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Air Quality Data in 2006

The Comparison of Cities and Regions in Europe

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Einführung

Die Bekämpfung der Luftverschmutzung ist auch noch heute eines der zentralen Themen, mit denen Umweltämter, Umweltbehörden bzw. sonstige für den Umweltschutz tätige Organisationen beschäftigt sind. In Form von regionalen oder nationalen Luftreinhalteplänen versucht man, die Luftverschmutzung in den Griff zu bekommen und Luftqualität sukzessive zu verbessern. In den letzten Jahren ist die Belastung an Feinstaub (PM_{10}) und Stickoxiden besonders in den Mittelpunkt des Interesses gerückt, da die Grenzwerte für diese Luftschadstoffe in den meisten Ballungsräumen überschritten werden.

Um überhaupt den Erfolg von Sanierungsmaßnahmen nachweisen zu können, ist die Beobachtung der Schadstoffkonzentrationen mit Hilfe von Luftmessnetzen sinnvoll. In den meisten Messgebieten sind Luftmessnetze seit 2 bis 3 Jahrzehnten installiert, sodass bei einer Verfolgung der Luftschadstoffdaten über mehrere Jahre ein Trend zur Verbesserung (oder auch Verschlechterung?) der Luftbelastung herauslesbar sein sollte. Sanierungsmaßnahmen in Betrieben und bei anderen Emittentengruppen müssten sich jedenfalls langfristig in einer verminderten Immissionsbelastung an Luftschadstoffen manifestieren.

Die Verfolgung *längerer Zeiträume* zur Bestimmung des Belastungstrends ist unbedingt notwendig, da auf Grund von unterschiedlichen meteorologischen Einflüssen die Immissionsbelastungen außerordentlich stark schwanken können. Beispielsweise wird ein Monat mit vornehmlich regnerischer Witterung und viel Wind wesentlich geringere Immissionskonzentrationen aufweisen als ein Monat, in dem häufig Inversionswetterlagen vorherrschen.

Air Quality Data in 2006 The Comparison of Cities and Regions in Europe

Introduction

The fight against air-pollution is still one of the major topics to deal with of all organisations concerned with environmental affairs, such as national and local authorities. In the form of regional or national air-cleaning programmes it is tried to get air pollution under control as well as to increase the air quality step by step. During the last years the pollutant stress of fine particulates (PM_{10}) and nitrogen oxides has become of more and more importance, for the European air quality standards for these pollutants are exceeded in most of the agglomerations.

To prove the success of measurements of redevelopment at all, the observation of the concentrations of noxious compounds by means of monitoring station networks is useful. In most of the referred air-monitoring areas monitoring station networks have been installed for 2 – 3 decades. Thus following the air quality data through a longer period of years a trend for improvement (or even a change to the worse?) of the air-pollutant stress should be able to be recognized. Measurements of redevelopment in companies, factories and other groups of emission sources should manifest in a reduced immission stress of air pollutants.

It is absolutely necessary to determine the trends of pollution through a *longer period of time*, because due to various meteorological influences the immission stress can alter extremely. For instance, a month with mostly rainy weather conditions and high wind speeds will have much less immission concentrations than a month, where the formation of inversion layers can be observed often.

Luftgütevergleiche werden durch das Umwelt- und Technik-Center (früher: Amt für Natur- und Umweltschutz) bereits seit vielen Jahren durchgeführt, genau genommen seit 1989. Anfänglich wurden nur österreichische Städte miteinander verglichen. In den folgenden Jahren wurde der Städtevergleich auf immer mehr europäische Städte und Regionen wegen des großen Interesses ausgedehnt. Im Jahr 2006 wurden weiters Städte bzw. Regionen aus Deutschland, England, Frankreich, Belgien, Niederlande, Dänemark, Schweden, Italien, Schweiz, Spanien, Portugal, Polen, Bulgarien, Lettland und Kroatien mit einbezogen. Luxemburg konnte auf Grund technischer Probleme für die Jahre 2004, 2005 und 2006 keine Daten liefern. Ebenfalls keine Daten wurden von den Städten Budapest, Lyon und Sofia geliefert.

Die Städte Athen, Thessaloniki, Bukarest und Debrecen haben seit 8 Jahren keine Daten geliefert. Sollten diese noch eintreffen, werden sie in künftigen Städtevergleichen in Form von Zeitreihen mit berücksichtigt werden.

Comparisons of the air quality have been carried out by our organization already for a number of years, exactly since 1989. At first only Austrian Cities were compared. During the last years the comparison was extended to other European cities and regions, for there is much interest in such studies. The comparison of the air quality of the year in 2006 comprised cities and regions of Austria, Germany, cities from England, France, Belgium, Netherlands, Denmark, Sweden, Italy, Switzerland, Spain, Portugal, Poland, Bulgaria, Latvia and Croatia. Luxemburg was not able to contribute with immission date in 2004 and 2005 due to technical problems. Furthermore no data were sent to us by the cities of Budapest, Lyon and Sofia.

The cities Athens, Thessalonica, Bucharest and Debrecen did not deliver any data during the past 8 years. In the case of delivery to us they will be taken into account for future reports in terms of time series.

Kritische Anmerkungen

Als Kritikpunkt wird immer wieder angemerkt, dass ein Vergleich der Immissionsbelastung aus fachlichen Gründen nicht möglich ist, da

1. die Zahl der Messstellen sehr verschieden ist (die Anzahl der Messstellen pro Messgebiet ist in der Tabelle auf Seite 10 und den nachfolgenden Grafiken angeführt),
2. die Messstellendichte unterschiedlich ist,
3. die Situierung der Messstellen nicht immer vergleichbar ist (In manchen Städten hat man deswegen bei den Schadstoffkomponenten zwischen verkehrsbelasteten Messstationen und anderen Messstationen unterschieden).

Den Autoren sind sich dieser Tatsachen durchaus bewusst. Trotz der erhobenen Einwände gibt es einige Argumente für die Fortführung der Städtevergleiche:

Critical remarks

Over and over again there is critically remarked that a comparison of the pollutant stress between monitoring areas is not possible. The following technical reasons are mentioned by some monitoring network services:

1. The number of monitoring stations differs very much (the number of monitoring stations of each monitoring network is mentioned in the table on page 10 and the subsequent graphics),
2. the density of distribution of the monitoring stations is different,
3. the location of the monitoring station not always is comparable (for that reason in some cities the network services distinguished between traffic-stressed and non-traffic-influenced monitoring stations).

The authors of the comparative study are thoroughly conscious of these facts. But despite to the raised objections there are also some arguments of continuing the activities:

1. Die Luftschadstoffmessungen werden im allgemeinen technisch in der gleichen oder in ähnlicher Weise durchgeführt. Das bedeutet, dass die Luftüberwachung an bestimmten *Punkten* einer Stadt oder einer Region mit Hilfe automatisch registrierender Immissionsmessstationen durchgeführt werden. Die gemessenen Konzentrationen repräsentieren die Belastung eines mehr oder weniger weiten Bereiches um die Messstation. Die *Art der Probenahme* müsste also *vergleichbar* sein.

2. Die Luftgütestationen sollten an Punkten errichtet werden, die einen größeren Bereich um die Messstation abdecken und nicht nur die Schadstoffbelastung an einem bestimmten Punkt widerspiegeln. Ausgenommen sind besondere verkehrsbelastete Probenahmepunkte. Die Messnetzbetreiber wurden eingeladen, diese Messpunkte getrennt anzugeben, um die wirkliche Situation des überwachten Gebietes wiederzugeben. Wie bereits oben bemerkt, unterscheiden einige Städte zwischen verkehrsbelasteten und nicht vom Verkehr beeinflussten Messstationen.

3. Schließlich wird eine stärker objektivierende Basis der Auswertungen besonders dann erreicht, wenn man längere Zeiträume betrachtet und daraus die Trends der Entwicklung der Schadstoffimmissionen abliest. Nachdem die Stadt Linz internationale und nationale Städtevergleiche schon seit einigen Jahren durchführt, wurden in diesen Bericht für die Jahresmittelwerte auch die mehrjährige *Trendentwicklung* der Schadstoffbelastung seit 1993 für die einzelnen Immissionsgebiete mit aufgenommen. Die Daten von Städten bzw. Regionen, die erst seit kurzem im Städtevergleich integriert sind, wurden dabei auch so weit wie möglich nachgeführt.

1. The kind of measurement of air pollutants is carried out by the same ore similar technical methods. This means that the results of air monitoring activities are obtained by sampling at special sampling *points* in a city or region by means of automatically recording monitoring stations. The measured concentrations represent the stress of a more or less wide area around the monitoring station. Due to this reason the *method of sampling* itself should be *comparable*.

2. The monitoring stations should be located at points that represent a wider portion of the monitored area, not only the pollution stress representative for a focal point. Exceptions are specially traffic stressed sampling points. The monitoring station network services were invited to separate such monitoring points in order to reproduce the real situation of the monitored area. As already mentioned above, some cities distinguish between traffic-stressed and non-traffic-influenced monitoring stations.

3. And finally the evaluations are put to a more objectified basis, if one observes longer term developments and derives from these the trends of the pollutant immissions. Since the city of Linz has been carrying out comparisons of the air quality for years, in this report the *trend developments* for the annual mean value since 1993 for all immission regions have been included. The data of cities or regions that only have been participating the comparison since a couple of years, have been updated far as back as possible

Immissionskenngrößen

In der vorliegenden Studie wurden verschiedene Immissionskenngrößen erhoben:

- Jahresmittelwert (Mittel aus allen Stationen einer Stadt/Region)
- Max. Monatsmittelwerte (höchstbelastete Station einer Stadt/Region)
- Max. Tagesmittelwert (höchstbelastete Station einer Stadt/Region)
- Max. 3-Stunden-Mittelwert (höchstbelastete Station einer Stadt/Region)
- Max. Einstunden-Mittelwert (höchstbelastete Station einer Stadt/Region)
- Max. Halbstunden-Mittelwert (höchstbelastete Station einer Stadt/Region)
- Max. 98-Percentil/Jahr (höchstbelastete Station einer Stadt/Region)
- Anzahl der Überschreitungen des PM_{10}-Tagesgrenzwertes an der höchstbelasteten Messstation
- Anzahl der Überschreitungen des NO_2-Grenzwertes für den 1h-Mittelwert an der höchstbelasteten Messstation

Von den einzelnen Messnetzbetreibern wurden die gewünschten Immissionsdaten in sehr unterschiedlicher Vollständigkeit zur Verfügung gestellt. Insbesondere betrifft dies die Perzentil-Auswertungen und manchmal auch die Auswertungen für max. HMW oder max. 3h-MW. Oftmals ist auch nicht das 98-Percentil verfügbar, sondern es werden andere Perzentilgrößen (z. B. 95-Percentil) gebildet. Die meisten Messnetzbetreiber berechnen die Perzentile aus den Halbstunden-Mittelwerten eines Jahres, manchmal werden jedoch auch die Tagesmittelwerte dafür herangezogen.

Der vorliegende Bericht ist bei den grafischen Auswertungen kürzer gefasst als die vorhergehenden Luftgütevergleiche. Herausgenommen wurden die grafischen Darstellungen für die Percentile, die max. 3-Stunden-Mittelwerte, die max. Halbstundenmittelwerte und die max. Monatsmittelwerte, da sie im allgemeinen von nicht so starkem öffentlichen Interesse sind. Neu aufgenommen hingegen wurden die grafischen Auswertungen über 1-Stunden-Mittelwerte, die nunmehr fast überall die Norm für die Bewertung von Kurzzeitbelastungen darstellen.

Sämtliche für Grafiken und nicht für Grafiken

Immission reference values

The present study various immission reference values have been surveyed, such as:

- annual mean value (mean of all monitoring stations of a city/region)
- max. monthly mean value (max. stressed monitoring station of a city/region)
- max. daily mean value (max. stressed monitoring station of a city/region)
- max. 3-hours mean value (max. stressed monitoring station of a city/region)
- max. 1-hours mean value (max. stressed monitoring station of a city/region)
- max. 1/2-hours mean value (max. stressed monitoring station of a city/region)
- max. 98-Percentile/year (max. stressed monitoring station of a city/region)
- Number of violations of the PM_{10} daily mean standard at the highest stressed monitoring station
- Number of violations of the NO_2 1h mean standard at the highest stressed monitoring station

The individual monitoring network services supported us with immission data of very different completeness, especially referring to the evaluation of the percentiles or sometimes the evaluations of the max. 1/2-hours mean-value or the max. 3-hours mean-value. Often the 98-Percentile was not available but the value for the 95-Percentile was given. Most of the monitoring network services calculate the percentiles from the 1/2-hours mean values of a calendar year, sometimes they were based on the daily mean values.

The present report has been shortened regarding the graphical evaluations of immission reference values. The graphical presentation of percentiles, max. 3h mean values, max. monthly mean values, 1/2h mean values has not been carried out any more, for they seem not to be of such a public interest as others. On the other hand a new graphical evaluation has been added: Max. 1h mean values, the evaluation standard now for short term stress nearly everywhere.

All values used for graphics and also not used for

verwendete Werte können nach wie vor aus den Übersichtstabellen im Anhang entnommen werden.

graphical evaluation can be obtained from the over view tables of the annex.

Verglichene Luftschadstoffe

Folgende Luftschadstoffe wurden miteinander verglichen:

SO_2, CO, NO, NO_2, O_3, Feinstaub (PM_{10})

Anmerkung:
Schwebestaub (TSP) wurde nicht mehr ausgewertet, da die Messungen in den einzelnen Messgebieten mittlerweile durch PM_{10}-Messungen ersetzt worden sind.

Pollutants compared

The following air pollutants have been compared:

SO_2, CO, NO, NO_2, O_3, fine particulates (PM_{10})

Remark:
TSP has not been evaluated any more due to the fact that in most monitoring networks the TSP measurements are replaced by monitoring of PM_{10}.

Mehrjahresvergleich

Ein gutes Bild über die Entwicklung der Luftbelastung geben die Grafiken wieder. Dabei wurden von den am Luftgütevergleich teilnehmenden Städte die Entwicklung der Immissionsbelastung von 1993 bis 2006 aufgetragen.

Wenn man die Daten analysiert, können folgende Aussagen getroffen werden:

1. Einige Städte und Regionen haben ein sehr dichtes Messstellennetz bezogen auf die Größe des Immissionsgebietes. Beispiele: Berlin, Linz, Wien. Andererseits werden manchmal sehr große Gebiete durch eine geringe Zahl von Messstationen überwacht.
2. Aufgrund dieser Tatsache ist die Vergleichbarkeit einzelner Regionen begrenzt.
3. Die Belastung (Jahresmittelwerte) einzelner Regionen und Städte ist noch immer sehr unterschiedlich.
   Bei einigen Städten kann man erkennen, dass in jenen Situationen, bei denen 1993 relativ hohe Immissionsbelastungen registriert wurden, seitdem oftmals eine deutlich sichtbare Besserung der Immissionssituation eingetreten ist, während in Städten mit niedriger Immissionsbelastung im Vergleich dazu nahezu keine Änderung der Luftbelastung eingetreten ist.
4. Es zeigt sich, dass in immer mehr Städten und Regionen die Schwebstaub (TSP)-Messungen abgeschaltet werden. Andererseits werden diese Messungen immer mehr

Comparison over a period of years

One can get a good impression of the development of the air pollutant stress by studying the graphics. For this the immission stress for the area of each participating city and region from 1993 through 2006 are plotted.

The following statements can be given in analysing the data:

1. Some cities and regions have - according to the area - a very high monitoring network density. Examples: Berlin, Linz, Vienna. On the other hand very large areas are monitored only by a little number of stations.
2. Due to this fact the comparability between regions is limited.
3. The range of the annual mean immission stress still is very different between the viewed cities and regions.
   In some cities it can be seen that where the pollution stress in 1993 was relatively high, there often has been a visible betterment of the immission situation, while in cities with low immission stress compared to other cities and regions there was nearly no change in air pollution.
4. It can be seen that more and more cities and regions do not monitor TSP any more. On the other hand the percentage of monitoring networks including the pollutant PM_{10} increasing

durch Feinstaub (PM_{10}-Messungen abgelöst). TSP-Messungen wurden daher im vorliegenden Vergleich nicht mehr miteinbezogen.	rapidly. So TSP measurements have not been included in the present report any more.
5. Entwicklung der Langzeitbelastung (Jahresmittelwerte SO_2, Schwebestaub (TSP) (nur bis 2004!), NO, NO_2, CO, und O_3) gegenüber 1993 (PM_{10}: gegenüber 2001):	5. Development of the air pollution stress (annual mean values of SO2, TSP (only until 2004!), NO, NO_2, CO, O_3) in comparison with 1993 (for PM_{10}: comparison with 2001):
SO_2: Nahezu alle Regionen *geringer* belastet	SO_2: Nearly all regions *less* stressed
Staub: TSP-Messung in nahezu allen Regionen eingestellt. Wenn vorhanden, ist die Tendenz zu *geringeren* Belastungen (Vergleich nur bis 2004).	TSP: Nearly no TSP-measurements any more. If there is still monitoring, regions are *less* stressed in tendency (Comparison only up to 2004).
PM_{10}: Belastungen tendenziell *gleich bleibend* oder fallweise *leicht erhöht*	PM_{10}: trend is constant or *slightly higher* stressed
NO: uneinheitlich, tendenziell *geringer* belastet oder *gleich bleibend*	NO: non-uniform, trend of lower stress or staying constant
NO_2: uneinheitlich, tendenziell *gleich bleibend, oder leicht höher* belastet	NO_2: non-uniform, trend is constant or *slightly higher* stressed
CO: Nahezu alle Regionen *geringer* belastet	CO: nearly all regions *lower* trend of stress
O_3: uneinheitlich, tendenziell *geringer* belastet oder *gleich bleibend*	O_3: non-uniform, trend is constant or *slightly higher* stressed

Übersicht über die Entwicklung der Schadstoffbelastungen 1993 -2006 [1)]

Beurteilungsbasis: Jahresmittelwerte über alle Stationen einer Region

Overview over the development of the stress of air pollutants from 1993 through 2006 [1)]

based on the mean of all annual mean values of a region

Austrian Towns, Cities and Regions

	SO_2			NO			NO_2			CO			O_3		
	Stress in 1993 [2)]	Trend last 5 years	Stress in 2006	Stress in 1993 [2)]	Trend last 5 years	Stress in 2006	Stress in 1993 [2)]	Trend last 5 years	Stress in 2006	Stress in 1993 [2)]	Trend last 5 years	Stress in 2006	Stress in 1993 [2)]	Trend last 5 years	Stress in 2006
Linz		==			==			↗			↘			==	
Bludenz		-	2004	1994	↗			↗		-	-	-	1994	↘	
Dornbirn		==		1994	==			↘		1998	-	2003	-	-	-
Graz		↘		1994	↘			==			↘			↘	
Hallein		↗		-	-			↘			↘			==	
Innsbruck		↘			↗			↗			↘			↘	
Klagenfurt		↘			↘			==			==			==	
Region Leoben		↘			↘			↘			↗			==	
Salzburg		↘		-	-			↗			↘			==	
St. Pölten	1994	↓		**1994**	↑		1994	↗		1994	↗		1994	==	
Vienna		↘		**1994**	==			==			==			==	
Villach		↘			==			↗			↘			==	

[1)] TSP measurements are mostly replaced by PM_{10} monitoring (see page 13). So no comparison of TSP has been carried out since 2004. If you are interested in TSP-values until 2005 please refer to the report of 2005 (available via internet, URL http://www.linz.at/umwelt/4109.asp)

[2)] Or year, when data were primarily available

European Cities and Regions

	SO_2			NO			NO_2			CO			O_3		
	Stress in 1993 [3]	Trend last 5 years	Stress in 2006	Stress in 1993 [4]	Trend last 5 years	Stress in 2006	Stress in 1993 [4]	Trend last 5 years	Stress in 2006	Stress in 1993 [4]	Trend last 5 years	Stress in 2006	Stress in 1993 [4]	Trend last 5 years	Stress in 2006
Barcelona	1994	↘		1994	🡻		1994	==		1994	↘		1994	==	
Basel		↘			==			==			-	1999		==	
Belfast		↘			==			↗			↘			==	
Berlin		↘			==			↗			↘			==	
Birmingham		↘			↗			↗			↘			==	
Bristol		🡻			↗			🡹			🡻			↗	
Brussels	1995	↘		1995	↘		1995	==		1995	↘		1995	↗	
Budapest	1996	-	2005	2003	-	2005	2003	-	2005	2005	-	2005	2003	-	2005
Chemnitz		==			↗			↗			↘			==	
Copenhagen		↘		1994	-	2005	1995	==		1998	↘		1994	↗	
Debrecen		-	2001	1995	-	2001		-	2001		-	2001		-	2001
Dresden		==			↗			==			↗			↗	
Edinburgh		↘			🡻			🡻			🡻			↗	
Frankfurt		==			↗			↗			==			==	
Gothenburg		==			↘			==			↘			==	
Hamburg		==			↘			==			↘			↗	
Karlsruhe		==			↘			↘			-	2005		↗	
Leeds		🡻			↘			↘			🡻			↗	
Leipzig		↘			↘			↗			↘			↗	
Lisbon	1997	↘		-	==		1997	↗		1997	↘		1997	==	
Liverpool		==			↘			↘			🡻			==	
London		↘			↘			==			↘			↗	
Luxemburg	1996	-	2003	1996	-	2003	1996	-	2003	1996	-	2003	1996	-	2003

[3] … or year when data were primarily available

	SO_2			NO			NO_2			CO			O_3		
	Stress in 1993 [4]	Trend last 5 years	Stress in 2006	Stress in 1993 [6]	Trend last 5 years	Stress in 2006	Stress in 1993 [6]	Trend last 5 years	Stress in 2006	Stress in 1993 [6]	Trend last 5 years	Stress in 2006	Stress in 1993 [6]	Trend last 5 years	Stress in 2006
Lyon		-	2005		-	2005		-	2005	1994	-	2005	1994	-	2005
Madrid	1994	==		1999	↘		1994	==		1994	↘		1994	==	
Mannheim		==			↘			↘			-	2005	2005	==	
Milan	1994	↘		1994	↘		1994	==		1994	↘		1994	==	
Munich		==			↗			↗			↘			==	
Riga	1999	↗		-	-	2004	1999	↗		-	↘		1999	↘	
Rhine/Ruhr Area		-	2005		-	2005		-	2005		-	2005		-	2005
Rotterdam	1995	==		1995	↗		1995	==		2003	↘		1995	==	
Sofia	1999	-	2005	2003	-	2005	1999	-	2005	1999	-	2005	1999	-	2005
Stockholm		==		1994	-	2004	1994	↗		1994	↘			==	
Warsaw	1995	==		2001	↗		1995	↗		1995	==		1995	==	
Wiesbaden		==			↗			↗			↗			↗	
Zagreb		↓		-	-	-	1994	==		2005	-	-	1999	↘	
Zurich		↘			==			↗			↘			↗	

Legend:

- slightly stressed (SO_2 < 15, TSP < 30, NO < 30, NO_2 < 30, CO < 1000, O_3 < 30 µg/m³)
- Medium stressed (SO_2 < 30, TSP < 60, NO < 60, NO_2 < 60, CO < 2000, O_3 < 60 µg/m³)
- Highly stressed (SO_2 > 30, TSP > 60, NO > 60, NO_2 > 60, CO > 2000, O_3 > 60 µg/m³)
- - missing data

↘ slight stress decrease
↓ strong stress decrease
↓↓ very strong stress decrease
== constant stress
↗ slight stress increase
↑ strong stress increase

[4] … or year when data were primarily available

	PM10		
	Stress in 2002 [7]	Trend of 5 years	Stress in 2006 [8]
Linz		↗	
Bludenz	-	-	
Dornbirn		↗	
Graz		↘	
Hallein		↗	
Innsbruck		==	
Klagenfurt		↘	
Region Leoben	2003	==	
Salzburg		↗	
St. Pölten		↗	
Vienna		↗	
Villach		==	
Barcelona		↗	
Basel		↘	
Belfast		==	
Berlin		==	
Birmingham		↗	
Bristol		↗	
Brussels		↘	
Budapest	2004	-	2005
Chemnitz		↗	
Copenha-gen		↘	
Dresden		==	
Edinburgh		==	

	PM10		
	Stress in 2002 [7]	Trend of 5 years	Stress in 2006 [8]
Frankfurt		↘	
Gothenburg		↗	
Hamburg		==	
Karlsruhe		↘	
Leeds		↗	
Leipzig		↗	
Lisbon		==	
Liverpool		↗	
London		↗	
Luxemburg		-	2003
Lyon		-	2005
Madrid		↗	
Mannheim		↘	
Milan		↗	
Munich		↘	
Riga		==	
Rhine-/Ruhr Area		-	2005
Rotterdam		↓	
Sofia		-	2005
Stockholm		==	
Warsaw		↗	
Wiesbaden		↘	
Zagreb		↗	
Zurich		==	

Legend:

- slightly stressed (PM_{10} < 20 µg/m³)
- Medium stressed (PM_{10} < 40 µg/m³)
- Highly stressed (PM_{10} > 40 µg/m³)
- missing data

[7] If values of 2001 are not available, data of the year mentioned are compared.

[8] If values of 2005 are not available, data of the year mentioned are compared.

Anzahl der Tage mit Überschreitungen des PM_{10}-Tagesmittelwertes von 50 µg/m³ in den Jahren 2001 bis 2006 [7)]

Beurteilungsbasis: Anzahl der Überschreitungen an der höchstbelasteten Station eines Messgebietes (einschließlich verkehrsbelastete Stationen) [8)]

Number of days with exeedances of the PM_{10} daily mean of 50 µg/m³ in 2001 through 2006 [9)]

based on the number of exeedances at the peak stressed monitoring station of a region(including traffic stressed stations) [10)]

	PM_{10}					
	number of days >50 µg/m³					
	2001	2002	2003	2004	2005	2006
Linz	62	66	80	46	68	71
Bludenz	-	-	-	-	13	45
Dornbirn	-	-	38	21	22	40
Graz	159	131	131	117	127	113
Hallein	-	28	49	26	27	50
Innsbruck	-	50	61	52	55	83
Klagenfurt	36	58	74	80	82	79
Region Leoben	26	7	42	29	36	49
Salzburg	-	34	62	34	39	56
St. Pölten	-	?	58	79	87	57
Vienna	-	57	95	54	92	108
Villach	-	24	35	25	29	45
Barcelona	-	86	-	47	74	100
Basel	11	22	23	16	15	24
Belfast	16	7	33	8	5	7
Berlin	60	91	117	62	74	71
Birmingham	2	1	5	4	5	9
Bristol	7	1	9	12	4	6
Brussels	52	153	163	127	67	56
Budapest	-	-	-	178	160	-
Chemnitz	41	20	35	12	59	65
Copenhagen	-	59	91	-	-	-
Dresden	53	36	53	27	78	49
Edinburgh	3	8	2	0	3	2
Frankfurt	42	44	51	19	48	24
Gothenburg	1	10	12	2	7	13
Hamburg	33	43	62	20	45	31
Karlsruhe	6	33	33	25	22	34
Leeds	3	3	9	4	15	10
Leipzig	109	63	92	49	82	74

7 Bei den Werten wurden bereits die Korrekturfaktoren berücksichtigt. Diese sind aus den Tabellen im Anhang zu ersehen.

8 Nähere Details zur Unterscheidung zwischen verkehrsbelasteten Stationen und sonstigen urbanen Messstationen siehe Tabellen am Ende des Berichtes bzw. diverse grafische Auswertungen.

9 For the number of exeedances the correction factors already have been considered. One can refer to the tables at the end of the report.

10 For further details for distinguishing between traffic stressed station and other urban monitoring stations see tables at the end of the report and graphical evaluations.

	PM_{10}					
	number of days >50 µg/m³					
	2001	2002	2003	2004	2005	2006
London	28	29	61	107	121	157
Lisbon	230	222	183	147	180	145
Liverpool	4	2	1	14	5	8
Lyon	-	83	124	71	153	-
Madrid	-	98	-	121	159	181
Mannheim	25	44	36	41	43	20
Milan	148	177	137	139	152	149
Munich	64	75	123	59	107	92
Riga	57	74	105	160	88	244
Rhine-/Ruhr Area	40	48	58	38	21	-
Rotterdam	98	103	123	54	30	31
Sofia	-	-	225	178	162	-
Stockholm	101	113	80	80	80	74
Warsaw	-	-	89	184	162	192
Wiesbaden	15	35	19	11	18	32
Zagreb	-	-	-	75	89	134
Zurich	18	23	38	23	15	39

Anzahl der Überschreitungen des 1h-Grenzwertes für NO_2 von 200 µg/m³ im Jahr 2006

Beurteilungsbasis: Anzahl der Überschreitungen an der höchstbelasteten Station eines Messgebietes

Number exeedances of the NO_2 1h mean value of 200 µg/m³ in 2006

based on the number of exeedances at the peak stressed monitoring station of a region

	NO_2 number of 1 h mean values >200 µg/m³		
	2004	2005	2006
Linz	0	1	4
Bludenz	0	0	0
Dornbirn	-	0	0
Graz	0	0	4
Hallein	0	0	1
Innsbruck	0	0	4
Klagenfurt	-	1	1
Region Leoben	0	0	0
Salzburg	0	0	2
St. Pölten	0	0	0
Vienna	8	24	26
Villach	0	0	0
Barcelona	13	-	18
Basel	0	0	0
Belfast	0	4	5
Berlin	-	-	-
Birmingham	0	2	0
Bristol	0	22	13
Brussels	24	90	2
Budapest	1	25	-
Chemnitz	1	0	0
Copenhagen	-	-	-
Dresden	0	0	0
Edinburgh	0	0	0

	NO_2 number of 1 h mean values >200 µg/m³		
	2004	2005	2006
Frankfurt	0	10	3
Gothenburg	2	2	7
Hamburg	0	15	26
Karlsruhe	5	0	0
Leeds	0	0	0
Leipzig	1	0	0
Liverpool	0	0	0
Lisbon	52	35	80
London	542	853	686
Luxemburg	-	-	-
Lyon	35	126	-
Madrid	83	122	208
Mannheim	0	0	0
Milan	47	25	123
Munich	11	35	103
Riga	0	0	0
Rhine-/Ruhr Area	0	0	-
Rotterdam	10	1	2
Sofia	7	25	-
Stockholm	0	2	1
Warsaw	0	0	5
Wiesbaden	0	3	2
Zagreb	0	0	0
Zurich	0	0	0

Anzahl der Messstellen ***Number of monitoring stations***

Country	Monitored Area	SO_2	PM_{10}	NO	NO_2	CO	O_3
Austria	Bludenz	-	1	1	1	-	-
	Dornbirn	1	1	1	1	-	-
	Graz	4	4	5	5	3	4
	Hallein	2	1	2	2	1	1
	Innsbruck	1	2	2	2	1	1
	Klagenfurt	1	2	2	2	2	2
	Region Leoben	3	3	3	3	1	1
	Linz	5	6	7	7	6	3
	Salzburg	3	3	3	3	2	2
	St. Pölten	1	2	2	2	1	1
	Vienna	10	13	17	17	4	5
	Villach	1	1	1	1	1	1
Belgium	Brussels	7	6	11	11	7	7
Bulgaria	Sofia (2005)	5	5	4	5	4	3
Croatia	Zagreb	9	9	-	8	3	6
Denmark	Copenhagen	1	3	-	3	3	3
France	Lyon (2005)	10	8	12	12	5	6
Germany	Berlin	8	11	13	13	9	7
	Chemnitz	1	3	3	3	1	1
	Dresden	2	4	4	4	1	3
	Frankfurt	4	4	4	4	3	4
	Hamburg	13	12	17	17	7	6
	Karlsruhe	1	2	2	2	-	1
	Leipzig	1	3	3	3	1	1
	Mannheim	3	3	3	3	-	3
	Munich	2	6	7	7	6	3
	Rhine/Ruhr Area (2005)	16	27	26	26	1	18
	Wiesbaden	1	2	2	2	2	1
Hungary	Budapest	7	9	11	11	10	9
Italy	Milan	1	2	8	8	5	3
Latvia	Riga	3	2	-	3	1	3
Luxemburg	Luxemburg (2003)	2	1	2	2	1	2
Netherlands	Rotterdam	9	6	6	6	2	5
Poland	Warsaw	11	11	8	10	5	4
Portugal	Lisbon	5	3	7	7	7	4
Spain	Barcelona	4	5	5	5	5	5
	Madrid	25	25	25	25	23	24
Switzerland	Basel	1	1	1	1	-	1
	Zurich	1	1	1	1	1	1
Sweden	Gothenburg	2	1	1	2	1	2
	Stockholm	2	4	-	4	1	1

Anzahl der Messstellen Number of monitoring stations

Country	Monitored Area	SO_2	PM_{10}	NO	NO_2	CO	O_3
U.K.	Belfast	2	2	1	1	1	1
	Birmingham	2	2	2	2	2	2
	Bristol	1	1	2	2	1	1
	Edinburgh	1	1	1	1	1	1
	Leeds	1	1	1	1	1	1
	Liverpool	1	1	1	1	1	1
	London	12	11	23	23	16	15

Quellen für die Immissionsdaten Sources for the immission data

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Homepage: *http://www.wien.at/ma22/luftgue.html*

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Luftgütevergleich

2006

Jahresmittelwert (Gebietsmittel)

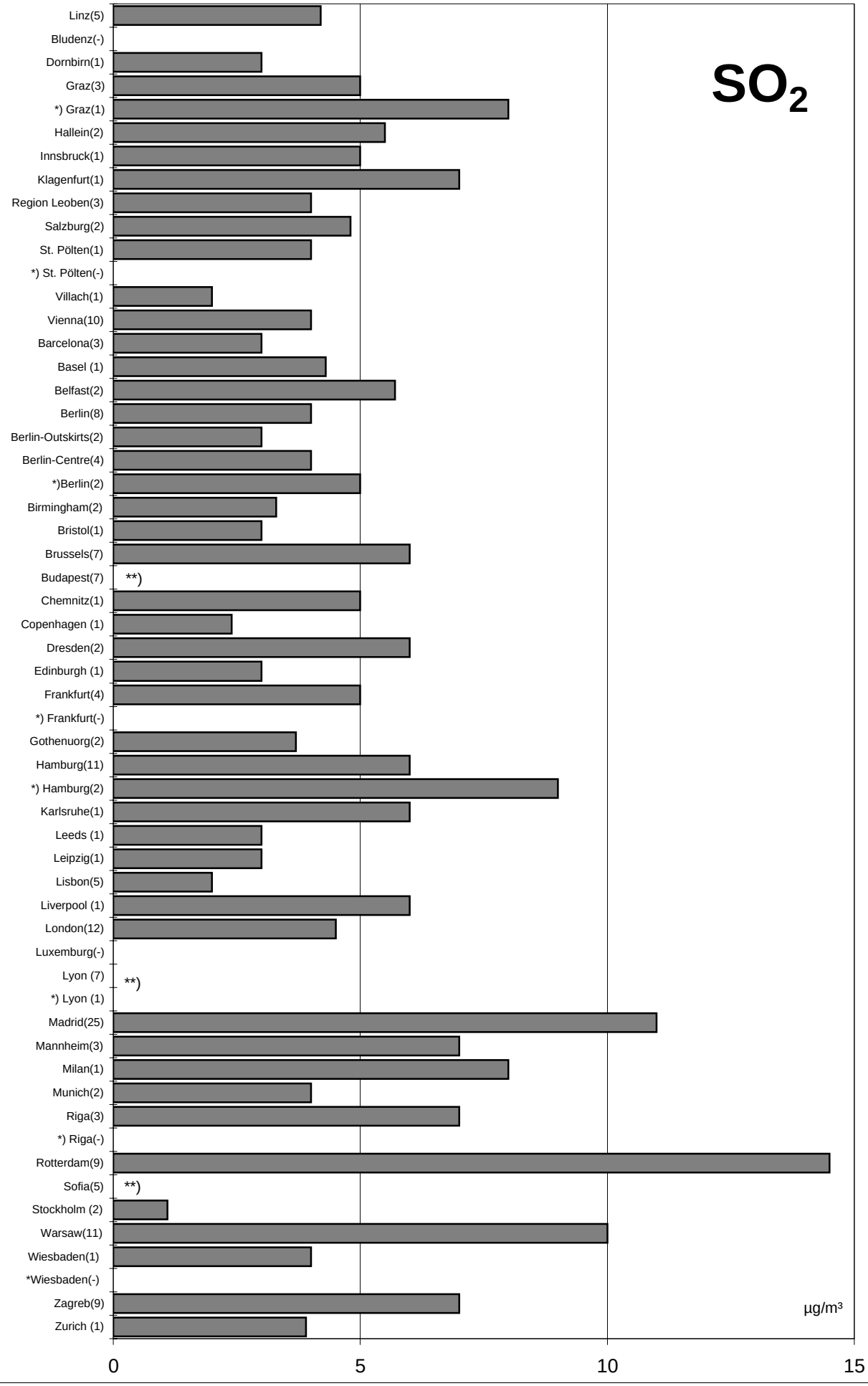
Comparison of The Air Quality

2006

Annual Mean Values

Comparison of The Air Quality in 2006

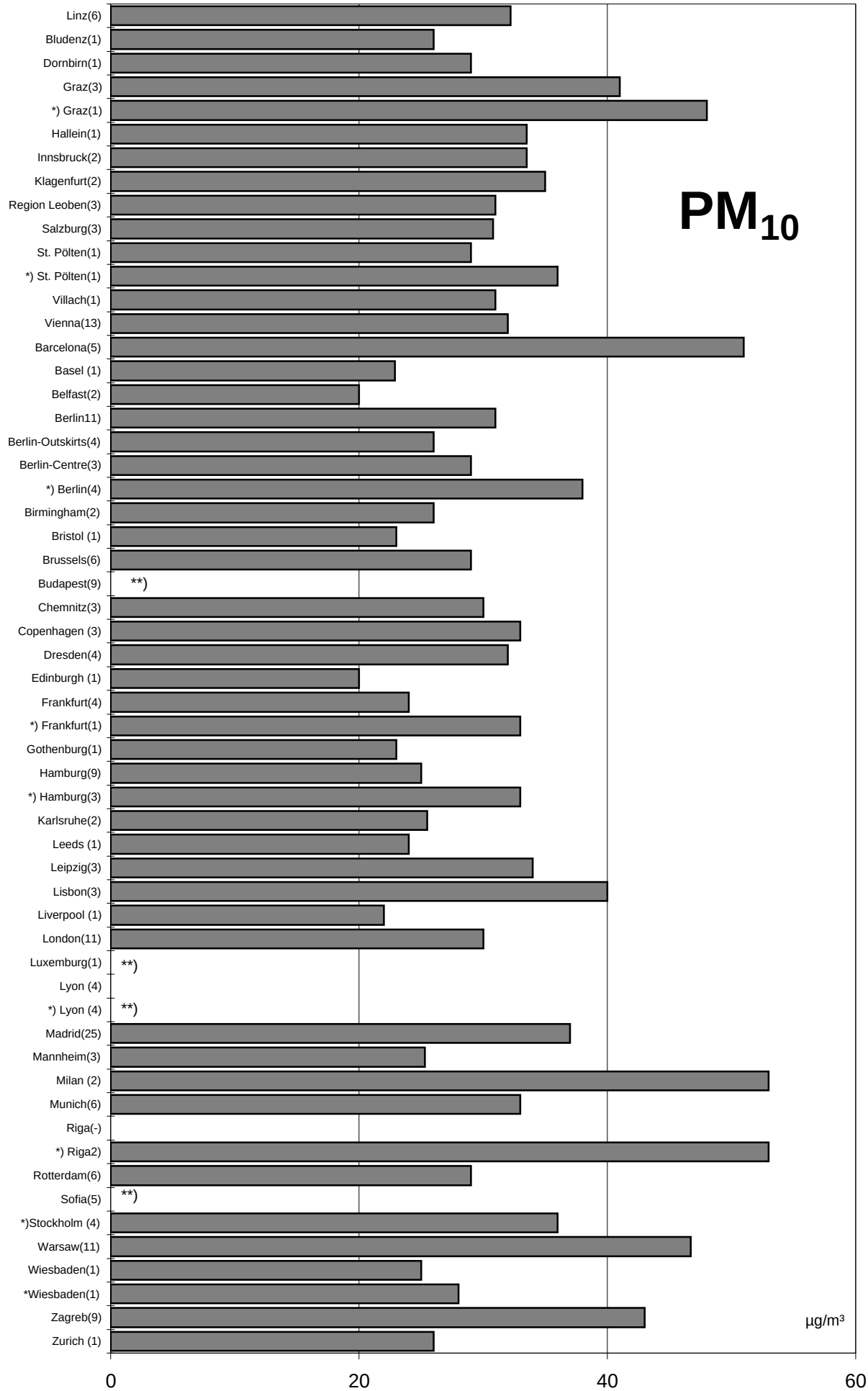
annual mean values (in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations
**) no data

