



TX ACTIVE[®] DEPOLLUTING APPLICATIONS

A case study: Via Borgo Palazzo – Bergamo (Italy)

April 2007



CTG
Italcementi Group

Via Borgo Palazzo – A brief description

500 meters of pavement renovated by means of photocatalytic concrete interlocking paving blocks (“Renova” blocks, by Magnetti Group)

Two colours: grey (road) and red (walkways)

12000 m² of photocatalytic surface

For the monitoring, two NOx meters were installed in two different position, along the street:

69 - photocatalytic pavement

103 - asphalt (reference)



Via Borgo Palazzo – After the renovation (September 2006)



Monitoring – After the street renovation

PERIODS

1. from 6th November until 17th November 2006
 2. from 15th January until 26th January 2007
- Determination of NO, NO₂ and NO_x content in the air
 - Meteo data and vehicles counting (nr./hr)



List of equipment used

- No. 2 chemiluminescence analysers
(ENVIRONNEMENT S.A. mod. AC 32 M)
- No. 1 calibrating equipment ENVIRONNEMENT S.A. mod VE 3 M
- No. 1 laptop for data collection
- No. 1 Thermometer-hygrometer– Testo TESTOR 171
- No. 1 Luxmeter – Testo 545
- No. 1 Analyzer for UVA , UVB, RAD – Delta OHM DO 9721
- No. 1 anemometer
- liquid NO cylinders (for calibration)
- vehicles counter



Bergamo – Via Borgo Palazzo





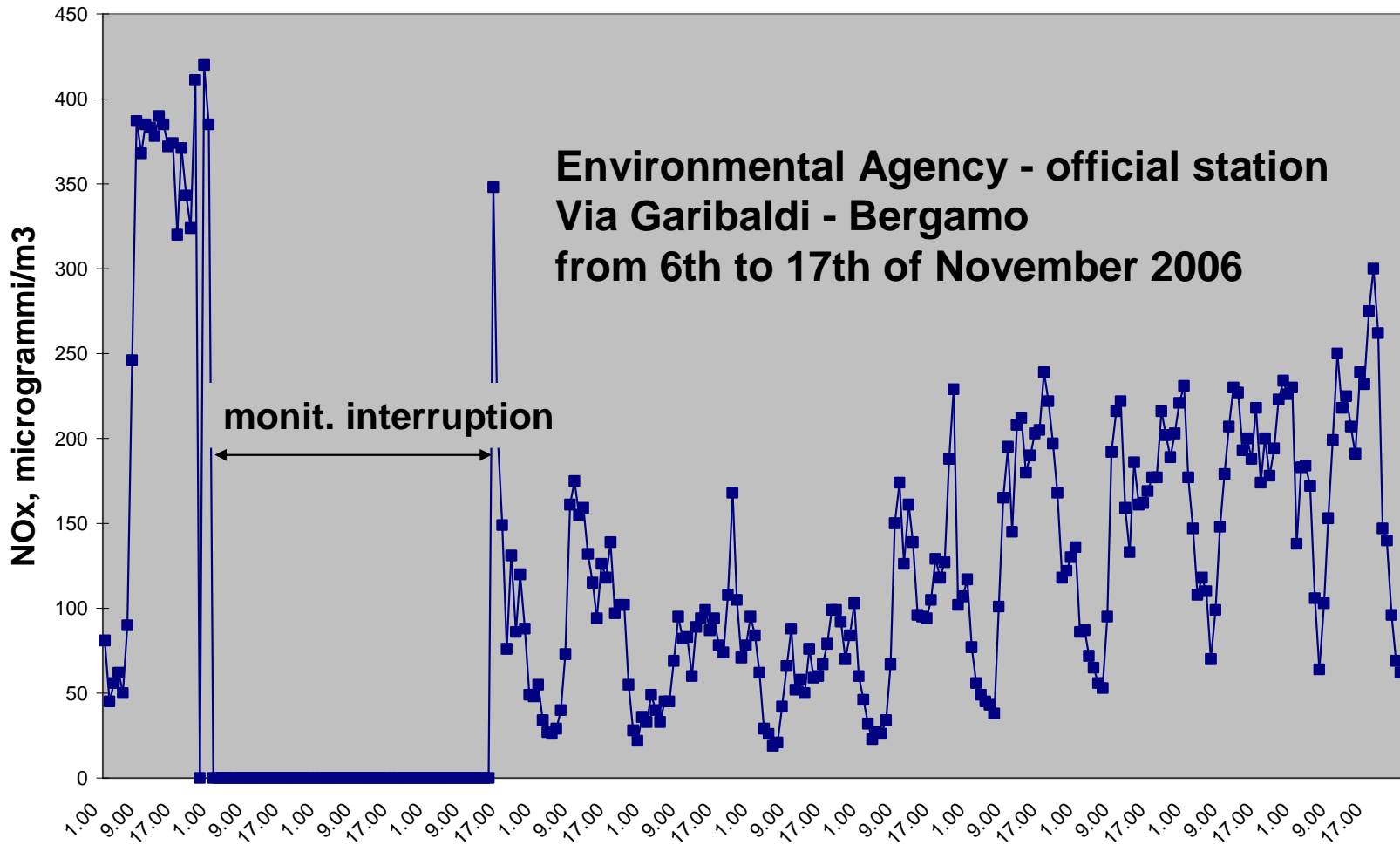
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First monitoring phase:

November 2006

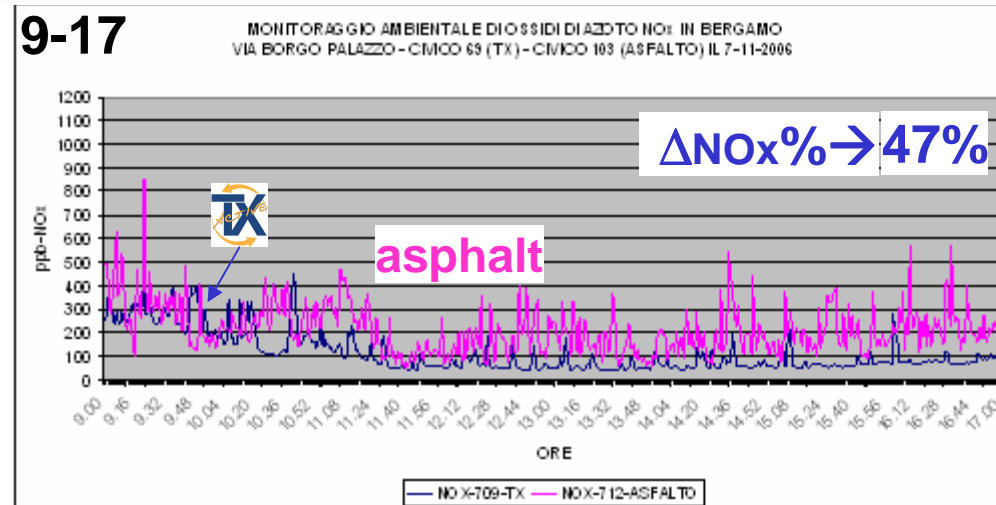
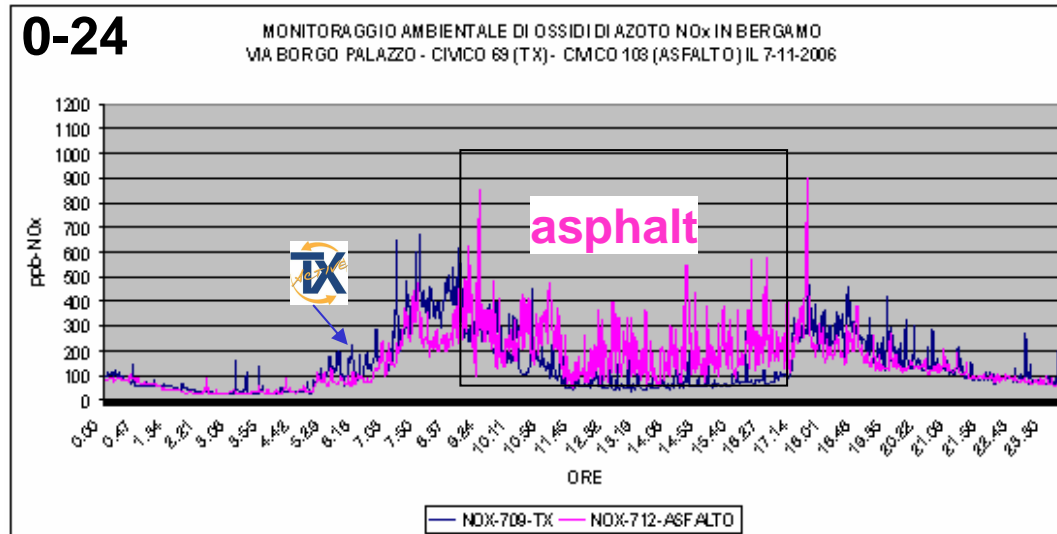
NOx results – daily values

