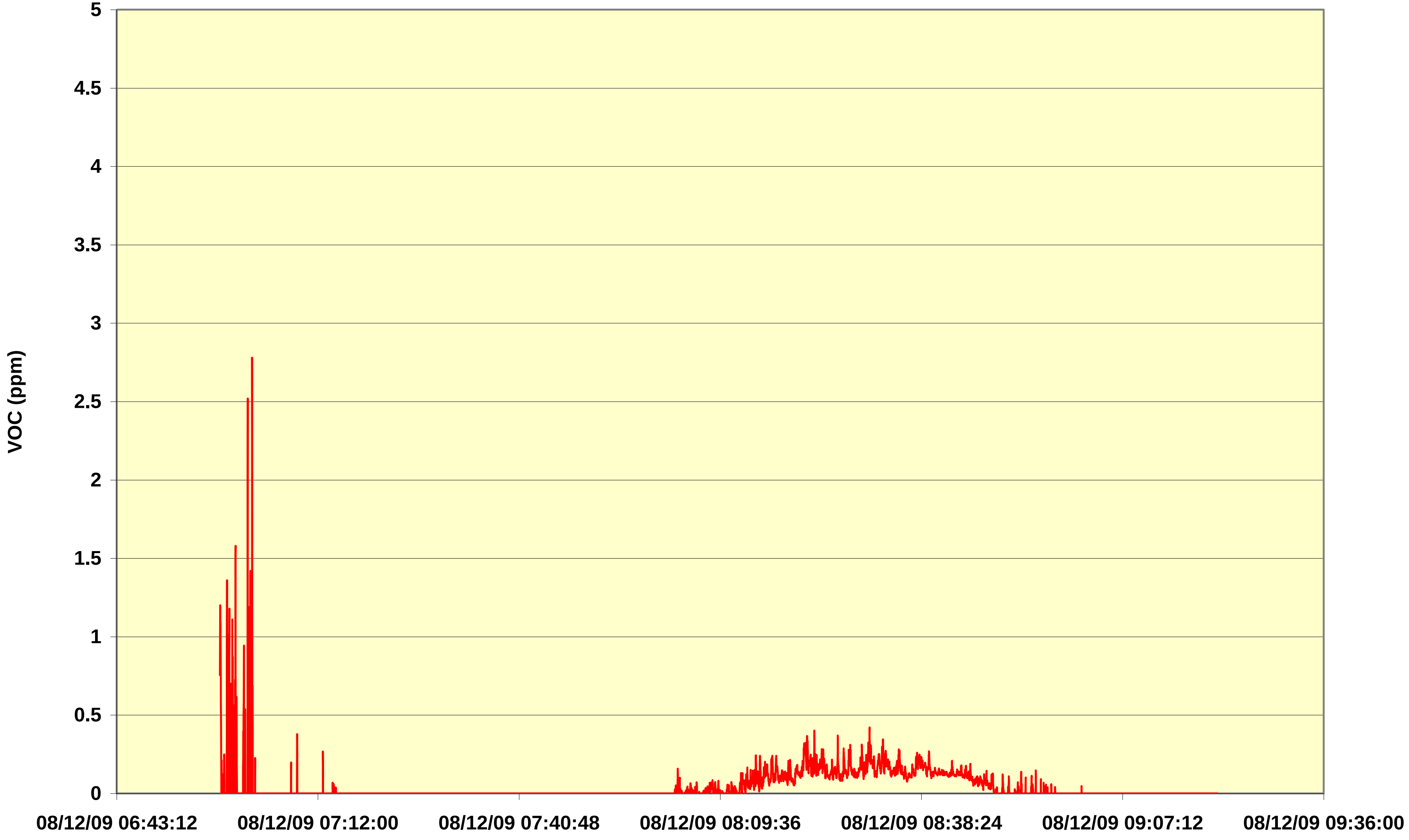
16/12/09 15:21:36



5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
08/12/09 06:43:12
08/12/09 07:12:00
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08/12/09 08:38:24
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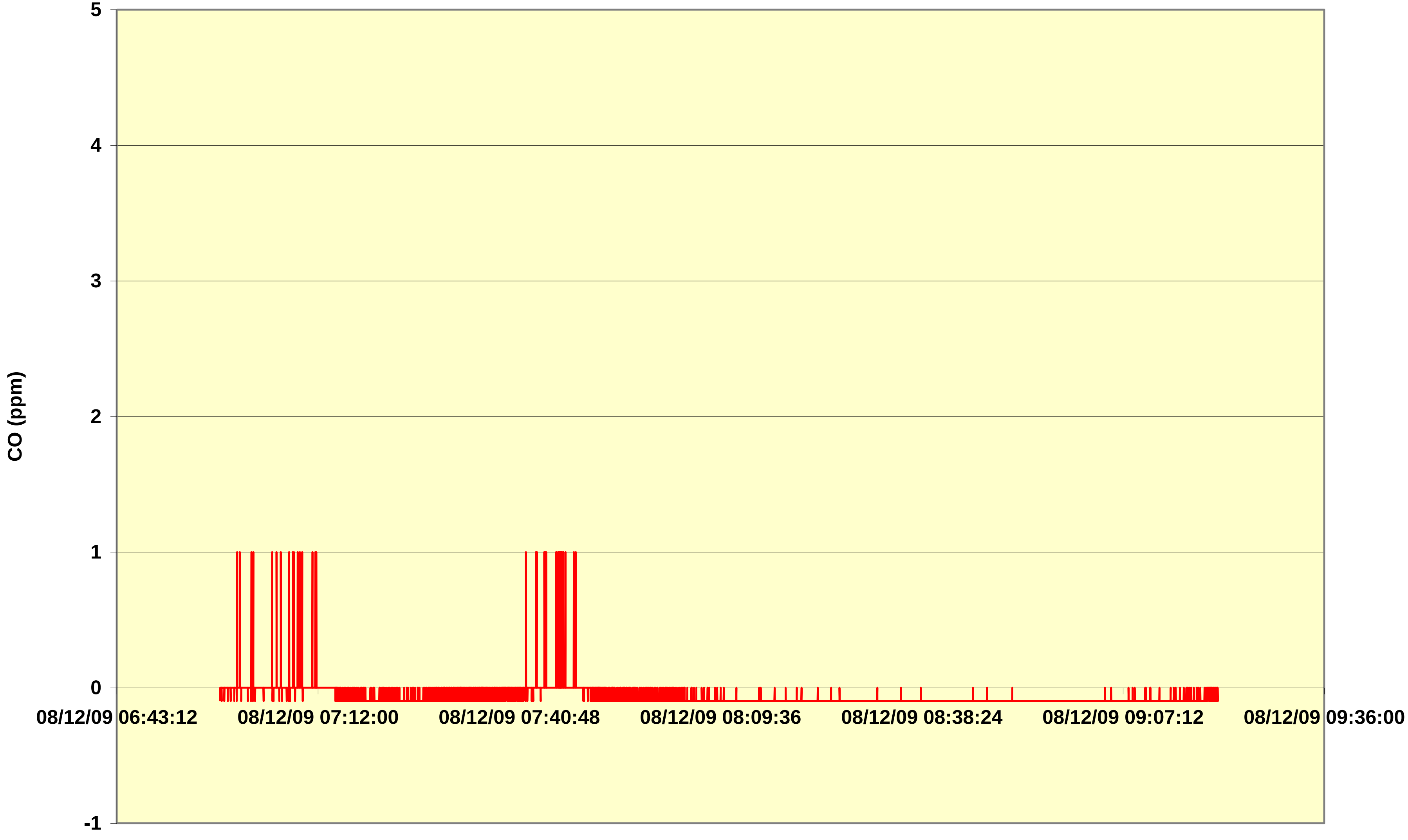
08/12/09 09:36:00



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2
1
0
-1
CO (ppm)
08/12/09 06:43:12
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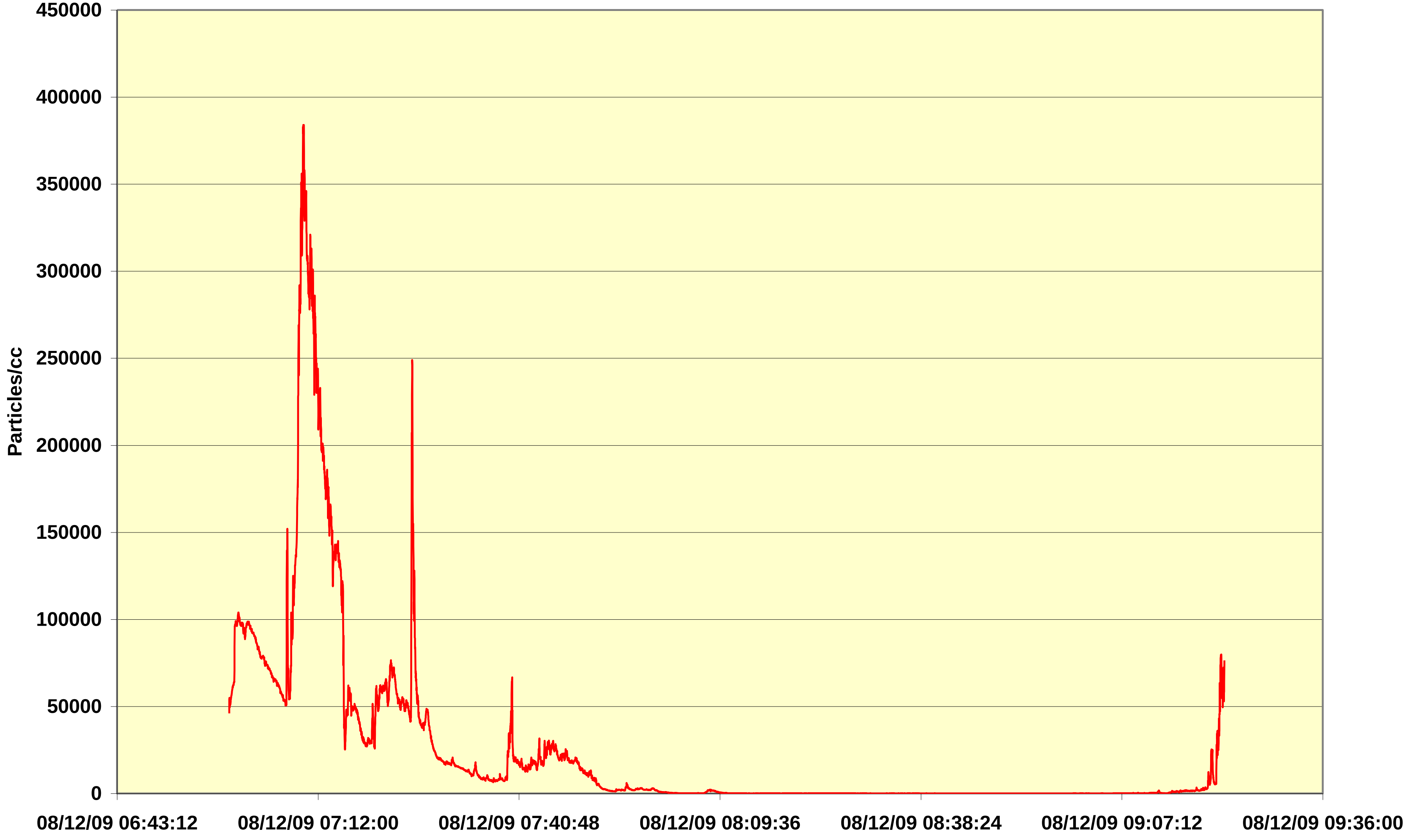
08/12/09 09:36:00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0
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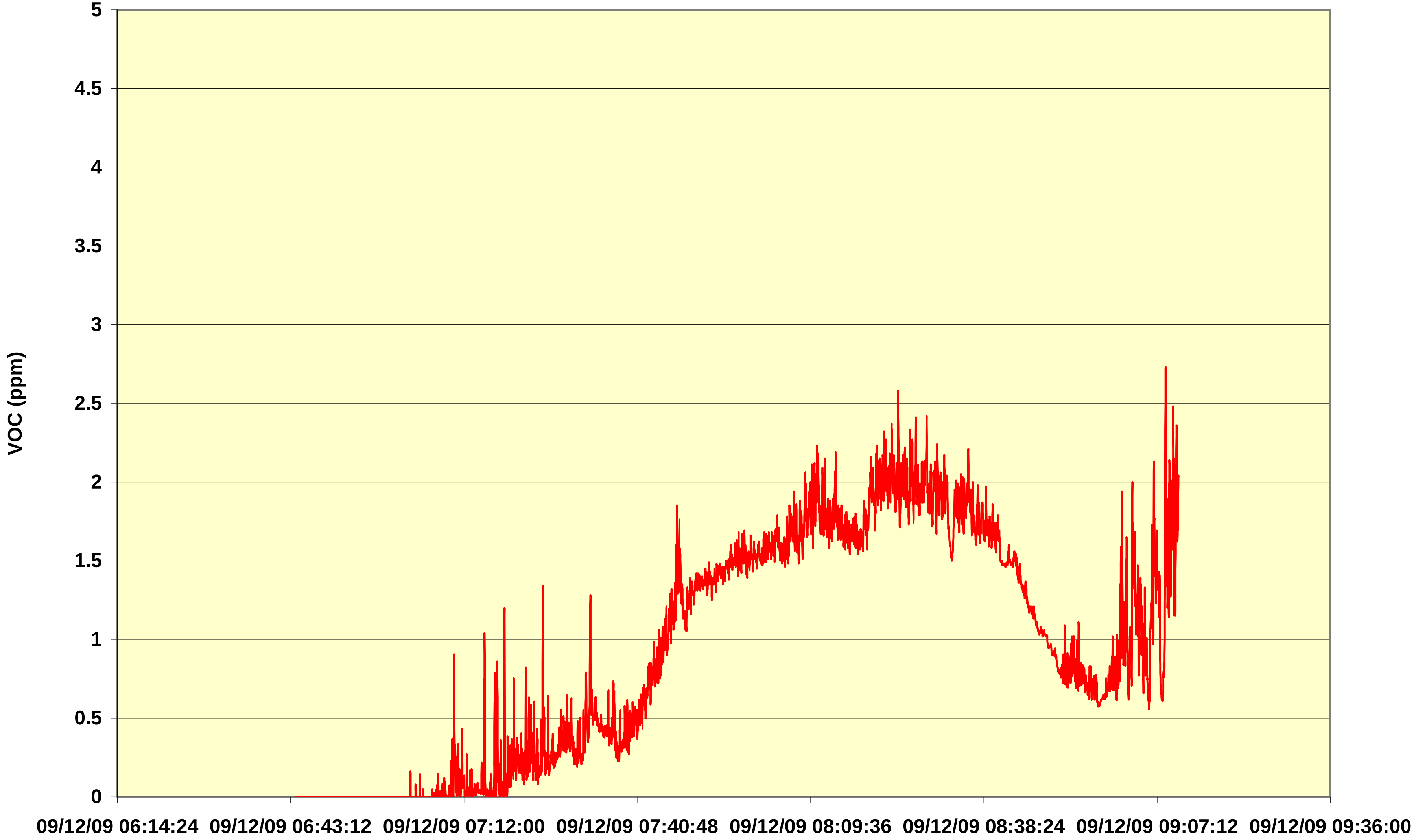
08/12/09 09:36:00


VOC (ppm)
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3
2.5
2
1.5
1
0.5
0
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09/12/09 06:43:12
09/12/09 07:12:00
09/12/09 07:40:48
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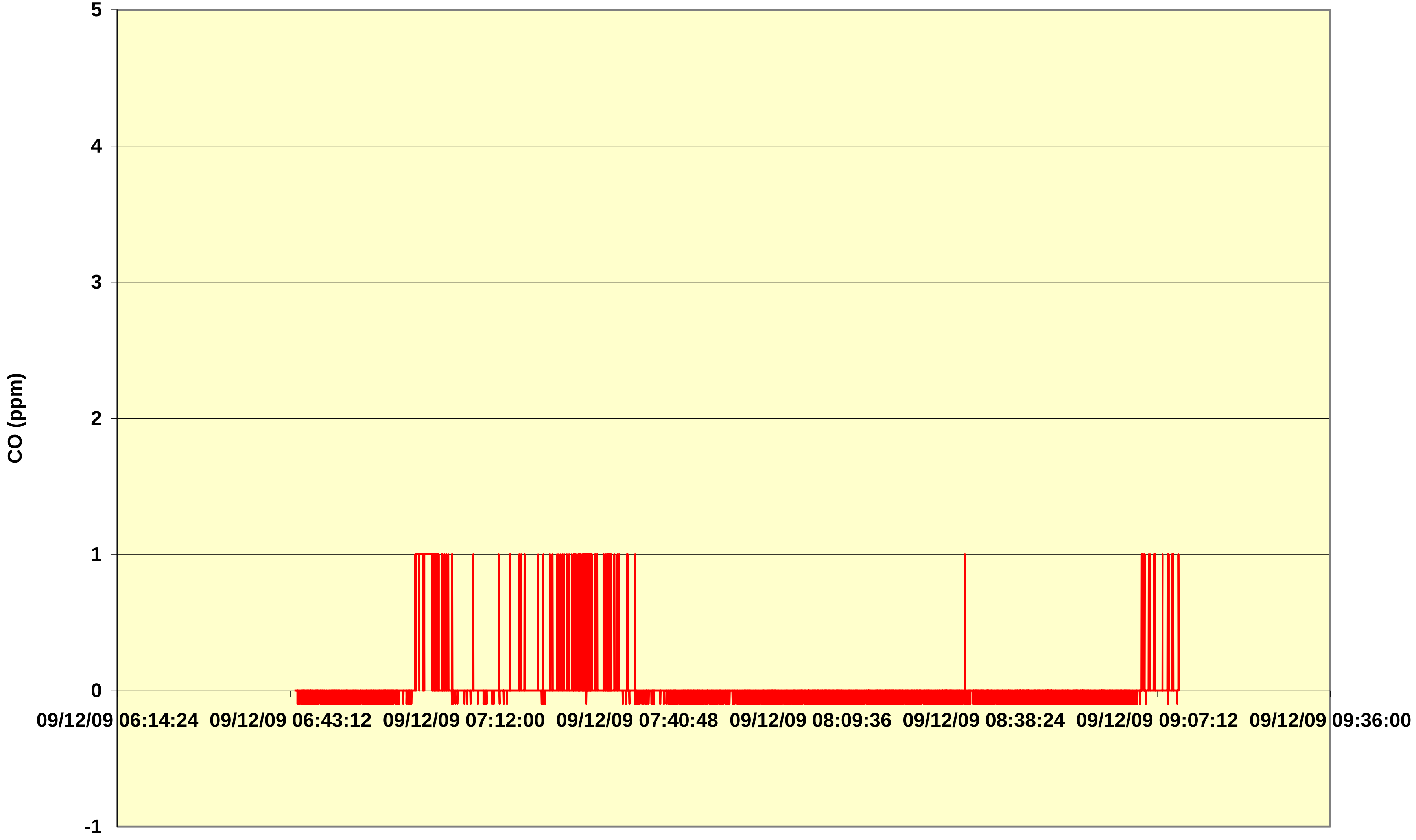
09/12/09 09:36:00


CO (ppm)
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3
2
1
0
-1
09/12/09 06:14:24
09/12/09 06:43:12
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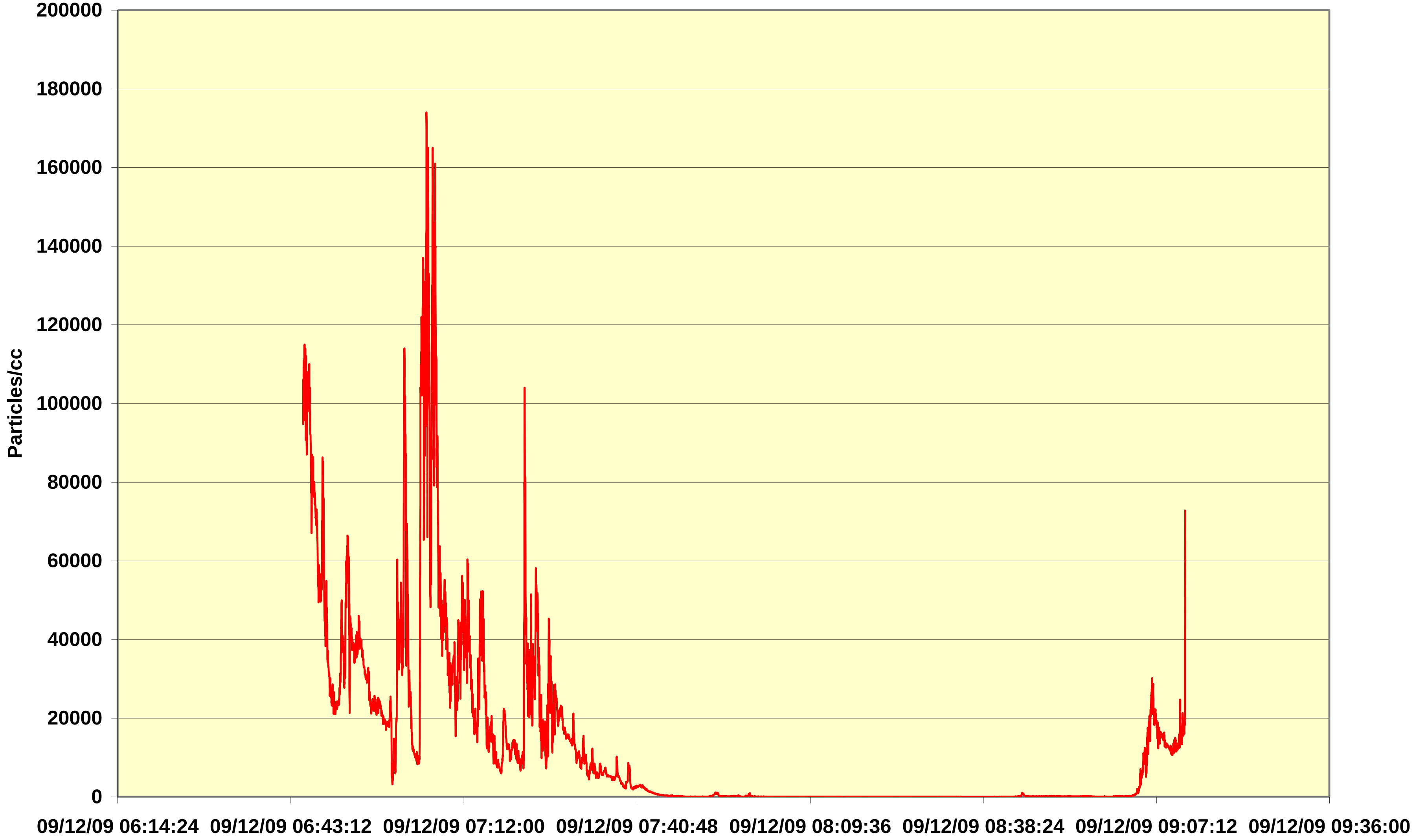
09/12/09 09:36:00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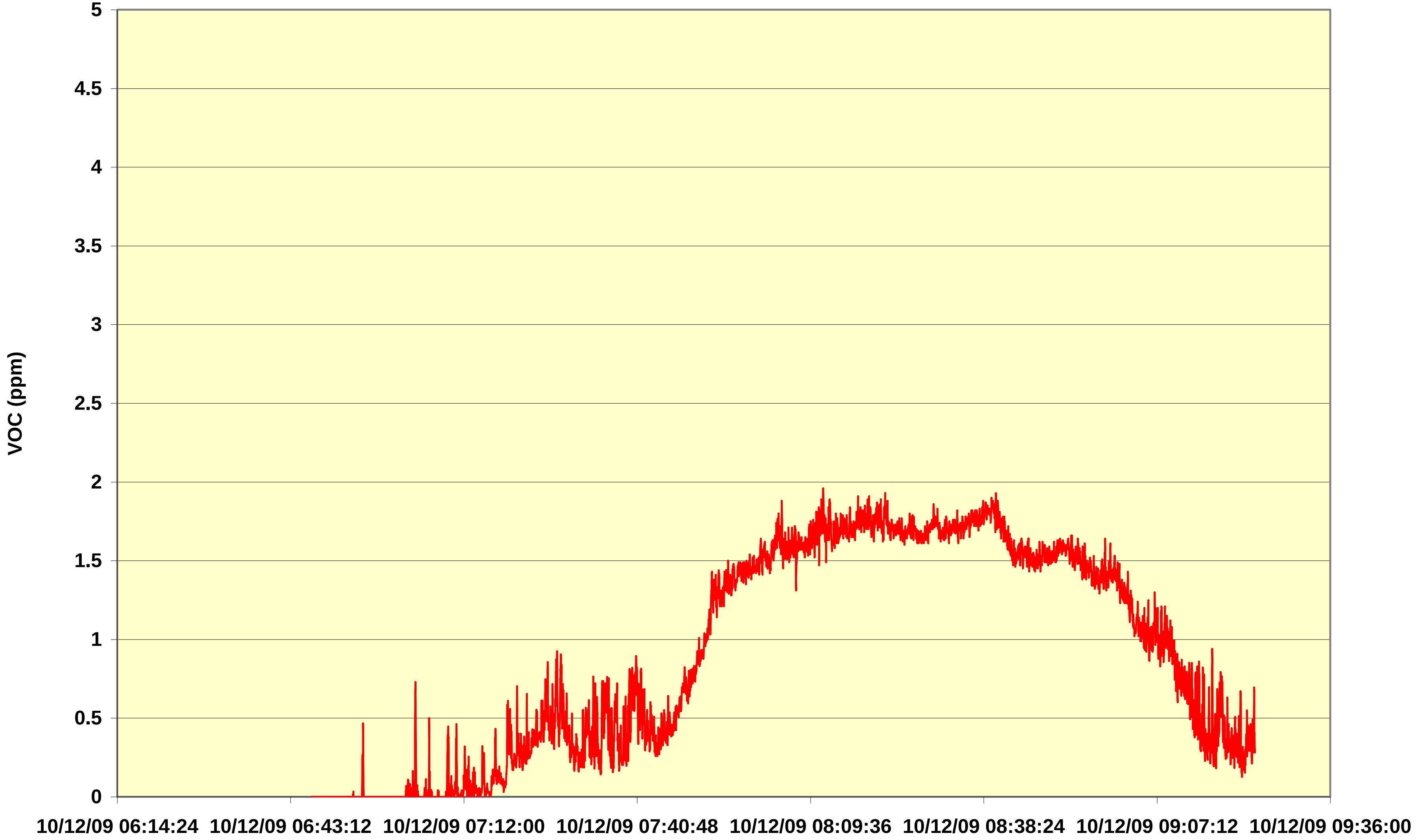
09/12/09 09:36:00


5
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4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
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10/12/09 06:43:12
10/12/09 07:12:00
10/12/09 07:40:48
10/12/09 08:09:36
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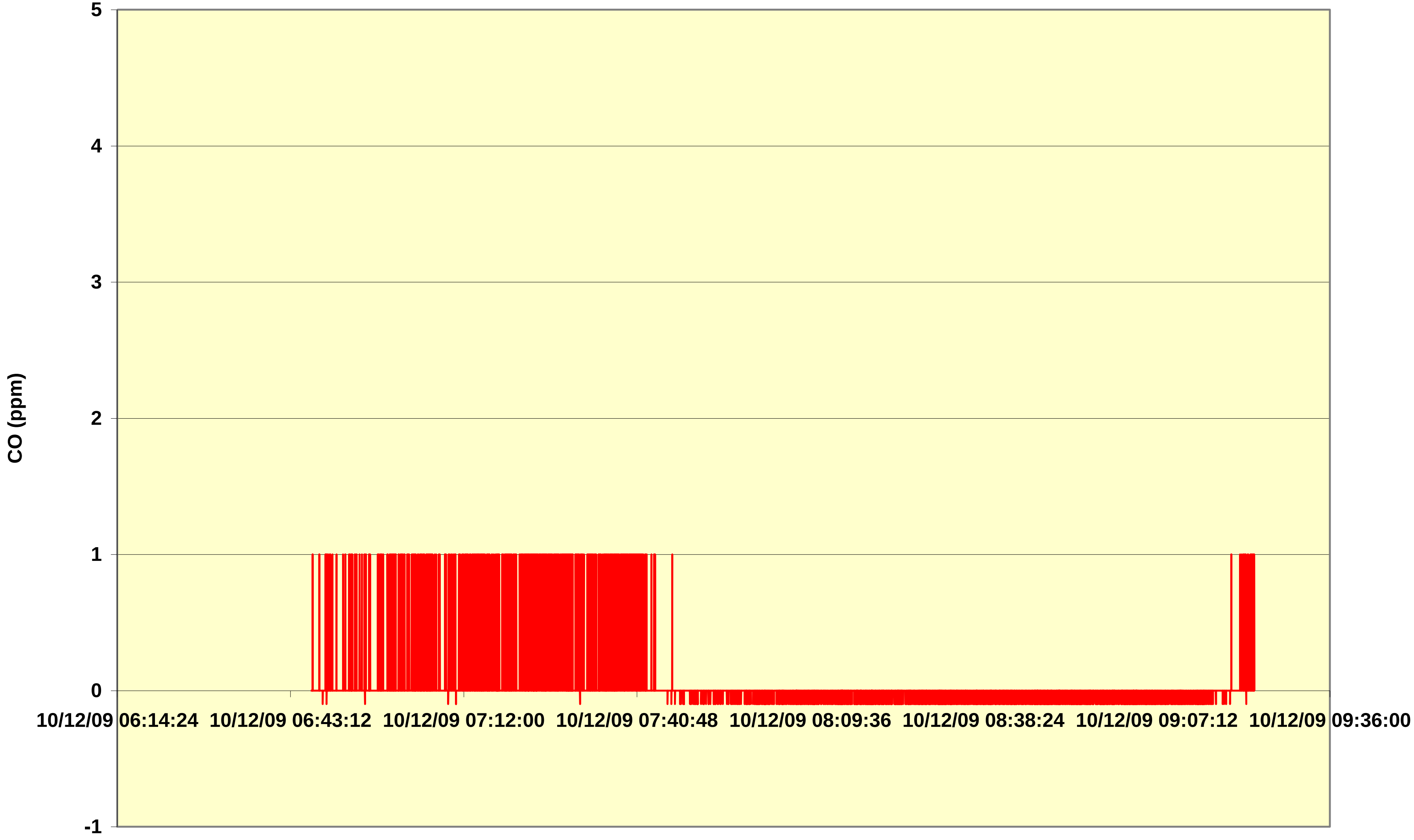
10/12/09 09:36:00


5
4
3
2
1
0
-1
CO (ppm)
10/12/09 06:14:24
10/12/09 06:43:12
10/12/09 07:12:00
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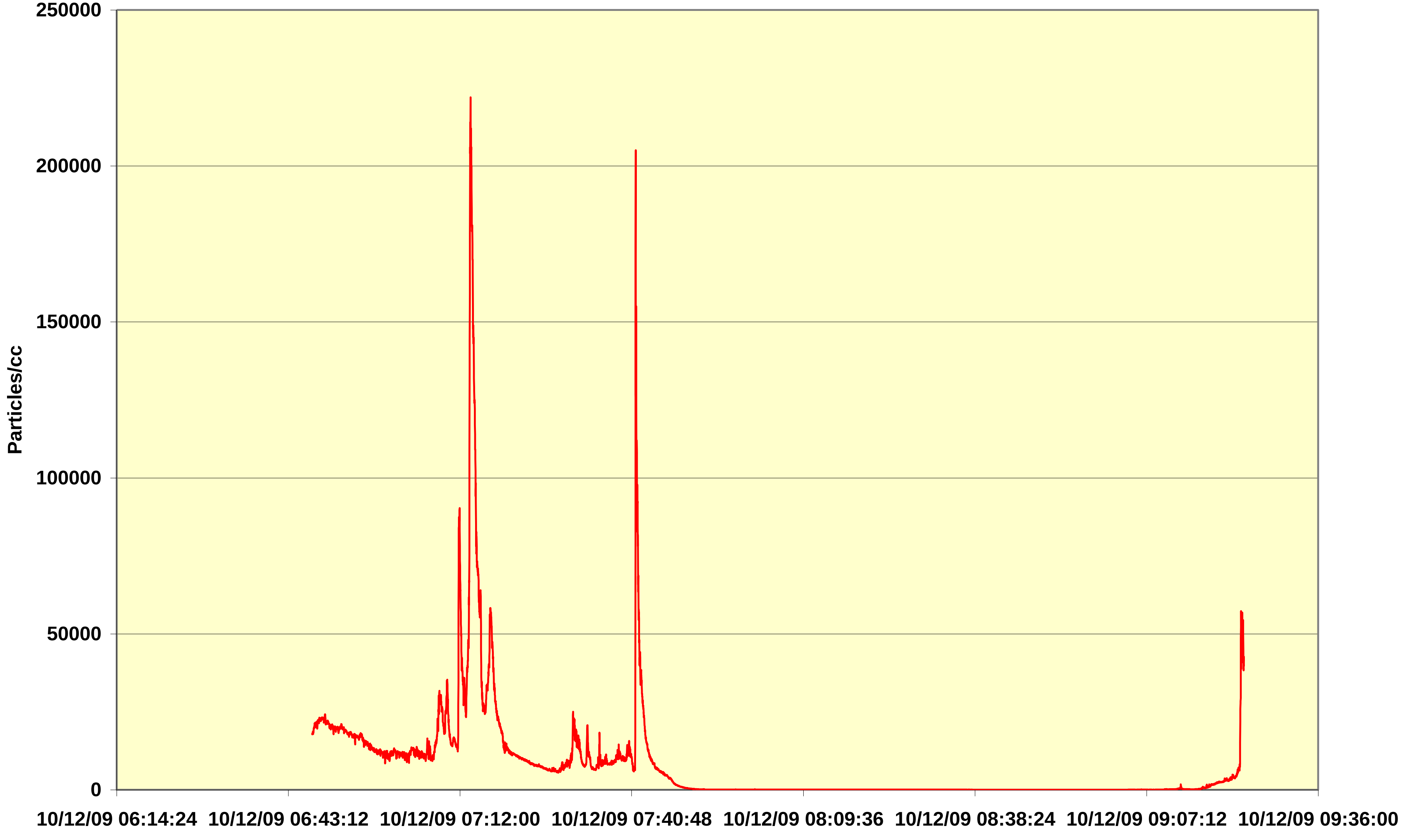
10/12/09 09:36:00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10/12/09 06:14:24
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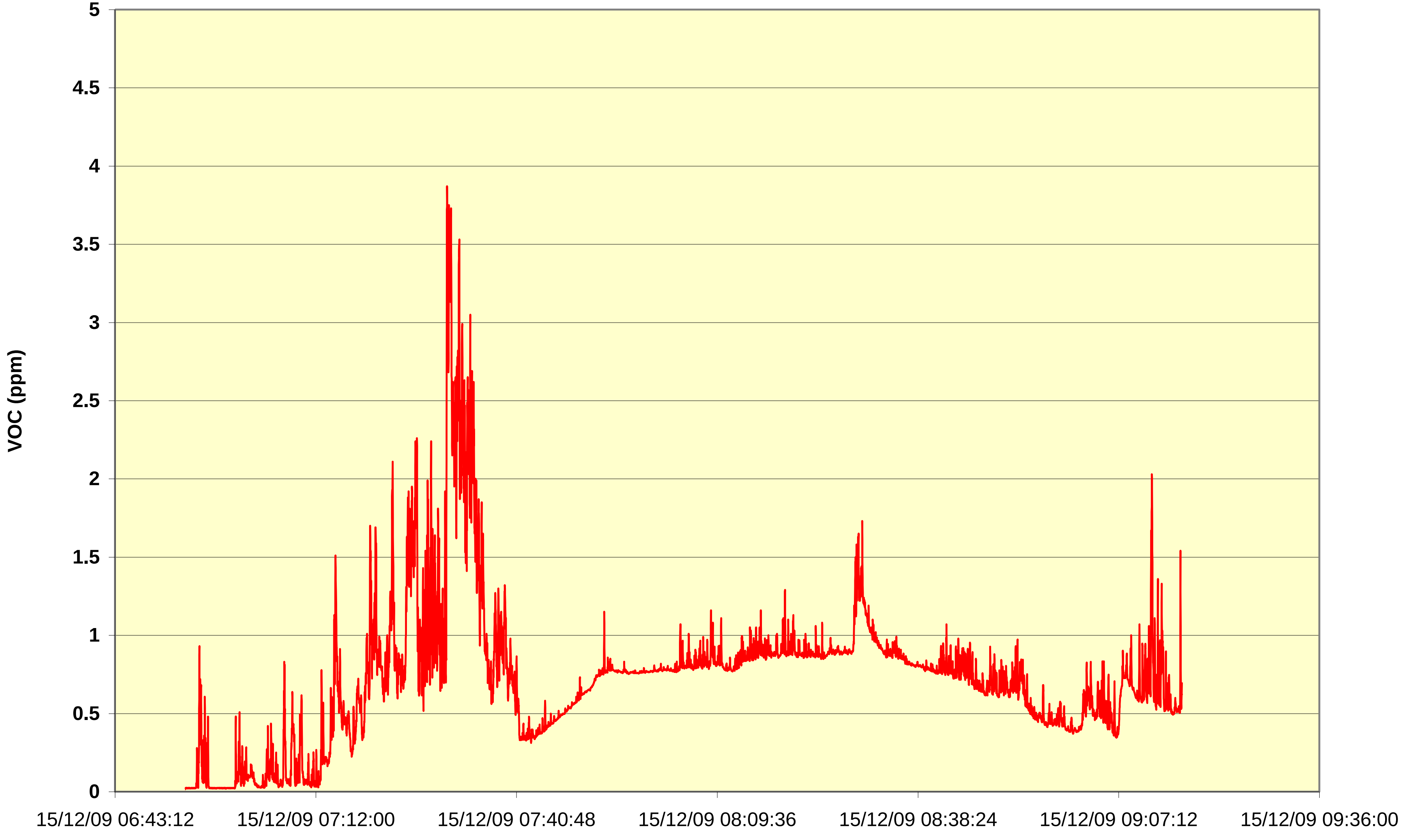
10/12/09 09:36:00



VOC (ppm)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
15/12/09 06:43:12
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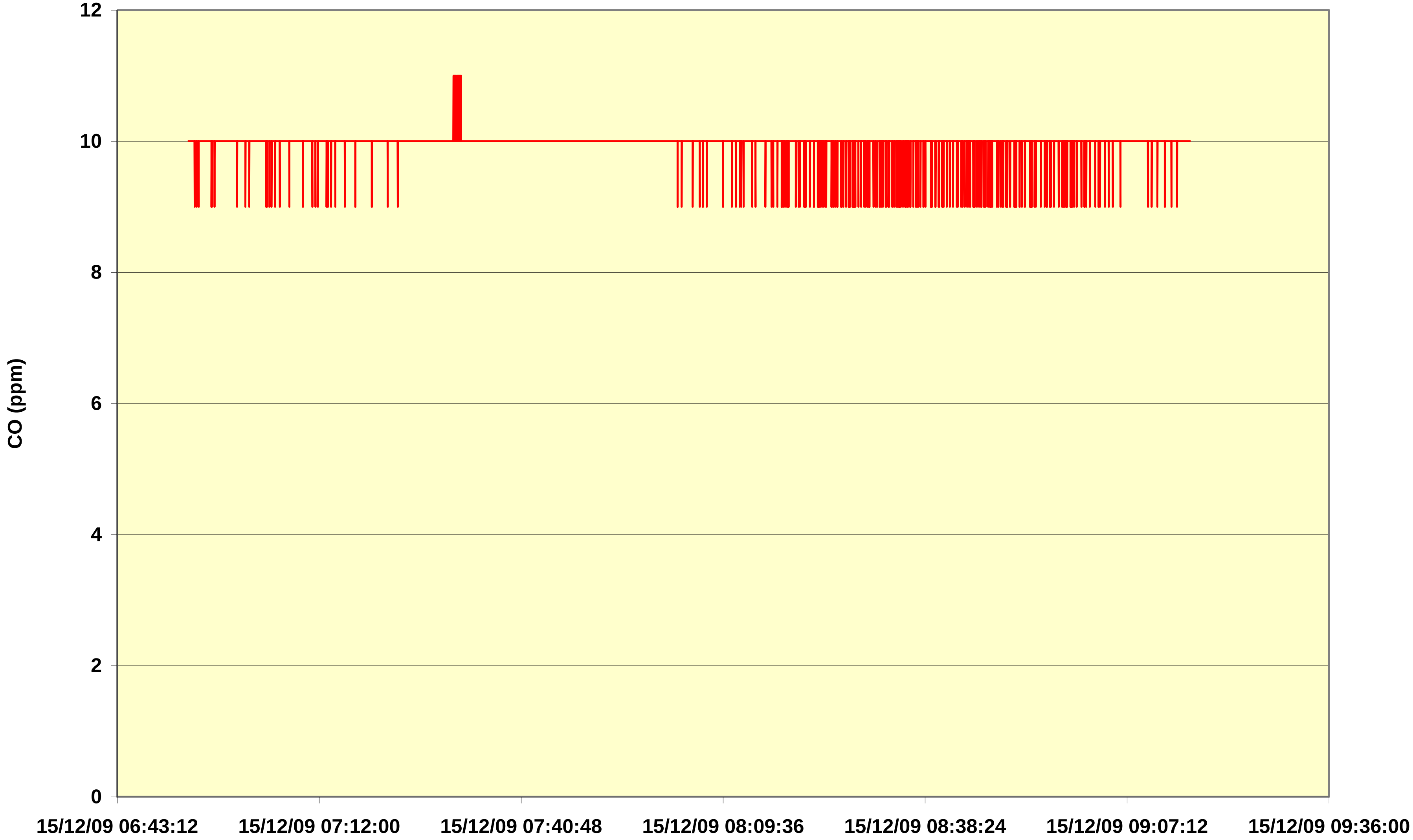
15/12/09 09:36:00



