

# **UK Automatic Urban Network London Air Quality Network Affiliated Sites**

## **Management Report October to December 2002**

**Prepared for the Department for Environment, Food and Rural  
Affairs (DEFRA), Scottish Executive, Welsh Assembly  
Government and the DoE in Northern Ireland**

<b>Title</b>	UK Automatic Urban Network London Air Quality Network Affiliated Sites Management Report, October to December 2002
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<b>Customer</b>	Department for Environment, Food and Rural Affairs (DEFRA), Scottish Executive, Welsh Assembly Government and the DoE in Northern Ireland
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<b>Customer Ref</b>	
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<b>File Reference</b>	ERG\Airqual\London\DEFRA\Report\Dec02
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<b>Report Number</b>	KCLERG/MT/DEFRA/CMCU/050303
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## Table of Contents

<b>1</b>	<b>King's ERG Interface with the Data Dissemination Unit (DDU)</b> .....	<b>5</b>
1.1	Introduction .....	5
1.2	Data Handling .....	5
<b>2</b>	<b>Site Performance</b> .....	<b>5</b>
2.1	Scaling of Data for October to December 2002 .....	5
2.2	Quality Control / Quality Assurance (QA/QC).....	5
2.3	Data for October to December 2002.....	5
2.3.1	Hounslow Roadside .....	7
2.3.2	Southwark Roadside.....	7
<b>3</b>	<b>Annual Data Capture Statistics</b> .....	<b>8</b>
3.1	Hounslow Roadside .....	8
3.2	London Southwark .....	8
3.3	Southwark Roadside .....	8
3.4	Sutton Roadside.....	9
3.5	London Sutton.....	9
<b>4</b>	<b>Pollutant Concentrations</b> .....	<b>10</b>

### List of Tables

Table 1:	Hourly Data Capture % for October 2002 .....	6
Table 2:	Hourly Data Capture % for November 2002.....	6
Table 3:	Hourly Data Capture % for December 2002.....	6
Table 4:	Hourly Data Capture % for October to December 2002.....	7
Table 5:	Hourly Data Capture % for January to December 2002.....	8

### List of Figures

Figure 1:	CO Rolling Annual Mean.....	10
Figure 2:	NO <sub>x</sub> Rolling Annual Mean .....	10
Figure 3:	NO <sub>2</sub> Rolling Annual Mean .....	11
Figure 4:	PM <sub>10</sub> Rolling Annual Mean .....	11
Figure 5:	SO <sub>2</sub> Rolling Annual Mean.....	12
Figure 6:	O <sub>3</sub> Rolling Annual Mean .....	12



# **London Air Quality Network Affiliate Site Management Report October to December 2002**

## **1 King's ERG Interface with the Data Dissemination Unit (DDU)**

### **1.1 Introduction**

This report details the equipment performance for the AURN affiliate sites where ERG is contracted as CMCU by DEFRA under contract number EPG 1/3/168.

The report highlights issues causing data capture to fall below 90% during the quarter and also summarises issues causing annual data capture to fall below 90%.

### **1.2 Data Handling**

Between October and December 2002, King's College London Environmental Research Group (ERG) has estimated that over 95% of hourly e-mails arrived at the DDU to meet their timetabled requirements. Accurate figures of punctual e-mails can be obtained from the DDU.

During October 2003, ERG relocated offices to the Franklin-Wilkins building in King's College Waterloo Campus. These offices have a dedicated climatically controlled server room housing the upgraded data collection, file, email and internet servers. This new computer system has substantially increased the processing power and telephone lines associated with the MONNET data collection system.

During the move this new system was operated in parallel to the existing network servers at St. Thomas' Hospital to ensure minimum disruption to data dissemination.

## **2 Site Performance**

### **2.1 Scaling of Data for October to December 2002**

Scaling of data was carried out as in previous months using the zero and span readings from fortnightly calibration checks. Validation of data was carried out twice daily and reviewed again at the end of each month.