values registered during the total period – Nov. 6th-17th 2006



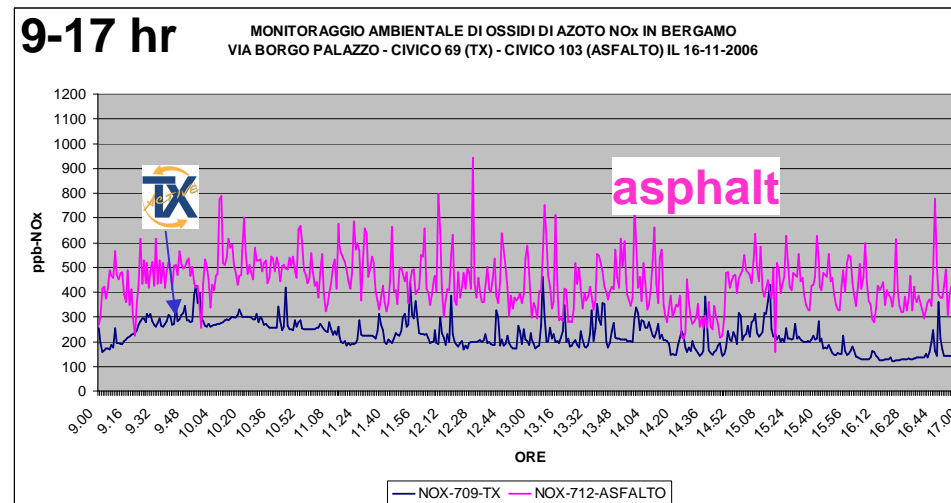
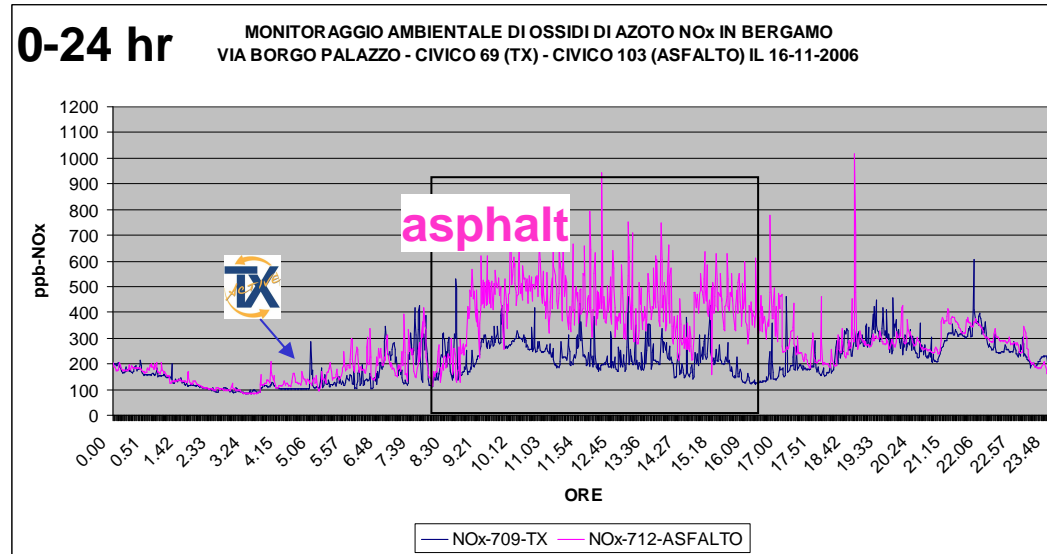
NOx results – daily values

Values registered from 00.00 to 24.00 and during the sunlight period (9.00-17.00) – 7th November 2006