CO (ppm)
12
10
8
6
4
2
0
15/12/09 06:43:12
15/12/09 07:12:00
15/12/09 07:40:48
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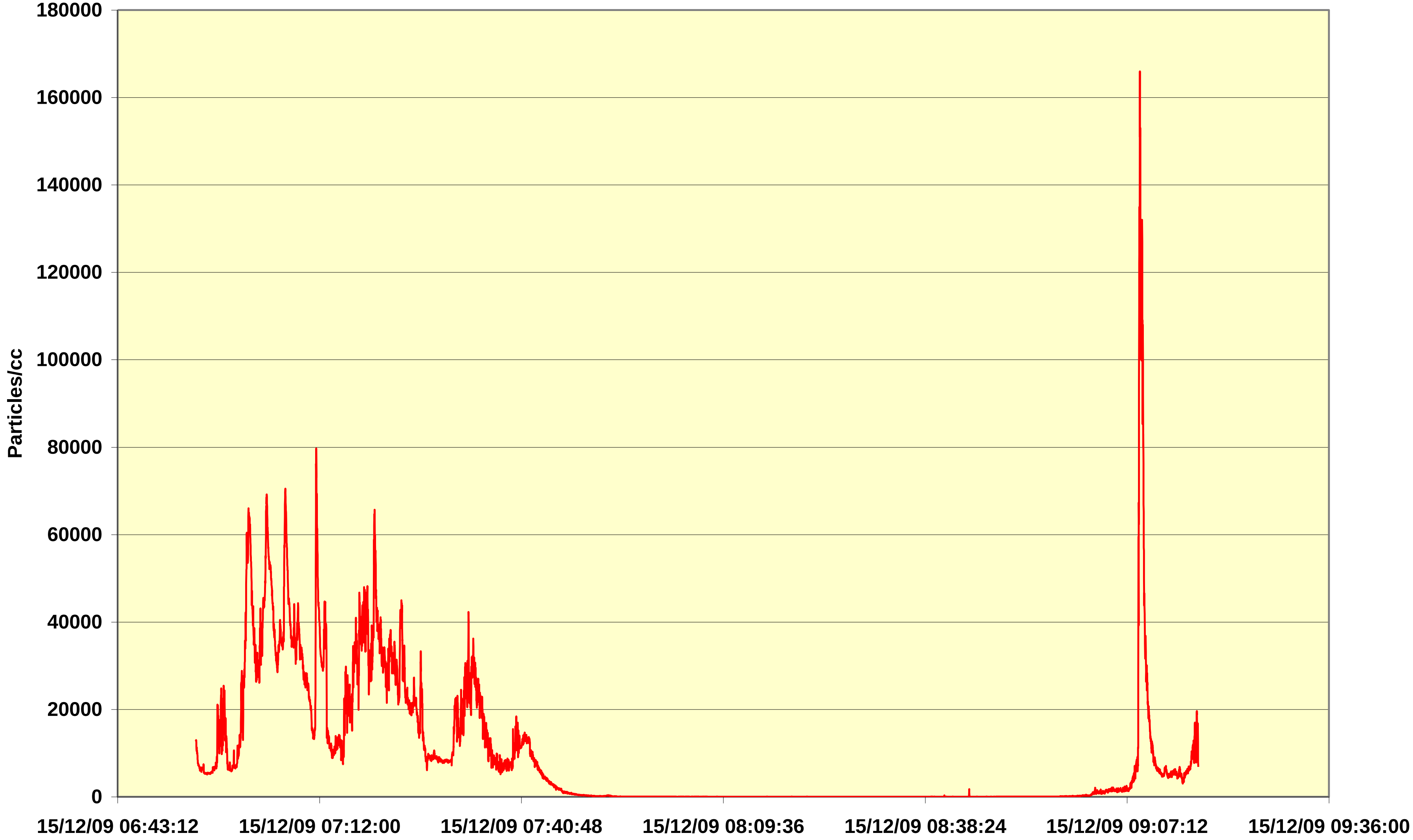
15/12/09 09:36:00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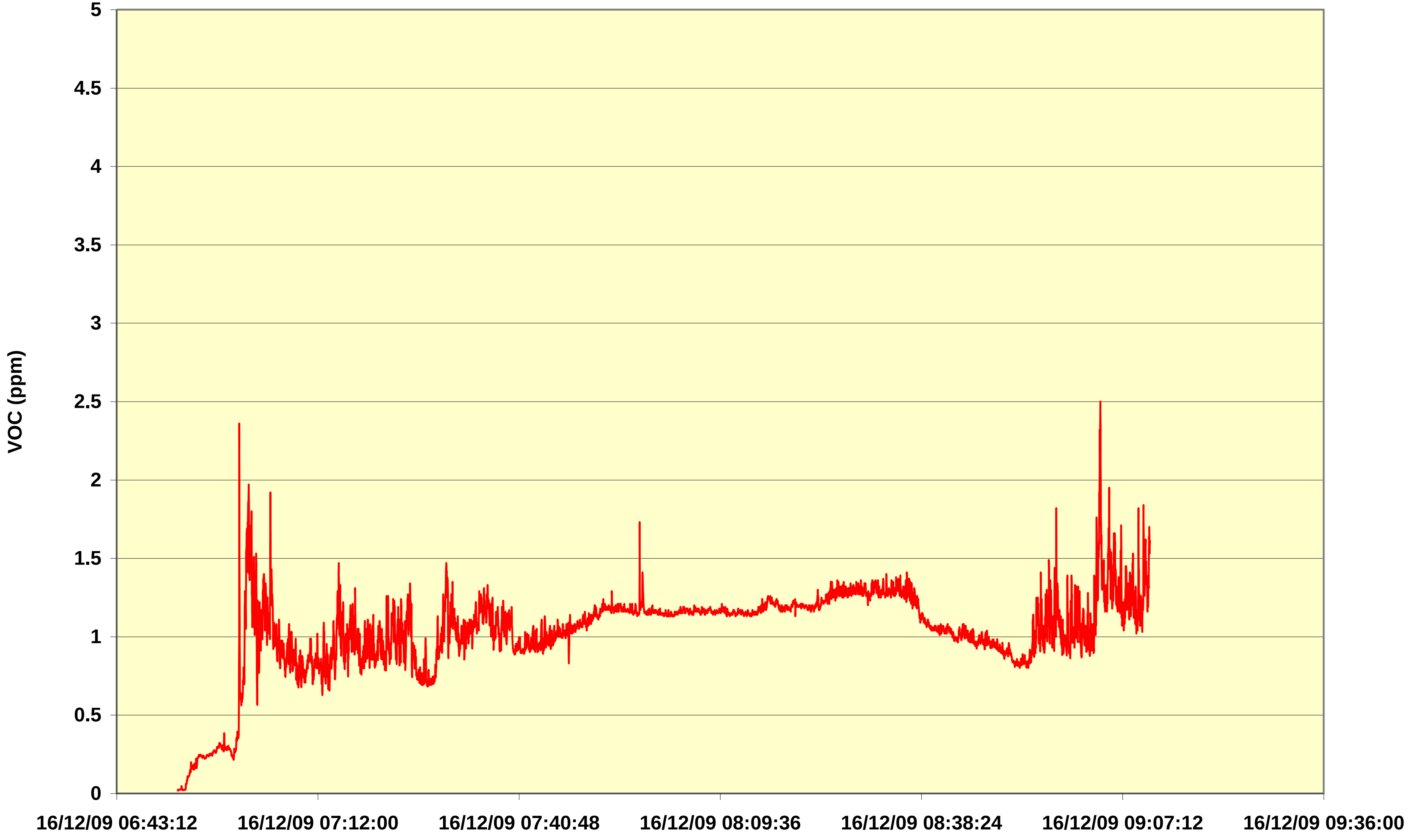
15/12/09 09:36:00


VOC (ppm)
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4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
16/12/09 06:43:12
16/12/09 07:12:00
16/12/09 07:40:48
16/12/09 08:09:36
16/12/09 08:38:24
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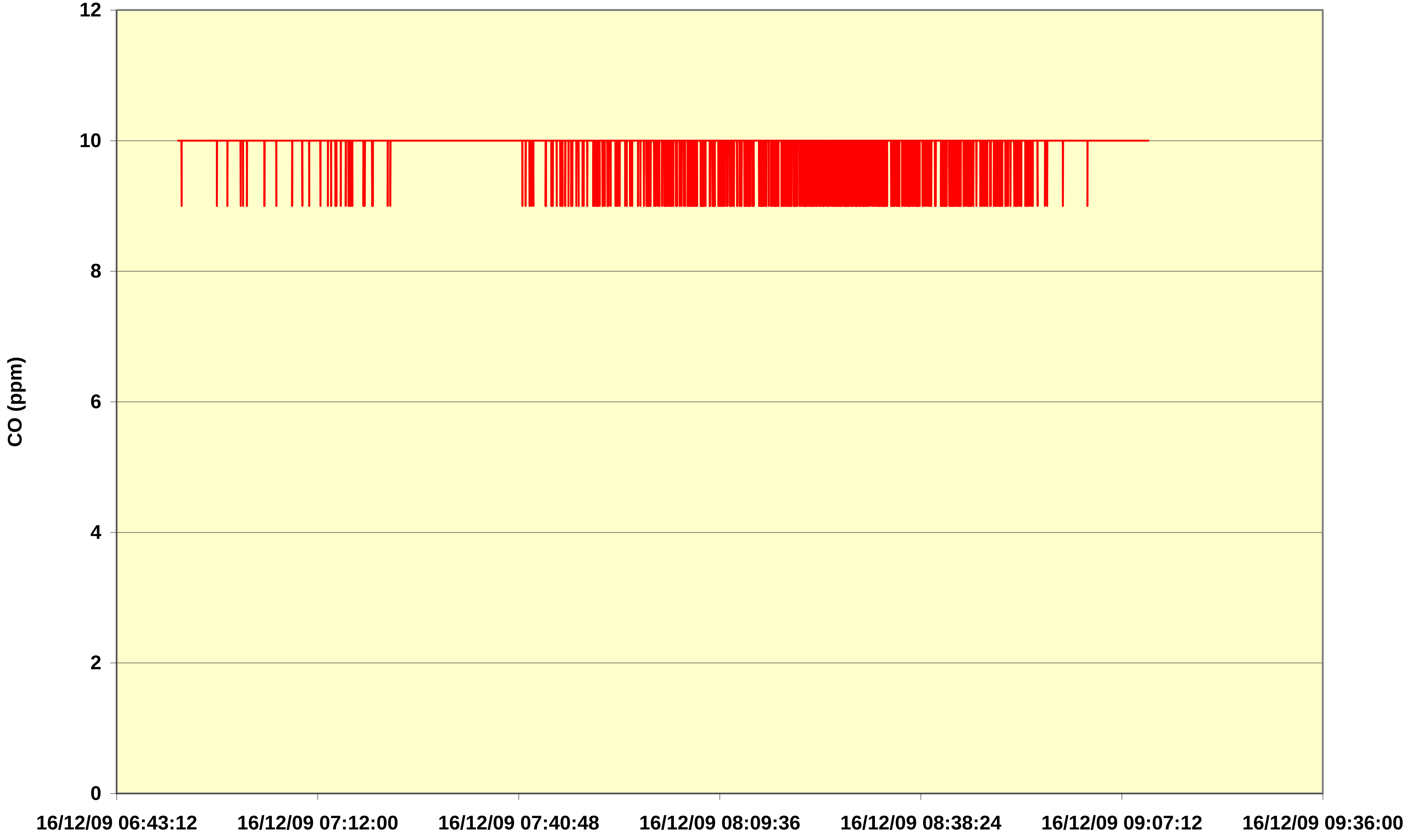
16/12/09 09:36:00



12
10
8
6
4
2
0
CO (ppm)
16/12/09 06:43:12
16/12/09 07:12:00
16/12/09 07:40:48
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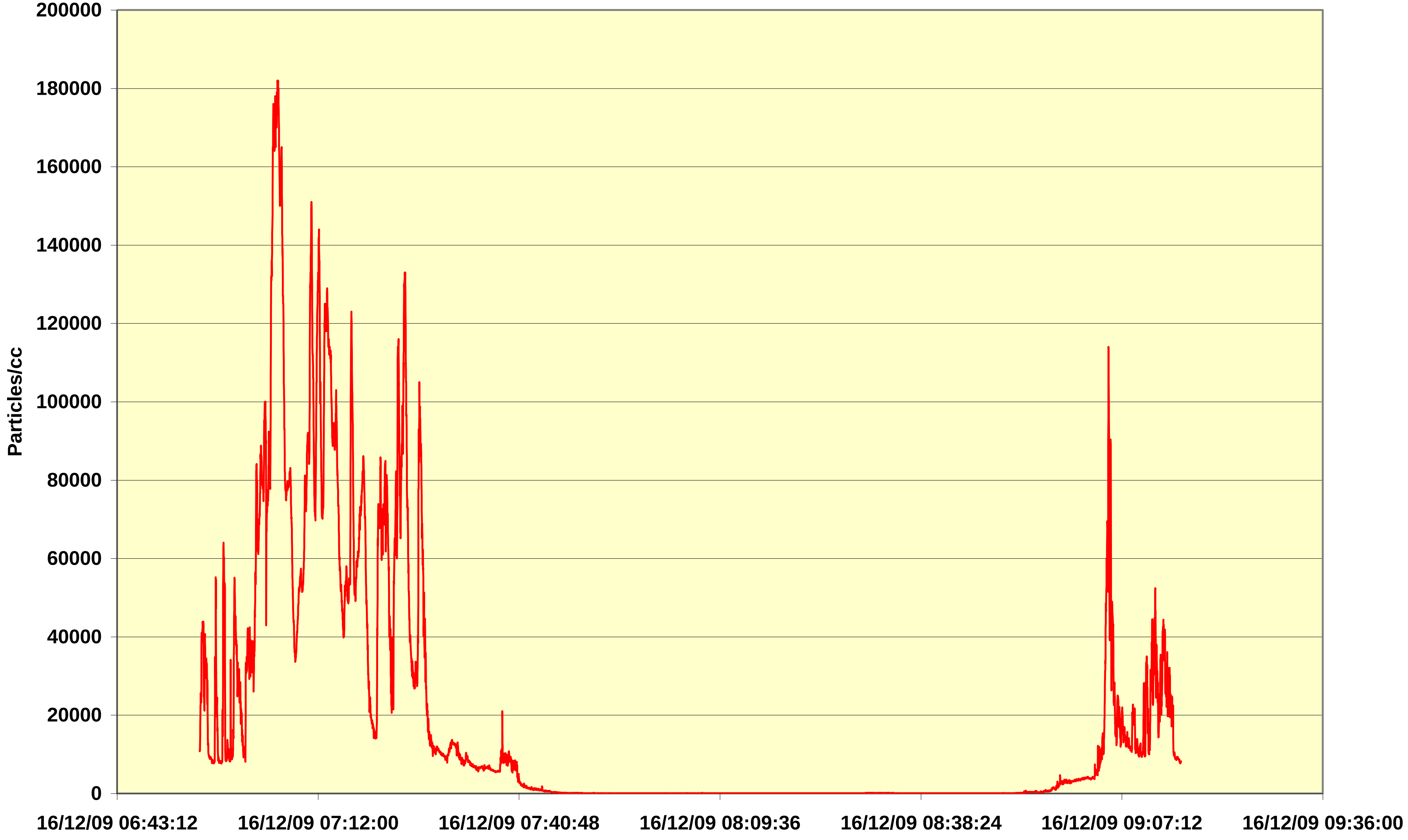
16/12/09 09:36:00


Particles/cc
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140000
120000
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40000
20000
0
16/12/09 06:43:12
16/12/09 07:12:00
16/12/09 07:40:48
16/12/09 08:09:36
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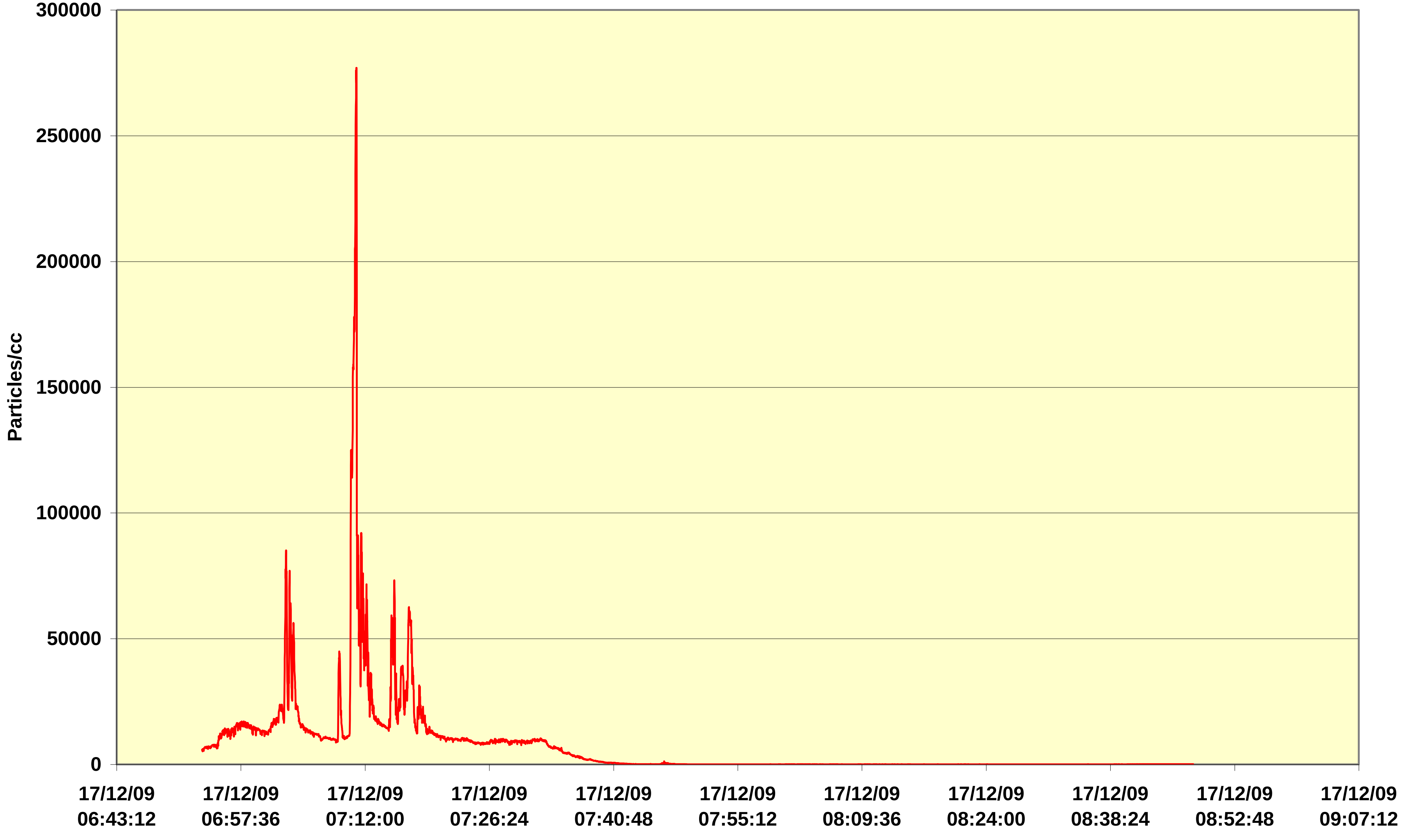
16/12/09 09:07:12
16/12/09 09:36:00

Part 4 Sector 14

VOC & CO no data recorded – instrument failure. [2]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50000
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Particles/cc
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17/12/09 06:57:36
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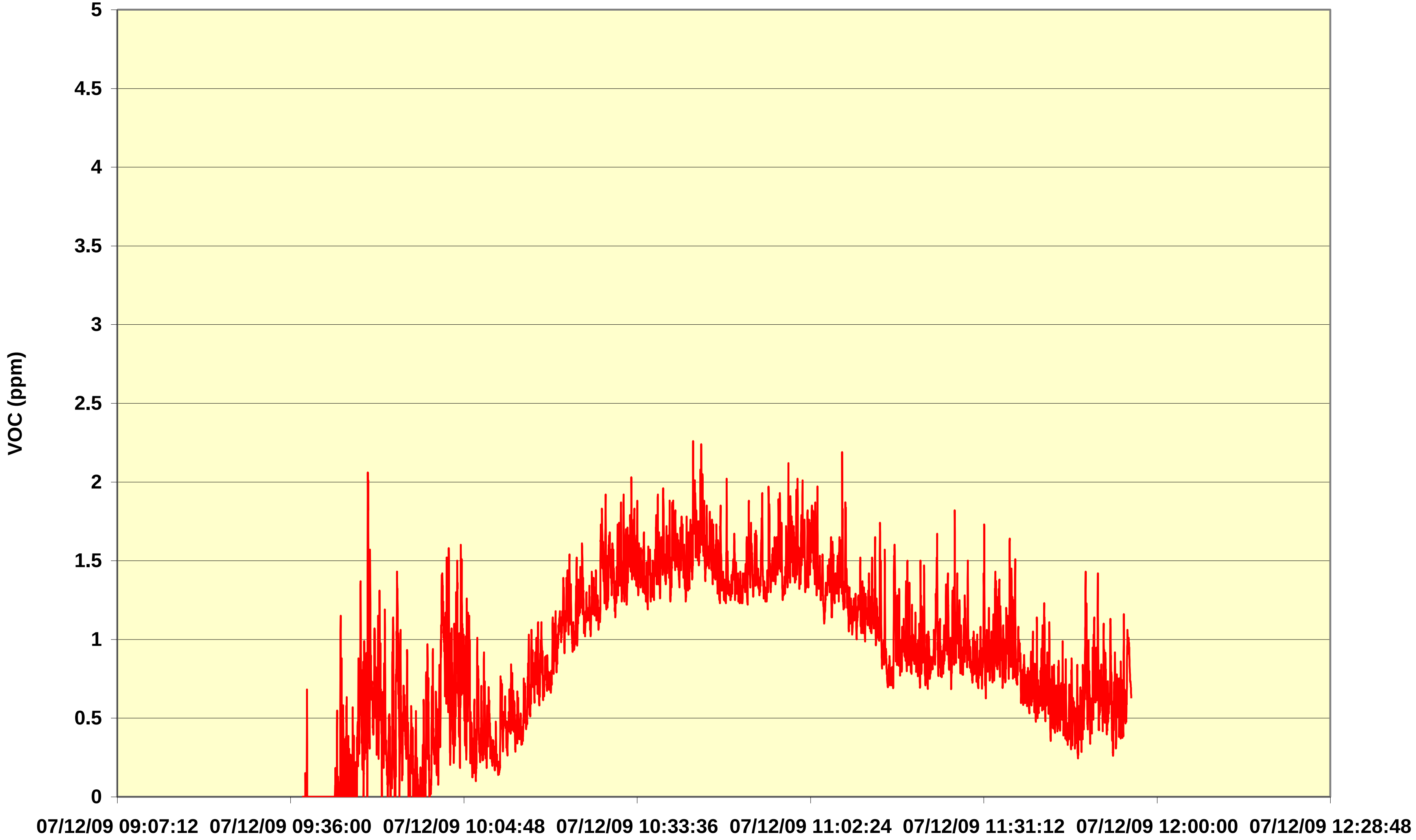
17/12/09 09:07:12


VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
07/12/09 09:07:12
07/12/09 09:36:00
07/12/09 10:04:48
07/12/09 10:33:36
07/12/09 11:02:24
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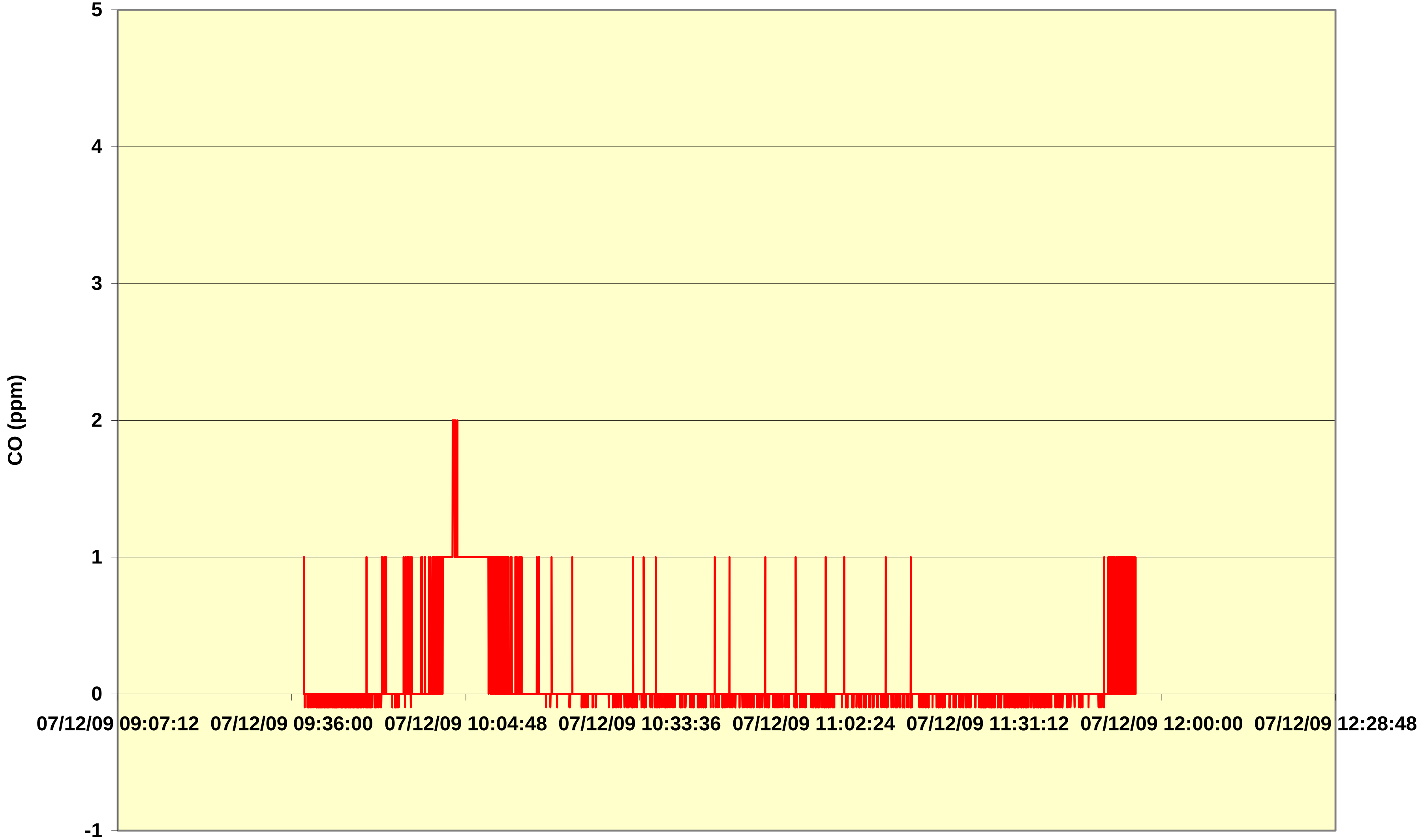
07/12/09 12:28:48


CO (ppm)
5
4
3
2
1
0
-1
07/12/09 09:07:12
07/12/09 09:36:00
07/12/09 10:04:48
07/12/09 10:33:36
07/12/09 11:02:24
07/12/09 11:31:12
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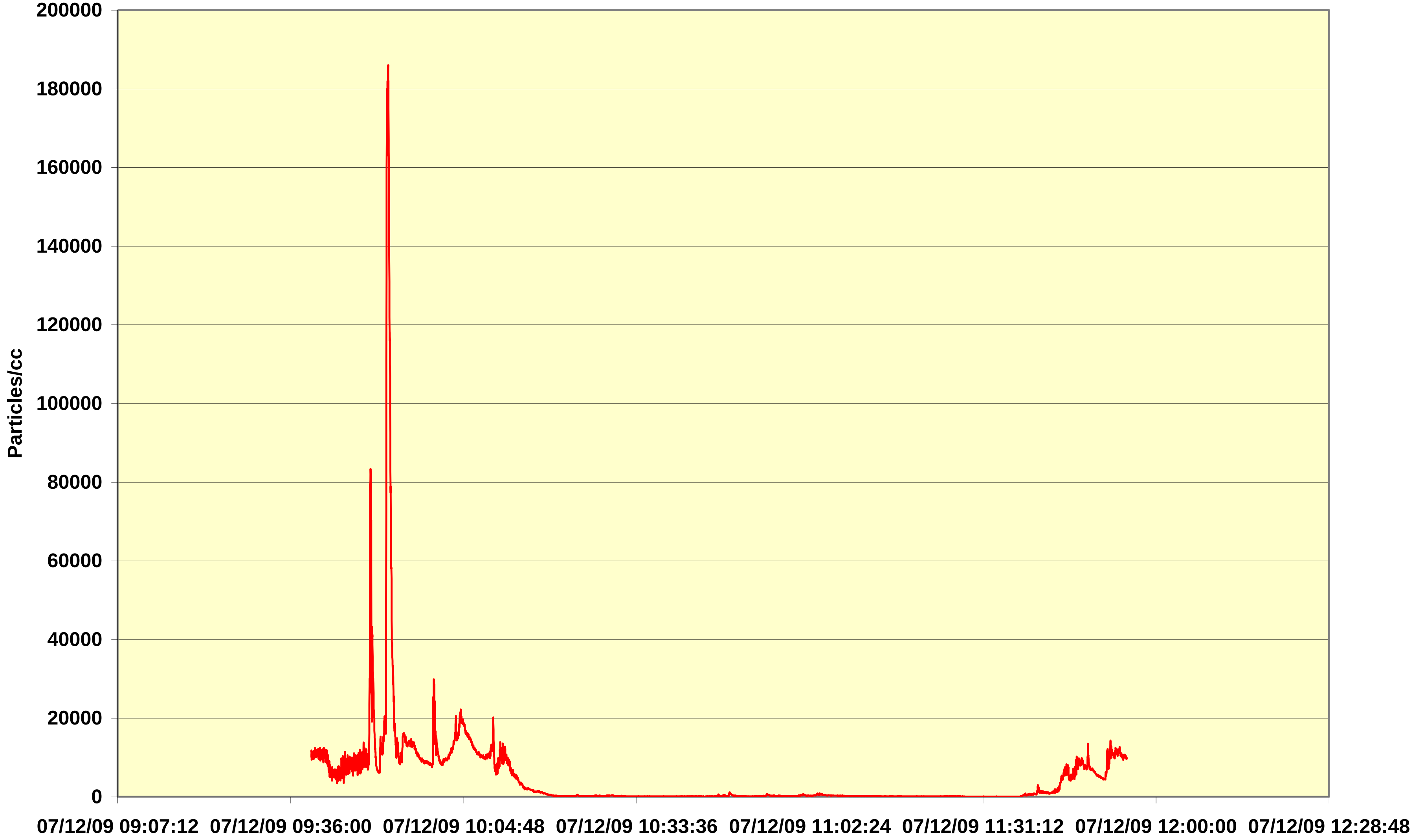
07/12/09 12:28:48



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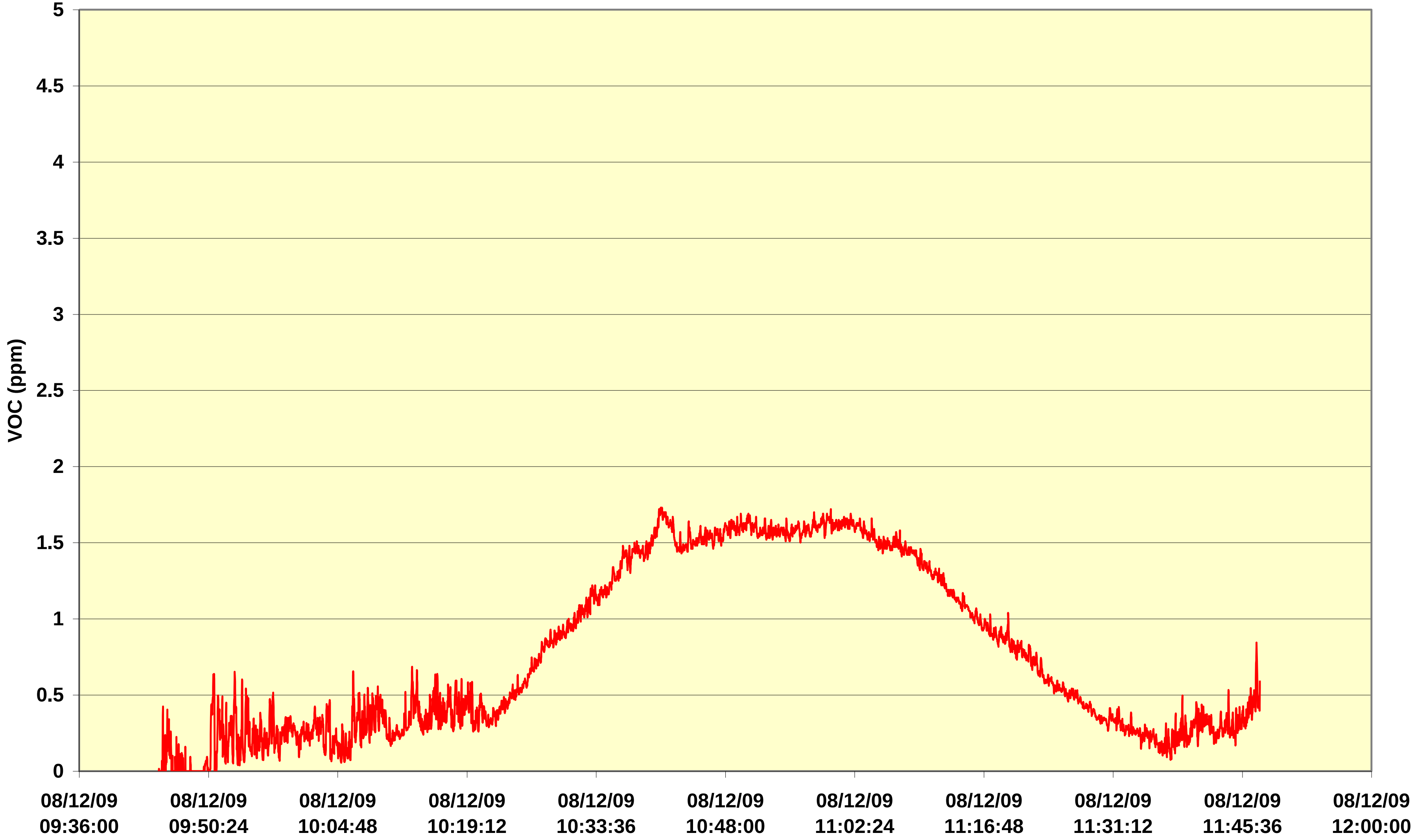
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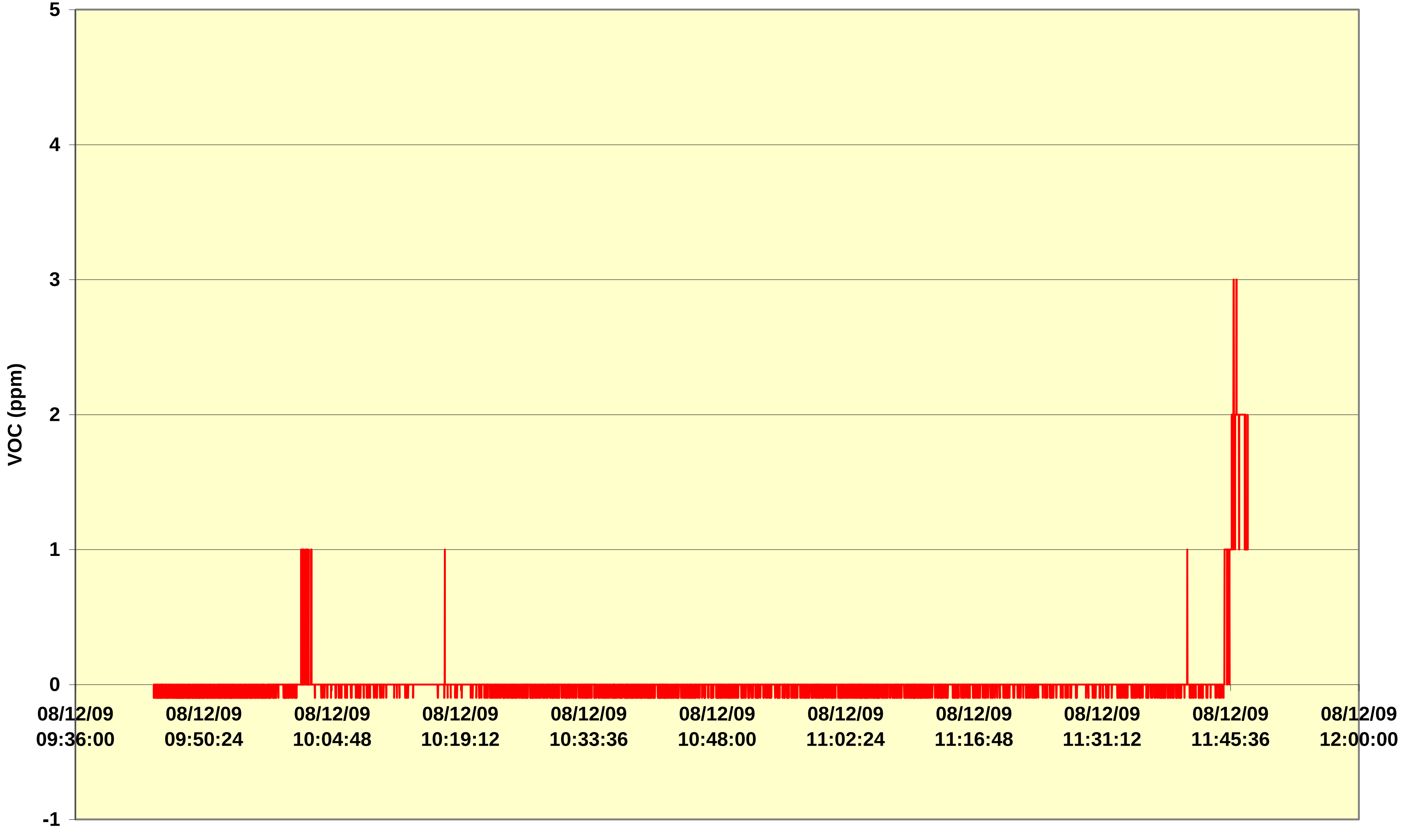

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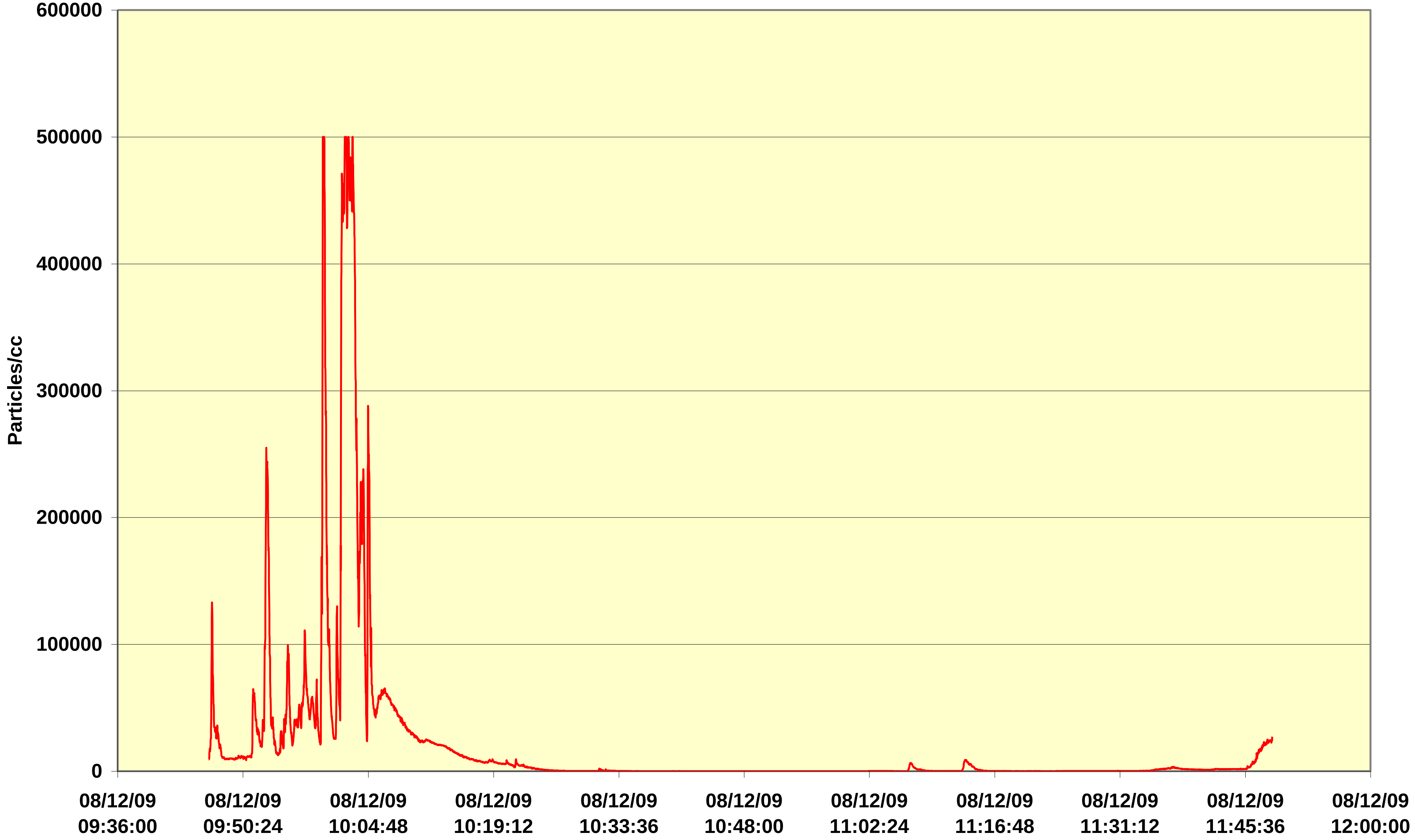
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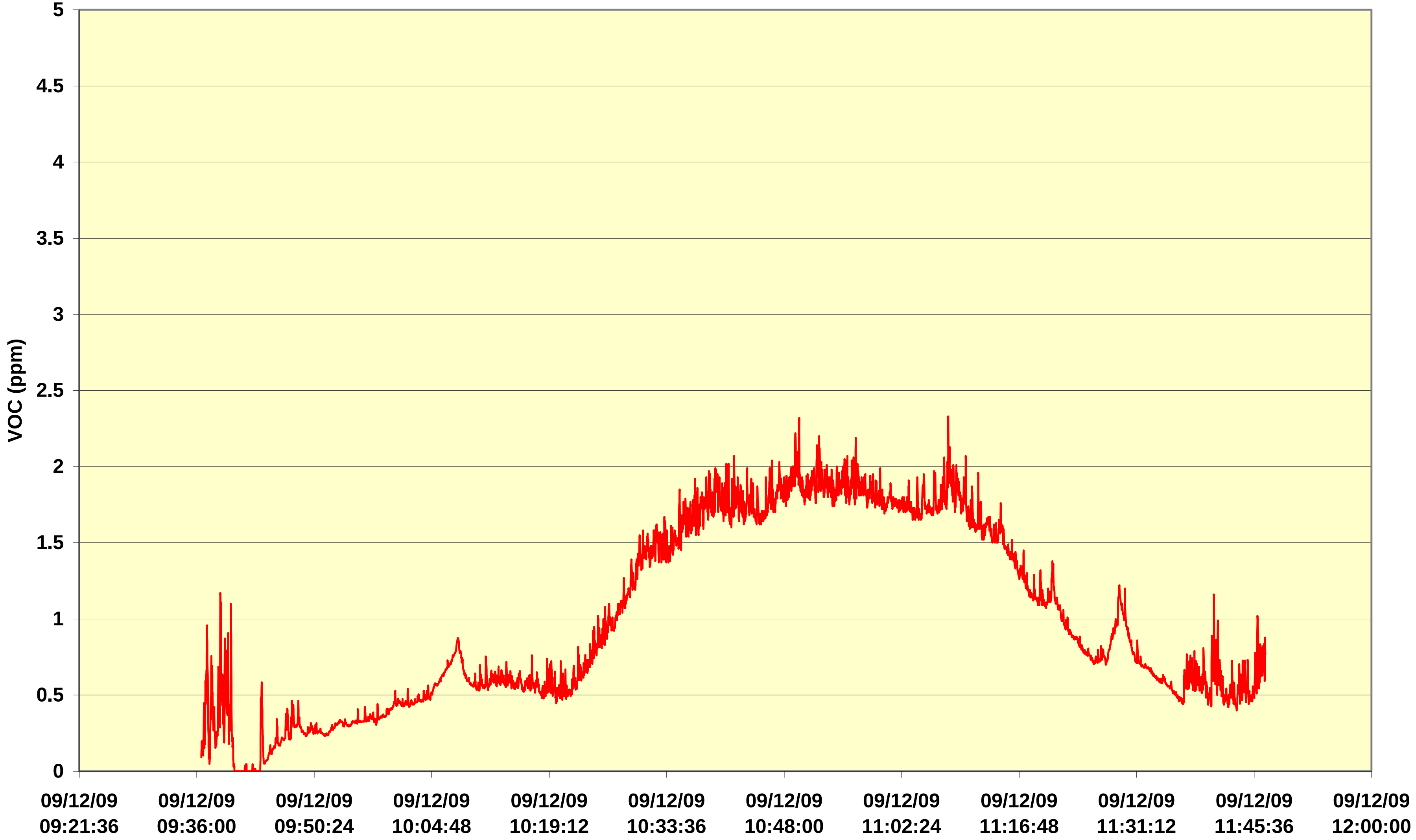
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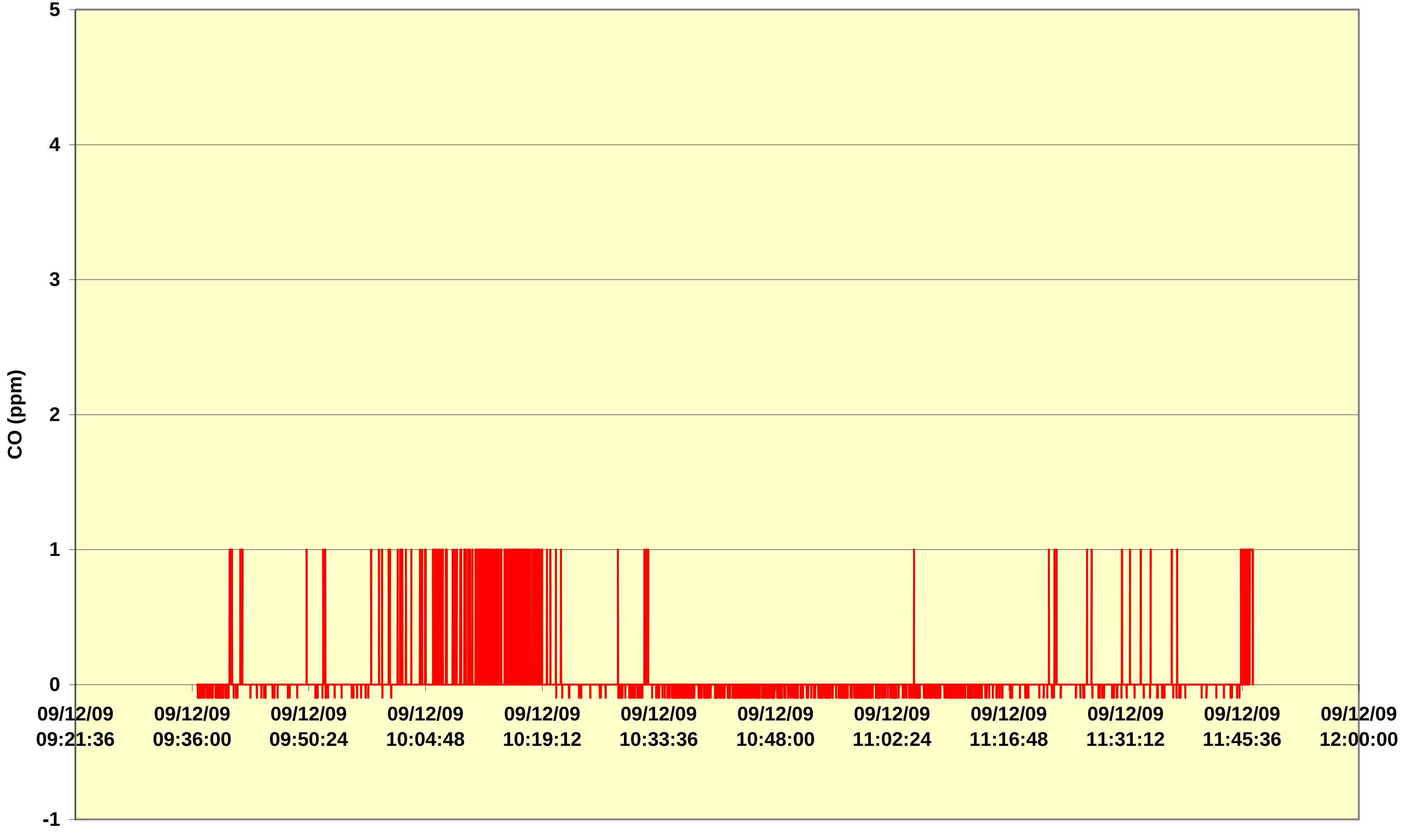
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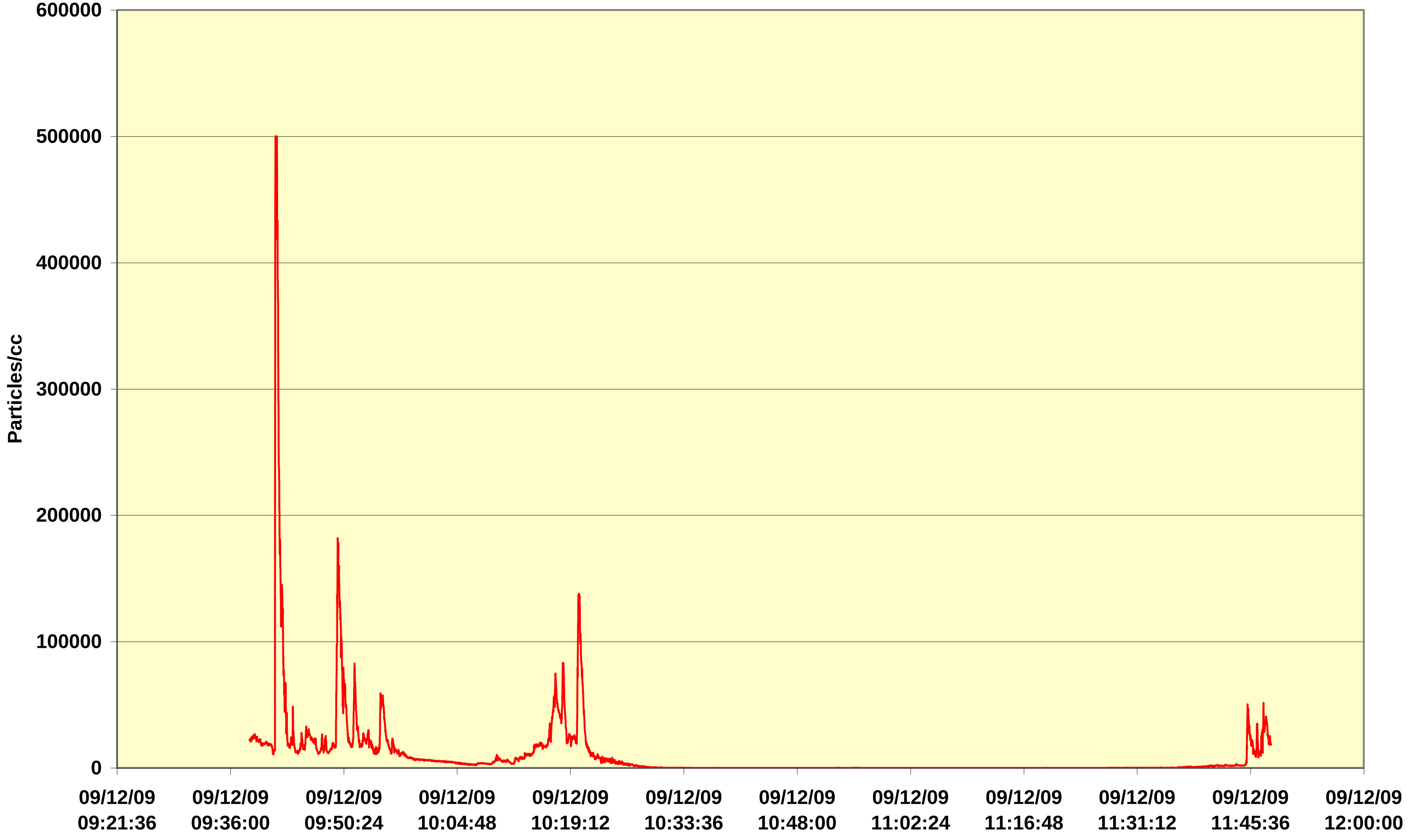
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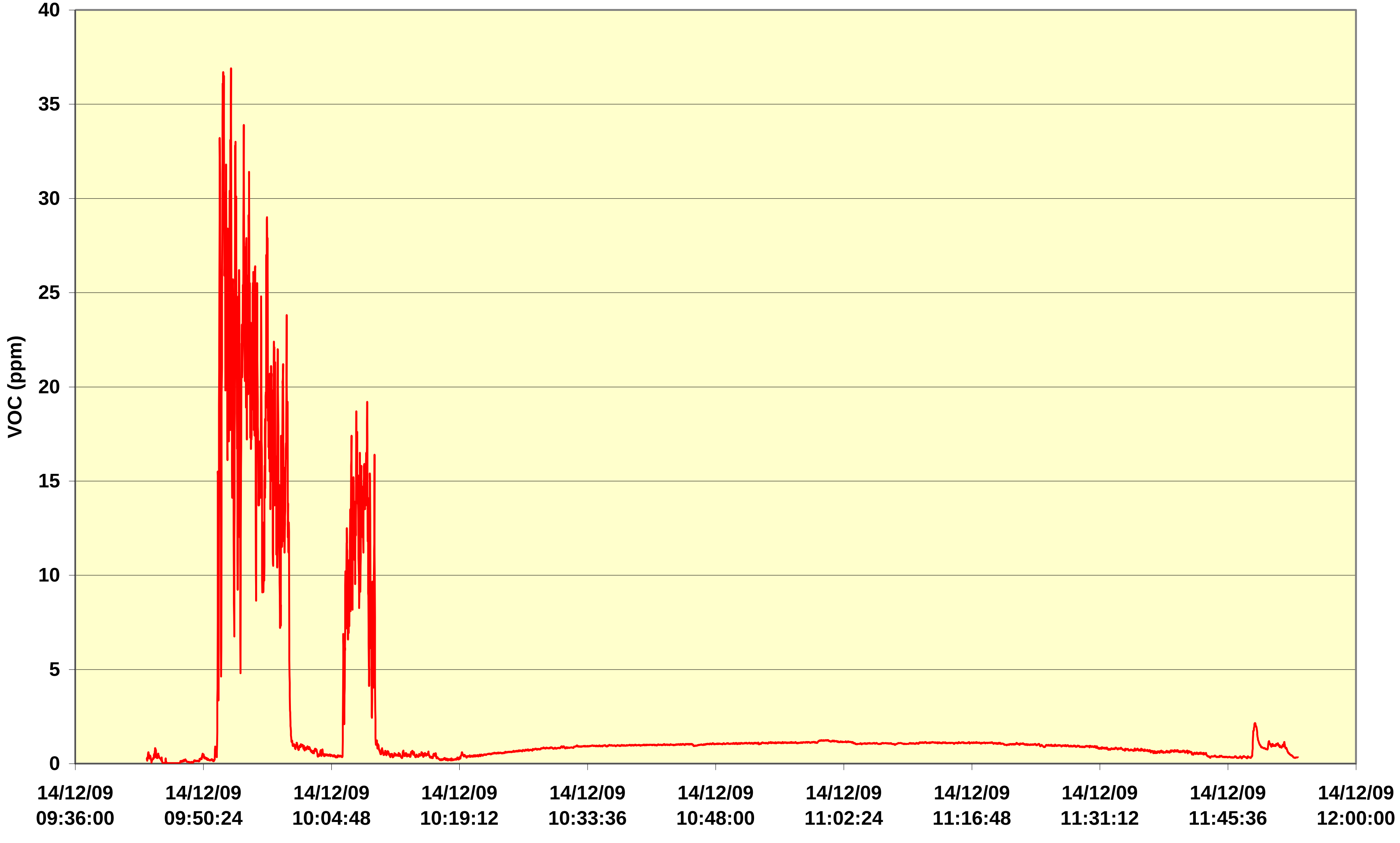

