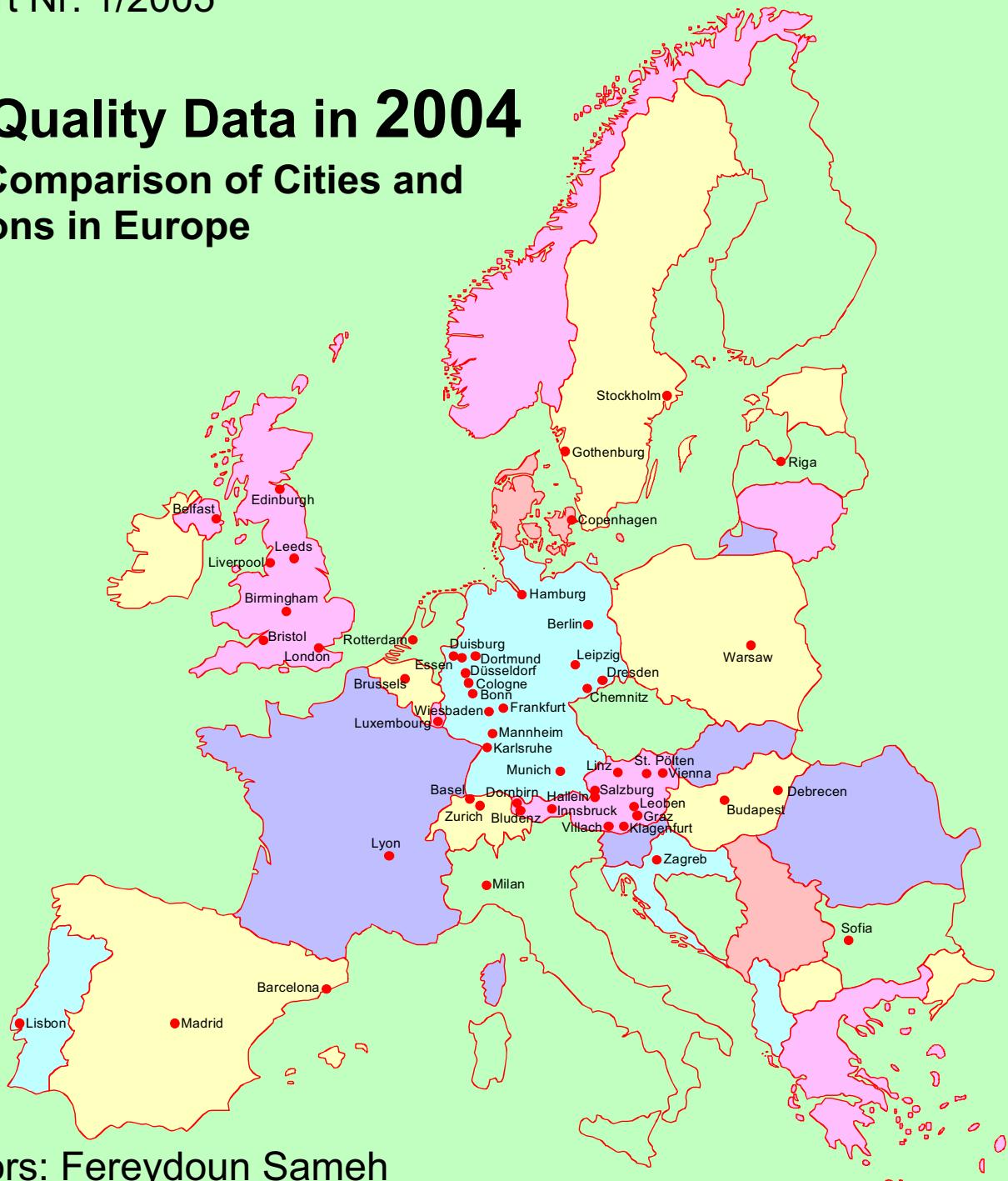


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Air Quality Data in 2004

The Comparison of Cities and Regions in Europe



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Environment + Technics



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Luftgütedaten 2004

Nationaler und europäischer Städtevergleich

Einführung

Die Bekämpfung der Luftverschmutzung war in den letzten Jahren und 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.