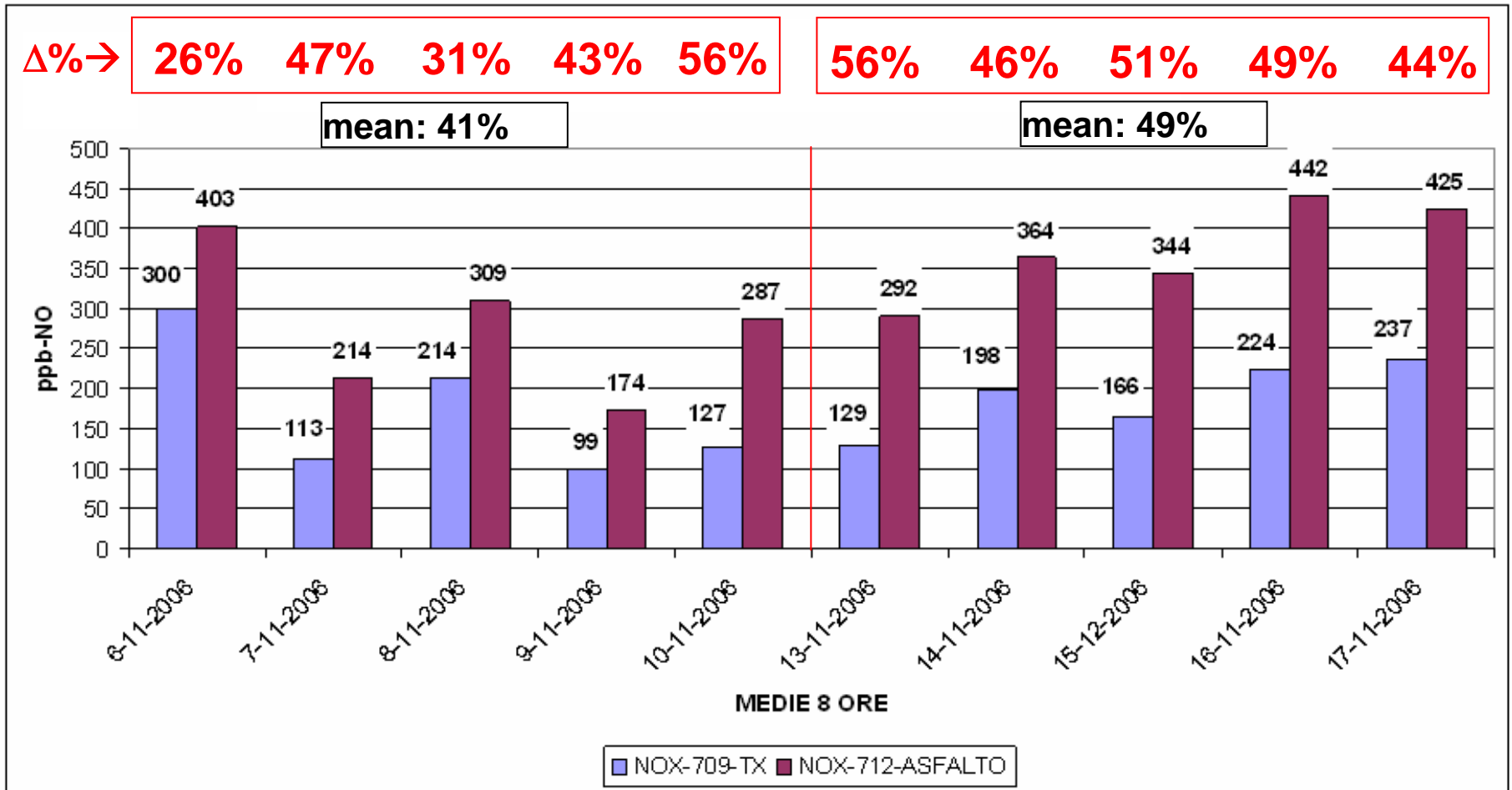
Risultati: NOx – valori giornalieri

Values registered in the range of 24 hrs (0-24) and 8 hrs (9-17) – Nov. 16th 2006



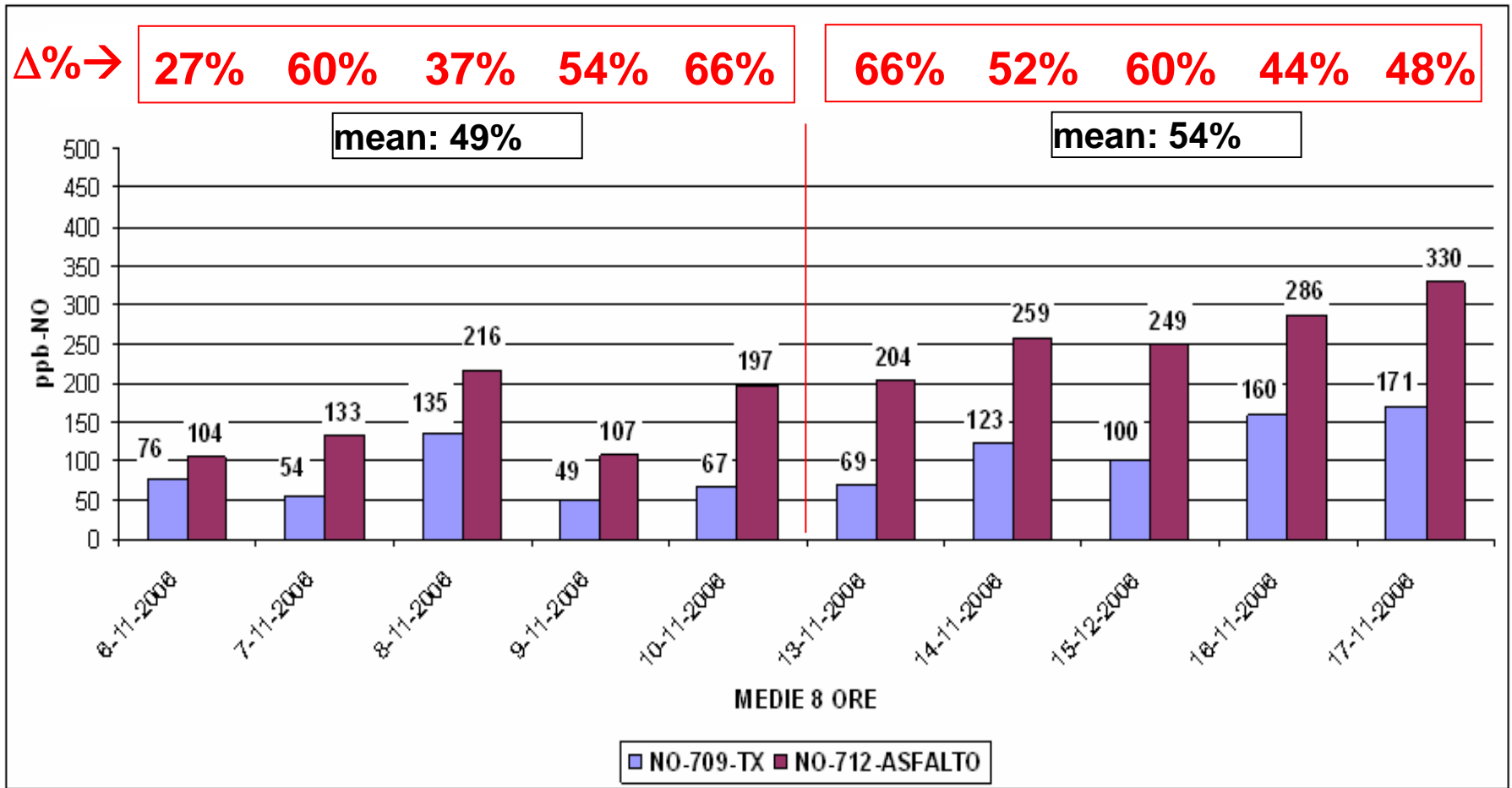
Results: NOx

mean values determined in the range of 8 hours (9.00-17.00)



Results: NO

mean values determined in the range of 8 hours (9.00-17.00)