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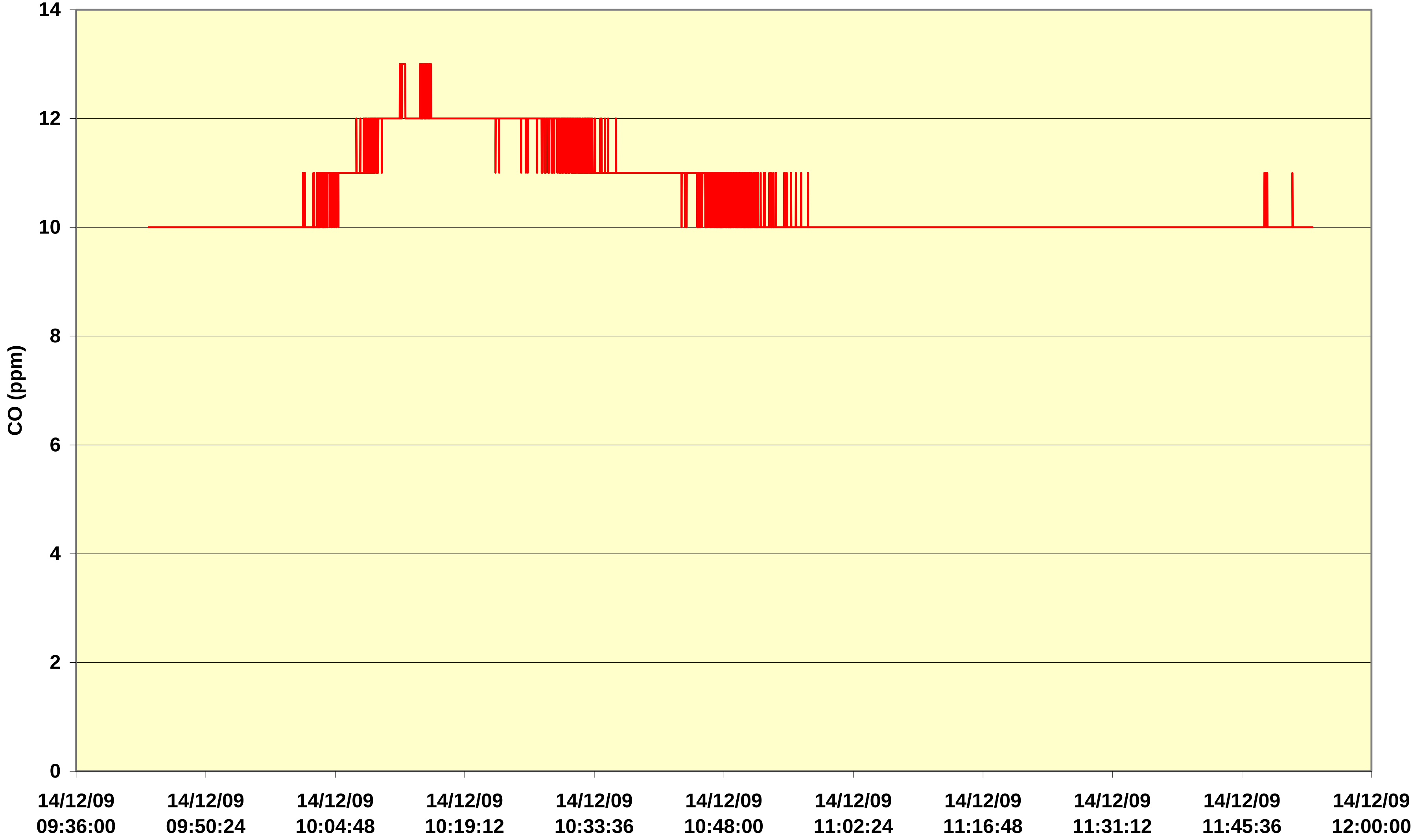
14/12/09 12:00:00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6
4
2
0
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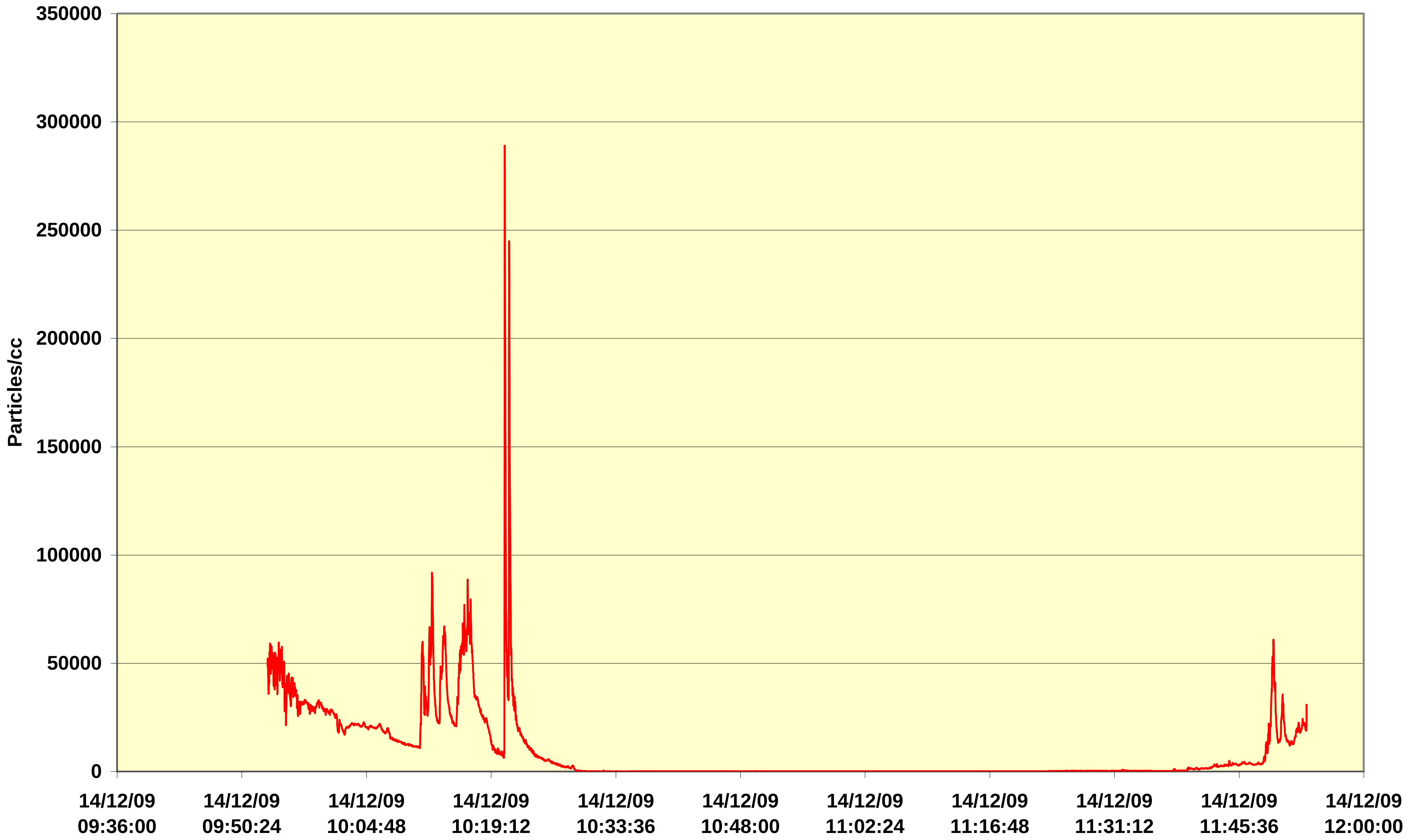
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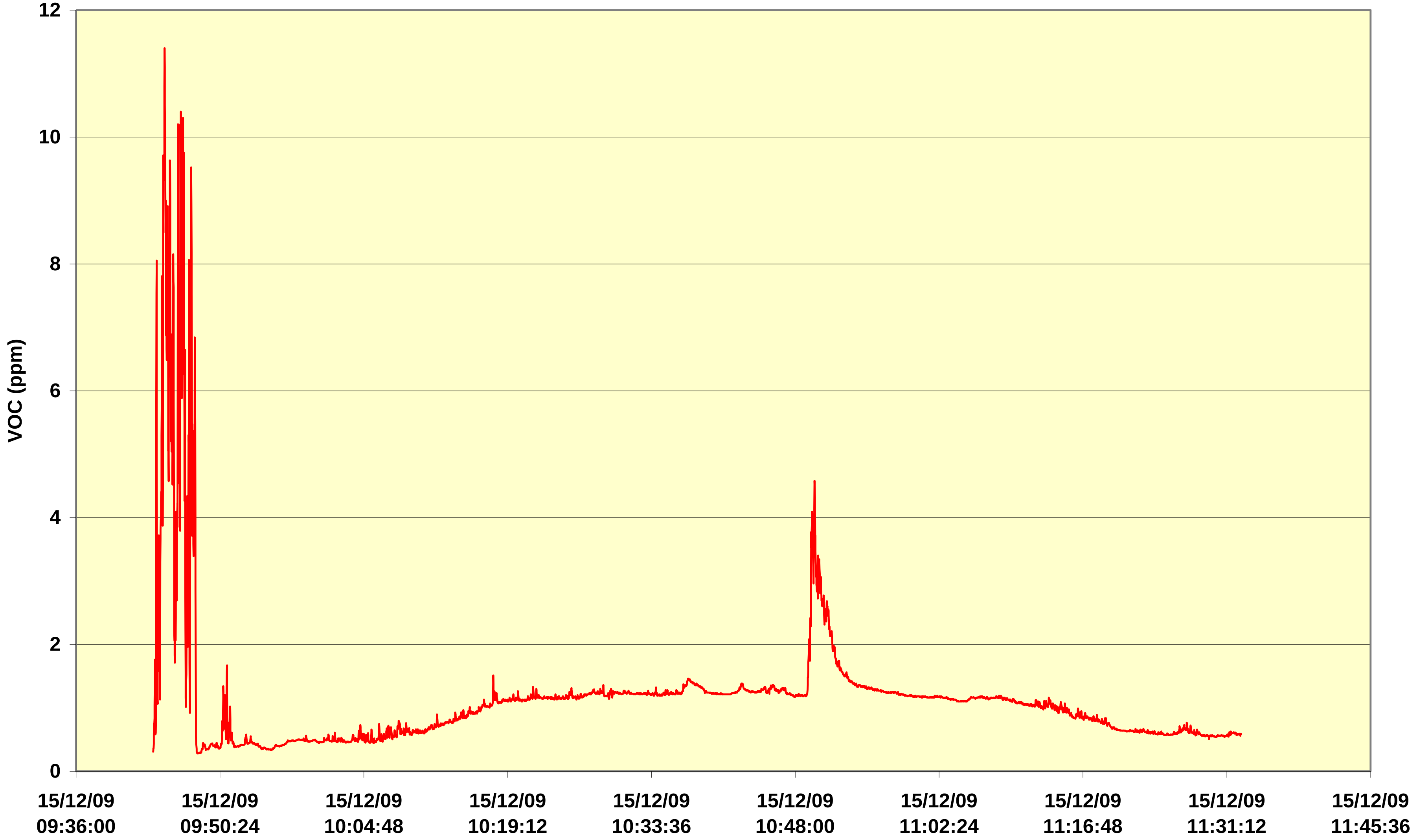
14/12/09 12:00:00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8
6
4
2
0
VOC (ppm)
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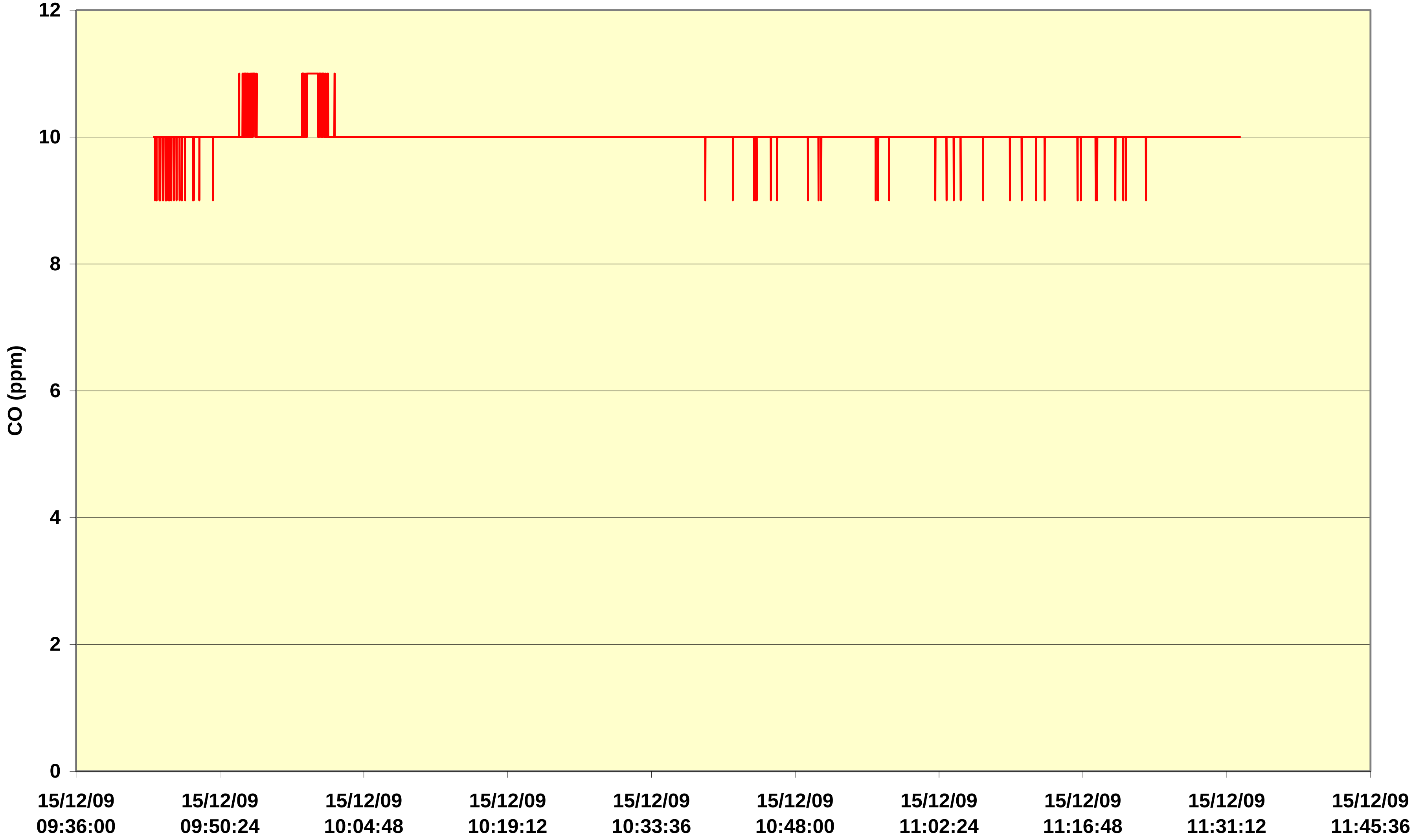

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6
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0
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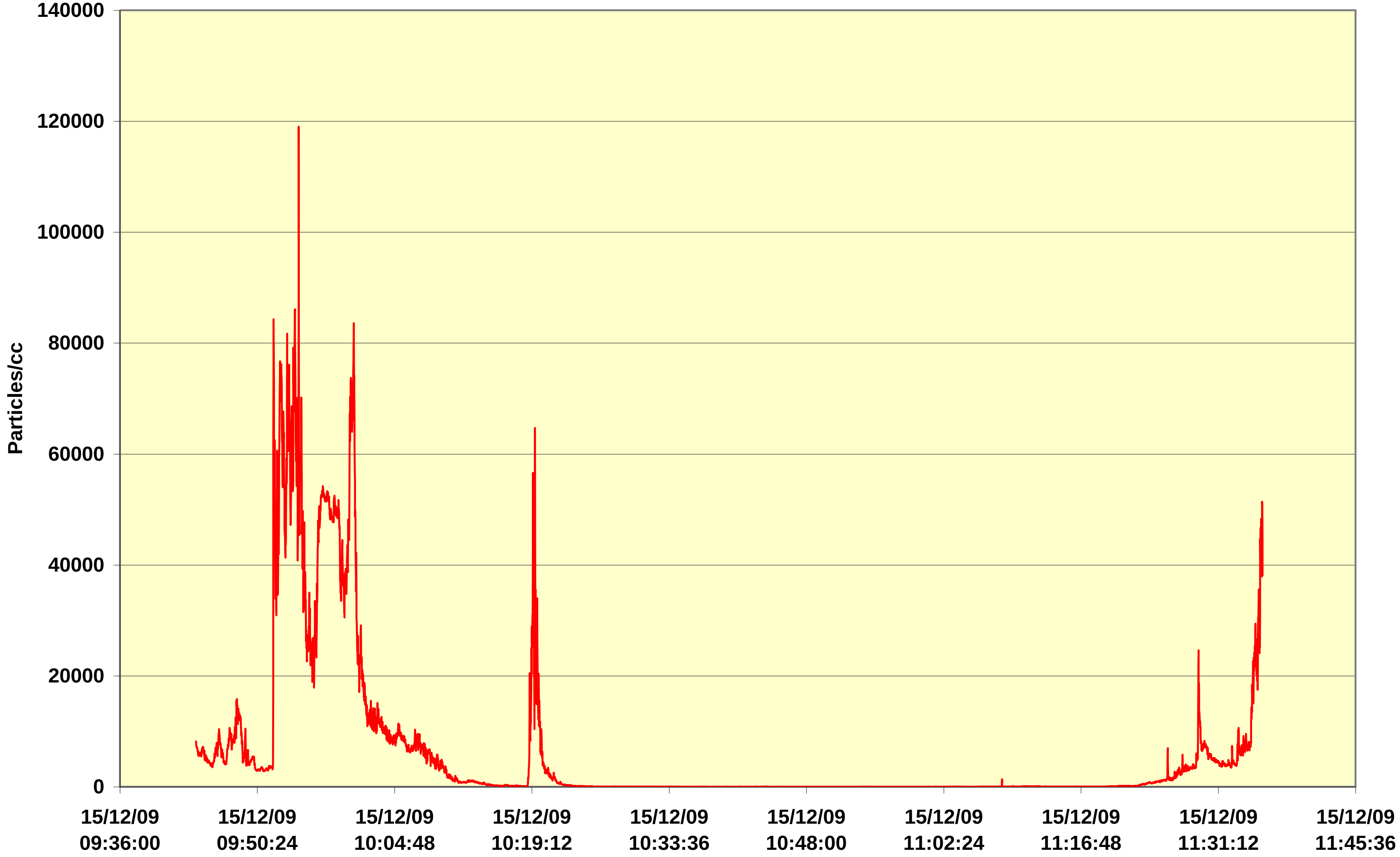
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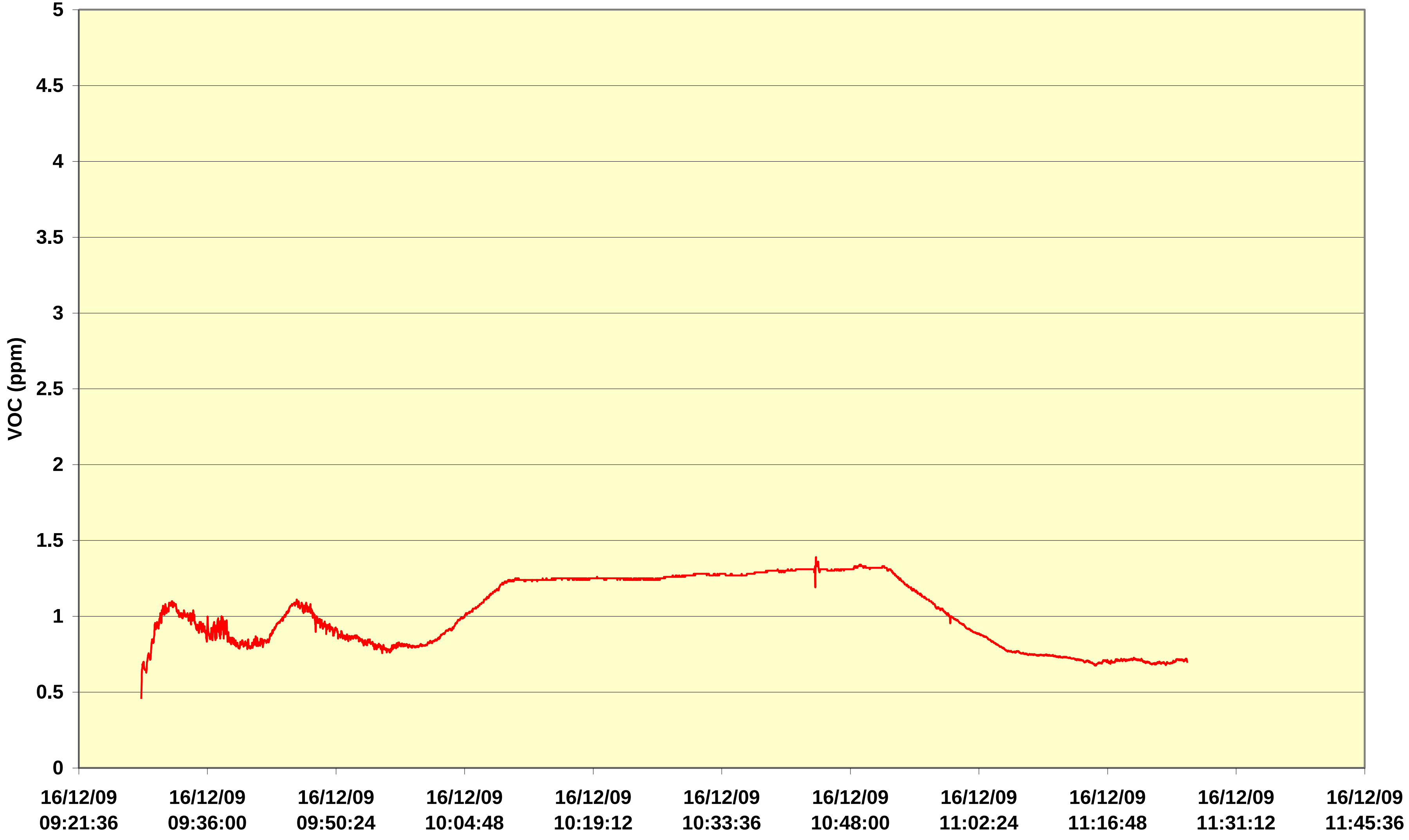

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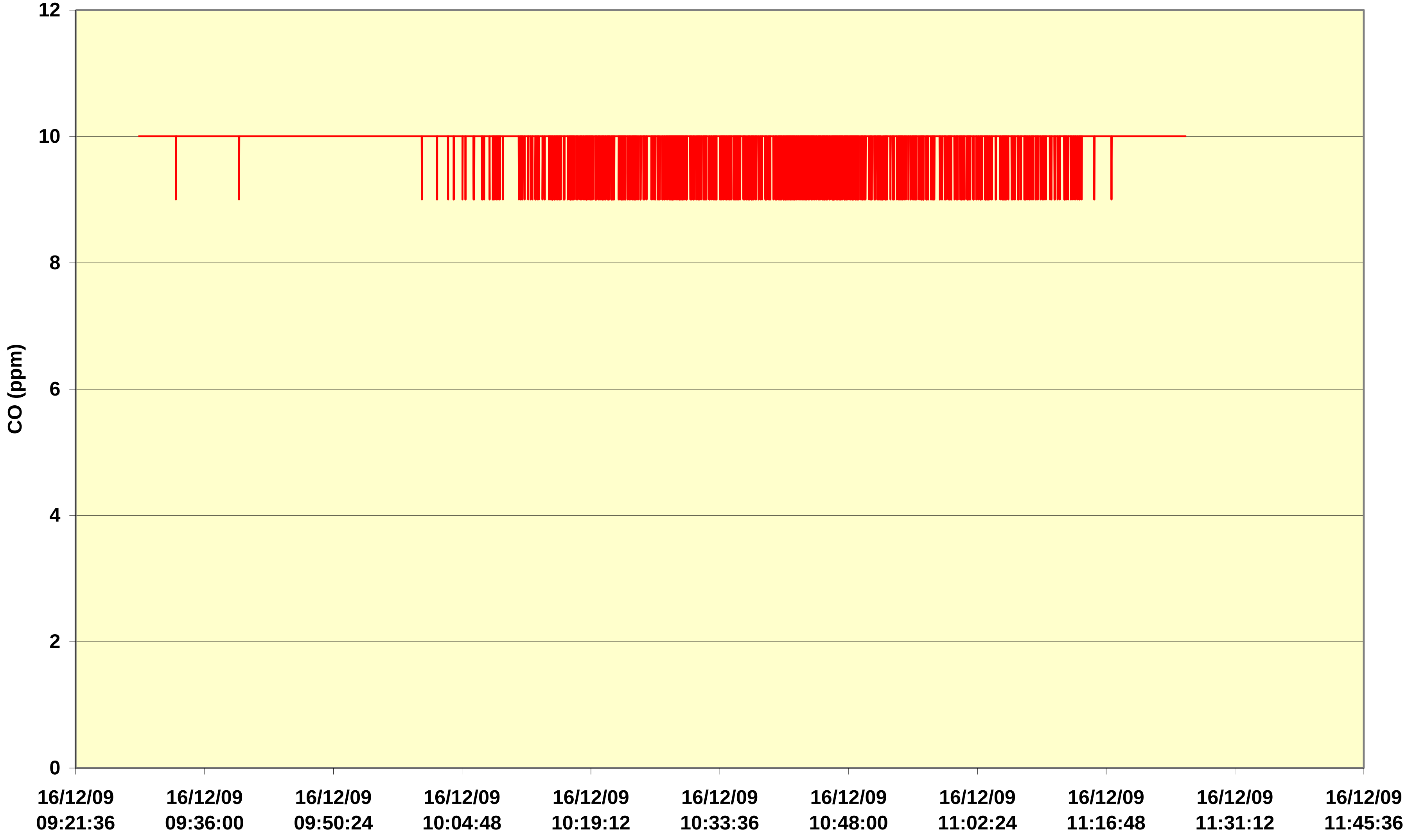
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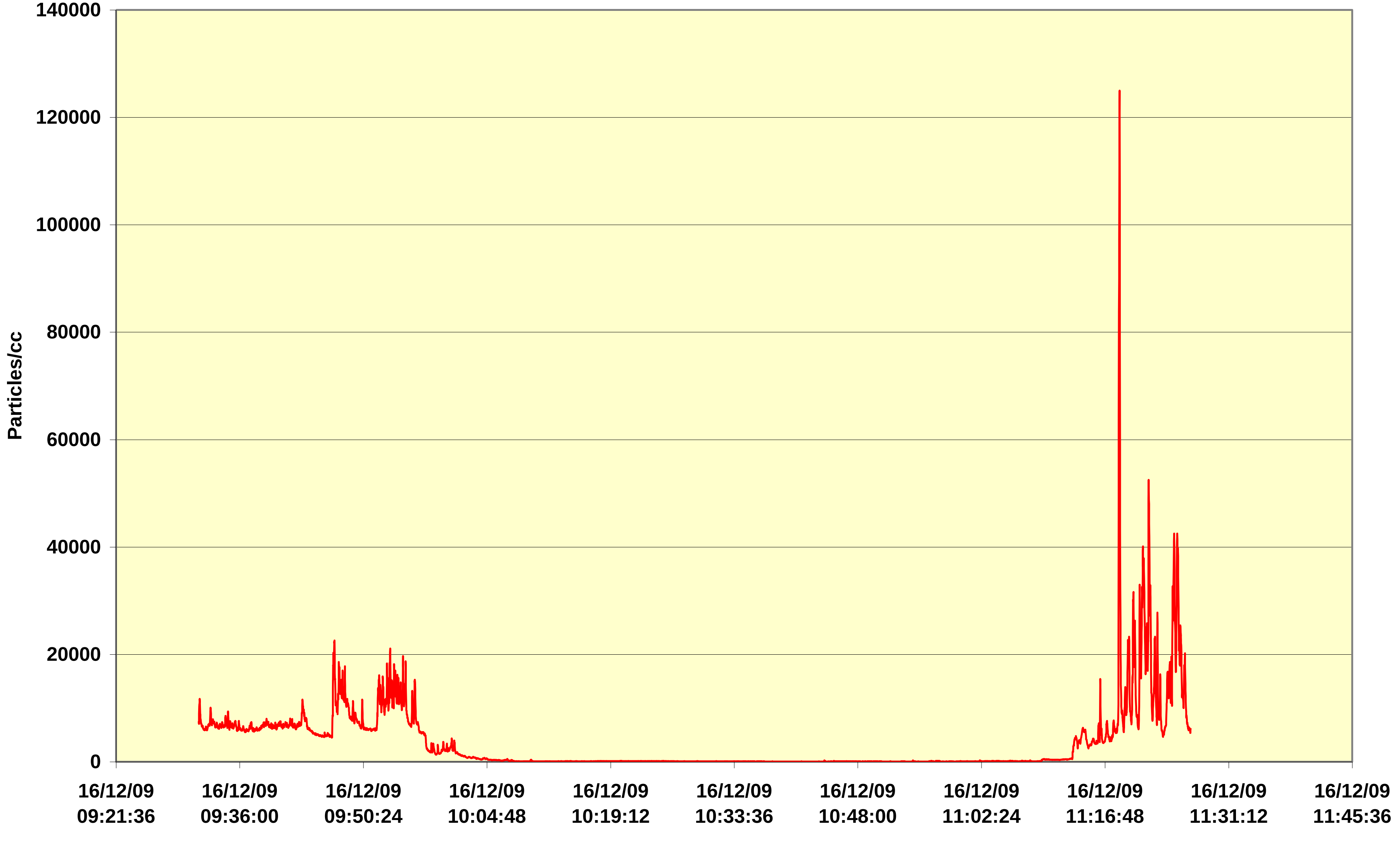
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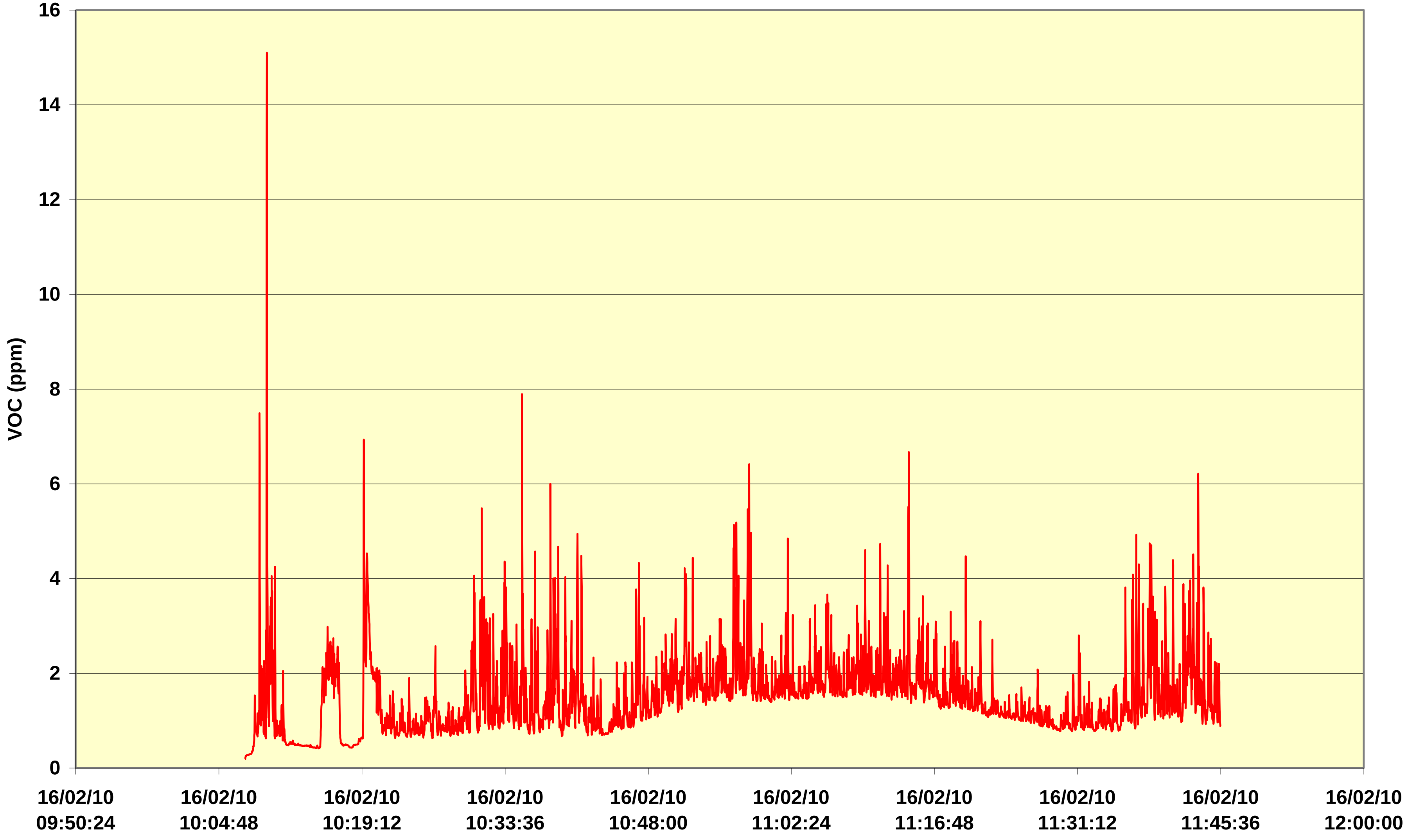

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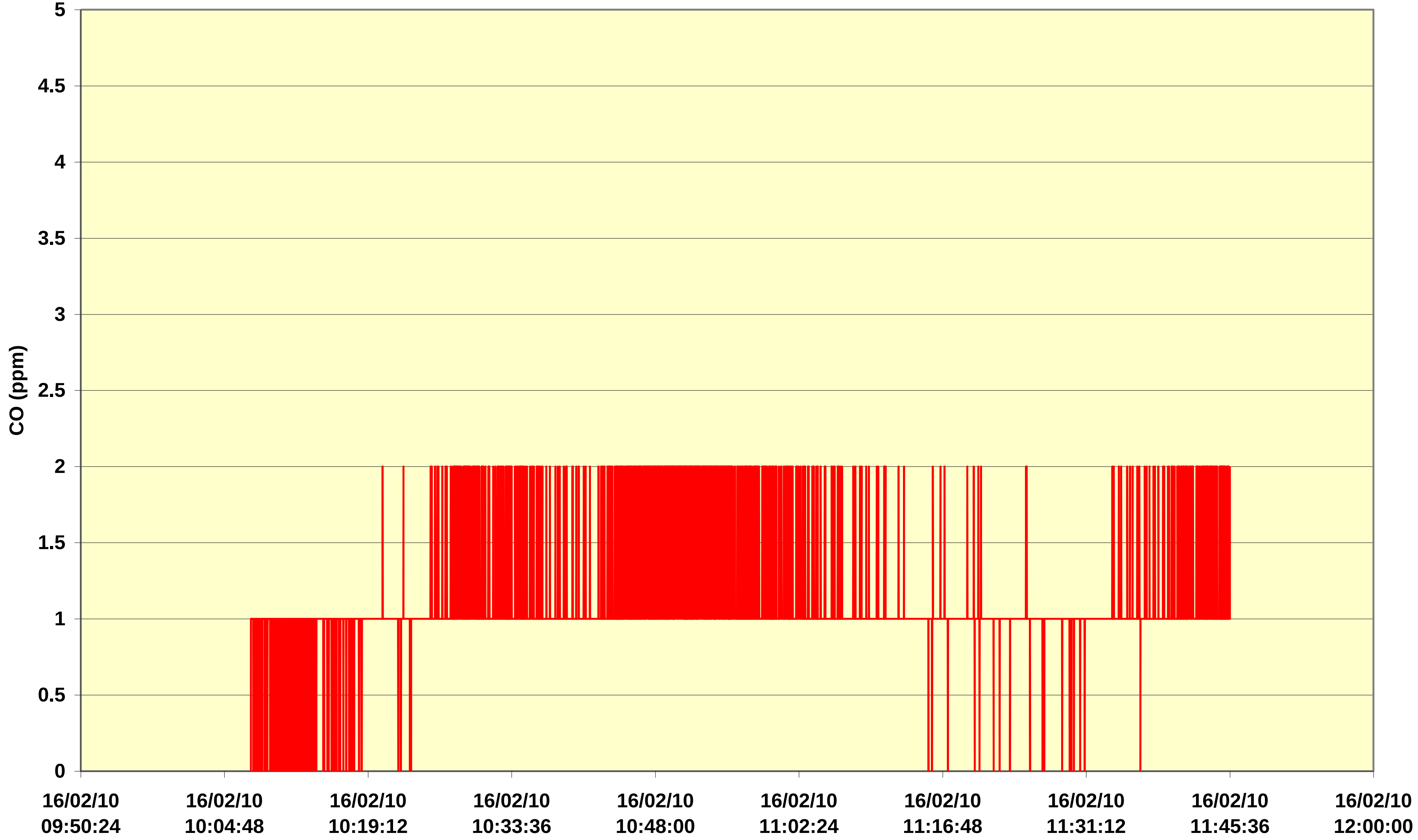