Um überhaupt den Erfolg von Sanierungsmaßnahmen nachweisen zu können, ist die Beobachtung der Schadstoffkonzentrationen mit Hilfe von Luftpollutionssystemen sinnvoll. Mittlerweile sind in den meisten Messgebieten Luftpollutionssysteme seit mehr als 2 Jahrzehnten installiert, sodass bei einer Verfolgung der Luftschaudstoffdaten über mehrere Jahre ein Trend zur Verbesserung (oder auch Verschlechterung?) der Luftbelastung herauslesbar sein sollte. Sanierungsmaßnahmen in Betrieben und bei anderen Emissionstypen müssten sich jedenfalls langfristig in einer verminderten Immissionsbelastung an Luftschaudstoffen 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 2004

The Comparison of Cities and Regions in Europe

Introduction

The fight against air-pollution was 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.

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 already for more than 2 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.

| | |
|---|--|
| <p>Luftgütevergleiche werden durch den Magistrat Linz bereits seit mehreren 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 2004 wurden weiters Städte bzw. Regionen aus Deutschland, England, Frankreich, Belgien, Niederlande, Dänemark, Schweden, Italien, Schweiz, Spanien, Portugal, Polen, Bulgarien, Lettland, Luxemburg und Kroatien mit einbezogen.</p> <p>Die Städte Athen, Thessaloniki, Bukarest und Debrecen haben seit 3 Jahren keine Daten geliefert. Sollten diese noch eintreffen, werden sie in künftigen Städtevergleichen in Form von Zeitreihen mit berücksichtigt werden. Aus Luxemburg sind wegen großer Datenausfälle im Jahr 2004 keine Jahresauswertungen möglich gewesen.</p> | <p>Comparisons of the air quality have been carried out by our organization already for a couple 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 2004 comprised cities and regions of Austria, Germany, cities from England, France, Belgium, Netherlands, Denmark, Sweden, Italy, Switzerland, Spain, Portugal, Poland, Bulgaria, Latvia, Luxemburg and Croatia.</p> <p>The cities Athens, Thessalonica, Bucharest and Debrecen did not deliver any data during the past 3 years. In the case of delivery to us they will be taken into account for future reports in terms of time series. Luxemburg was not able to perform annual evaluations due to long gaps in data availability for 2004.</p> |
| <h3><u>Kritische Anmerkungen</u></h3> <p>Als Kritikpunkt wird immer wieder angemerkt, dass ein Vergleich der Immissionsbelastung aus fachlichen Gründen nicht möglich ist, da</p> <ol style="list-style-type: none"> 1. die Zahl der Messstellen sehr verschieden ist (die Anzahl der Messstellen pro Messgebiet ist in der Tabelle auf Seite 16 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). <p>Den Autoren sind sich dieser Tatsachen durchaus bewusst. Trotz der erhobenen Einwände gibt es einige Argumente für die Fortführung der Städtevergleiche:</p> | <h3><u>Critical remarks</u></h3> <p>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:</p> <ol style="list-style-type: none"> 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 16 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). <p>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:</p> |

| | |
|---|--|
| <p>1. Die Luftschaadstoffmessungen werden im allgemeinen technisch in der gleichen oder in ähnlicher Weise durchgeführt. Das bedeutet, dass die Luftüberwachung an bestimmten <i>Punkten</i> 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 <i>Art der Probenahme</i> müsste also <i>vergleichbar</i> sein.</p> <p>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.</p> <p>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 ableist. Nachdem die Stadt Linz internationale und nationale Städte vergleiche schon seit einigen Jahren durchführt, wurden in diesen Bericht für die Jahresmittelwerte auch die mehrjährige <i>Trendentwicklung</i> 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.</p> | <p>1. The kind of measurement of air pollutants is carried out by the same or similar technical methods. This means that the results of air monitoring activities are obtained by sampling at special sampling <i>points</i> 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 <i>method of sampling</i> itself should be <i>comparable</i>.</p> <p>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.</p> <p>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 <i>trend developments</i> 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</p> |
|---|--|

Verglichene Immissionskenngrößen

In der vorliegenden Studie wurden verschiedene Immissionskenngrößen miteinander verglichen:

- 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 PM₁₀-Tagesgrenzwertes an der höchstbelasteten Messstation
- **NEU:** Anzahl der Überschreitungen des NO₂-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 Percentil-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 Percentilgrößen (z. B. 95-Percentil) gebildet. Die meisten Messnetzbetreiber berechnen die Percentile aus den Halbstunden-Mittelwerten eines Jahres, manchmal werden jedoch auch die Tagesmittelwerte dafür herangezogen.