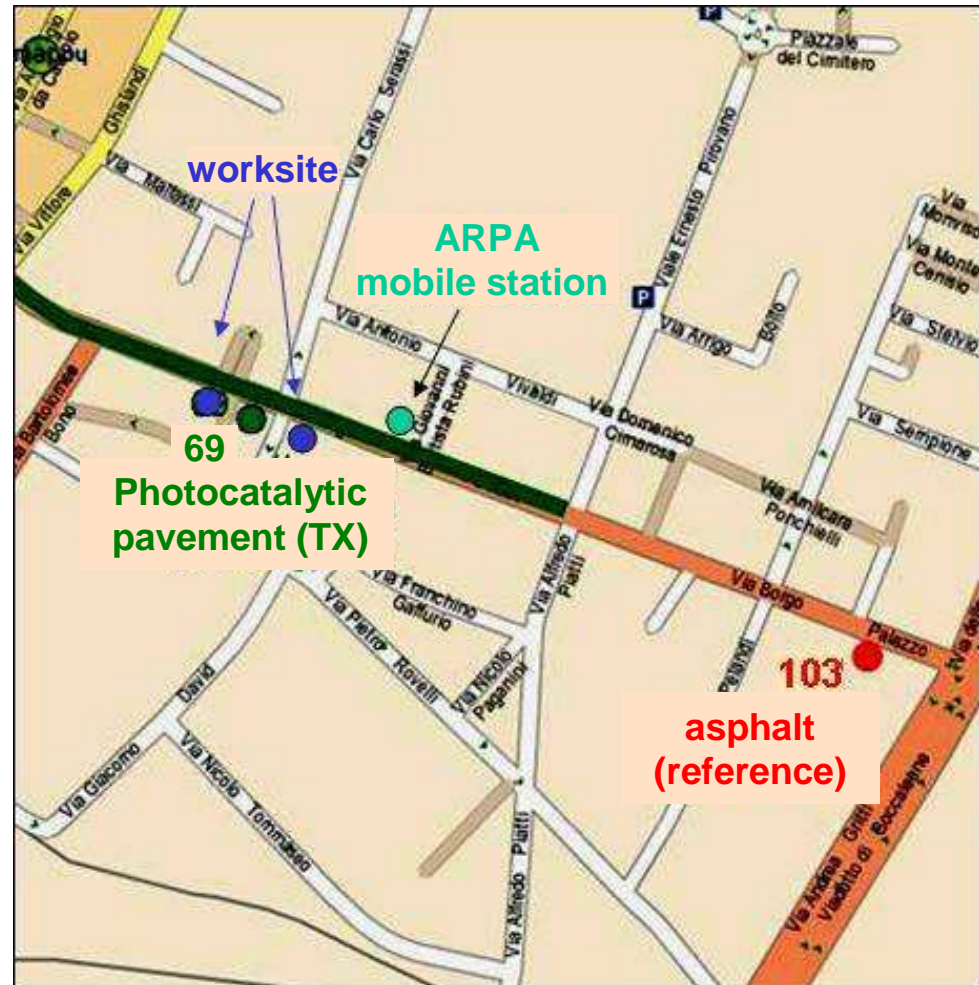
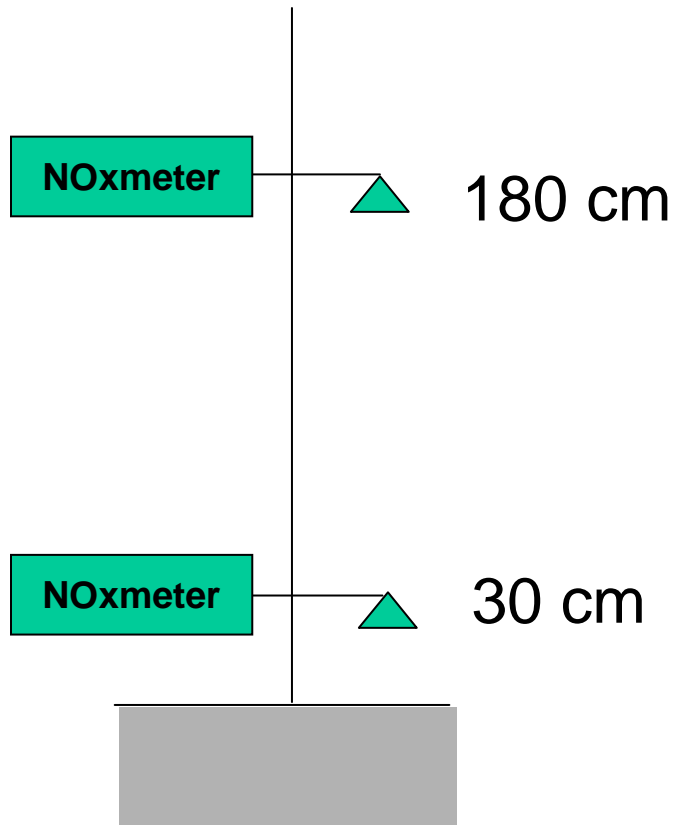


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Second monitoring phase:

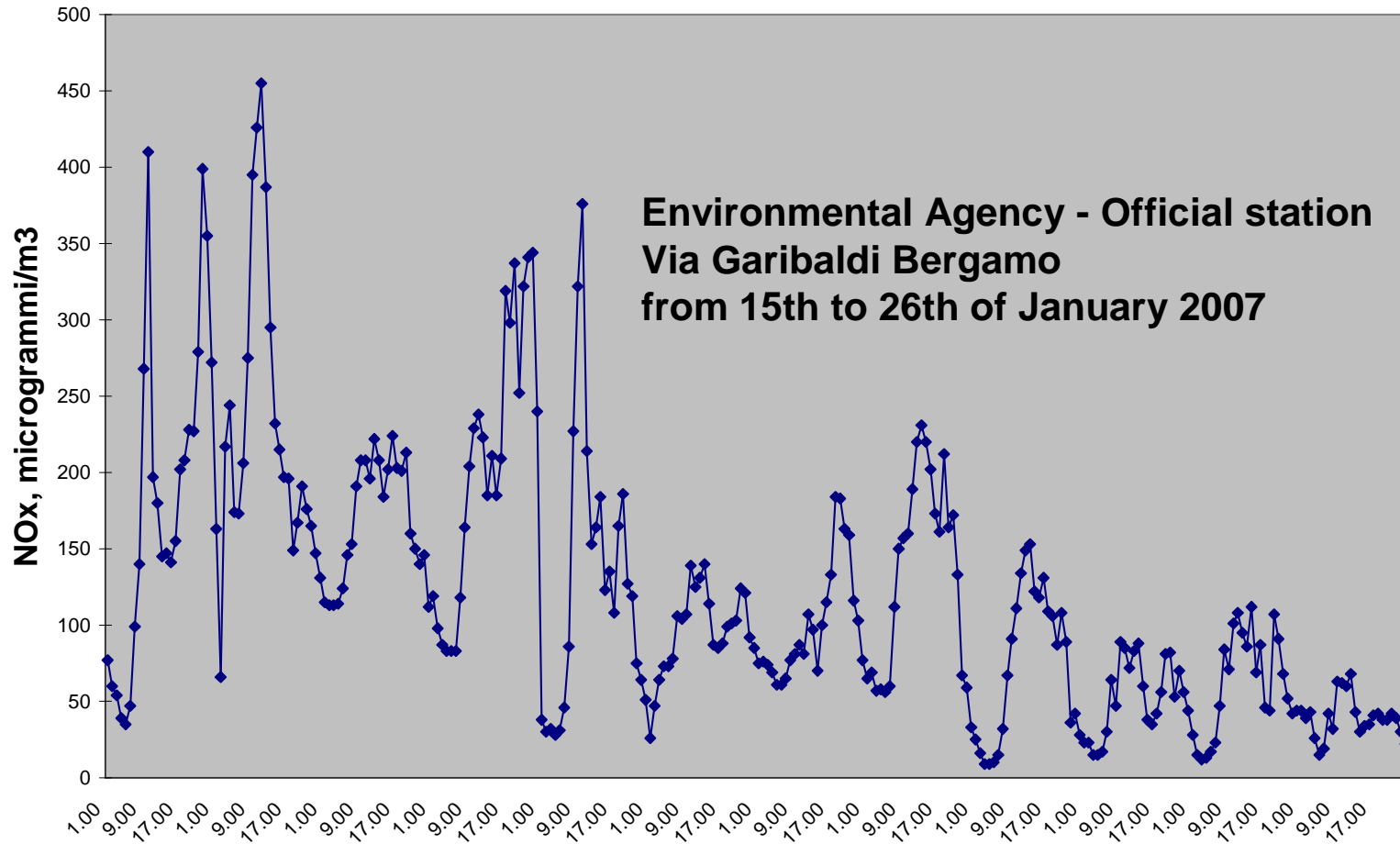
January 2007

Heights of sampling, from the ground



NOx, Official values (Envir. Agency)