### **2.2 Quality Control / Quality Assurance (QA/QC)**

DEFRA have appointed a new QC/QC Unit for this network as a result of a competitive tender exercise in 2002. AEA Technology took over from NPL on 1<sup>st</sup> September 2002.

The QA/QC Unit did not carry out any routine equipment audits at the London affiliated AURN sites during this quarter. The first round of audits is scheduled for January 2003.

### **2.3 Data for October to December 2002**

Data capture rates for October, November and December are detailed in Table 1, Table 2, and Table 3. The data capture rates for each month are calculated from valid hourly averages, after excluding data lost due to calibration and the faults discussed. The overall data capture rates for the quarter October to December are detailed in the Table 4.

Specific issues affecting data collection and quality at each site are discussed in sections 2.3.1 to 2.3.2. Details of faults are given where data capture rates fall below 90% for the quarter.

Site	Hourly Data Capture % for October 2002				
	CO	PM <sub>10</sub>	NO <sub>x</sub>	O <sub>3</sub>	SO <sub>2</sub>
Bromley Central	99.7		99.7		
Camden Kerbside		99.7	99.6		
Eltham		99.6	99.6	99.7	99.1
Haringey Roadside		99.7	99.5		
London Haringey				99.5	
Hackney	99.9		99.7	98.9	
Hounslow Roadside	99.7		99.7		
London North Kensington	99.3	96.1	99.5	99.5	99.5
Lewisham			99.7	99.7	99.7
Marylebone Road	96.2	99.1	92.9	95.8	96.1
London Southwark	80.5		80.5	80.5	80.5
Southwark Roadside	99.5		99.3		99.3
Tower Hamlets Roadside	99.3		99.6		
London Wandsworth			99.2	99.2	

Table 1: Hourly Data Capture % for October 2002

Site	Hourly Data Capture % for November 2002				
	CO	PM <sub>10</sub>	NO <sub>x</sub>	O <sub>3</sub>	SO <sub>2</sub>
Bromley Central	99.7		99.7		
Camden Kerbside		99.7	99.4		
Eltham		99.6	99.6	99.7	99.2
Haringey Roadside		83.5	89.3		
London Haringey				99.7	
Hackney	98.8		98.8	97.9	
Hounslow Roadside	50.4		50.4		
London North Kensington	98.9	90.3	99.4	99.4	99.0
Lewisham			100.0	99.9	99.9
Marylebone Road	99.6	99.2	99.6	99.6	99.7
London Southwark	91.3		58.2	91.3	91.3
Southwark Roadside	99.4		99.4		99.4
Tower Hamlets Roadside	98.9		99.6		
London Wandsworth			99.6	99.6	

Table 2: Hourly Data Capture % for November 2002

Site	Hourly Data Capture % for December 2002				
	CO	PM <sub>10</sub>	NO <sub>x</sub>	O <sub>3</sub>	SO <sub>2</sub>
Bromley Central	99.7		99.6		
Camden Kerbside		99.9	99.5		
Eltham		99.3	99.7	99.9	99.5
Haringey Roadside		99.5	99.6		
London Haringey				99.5	
Hackney	99.3		99.6	98.8	
Hounslow Roadside	0		0		
London North Kensington	99.5	93.7	99.5	99.7	99.7
Lewisham			99.5	99.6	99.7
Marylebone Road	99.3	98.9	99.5	99.6	99.6
London Southwark	98.0		0	99.1	96.0
Southwark Roadside	94.2		99.3		98.9
Tower Hamlets Roadside	99.6		99.6		
London Wandsworth			99.3	99.2	

Table 3: Hourly Data Capture % for December 2002

Site	Hourly Data Capture % for October to December 2002				
	CO	PM <sub>10</sub>	NO <sub>x</sub>	O <sub>3</sub>	SO <sub>2</sub>
Bromley Central	99.7		99.7		
Camden Kerbside		99.8	99.5		
Eltham		99.5	99.6	99.8	99.2
Haringey Roadside		94.3	96.2		
London Haringey				99.6	
Hackney	99.3		99.4	98.6	
Hounslow Roadside	50.1		50.1		
London North Kensington	99.2	93.4	99.5	99.6	99.4
Lewisham			99.7	99.7	99.8
Marylebone Road	98.4	99.1	97.3	98.3	98.5
London Southwark	89.9		46.1	90.3	89.2
Southwark Roadside	97.7		99.4		99.2
Tower Hamlets Roadside	99.3		99.6		
London Wandsworth			99.4	99.3	