Comparison of The Air Quality in 2006

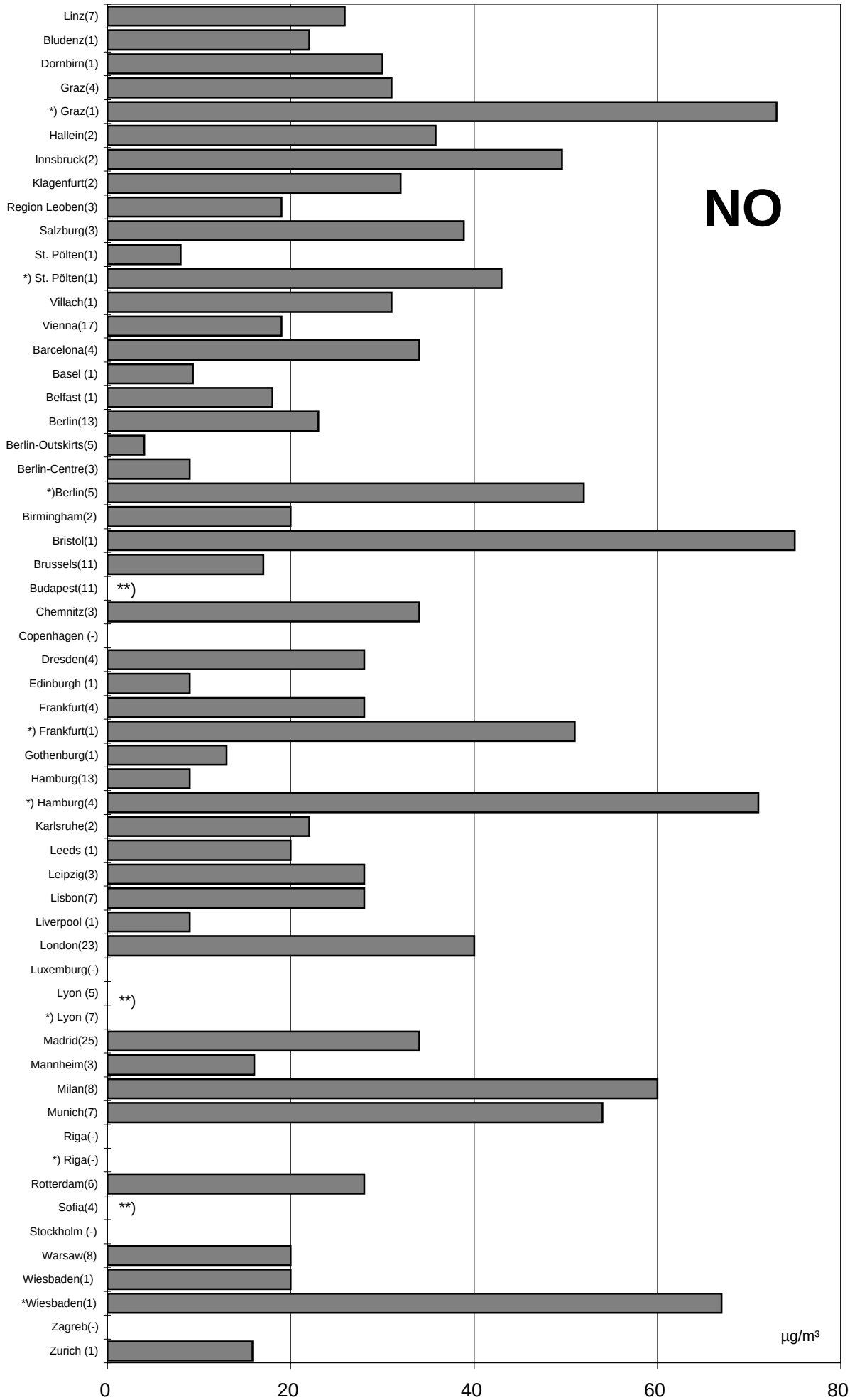
annual mean values (in parentheses: number of monitoring



*) traffic-influenced monitoring stations
**) no data

Comparison of The Air Quality in 2006

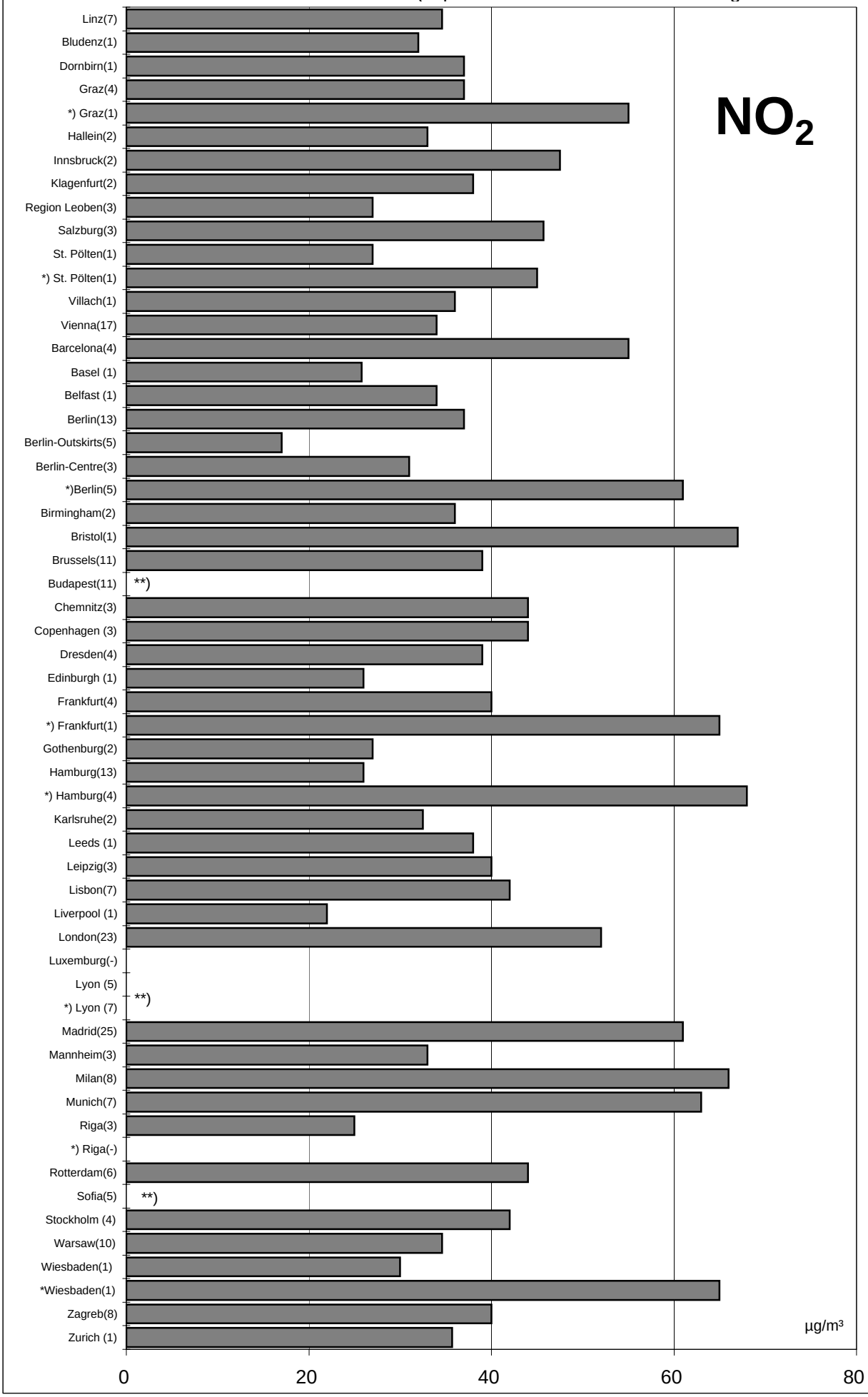
annual mean values (in parentheses: number of monitoring



*) traffic-influenced monitoring stations
**) no data

Comparison of The Air Quality in 2006

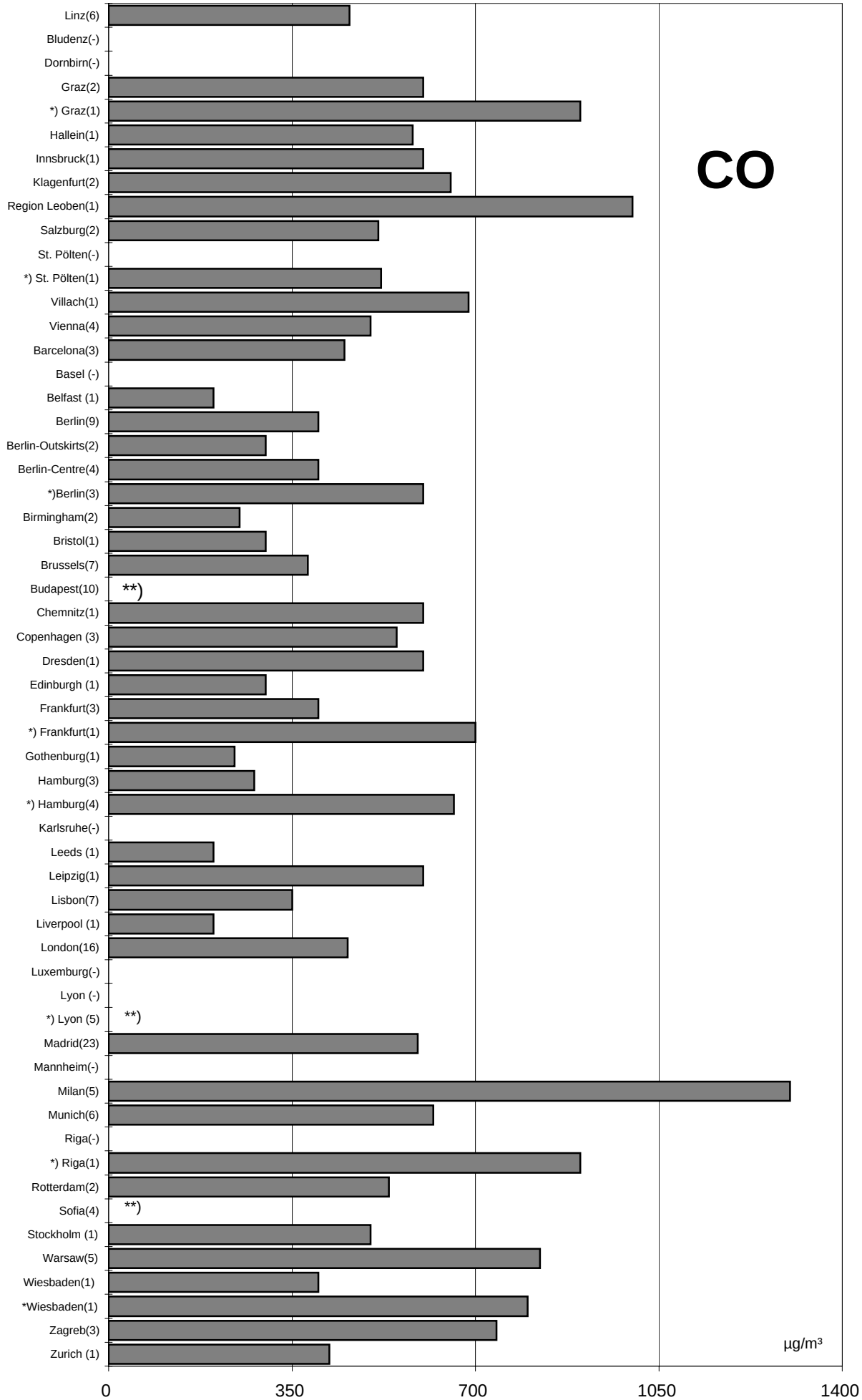
annual mean values (in parentheses: number of monitoring



*) traffic-influenced monitoring stations
**) no data

Comparison of The Air Quality in 2006

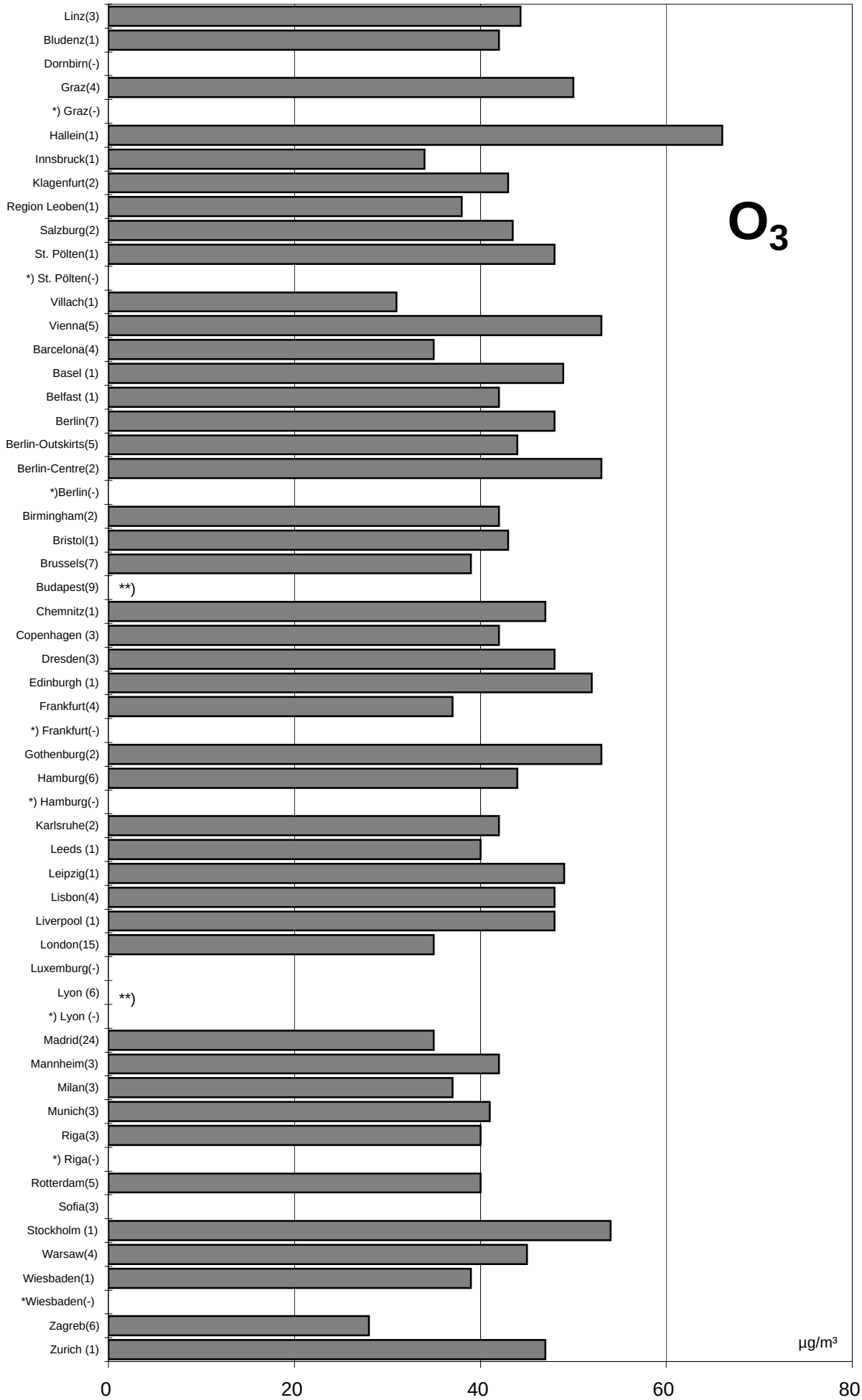
annual mean values (in parentheses: number of monitoring



*) traffic-influenced monitoring stations
**) no data

Comparison of The Air Quality in 2006

annual mean values (in parentheses: number of monitoring



*) traffic-influenced monitoring stations
**) no data

Luftgütevergleich

2006

max. Tagesmittelwert

Comparison of The Air Quality

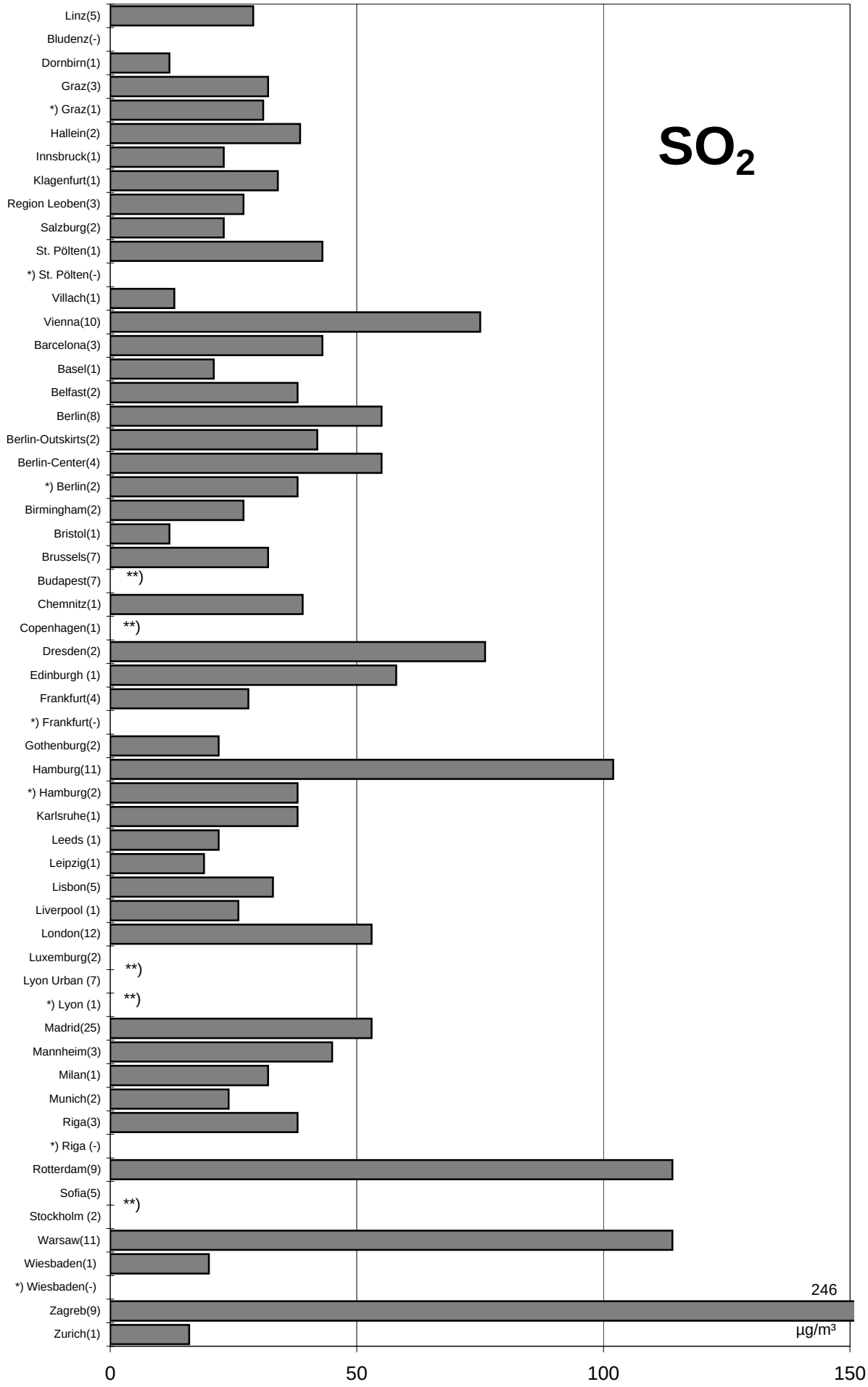
2006

Max. Daily Mean Values

Comparison of The Air Quality in 2006

max. daily mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

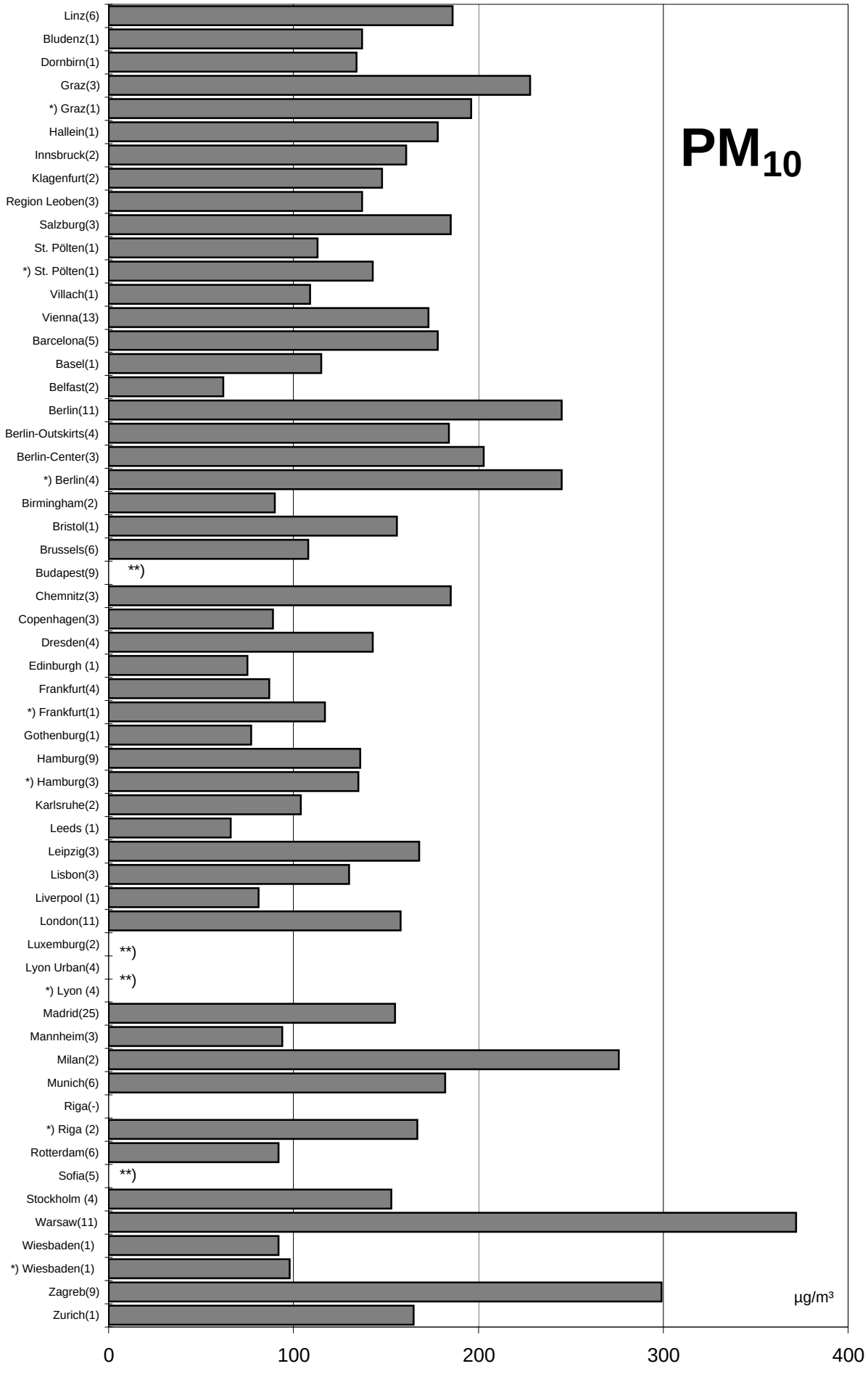


*) traffic-influenced monitoring stations
**)no data

Comparison of The Air Quality in 2006

max. daily mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

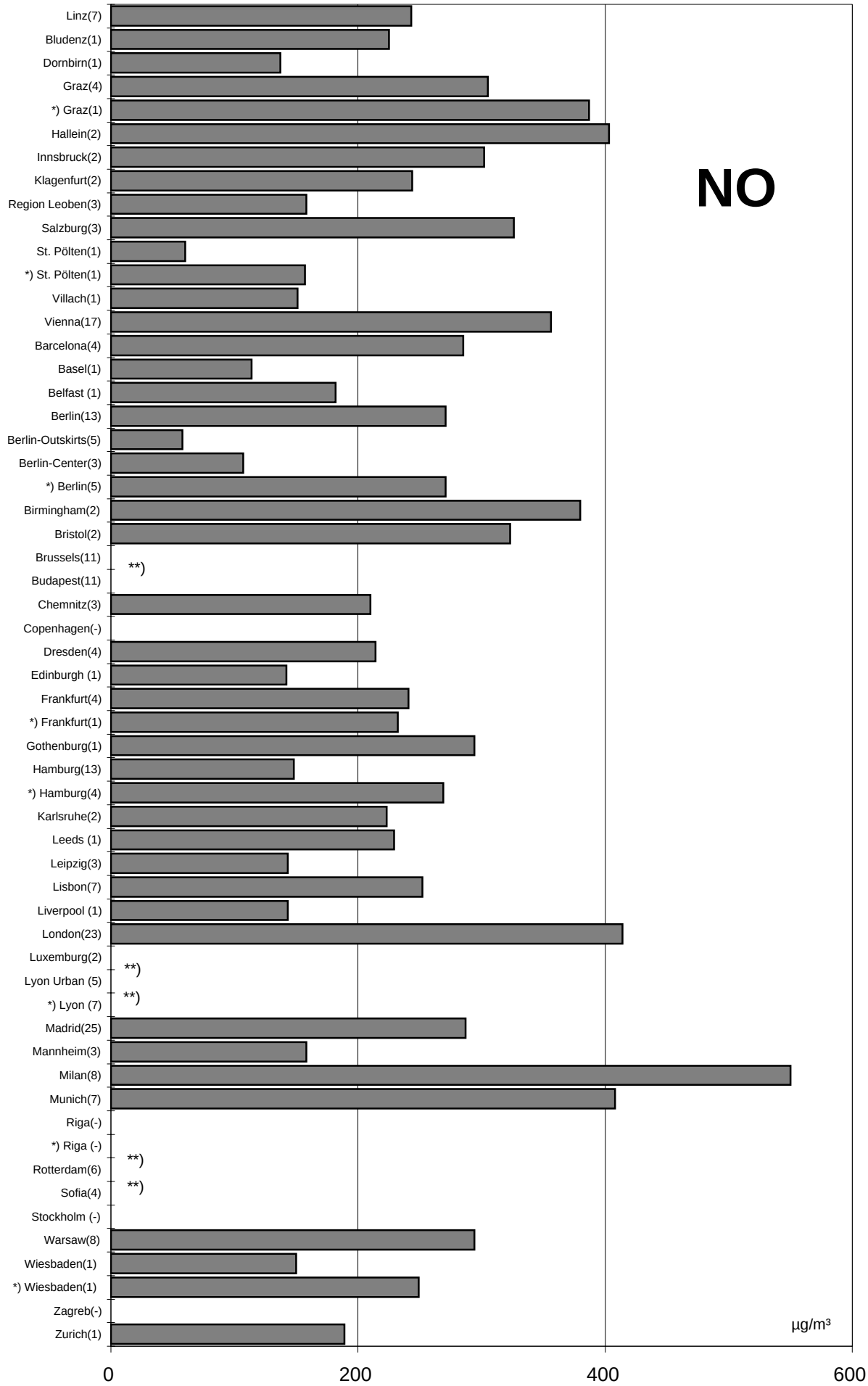


*) traffic-influenced monitoring stations
**)no data

Comparison of The Air Quality in 2006

max. daily mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

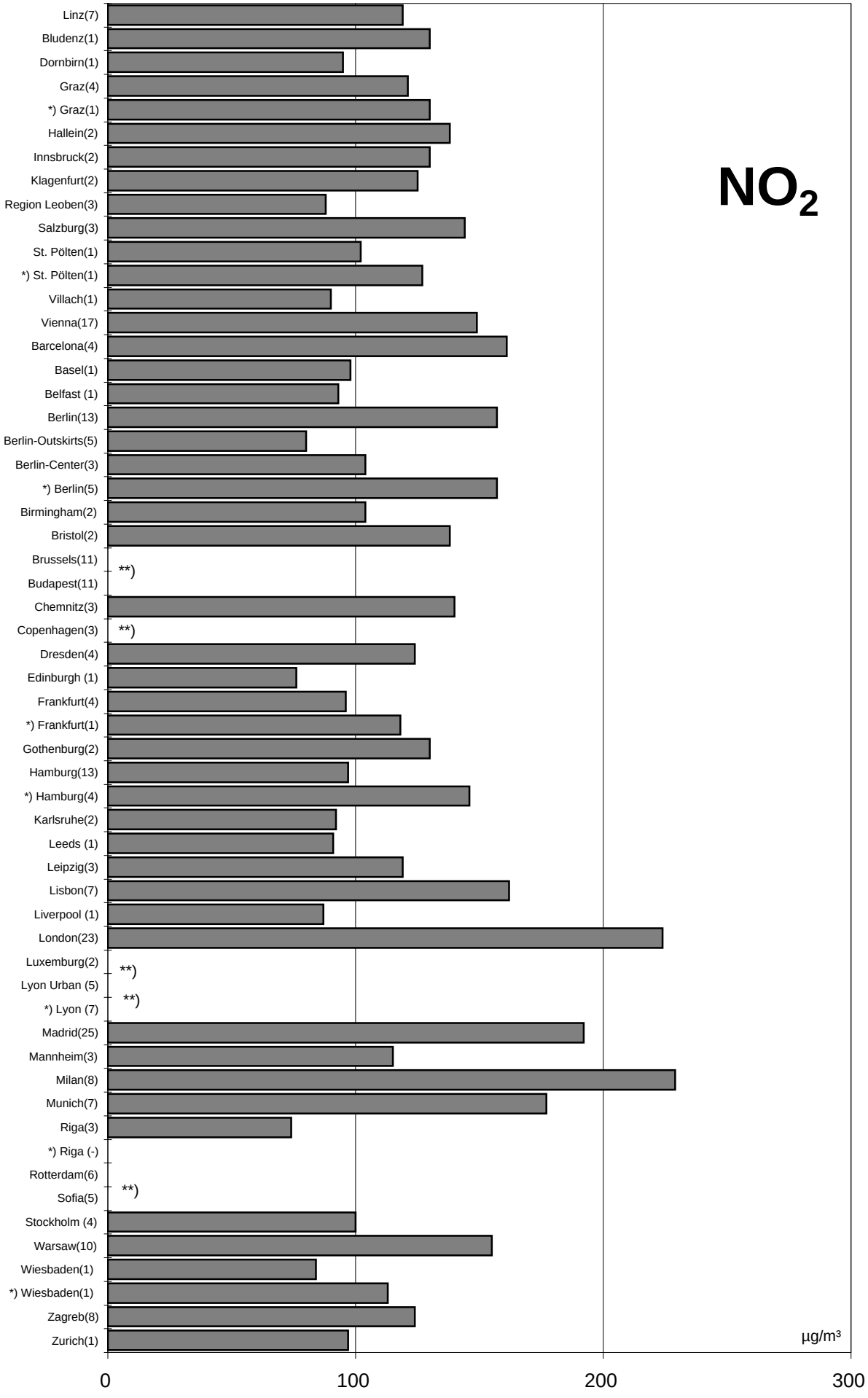


*) traffic-influenced monitoring stations
**)no data

Comparison of The Air Quality in 2006

max. daily mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

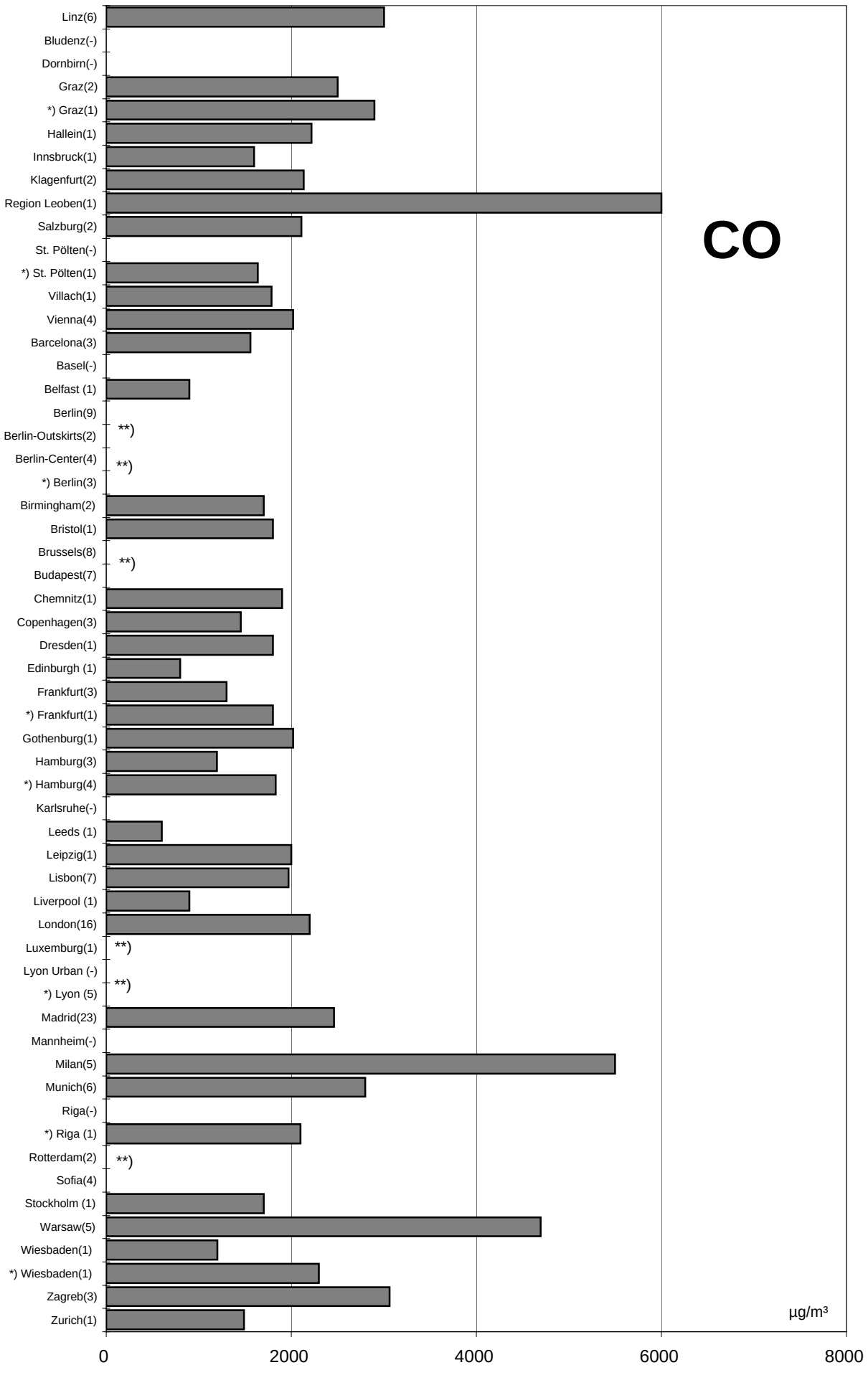


*) traffic-influenced monitoring stations
**)no data

Comparison of The Air Quality in 2006

max. daily mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

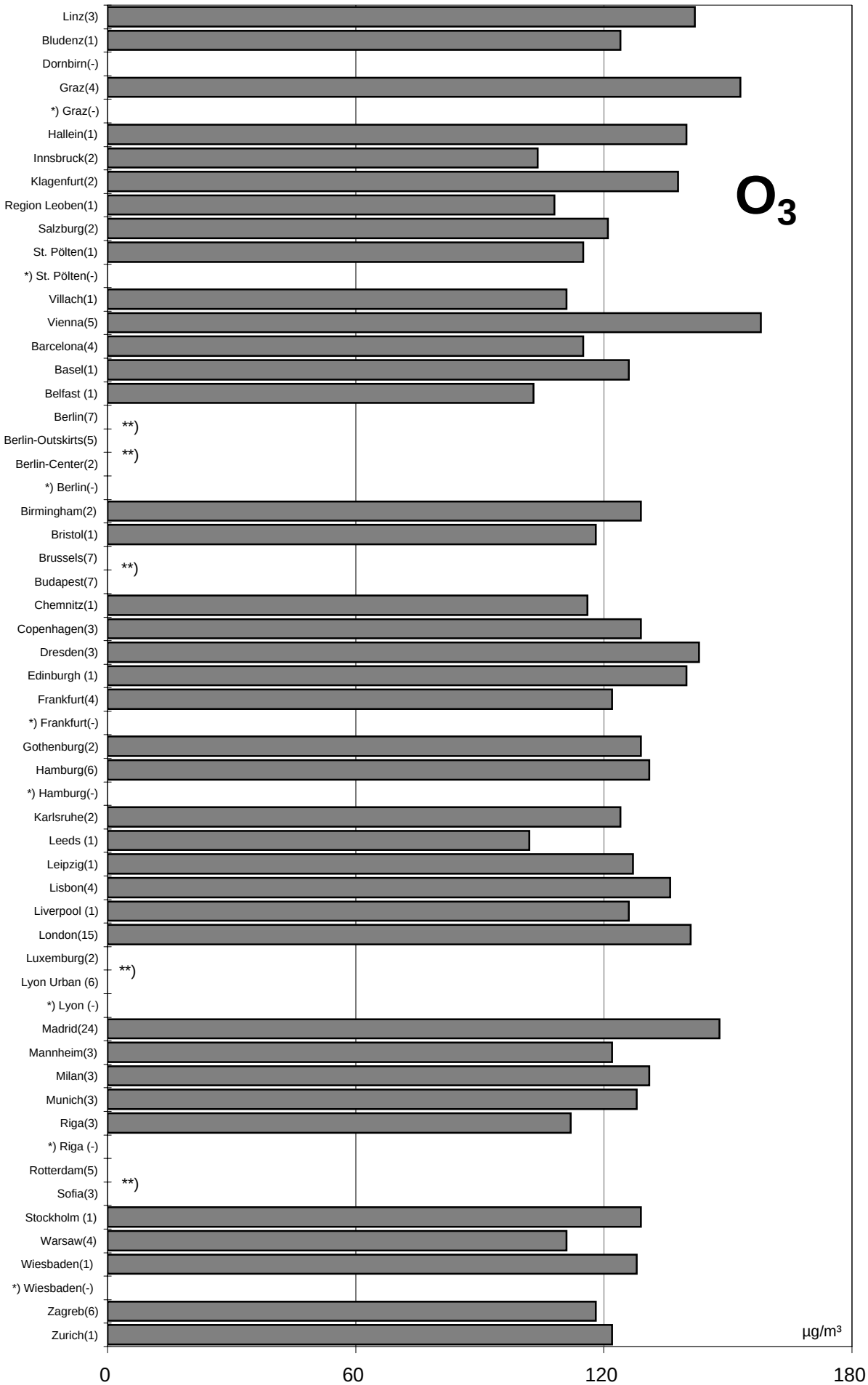


*) traffic-influenced monitoring stations
**)no data

Comparison of The Air Quality in 2006

max. daily mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations
**)no data