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2
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3
3.5
4
4.5
5
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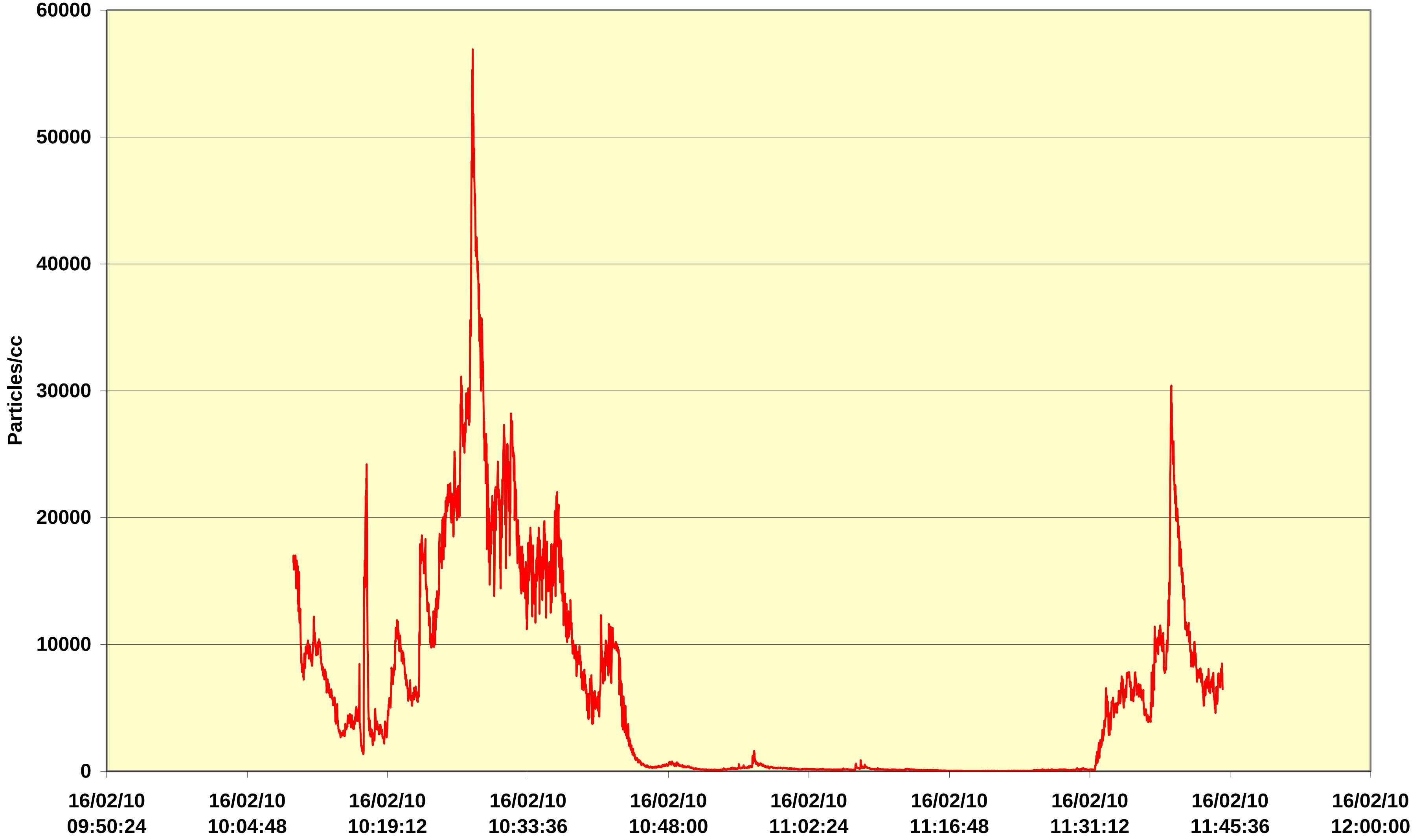

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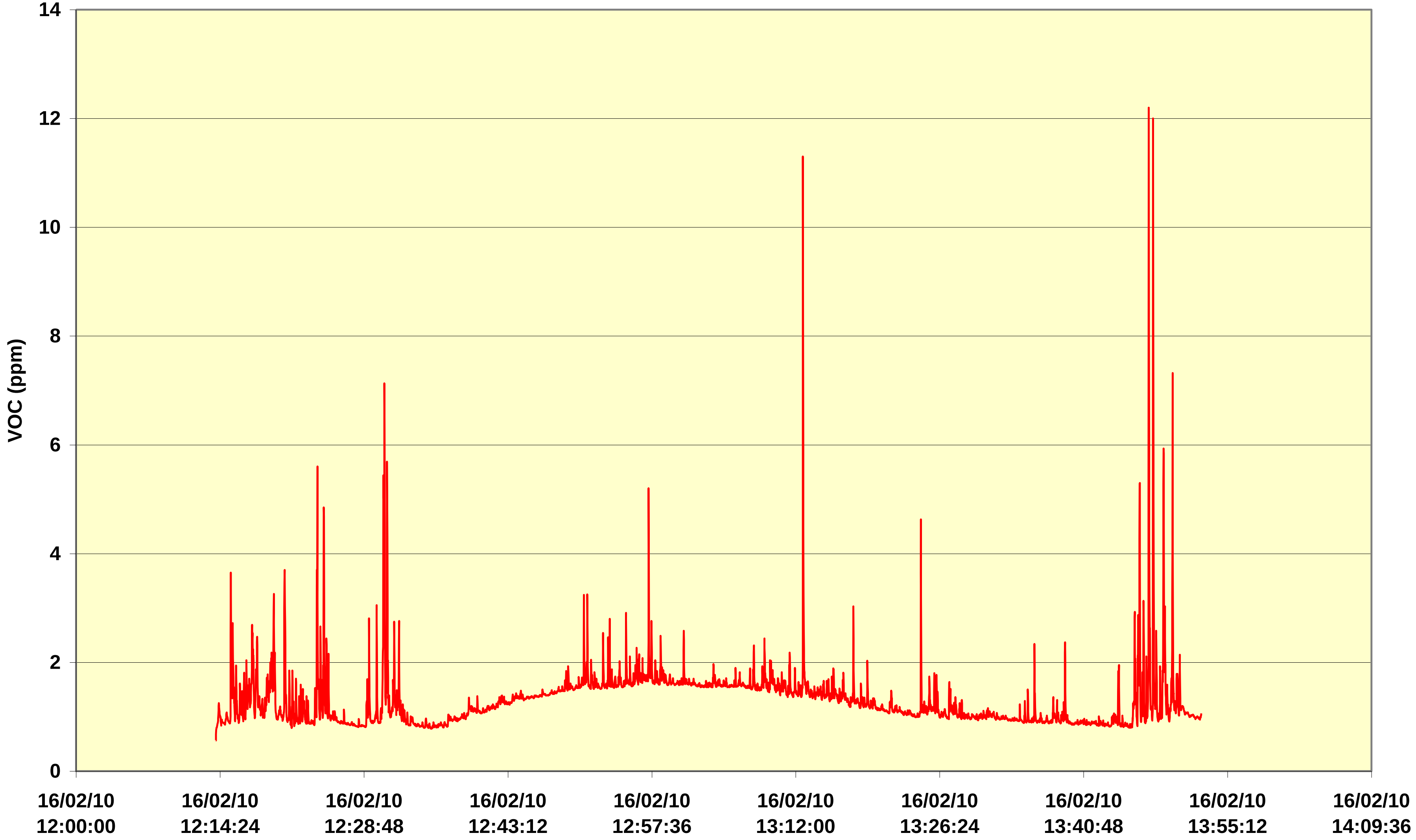
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6
8
10
12
14
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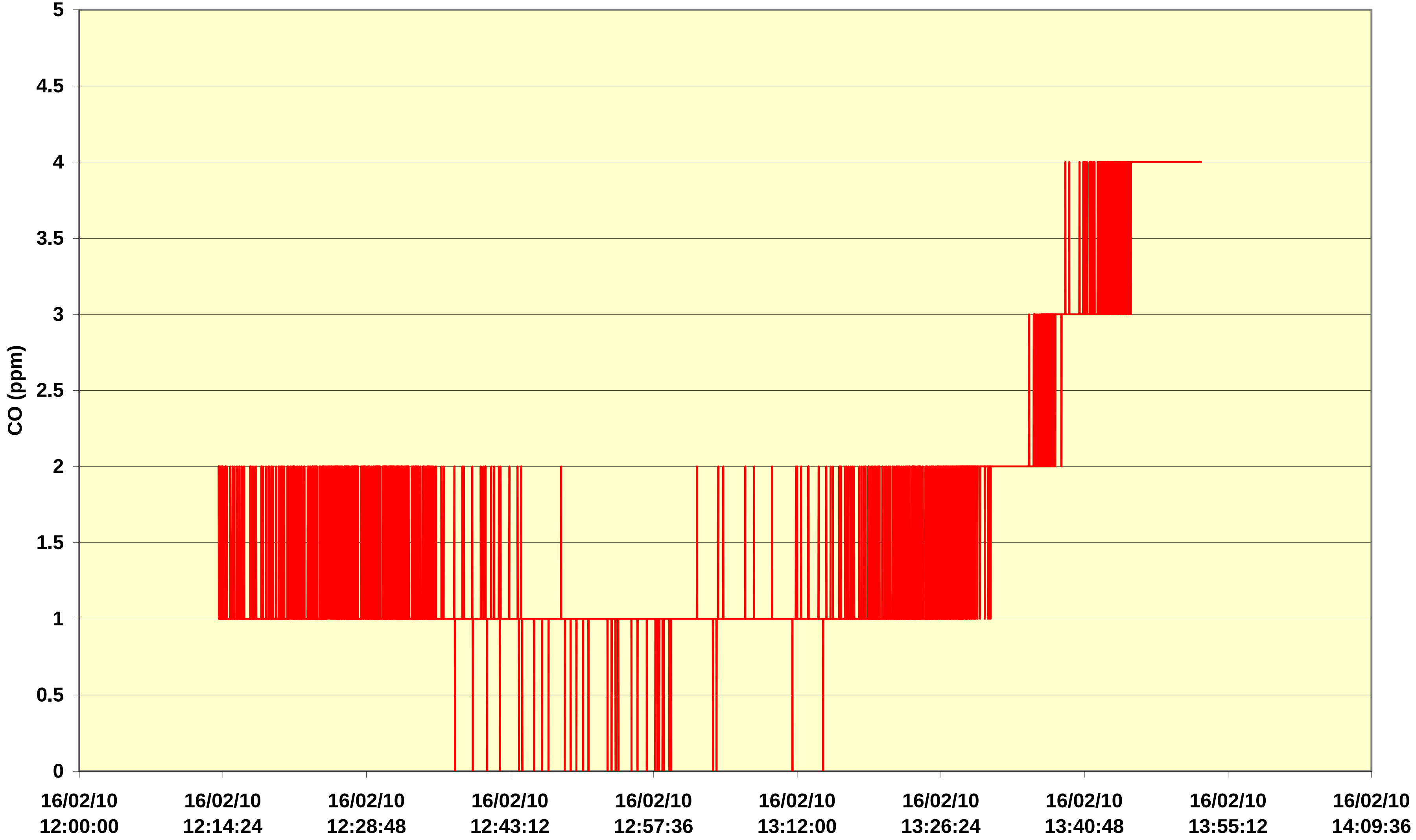
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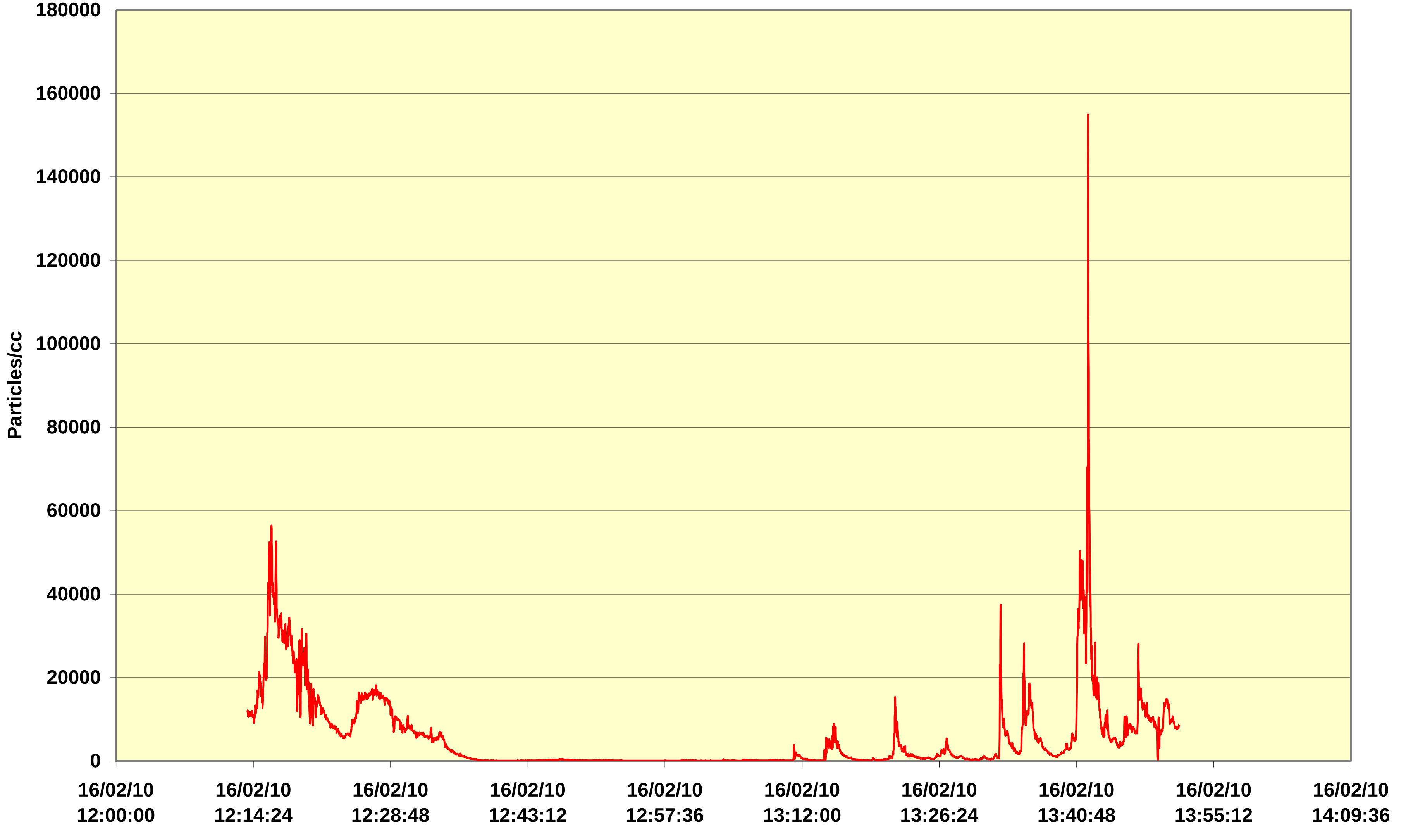
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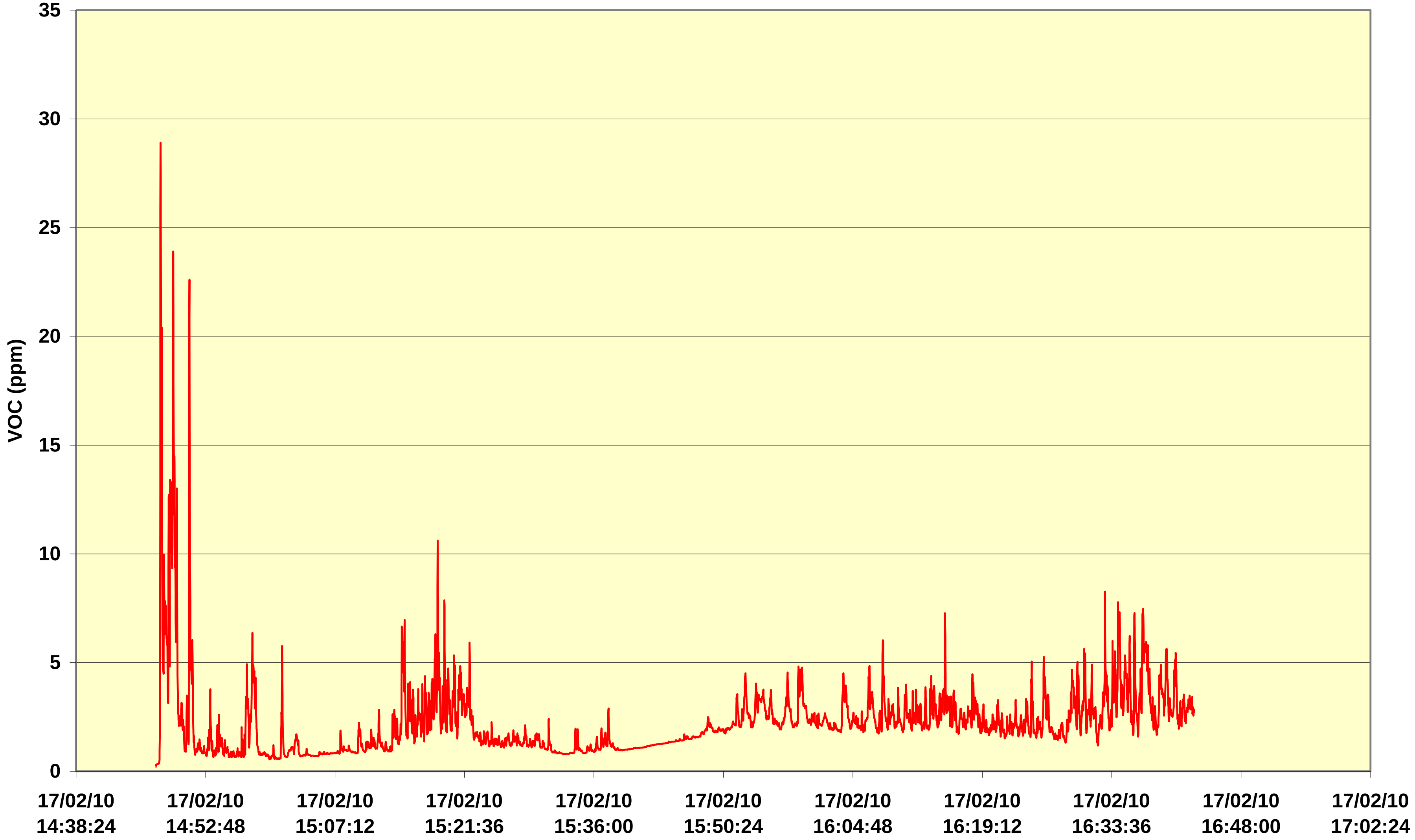

VOC (ppm)
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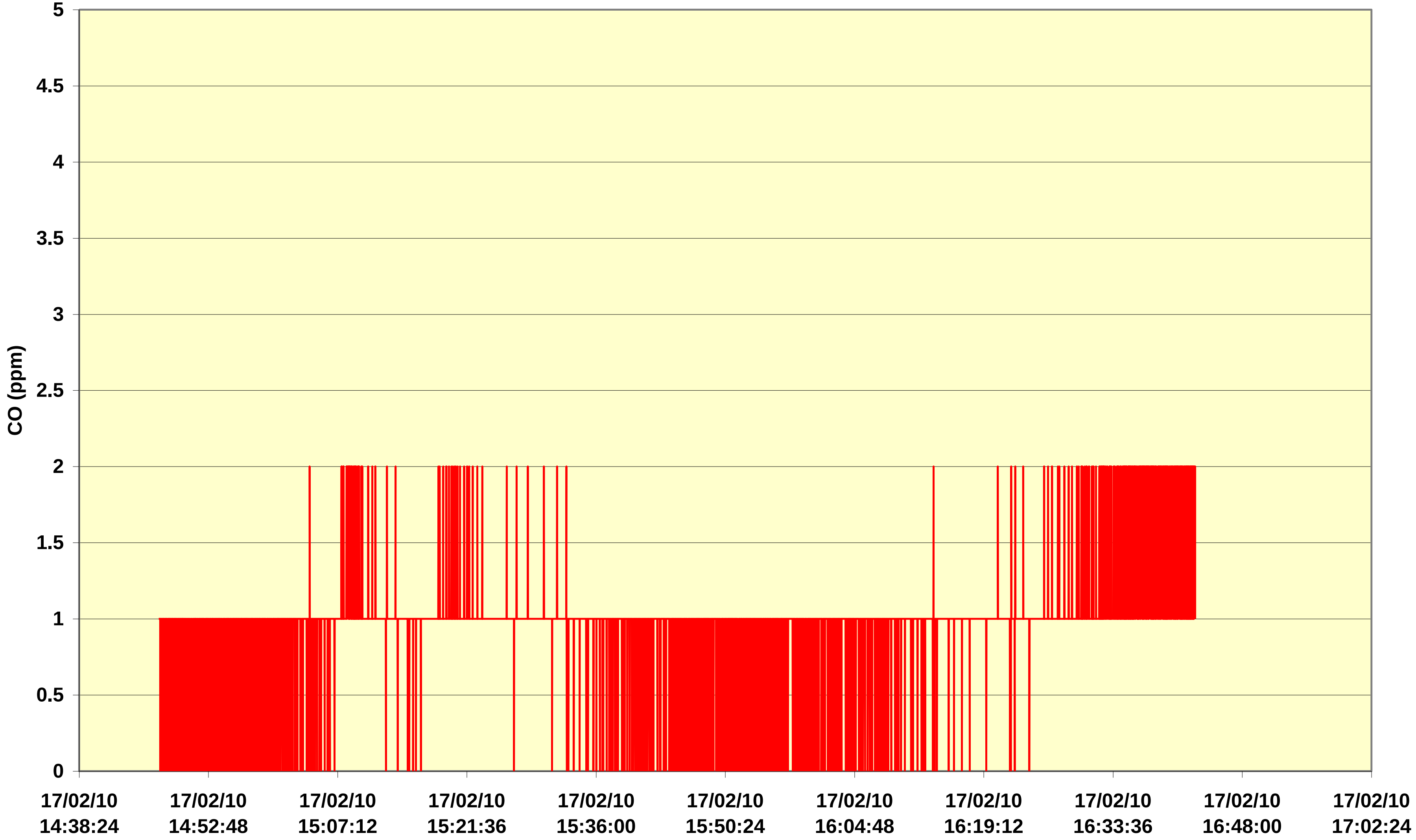

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2
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3
3.5
4
4.5
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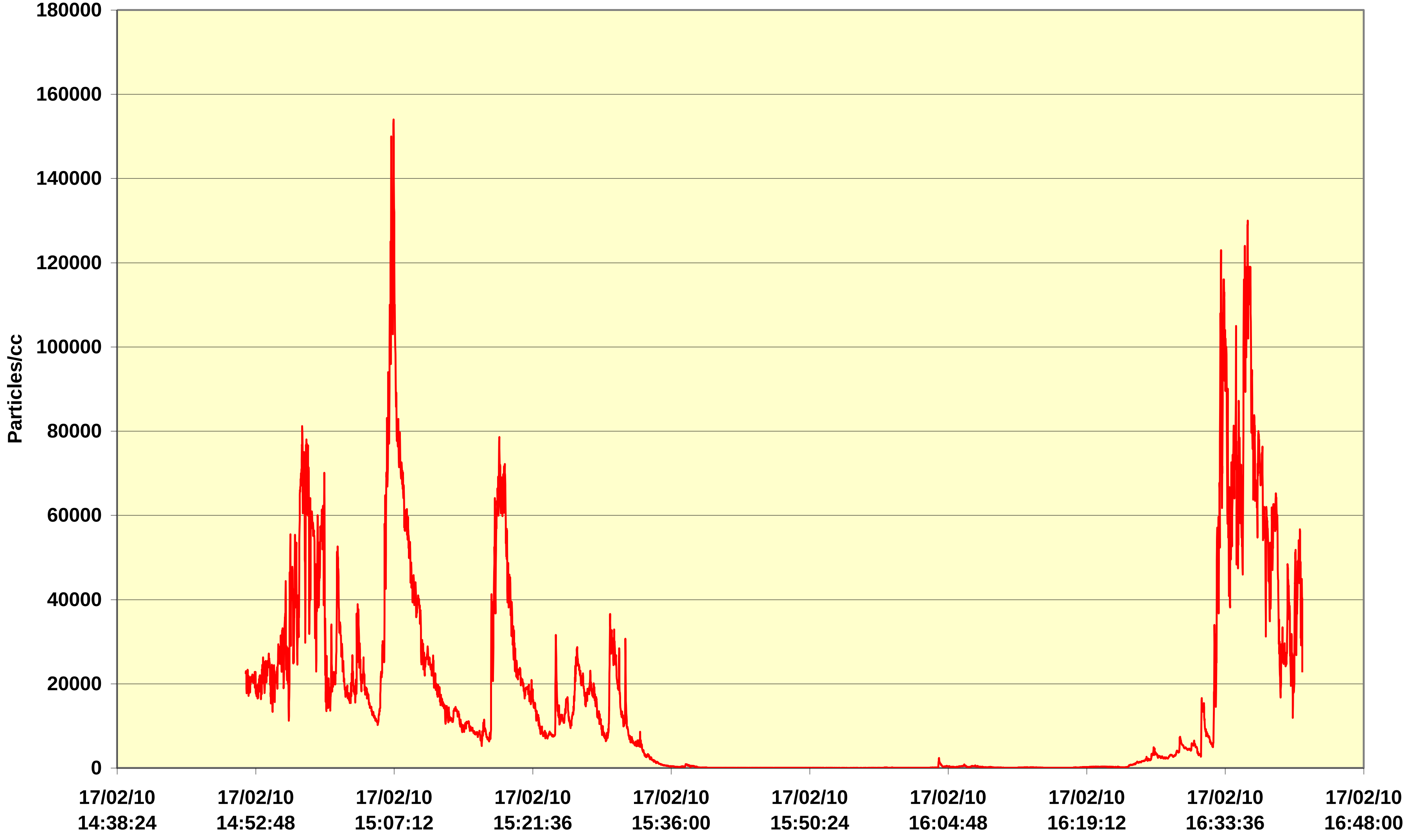
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120000
100000
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17/02/10 15:50:24
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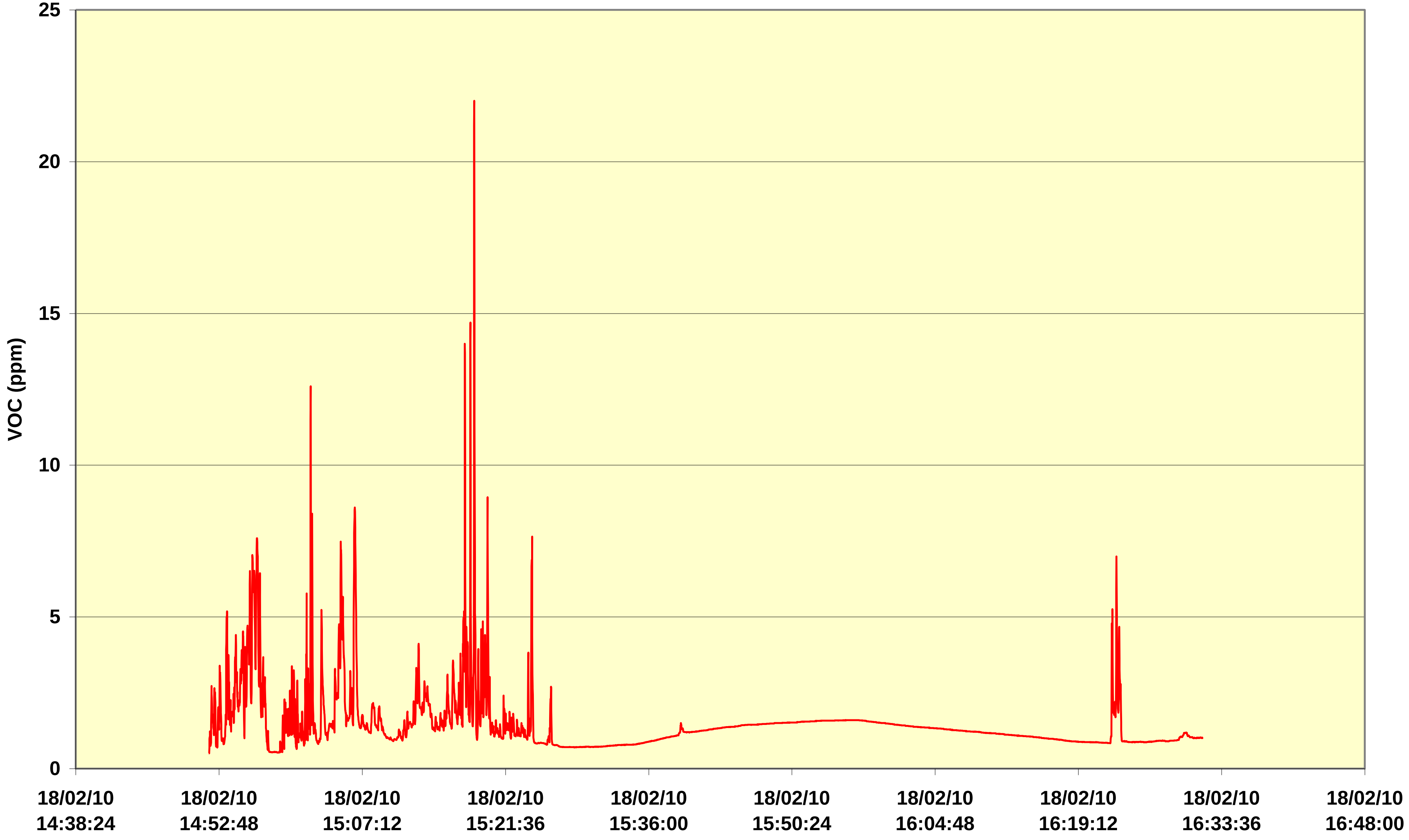
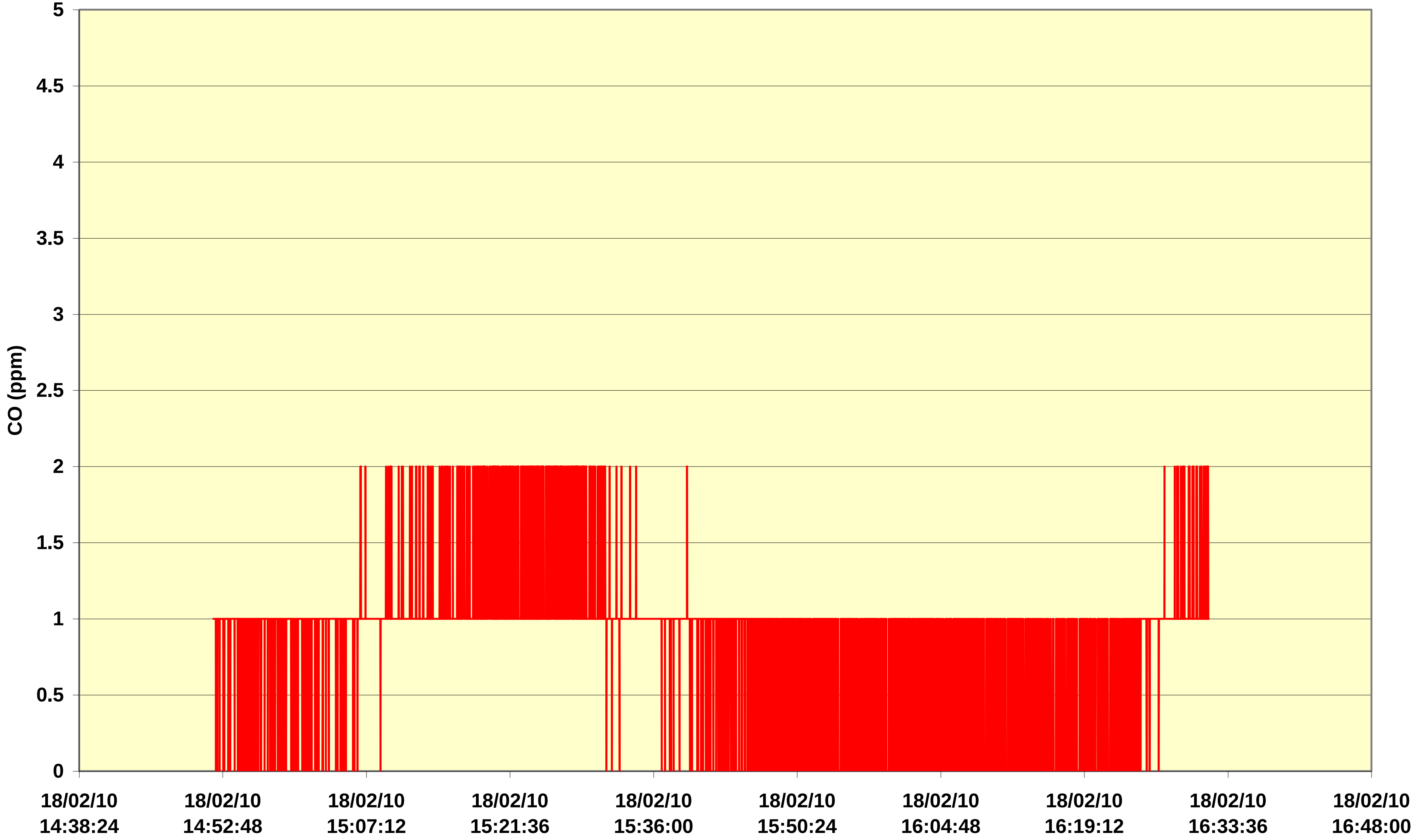
Part 5 Sector 4

See Endnote [5]





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0.5
0
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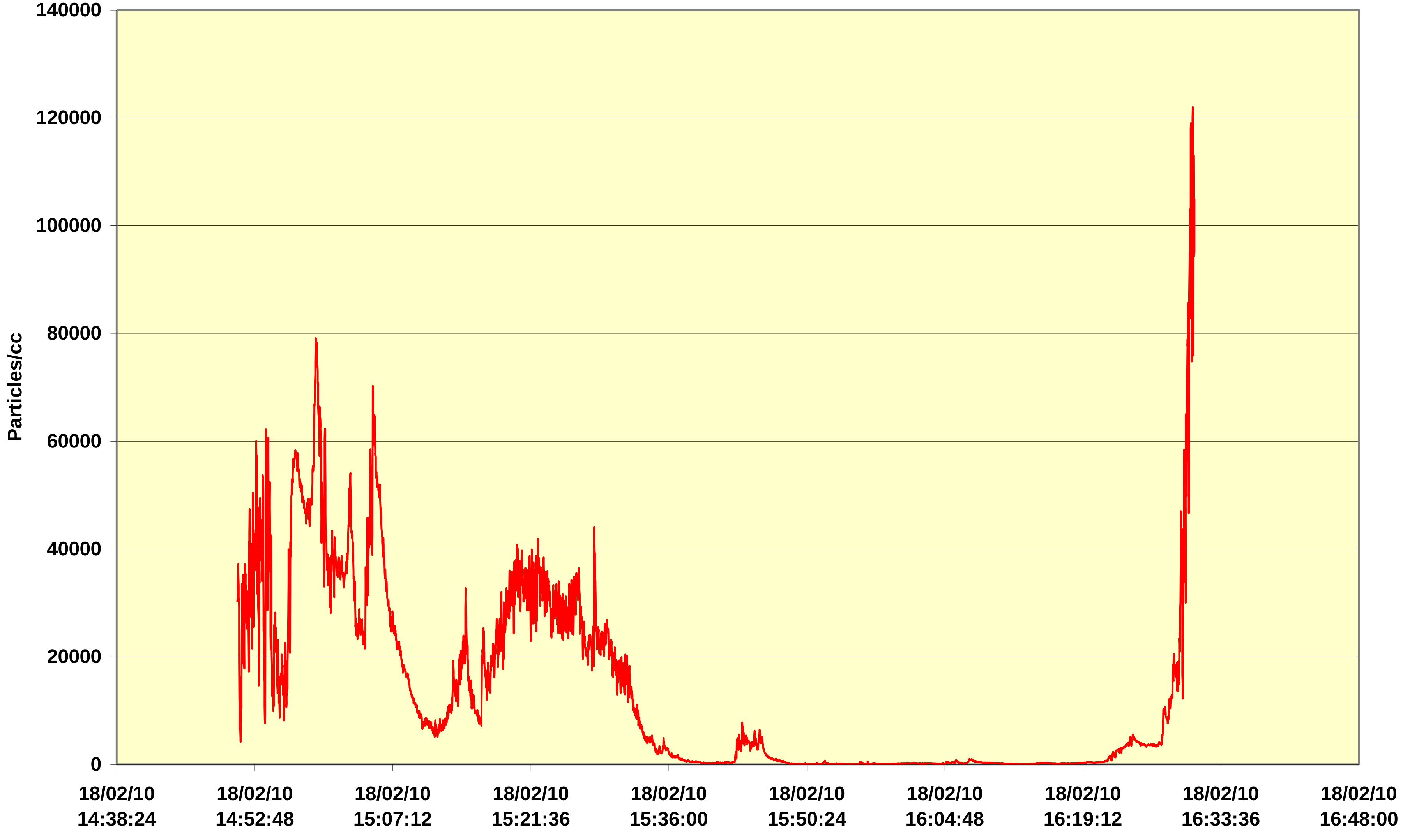
18/02/10 16:48:00



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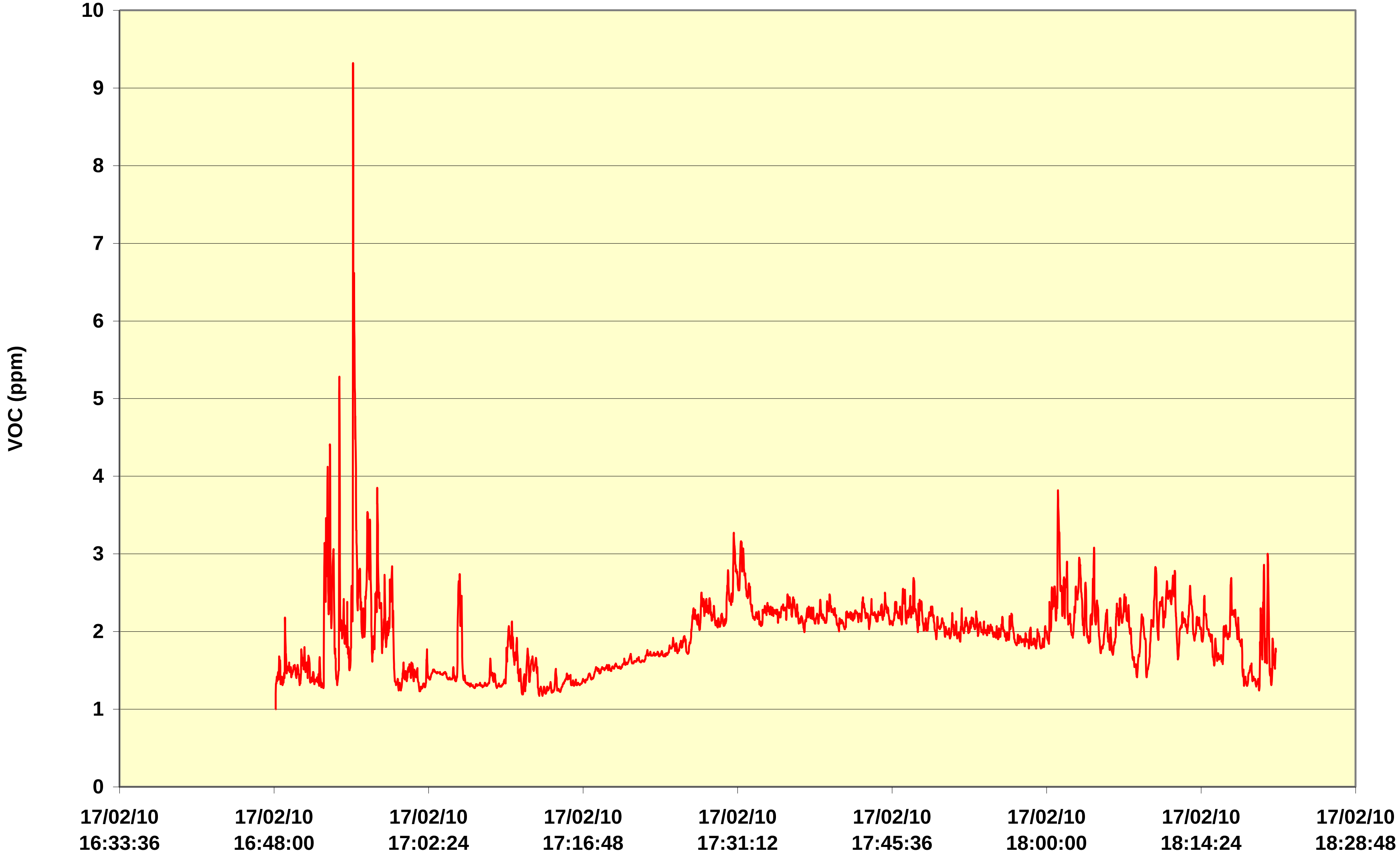
18/02/10 16:48:00