Table 4: Hourly Data Capture % for October to December 2002

### 2.3.1 Hounslow Roadside

#### 2.3.1.1 Carbon Monoxide, Nitrogen Oxides 50%

16<sup>th</sup> November – 31<sup>st</sup> December 2002 1096 Hours

This site was housed in a local authority building that is now due to be sold. This has necessitated its relocation to a cabin at the roadside of the A4 adjacent to the M4 flyover. At present the equipment has been installed but is awaiting connection to power and telephone lines.

The new site location may lead to the site being renamed as the sampling location has changed significantly. This decision will be made in conjunction with the QA/QC unit.

### 2.3.2 Southwark Roadside

#### 2.3.2.1 Nitrogen Oxides 46%

1<sup>st</sup> October – 5<sup>th</sup> October 2002 102 Hours

A communications fault led to data not being collected and subsequently overwritten by the on site logger.

20<sup>th</sup> October – 31<sup>st</sup> December 2002 1731 Hours

The PMT cooler has malfunctioned, the ESU is presently waiting for a replacement part.

#### 2.3.2.2 Sulphur Dioxide 89%

1<sup>st</sup> October – 5<sup>th</sup> October 2002 102 Hours

A communications fault led to data not being collected and subsequently overwritten by the on site logger.

30<sup>th</sup> October – 3<sup>rd</sup> November 2002 95 Hours

A communications fault led to data not being collected and subsequently overwritten by the on site logger.

### 3 Annual Data Capture Statistics

Data capture rates for the whole of 2002 are detailed in Table 5. The data capture rates for the year are calculated from valid hourly averages, after excluding data lost due to calibration and the faults discussed. The final data capture figures for the network after ratification can be obtained from the QA/QC unit. Data capture rates below DEFRA's target of 90% are highlighted, a summary of these shortfalls is given below.

Site	Hourly Data Capture % for October to December 2002				
	CO	PM <sub>10</sub>	NO <sub>x</sub>	O <sub>3</sub>	SO <sub>2</sub>
Bromley Central	92.7		97.6		
Camden Kerbside		99.3	97.3		
Eltham		97.1	98.8	97.4	97.3
Haringey Roadside		97.6	98.6		
London Haringey				97.9	
Hackney	91.3		91.0	90.5	
Hounslow Roadside	85.4		85.6		
London North Kensington	97.9	96.7	99.2	99.0	99.2
Lewisham			94.5	85.1	95.2
Marylebone Road	97.7	98.5	98.6	97.5	97.5
London Southwark	95.5		84.4	95.3	95.3
Southwark Roadside	86.2		86.6		86.3
Sutton Roadside	32.7	32.8	33.0		32.9
London Sutton			33.1	33.1	
Tower Hamlets Roadside	98.8		98.6		
London Wandsworth			98.4	99.2	

Table 5: Hourly Data Capture % for January to December 2002

#### 3.1 Hounslow Roadside

##### 3.1.1.1 Carbon Monoxide 85%, Nitrogen Oxides 86%

16<sup>th</sup> November – 31<sup>st</sup> December 2002 1096 Hours

This site was housed in a local authority building that is now due to be sold. This has necessitated its relocation to a cabin at the roadside of the A4 adjacent to the M4 flyover.

#### 3.2 London Southwark

##### 3.2.1.1 Nitrogen Oxides 84%

1<sup>st</sup> October – 5<sup>th</sup> October 2002 102 Hours

A communications fault led to data not being collected and subsequently overwritten by the on site logger.

20<sup>th</sup> October – 31<sup>st</sup> December 2002 1731 Hours

The PMT cooler has malfunctioned, the ESU is presently waiting for a replacement part.