Luftgütevergleich

2006

max. 1h-Mittelwerte

Comparison of The Air Quality

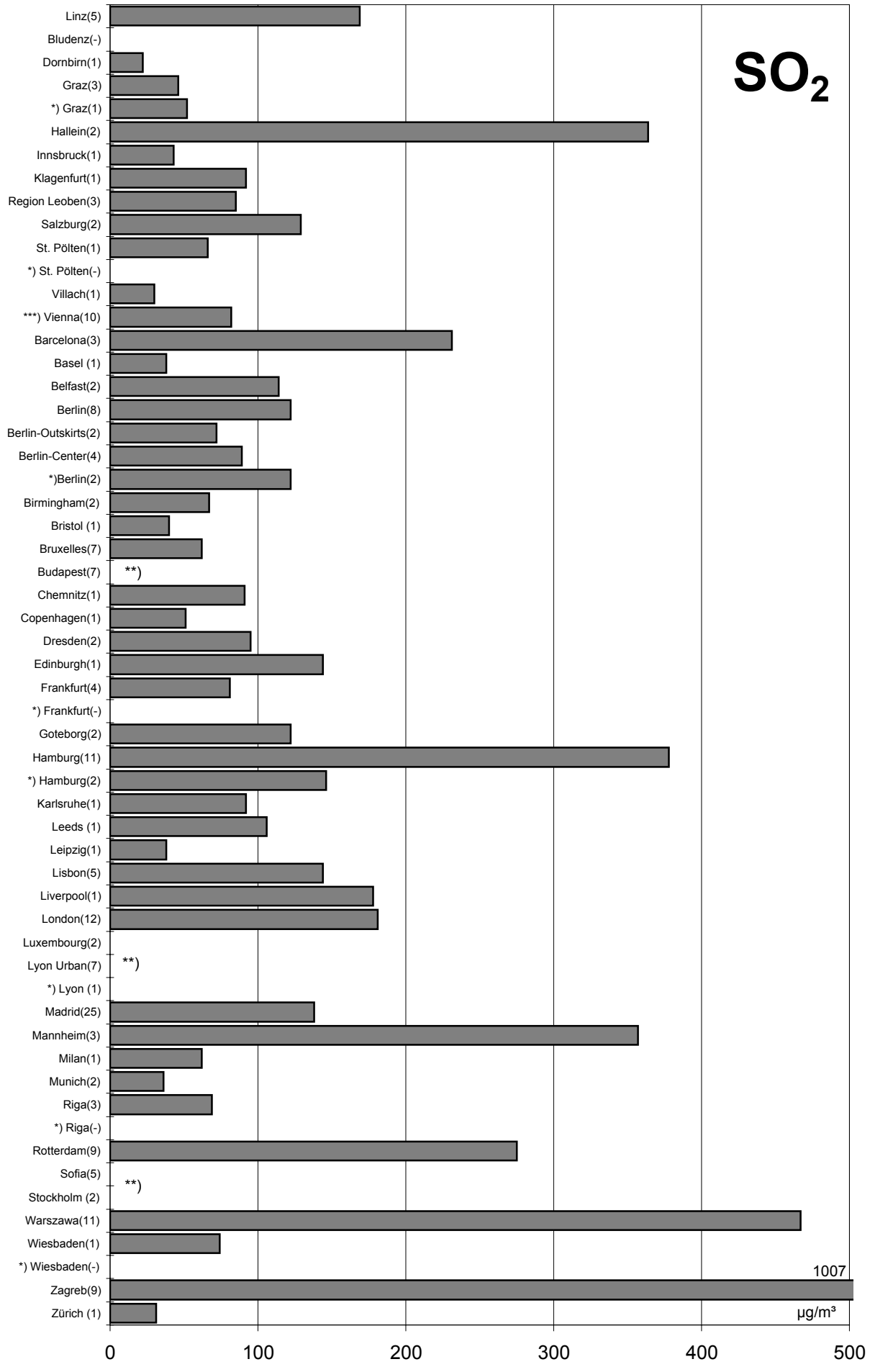
2006

Max. 1h-Mean Values

Comparison of The Air Quality in 2006

max. 1h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

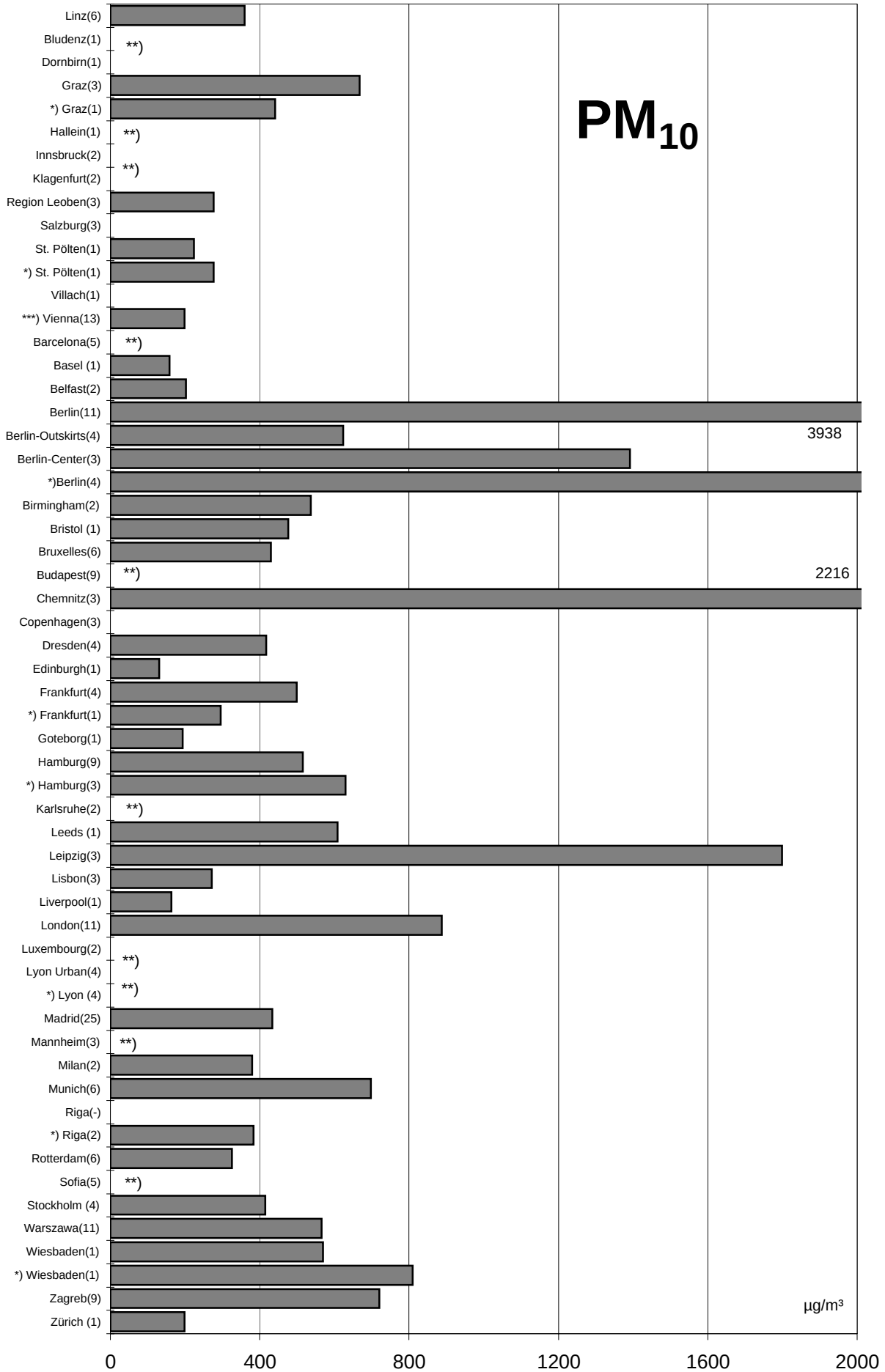


*) traffic-influenced monitoring stations
**)no data
***)max. 99,9-Percentile

Comparison of The Air Quality in 2006

max. 1h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

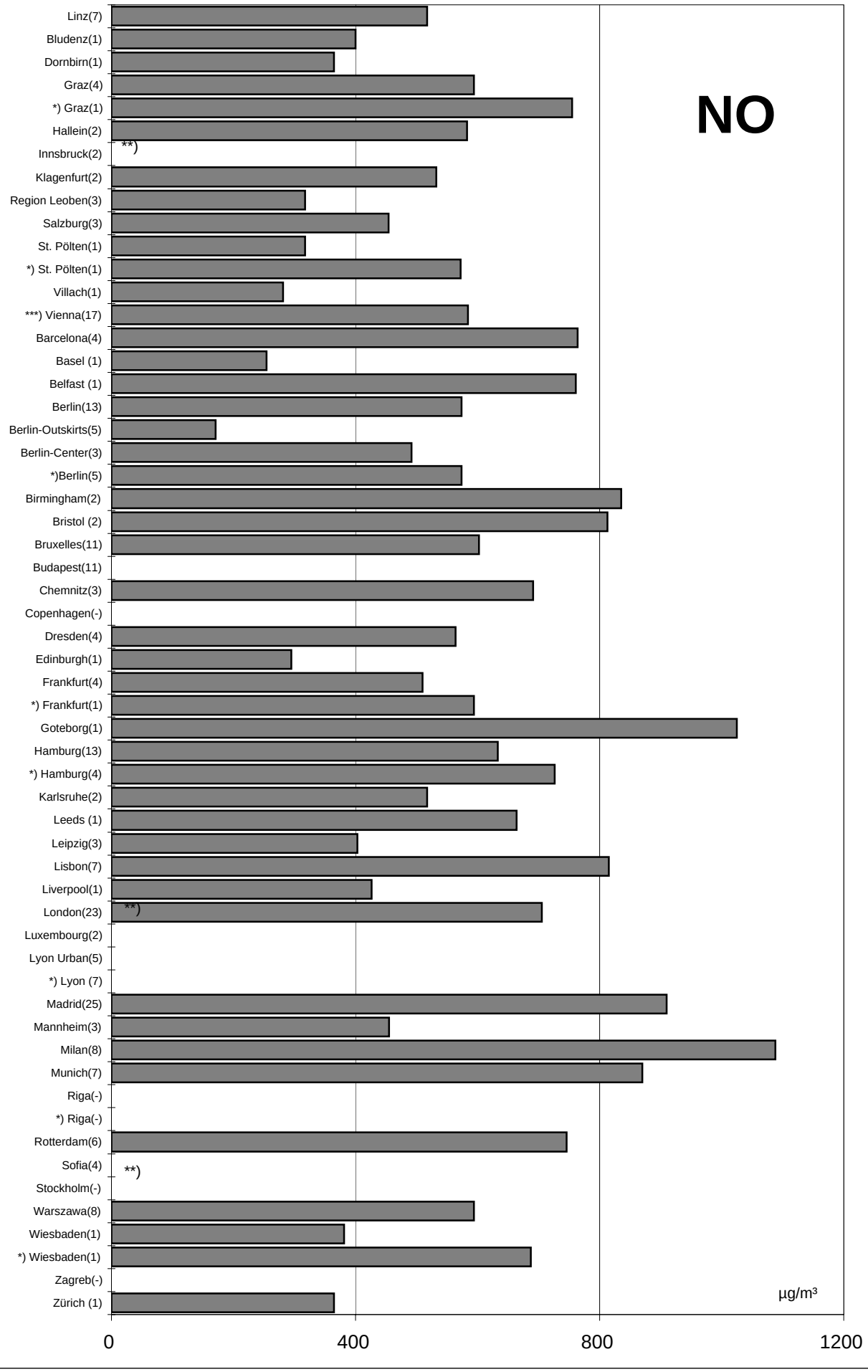


*) traffic-influenced monitoring stations
**)no data
***)max. 99,9-Percentile

Comparison of The Air Quality in 2006

max. 1h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

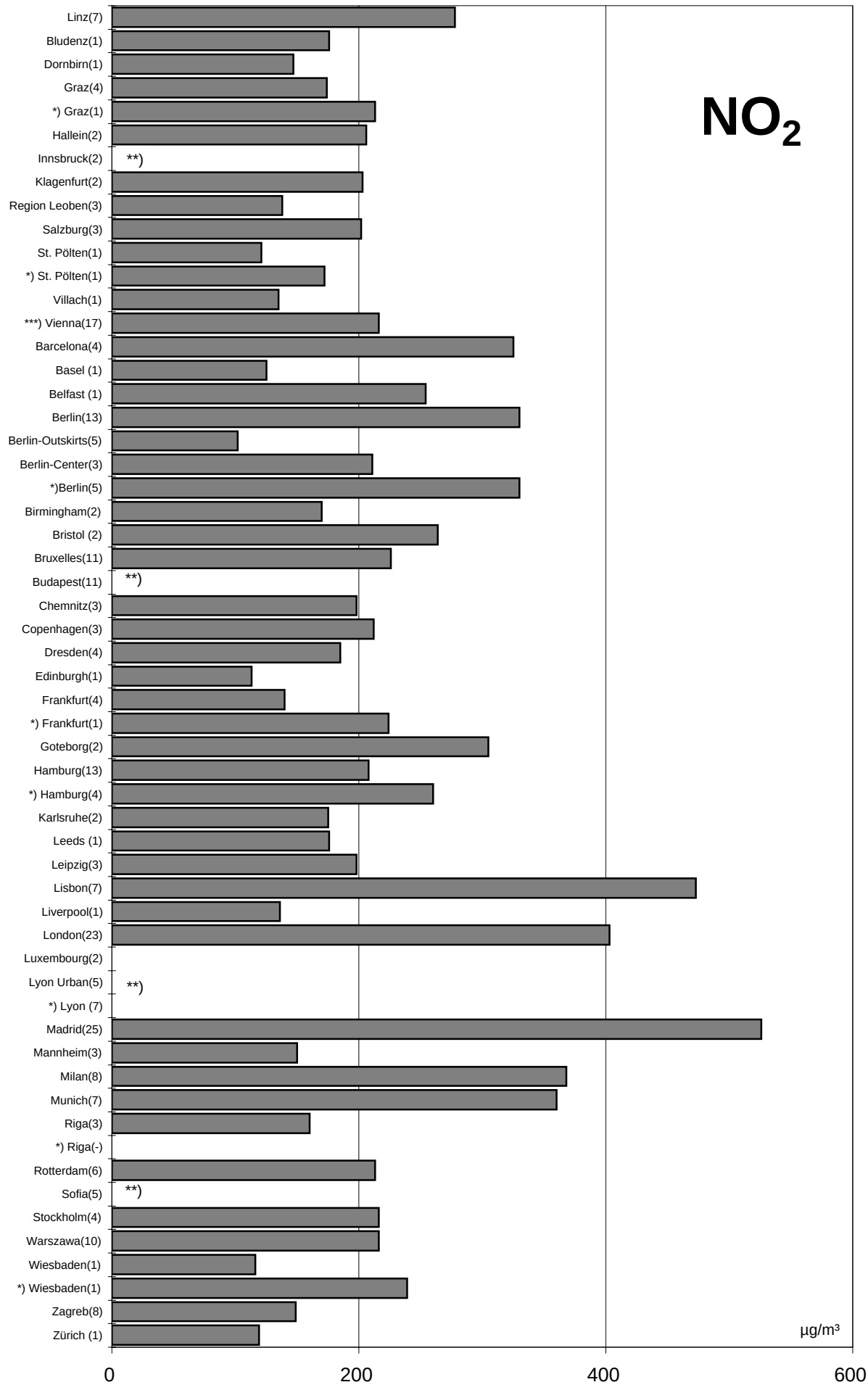


*) traffic-influenced monitoring stations
**)no data
***)max. 99,9-Percentile

Comparison of The Air Quality in 2006

max. 1h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

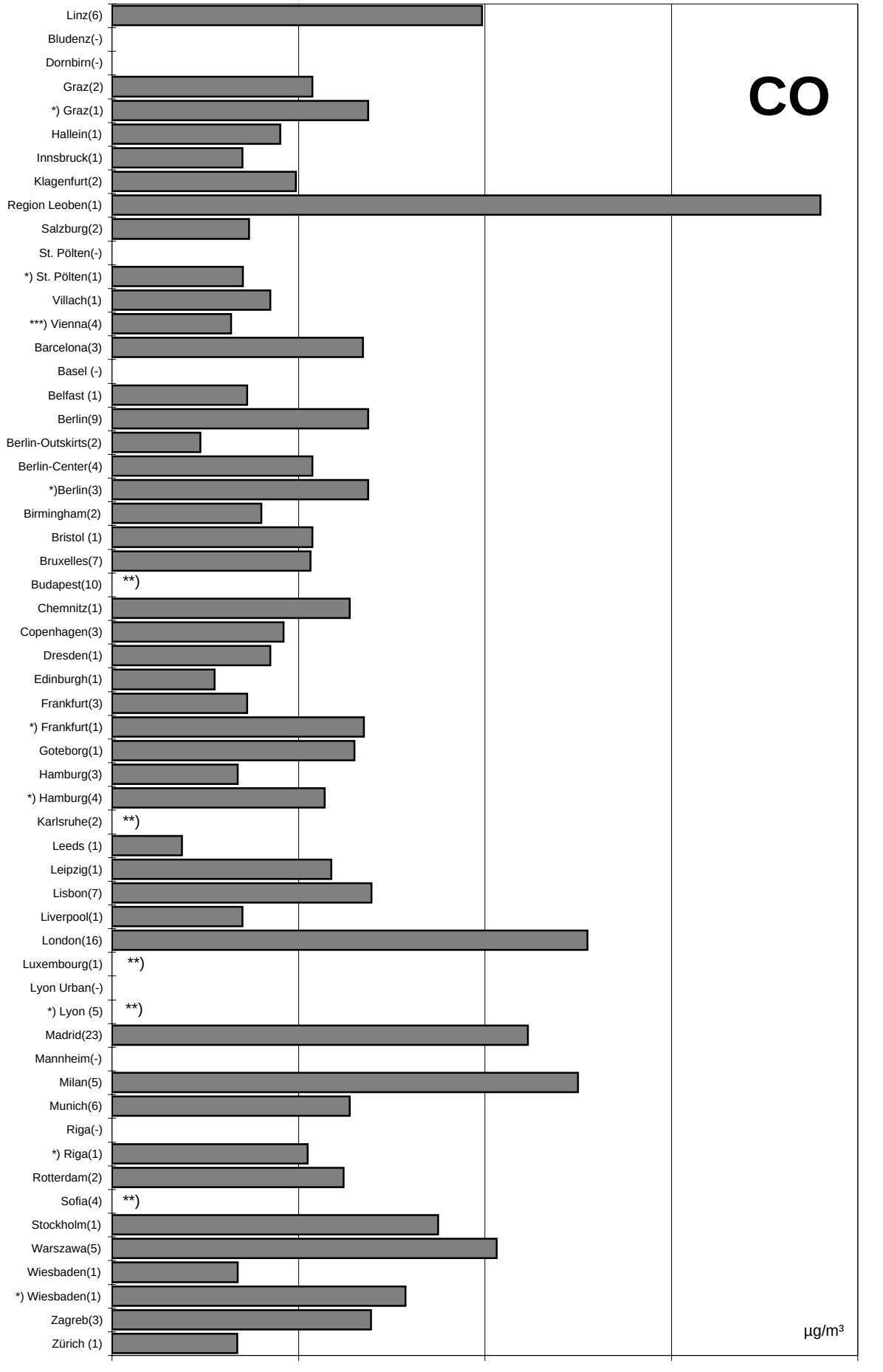


*) traffic-influenced monitoring stations
**)no data
***)max. 99,9-Percentile

Comparison of The Air Quality in 2006

max. 1h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

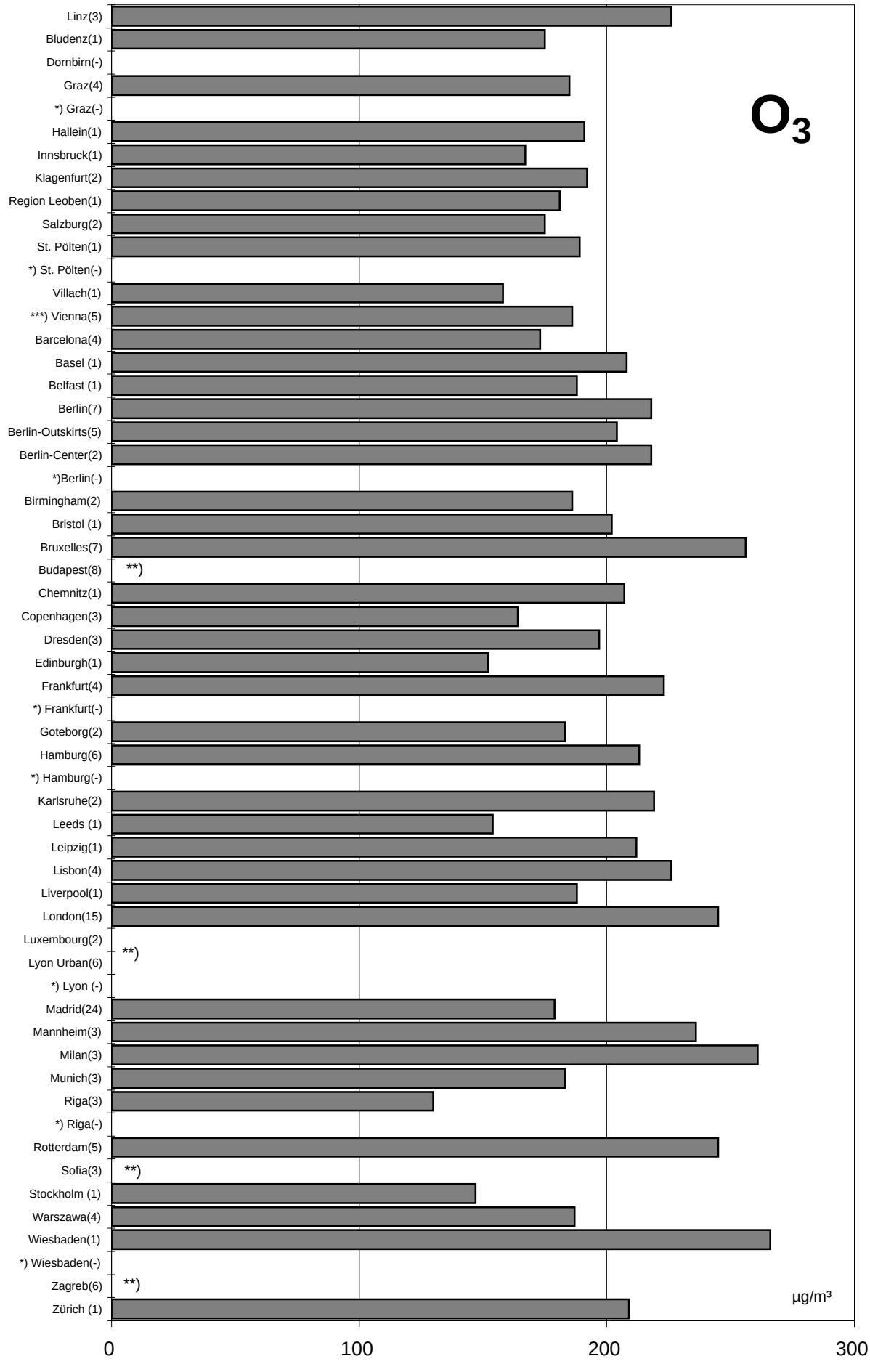


*) traffic-influenced monitoring stations
**)no data
***)max. 99,9-Percentile

Comparison of The Air Quality in 2006

max. 1h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations
**)no data
***)max. 99,9-Percentile

Jahresvergleich

1992 - 2006

Jahresmittelwerte

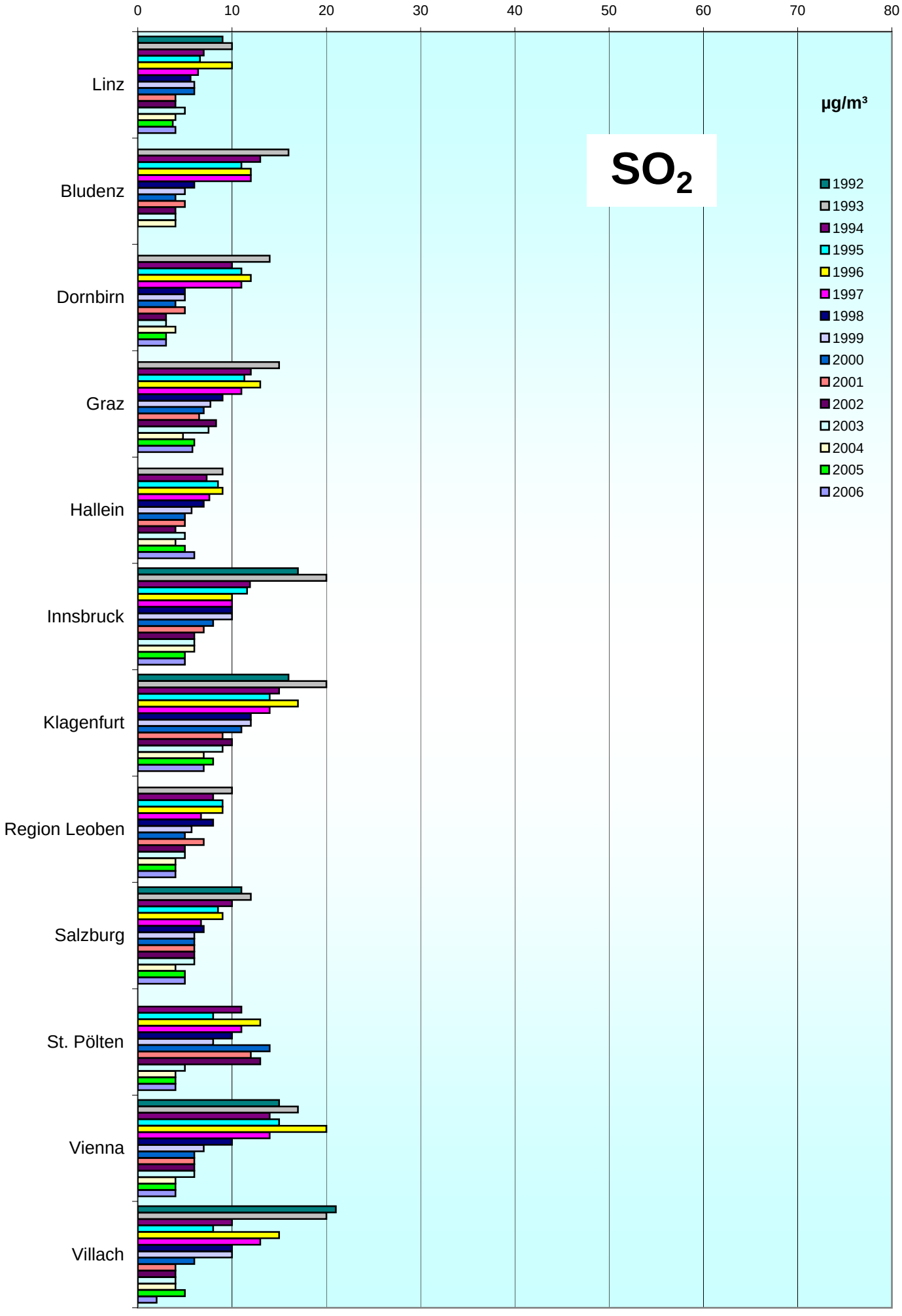
Comparison of The Air Quality Over The Years

1992 - 2006

Annual Mean Values

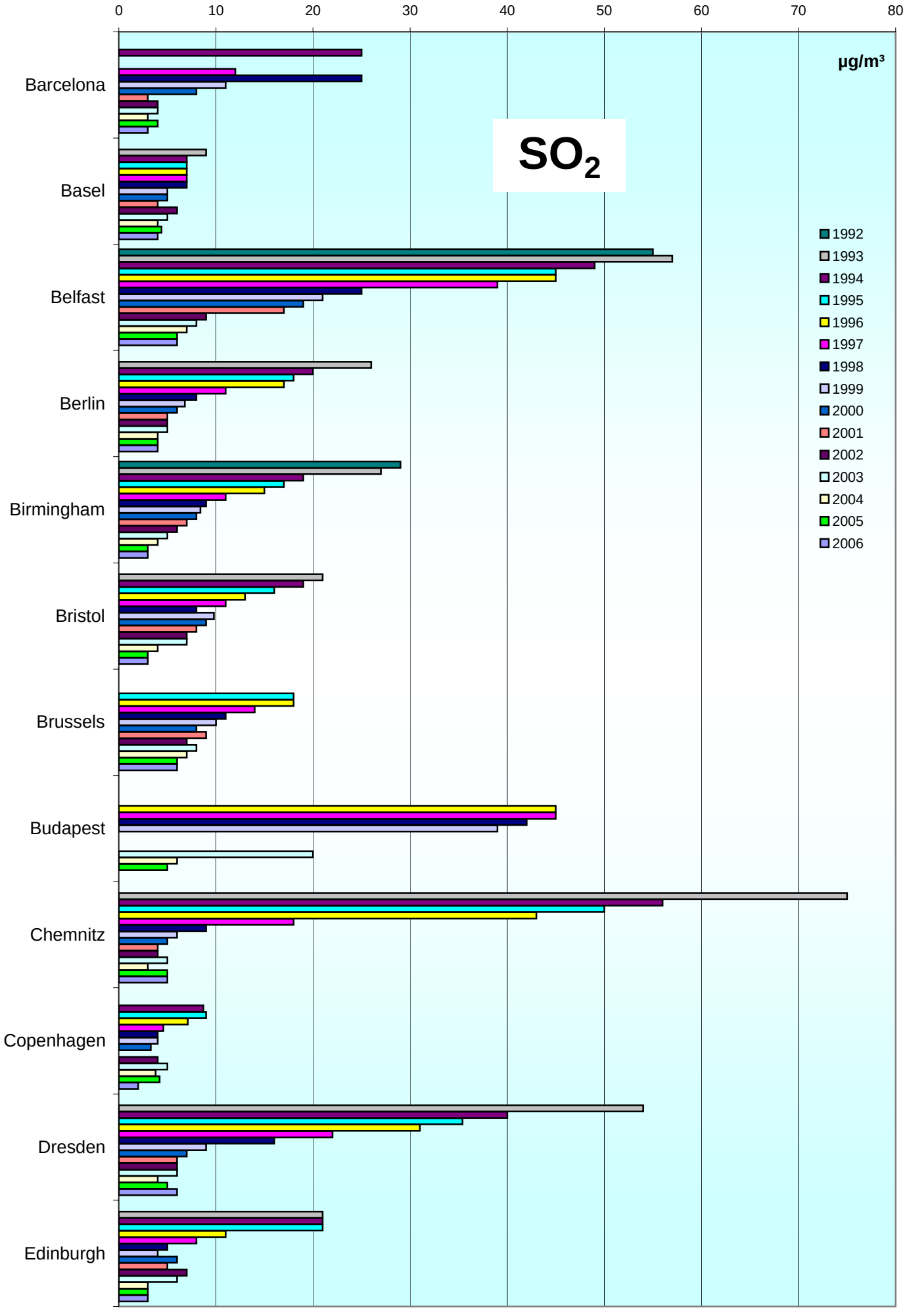
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



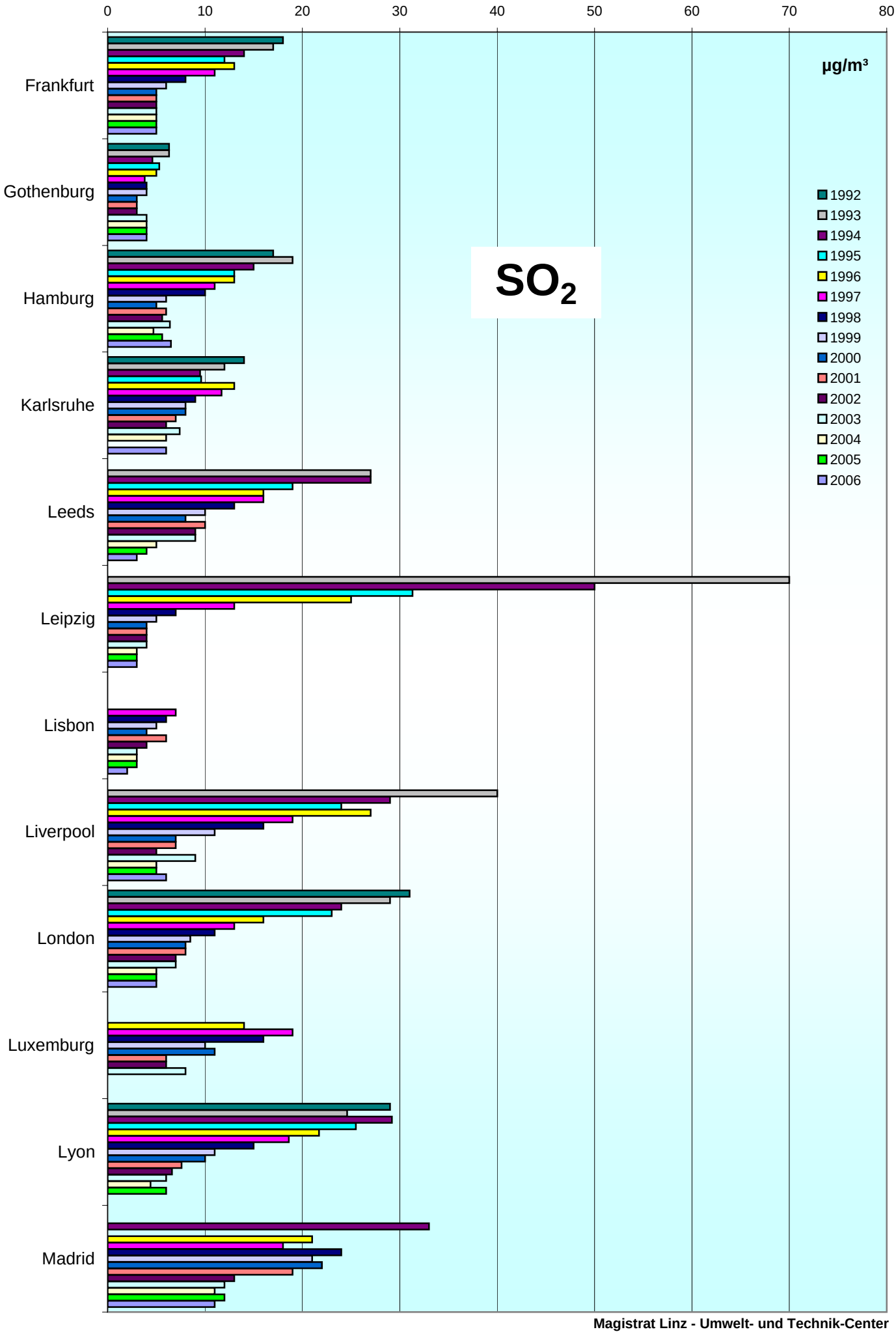
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



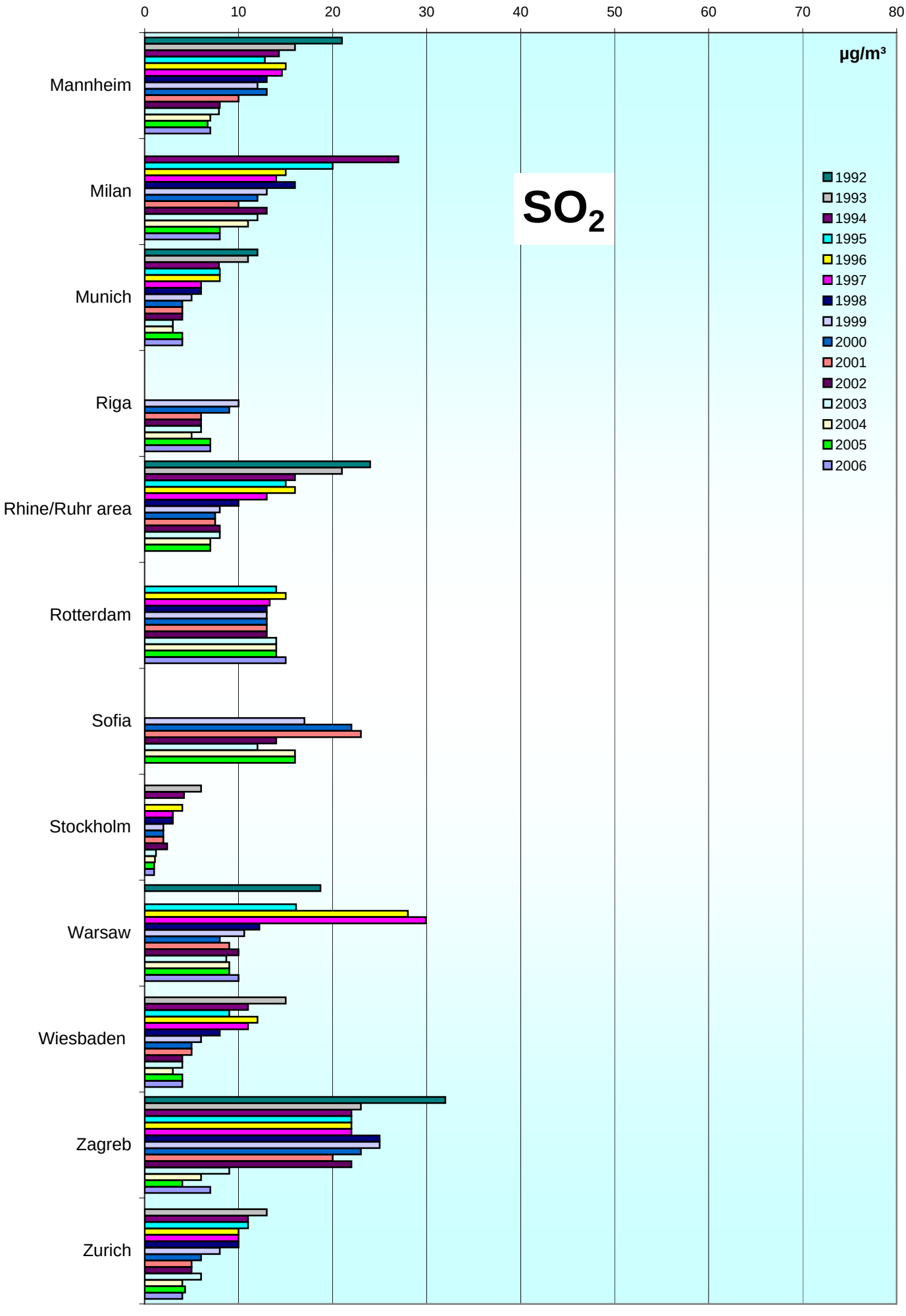
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



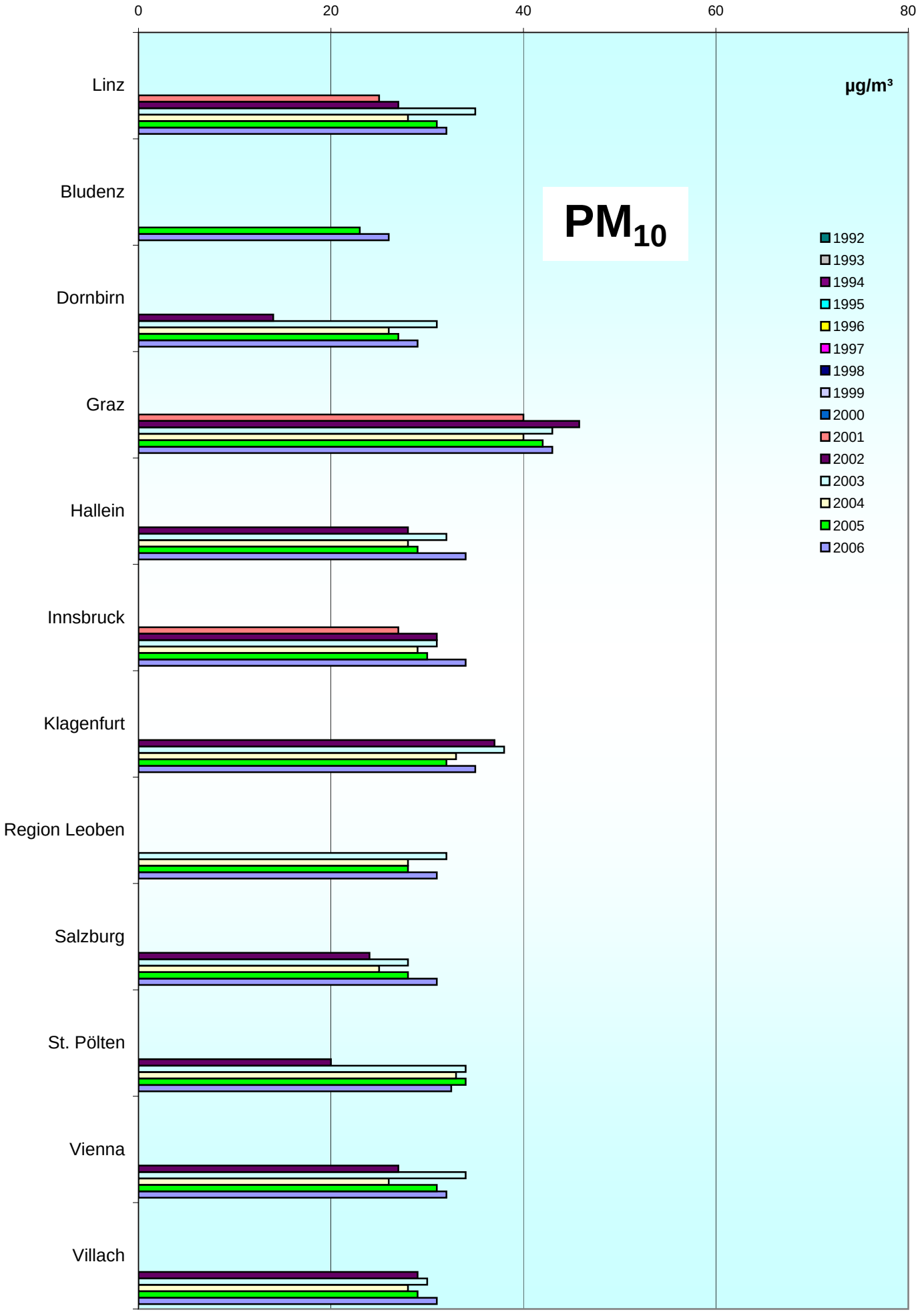
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