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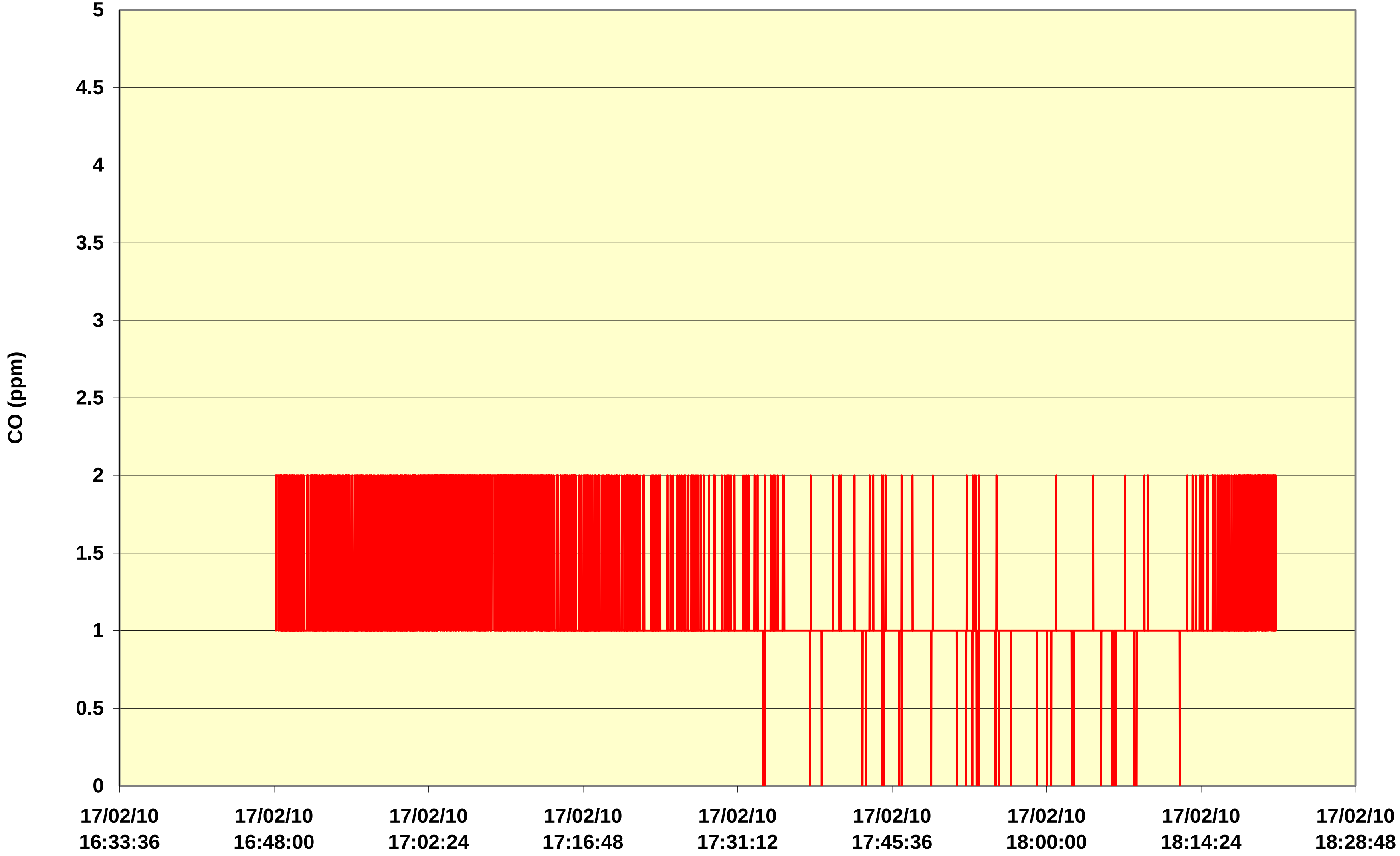
17/02/10 18:28:48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2.5
2
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1
0.5
0
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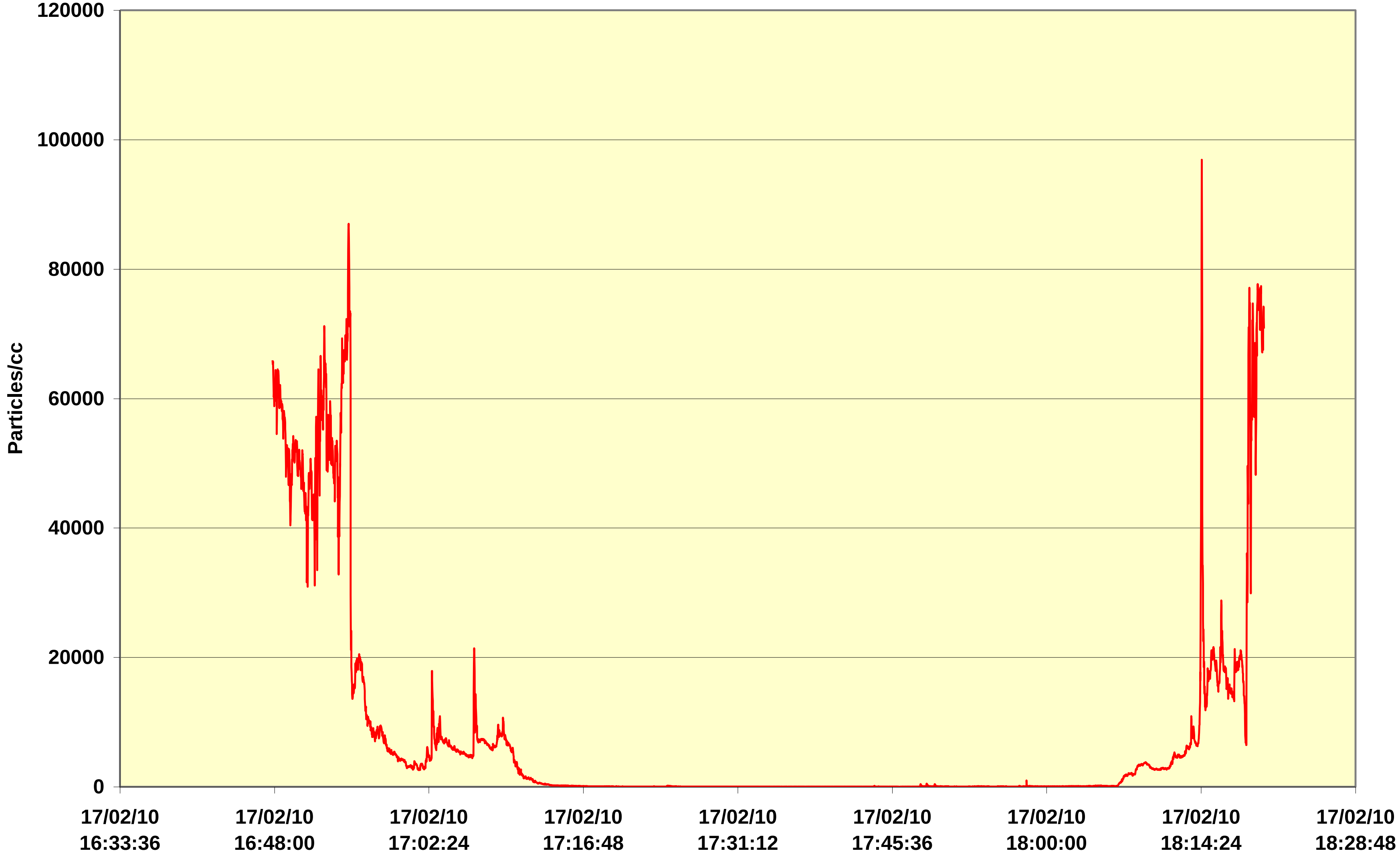
17/02/10 18:28:48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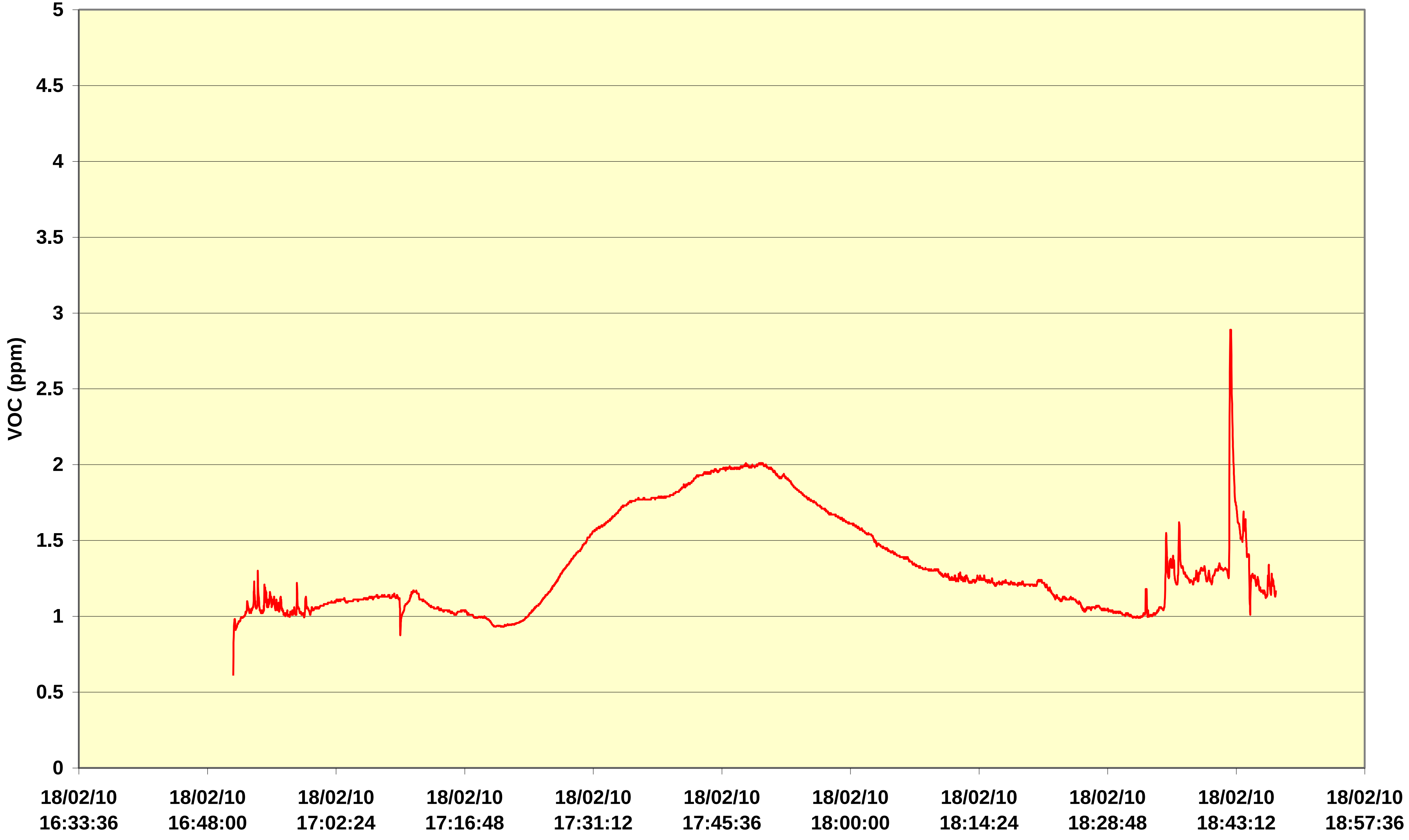
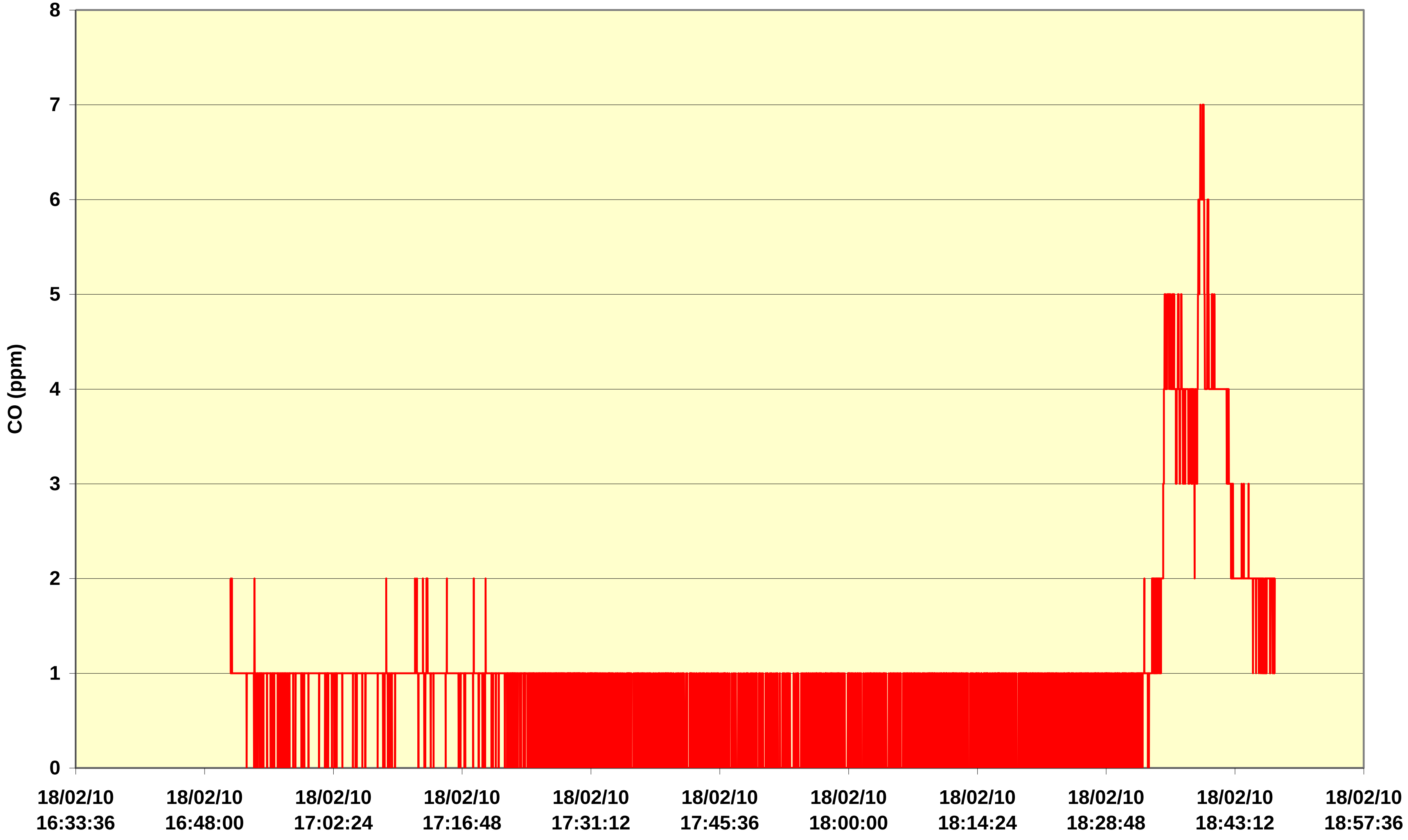

VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
18/02/10 16:33:36
18/02/10 16:48:00
18/02/10 17:02:24
18/02/10 17:16:48
18/02/10 17:31:12
18/02/10 17:45:36
18/02/10 18:00:00
18/02/10 18:14:24
18/02/10 18:28:48
18/02/10 18:43:12
18/02/10 18:57:36


CO (ppm)
8
7
6
5
4
3
2
1
0
18/02/10 16:33:36
18/02/10 16:48:00
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18/02/10 17:16:48
18/02/10 17:31:12
18/02/10 17:45:36
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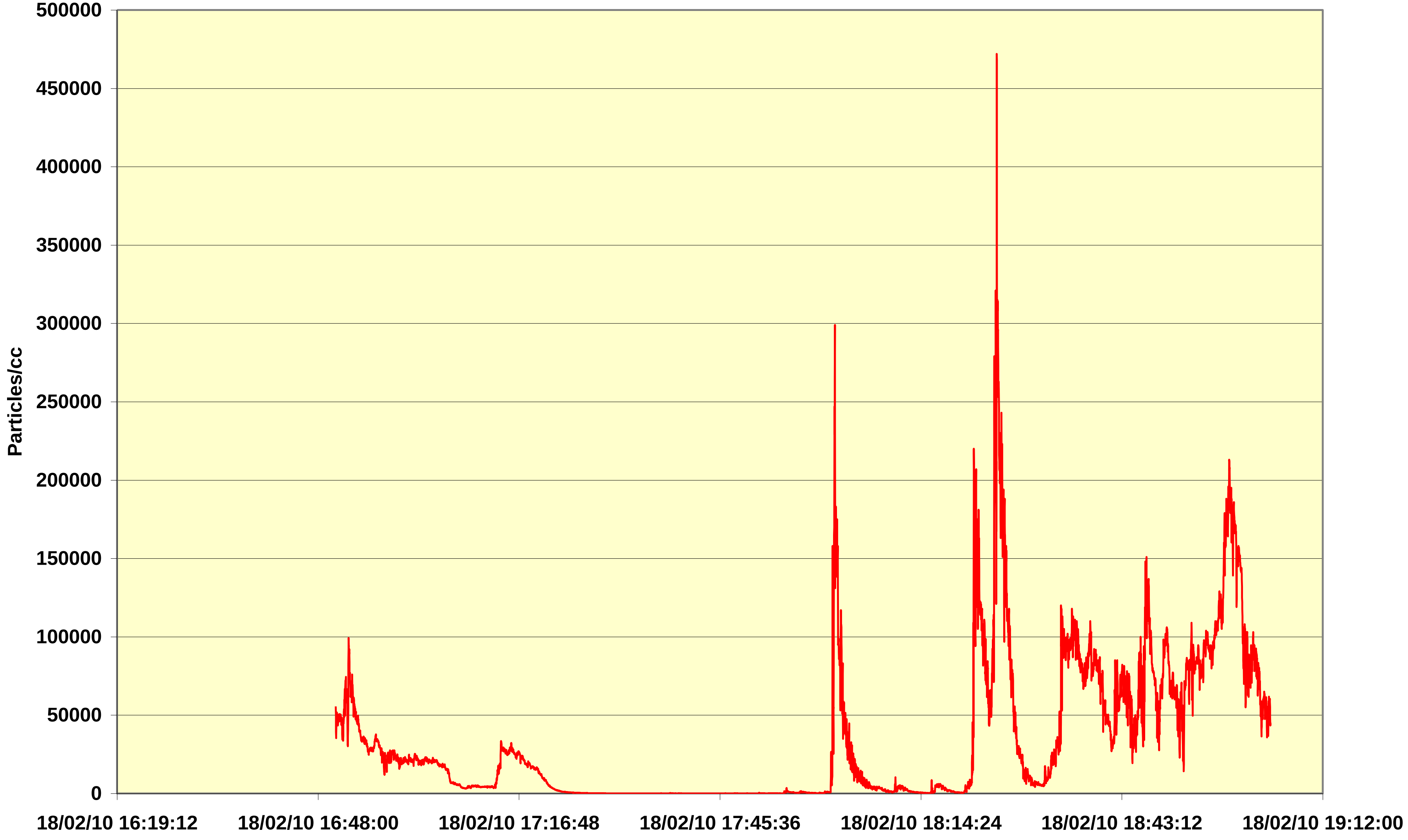
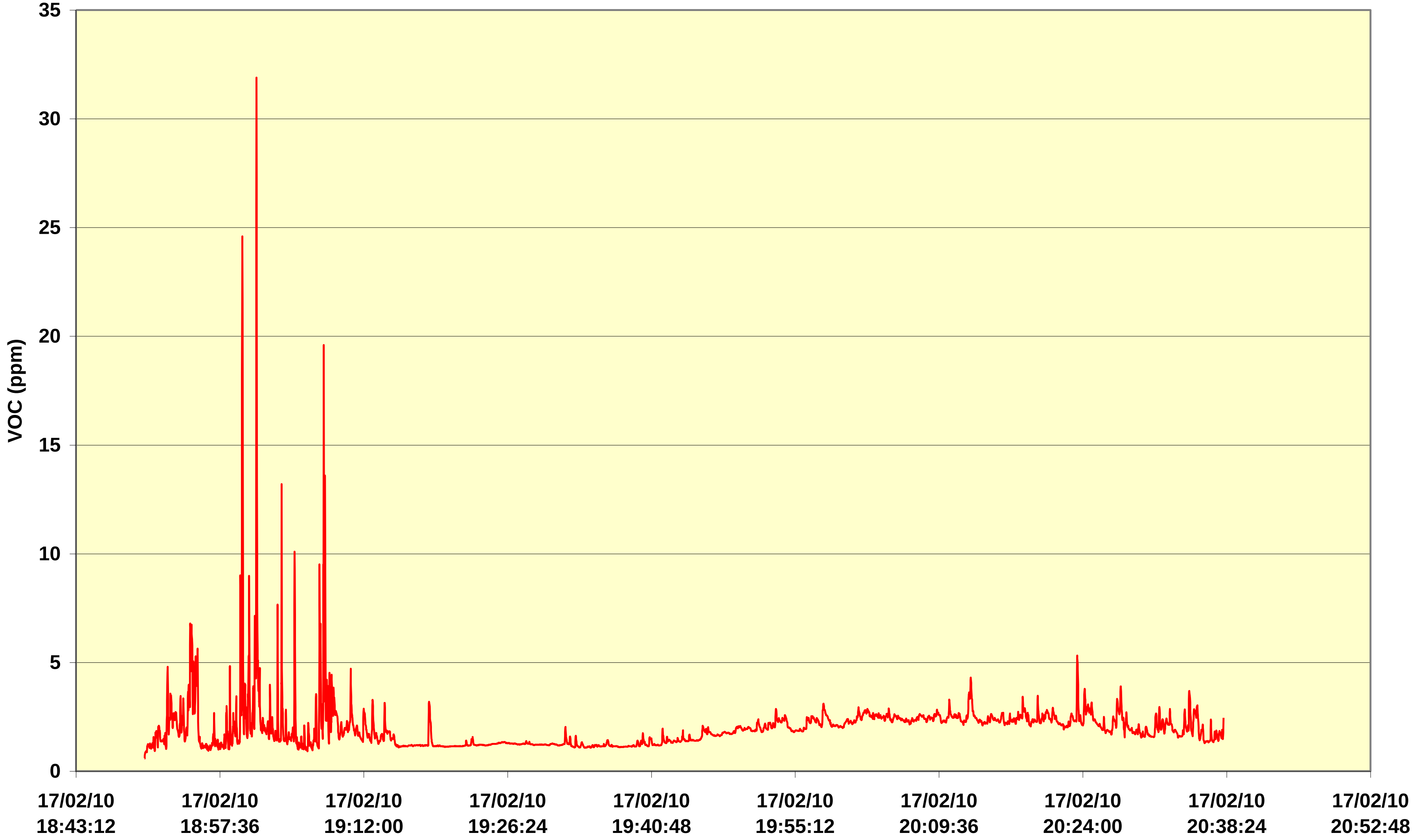
18/02/10 18:57:36


500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Particles/cc
18/02/10 16:19:12
18/02/10 16:48:00
18/02/10 17:16:48
18/02/10 17:45:36
18/02/10 18:14:24
18/02/10 18:43:12
18/02/10 19:12:00



35
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25
20
15
10
5
0
VOC (ppm)
17/02/10 18:43:12
17/02/10 18:57:36
17/02/10 19:12:00
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17/02/10 19:40:48
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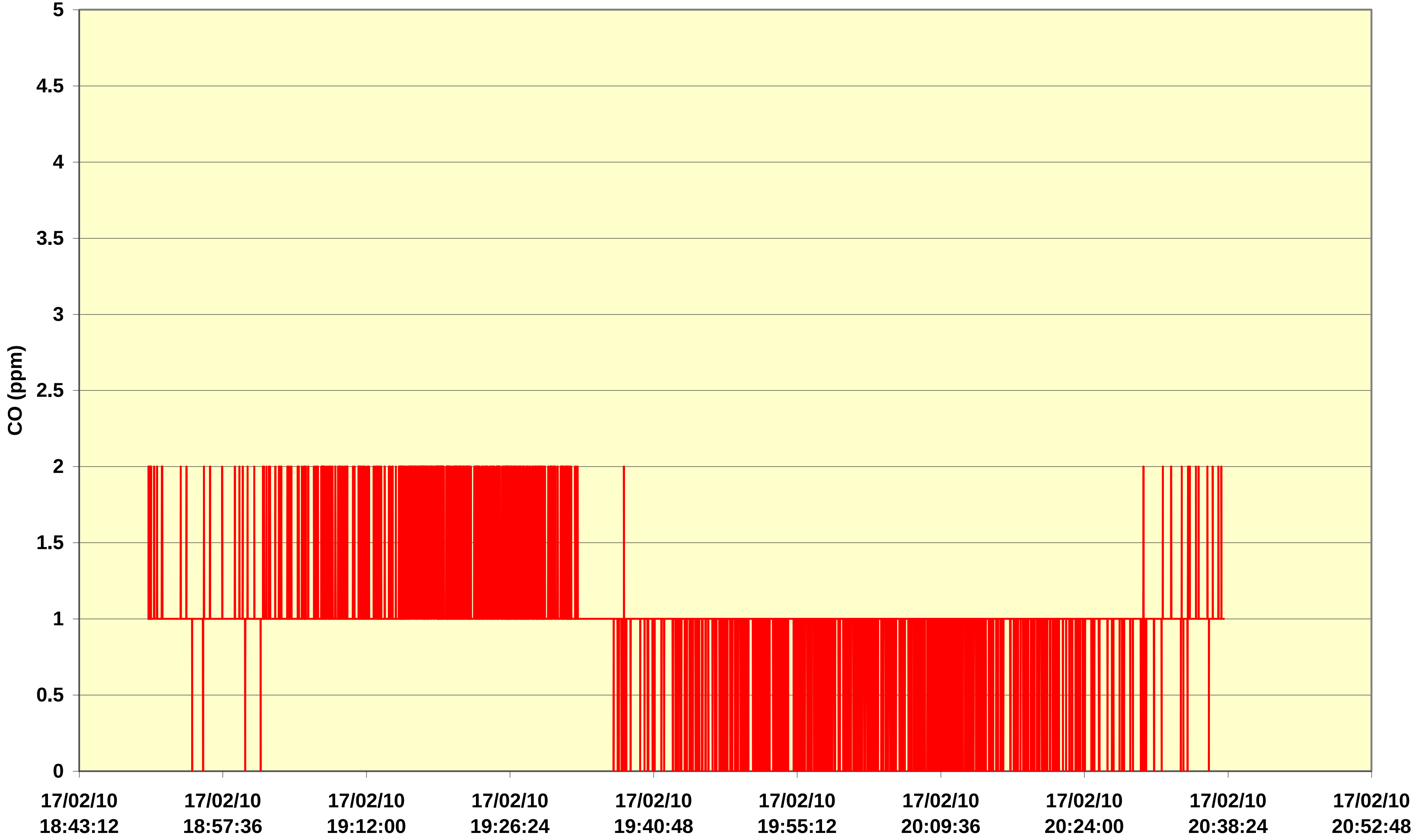
17/02/10 20:52:48



CO (ppm)
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3.5
3
2.5
2
1.5
1
0.5
0
17/02/10 18:43:12
17/02/10 18:57:36
17/02/10 19:12:00
17/02/10 19:26:24
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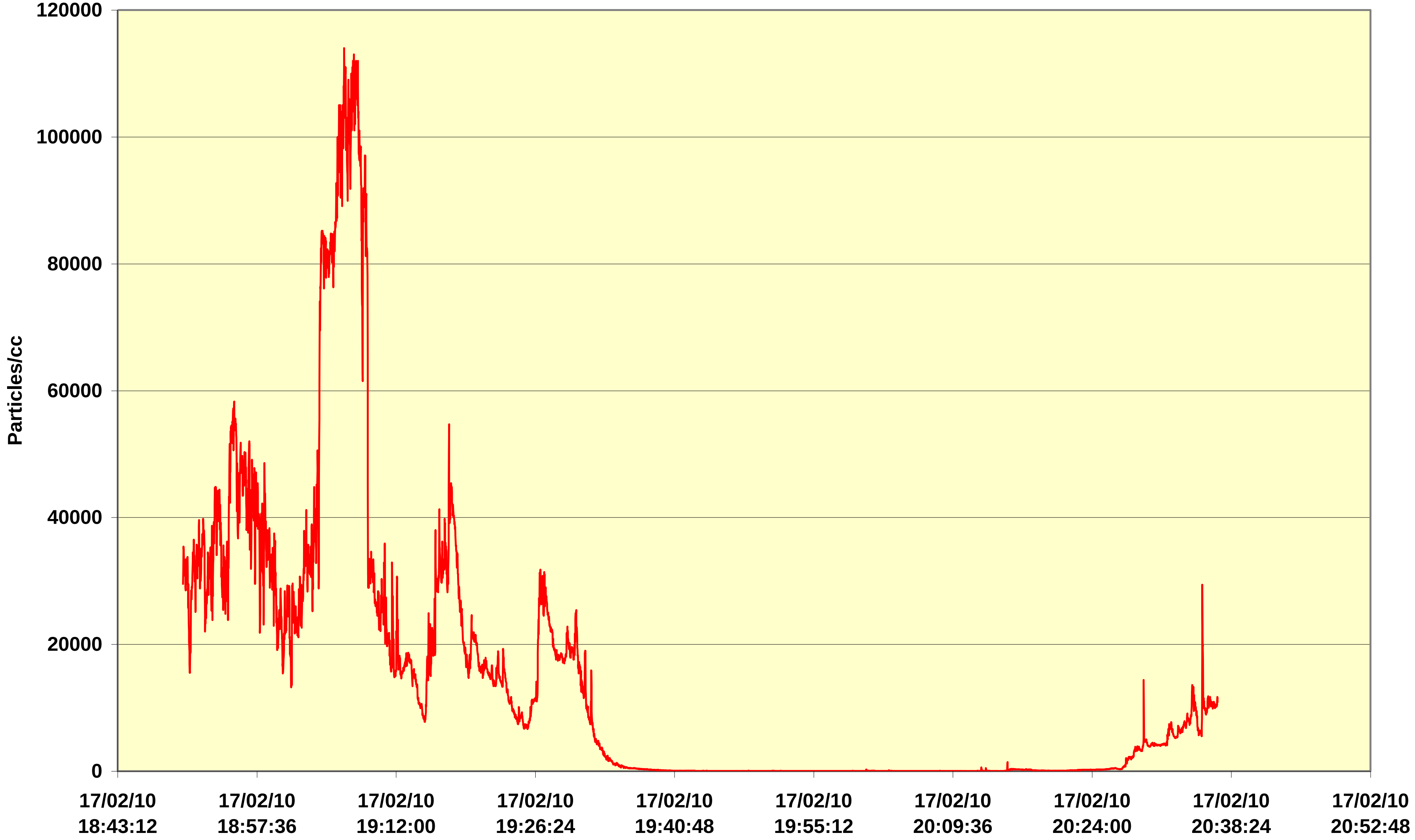
17/02/10 20:52:48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Particles/cc
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17/02/10 18:57:36
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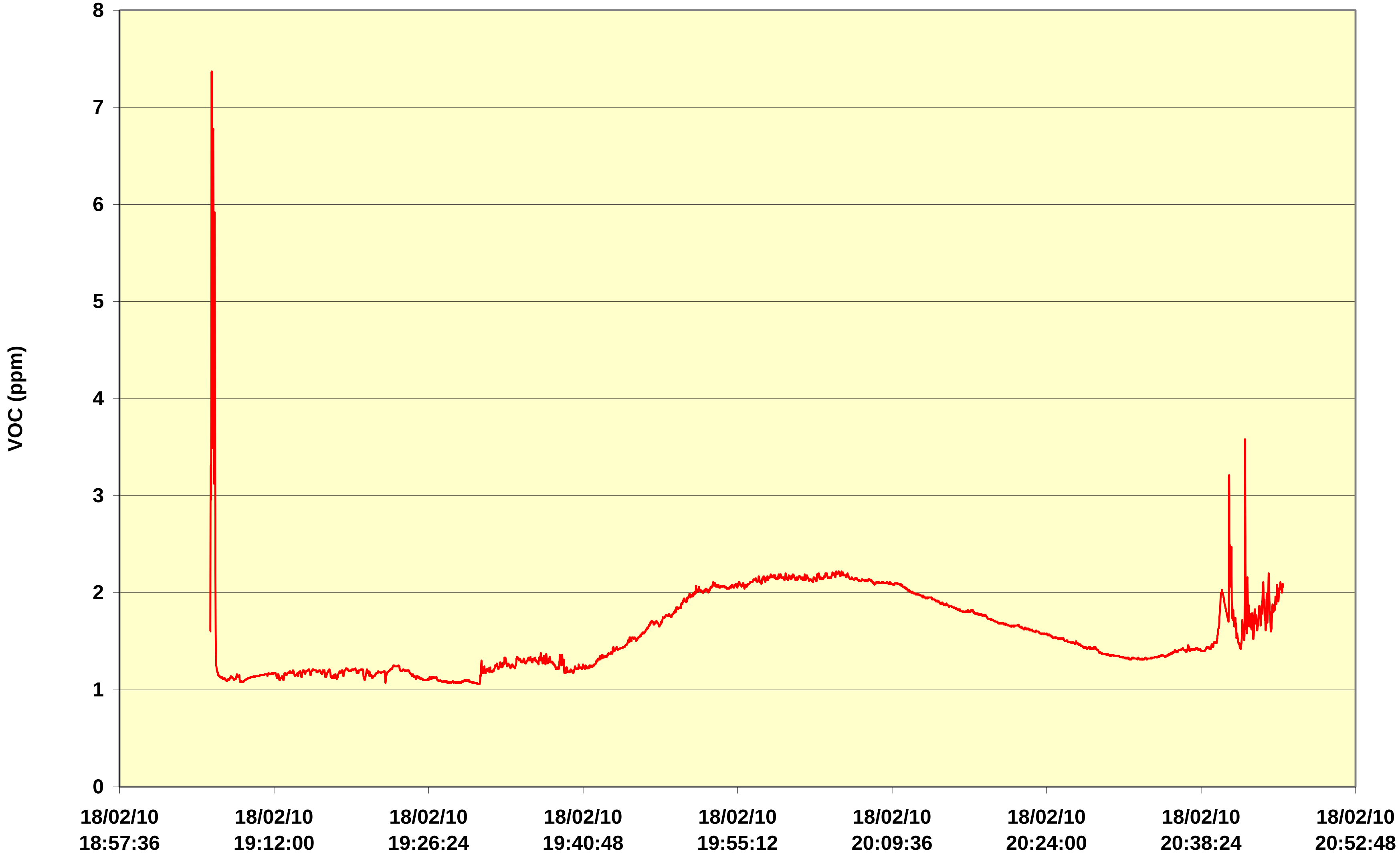
17/02/10 20:52:48


VOC (ppm)
0
1
2
3
4
5
6
7
8
18/02/10 18:57:36
18/02/10 19:12:00
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18/02/10 19:40:48
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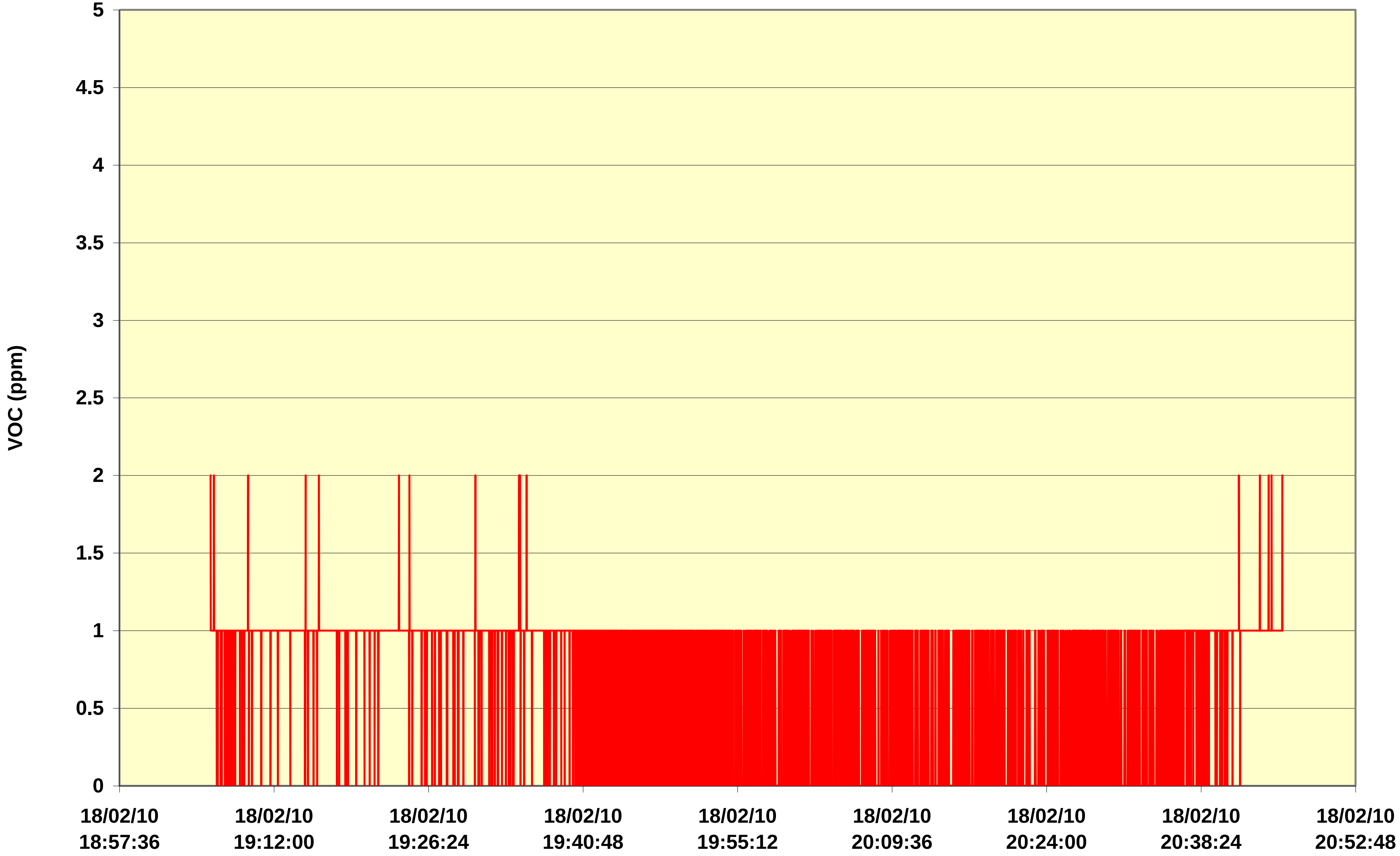
18/02/10 20:52:48


VOC (ppm)
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4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
18/02/10 18:57:36
18/02/10 19:12:00
18/02/10 19:26:24
18/02/10 19:40:48
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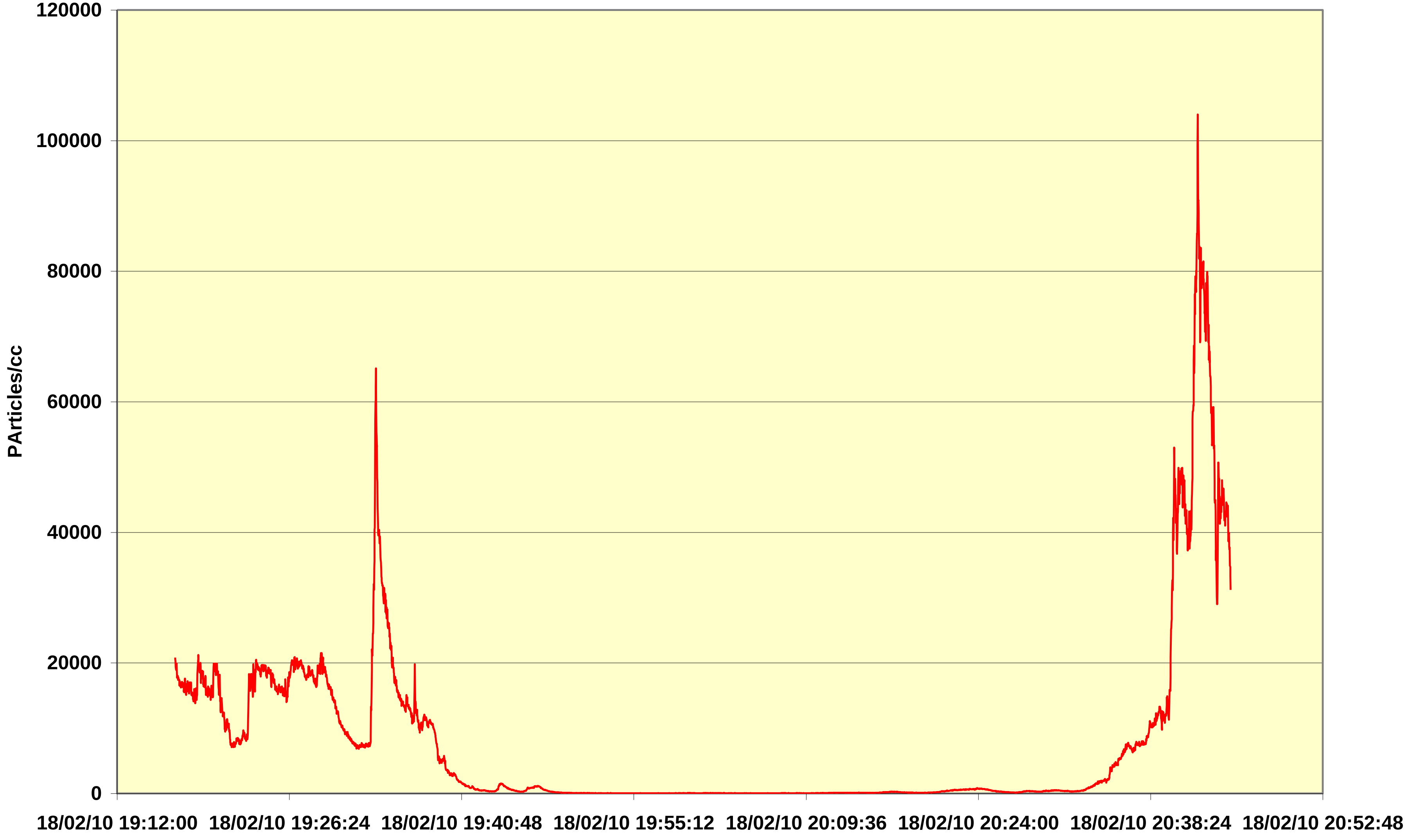
18/02/10 20:52:48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100000
80000
60000
40000
20000
0
PArticles/cc
18/02/10 19:12:00
18/02/10 19:26:24
18/02/10 19:40:48
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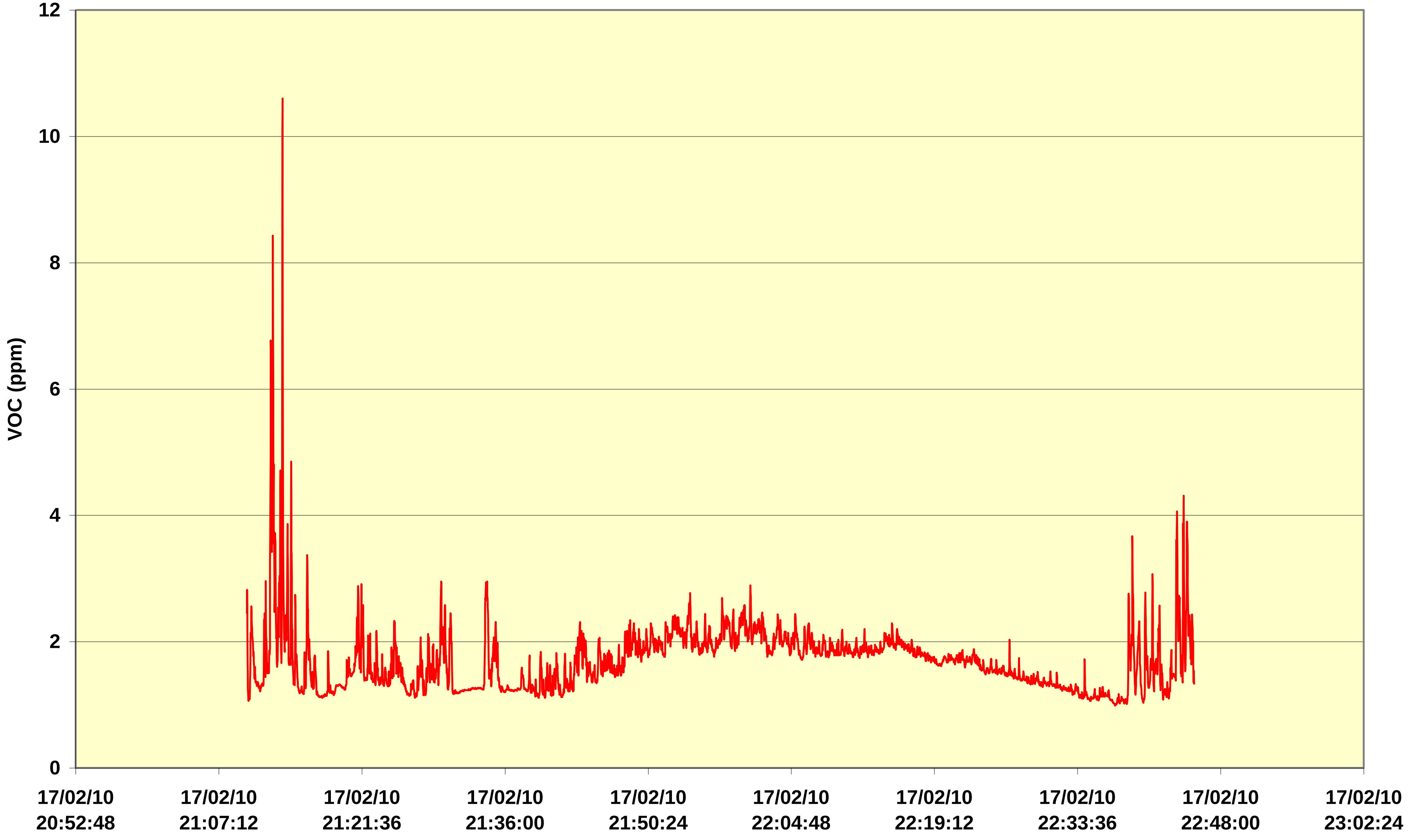
18/02/10 20:52:48



VOC (ppm)
0
2
4
6
8
10
12
17/02/10 20:52:48
17/02/10 21:07:12
17/02/10 21:21:36
17/02/10 21:36:00
17/02/10 21:50:24
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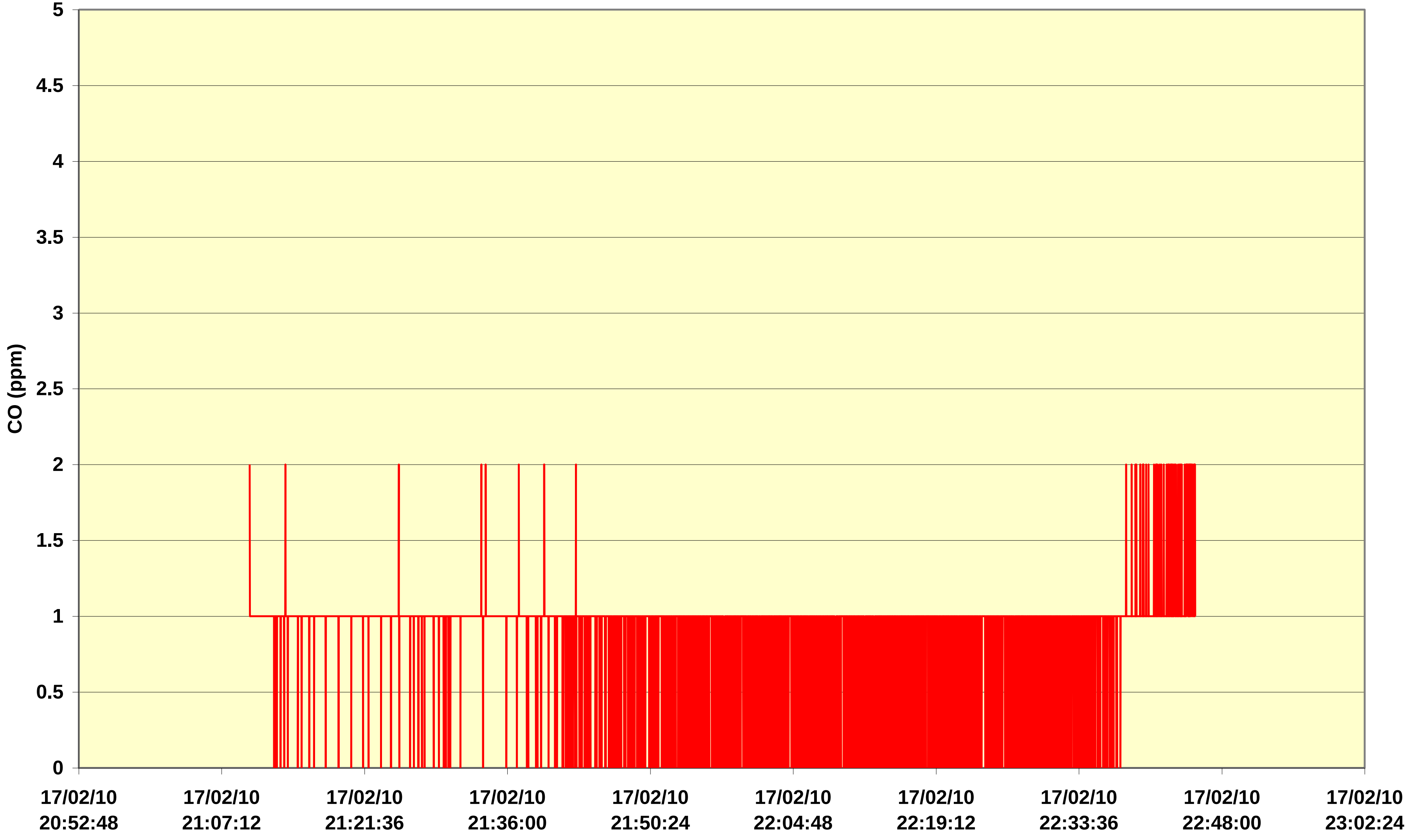
17/02/10 23:02:24