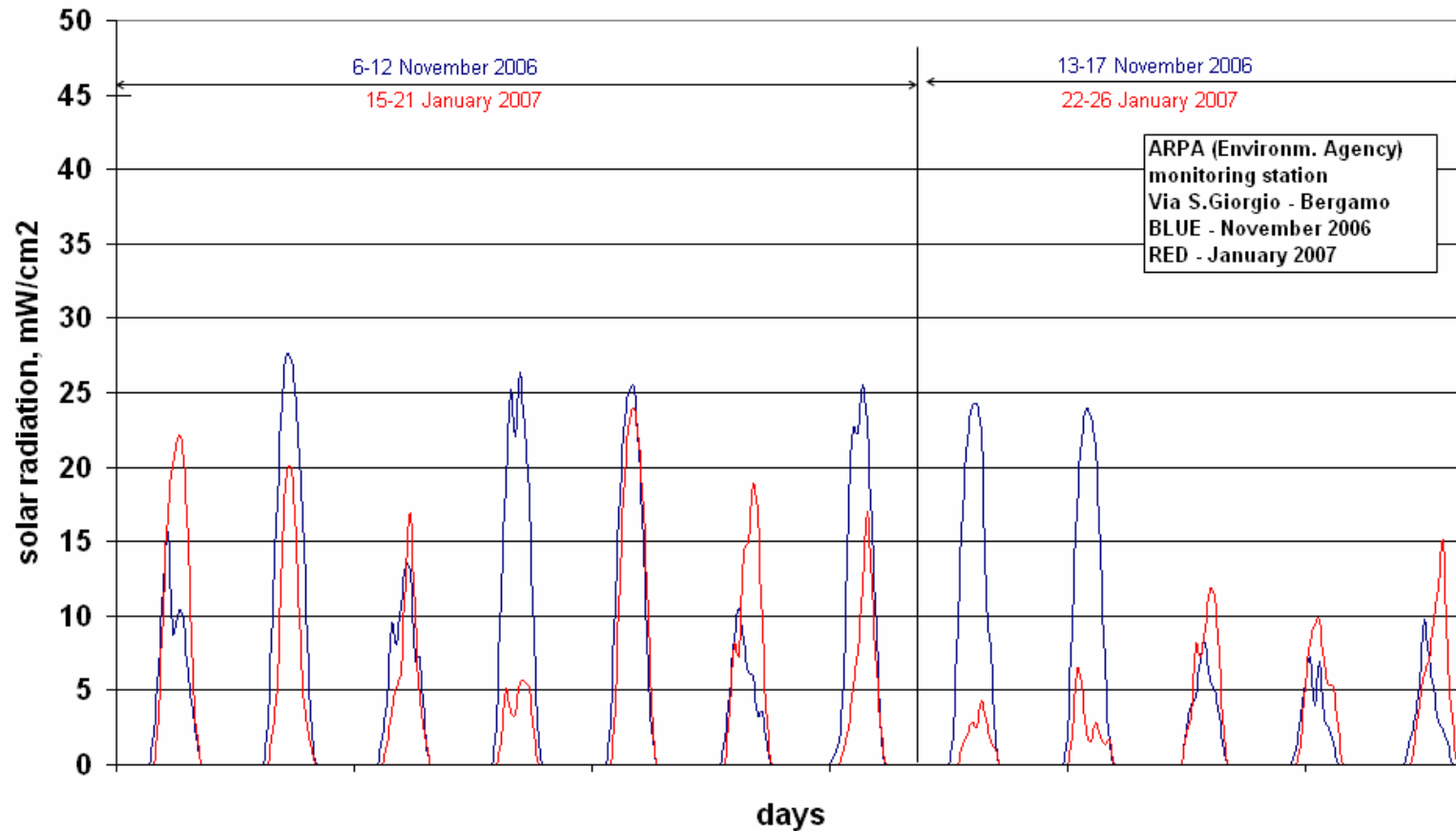
January 15th-26th, 2007



Solar radiation in Bergamo

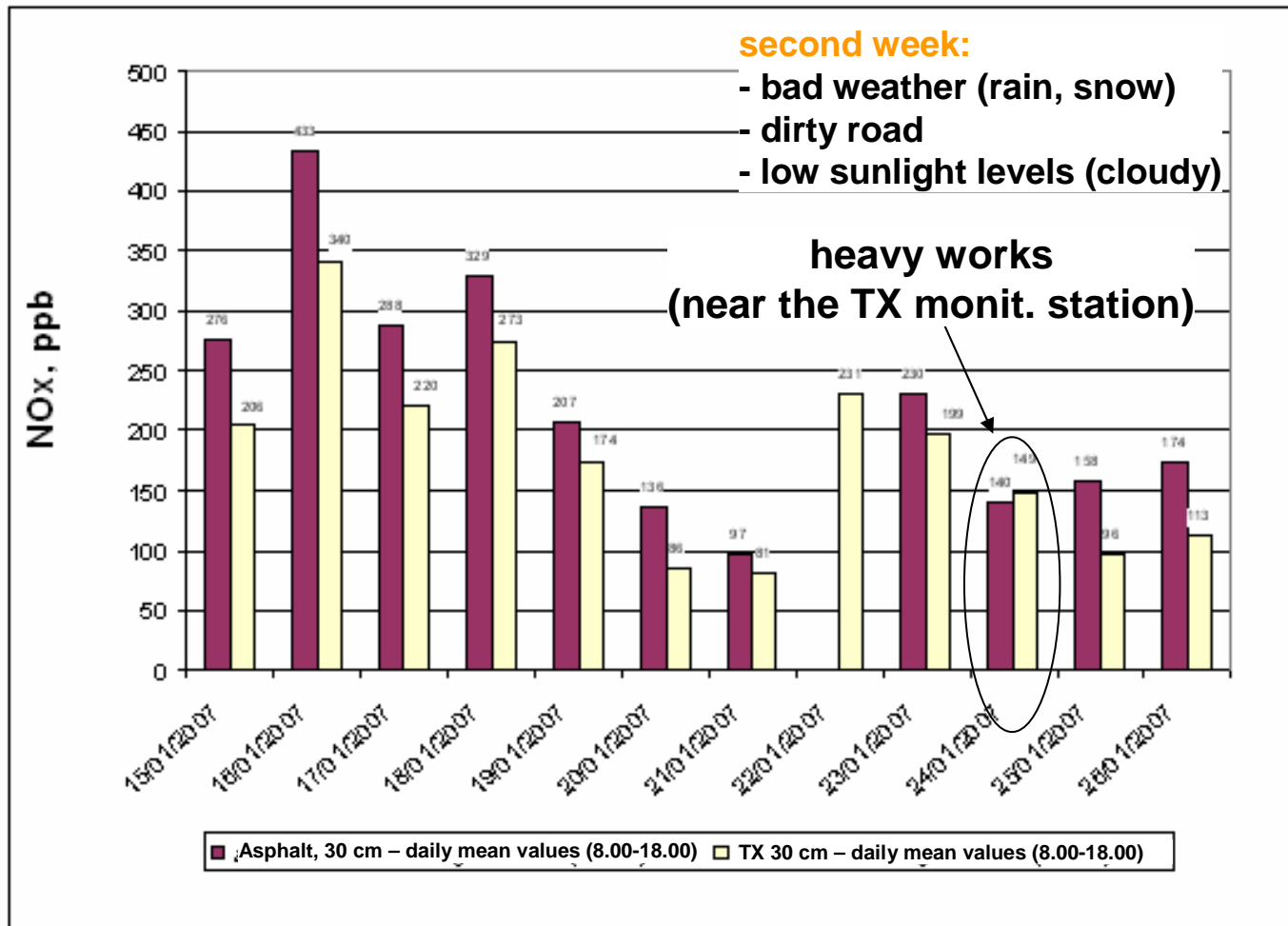
Periods: 6-17 November 2006/ 15-26 January 2007