#### 3.3 Southwark Roadside

##### 3.3.1.1 Carbon Monoxide 86%, Nitrogen Oxides 87%, Sulphur Dioxide 86%

16<sup>th</sup> May – 29<sup>th</sup> May 2002 310 Hours

An air conditioning unit failure led room temperatures increasing to above the operational range of the analysers. The equipment was switched off to prevent any long term damage occurring.



9<sup>th</sup> July – 9<sup>th</sup> August 2002 738 Hours

An air conditioning unit failure led room temperatures increasing to above the operational range of the analysers. The equipment was switched off to prevent any long term damage occurring.

### **3.4 Sutton Roadside**

#### **3.4.1.1 *PM<sub>10</sub>, Carbon Monoxide, Nitrogen Oxides, Sulphur Dioxide 33%***

2<sup>nd</sup> March – 31<sup>st</sup> December 2002 5097 Hours

The local authority had to withdraw funding from this site necessitating its closure.

### **3.5 London Sutton**

#### **3.5.1.1 *Nitrogen Oxides, Ozone 33%***

2<sup>nd</sup> March – 31<sup>st</sup> December 2002 5100 Hours

The local authority had to withdraw funding from this site necessitating its closure.

## 4 Pollutant Concentrations

Figure 1 to Figure 6 show the rolling annual mean concentrations (calculated on a monthly basis) since the network was set up in April 1996.