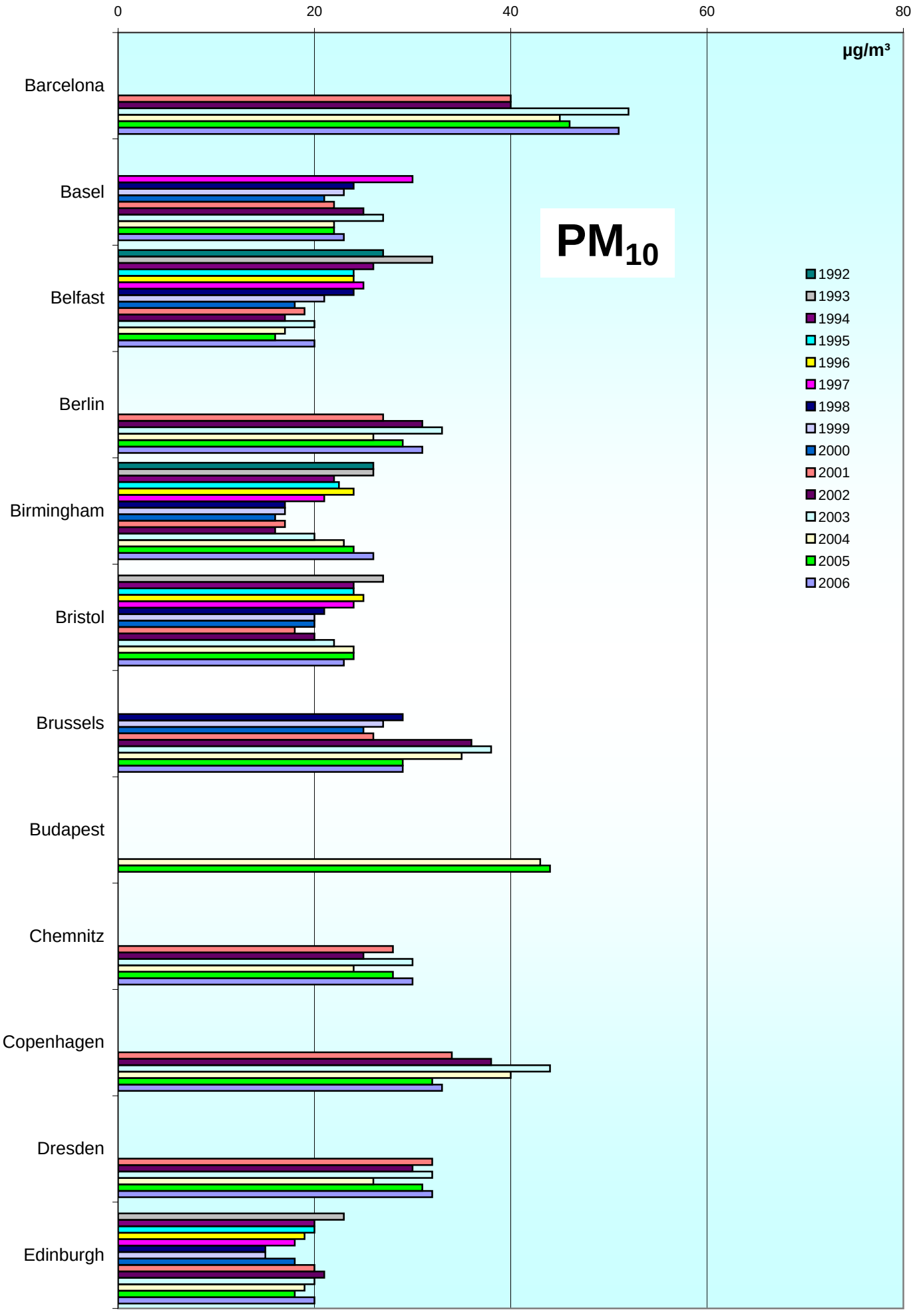
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



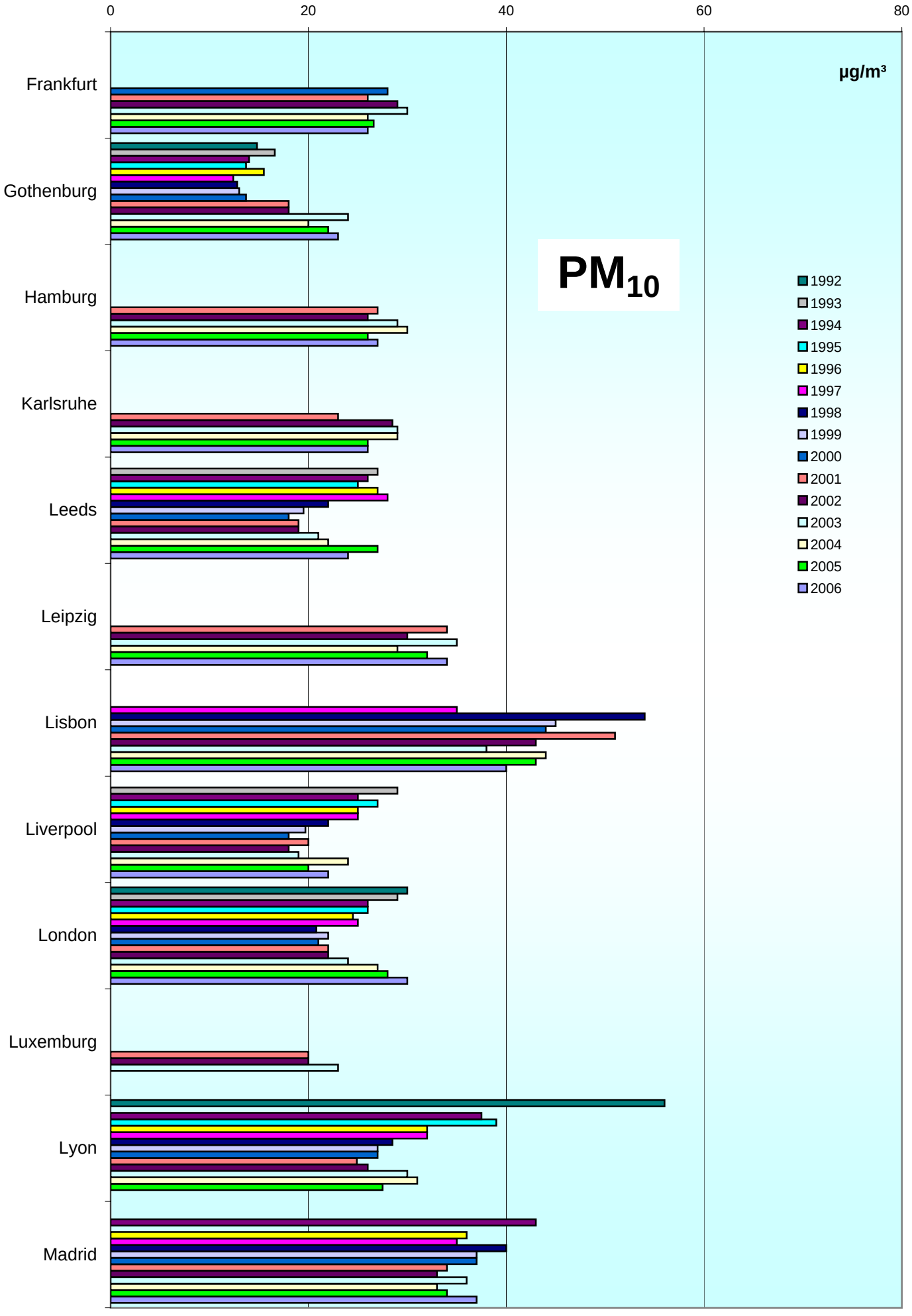
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



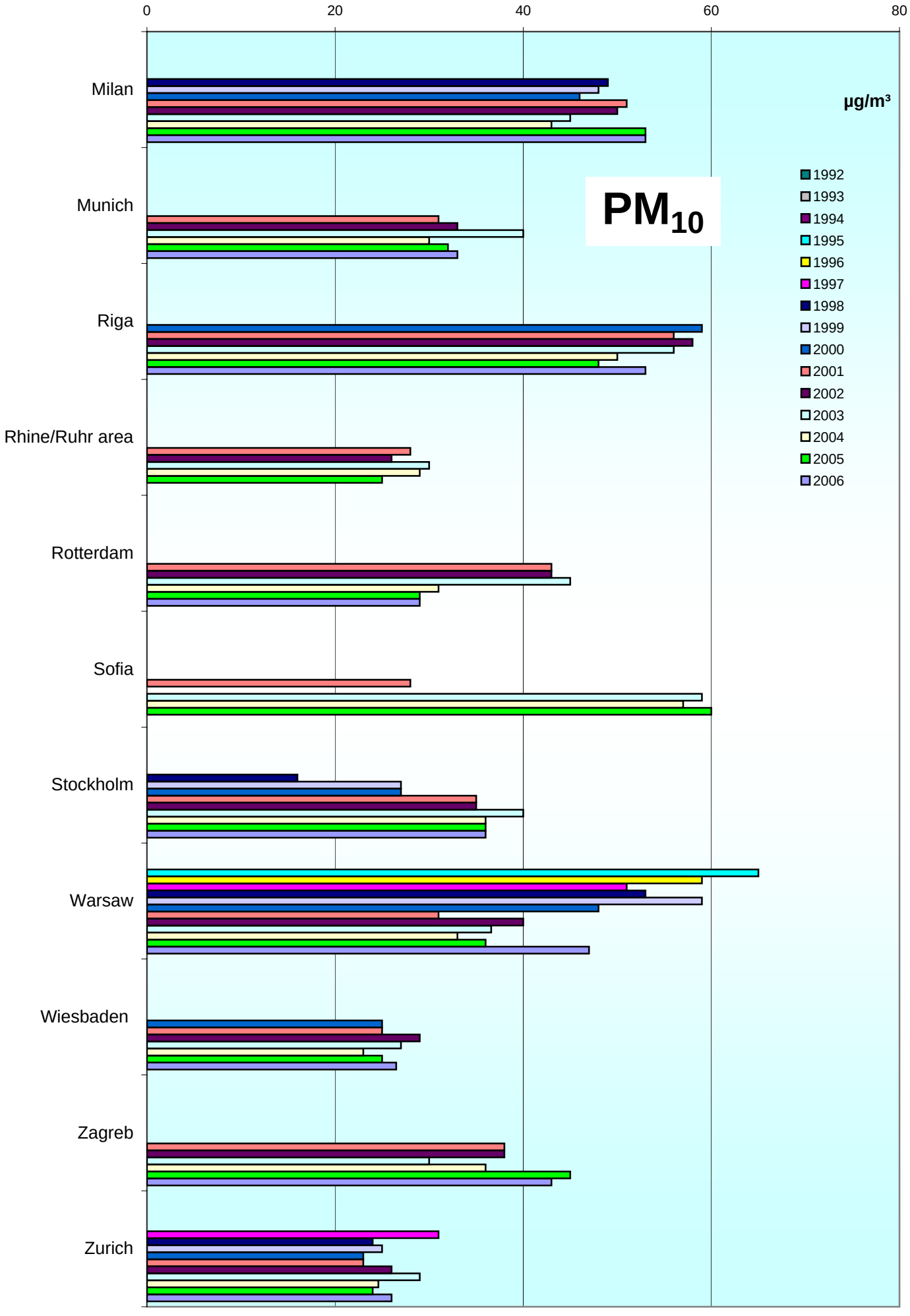
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



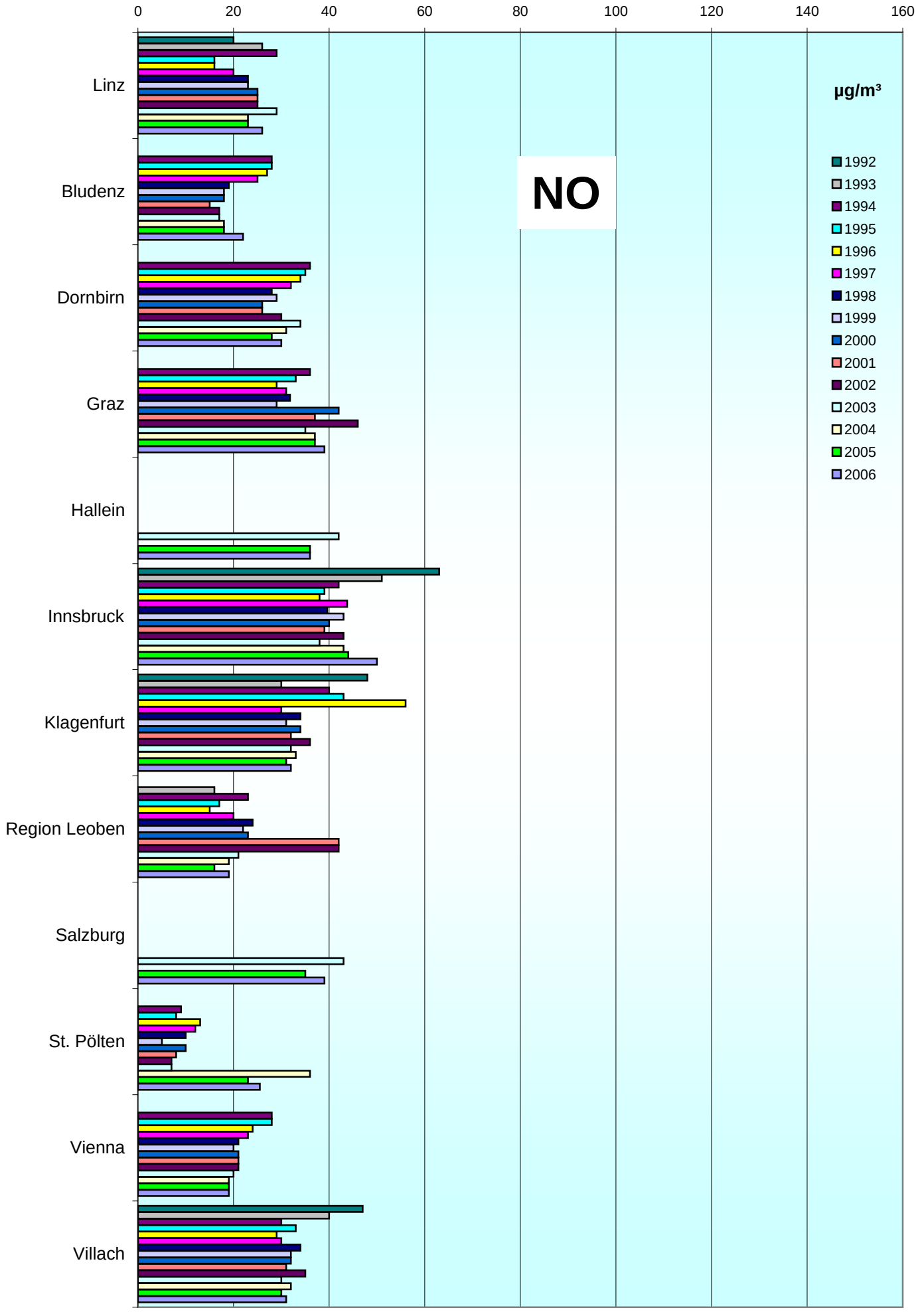
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



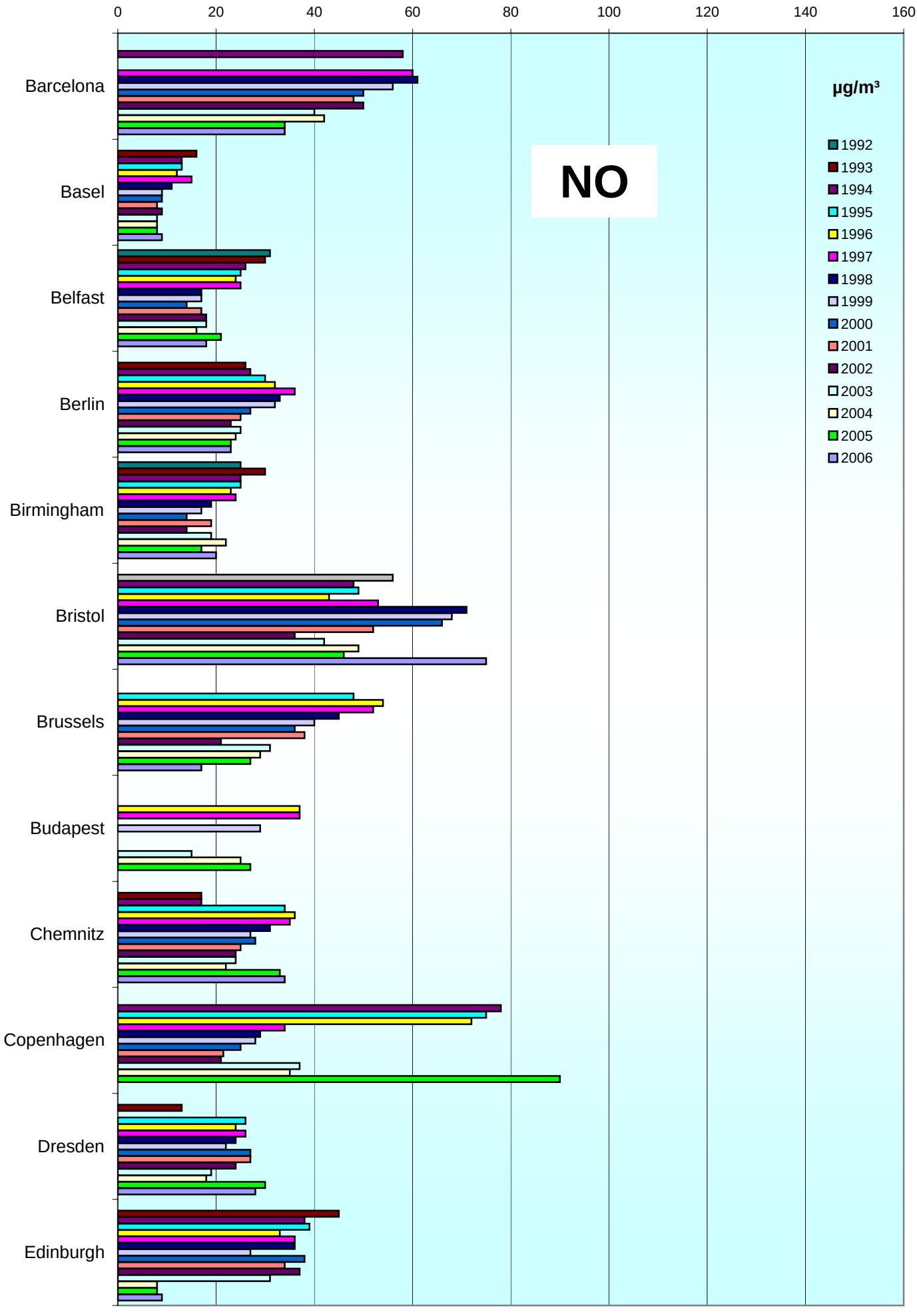
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



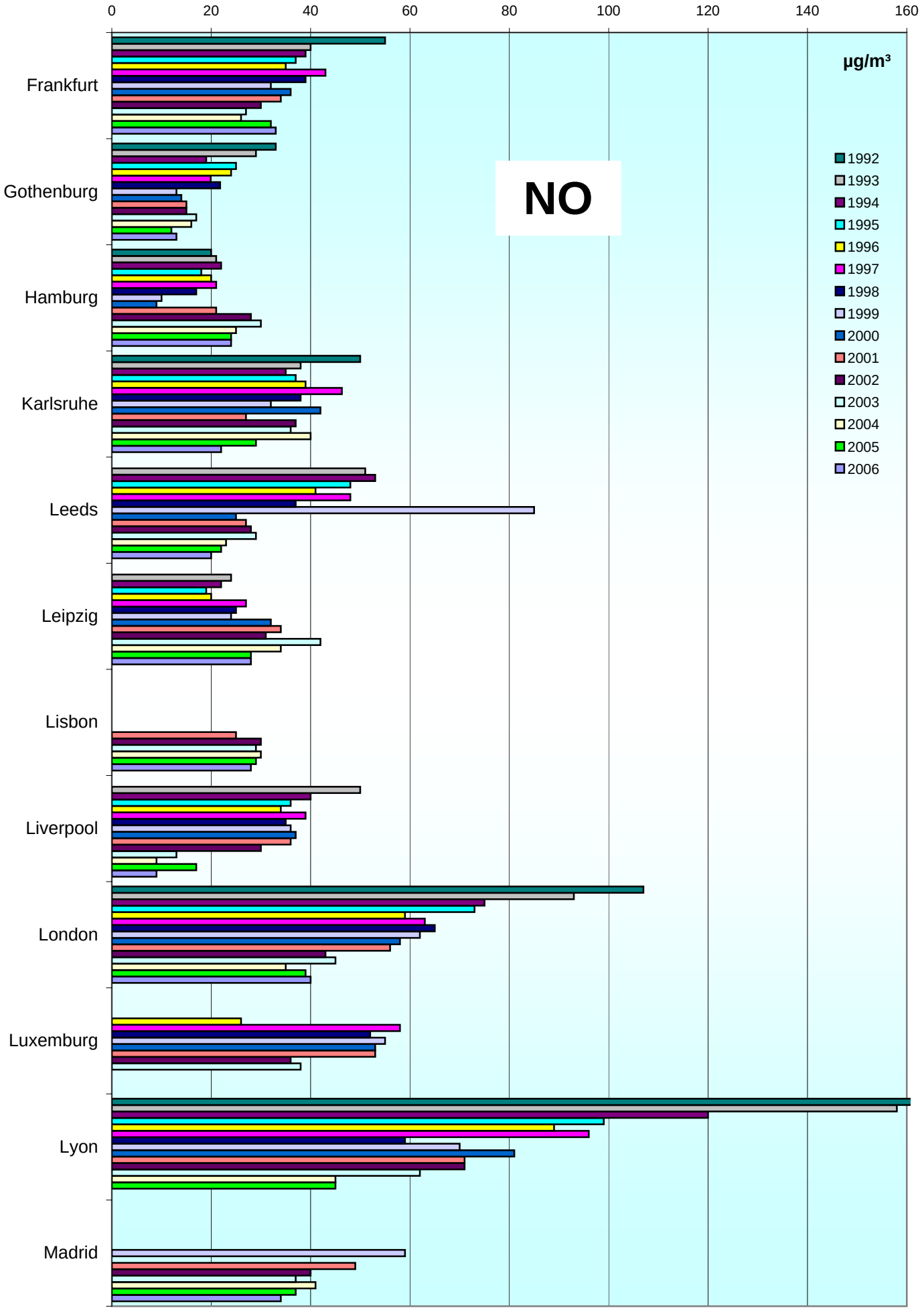
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



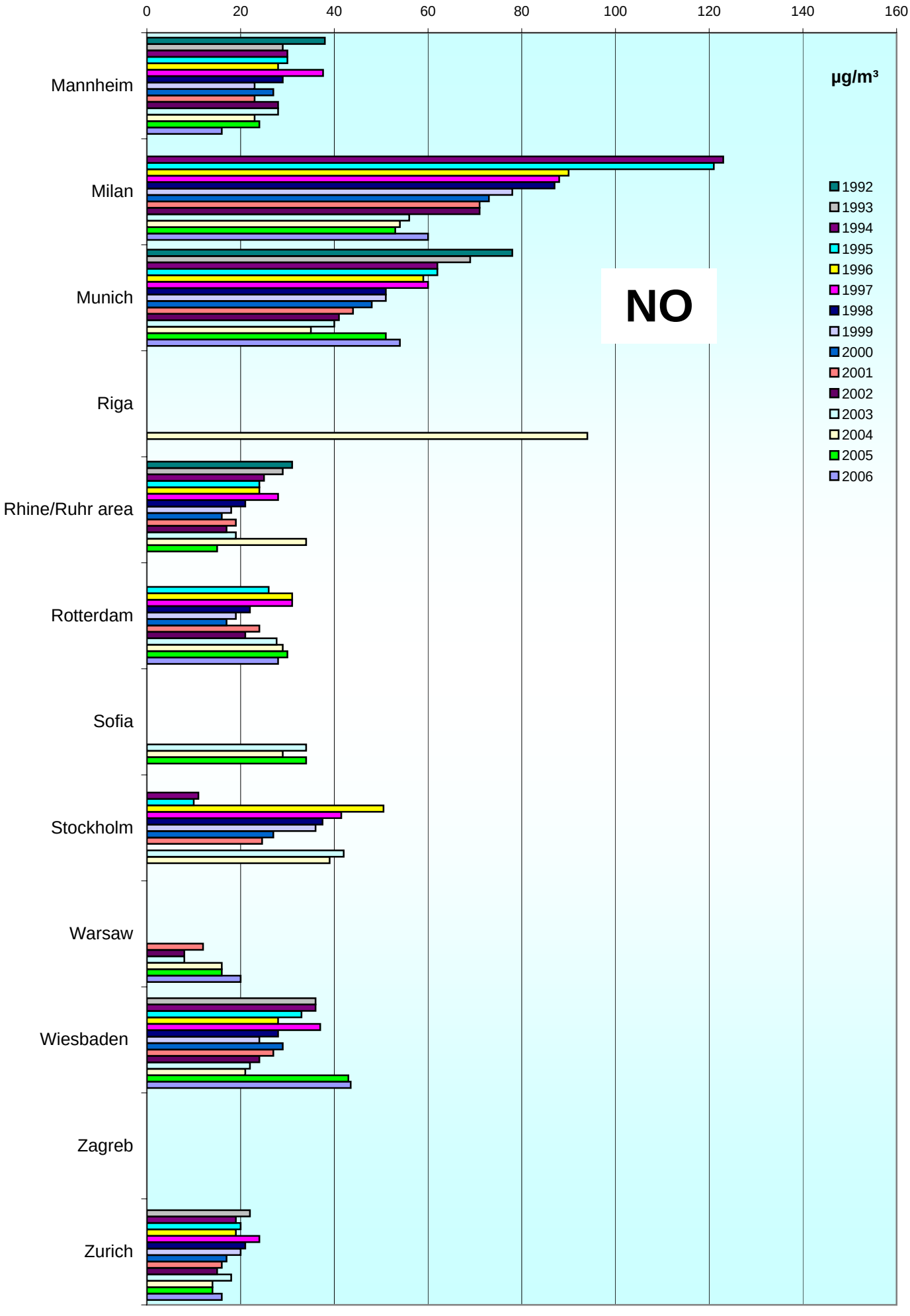
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



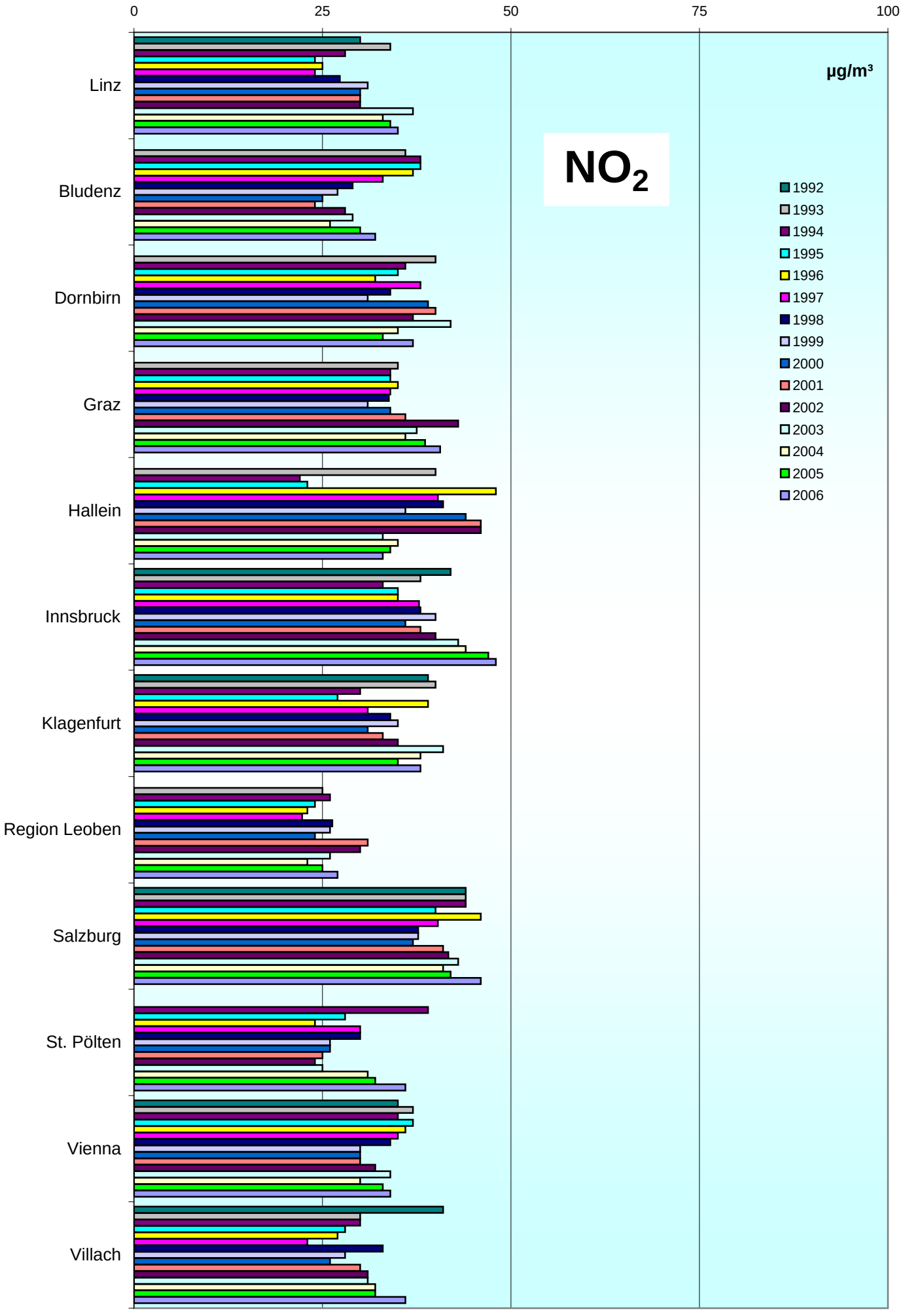
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



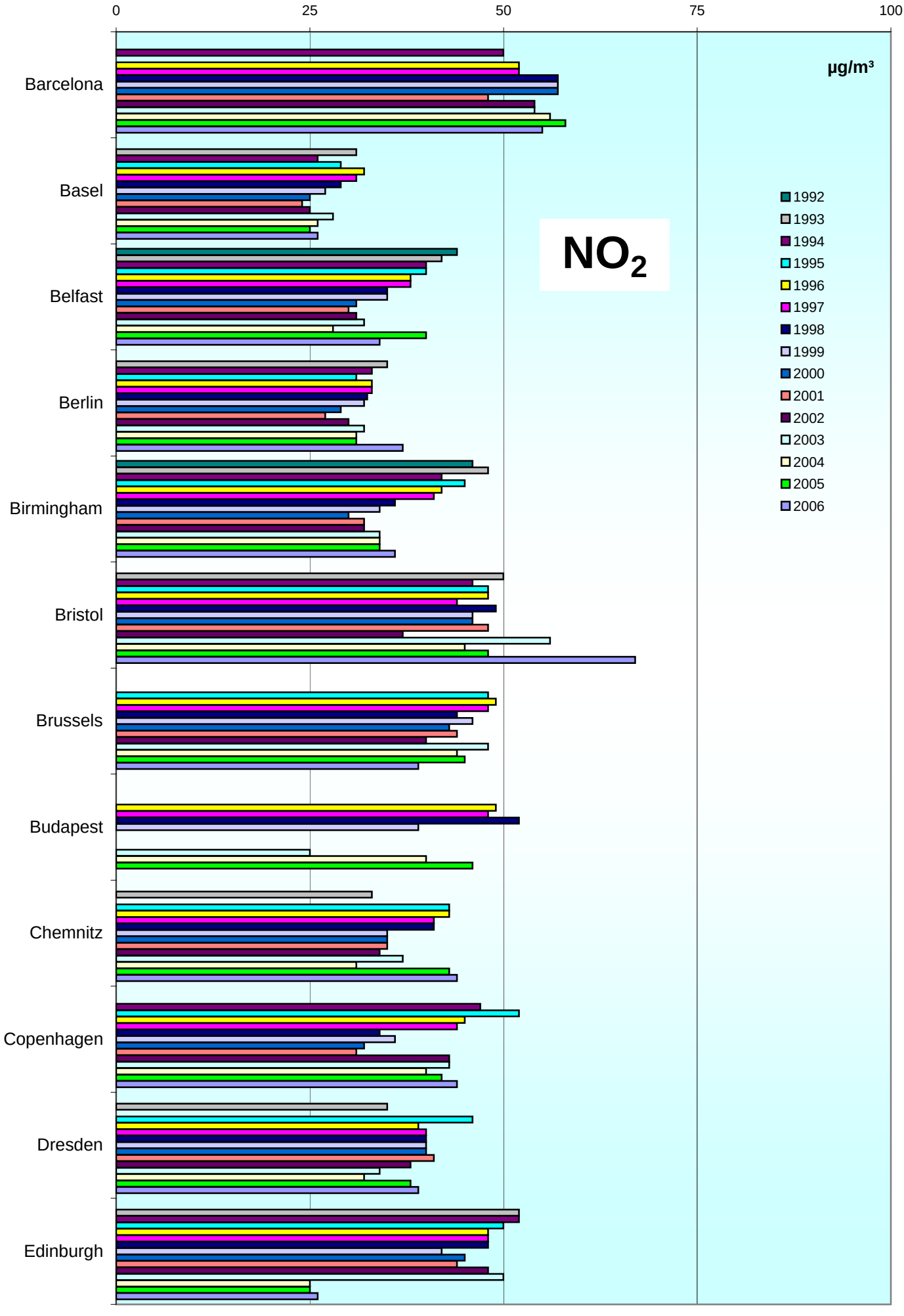
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



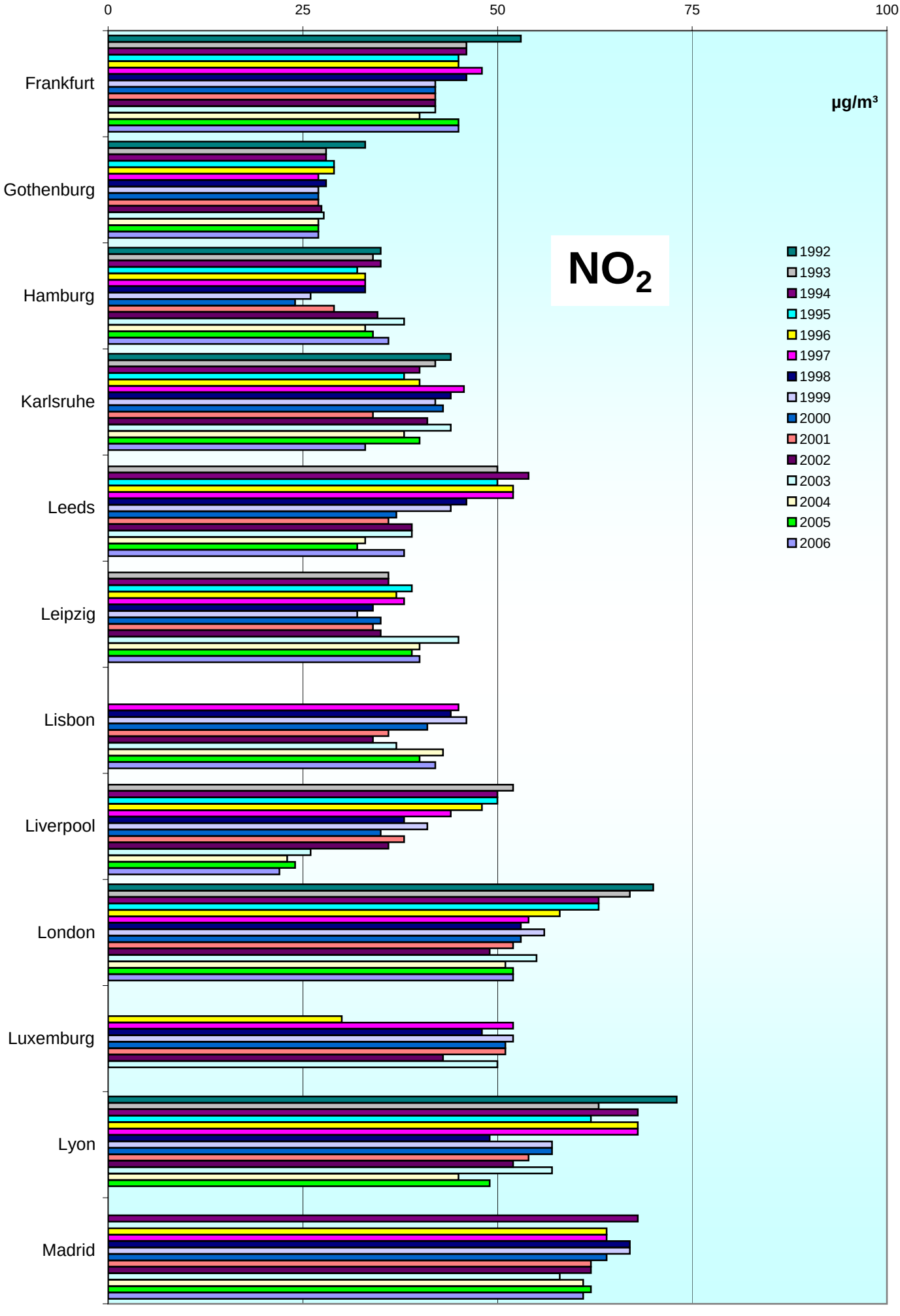
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



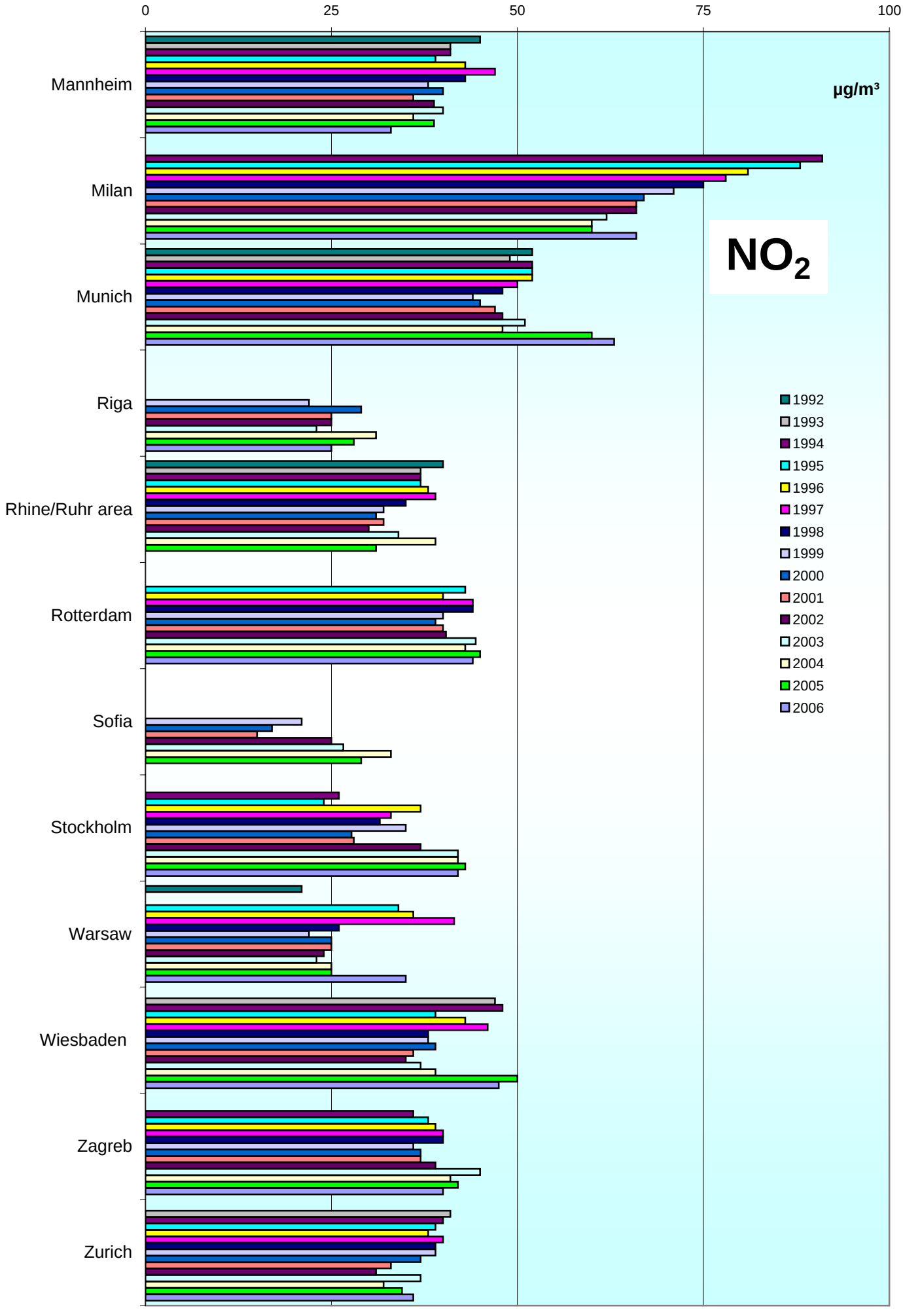
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



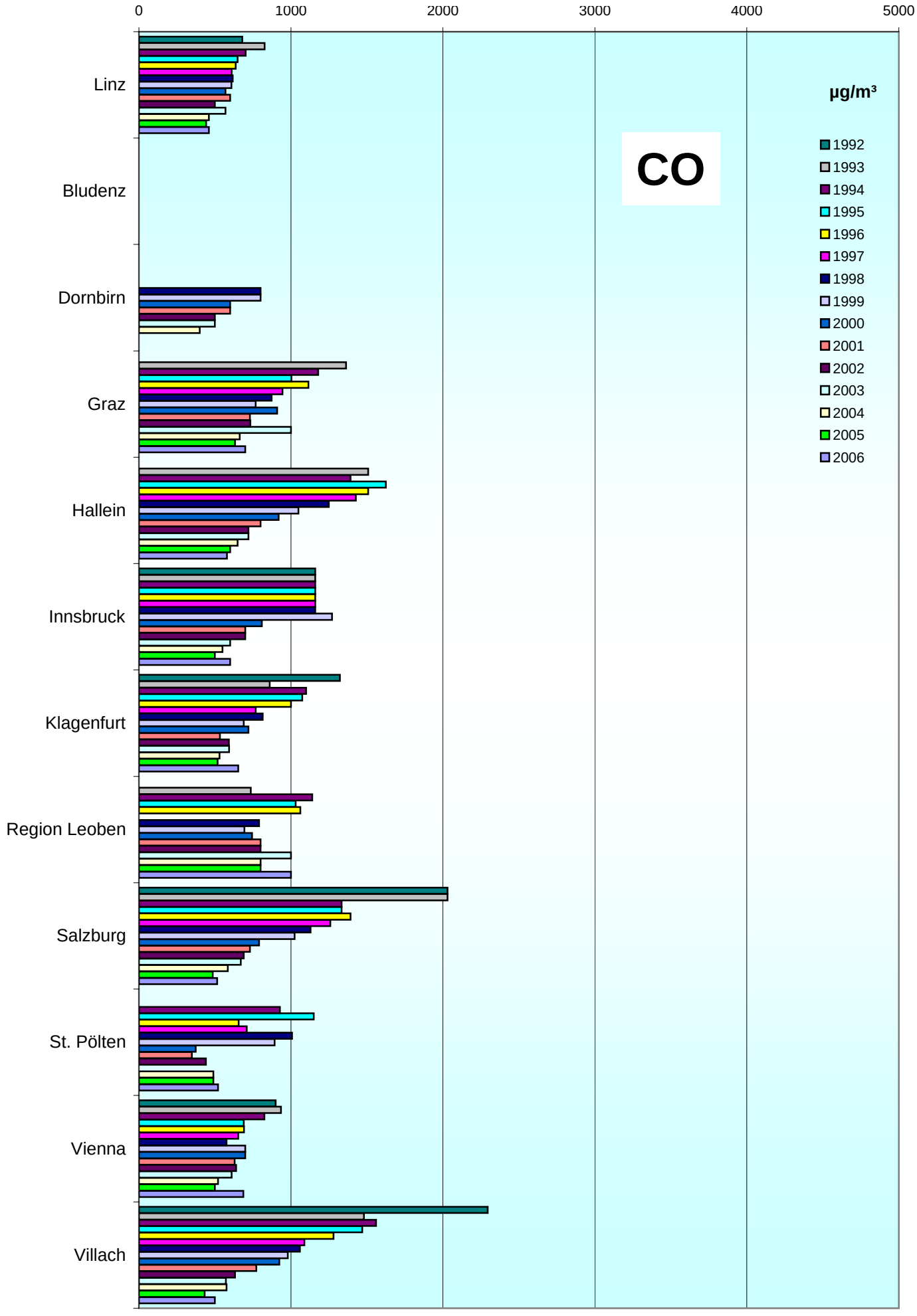
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