Fixed station - Via S. Giorgio (ARPA - Env. Agency) - Official data




Results: NOx – daily mean values

January 2007 – height: 30 cm



Results: NOx – mean values

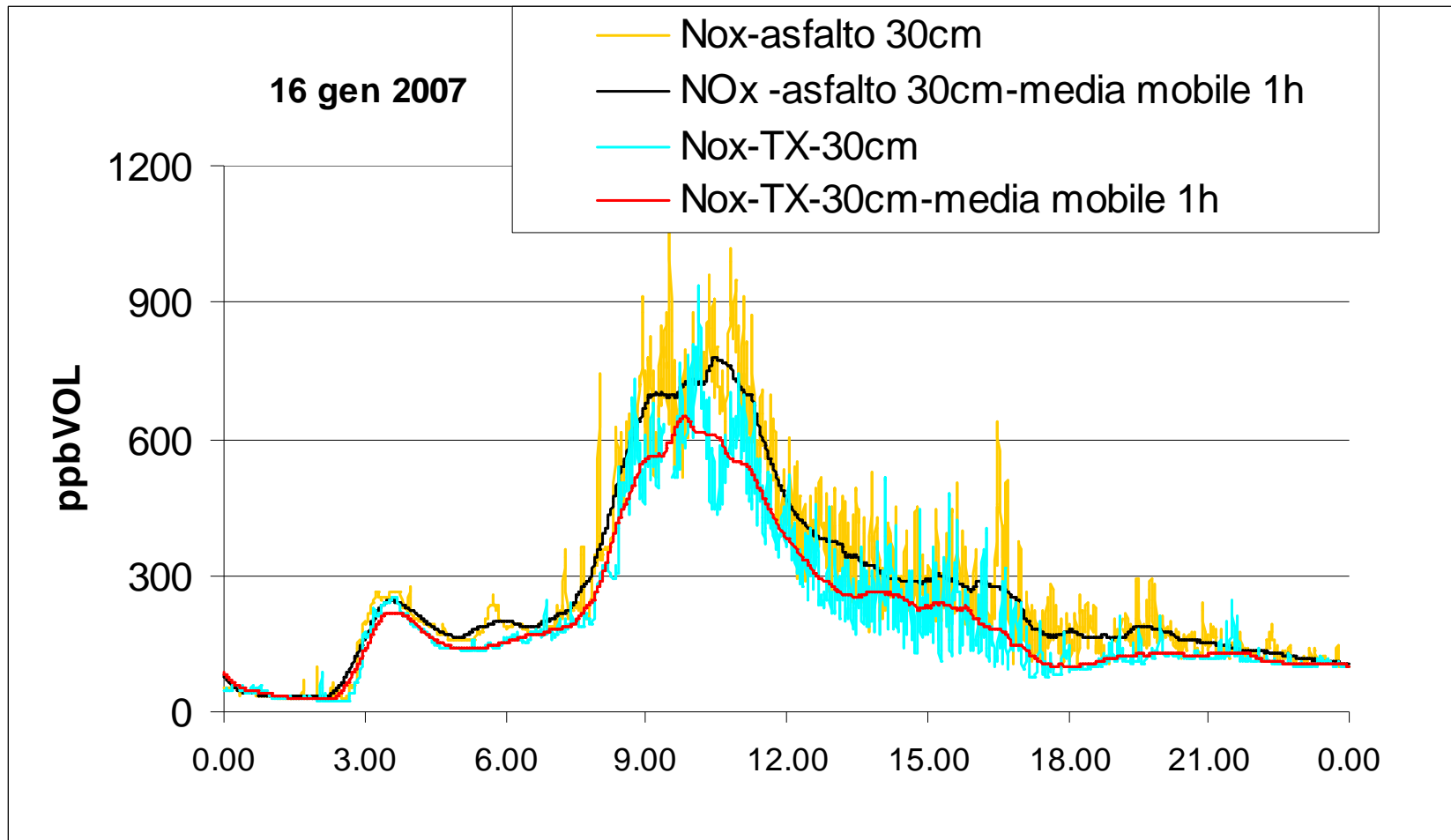
January 2007 - first week (from Monday 15th to Friday 19th)

			asphalt	
	NOx (mean values)	NO (mean values)	NOx (mean values)	NO (mean values)
hour: 8.00 -18.00				
height: 30 cm	250 ppb	194 ppb	336 ppb	270 ppb
height: 180 cm	260 ppb	201 ppb	316 ppb	248 ppb
height	Δ NOx(%)		Δ NO (%)	
30 cm	30		33	
180 cm	20		20	