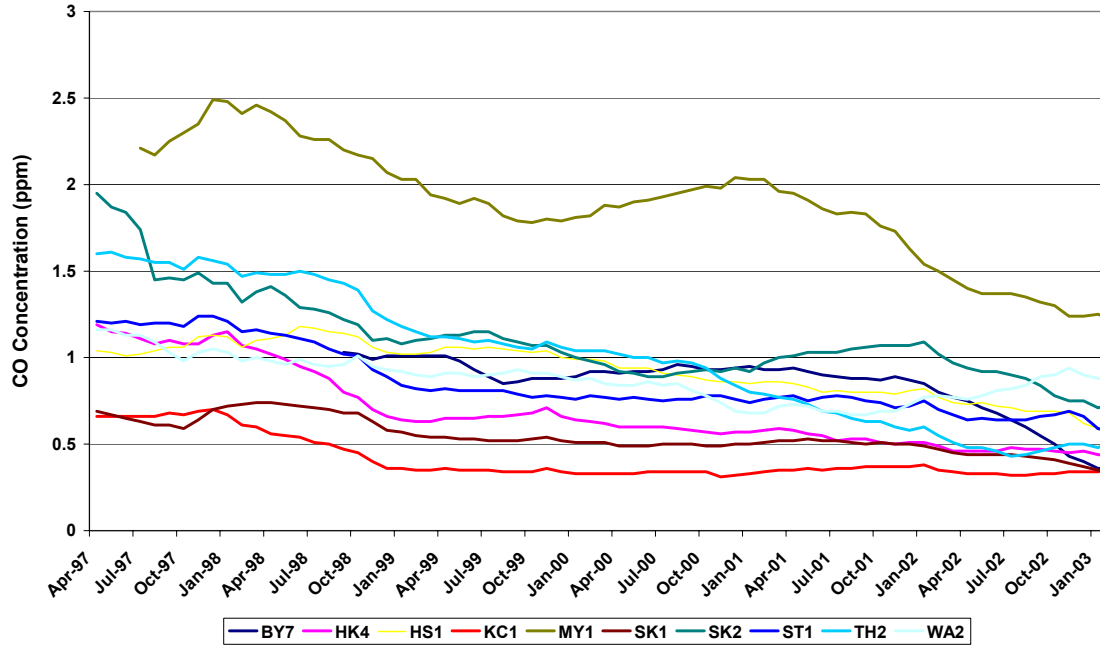


Figure 1: CO Rolling Annual Mean

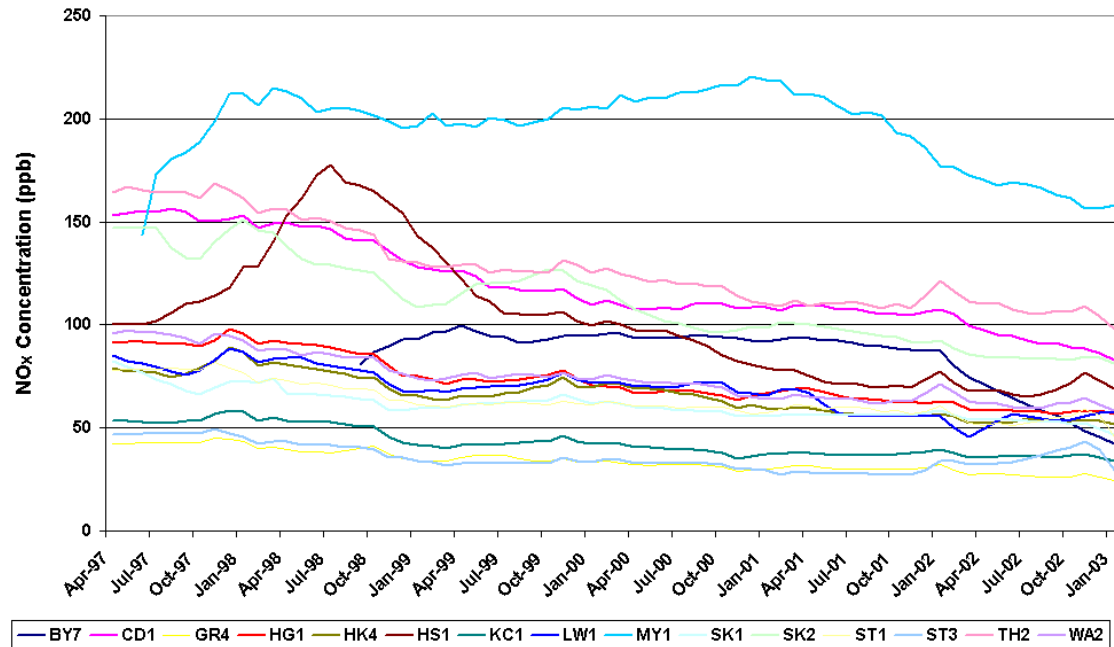


Figure 2: NO<sub>x</sub> Rolling Annual Mean