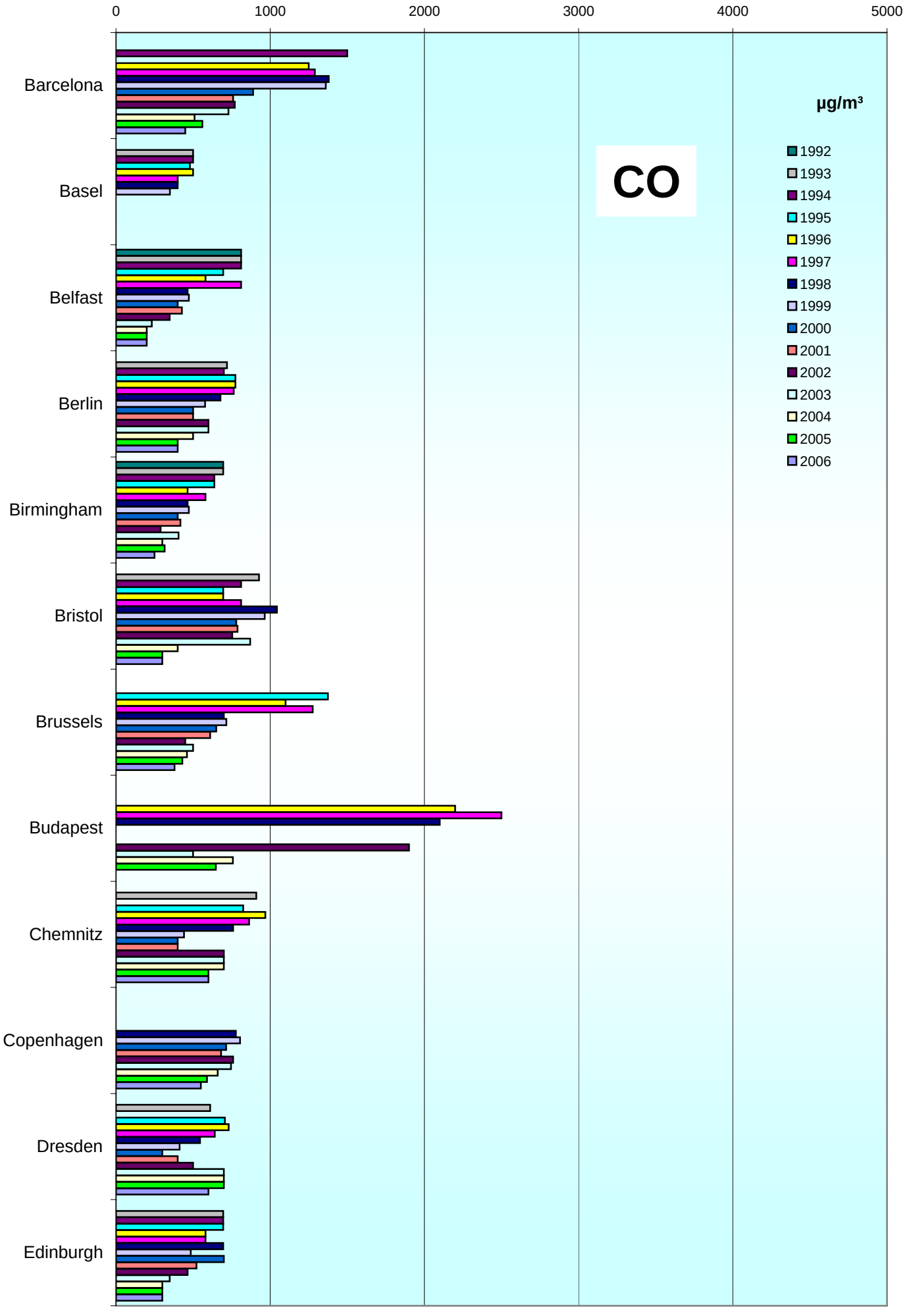
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



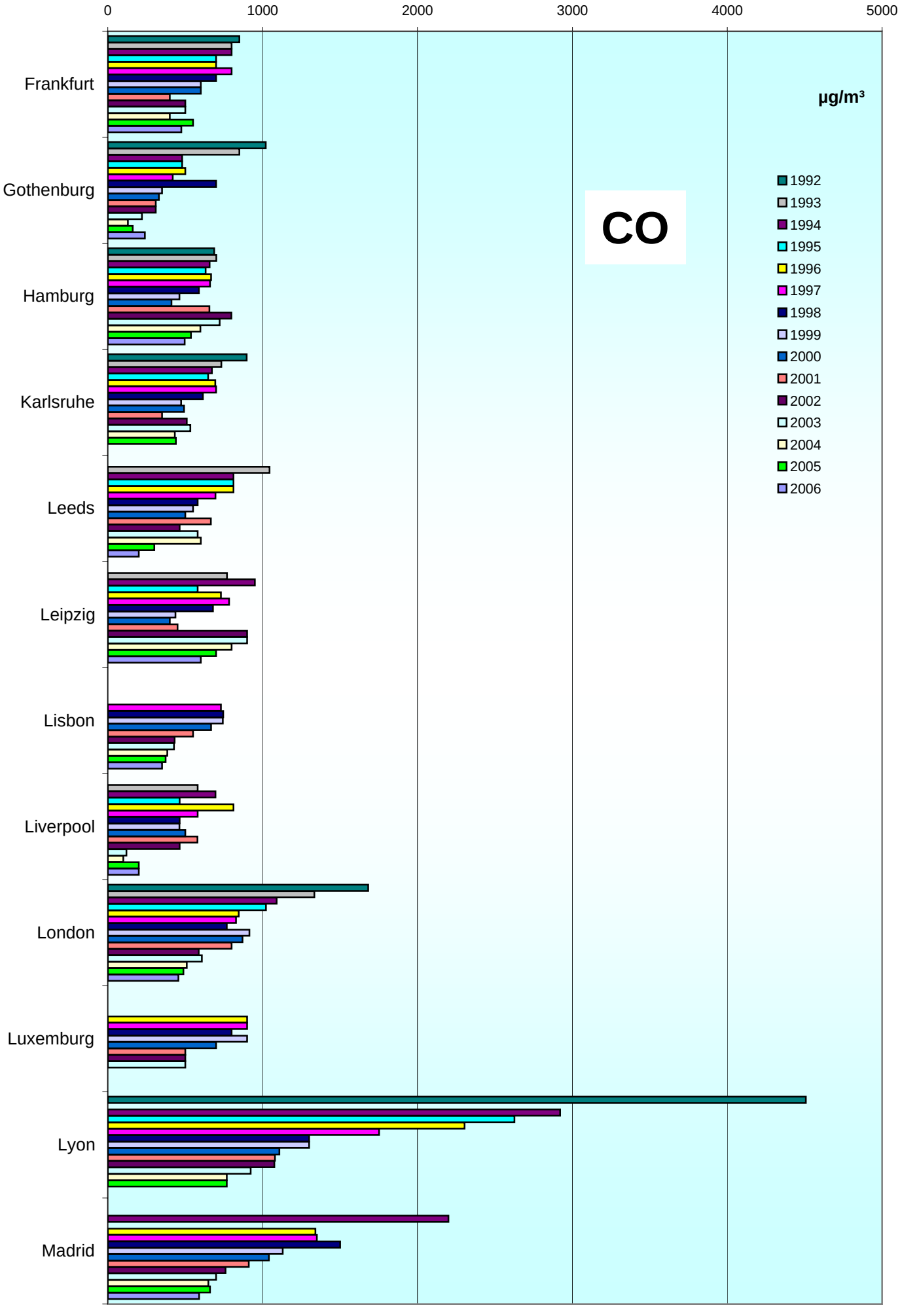
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



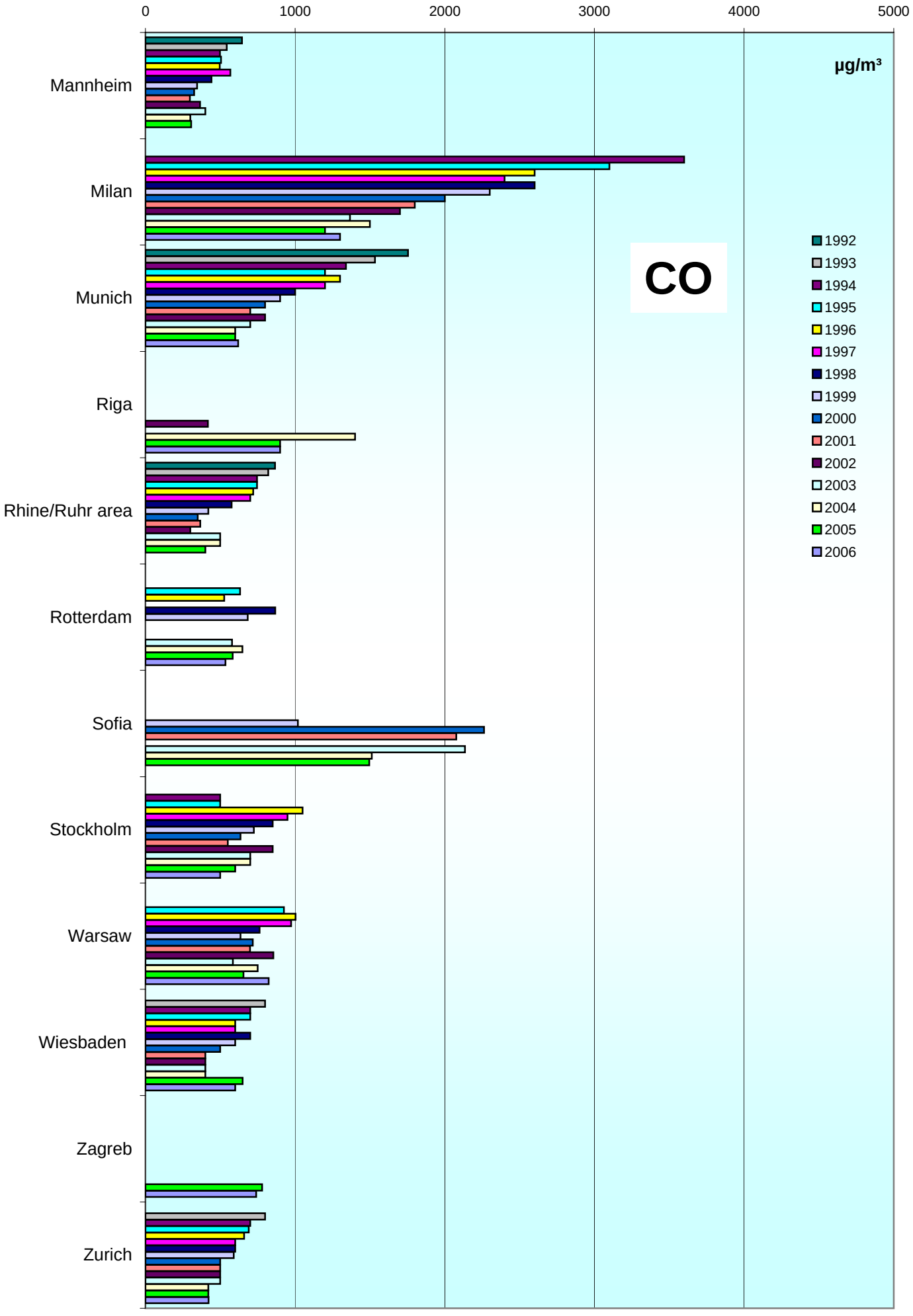
Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2006

Annual mean values (mean of all monitoring stations)



Jahresvergleich

1992 - 2006

max. Tagesmittelwerte

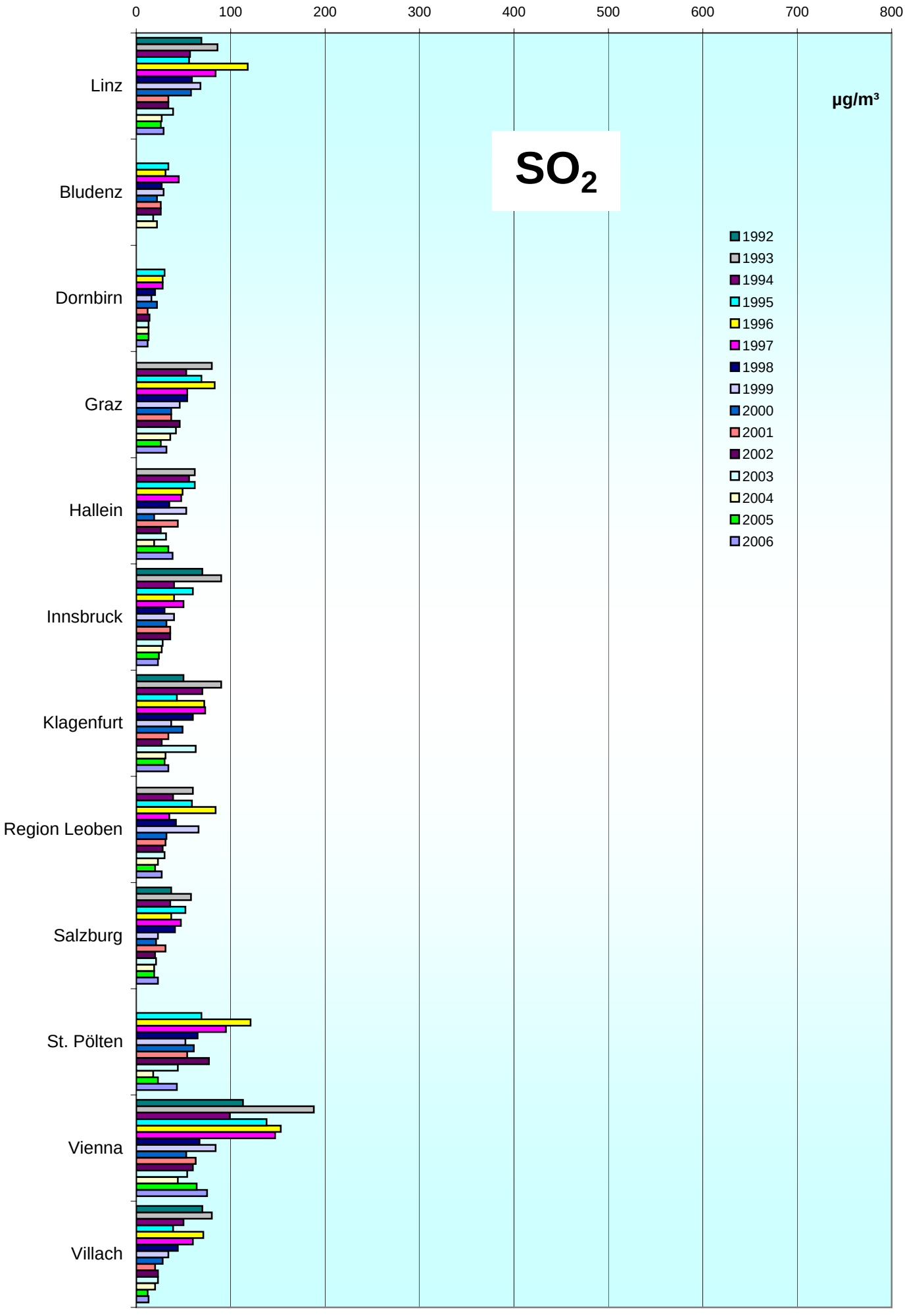
Comparison of The Air Quality Over The Years

1992 - 2006

Max. Daily Mean Values

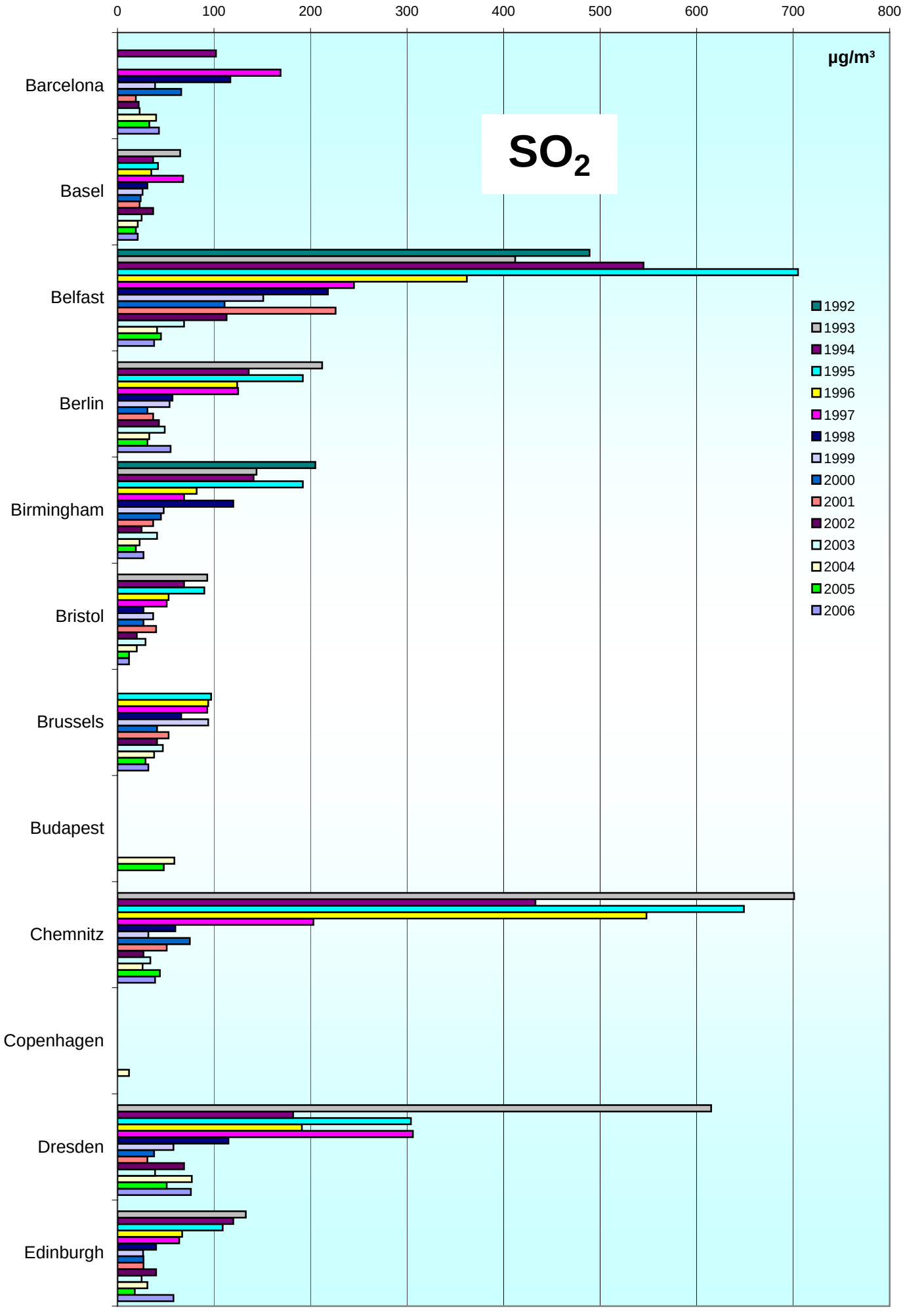
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



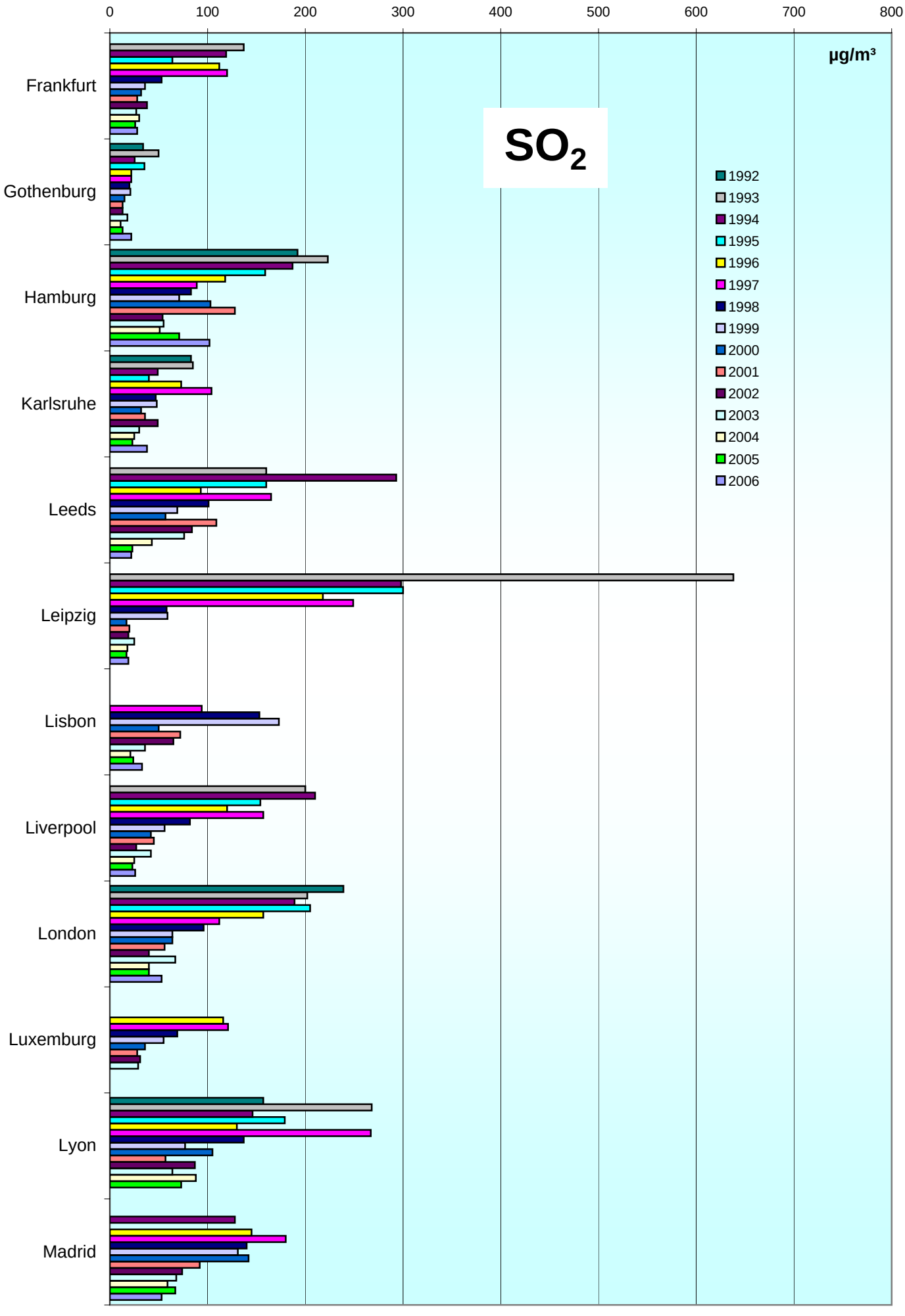
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



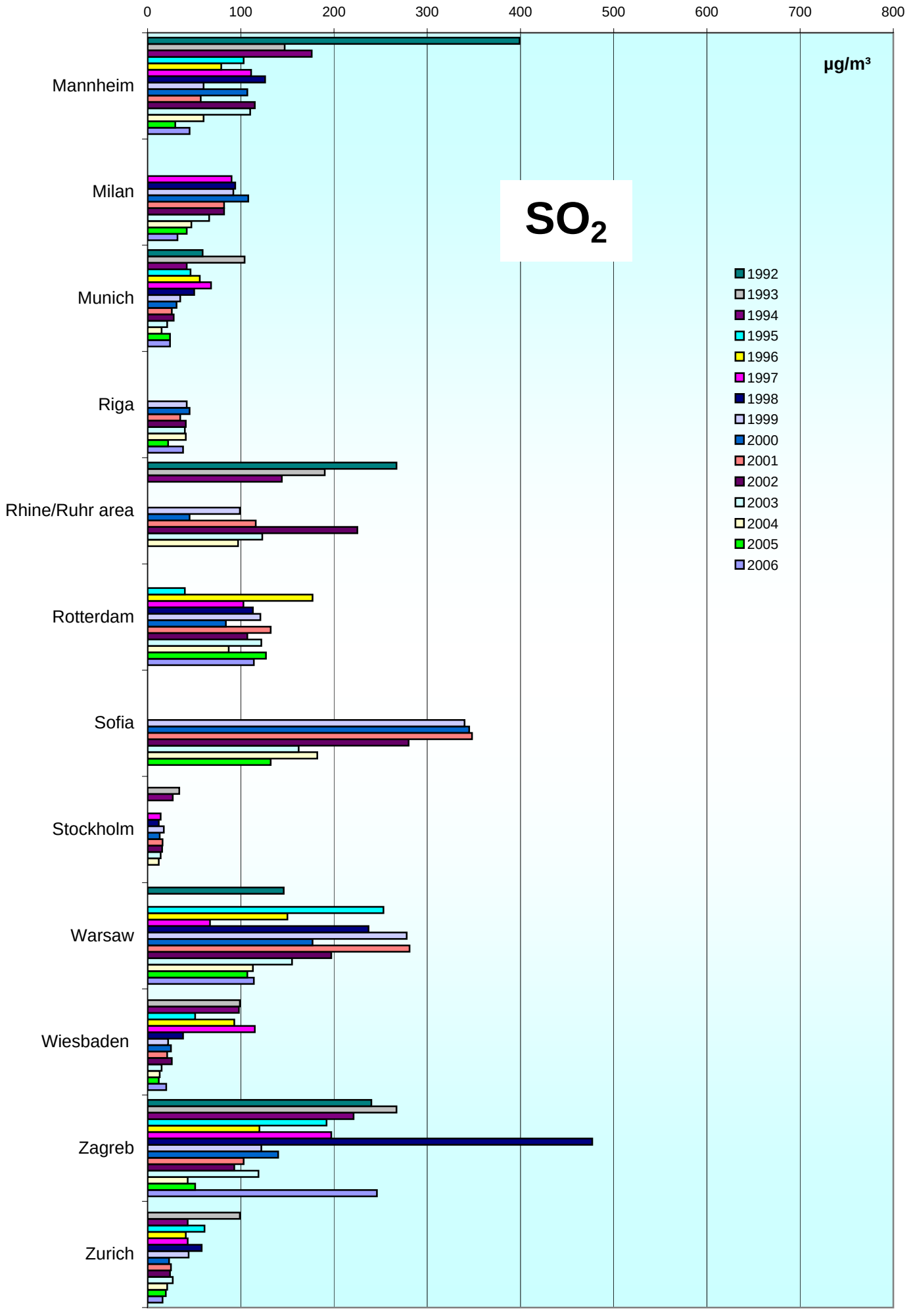
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



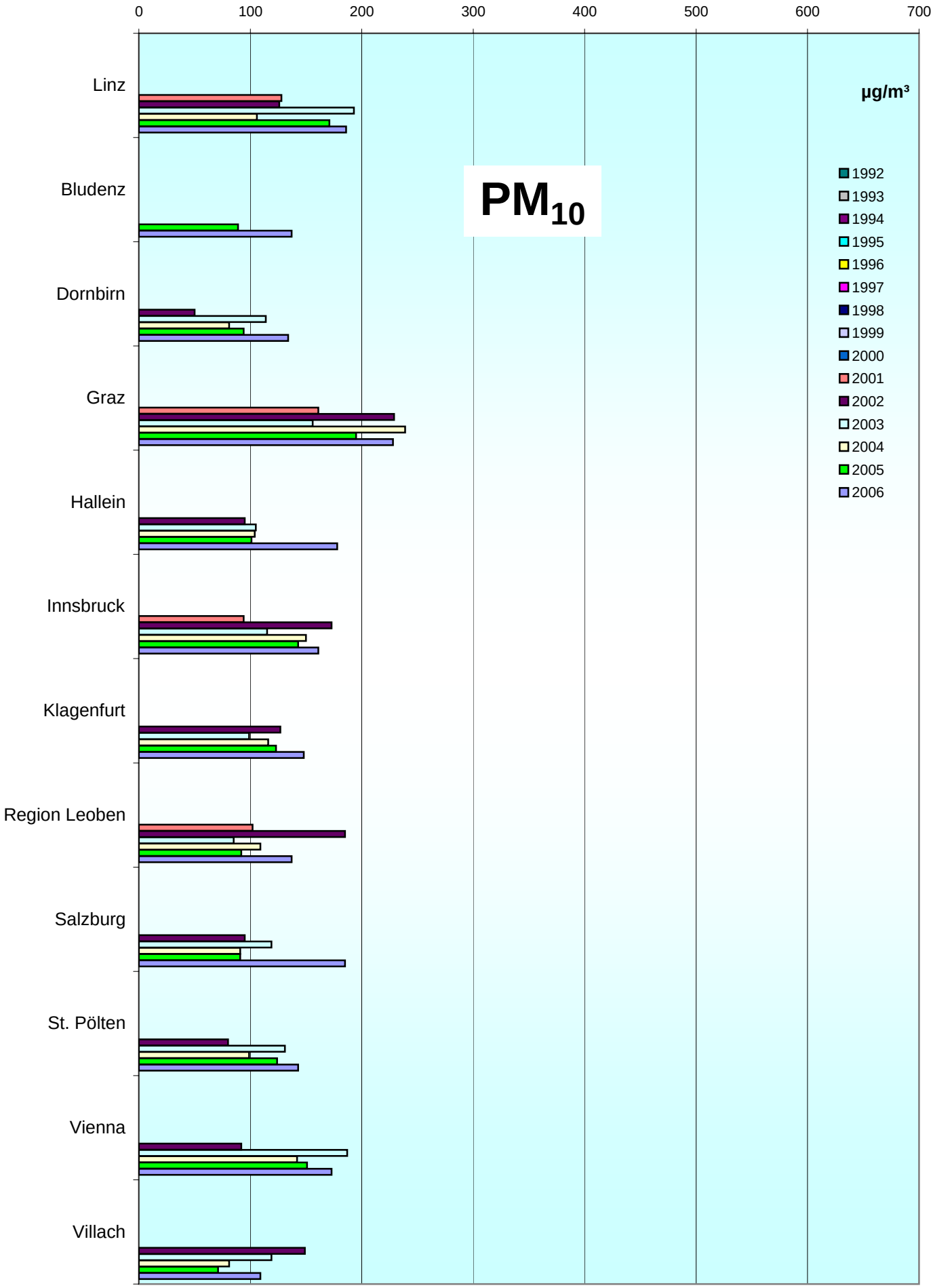
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



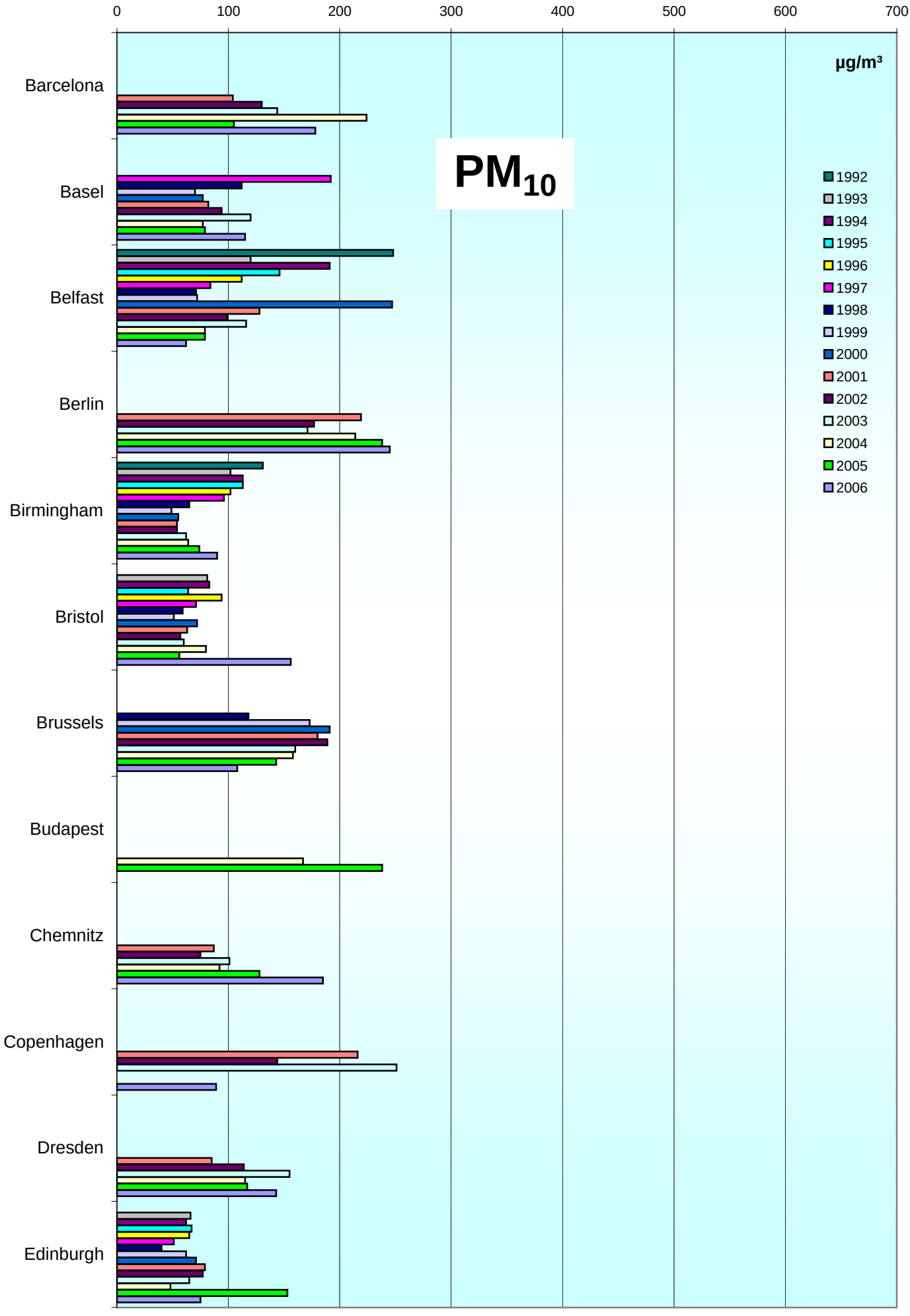
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2006

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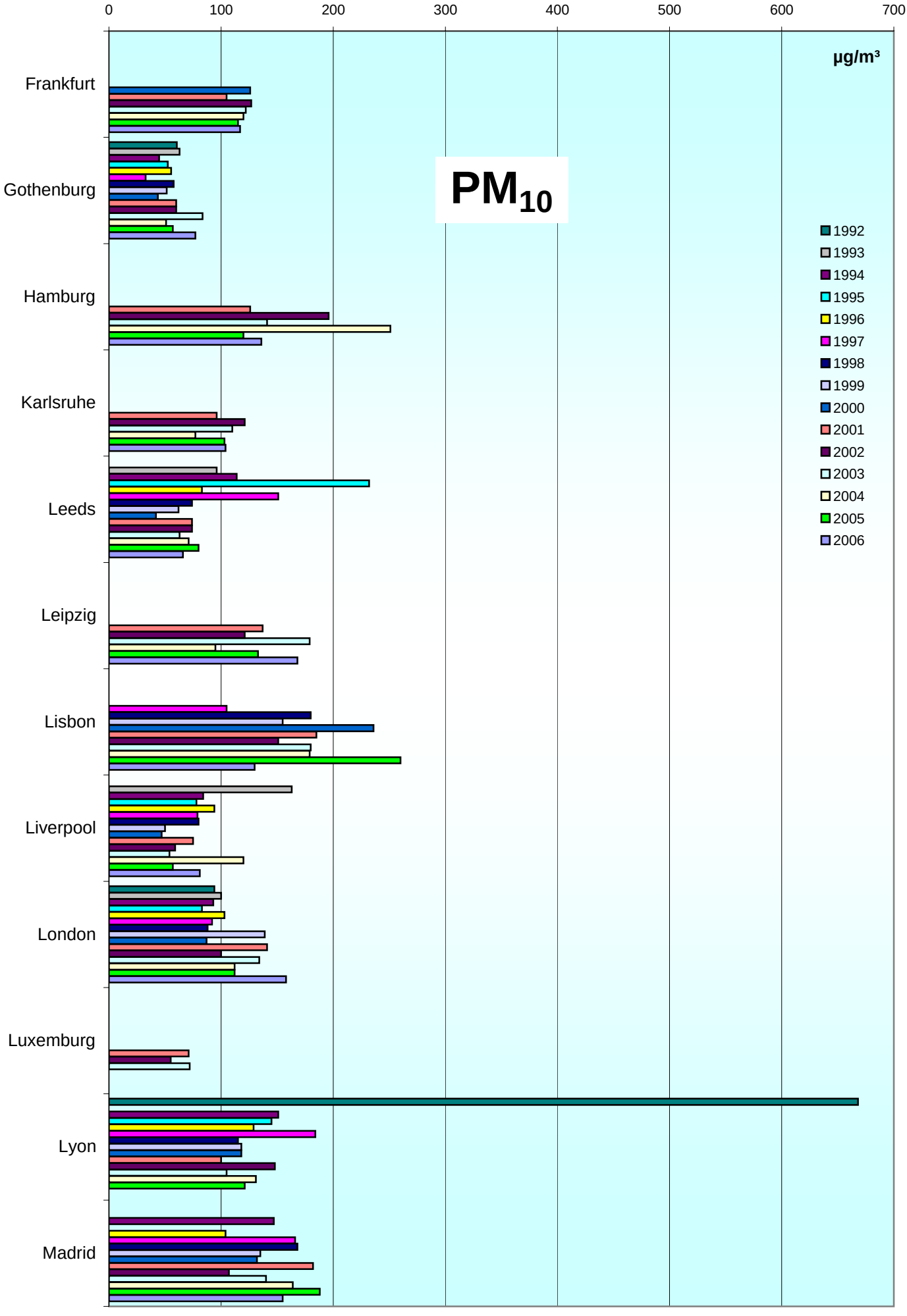
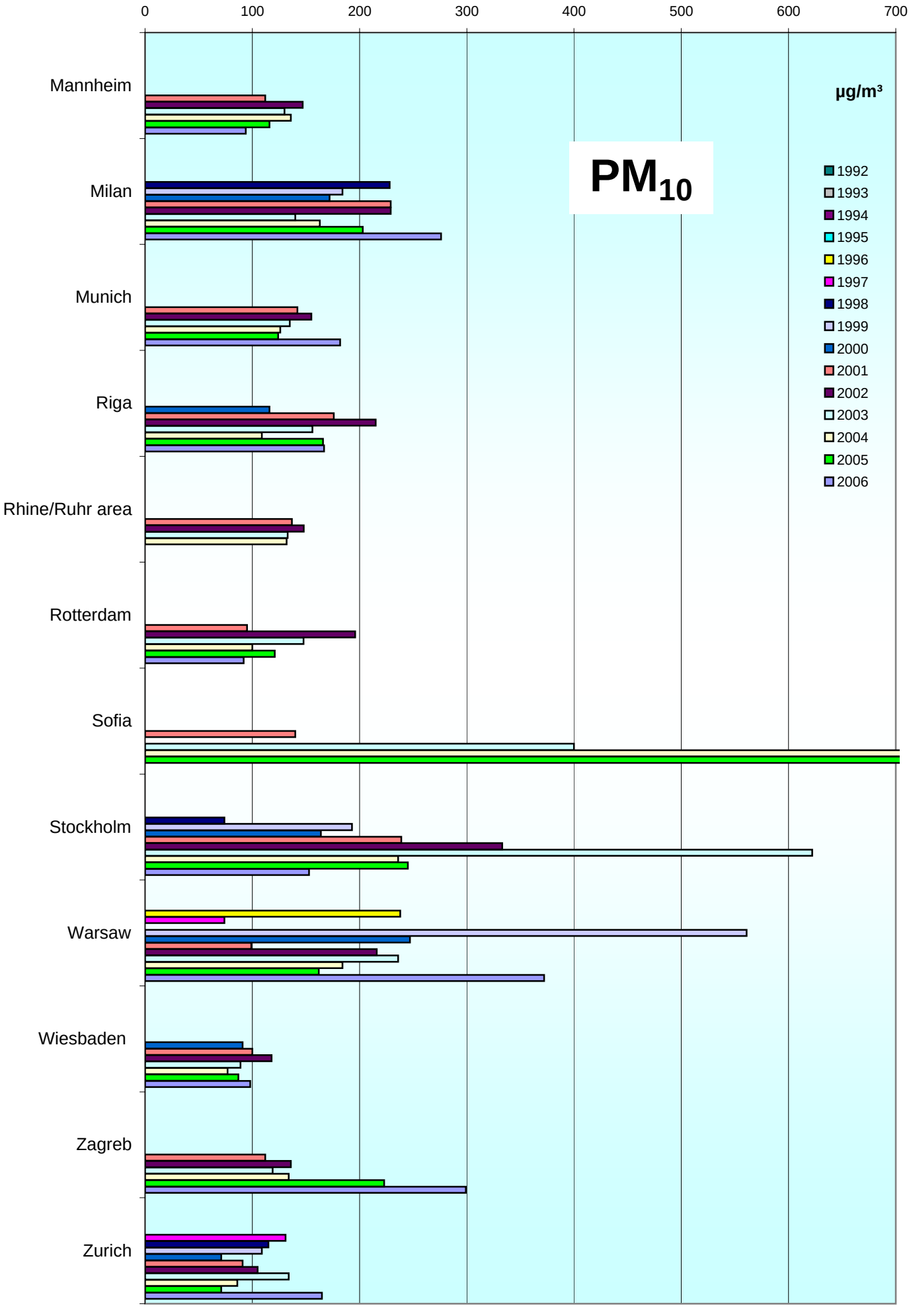