CO (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
17/02/10 20:52:48
17/02/10 21:07:12
17/02/10 21:21:36
17/02/10 21:36:00
17/02/10 21:50:24
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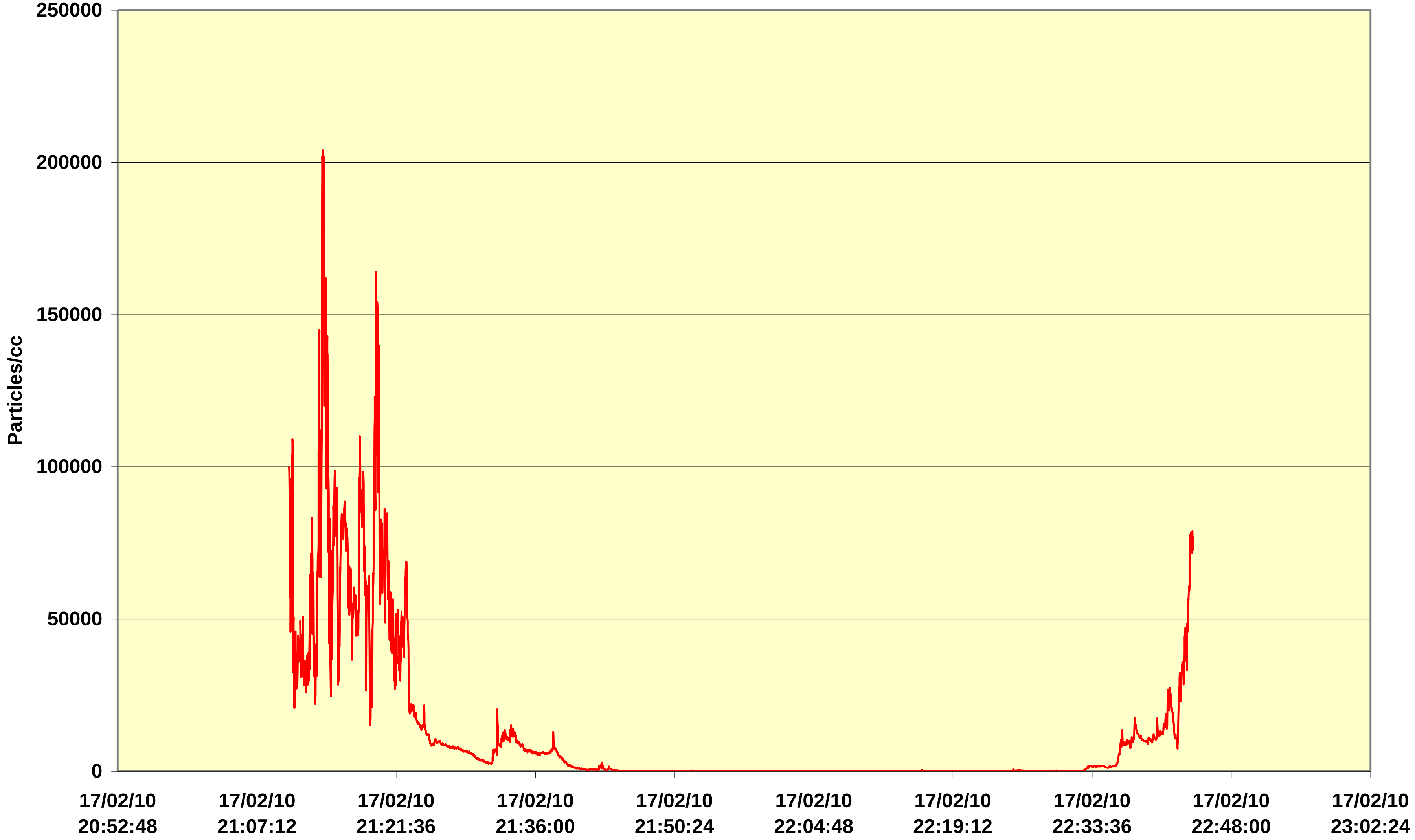
17/02/10 23:02:24


250000
200000
150000
100000
50000
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Particles/cc
17/02/10 20:52:48
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17/02/10 21:36:00
17/02/10 21:50:24
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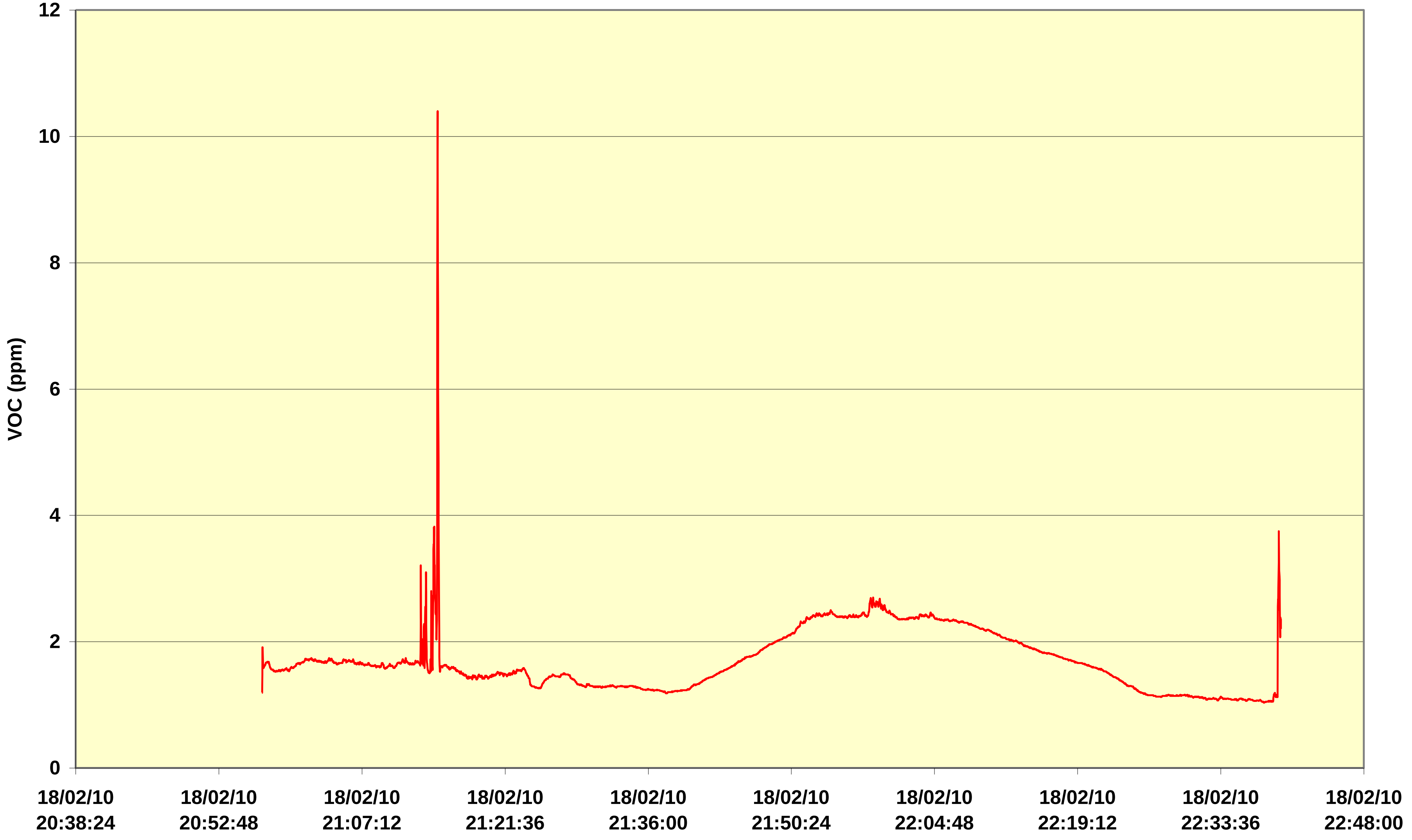
17/02/10 23:02:24


12
10
8
6
4
2
0
VOC (ppm)
18/02/10 20:38:24
18/02/10 20:52:48
18/02/10 21:07:12
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18/02/10 21:36:00
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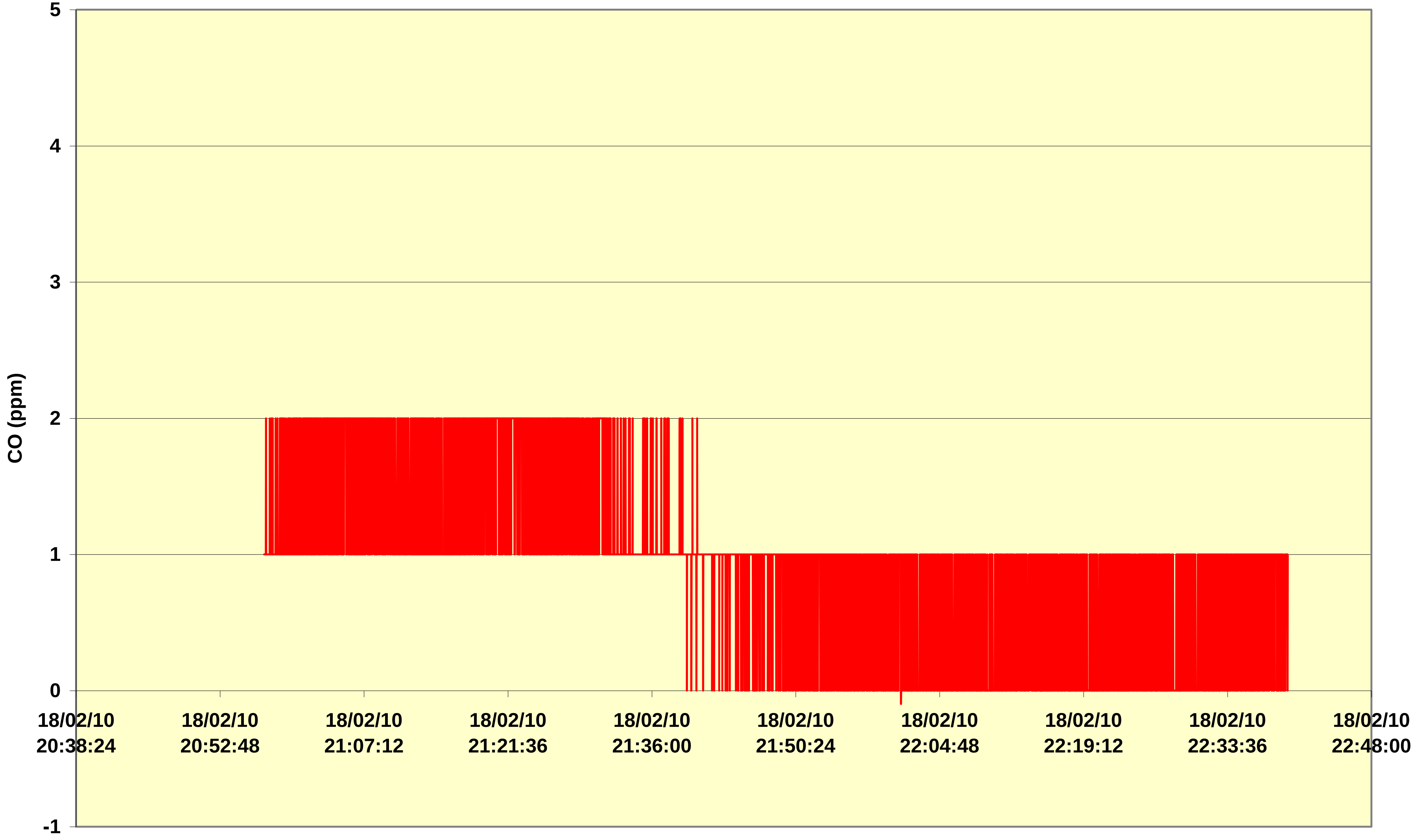
18/02/10 22:48:00



CO (ppm)
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4
3
2
1
0
-1
18/02/10 20:38:24
18/02/10 20:52:48
18/02/10 21:07:12
18/02/10 21:21:36
18/02/10 21:36:00
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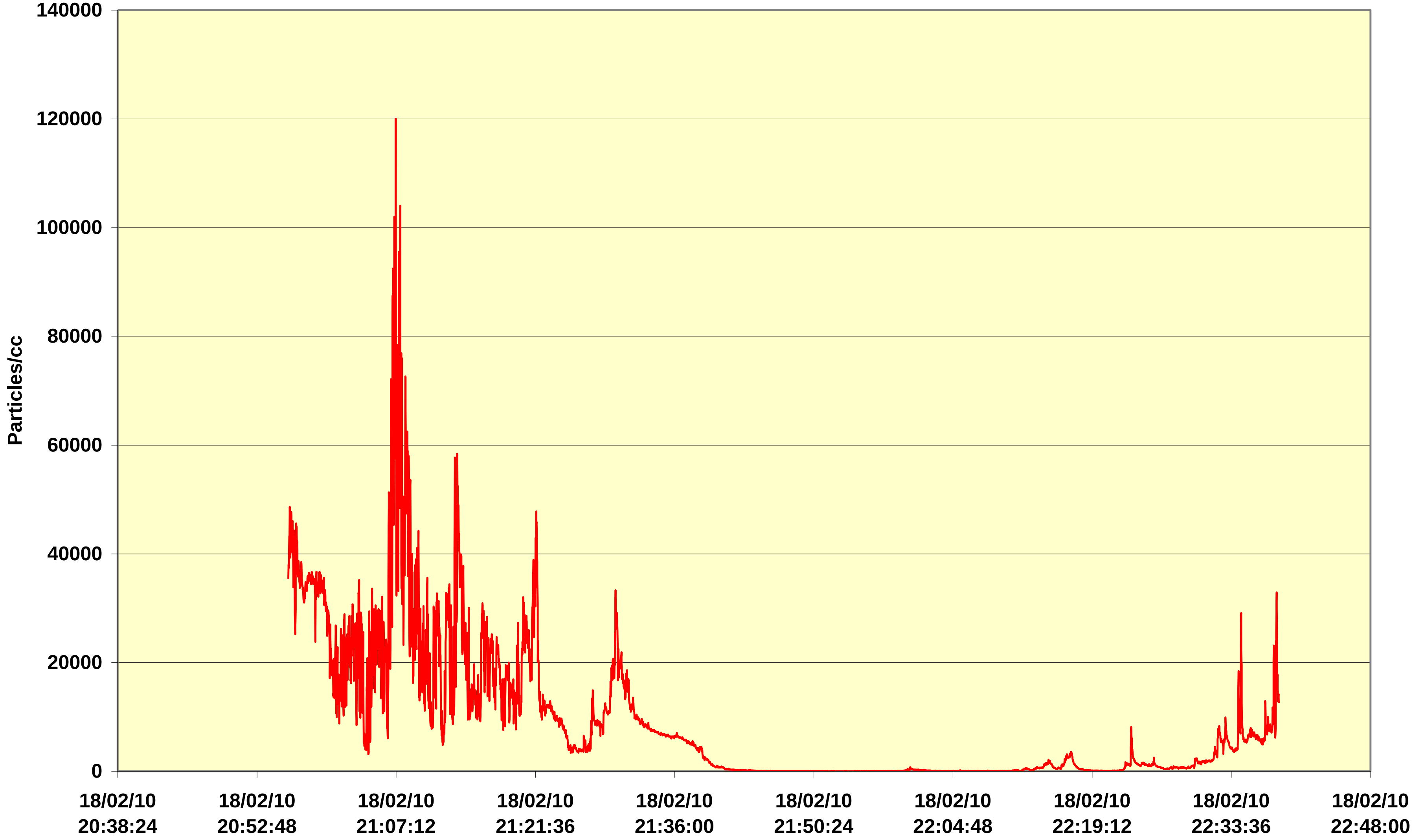
18/02/10 22:48:00



Particles/cc
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80000
60000
40000
20000
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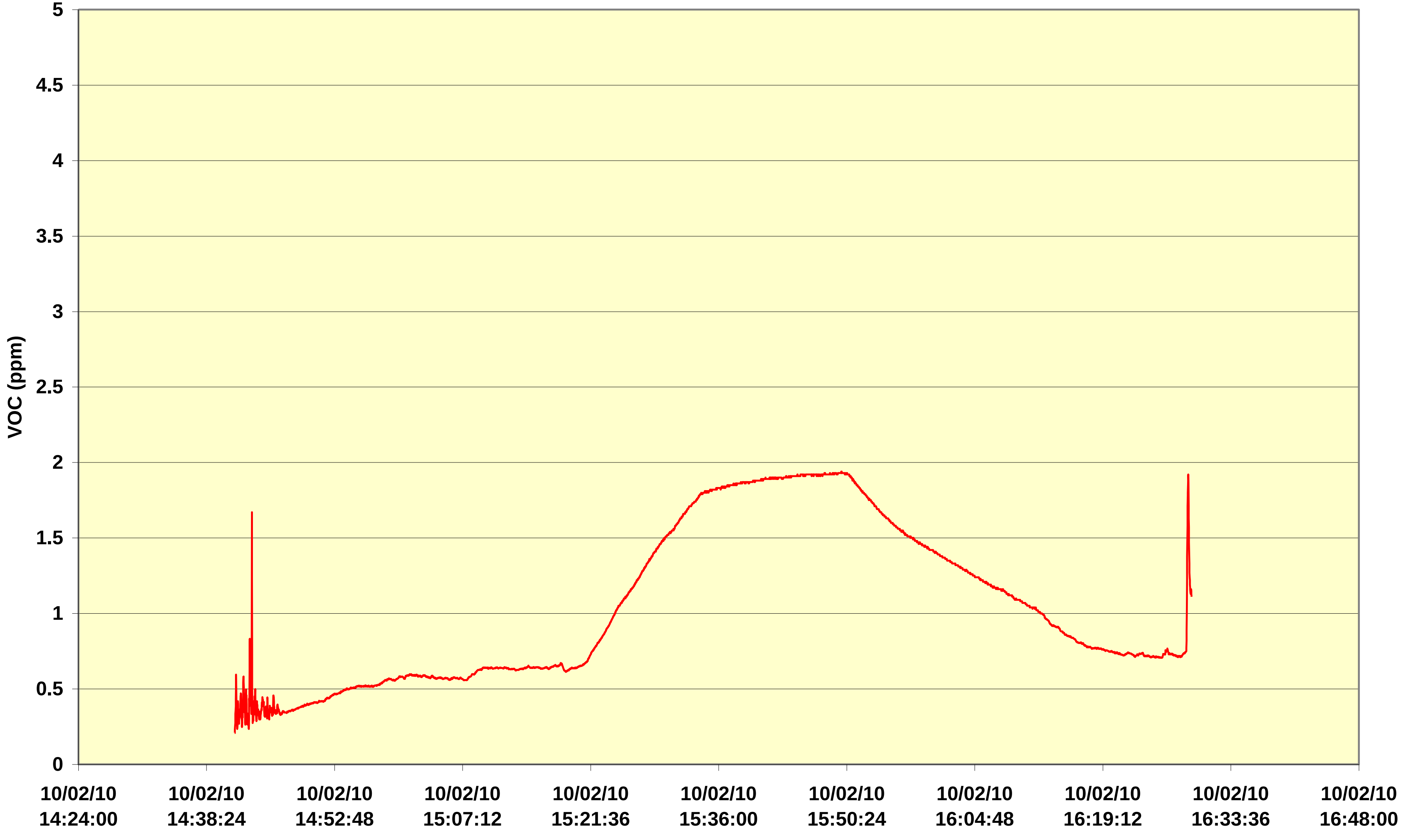
18/02/10 22:48:00



VOC (ppm)
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4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
10/02/10 14:24:00
10/02/10 14:38:24
10/02/10 14:52:48
10/02/10 15:07:12
10/02/10 15:21:36
10/02/10 15:36:00
10/02/10 15:50:24
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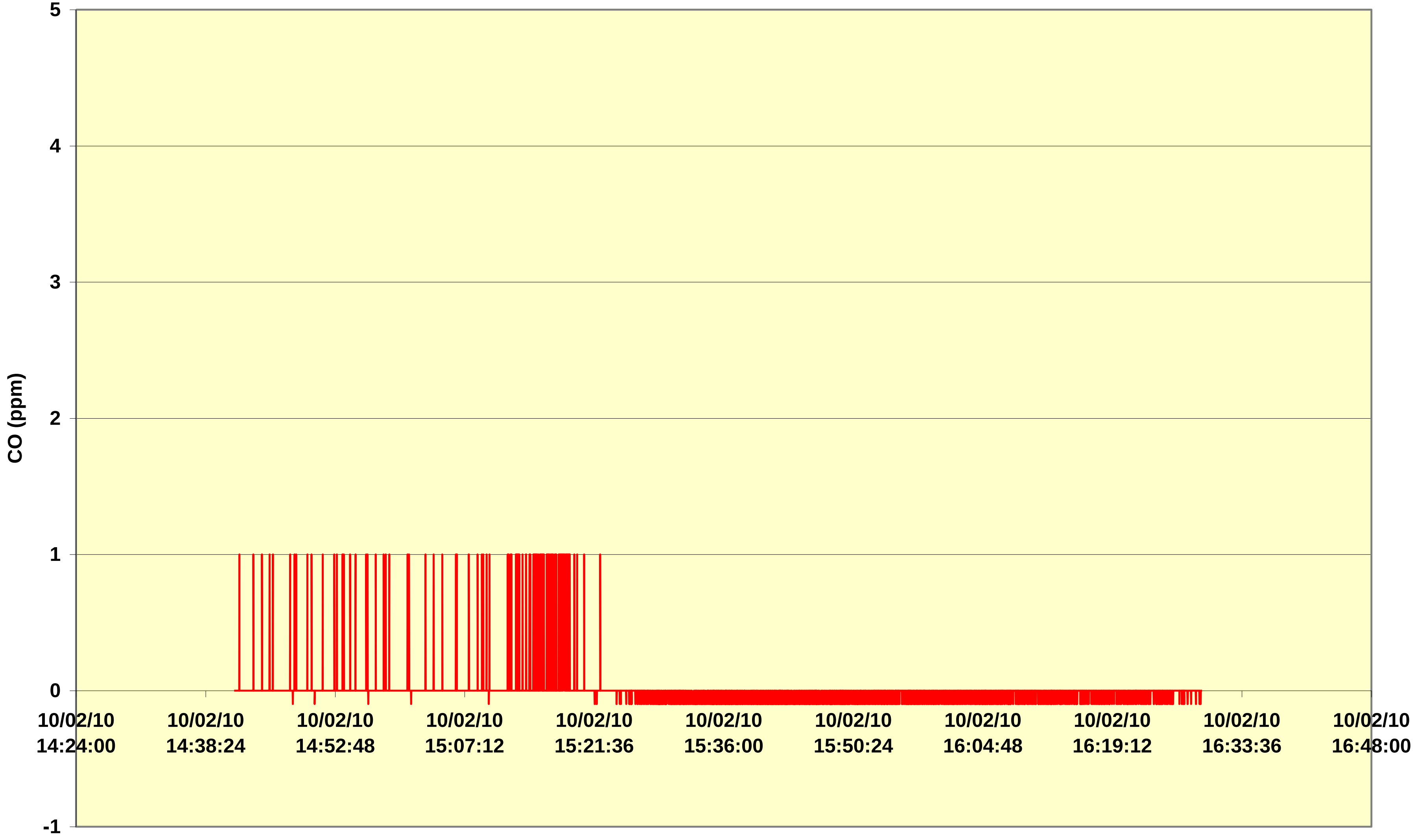
10/02/10 16:48:00


5
4
3
2
1
0
-1
CO (ppm)
10/02/10 14:24:00
10/02/10 14:38:24
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10/02/10 15:36:00
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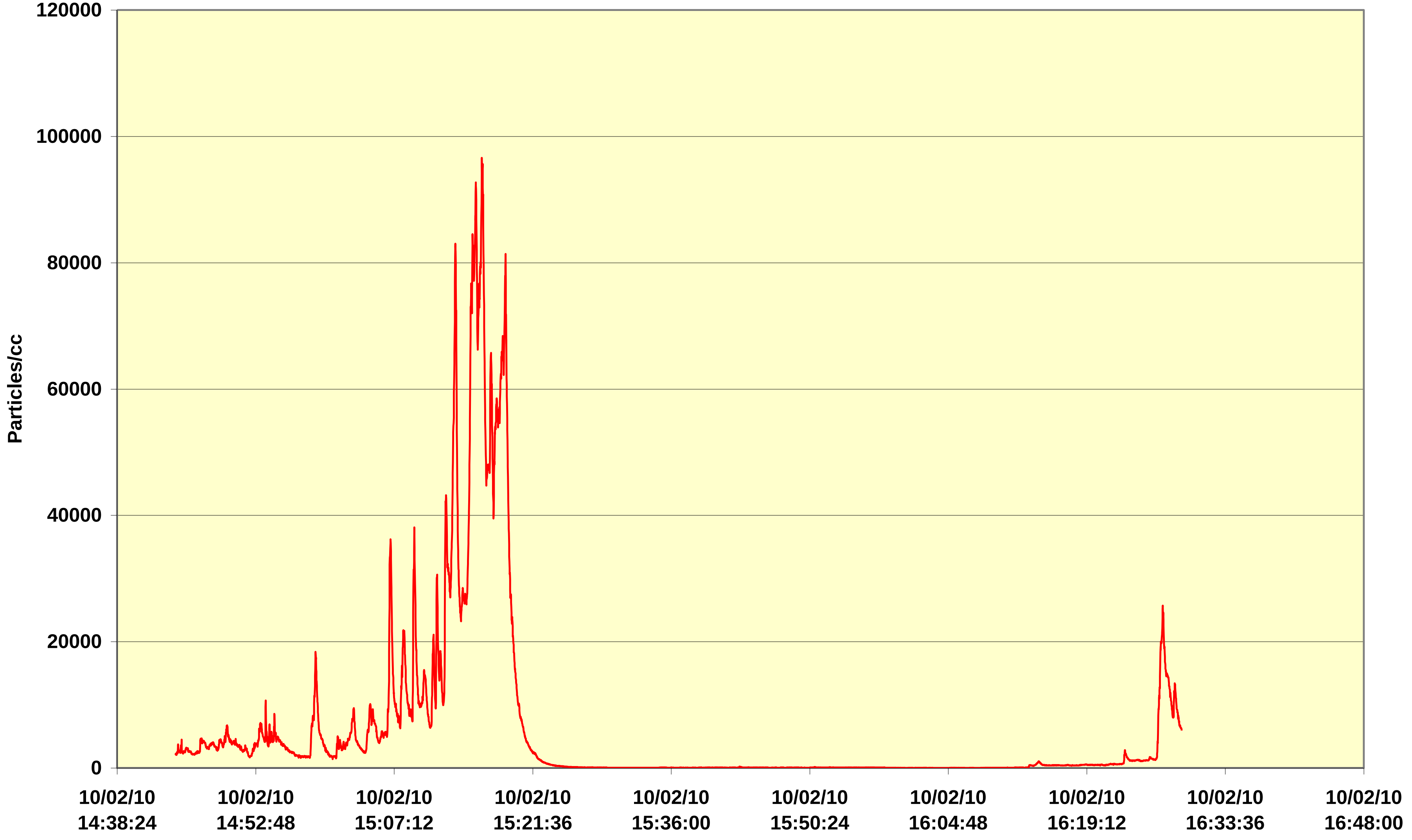
10/02/10 16:48:00



120000
100000
80000
60000
40000
20000
0
Particles/cc
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10/02/10 15:07:12
10/02/10 15:21:36
10/02/10 15:36:00
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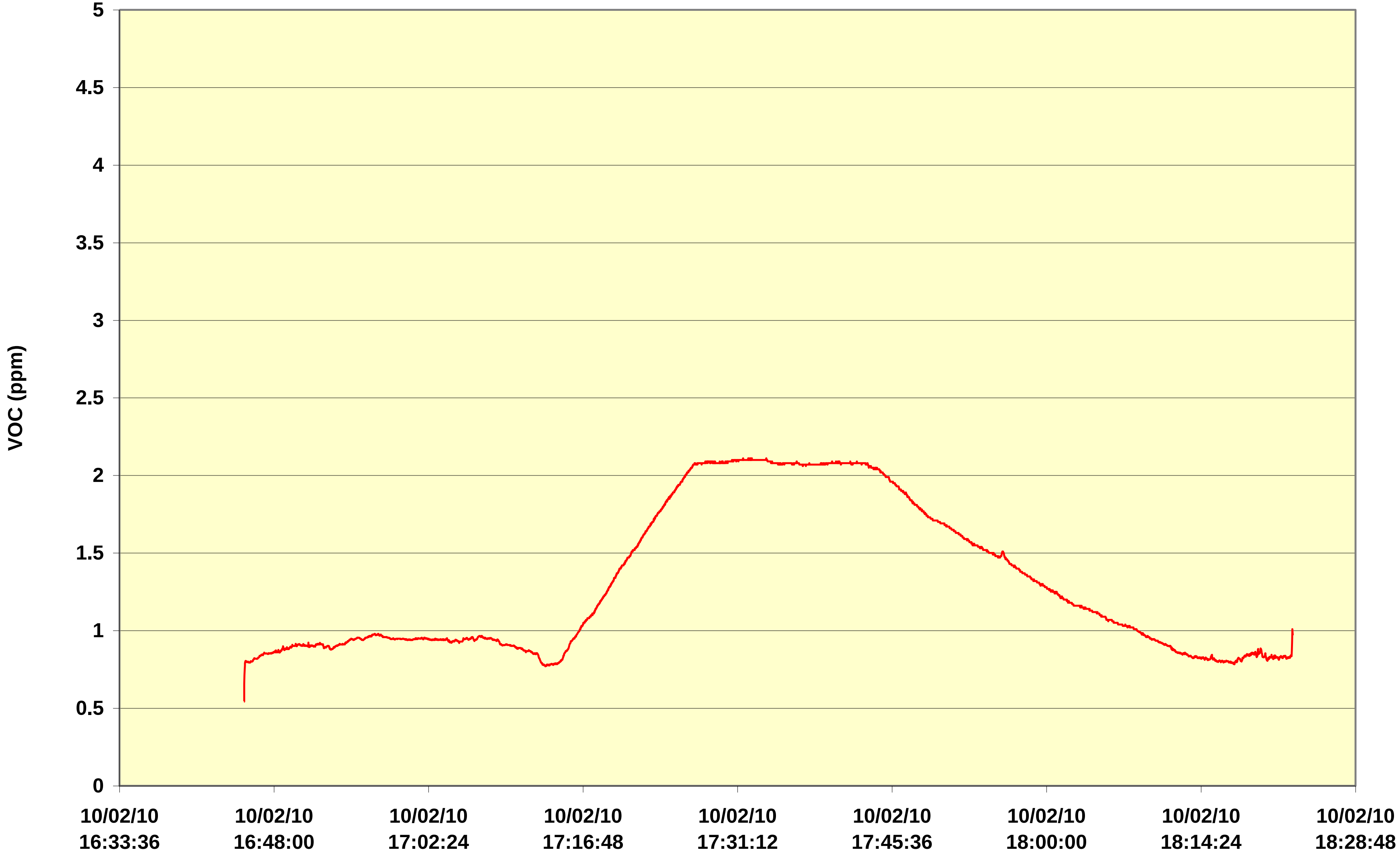
10/02/10 16:48:00



VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
10/02/10 16:33:36
10/02/10 16:48:00
10/02/10 17:02:24
10/02/10 17:16:48
10/02/10 17:31:12
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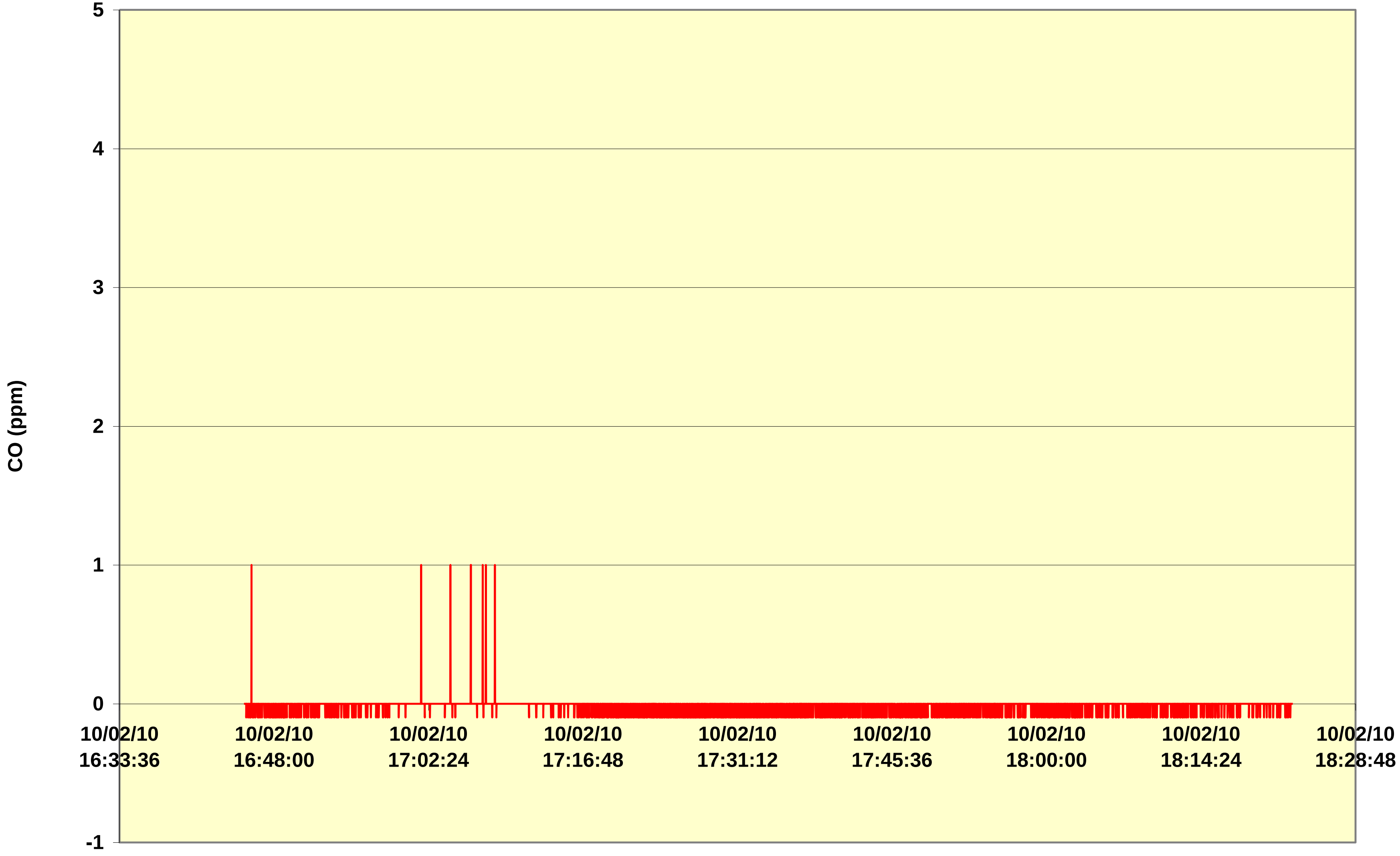
10/02/10 18:28:48



CO (ppm)
5
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3
2
1
0
-1
10/02/10 16:33:36
10/02/10 16:48:00
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10/02/10 17:16:48
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10/02/10 17:45:36
10/02/10 18:00:00
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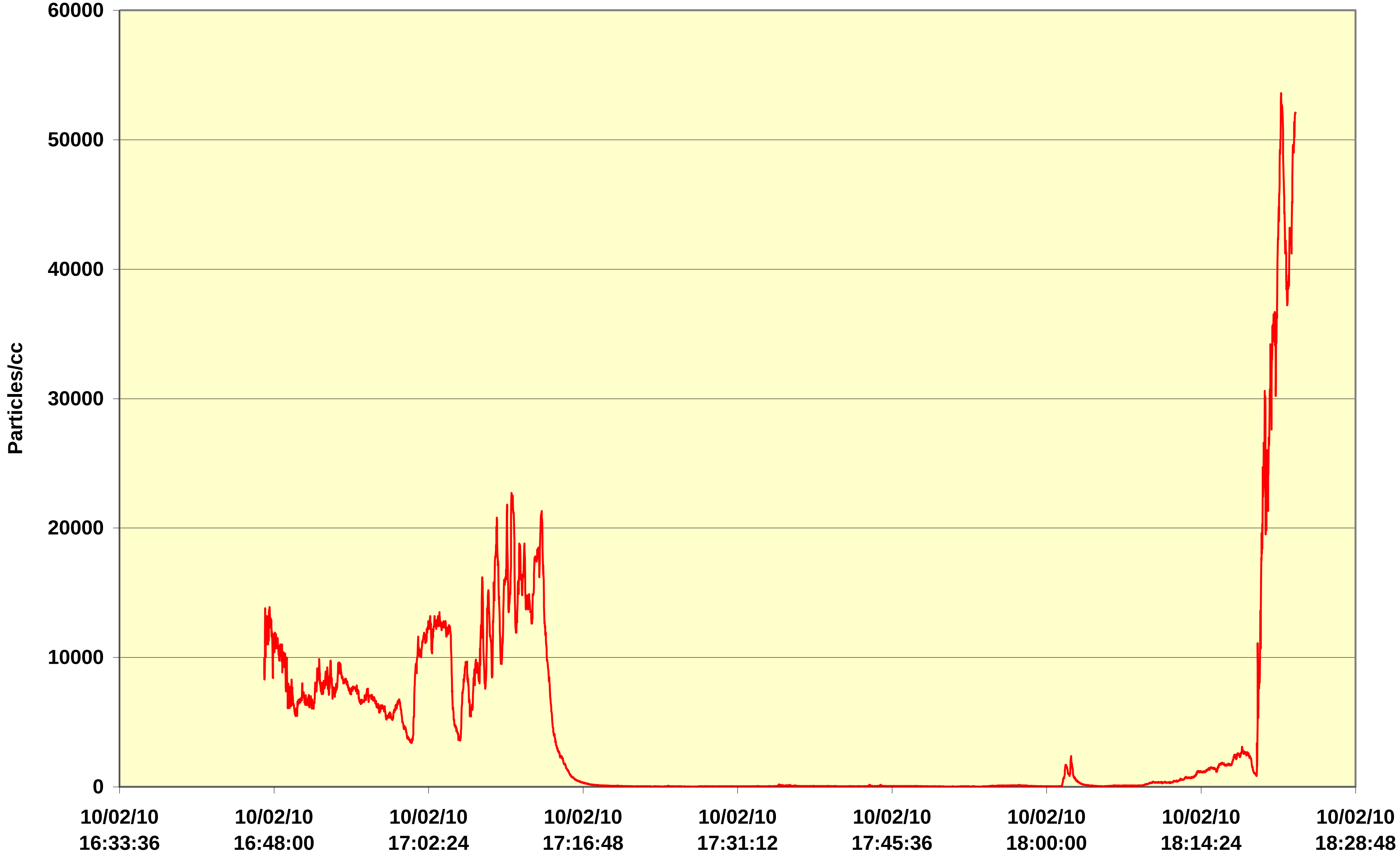
10/02/10 18:28:48


Particles/cc
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20000
30000
40000
50000
60000
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10/02/10 16:48:00
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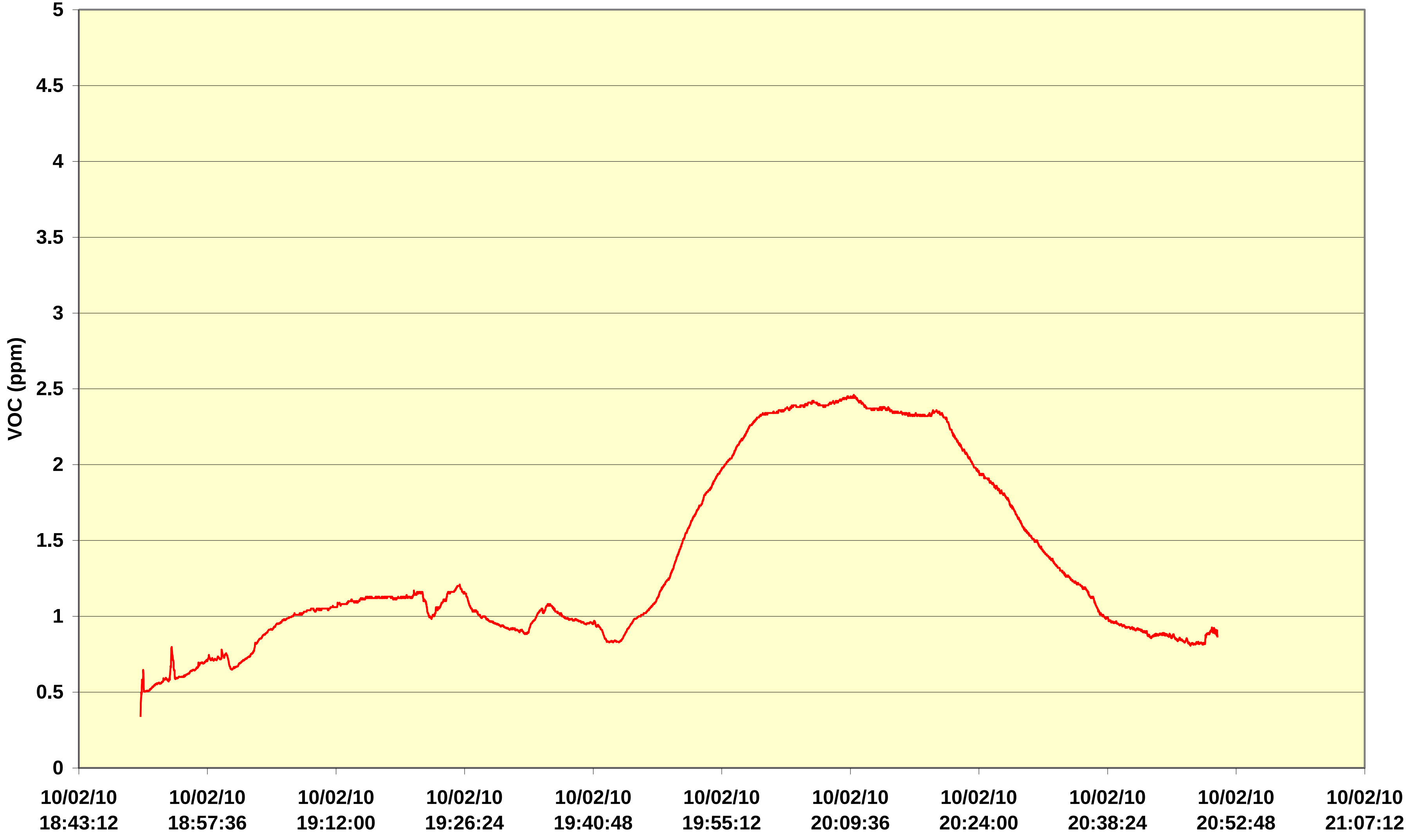
10/02/10 18:28:48


VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
10/02/10 18:43:12
10/02/10 18:57:36
10/02/10 19:12:00
10/02/10 19:26:24
10/02/10 19:40:48
10/02/10 19:55:12
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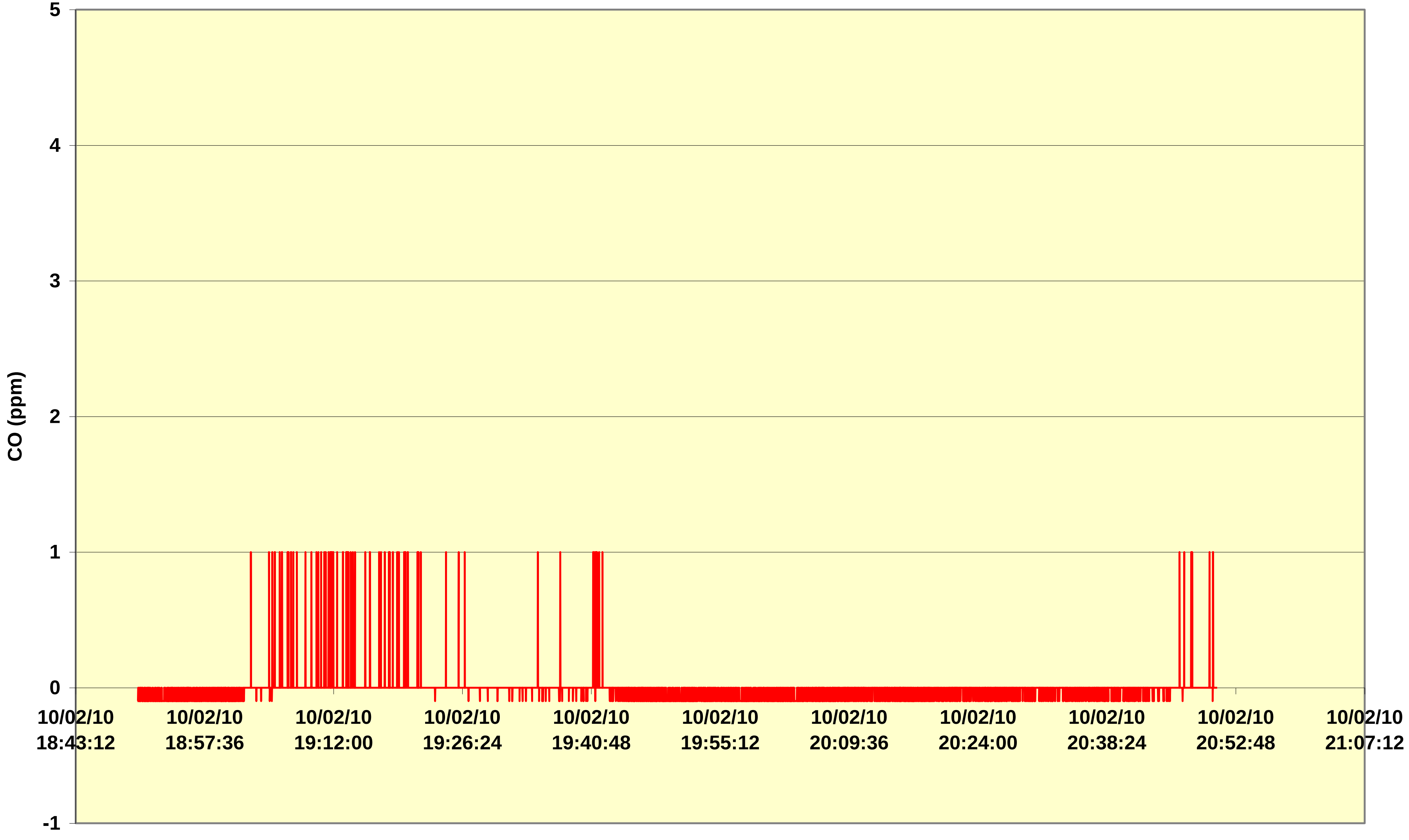
10/02/10 21:07:12



5
4
3
2
1
0
-1
CO (ppm)
10/02/10 18:43:12
10/02/10 18:57:36
10/02/10 19:12:00
10/02/10 19:26:24
10/02/10 19:40:48
10/02/10 19:55:12
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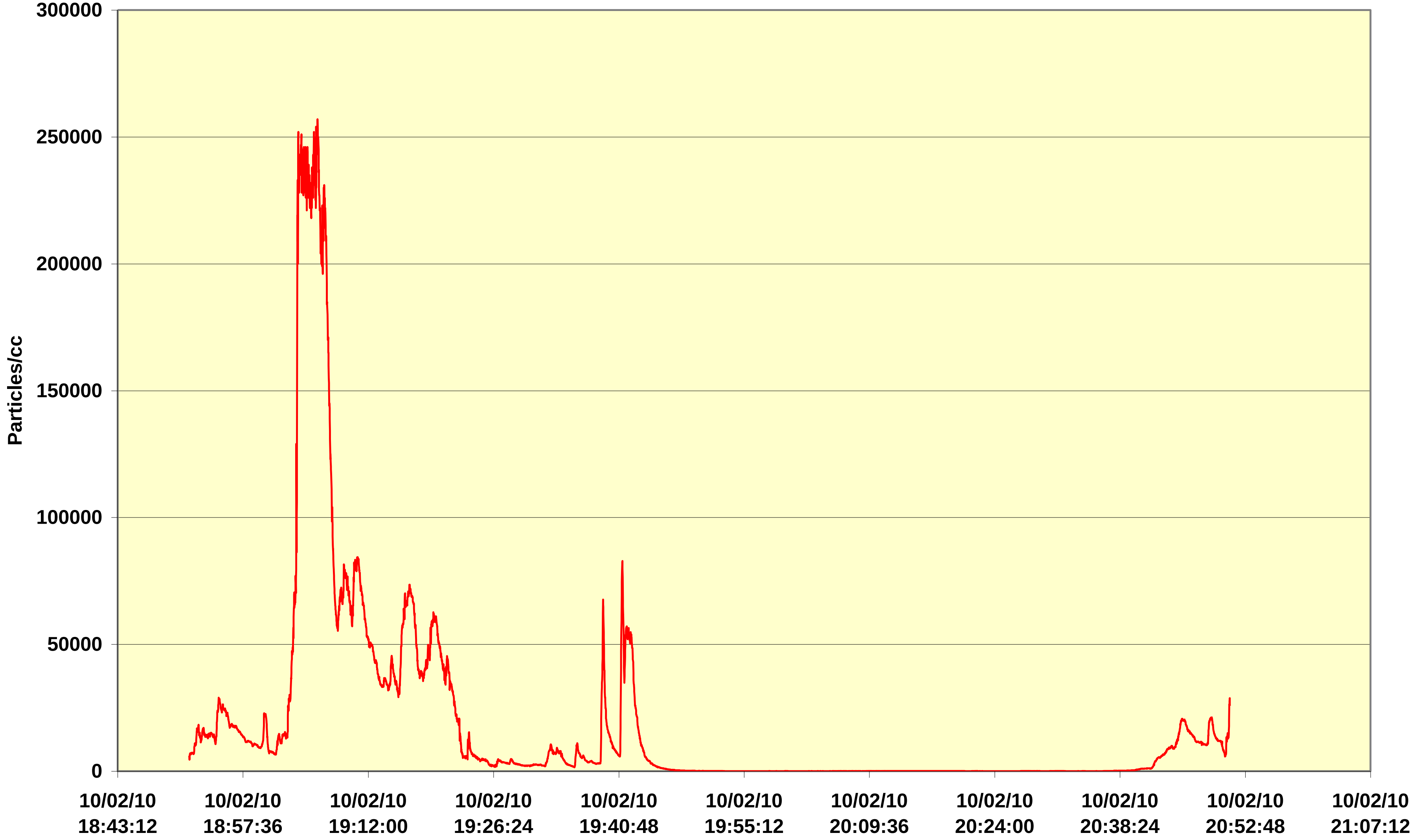
10/02/10 21:07:12


300000
250000
200000
150000
100000
50000
0
Particles/cc
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10/02/10 18:57:36
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10/02/10 19:55:12
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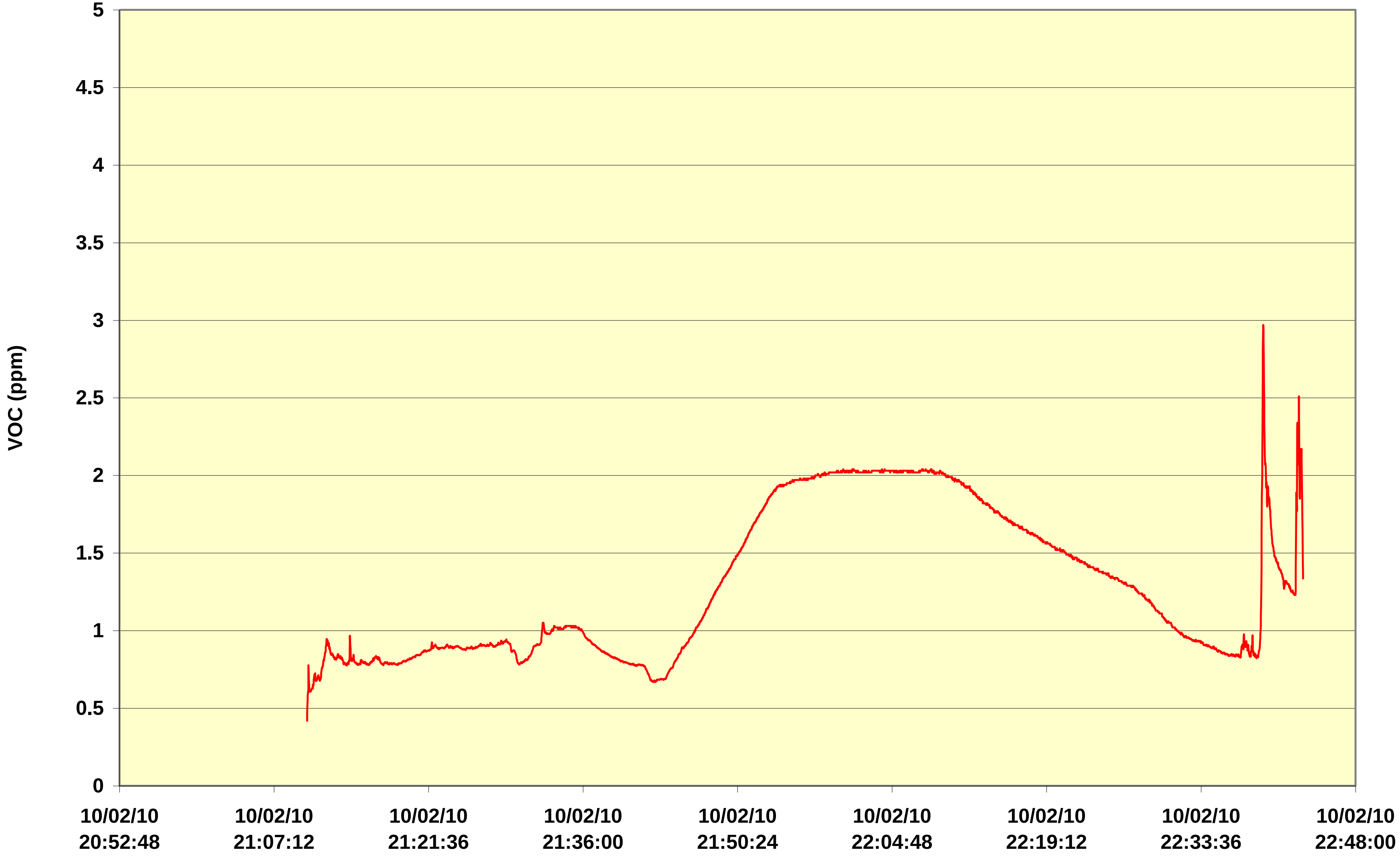
10/02/10 21:07:12



VOC (ppm)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
10/02/10 20:52:48
10/02/10 21:07:12
10/02/10 21:21:36
10/02/10 21:36:00
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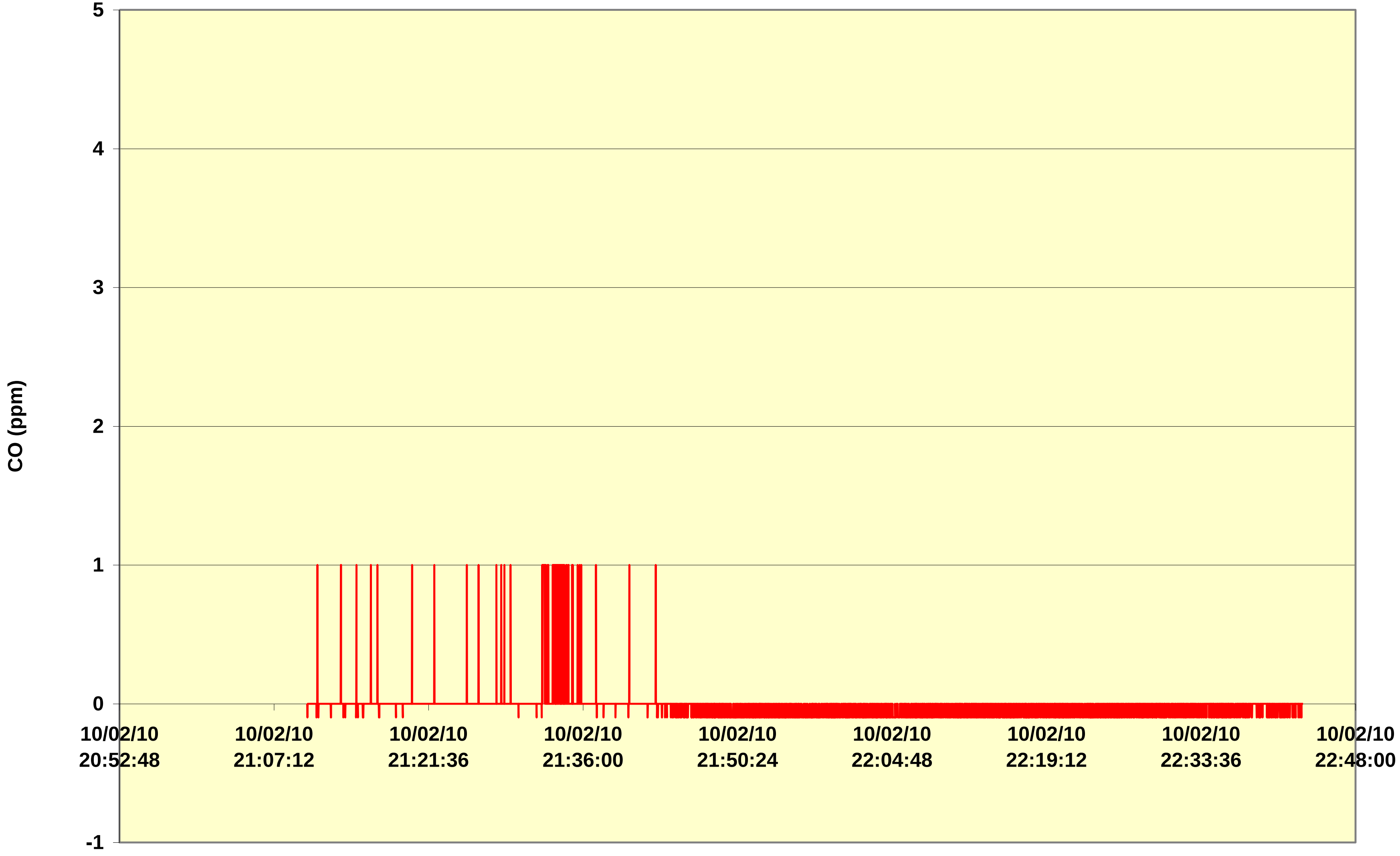
10/02/10 22:48:00


CO (ppm)
5
4
3
2
1
0
-1
10/02/10 20:52:48
10/02/10 21:07:12
10/02/10 21:21:36
10/02/10 21:36:00
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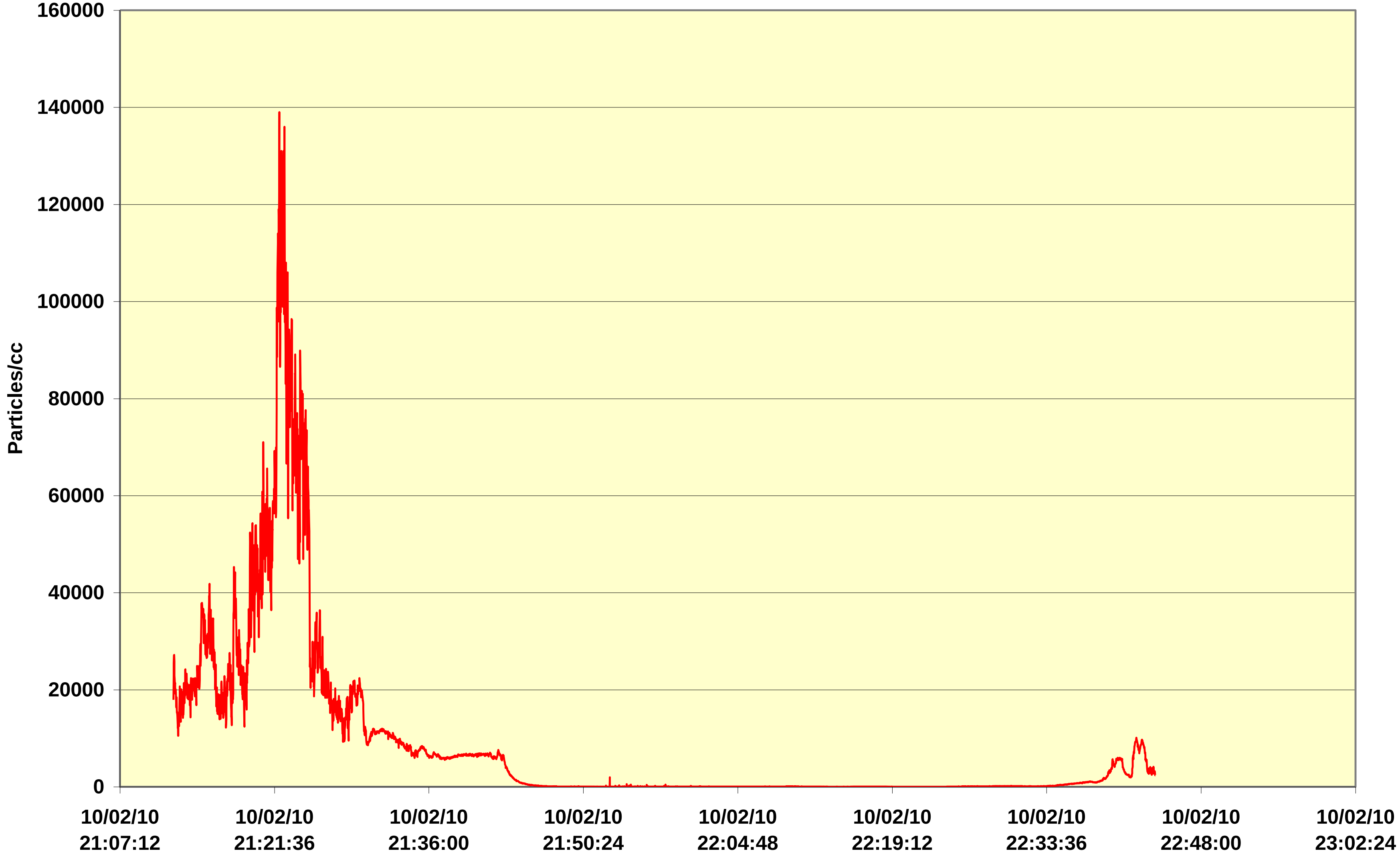
10/02/10 22:48:00



160000
140000
120000
100000
80000
60000
40000
20000
0
Particles/cc
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10/02/10 21:21:36
10/02/10 21:36:00
10/02/10 21:50:24
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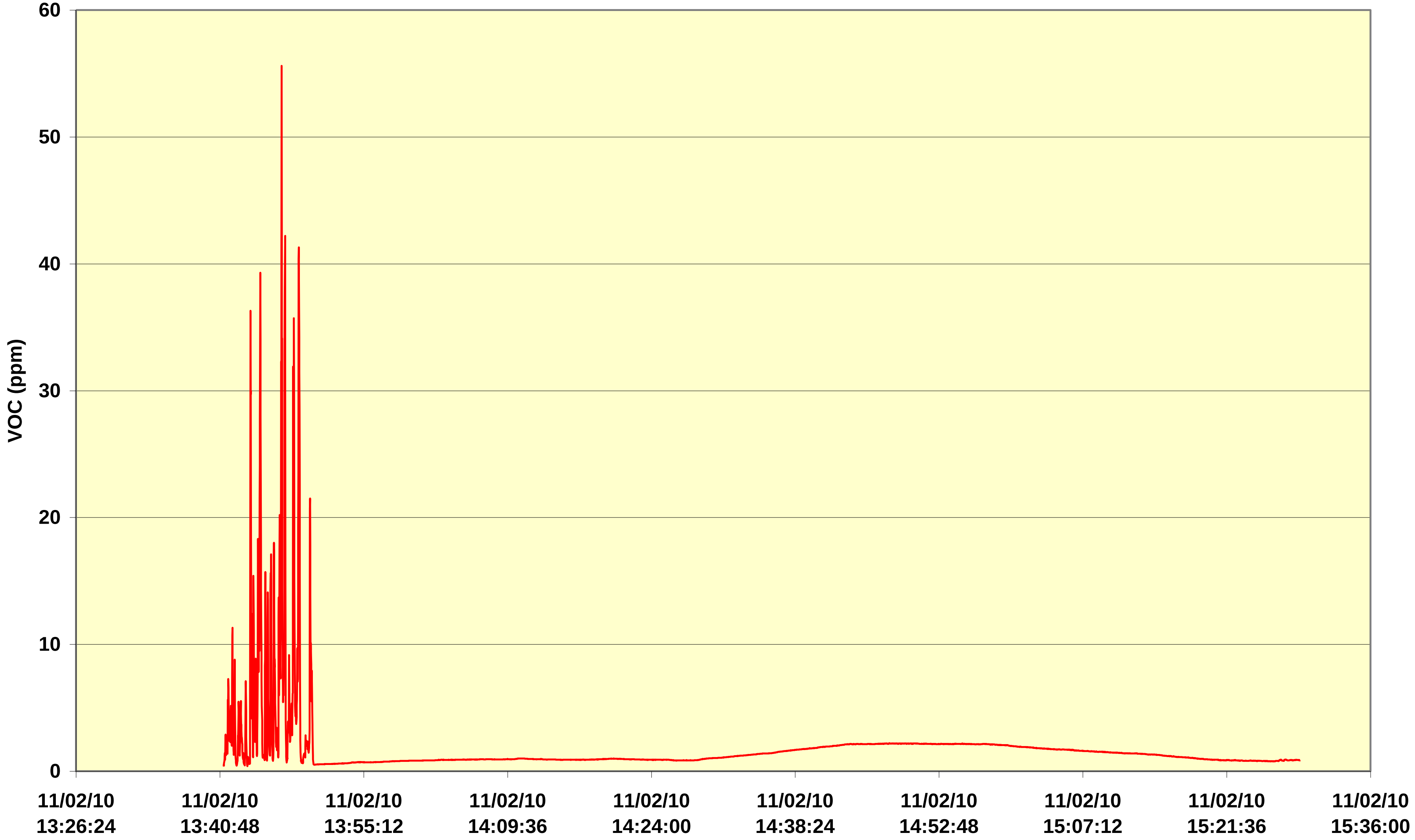
10/02/10 23:02:24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20
10
0
VOC (ppm)
11/02/10 13:26:24
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11/02/10 13:55:12
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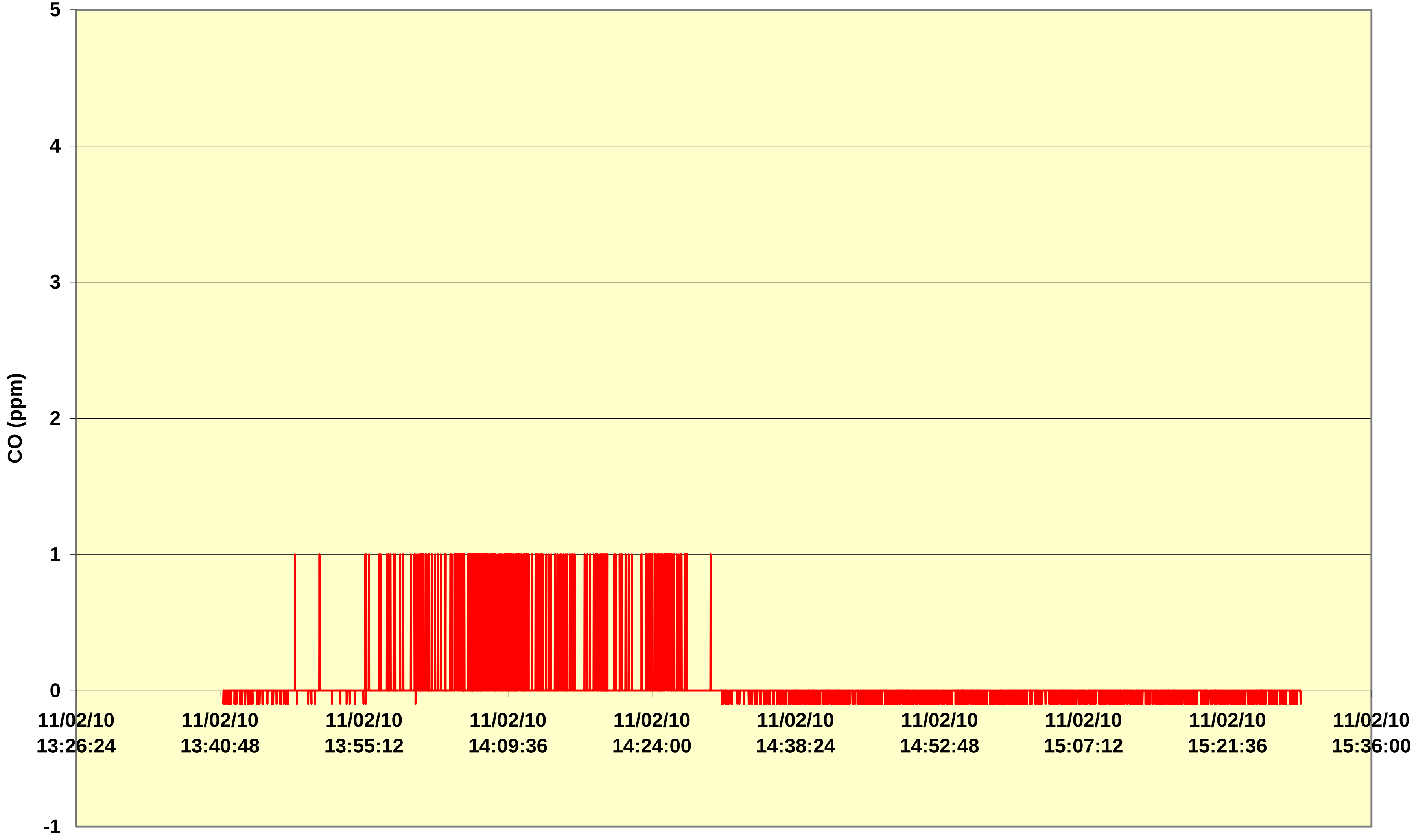
11/02/10 15:36:00



CO (ppm)
5
4
3
2
1
0
-1
11/02/10 13:26:24
11/02/10 13:40:48
11/02/10 13:55:12
11/02/10 14:09:36
11/02/10 14:24:00
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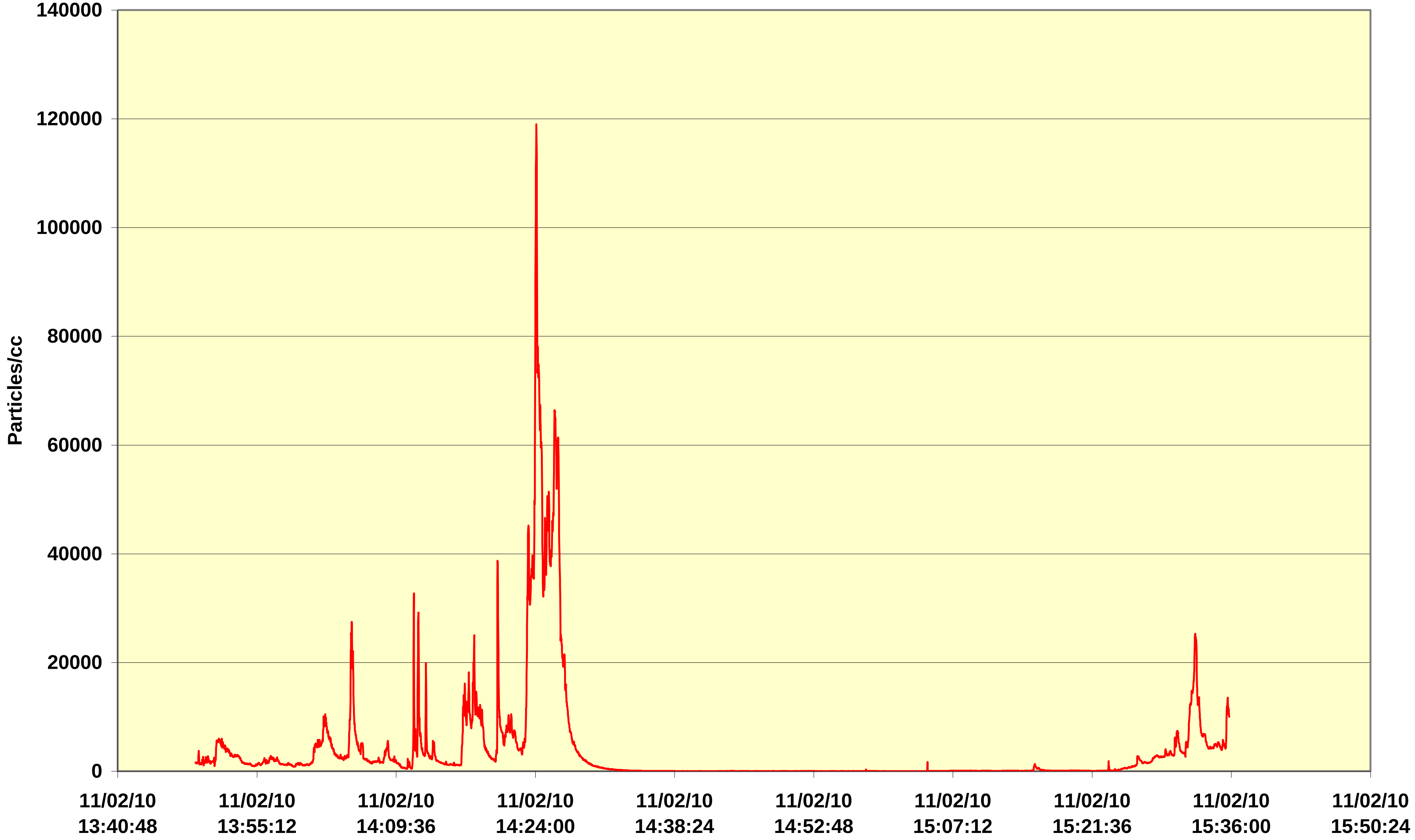
11/02/10 15:36:00


140000
120000
100000
80000
60000
40000
20000
0
Particles/cc
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11/02/10 13:55:12
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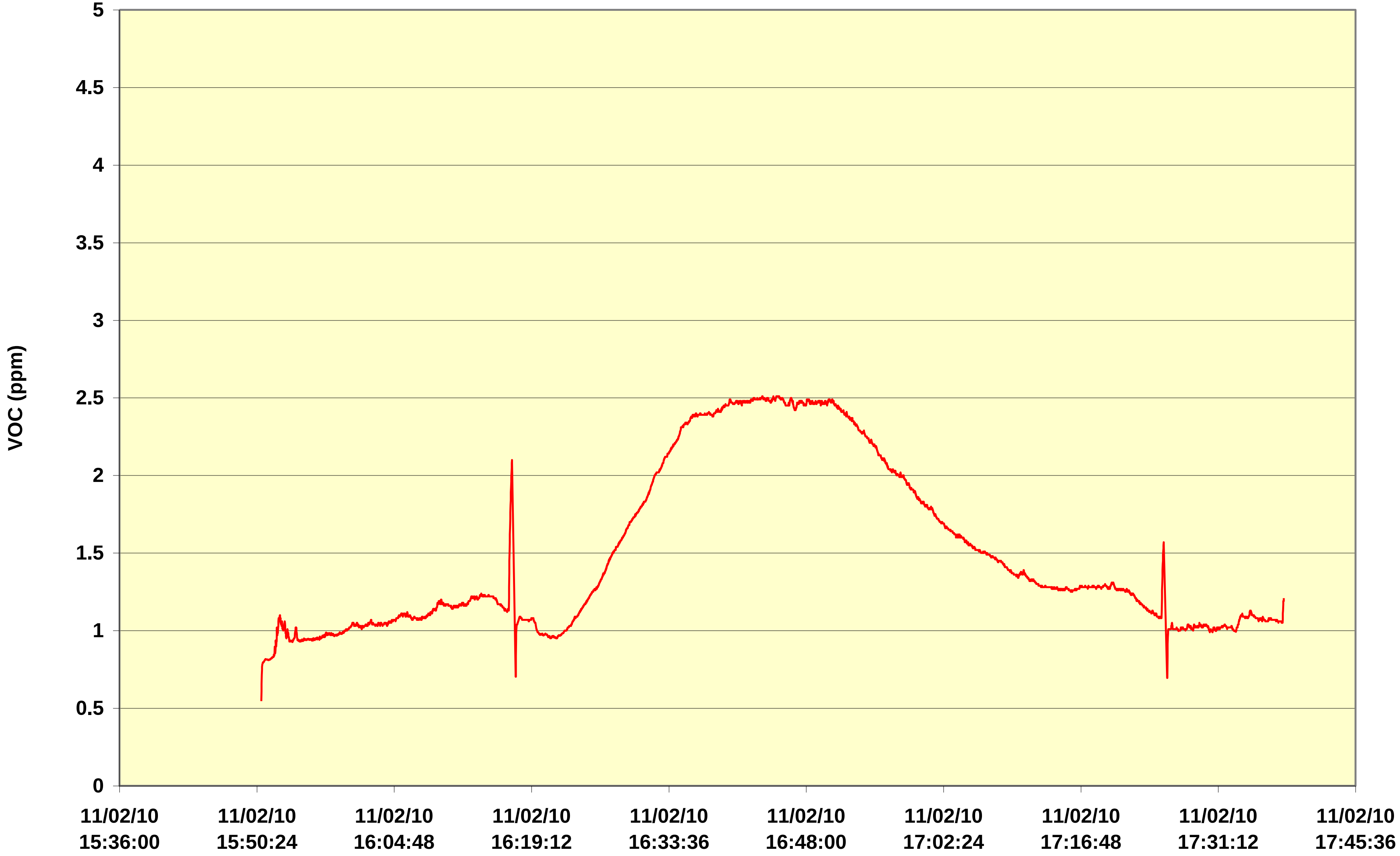
11/02/10 15:50:24


VOC (ppm)
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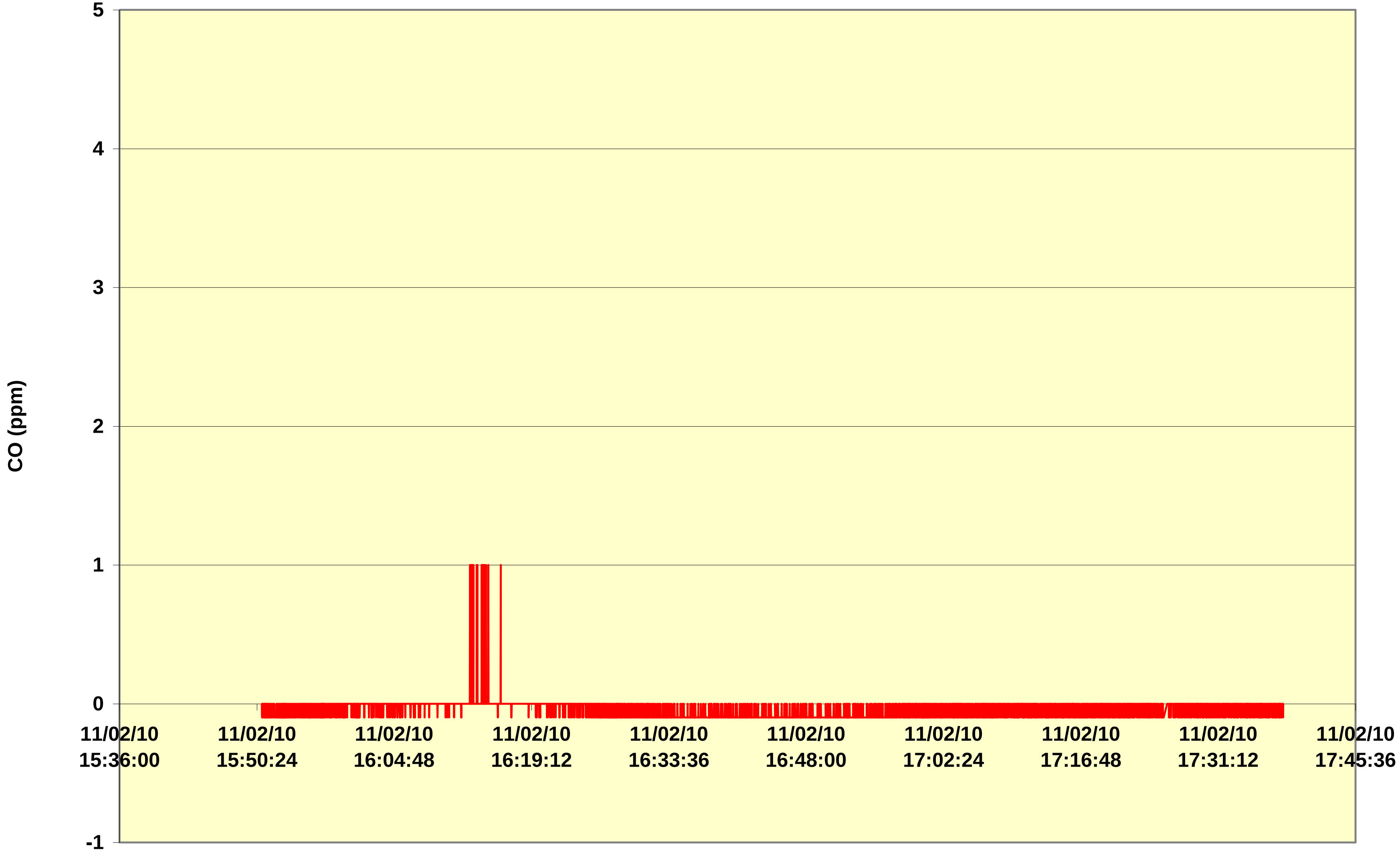
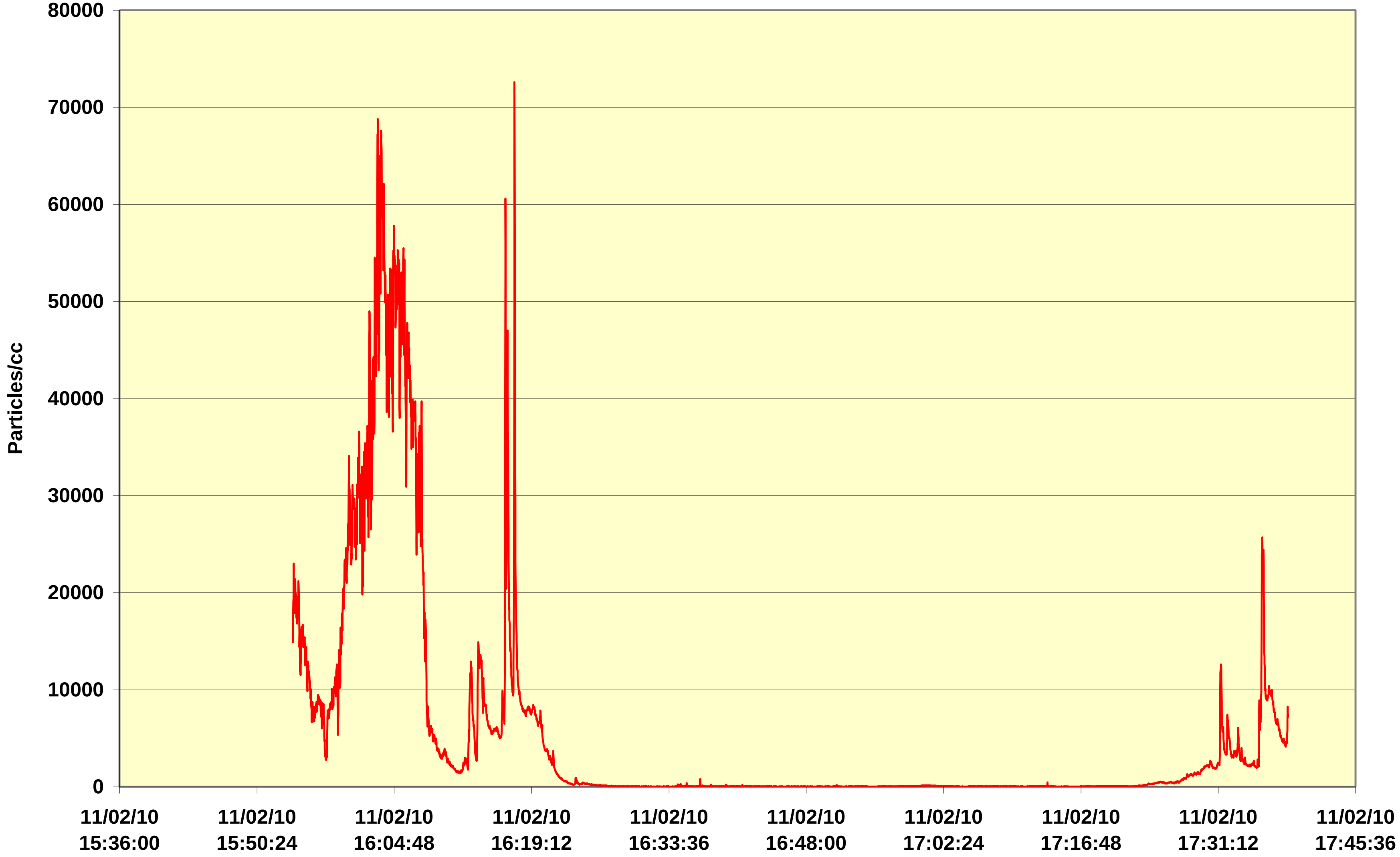
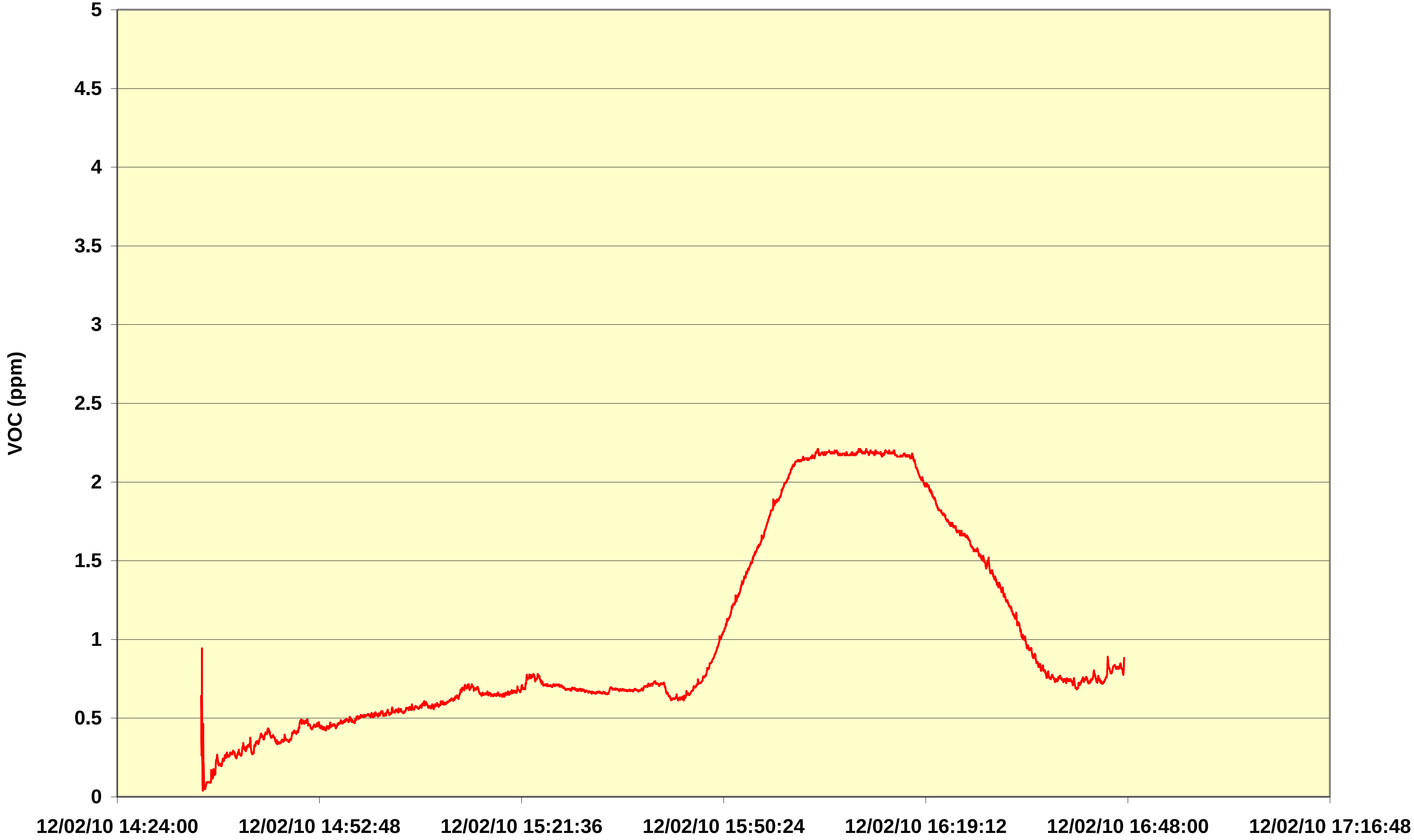
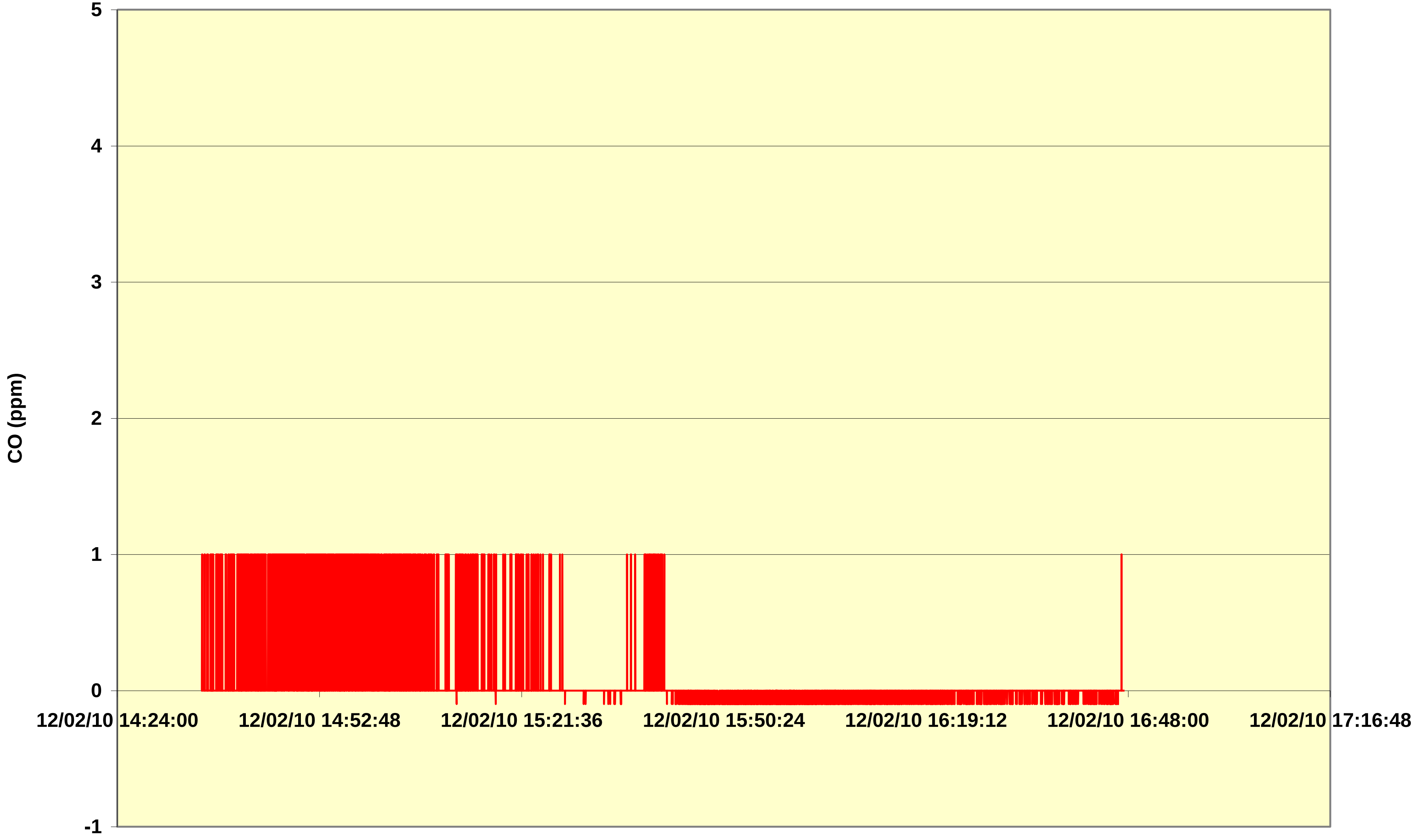
4
3.5
3
2.5
2
1.5
1
0.5
0
11/02/10 15:36:00
11/02/10 15:50:24
11/02/10 16:04:48
11/02/10 16:19:12
11/02/10 16:33:36
11/02/10 16:48:00
11/02/10 17:02:24
11/02/10 17:16:48
11/02/10 17:31:12
11/02/10 17:45:36