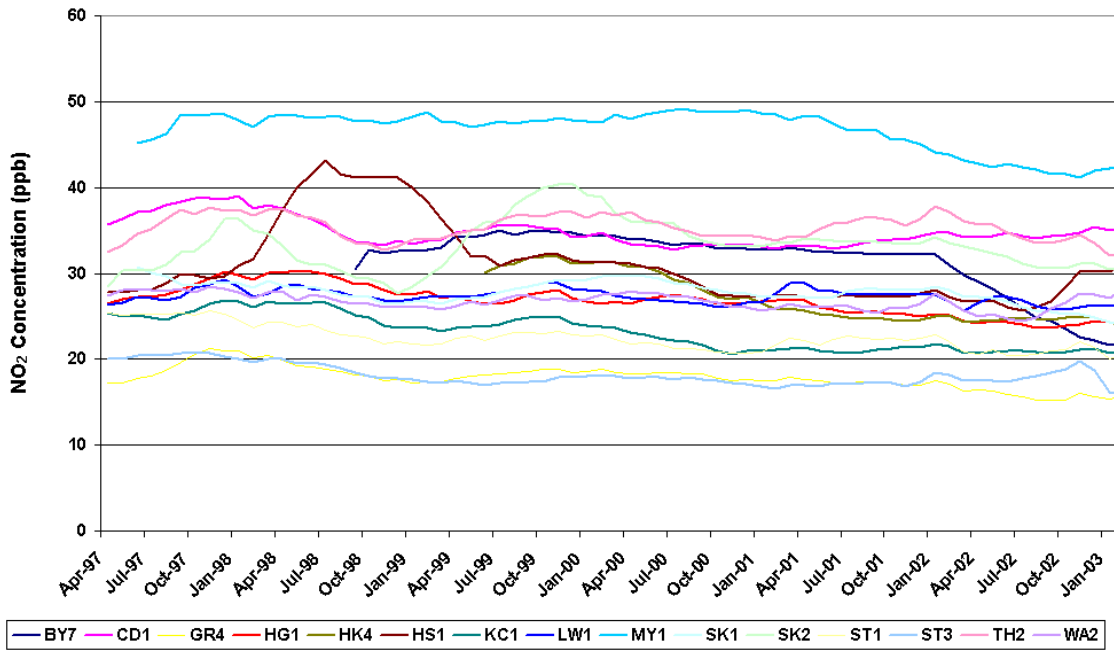


Figure 3: NO<sub>2</sub> Rolling Annual Mean

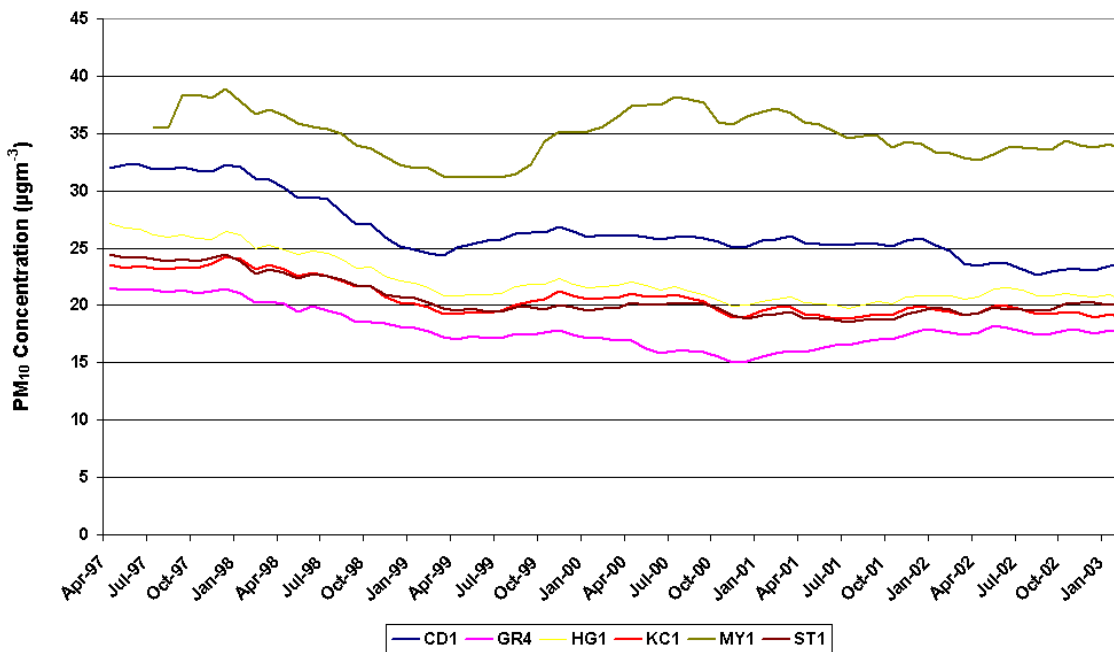


Figure 4: PM<sub>10</sub> Rolling Annual Mean