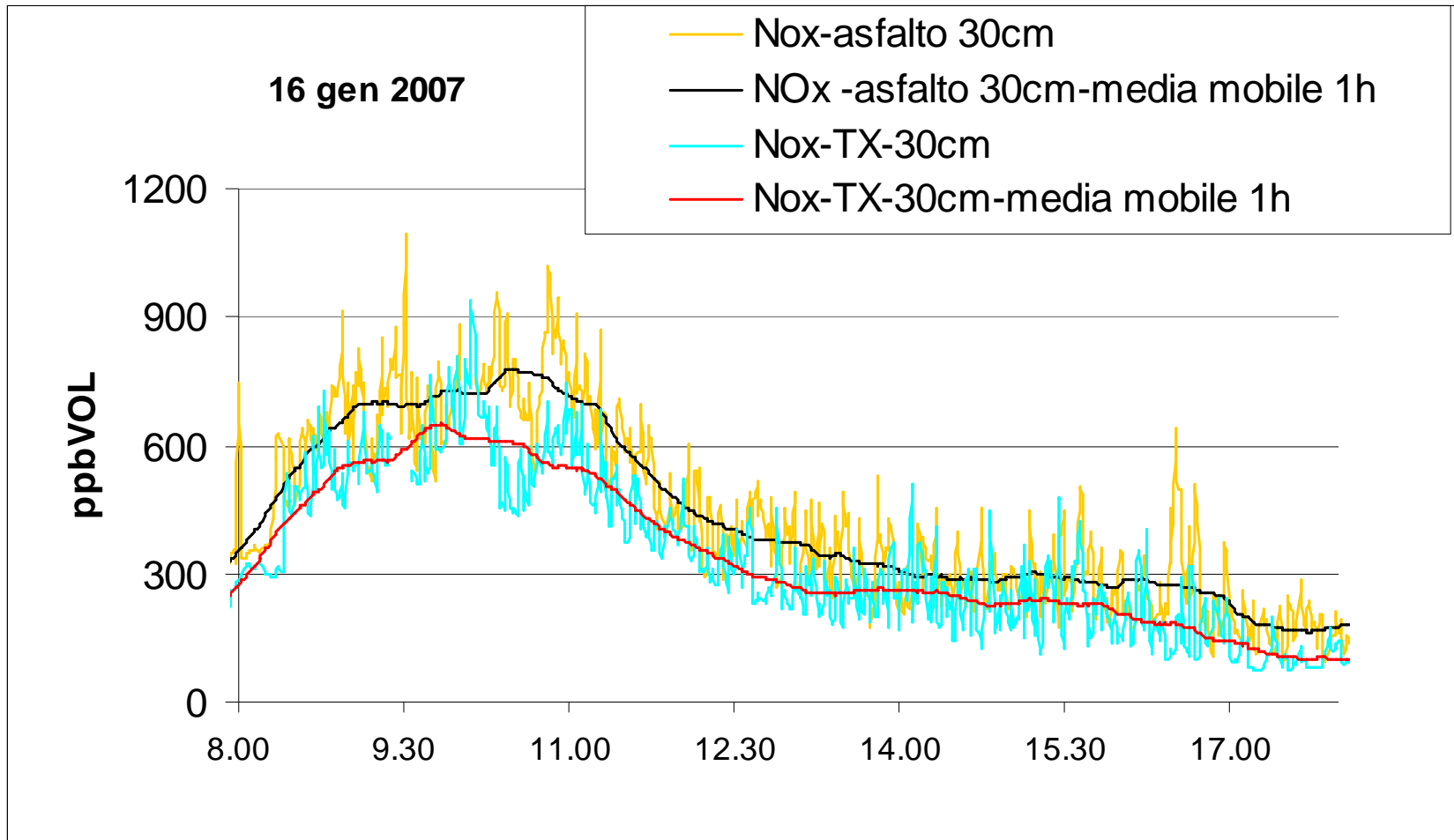
Results: NOx – daily values

16 January 2007 – height: 30 cm



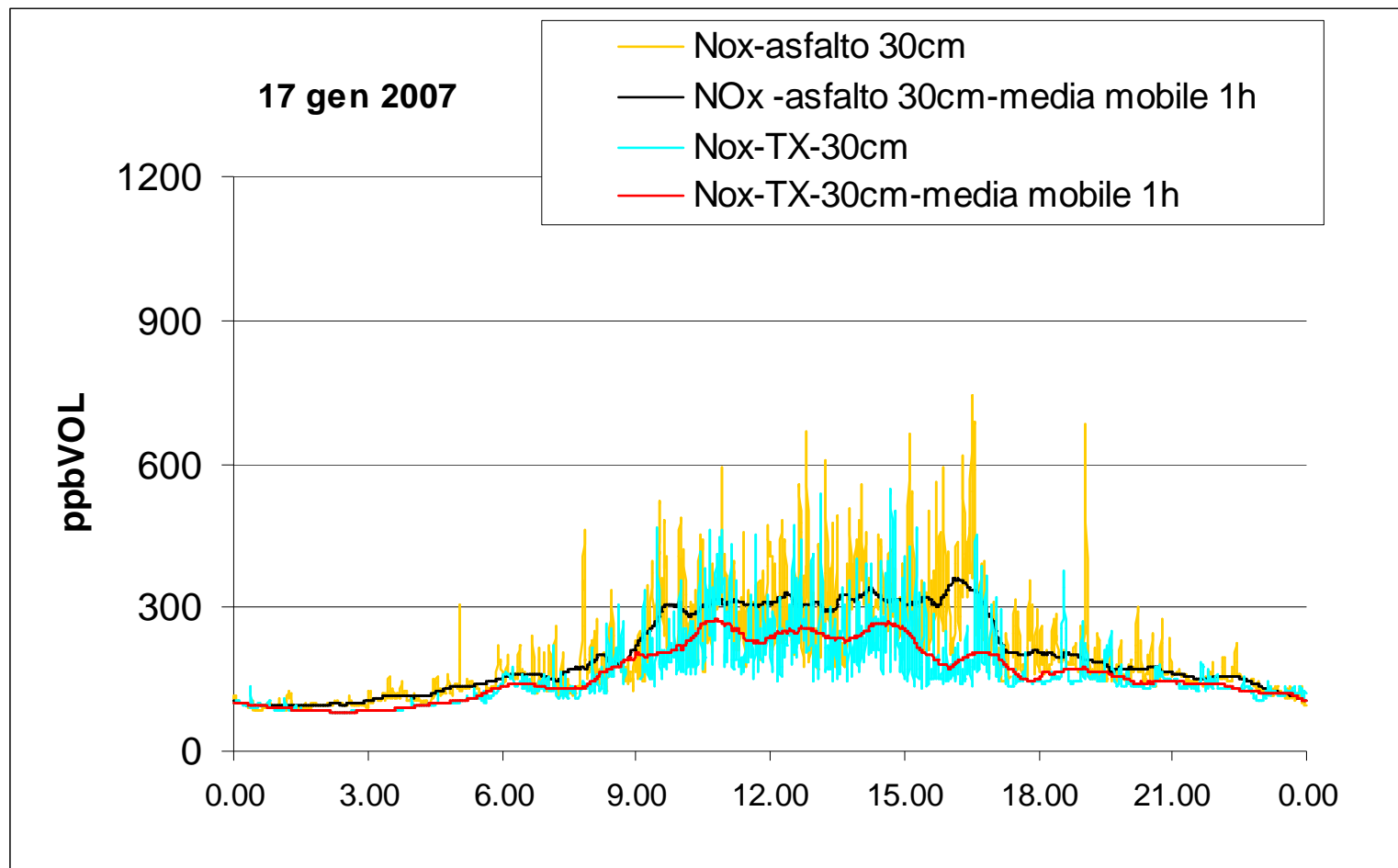
Results: NOx – daily values

16 January 2007 – height: 30 cm



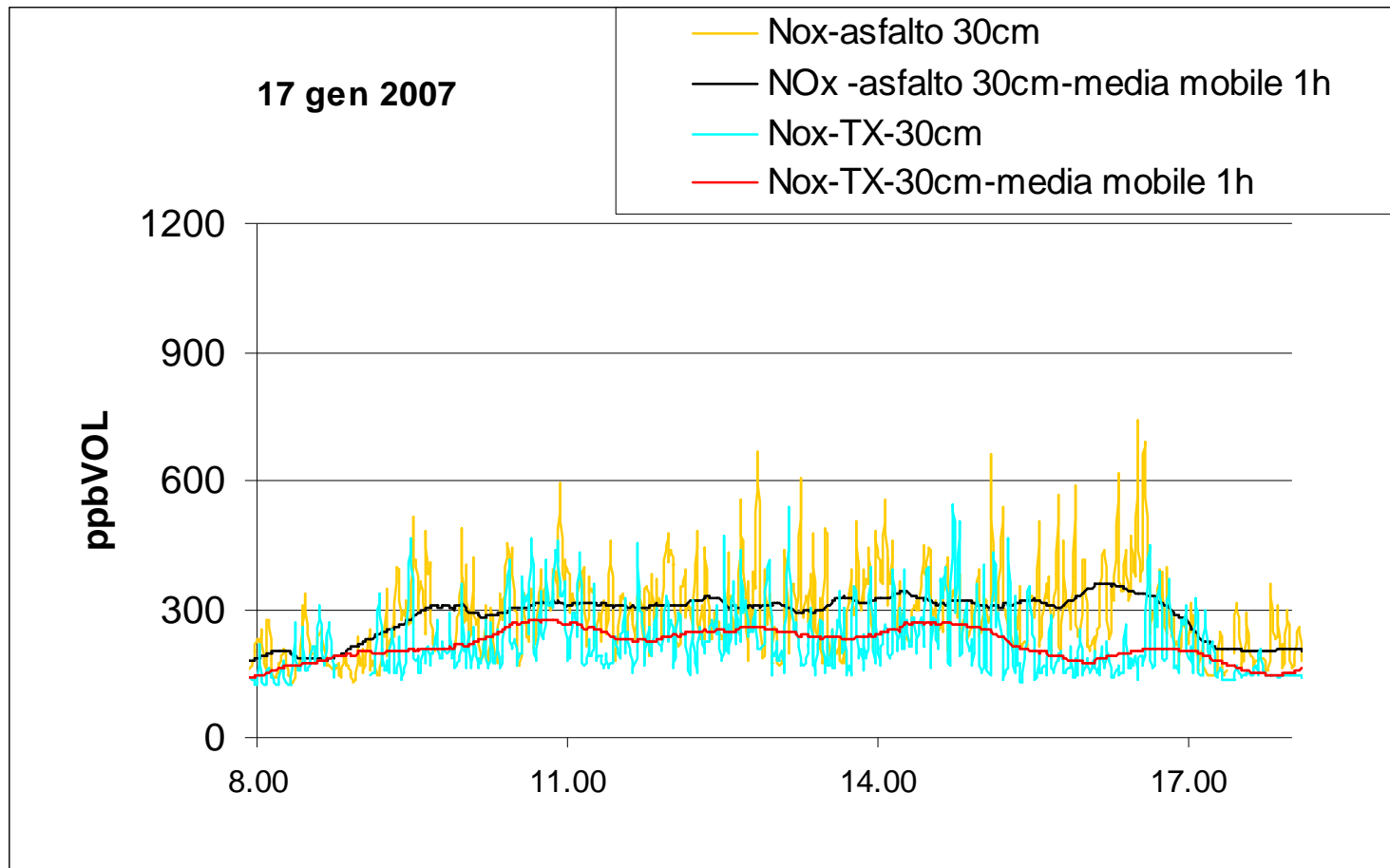
Results: NOx – daily values