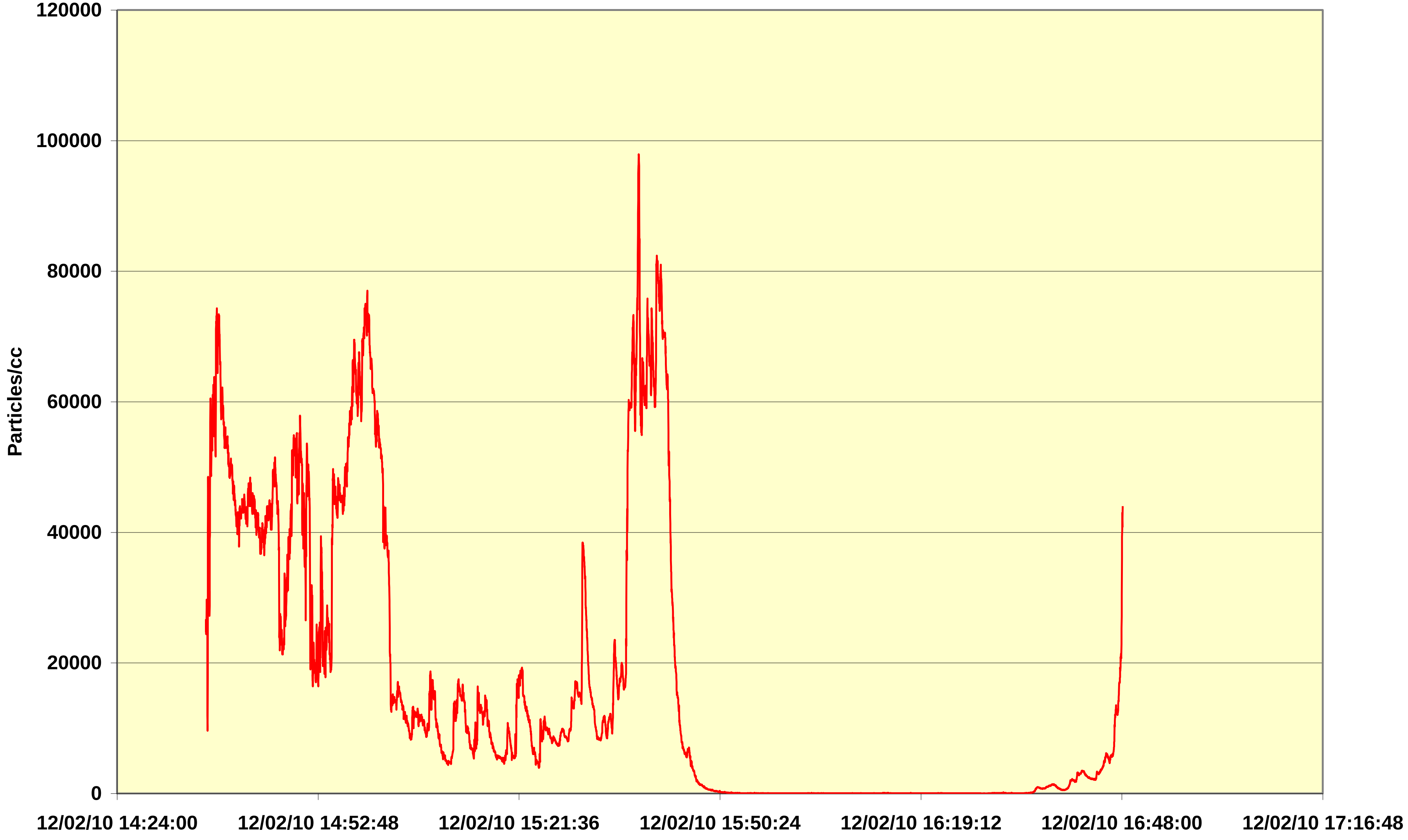


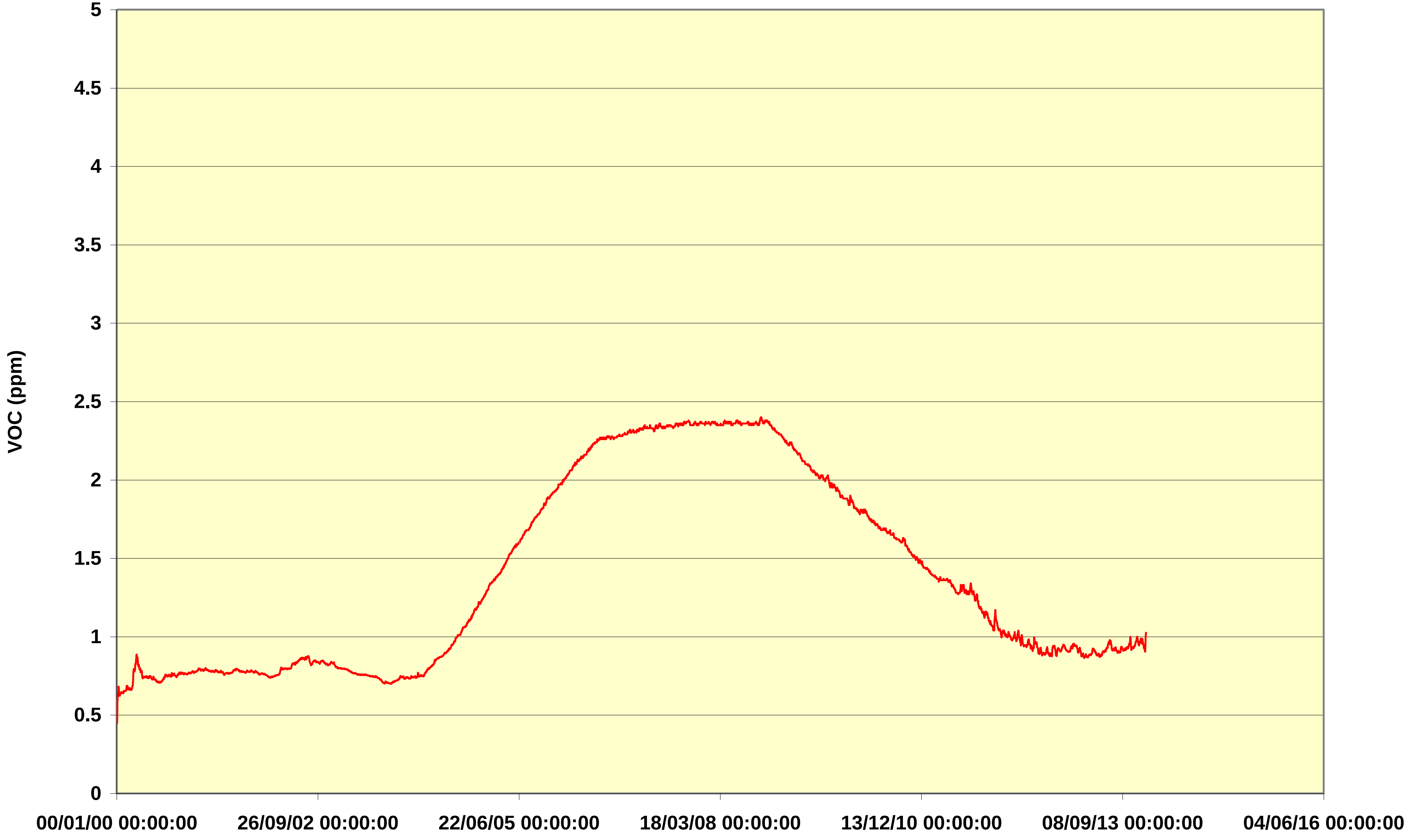
CO (ppm)
5
4
3
2
1
0
-1
11/02/10 15:36:00
11/02/10 15:50:24
11/02/10 16:04:48
11/02/10 16:19:12
11/02/10 16:33:36
11/02/10 16:48:00
11/02/10 17:02:24
11/02/10 17:16:48
11/02/10 17:31:12
11/02/10 17:45:36


80000
70000
60000
50000
40000
30000
20000
10000
0
Particles/cc
11/02/10 15:36:00
11/02/10 15:50:24
11/02/10 16:04:48
11/02/10 16:19:12
11/02/10 16:33:36
11/02/10 16:48:00
11/02/10 17:02:24
11/02/10 17:16:48
11/02/10 17:31:12
11/02/10 17:45:36

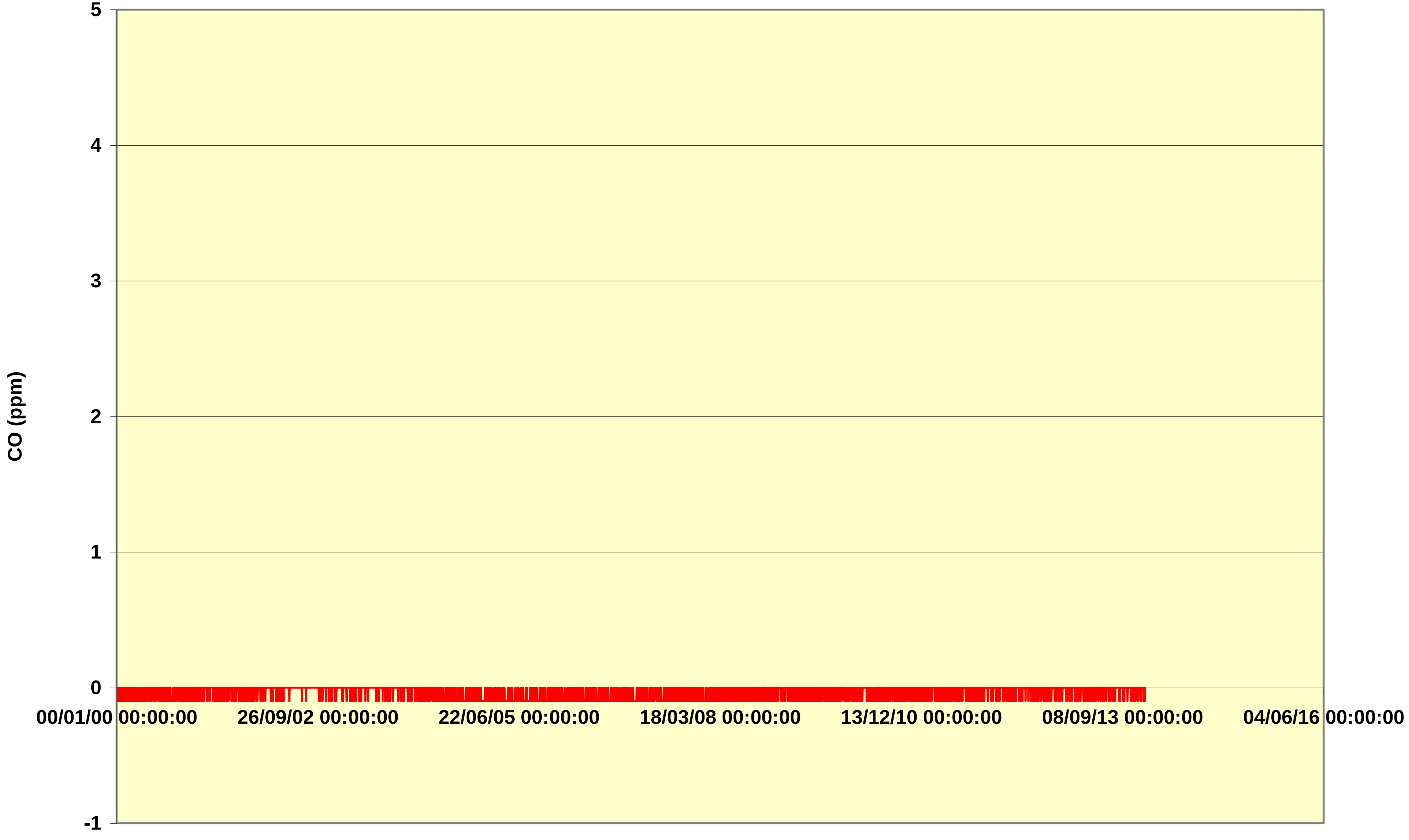

VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
12/02/10 14:24:00
12/02/10 14:52:48
12/02/10 15:21:36
12/02/10 15:50:24
12/02/10 16:19:12
12/02/10 16:48:00
12/02/10 17:16:48

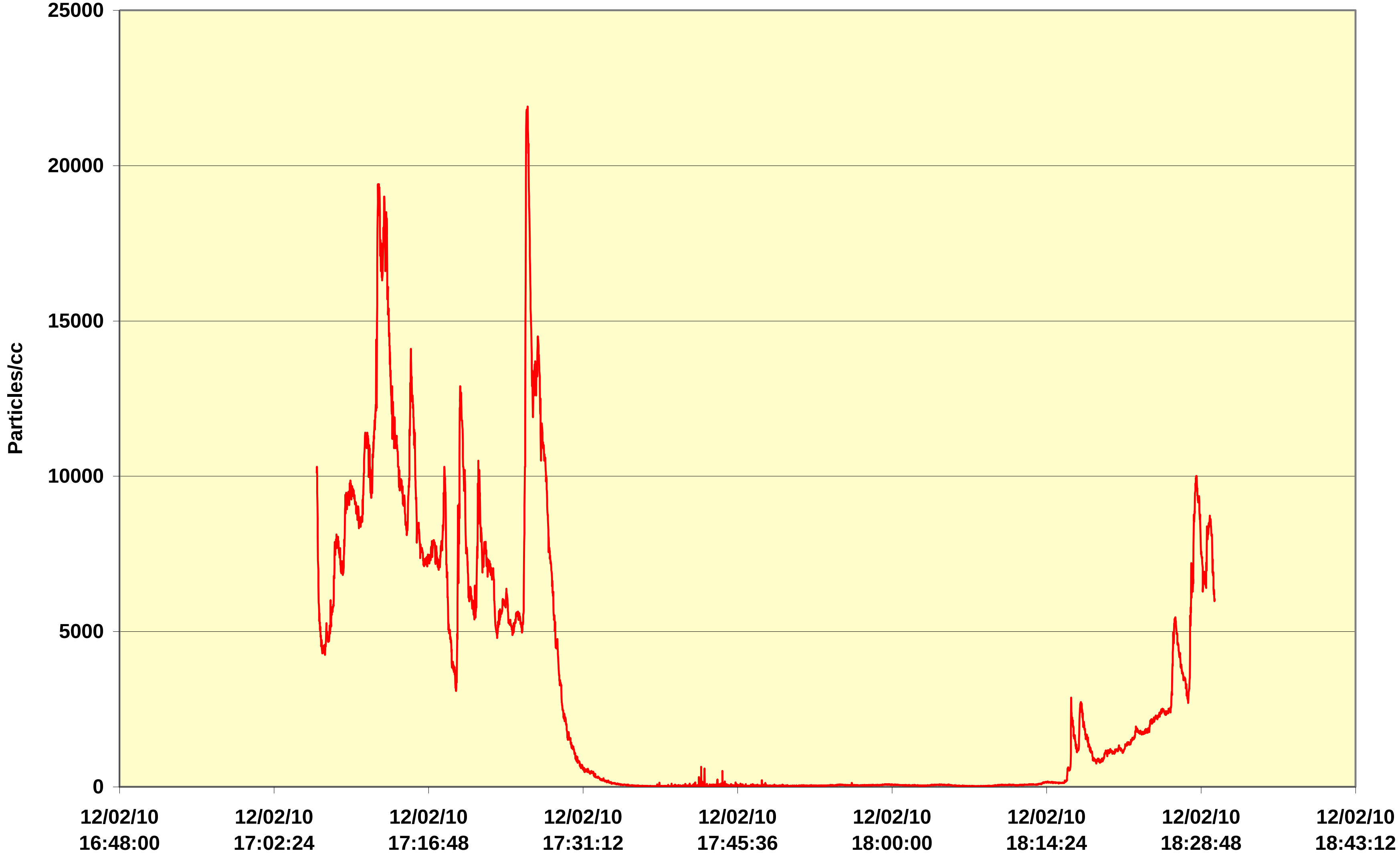

5
4
3
2
1
0
-1
CO (ppm)
12/02/10 14:24:00
12/02/10 14:52:48
12/02/10 15:21:36
12/02/10 15:50:24
12/02/10 16:19:12
12/02/10 16:48:00
12/02/10 17:16:48


120000
100000
80000
60000
40000
20000
0
Particles/cc
12/02/10 14:24:00
12/02/10 14:52:48
12/02/10 15:21:36
12/02/10 15:50:24
12/02/10 16:19:12
12/02/10 16:48:00
12/02/10 17:16:48

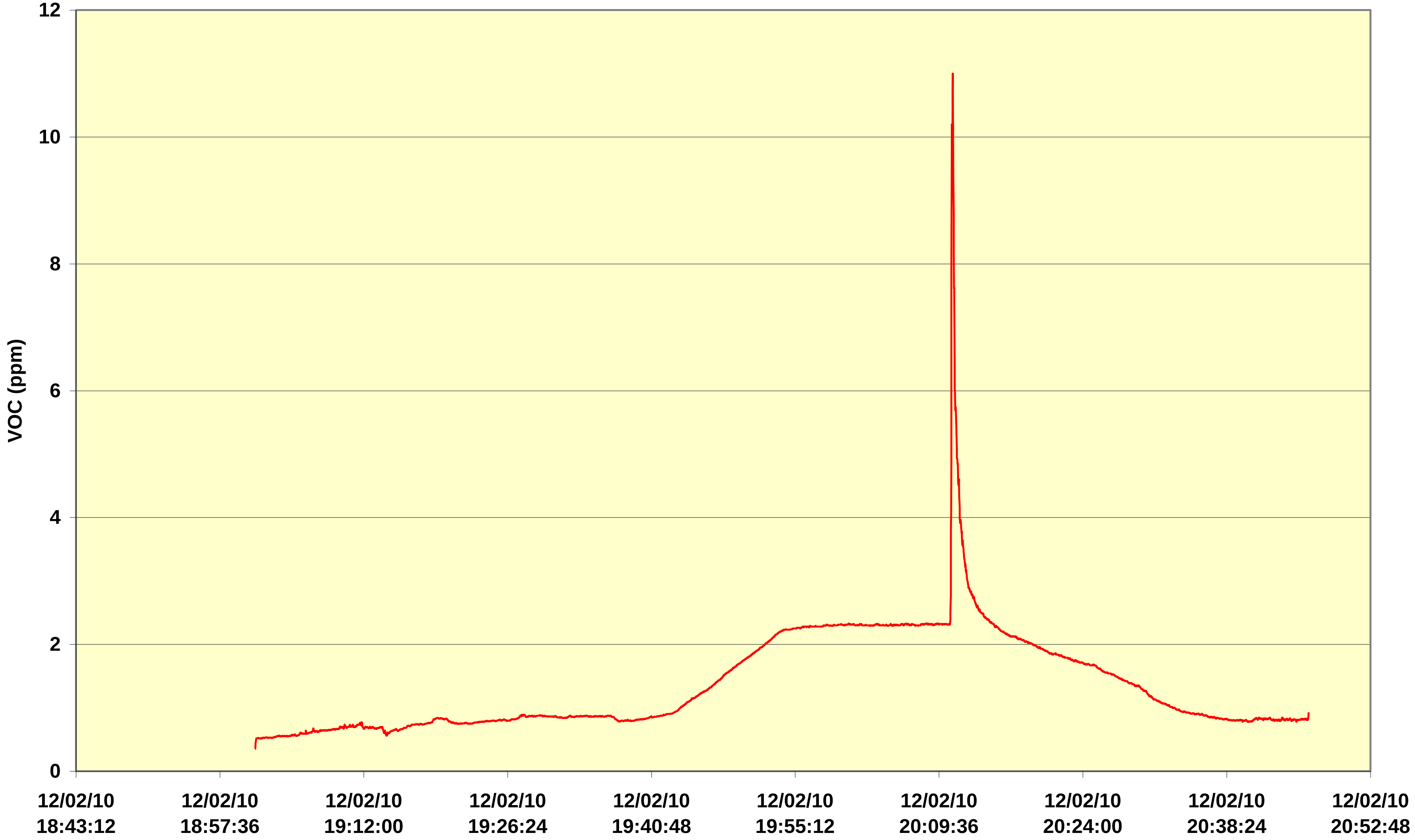


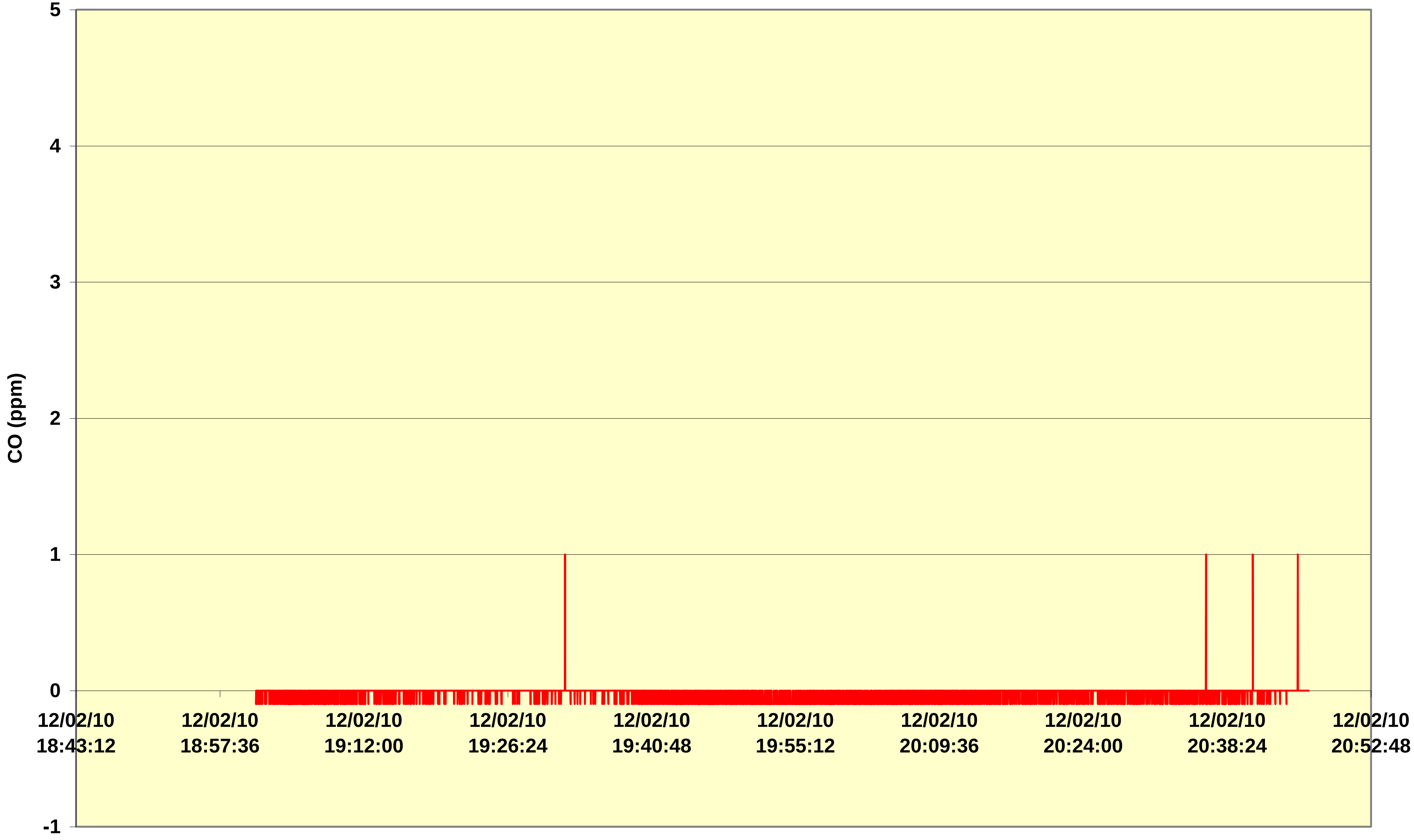
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
VOC (ppm)
00/01/00 00:00:00
26/09/02 00:00:00
22/06/05 00:00:00
18/03/08 00:00:00
13/12/10 00:00:00
08/09/13 00:00:00
04/06/16 00:00:00

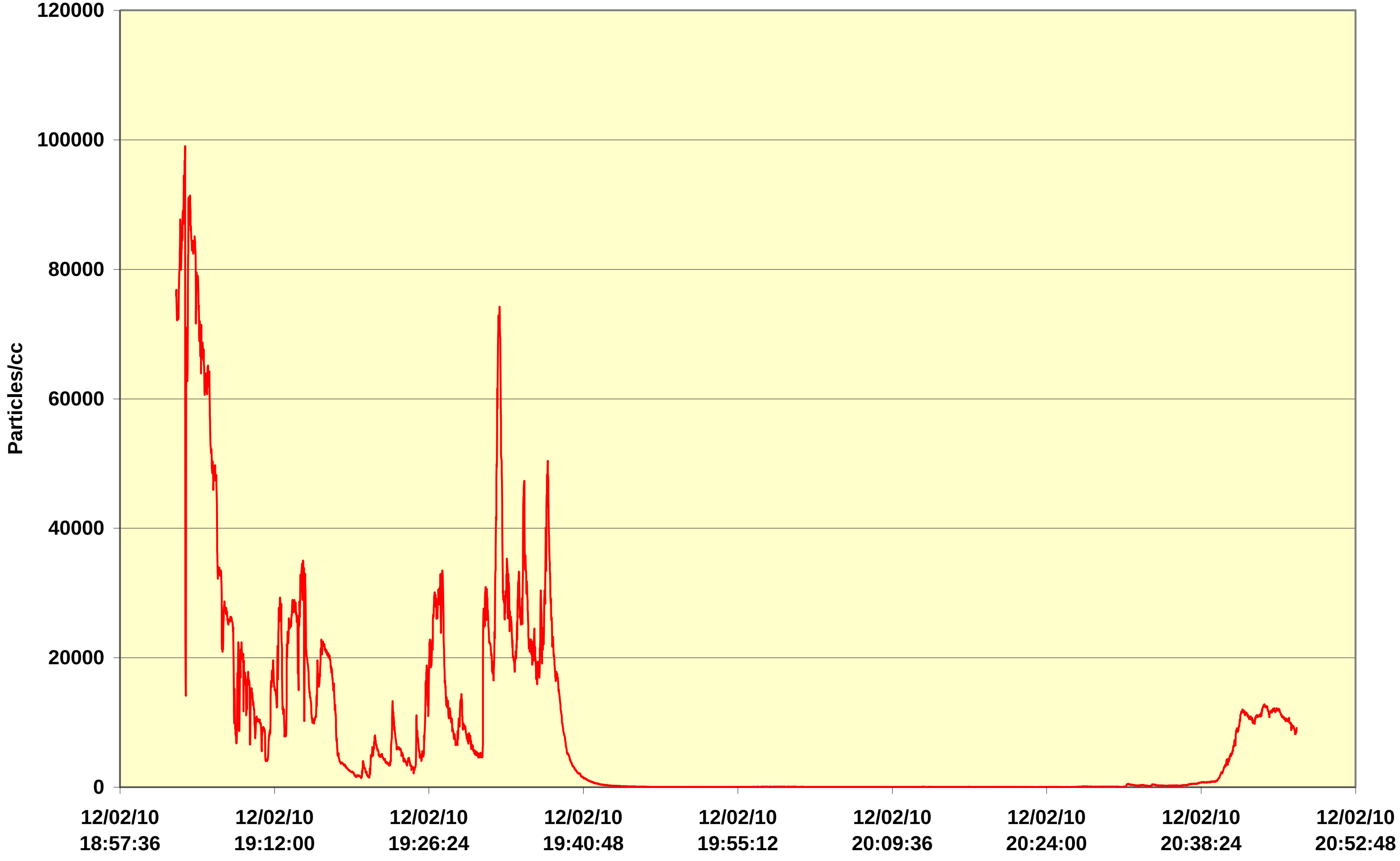

CO (ppm)
5
4
3
2
1
0
-1
00/01/00 00:00:00
26/09/02 00:00:00
22/06/05 00:00:00
18/03/08 00:00:00
13/12/10 00:00:00
08/09/13 00:00:00
04/06/16 00:00:00



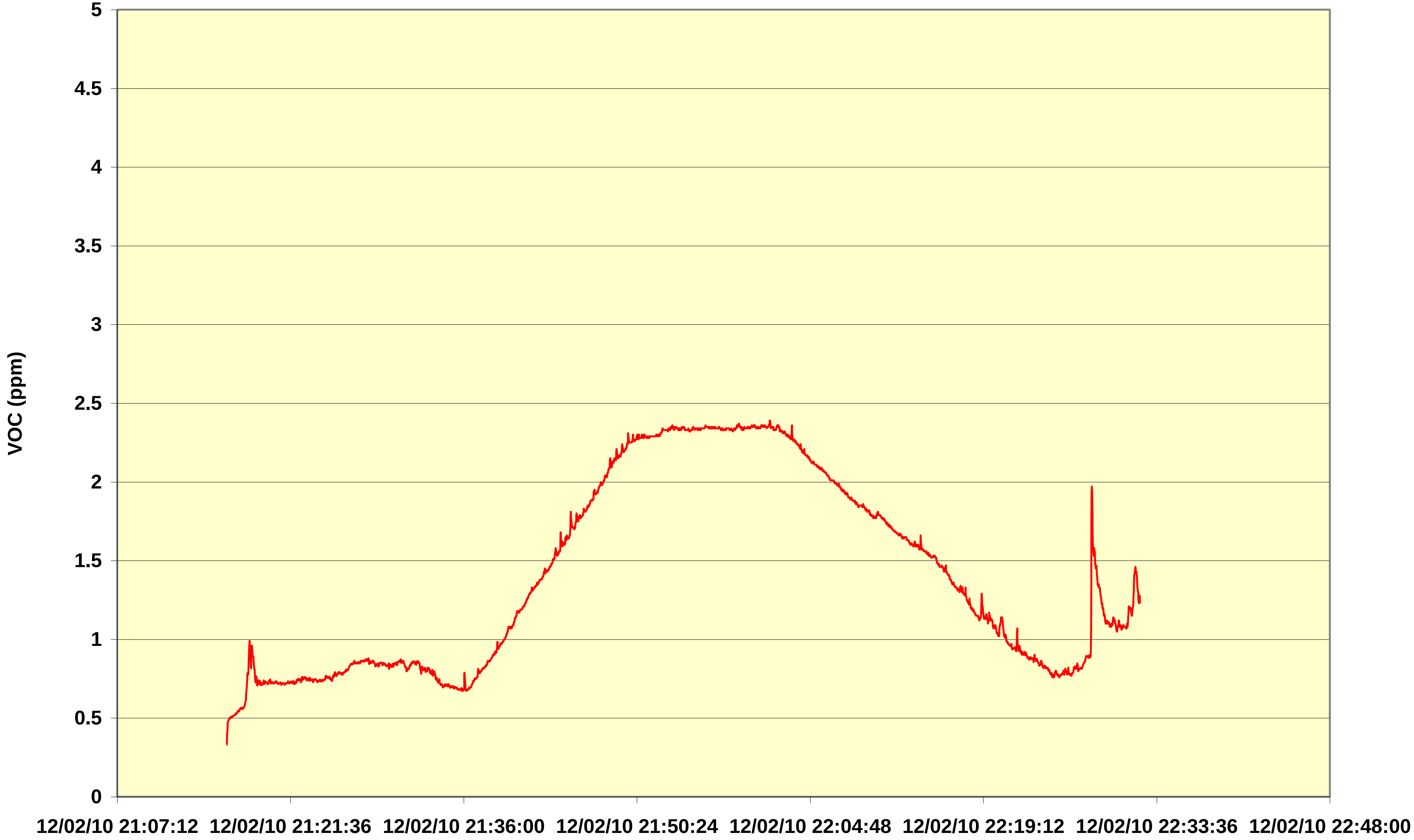
Particles/cc
25000
20000
15000
10000
5000
0
12/02/10 16:48:00
12/02/10 17:02:24
12/02/10 17:16:48
12/02/10 17:31:12
12/02/10 17:45:36
12/02/10 18:00:00
12/02/10 18:14:24
12/02/10 18:28:48
12/02/10 18:43:12

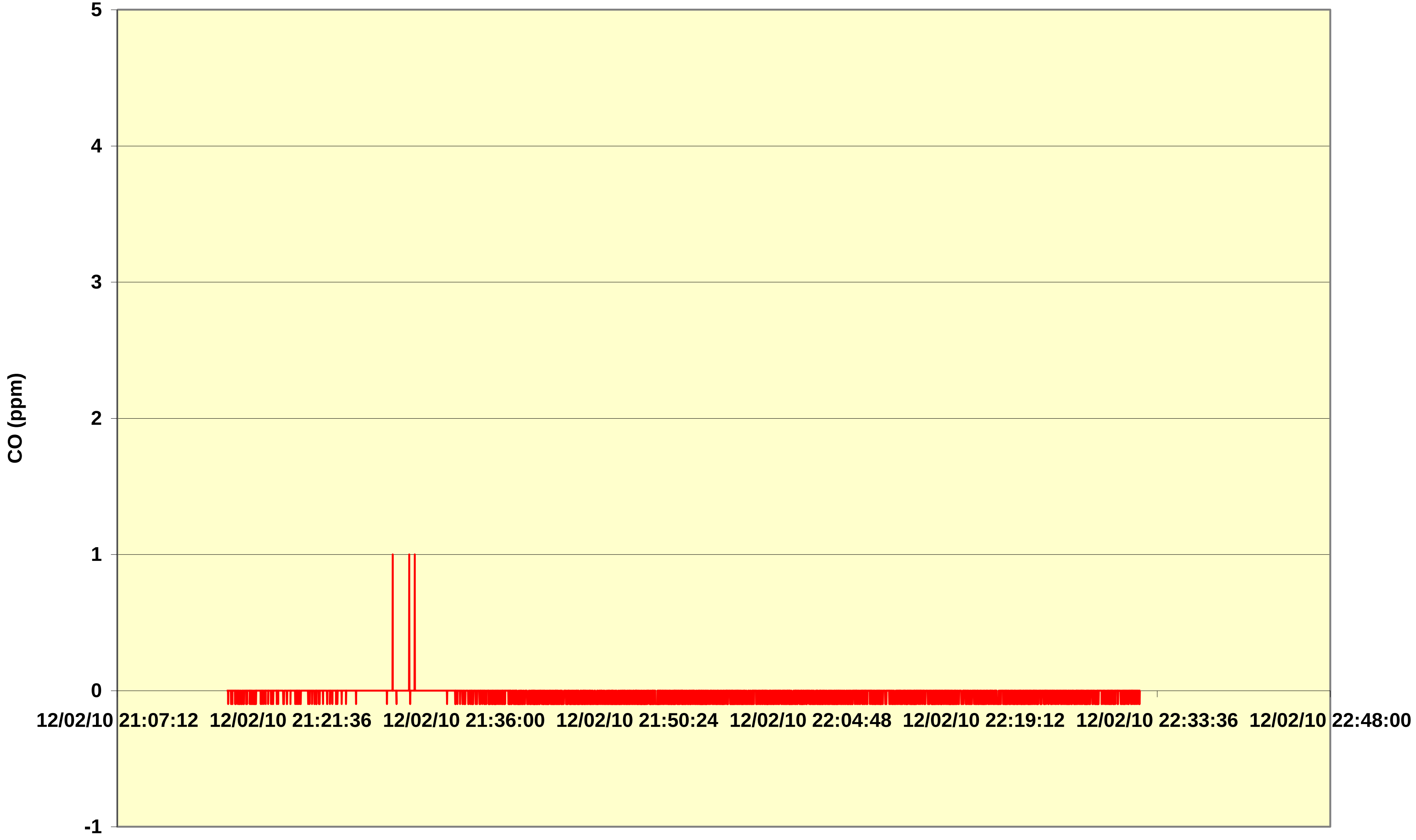

12
10
8
6
4
2
0
VOC (ppm)
12/02/10 18:43:12
12/02/10 18:57:36
12/02/10 19:12:00
12/02/10 19:26:24
12/02/10 19:40:48
12/02/10 19:55:12
12/02/10 20:09:36
12/02/10 20:24:00
12/02/10 20:38:24
12/02/10 20:52:48

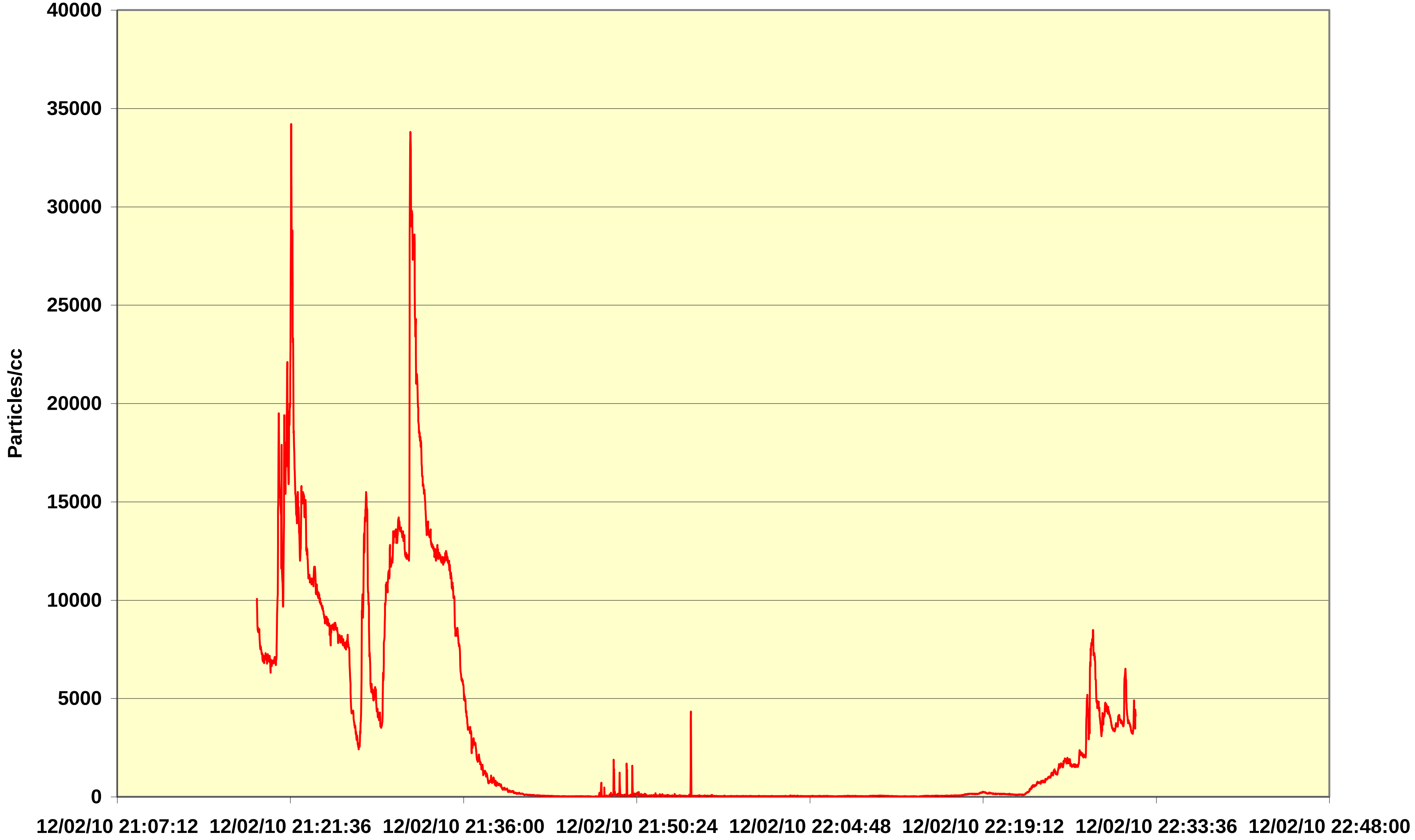

5
4
3
2
1
0
-1
CO (ppm)
12/02/10 18:43:12
12/02/10 18:57:36
12/02/10 19:12:00
12/02/10 19:26:24
12/02/10 19:40:48
12/02/10 19:55:12
12/02/10 20:09:36
12/02/10 20:24:00
12/02/10 20:38:24
12/02/10 20:52:48



120000
100000
80000
60000
40000
20000
0
Particles/cc
12/02/10 18:57:36
12/02/10 19:12:00
12/02/10 19:26:24
12/02/10 19:40:48
12/02/10 19:55:12
12/02/10 20:09:36
12/02/10 20:24:00
12/02/10 20:38:24
12/02/10 20:52:48


VOC (ppm)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
12/02/10 21:07:12
12/02/10 21:21:36
12/02/10 21:36:00
12/02/10 21:50:24
12/02/10 22:04:48
12/02/10 22:19:12
12/02/10 22:33:36
12/02/10 22:48:00


5
4
3
2
1
0
-1
CO (ppm)
12/02/10 21:07:12
12/02/10 21:21:36
12/02/10 21:36:00
12/02/10 21:50:24
12/02/10 22:04:48
12/02/10 22:19:12
12/02/10 22:33:36
12/02/10 22:48:00


40000
35000
30000
25000
20000
15000
10000
5000
0
Particles/cc
12/02/10 21:07:12
12/02/10 21:21:36
12/02/10 21:36:00
12/02/10 21:50:24
12/02/10 22:04:48
12/02/10 22:19:12
12/02/10 22:33:36
12/02/10 22:48:00

Endnotes

[1] This flight experienced an air quality event thought to be due to IPA from the particles counter being detected by the PID. Data from that event were excluded from the Part 1 analysis but are included here.
[2] Although the instrument continued to function throughout the flight, data were not logged to memory. This proved to be the result of a design fault which resulted in data becoming corrupted when a particular memory location was accessed. The manufacturer subsequently produced a firmware revision which resolved this problem.
[3] Very low readings throughout the sector are probably the result of slight zeroing error in the PID.
[4] Flight time was longer than the battery life of the instruments, which were accordingly switched off during cruise and back on for descent and landing
[5] This flight was identified in Part 1 of this report as having an apparent air quality event that was in fact most probably related to the release of alcohol by the particle counter.