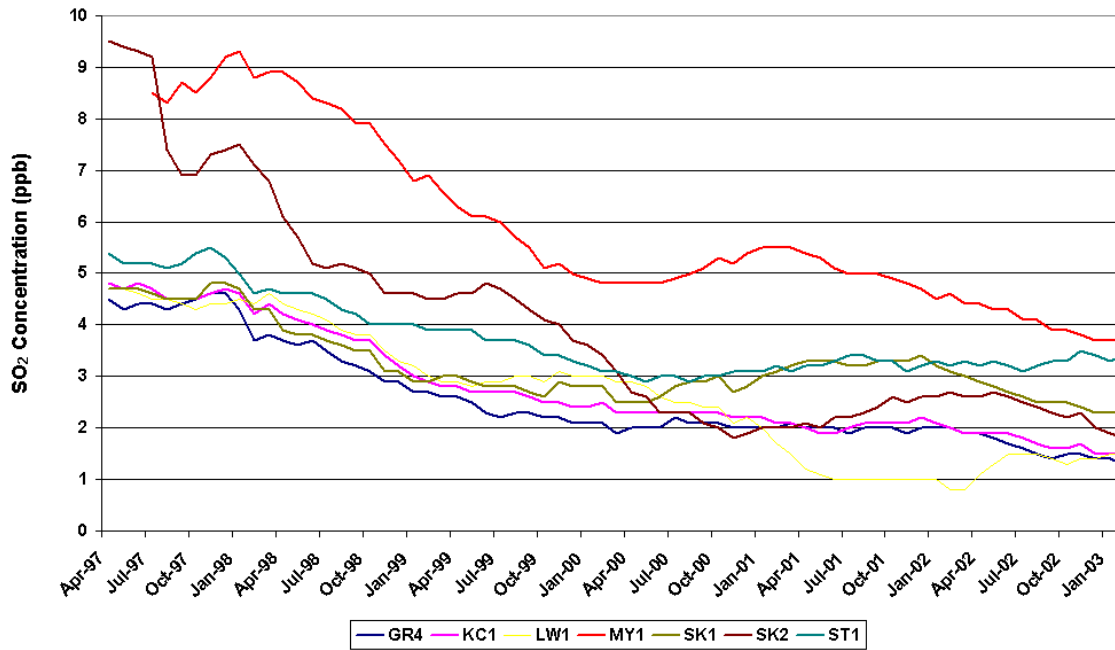


Figure 5: SO<sub>2</sub> Rolling Annual Mean

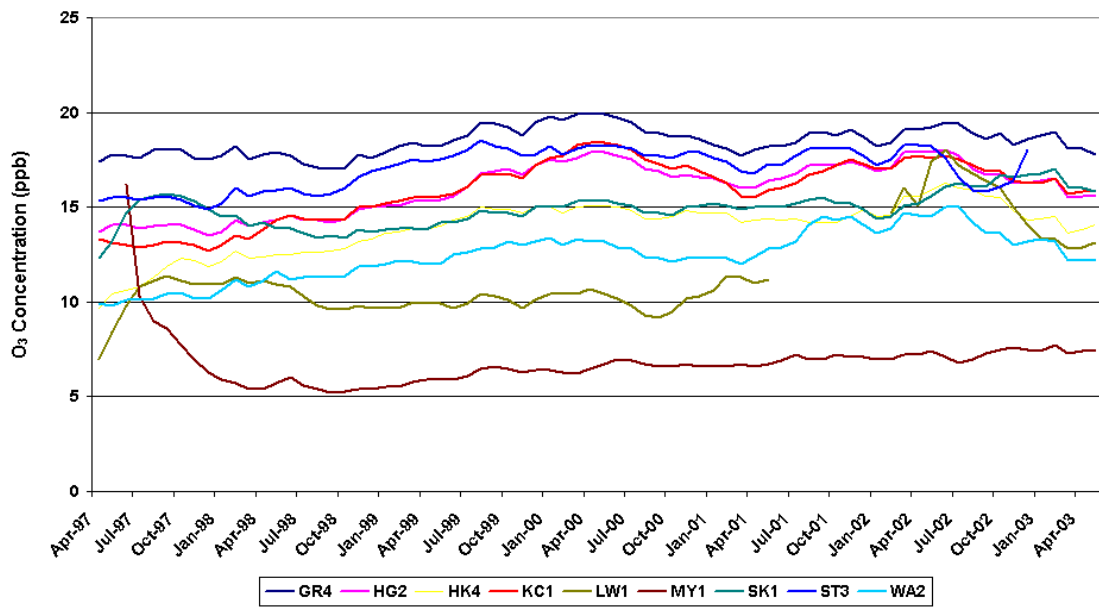


Figure 6: O<sub>3</sub> Rolling Annual Mean