17 January 2007 – height: 30 cm



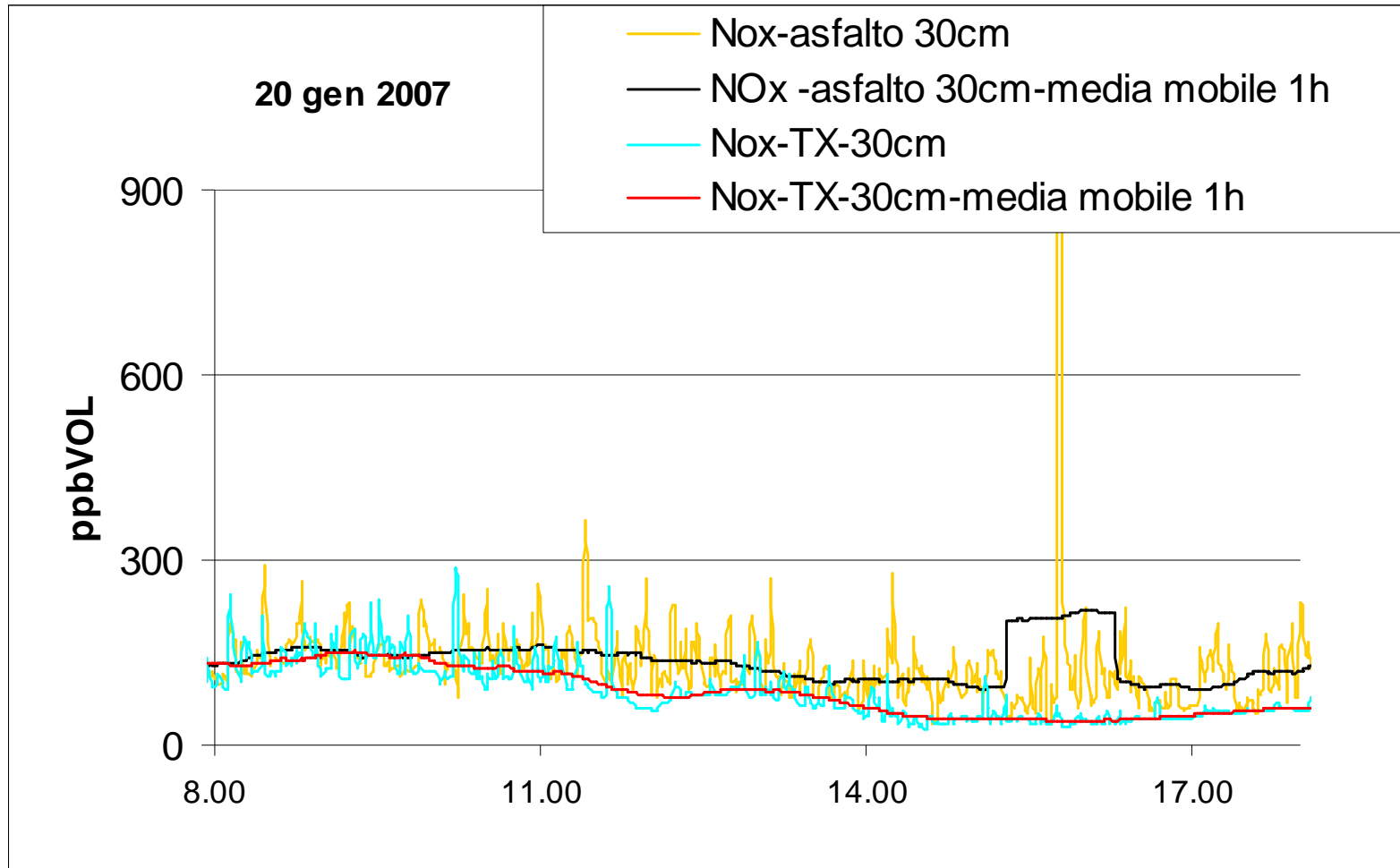
Results: NOx – daily values

17 January 2007 – height: 30 cm



Results: NOx – daily values

20 January 2007 – height: 30 cm



Results: NOx – daily values

20 January 2007 – height: 30 cm