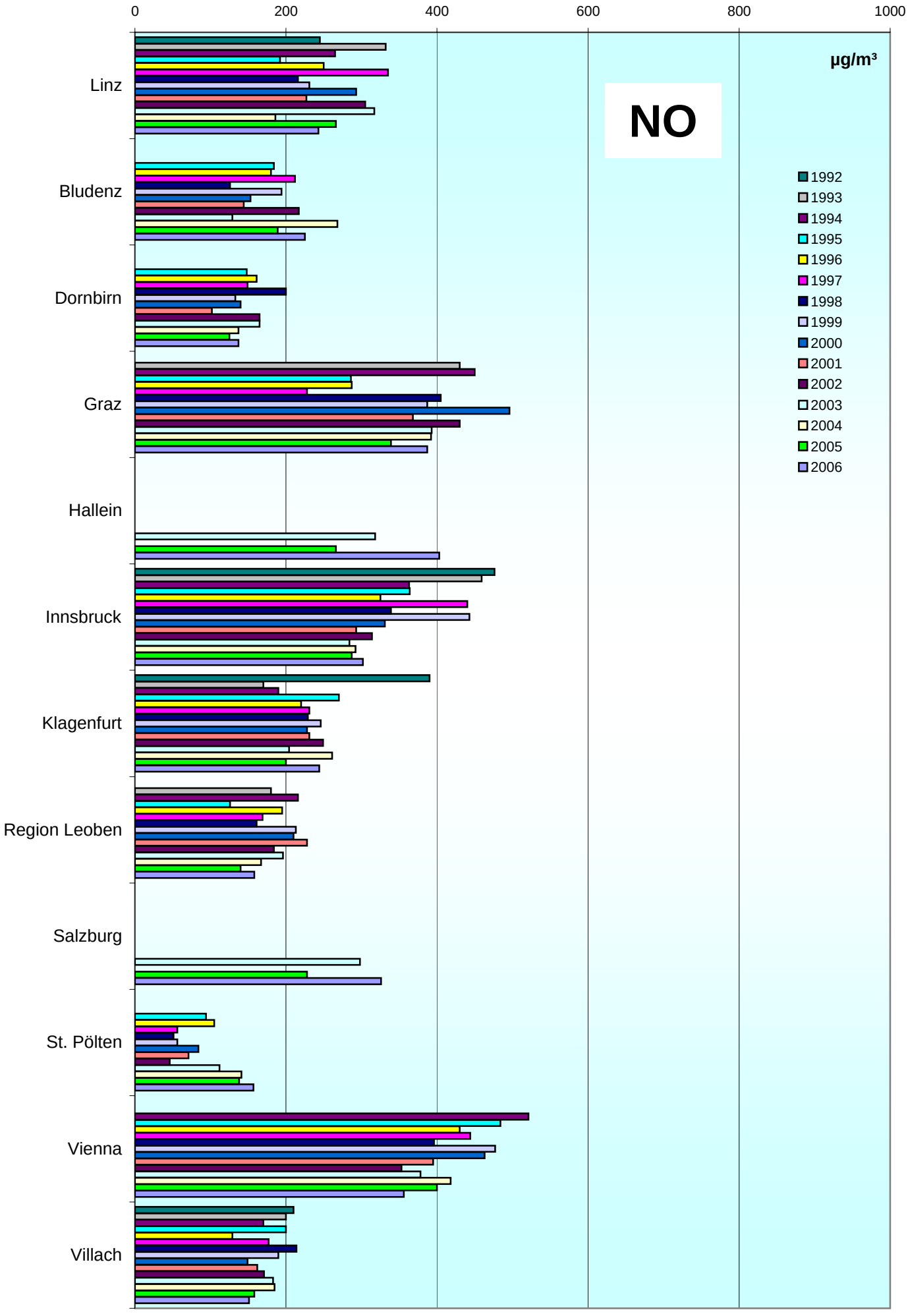
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



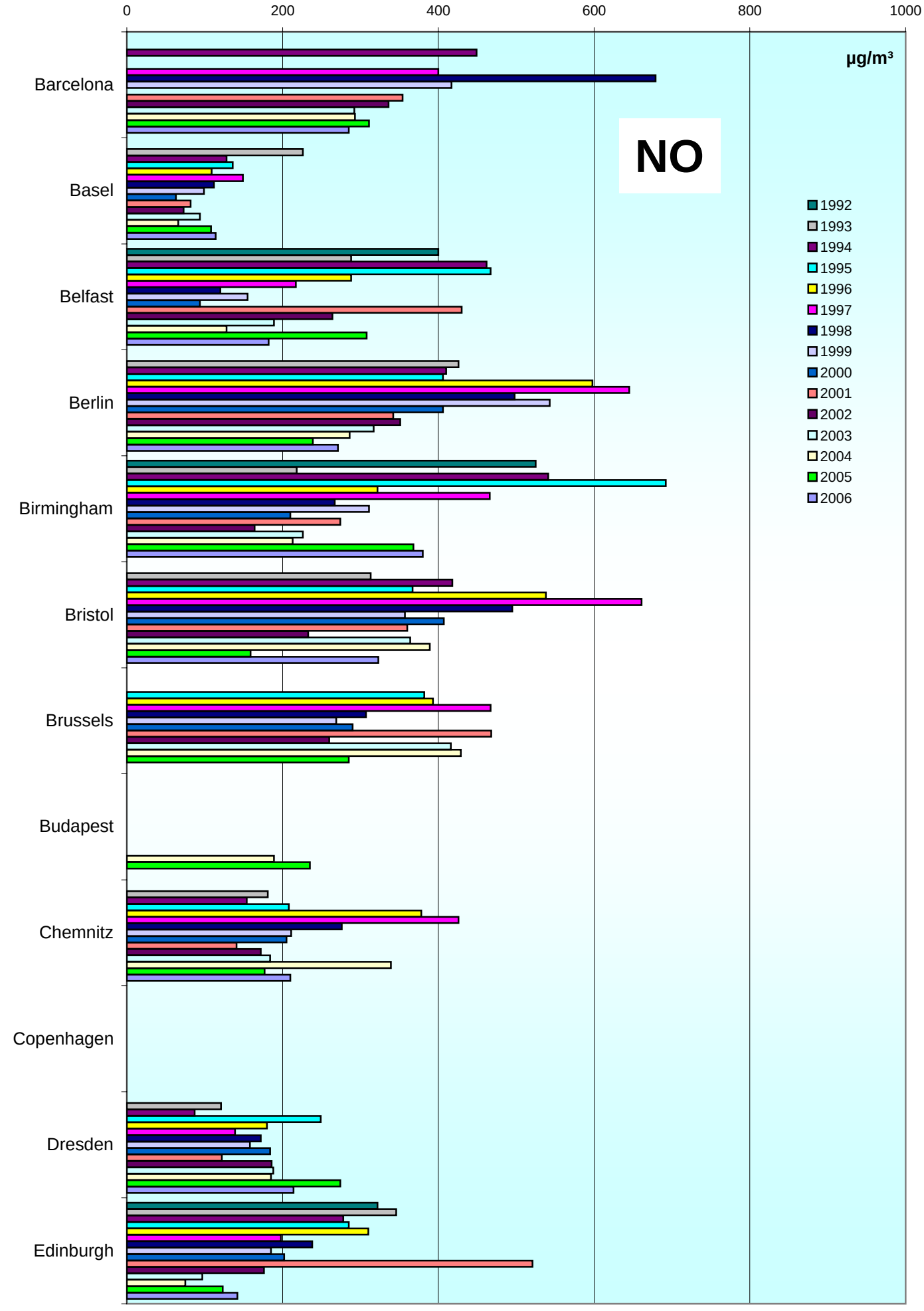
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



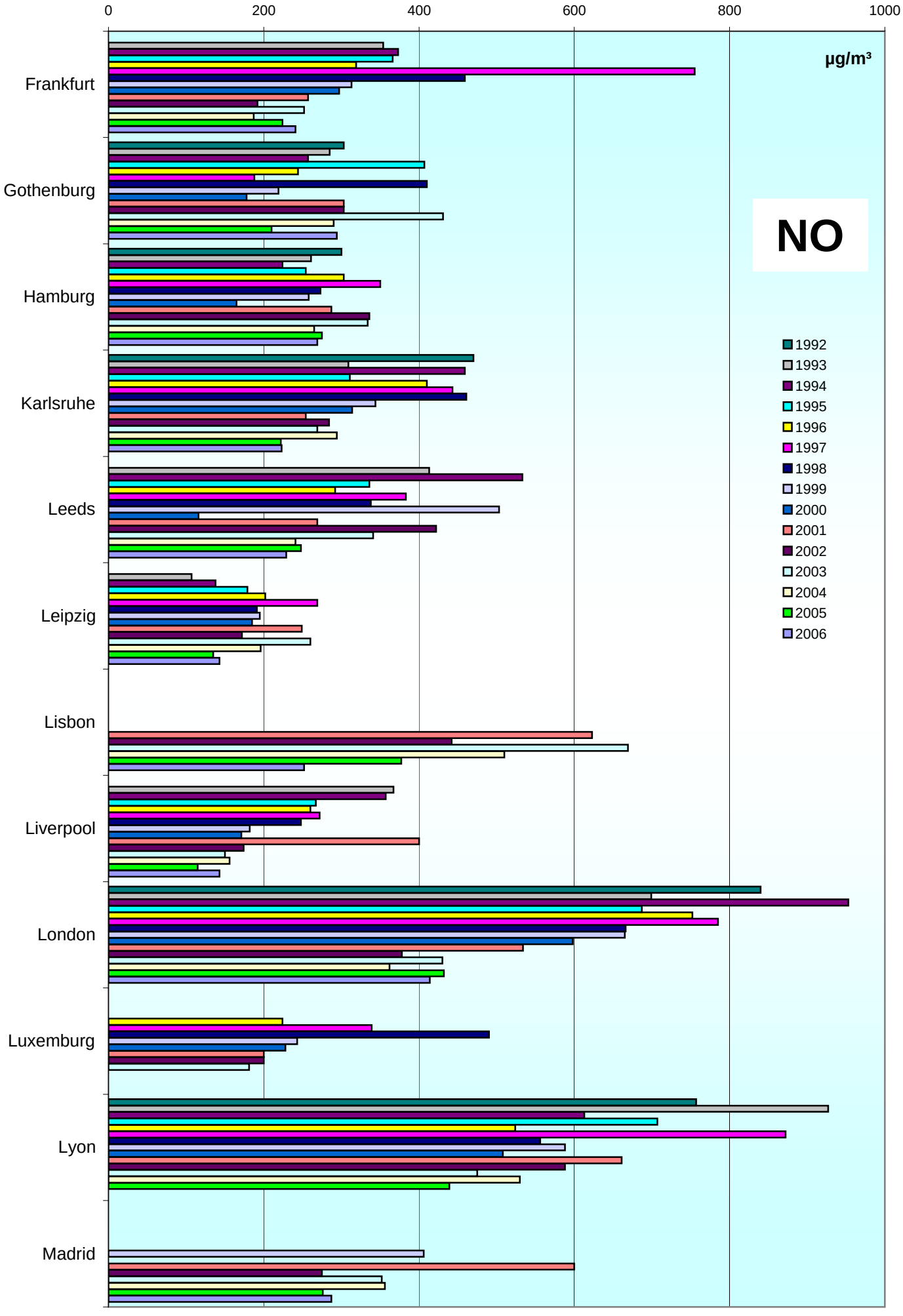
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



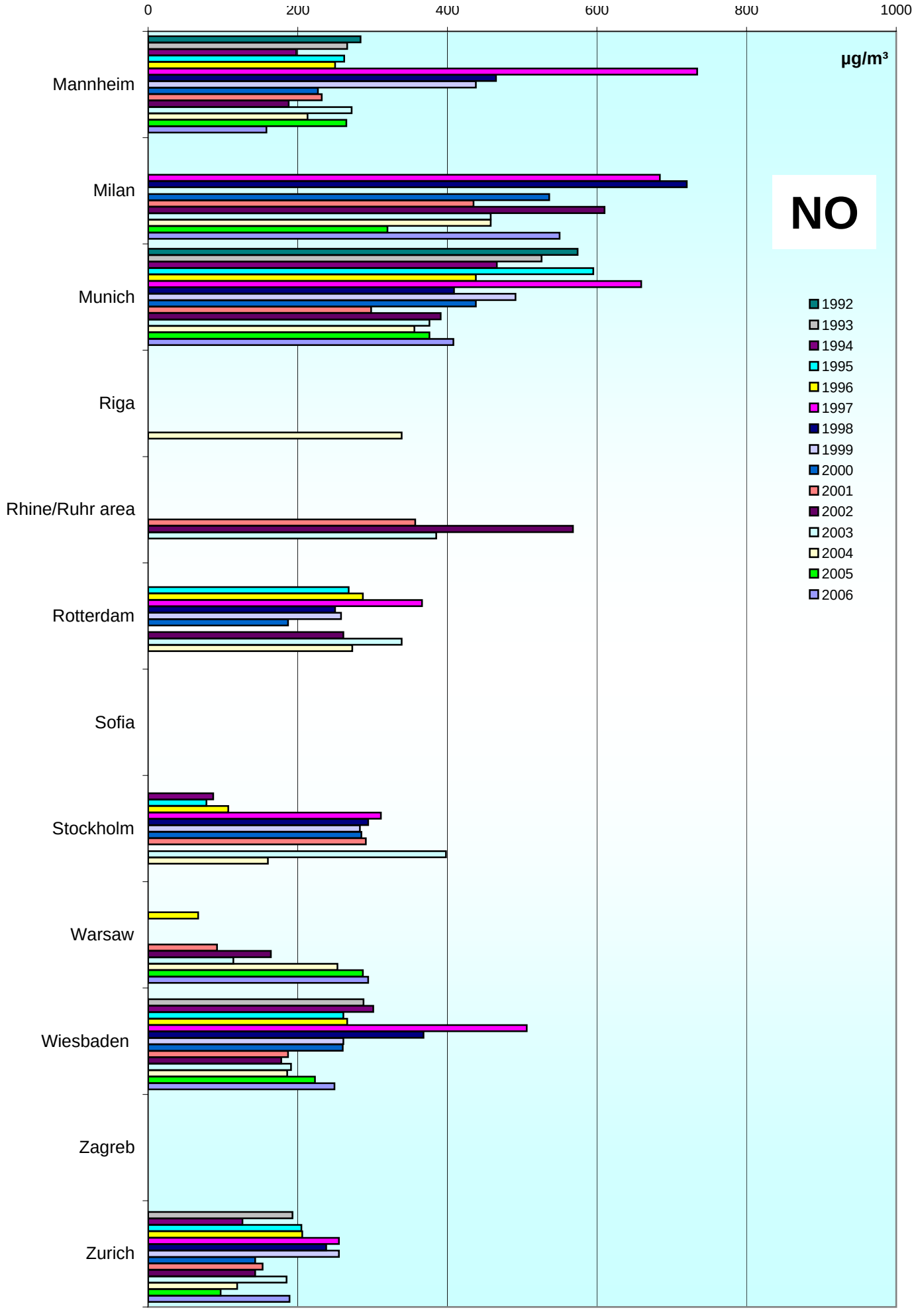
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



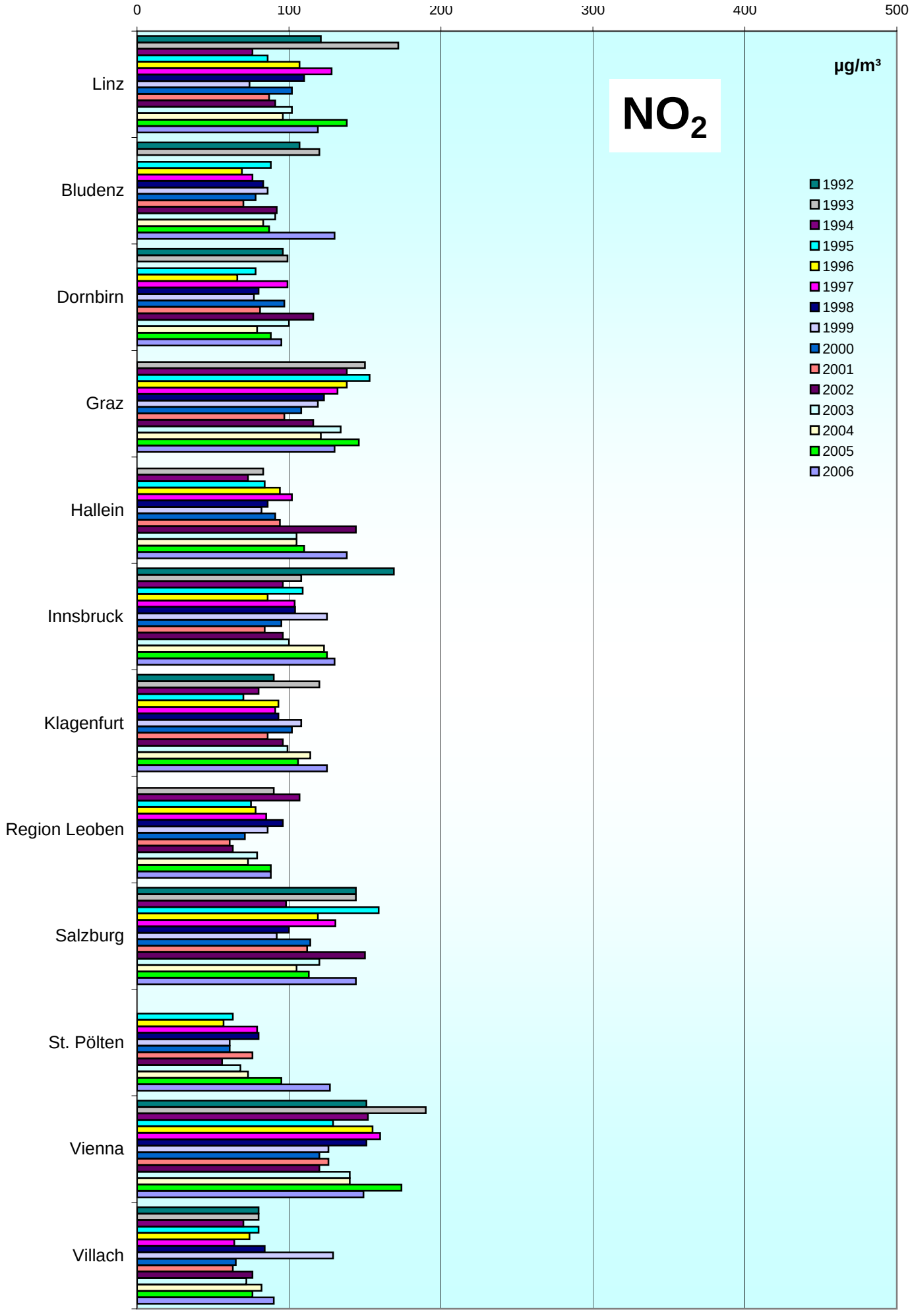
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



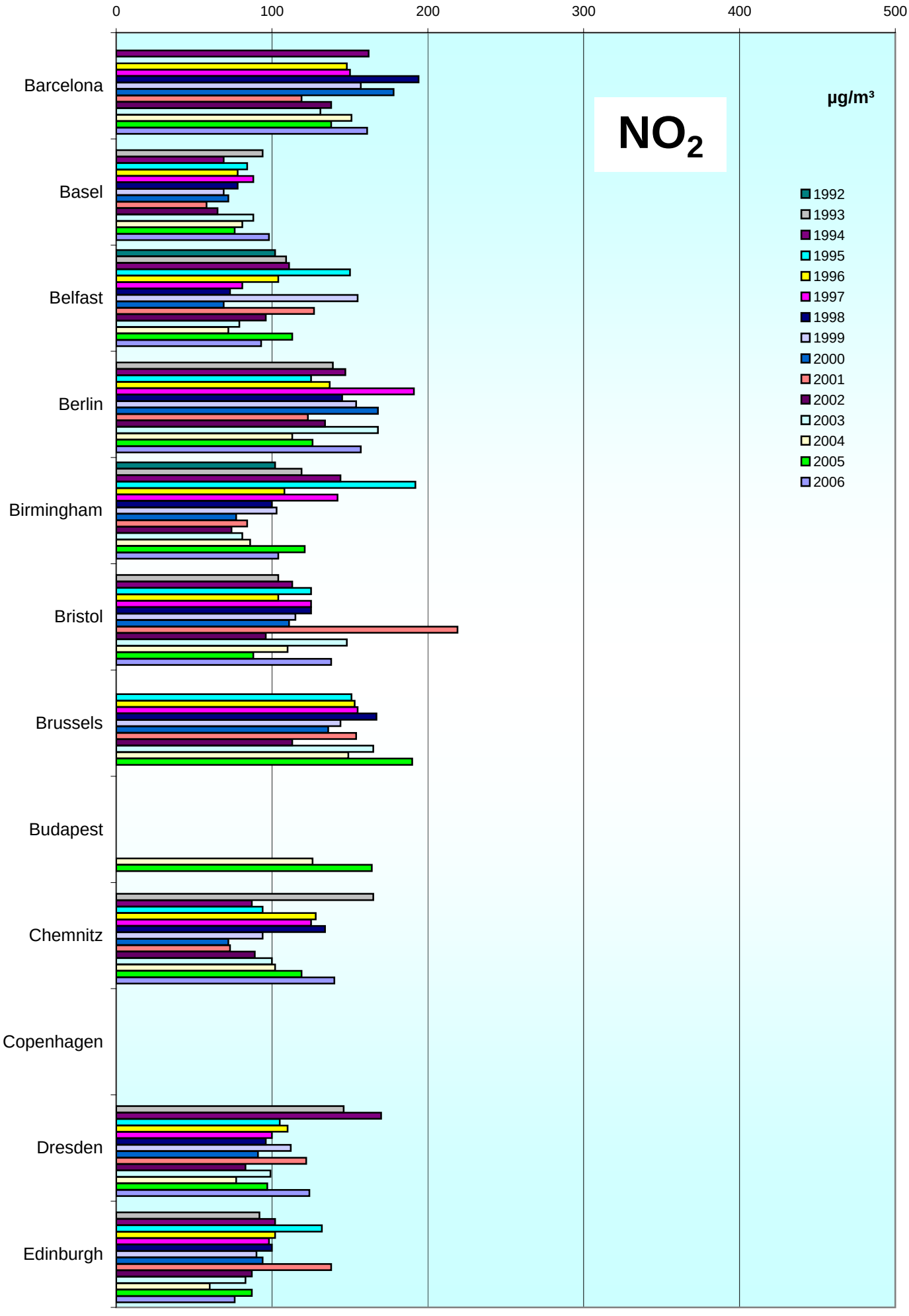
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



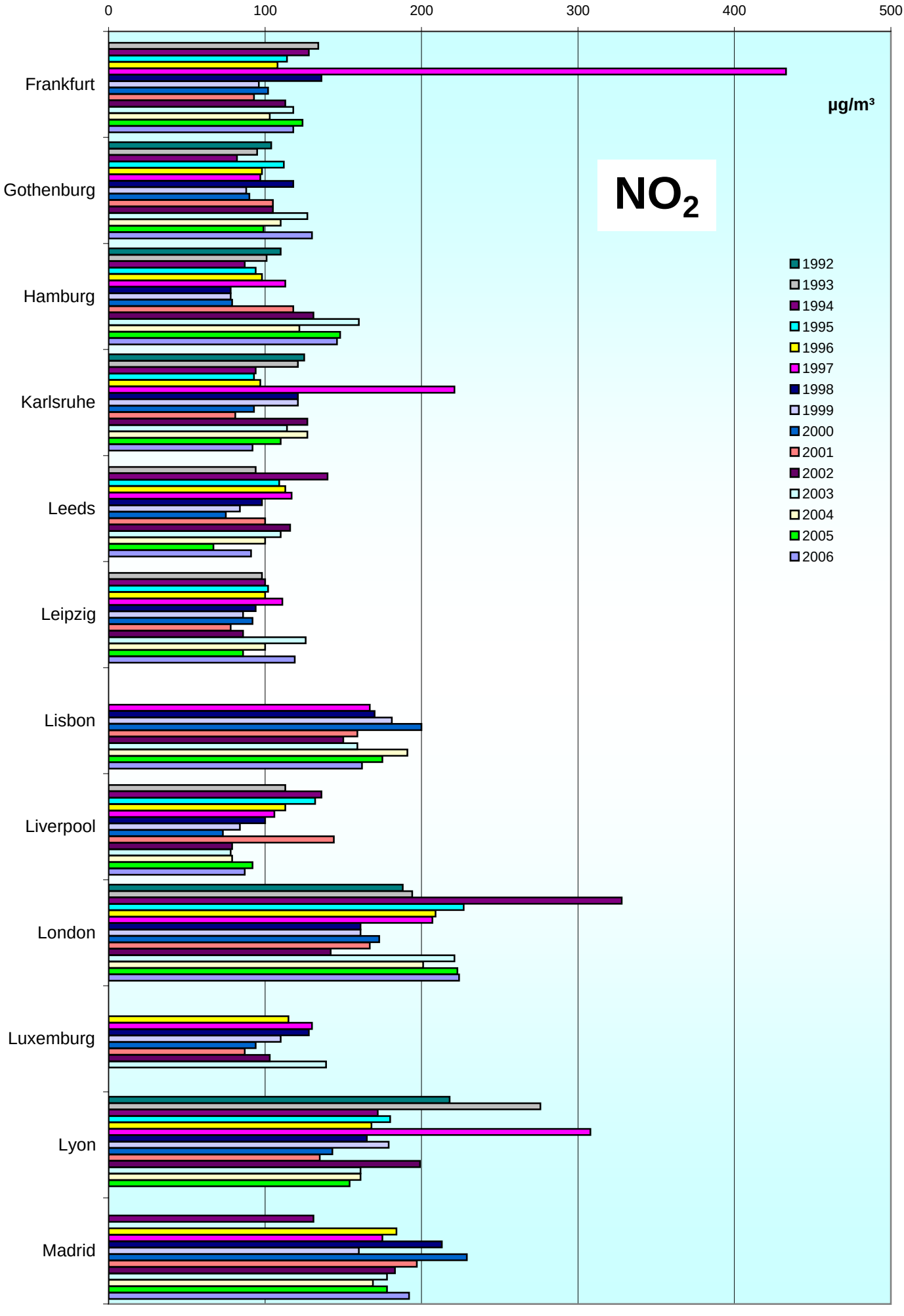
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



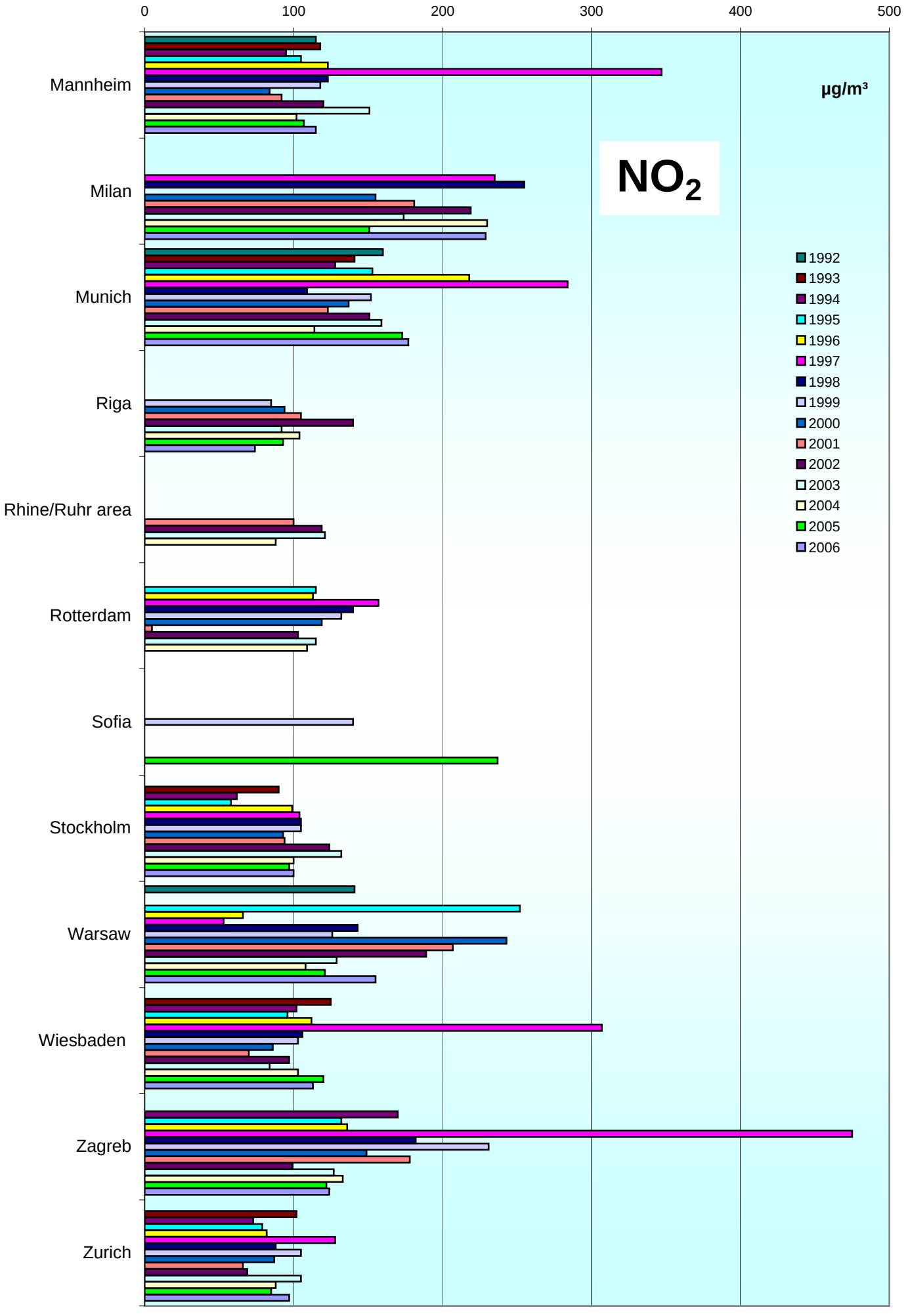
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



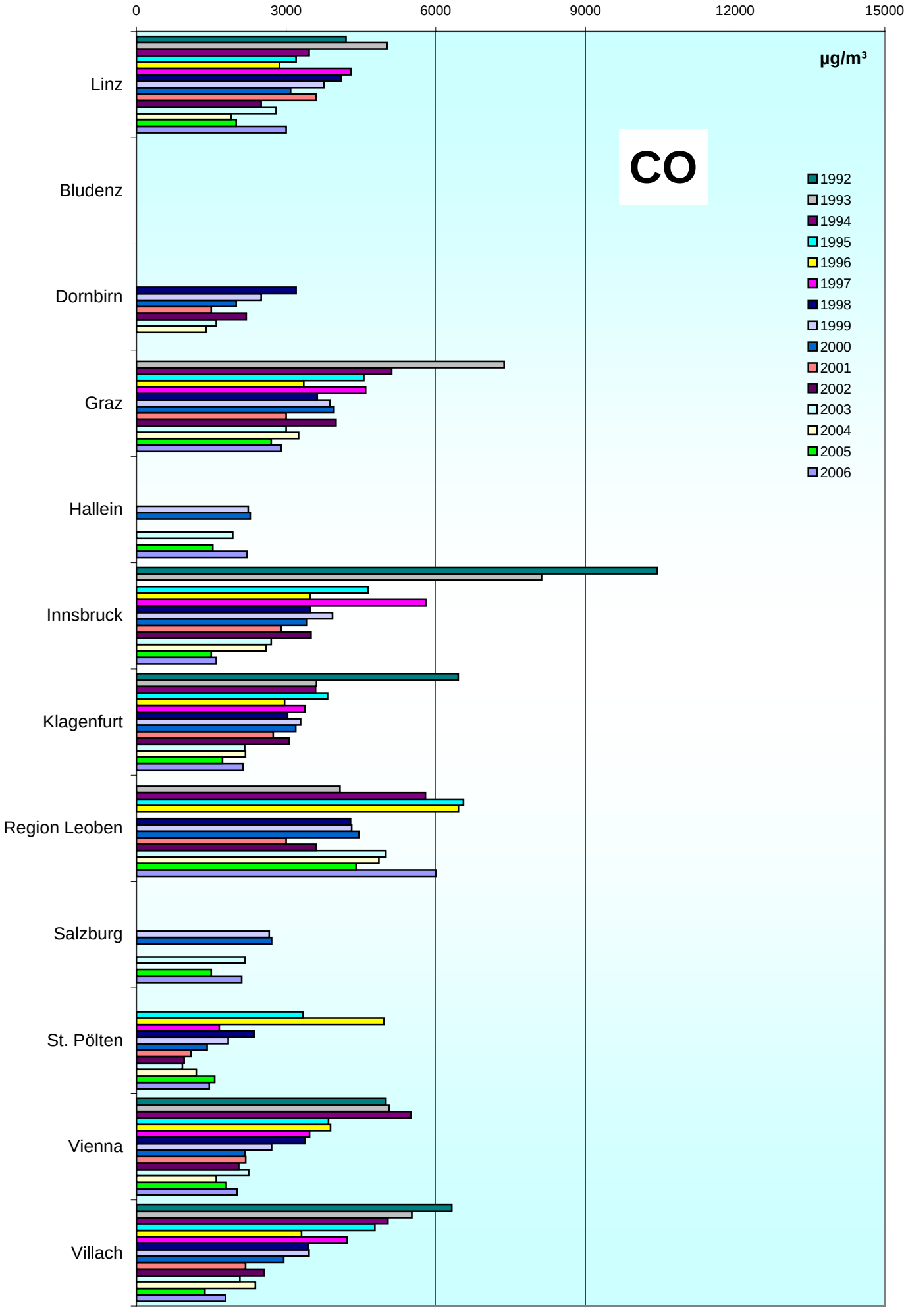
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



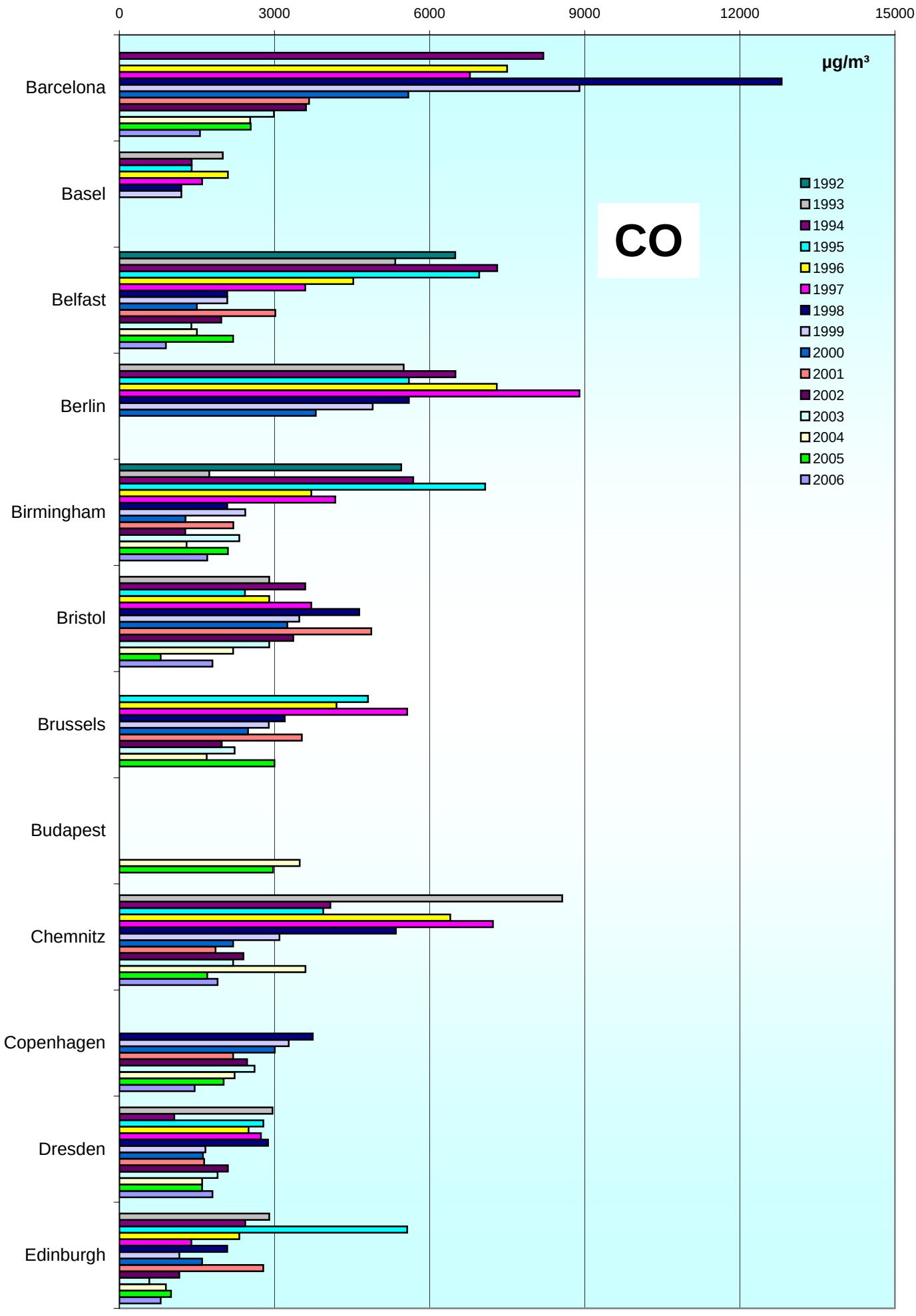
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



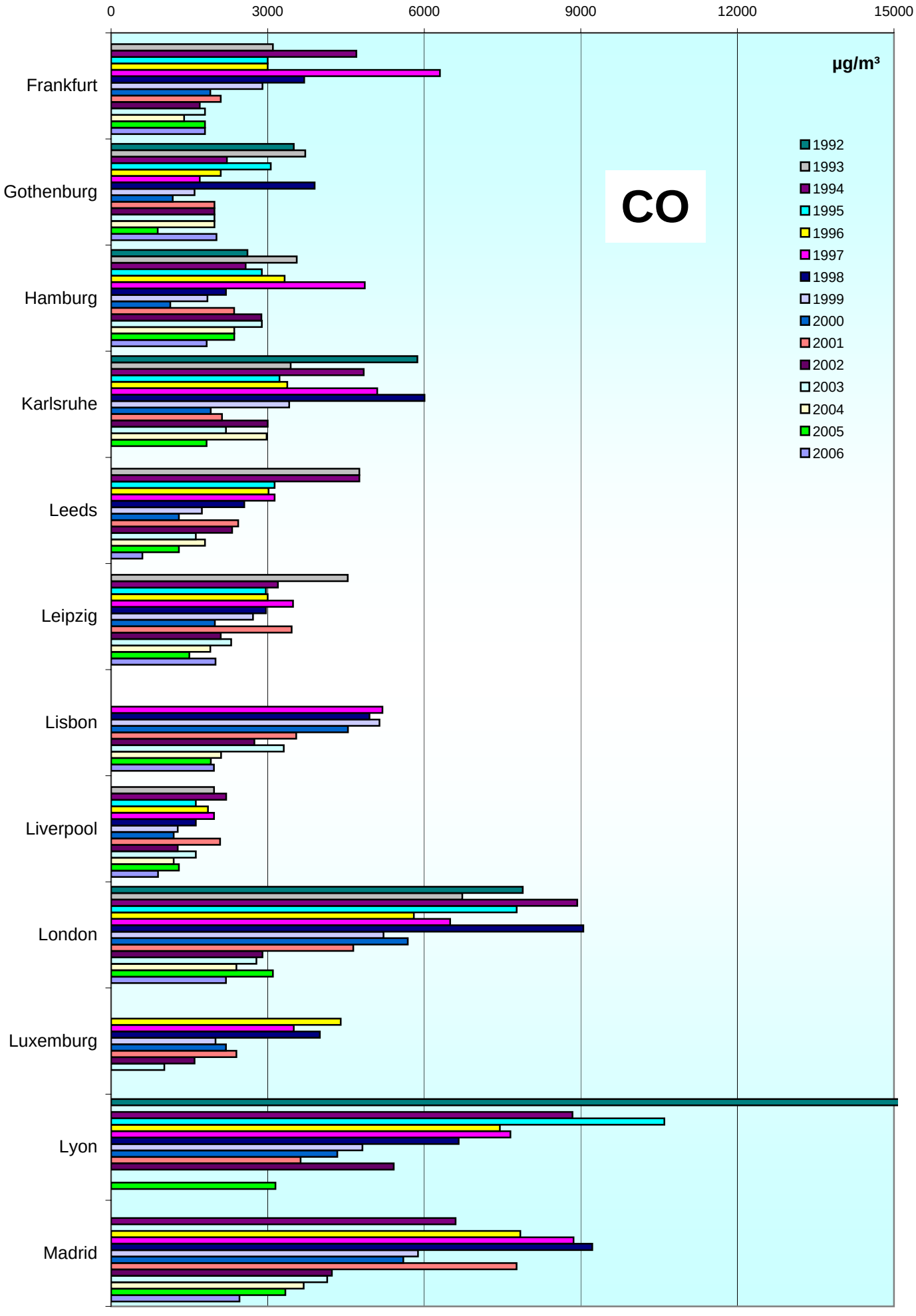
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



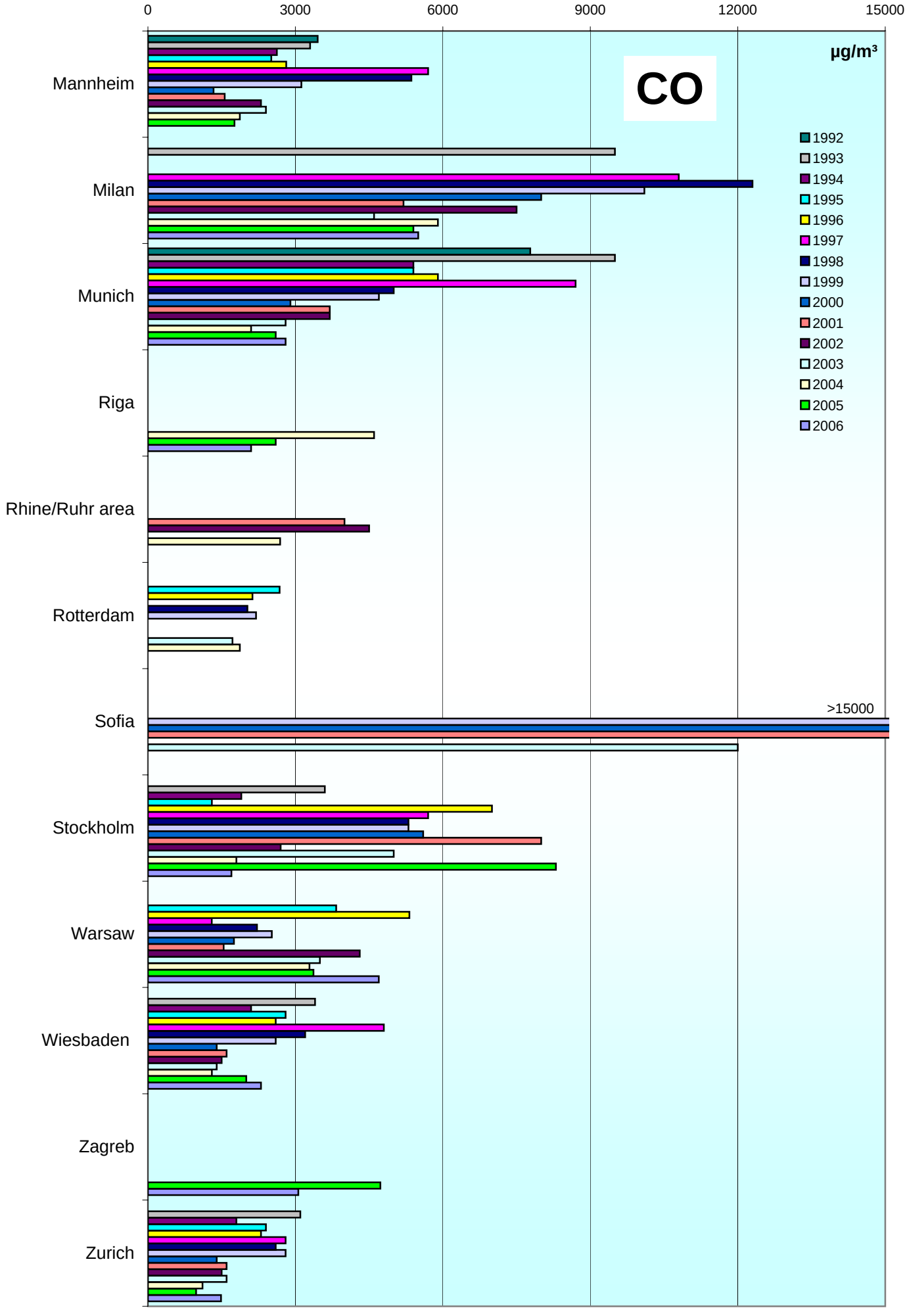
Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2006

max. daily mean values (peak-stressed monitoring station)



Jahresvergleich

1993 - 2006

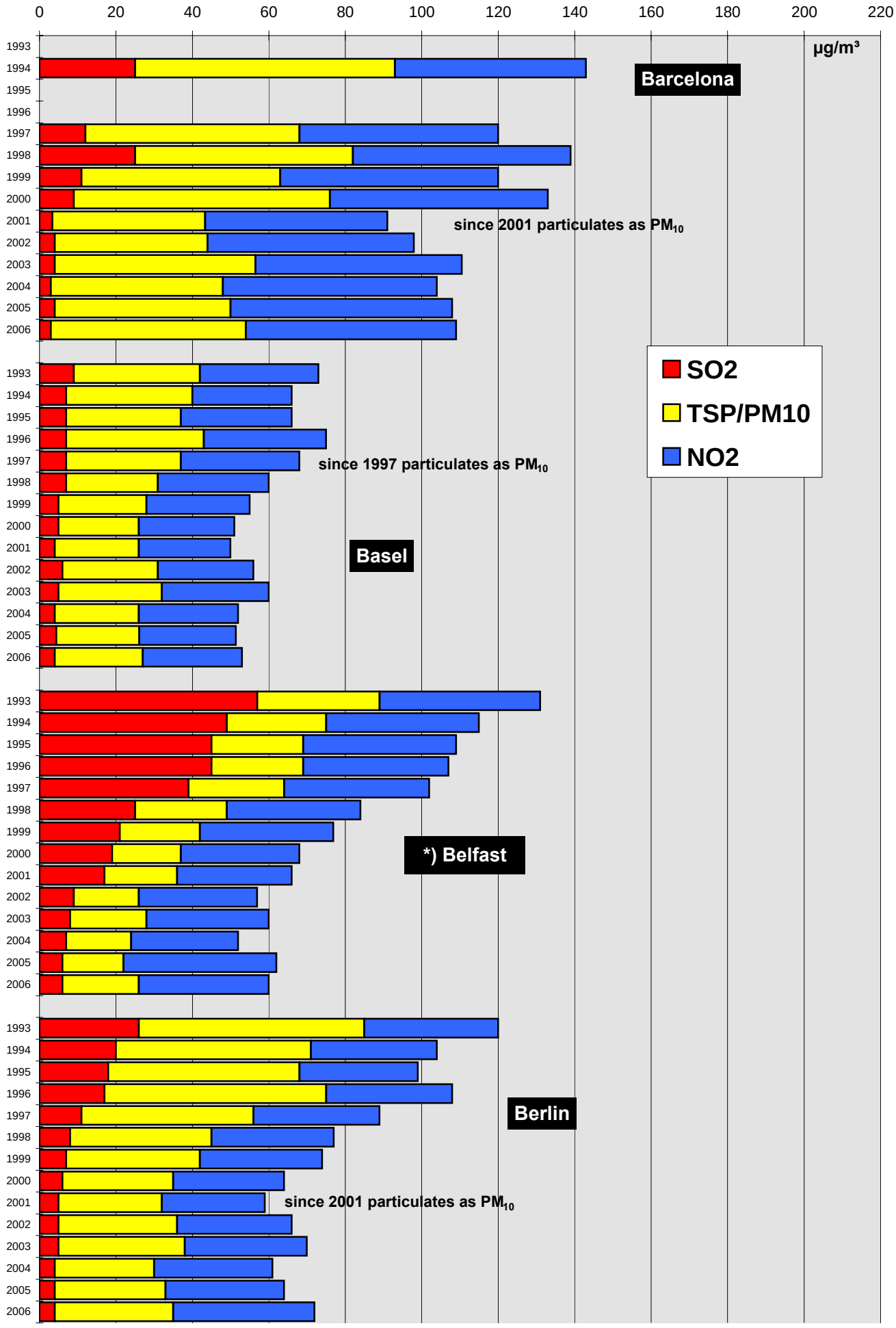
Jahresmittelwerte, Σ SO_2, TSP/PM10, NO_2

Comparison Of The Air Quality

1993 - 2006

Annual Mean Values, Σ SO_2, TSP/PM10, NO_2

Comparison Of The Air Quality 1993-2006
Development of the annual mean values, Σ SO2, TSP/PM10, NO2
(mean of all monitoring stations)

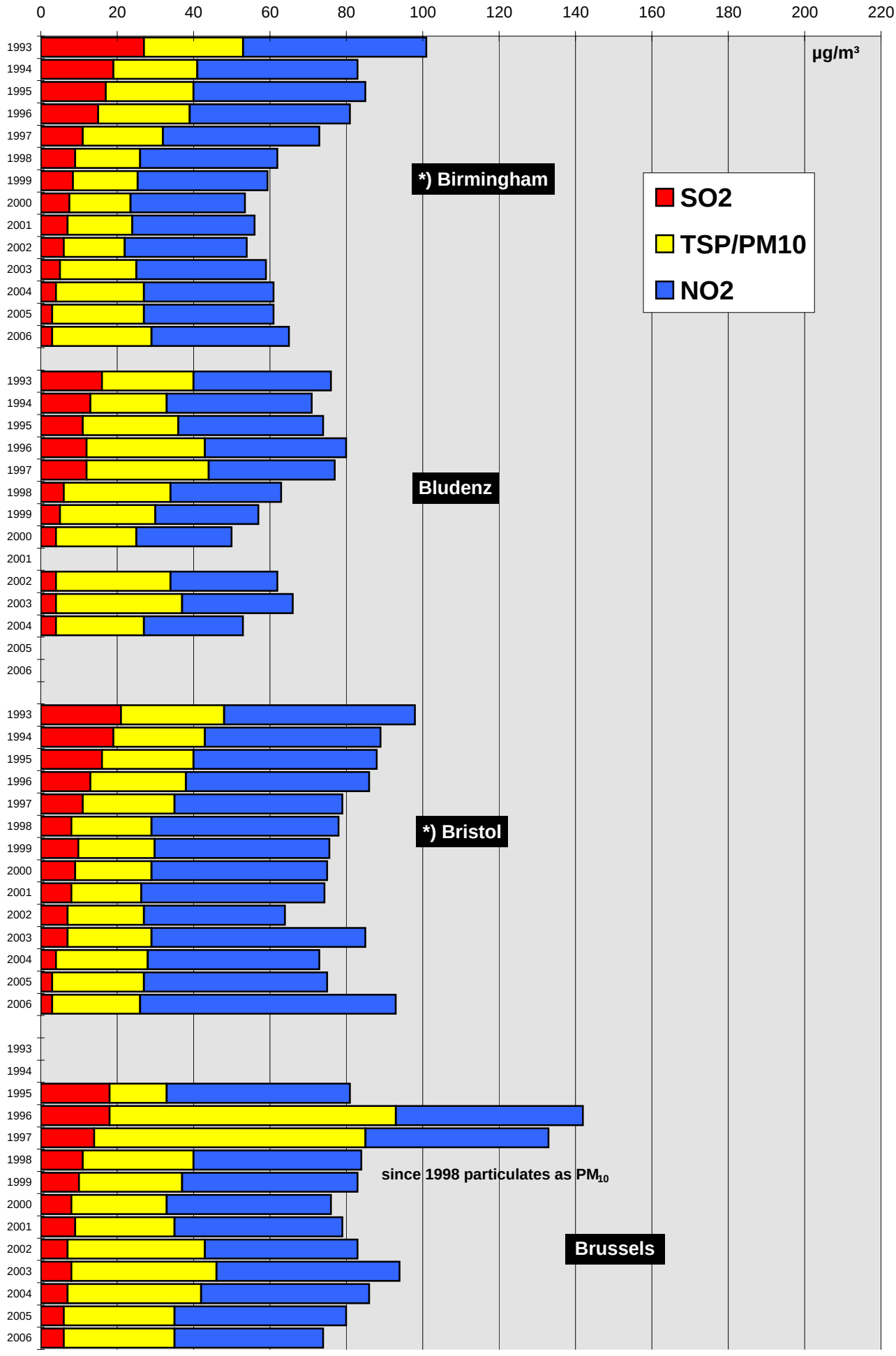


*) particulates calculated as PM 10

Comparison Of The Air Quality 1993-2006

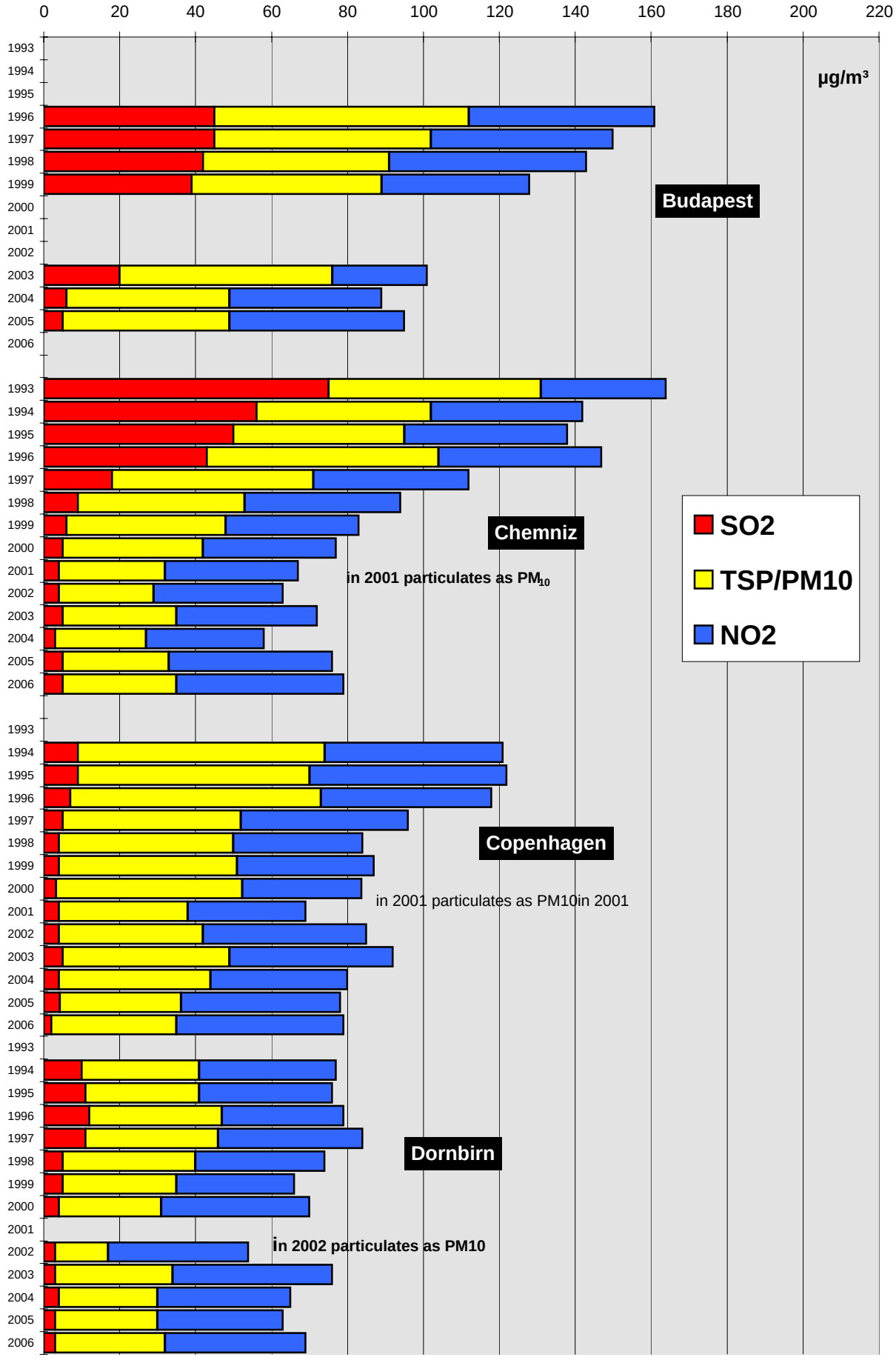
Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)



*) particulates calculated as PM 10

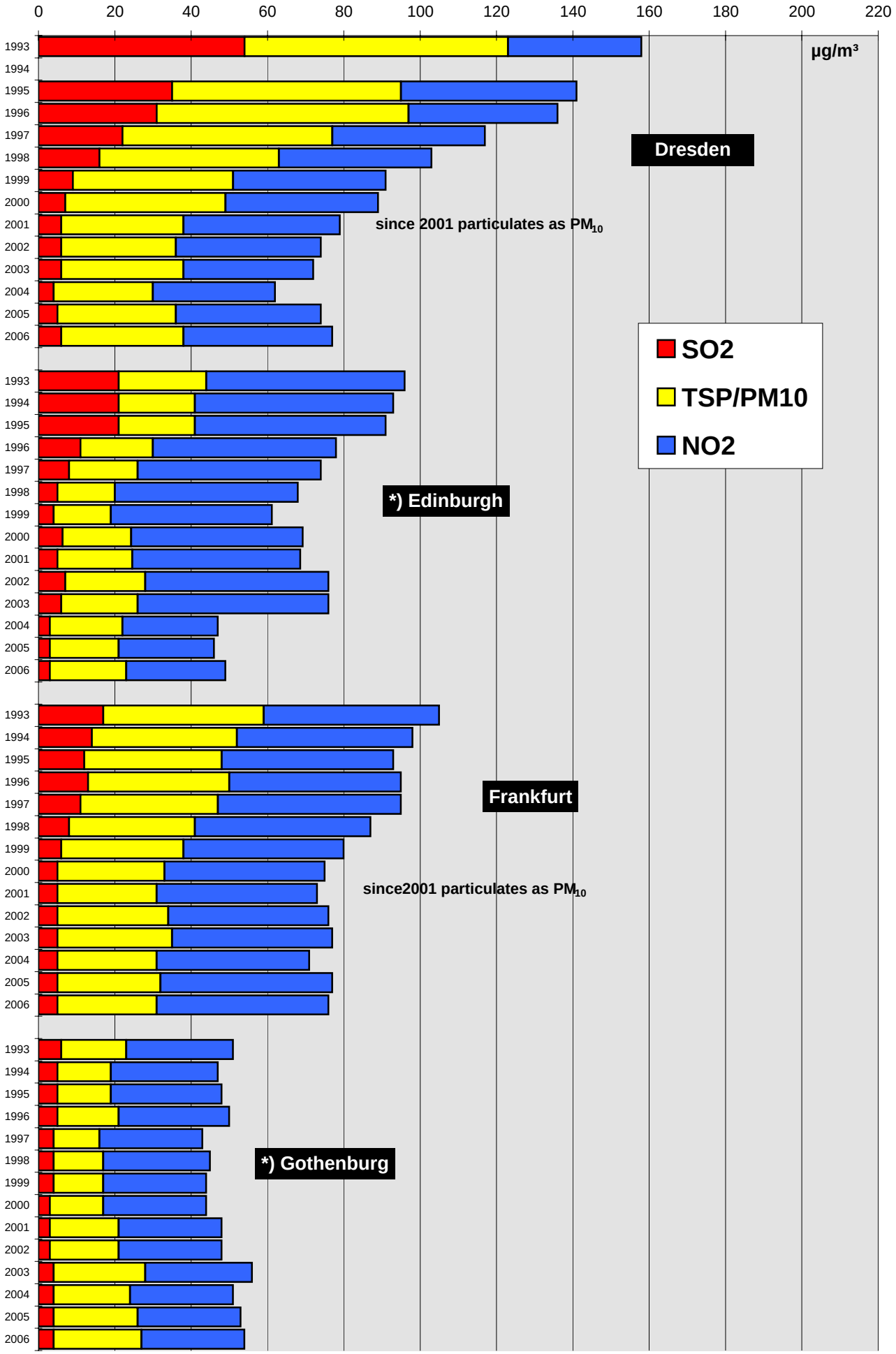
Comparison Of The Air Quality 1993-2006
Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2
(mean of all monitoring stations)



Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

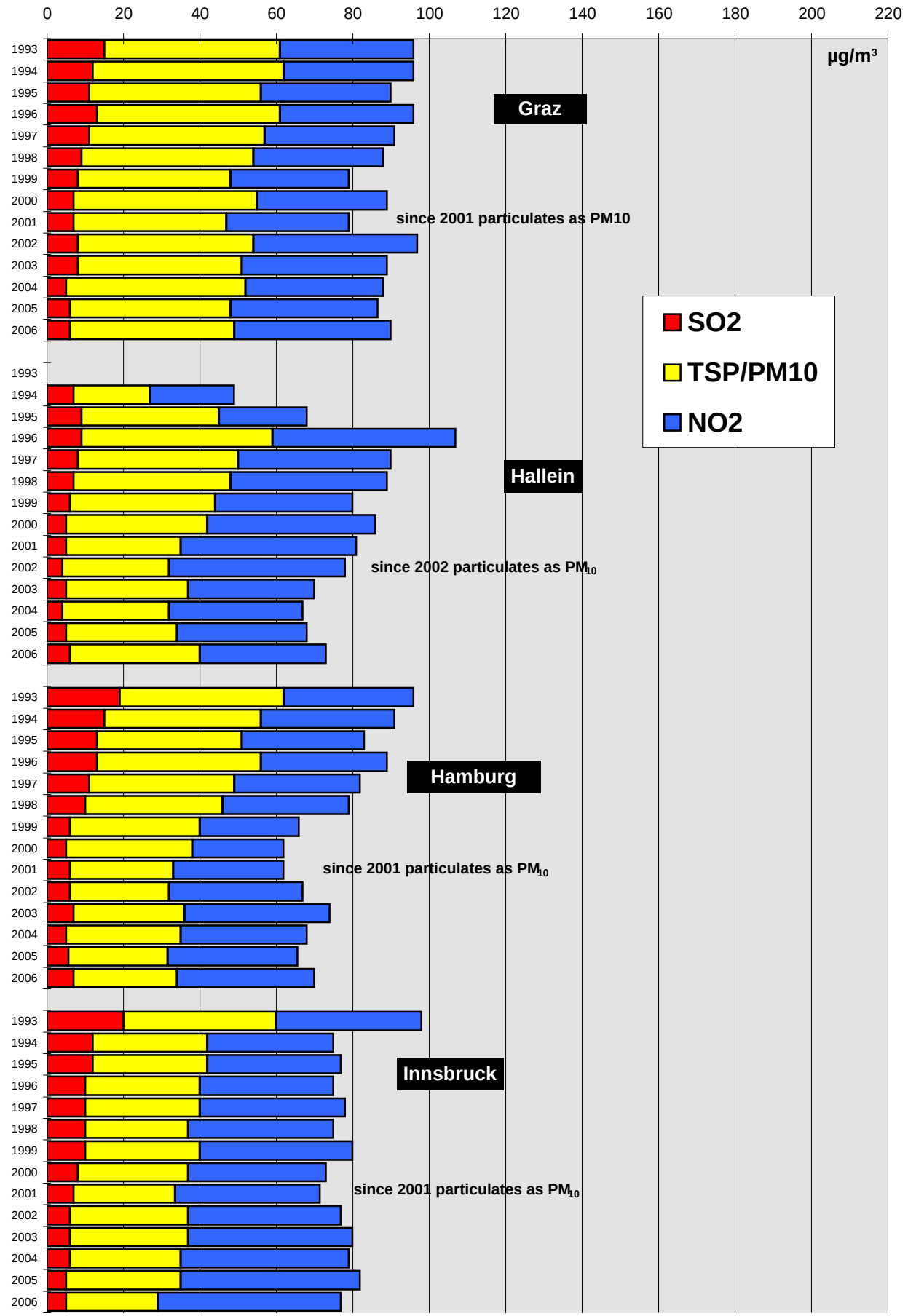


*) particulates calculated as PM_{10}

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

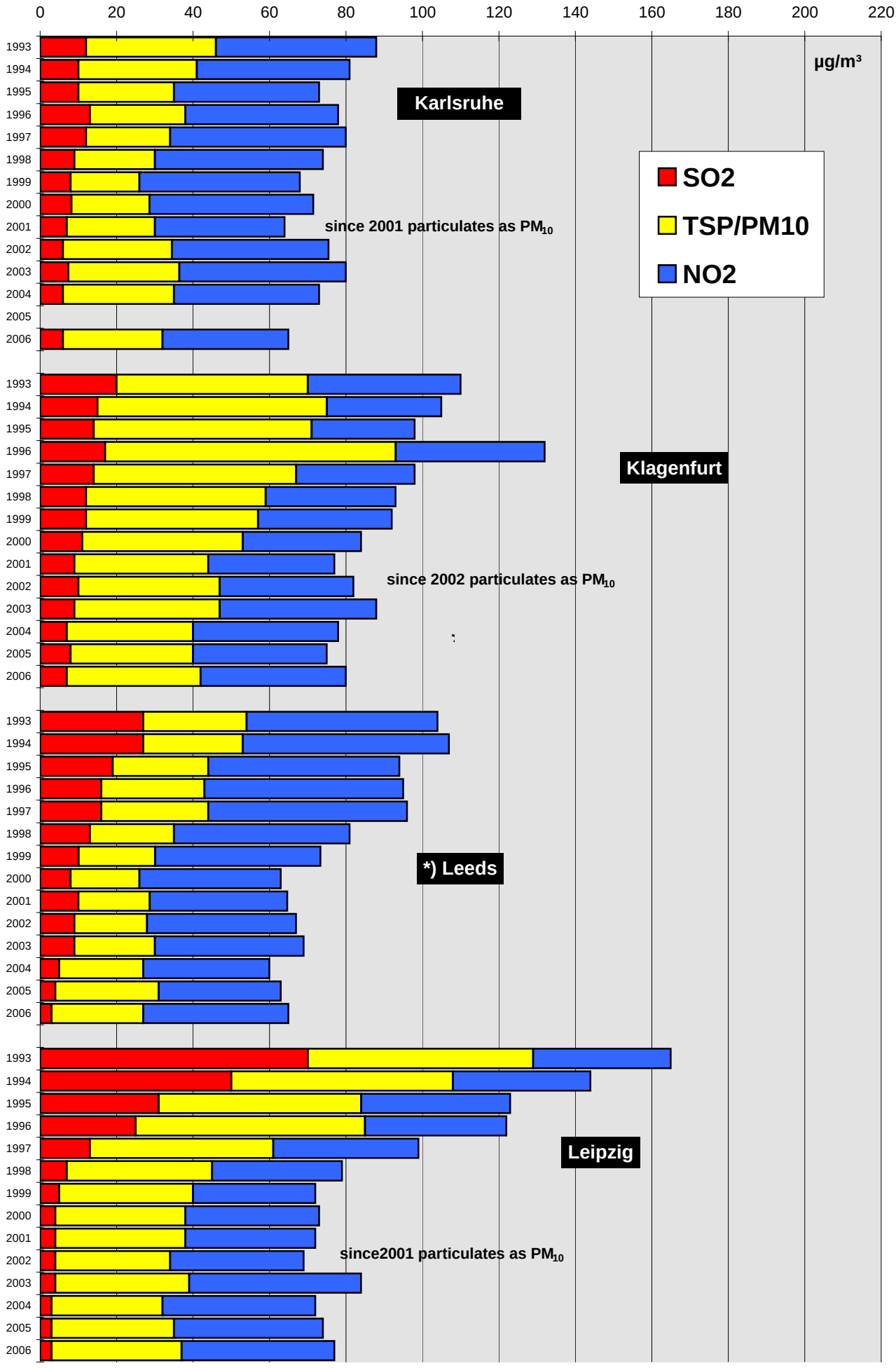


*) particulates calculated as PM10

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

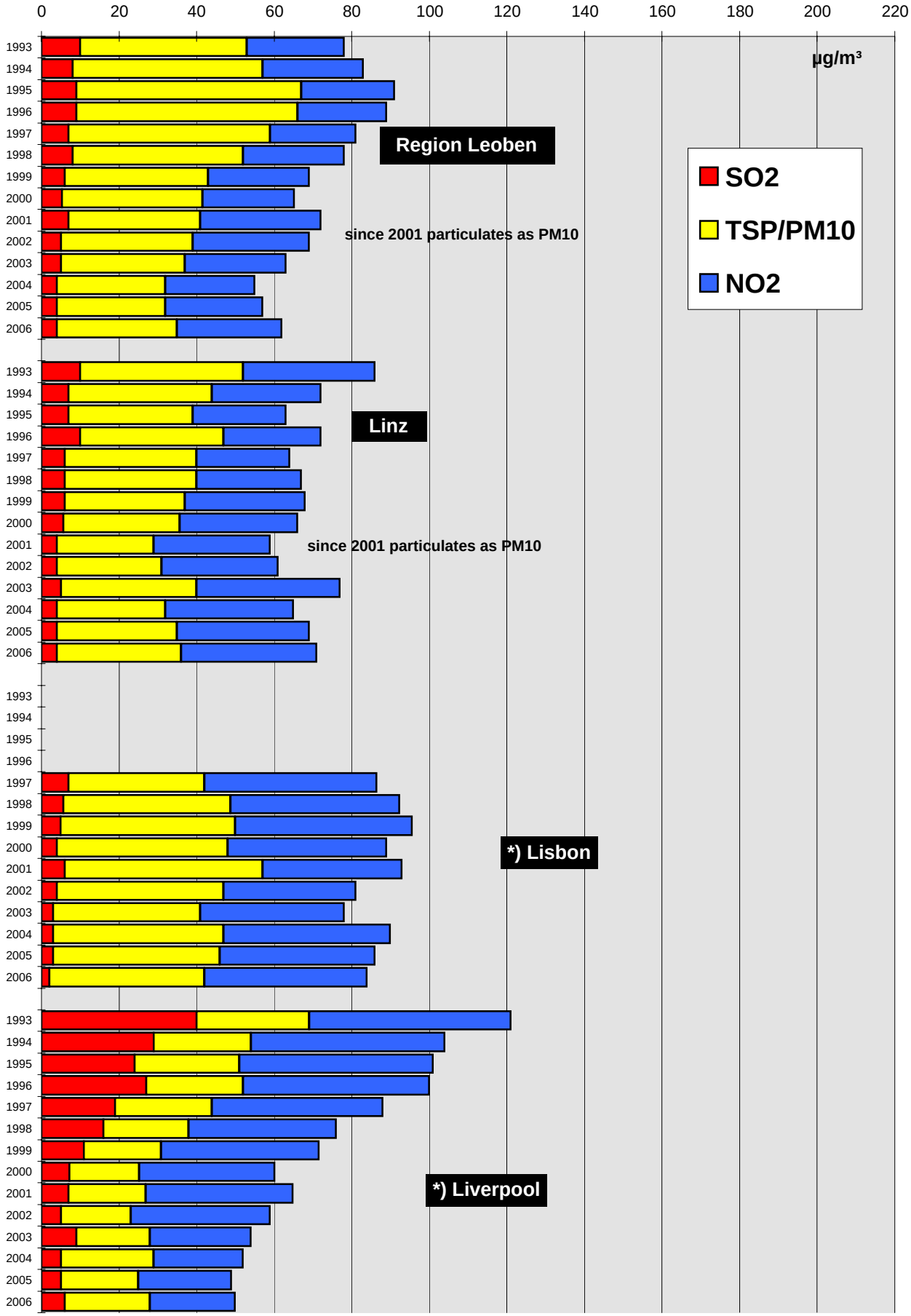


*) particulates calculated as PM_{10}

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

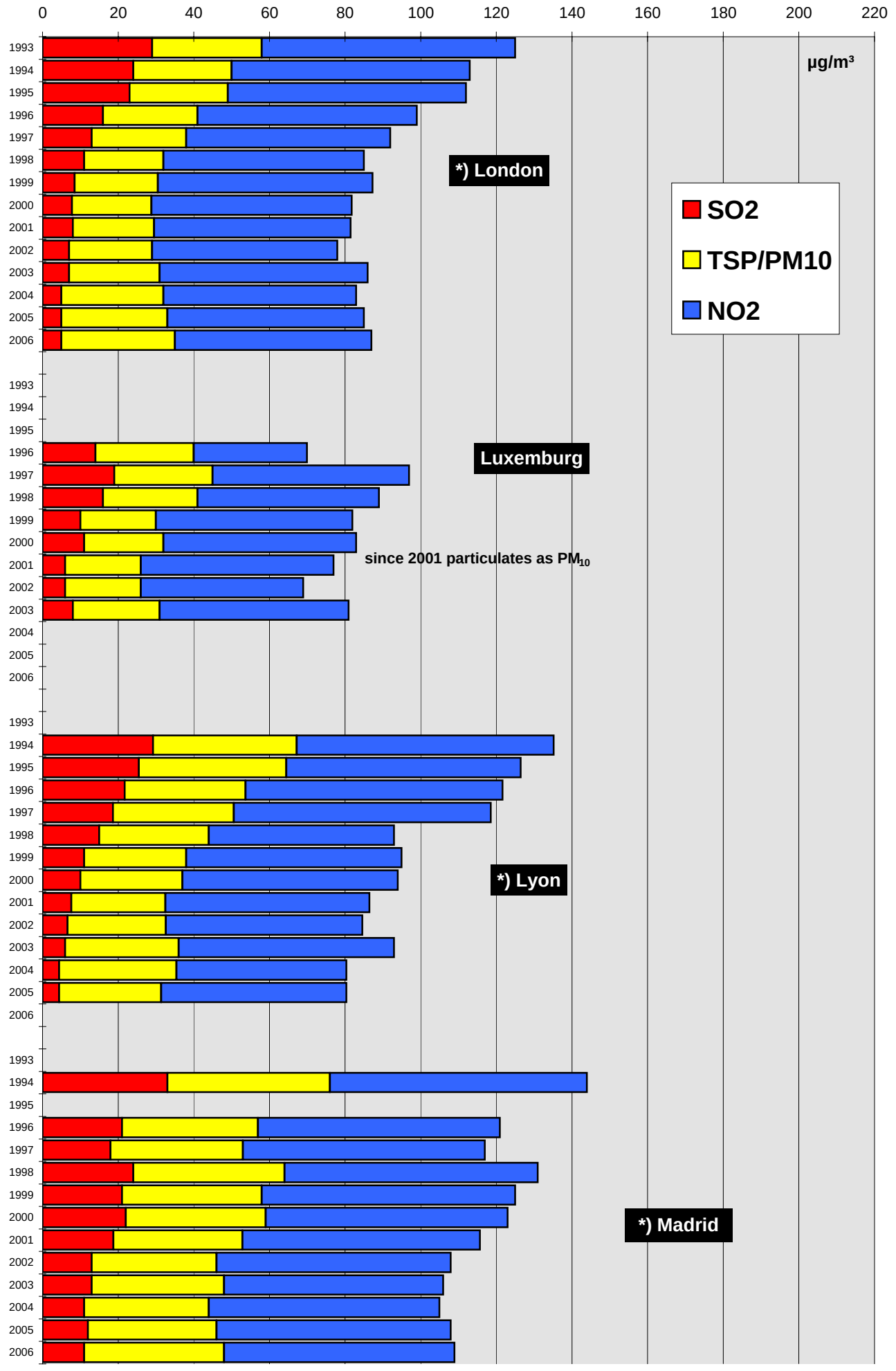


*) particulates calculated as PM10

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

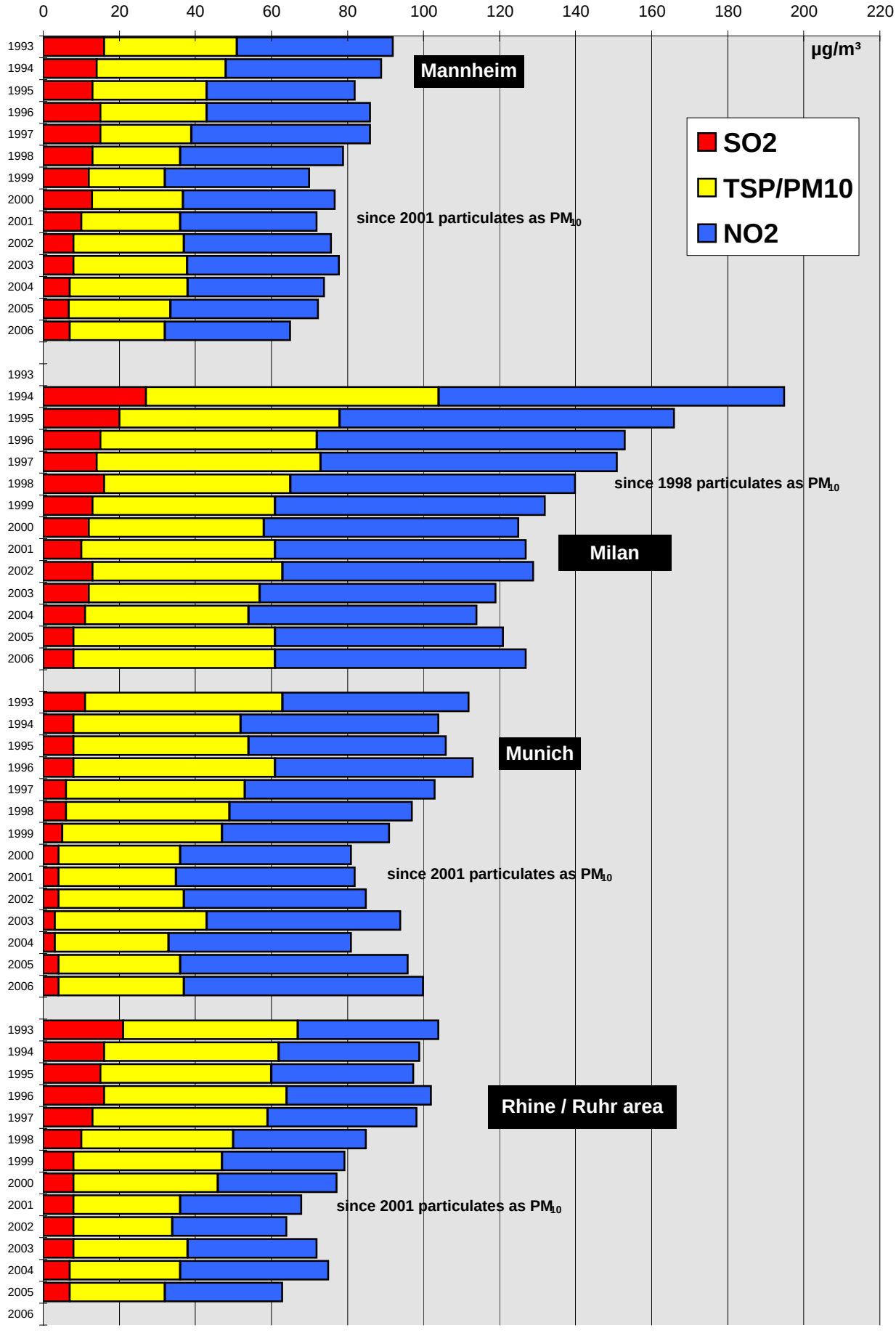


*) particulates calculated as PM_{10}

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

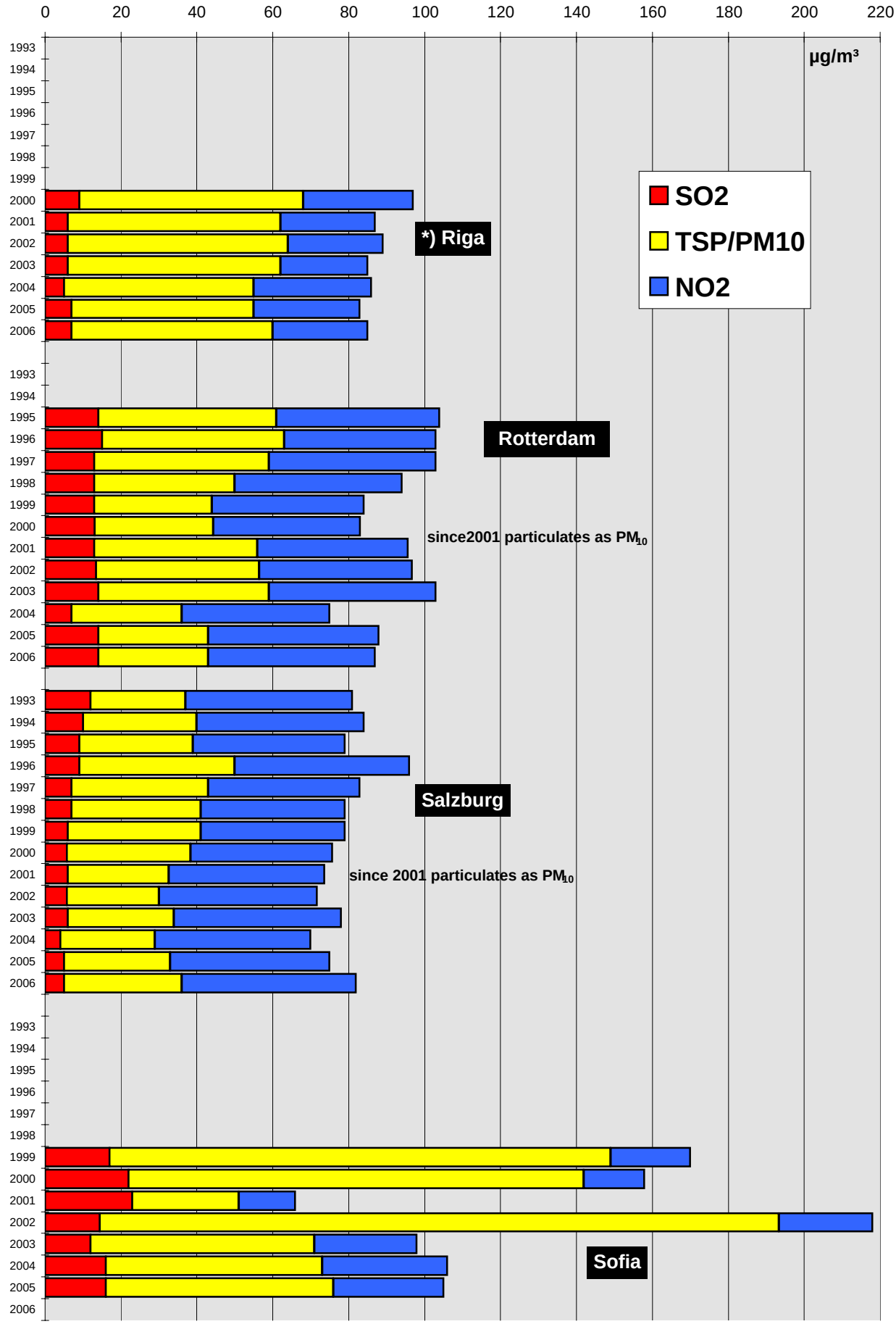


*) particulates calculated as PM10

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

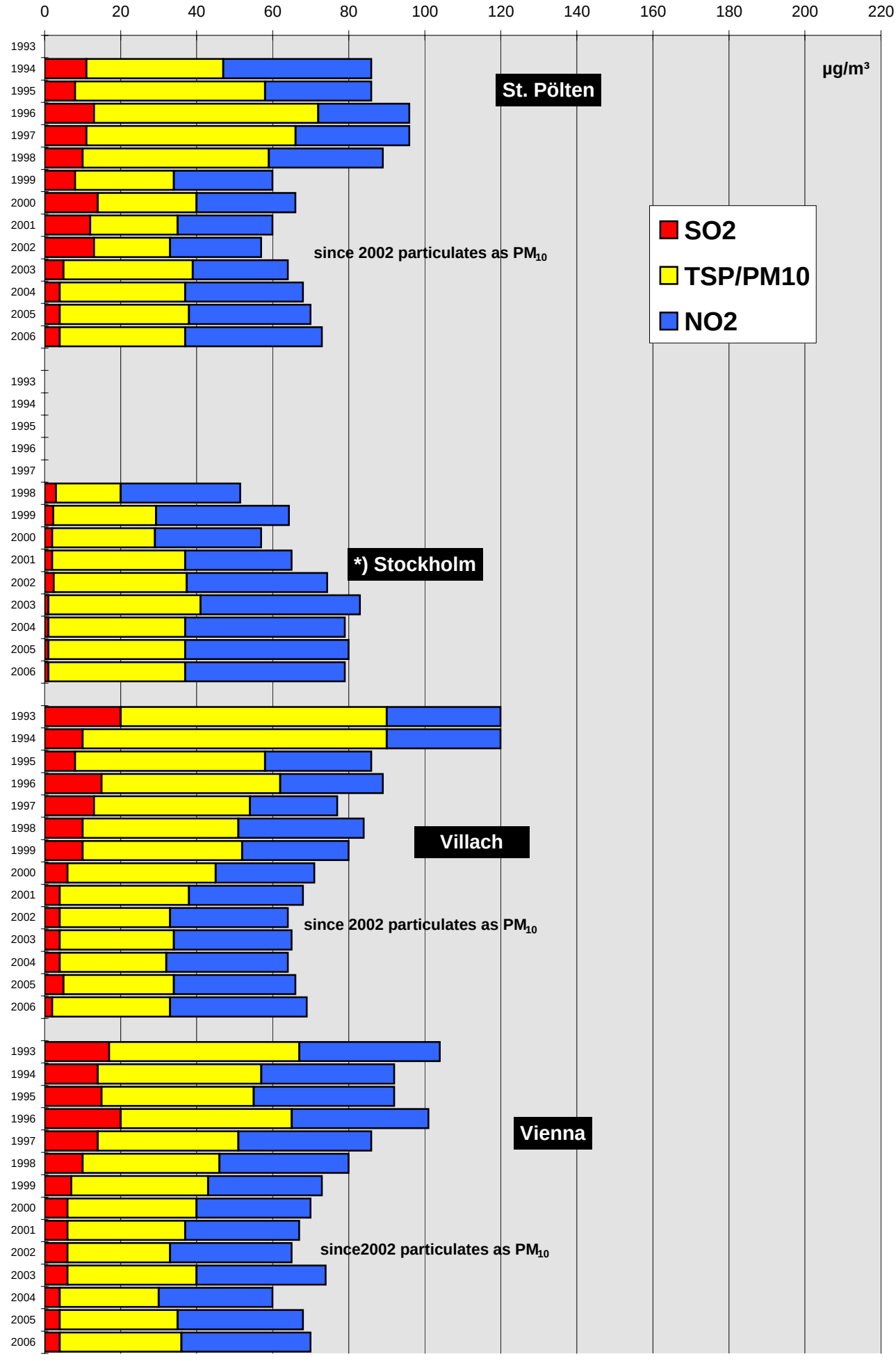


*) particulates calculated as PM10

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)

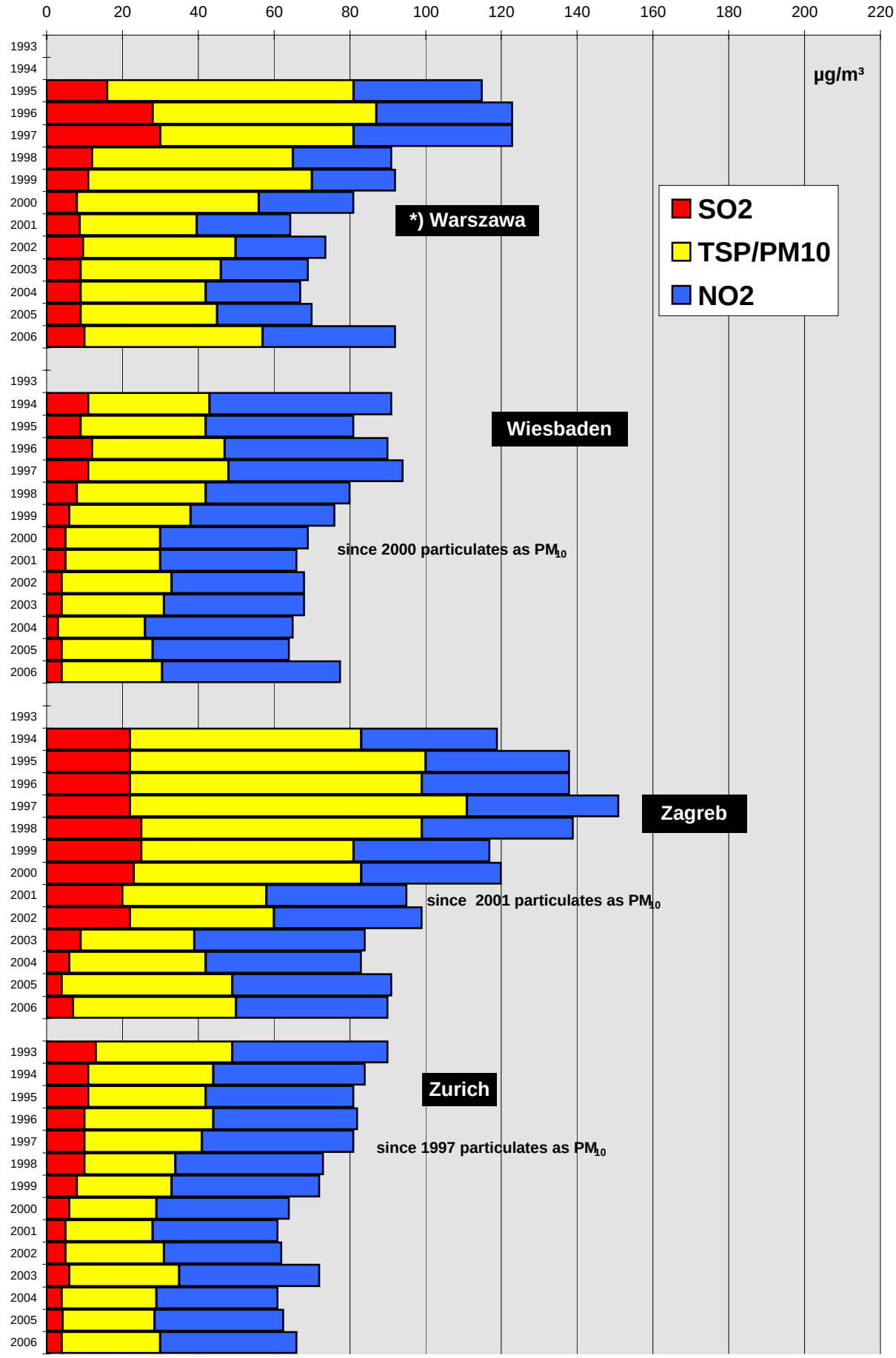


*) particulates calculated as PM_{10}

Comparison Of The Air Quality 1993-2006

Development of the annual mean values, Σ SO_2, TSP/PM_{10}, NO_2

(mean of all monitoring stations)



*) particulates calculated as PM10

Luftgütekennzahlen 2006

der einzelnen

Vergleichsregionen

Immission Reference Values 2006

Of All Compared Regions

Comparison of The Air Quality in 2006

Barcelona

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	** max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	*** Max. 98-Percentile per year [µg/m³]
SO_2	3	3	10	43	127	231	-	24
*PM_{10}	5	51	84	178	-	-	-	115 (24 h)
NO	4	34	102	285	735	764	-	278
NO_2	4	55	94	161	231	325	-	156
CO	3	450	900	1560	5380	4000	-	2000
O_3	4	35	77	115	171	173	-	127

PM_{10}:	Monitoring method(s) used:	Gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	100 (45 % data) *****
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	18 ****

* Gravimetric method only
** Static average (not moving average)
*** Maximum 98 percentile of 1-hour values
**** 99,8-Percentile: 202 µg/m³
***** 90,4-percentile = 95 µg/m³

Basel

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	4,4	9	21	30	38	55	25,4
PM_{10}	1	22,9	49	115	147	157	207	123,6
NO	1	9,3	21	114	202	254	282	110,6
$6NO_2$	1	25,8	49	98	118	125	129	106,6
CO	1	-	-	-	-	-	-	-
O_3	1	48,9	98	126	202	208	211	186

PM_{10}:	Monitoring method(s) used:	β-Meter-measurements, calibrated with gravimetrical measurements every 4 days
	Correction factor for this method according to EU-directive 1999/30/EC):	-
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	24
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Belfast

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	2	5,7	12	38	98	114	-	29
PM_{10}	2	20	26	62	139	203	-	65
NO	1	18	39	182	645	761	-	119
NO_2	1	34	45	93	212	254	-	88
CO	1	200	240	900	2400	2900	-	600
O_3	1	42	62	103	168	188	-	86

PM_{10}:	Monitoring method(s) used:	TEOM
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	7
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	5

Birmingham

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per _year____ [2,3] [µg/m³]
SO_2	2	3,3	7	27	54	67	-	16
PM_{10}	2	26	32	90	307	537	-	73
NO	2	20	47	380	802	835	-	203
NO_2	2	36	52	104	162	170	-	92
CO	2	250	500	1700	3000	3200	-	900
O_3	2	42	64	129	184	186	-	108

PM_{10}:	Monitoring method(s) used:	TEOM
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	9
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

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1 arithmetic mean value of all monitoring stations of the affected area

2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Berlin

	number of monitoring stations	annual mean [1] [µg/m³]	Max. monthly mean [2] [µg/m³]	Max. daily mean [2] [µg/m³]	Max. 8h-mean [2] [µg/m³]	Max. 1h-mean [2] [µg/m³]	Max. ½ h-mean [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	**8/2/4/2**	**4/3/4/5**	-	**55/42/55/38**	-	**122/72/89/122**	-	**28/18/28/23**
Station types	a/b/c/d	a/b/c/d	-	a/b/c/d	-	a/b/c/d	-	a/b/c/d
PM_{10} [1)]	**11/4/3/4**	**31/26/29/38**	-	**245/184/203/245**	-	**3938/624/1392/3938**	-	**109/85/90/109**
Station types	a/b/c/d	a/b/c/d	-	a/b/c/d	-	a/b/c/d	-	a/b/c/d
NO	**13/5/3/5**	**23/4/9/52**	-	**271/58/107/271**	-	**574/171/492/574**	-	**263/44/67/263**
NO_2	**13/5/3/5**	**37/17/31/61**	-	**157/80/104/157**	-	**330/102/211/330**	-	**161/56/84/161**
Station types	a/b/c/d	a/b/c/d	-	a/b/c/d	-	a/b/c/d	-	a/b/c/d
CO [2)] (mg/m^3)	**9/2/4/3**	**0,4/0,3/0,4/0,6**	-	-	**4,7/1,7/3,7/4,7**	**5,5/1,9/4,3/5,5**	-	**2,3/0,7/1,1/2,3**
Station types	a/b/c/d	a/b/c/d	-	-	a/b/c/d	a/b/c/d	-	a/b/c/d
O_3	**7/2/5**	**48/53/44**	-	-	**197/197/190**	**218/218/204**	**197/197/190**	**138/138/131**
Station types	a/c/b	a/c/b	-	-	a/c/b	a/c/b	a/c/b	a/c/b
PM_{10}: number of exeedances of the daily mean value of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor for the PM_{10}-measurement according to EU-directive 1999/30/EU)								**71**

Comments:

1) PM_{10} (only monitoring PM_{10})

2) CO in mg/m³

Station types

a all monitoring stations
b outskirts (including a monitoring station located in an industrial area in the outskirts of Berlin. This station has registered the highest values for the components NO_2 and NO
c Downtown
d traffically influenced stations

98-percentiles:

SO_2: 98%-value of the hour's means
PM_{10}: 98%- value of the daily means
NO, NO_2: 98%- value of the hour's means
CO: 98%-value of the hour's means
Ozone: 98%-value of the hour's means

other comments:

Max. monthly mean values and max. 3h mean values are not calculated by the monitoring network BLUME.
The pollutants CO and O_3 are determined as max 8h mean values.
Max. daily mean values CO and O_3 are not calculated.
Max ½ h mean values are only registered for O_3.

Comparison of The Air Quality in 2006

Bludenz

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	-	-	-	-	-	-	-	-
PM_{10}	1	26	62	137	-	-	-	
NO	1	22	88	225	385	400	414	191
NO_2	1	32	77	130	171	176	183	109
CO	-	-	-	-	-	-	-	-
O_3	1	42	86	124	173	175	176	128

PM_{10}:	Monitoring method(s) used:	gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	45
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Bristol

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	3	7	12	34	40	-	16
PM_{10}	1	23	31	156	443	476	-	57
NO	1	75	114	323	704	813	-	308
NO_2	1	67	81	138	222	264	-	155
CO	1	300	600	1800	3900	4300	-	1300
O_3	1	43	65	118	193	202	-	118

PM_{10}:	Monitoring method(s) used:	TEOM
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	6
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	13

1 arithmetic mean value of all monitoring stations of the affected area

2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Brussels

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	7	6	-	32	-	62	-	22 (24h)
PM_{10}	6	29	-	108	-	430	-	80 (24h)
NO	11	17	-	-	-	602	-	285 (1h)
NO_2	11	39	65	-	-	226	-	111 (1h)
CO	7	380	-	-	-	4260	-	1130 (1h)
O_3	7	39	-	-	-	256	-	143 (1h)

PM_{10}:	Monitoring method(s) used:	Oscillating Microbalans, TEOM 1400Ab with FDMS-system
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	56
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	2

Comments:
* Station 41B003 is a traffic station located on the inner boulevard of Brussels. It is where the highest concentrations for NO, NO_2 and CO are observed.

Budapest

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	7						-	
TSP	2						-	
PM_{10}	9						-	
NO	11						-	
NO_2	11						-	
CO	10						-	
O_3	9						-	

PM_{10}:	Monitoring method(s) used:	β-absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	

* max. 98 percentile of 1 hour mean values
** max. 98 percentile of 1 daily mean values

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Chemnitz

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	5	15	39	89	91	96	26
PM_{10}	3	30	60	185	953	2216	2782	117
NO	3	34	100	210	552	691	778	266
NO_2	3	44	90	140	174	198	225	140
CO	1	600	1000	1900	3500	5100	6600	2000
O_3	1	47	76	116	202	207	208	128

PM_{10}:	Monitoring method(s) used:	gravimetrically (High-Volume-Sampler)
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	65
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Copenhagen

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	-	-	-	28	51	-	10
PM_{10}	3	33	-	89	-	-	-	-
NO	-	-	-	-	-	-	-	-
NO_2	3	44	-	-	166	212	-	124
CO	3	550	-	1456	-	3678	-	1991
O_3	1	42	-	129	-	164	-	115

PM_{10}:	Monitoring method(s) used:	gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	-
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	-

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1 arithmetic mean value of all monitoring stations of the affected area

2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Dornbirn

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	3	7	12	18	22	25	10
PM_{10}	1	29	61	134	-	-	-	92
NO	1	30	57	137	305	365	414	155
NO_2	1	37	60	95	133	147	160	94
CO	-	-	-	-	-	-	-	-
O_3	-	-	-	-	-	-	-	-

PM_{10}:	Monitoring method(s) used:	Gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	40
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Dresden

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	2	6	21	76	88	95	100	33
PM_{10}	4	32	63	143	315	417	582	102
NO	4	28	92	214	469	564	630	237
NO_2	4	39	89	124	170	185	194	131
CO	1	600	1000	1800	2600	3400	4000	1700
O_3	3	48	99	143	196	197	198	138

PM_{10}:	Monitoring method(s) used:	Gravimetrically (High-Volume-Sampler)
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	49
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

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1 arithmetic mean value of all monitoring stations of the affected area

2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Edinburgh

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	3	6	58	128	144	-	19
PM_{10}	1	20	24	75	92	131	-	51
NO	1	9	18	142	260	295	-	59
NO_2	1	26	35	76	106	113	-	73
CO	1	300	400	800	1900	2200	-	600
O_3	1	52	74	140	148	152	-	100

PM_{10}:	Monitoring method(s) used:	TEOM
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	2
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Frankfurt (urban stations)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	4	5	15	28	44	81	93	23
PM_{10}	4	24	46	87	319	499	542	75
NO	4	28	67	241	414	510	596	170
NO_2	4	40	61	96	122	140	148	98
CO	3	400	700	1300	2500	2900	3600	1300
O_3	4	37	80	122	219	223	226	136

PM_{10}:	Monitoring method(s) used:	ß-absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	24
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

[1] arithmetic mean value of all monitoring stations of the affected area

[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Frankfurt (traffic station)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	-	-	-	-	-	-	-	-
PM_{10}	1	33	66	117	237	296	344	96
NO	1	51	78	232	472	594	646	222
NO_2	1	65	76	118	187	224	236	141
CO	1	700	1100	1800	4000	5400	6000	2100
O_3	-	-	-	-	-	-	-	-

PM_{10}:	Monitoring method(s) used:	ß-absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	55
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	3

Gothenburg

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	2	3,7	5	22	-	122	-	12,2
PM_{10}	1	23,2	30	77	140	194	238	63,8
NO	1	13,1	39	294	887	1025	1049	143,6
NO_2	2	26,7	38	130	286	305	329	87,9
CO	1	240	-	2020	-	5200	-	700
O_3	2	53,2	77	129	-	183	-	109,9

PM_{10}:	Monitoring method(s) used:	Where more than one station is indicated the others are DOAS-stations with 2 respectively 3 separate measuring lightbeams. All stations are at rooftop level at ~25 meters height.lightbeams.
	Correction factor for this method according to EU-directive 1999/30/EC):	1.2
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	13
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	7

[1] arithmetic mean value of all monitoring stations of the affected area

[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Graz (urban stations)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2, 3] [µg/m³]	max. 1h mean value [2, 4] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	3	5	15	32	45	46	70	20
TSP	1	41	64	135	322	451	464	119
PM_{10}	3	41	99	228	593	667	798	157
NO	4	31	119	305	572	594	607	275
NO_2	4	37	71	121	168	174	180	107
CO	2	600	1400	2500	4100	4300	4400	2400
O_3	4	50	111	153	182	185	192	140

PM_{10}:	Monitoring method(s) used:	continuous, Gravimetrie
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	103, 81 [5)]
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Graz traffically influenced (Don Bosco)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2, 3] [µg/m³]	max. 1h mean value [2, 4] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	8	19	31	49	52	59	24
TSP	-	-	-	-	-	-	-	-
PM_{10}	1	48	98	196	396	441	668	164
NO	1	73	165	387	675	755	808	351
NO_2	1	55	79	130	211	213	235	127
CO	1	900	1800	2900	5000	5500	5900	2800
O_3	-	-	-	-	-	-	-	-

PM_{10}:	Monitoring method(s) used:	continuous, Gravimetrie
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	113, 120 [5)]
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	4

1) arithmetic mean value of all monitoring stations of the affected area
2) max. value of all monitoring stations of the affected area
3) Max 3h-mean = gliding
4) max. 1h-mean = non gliding
5) The results are based upon a reference method (gravimetric determination of PM10-mass).

Comparison of The Air Quality in 2006

Hallein

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	2	5,5	14	39	197	364	582	23,4
PM_{10}	1	33,5	70	178	-	-	-	114
NO	2	35,8	144	403	564	583	662	286
NO_2	2	33	88	138	195	206	210	124
CO	1	580	1170	2220	3010	3610	3900	1740
O_3	1	66	101	140	190	191	191	140

PM_{10}:	Monitoring method(s) used:	gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	50
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	1

Location of the monitoring stations:
One heavily traffically influenced
One station in green area

Hamburg (area monitoring stations)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	11	6	23	102	243	378	593	61
PM_{10}	9	25	48	136	236	516	706	82
NO	13	9	40	148	458	633	732	124
NO_2	13	26	47	97	174	208	220	86
CO	3	278	538	1197	2441	2695	2762	803
O_3	6	44	79	131	204	213	219	122

PM_{10}:	Monitoring method(s) used:	TEOM (6 stations), β-absorption (3 stations)
	Correction factor for this method according to EU-directive 1999/30/EC):	depending on the location for monitoring: 1,2 to 1,3; since 2006 1,0 for TEOM due to refitting with FDMS
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	31
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	1

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Hamburg (traffic stations)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	2	9	15	38	89	146	194	39
PM_{10}	3	33	55	135	412	630	1016	89
NO	4	71	113	269	598	726	761	334
NO_2	4	68	89	146	232	260	286	164
CO	4	659	1051	1832	3675	4563	7108	2181
O_3	-	-	-	-	-	-	-	-

PM_{10}:	Monitoring method(s) used:	Teom (2 Stationen) ß-Adsorption (1 station)
	Correction factor for this method according to EU-directive 1999/30/EC):	depending on the location for monitoring: 1,2 to 1,3; since 2006 1,0 for TEOM due to refitting with FDMS
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	45
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	26

Innsbruck

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	5	-	23	37	43	44	-
PM_{10}	2	33,5	-	161	-	-	-	-
NO	2	49,5	-	302	-	-	743	-
NO_2	2	47,5	-	130	193	-	227	-
CO	1	600	-	1600	2400	2800	3100	-
O_3	1	34	72	104	165	167	169	-

PM_{10}:	Monitoring method(s) used:	continuous
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	83
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	4

[1] arithmetic mean value of all monitoring stations of the affected area

[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Karlsruhe

	Number of monitoring stations (B)	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [2,3] [µg/m³]
SO_2	1	6	-	38	-	92	-	30
PM_{10}	2	25,5	53	104	-	-	-	-
NO	2	22	58	223	-	517	-	184
NO_2	2	32,5	52	92	-	175	-	96
CO	-	-	-	-	-	-	-	-
O_3	2	42	95	124	-	219	-	149

PM_{10}:	Monitoring method(s) used:	gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	34 (A)
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

A Selection of the peak stressed station of all stations used fort his document
Maxima mentioned have to be understood as the values of the peak stressed station

Klagenfurt

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	7	18	34	67	92	113	32
PM_{10}	2	35	92	148	-	-	-	-
NO	2	32	86	244	459	532	554	205
NO_2	2	38	80	125	192	203	209	121
CO	2	653	1174	2133	3681	3943	4050	1877
O_3	2	43	92	138	183	192	192	137

PM_{10}:	Monitoring method(s) used:	Gravimetrically (Digitel HVS)
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	79
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	1

1 arithmetic mean value of all monitoring stations of the affected area
2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Leeds

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	3	6	22	64	106	-	16
PM_{10}	1	24	30	66	252	608	-	64
NO	1	20	39	229	599	664	-	120
NO_2	1	38	50	91	160	176	-	84
CO	1	200	300	600	1400	1500	-	600
O_3	1	40	59	102	153	154	-	96

PM_{10}:	Monitoring method(s) used:	
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	10
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Leipzig

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	3	9	19	30	38	43	14
PM_{10}	3	34	67	168	943	1807	1816	135
NO	3	28	68	143	356	403	459	167
NO_2	3	40	61	119	165	198	218	109
CO	1	600	1000	2000	4300	4700	5600	1800
O_3	1	49	88	127	208	212	212	134

PM_{10}:	Monitoring method(s) used:	Gravimetrically (High-Volume-Sampler)
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	74
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

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1 arithmetic mean value of all monitoring stations of the affected area

2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Region Leoben (Leoben, Donawitz, Göß)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	3	4	13	27	85	86	132	23
PM_{10}	3	31	61	137	249	277	388	111
NO	3	19	65	158	277	317	324	147
NO_2	3	27	55	88	133	138	146	87
CO	1	1000	1900	6000	12400	15200	19300	5200
O_3	1	38	64	108	176	181	184	120

PM_{10}:	Monitoring method(s) used:	continuous
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	49
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

max. 3h-mean = gliding, max. 1h-mean = not gliding

Linz

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	5	4	11	29	93	169	175	39
PM_{10}	6	32	59	186	350	330	522	123
NO	7	26	83	243	419	517	532	228
NO_2	7	35	70	119	245	278	308	132
CO	6	460	900	3000	6000	7900	9300	1980
O_3	3	44	63	142	202	226	351	135

PM_{10}:	Monitoring method(s) used:	continuous
	Correction factor for this method according to EU-directive 1999/30/EC):	1.15 – 1.20
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	71
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	4

[1] arithmetic mean value of all monitoring stations of the affected area

[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Lisbon

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2*	5	1,8	5	33	116	144	-	** 10
PM_{10}**	3	40	64	130	-	272	-	105
NO*	7	27,6	121	252	-	815	-	278
NO_2*	7	41,5	105	162	365	473	-	179
CO***	7	350	868	1970	-	5568	-	1549
O_3*	4	48	77	136	-	226	-	123

PM_{10}:	Monitoring method(s) used:	ß-absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	1.18 – traffic stations 1.11 – background
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	145
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	80

* all values based upon 1 h mean values
** all values based upon daily mean values
*** 8 h mean value

Liverpool

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	6	9	26	127	178	-	29
PM_{10}	1	22	27	81	152	164	-	57
NO	1	9	22	143	321	426	-	78
NO_2	1	22	34	87	127	136	-	73
CO	1	200	300	900	2400	2800	-	600
O_3	1	48	69	126	186	188	-	103

PM_{10}:	Monitoring method(s) used:	
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	8
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

London

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	12	5	12	53	135	181	-	42
PM_{10}	11	30	58	158	693	888	-	101
NO	23	40	210	414	634	705	-	403
NO_2	23	52	146	224	350	403	-	244
CO	16	456	1200	2200	4200	10200	-	2300
O_3	15	35	79	141	221	245	-	136

PM_{10}:	Monitoring method(s) used:	
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	157
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	686 *)

*) Marylebone Road (traffic station)

Lyon (Urban site)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	7							
PM_{10}	4							
NO	5							
NO_2	37							
CO	-	-	-	-	-	-	-	-
O_3	6							

PM_{10}:	Monitoring method(s) used:	
	Correction factor for this method according to EU-directive 1999/30/EC):	
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Lyon (traffic site)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1							
PM_{10}	4							
NO	7							
NO_2	7							
CO	5							
O_3	-	-	-	-	-	-	-	-

PM_{10}:	Monitoring method(s) used:	
	Correction factor for this method according to EU-directive 1999/30/EC):	
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	

Madrid

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	**max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	***Max. 98-Percentile per year [µg/m³]
SO_2	25	11	40	53	113	138	-	47
PM_{10}*	25	37	77	155	260	434	-	179
NO	25	34	138	287	798	910	-	341
NO_2	25	61	118	192	376	526	-	221
CO	23	590	2150	2460	8090	8920	-	2520
O_3	24	35	81	148	158	179	-	139

PM_{10}:	Monitoring method(s) used:	Oscillating microbalance
	Correction factor for this method according to EU-directive 1999/30/EC):	1.1
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	181 Percentile 90.4=93
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	208 Percentile 99.8=381

* Gravimetric method only

** Static average (not moving average)

*** Maximum 98 percentile of 1-hour values

[1] arithmetic mean value of all monitoring stations of the affected area

[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Mannheim

	Number of monitoring stations (C)	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	3	7	-	45	-	357	-	32
PM_{10}	3	25	51	94	-	-	-	-
NO	3	16	40	158	-	455	-	133
NO_2	3	32,7	55	115	-	150	-	94
CO	-	-	-	-	-	-	-	-
O_3	3	41,7	88	122	-	236	-	147

PM_{10}:	Monitoring method(s) used:	Gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	20 (A)
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

A Selection of the peak stressed station of all stations used fort his document
Maxima mentioned have to be understood as the values of the peak stressed station

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[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Milan

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	8	17	32	-	62	-	26
TSP	1	53	77	144	-	706	-	113
PM_{10}	2	53	123	276	-	380	-	182
NO	8	60	204	550	-	1088	-	-
NO_2	8	66	124	229	-	368	-	190
CO	5	1300	3200	5500	-	10000	-	-
O_3	3	37	94	131	-	261	-	157

PM_{10}:	Monitoring method(s) used:	TEOM
	Correction factor for this method according to EU-directive 1999/30/EC):	**1.18** (from 1.00 in July to **1.35** in January)
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	149
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	123

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
PM_{10} grav.	1	55	117	195	-	-	-	162
$PM_{2,5}$ TEOM	1	29	51	135	-	-	-	114
$PM_{2,5}$ grav.	1	37	87	177	-	-	-	131
Benzene	2	3,2	7,1	13,1	-	28,4	-	-

PM_{10}:	Monitoring method(s) used:	Gravimetrical monitoring
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	129

For SO_2, TSP, PM_{10} TEOM and Gravimetric, $PM_{2.5}$ TEOM and Gravimetric max 98° percentile per year of the average 24 hour concentrations levels

For NO, NO_2, O_3 max 98° percentile per year of the average 1 hour concentrations levels
Correction factor for PM_{10}: January 1.35, February 1.33, March 1.26, April 1.18, May 1.09, June 1.02, July 1.00, August 1.02, September 1.09, October 1.17, November 1.26, December 1.33.

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1 arithmetic mean value of all monitoring stations of the affected area

2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Munich

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	2	4	10	24	34	36	38	18
PM_{10}	6	33	67	182	283	698	841	133
NO	7	54	182	408	775	870	1018	451
NO_2	7	63	104	177	283	360	403	194
CO	6	620	1200	2800	4200	5100	6600	2400
O_3	3	41	80	128	177	183	186	127

PM_{10}:	Monitoring method(s) used:	β-absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	1.25
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	92
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	103

Riga

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³] **
SO_2	3	7	12	38	52	69	78	32
PM_{10} *	2	53	71	167	267	384	634	139
NO	-	-	-	-	-	-	-	-
NO_2	3	25	44	74	135	160	168	83
CO *	1	900	1200	2100	3500	4200	4700	2400
O_3	3	40	67	112	129	130	135	102

PM_{10}:	Monitoring method(s) used:	beta absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	244 *
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

* traffic monitoring stations
** 98%-value of the hour's means

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Rotterdam

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³] *)
SO_2	9	14,5	34	114	-	275	-	80
PM_{10}	5	29,4	41	92	-	326	-	76
NO	6	28	71	-	-	746	-	232
NO_2	6	44	60	-	-	213	-	115
CO	2	535	856	-	-	4965	-	2250
O_3	5	40,2	79	-	-	245	-	134

PM_{10}:	Monitoring method(s) used:	TEOM SES at 30 °C & KFG
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	31
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	2

*) 98%-value of the hour's means
1 arithmetic mean value of all monitoring stations of the affected area
2 max. value of all monitoring stations of the affected area

Salzburg

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	3	4,8	13	23	108	129	140	20,3
PM_{10}	3	30,8	71	185	-	-	-	125
NO	3	38,9	129	326	413	454	508	272
NO_2	3	45,7	85	144	196	202	206	140
CO	2	515	1100	2110	2750	2940	3020	1850
O_3	2	43,5	83	121	174	175	176	129

PM_{10}:	Monitoring method(s) used:	gravimetrically
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	56
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	2

comments:
Location of the monitoring stations:
- One monitoring station heavily traffically influenced
- One monitoring station in business area
- One monitoring station in residential area

Comparison of The Air Quality in 2006

St. Pölten, urban station (Eybnerstrasse)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	4	10	43	62	66	69	18
PM_{10}	1	29	49	113	162	224	294	96
NO	1	8	18	60	219	317	345	56
NO_2	1	27	45	102	120	121	122	78
CO	-	-	-	-	-	-	-	-
O_3	1	48	82	115	184	189	190	132

PM_{10}:	Monitoring method(s) used:	oscillating micro balance
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2005 (measured values **including** correction factor):	35
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2005:	0

St. Pölten, traffically influenced (Europaplatz)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	-	-	-	-	-	-	-	-
PM_{10}	1	36	64	143	223	277	304	122
NO	1	43	75	157	442	572	627	193
NO_2	1	45	62	127	160	172	185	109
CO	1	520	840	1640	2330	2810	3480	1390
O_3	-	-	-	-	-	-	-	-

PM_{10}:	Monitoring method(s) used:	oscillating micro balance
	Correction factor for this method according to EU-directive 1999/30/EC):	1.3
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2005 (measured values **including** correction factor):	57
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2005:	0

1 arithmetic mean value of all monitoring stations of the affected area

2 max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Stockholm

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	2	1,1	3	-	-	-	-	-
PM_{10}	4	36	65	153	-	415	-	-
NO	-	-	-	-	-	-	-	-
NO_2	4	42	64	100	-	216	-	212
CO	1	500	700	1700	-	7000	-	-
O_3	1	54	72	129	-	147	-	-

PM_{10}:	Monitoring method(s) used:	TEOM
	Correction factor for this method according to EU-directive 1999/30/EC):	1.2
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2005 (measured values **including** correction factor):	74
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2005:	1

Comment:

All stations are situated in the inner city of Stockholm
SO_2: passive sampler, roof level city centre + urban area
PM10, NO_2, CO: street level city centre
O_3: roof level city centre

Comparison of The Air Quality in 2006

Vienna

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 99,9 Percentile 3h-mean value [2] [µg/m³]	max. 99,9 Percentile 1h-mean value [2] [µg/m³]	max. 99,9 Percentile 1/2h-mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	10	4	16	75	75	82	92	36
PM_{10}	13	32	84	173	190	198	199	123
NO	17	19	159	356	551	584	624	392
NO_2	17	34	82	149	212	216	222	167
CO	4	500	1000	2020	2480	2560	2630	1800
O_3	5	53	110	158	189	186	187	146

PM_{10}:	Monitoring method(s) used:	6 Stations (official ones) gravimetric, 7 Stations (official ones) continuous (including correction factor)
	Correction factor for this method according to EU-directive 1999/30/EC):	varies depending on monitoring point and season of the year
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	108
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	26

comments:
The table has been slightly modified (short time 99.9-percentiles instead of maxima).
PM_{10}: The correction factors used k * x + d varies depending on monitoring point and season of the year:
k = [0.90 … 1.56], d = [-3.30 … 5.57] for 2006.

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Villach

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	2	7	13	24	30	33	11
PM_{10}	1	31	60	109	-	-	-	-
NO	1	31	74	151	248	281	308	155
NO_2	1	36	59	90	128	135	146	91
CO	1	687	1133	1789	2975	3393	3957	2016
O_3	1	31	71	111	156	158	161	115

PM_{10}:	Monitoring method(s) used:	Gravimetrically (Digitel HVS)
	Correction factor for this method according to EU-directive 1999/30/EC):	1.0
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	45
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Warsaw

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per [2,3] [µg/m³]
SO_2	11	10,1	42	114	-	467	-	58
PM_{10}	11	46,7	96	372	-	566	-	141
NO	8	19,9	102	294	-	594	-	184
NO_2	10	34,6	78	155	-	216	-	106
CO	5	824	1698	4697	-	8256	-	2771
O_3	4	45,3	79	111	-	187	-	98

[1]

PM_{10}:	Monitoring method(s) used:	automatic TEOM, manual gravimetric method
	Correction factor for this method according to EU-directive 1999/30/EC):	for TEOM factor is globally 1.15
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	manual station 192
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	traffic station 5

Comments: The increase of pollutant's concentrations in Warsaw may be connected with long and frosty winter.

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Wiesbaden (urban stations)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	4	7	20	32	74	119	13
PM_{10}	1	25	43	92	396	569	623	71
NO	1	20	44	150	303	381	458	146
NO_2	1	30	48	84	104	116	126	77
CO	1	400	600	1200	2100	2700	2900	1200
O_3	1	39	89	128	206	226	234	141

PM_{10}:	Monitoring method(s) used:	ß-absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	-
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	19
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Wiesbaden (traffic station)

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	-	-	-	-	-	-	-	-
PM_{10}	1	28	46	98	496	809	844	77
NO	1	67	109	249	572	687	811	281
NO_2	1	65	71	113	211	239	274	137
CO	1	800	1300	2300	4800	6300	8200	2600
O_3	-	-	-	-	-	-	-	-

[1]

PM_{10}:	Monitoring method(s) used:	ß-absorption
	Correction factor for this method according to EU-directive 1999/30/EC):	-
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2005 (measured values **including** correction factor):	32
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2005:	2

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area

Comparison of The Air Quality in 2006

Zagreb

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	9	7	50	246	-	1007	-	72
PM_{10}	9	43	79	299	-	720	-	128
NO	-	-	-	-	-	-	-	-
NO_2	8	40	56	124	-	149	-	75
CO	3	740	-	3060	-	5560	-	2440
O_3	6	28	53	118	-	-	-	78

[1]

PM_{10}:	Monitoring method(s) used:	
	Correction factor for this method according to EU-directive 1999/30/EC):	
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	134
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

Zurich

	Number of monitoring stations	Annual mean value [1] [µg/m³]	max. monthly mean value [2] [µg/m³]	max. daily mean value [2] [µg/m³]	max. 3h mean value [2] [µg/m³]	max. 1h mean value [2] [µg/m³]	max. ½ h mean value [2] [µg/m³]	Max. 98-Percentile per year [µg/m³]
SO_2	1	3,9	8	16	26	31	32	19,8
PM_{10}	1	26,1	52	165	194	199	207	162
NO	1	15,8	50	189	317	365	393	204,6
NO_2	1	35,9	54	98	113	119	124	103,3
CO	1	421	632	1487	2226	2684	2763	1526
O_3	1	47	96	122	209	209	213	178

PM_{10}:	Monitoring method(s) used:	β-meter-measurement, calibrated with gravimetrical measurements every 4 days
	Correction factor for this method according to EU-directive 1999/30/EC):	-
	Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2006 (measured values **including** correction factor):	39
NO_2	Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2006:	0

[1] arithmetic mean value of all monitoring stations of the affected area
[2] max. value of all monitoring stations of the affected area