Aus diesem Grund wurde nur die Auswertung „max. 98-Percentil“ in grafischer Form durchgeführt. Im Kapitel „Luftgütekennzahlen“ der einzelnen Vergleichsregionen sind sämtliche dem Amt für Natur- und Umweltschutz übermittelten Perzentilwerte aufgelistet. Die Art der Percentilbildung ist - soweit bekannt - in den Tabellen jeweils vermerkt.

Immission reference values compared

The present study compares various Immission reference values, 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 PM₁₀ daily mean standard at the highest stressed monitoring station
- **NEW:** Number of violations of the NO₂ 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.

This was the reason that only „max. 98-percentile“ was graphically evaluated. Within the chapter „Air quality reference numbers“ of each compared region all percentile-values the monitoring network services supported us with are mentioned. If known the kind of formation of percentiles is remarked in the tables.

Verglichene Luftschadstoffe

Folgende Luftschadstoffe wurden miteinander verglichen:

SO₂, Staub (TSP), CO, NO, NO₂, O₃, Feinstaub (PM₁₀)

Mehrjahresvergleich

Ein gutes Bild über die Entwicklung der Luftbelastung geben die Grafiken wieder. Dabei wurden von den am Luftgütevergleich teilnehmenden Städten die Entwicklung der Immissionsbelastung von 1993 bis 2004 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 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. TSP wird nur mehr bei weniger als einem Drittel der Teilnehmer am Luftgütevergleich gemessen. Andererseits werden diese Messungen immer mehr durch Feinstaub (PM₁₀-Messungen) abgelöst.
5. Entwicklung der Langzeitbelastung (Jahresmittelwerte SO₂, Staub, NO, NO₂, CO, und O₃) gegenüber 1993 (PM₁₀: gegenüber 2001):

Pollutants compared

The following air pollutants have been compared:

SO₂, particulates (TSP), CO, NO, NO₂, O₃, fine particulates (PM₁₀)

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 2004 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. Less than a third of the participants of the comparison of the air quality are still measuring TSP. On the other hand the percentage of monitoring networks including the pollutant PM₁₀ increasing rapidly.
5. Development of the air pollution stress in comparison with 1993 (for PM₁₀: comparison with 2001):

| | | | |
|--------------------|--|--------------------|---|
| SO ₂ : | Nahezu alle Regionen <i>geringer</i> belastet | SO ₂ : | Nearly all regions <i>less stressed</i> |
| Staub: | TSP-Messung in nahezu allen Regionen eingestellt. Wenn vorhanden, ist die Tendenz zu <i>geringeren</i> Belastungen | TSP: | Nearly no TSP-measurements any more. If there is still monitoring, regions are <i>less stressed</i> in tendency |
| PM ₁₀ : | Belastungen tendenziell <i>gleichbleibend</i> oder fallweise <i>leicht erhöht</i> | PM ₁₀ : | trend is constant or <i>slightly higher</i> stressed |
| NO: | uneinheitlich, tendenziell <i>geringer</i> belastet oder <i>gleichbleibend</i> | NO: | non-uniform, trend of lower stress or staying constant |
| NO ₂ : | tendenziell <i>gleichbleibend, oder leicht höher</i> belastet | NO ₂ : | trend is constant or <i>slightly higher</i> stressed |
| CO: | Nahezu alle Regionen <i>geringer</i> belastet | CO: | nearly all regions <i>lower</i> trend of stress |
| O ₃ : | Nahezu alle Regionen <i>leicht höher</i> belastet | O ₃ : | nearly all regions <i>slightly higher</i> trend of stress |

Übersicht über die Entwicklung der Schadstoffbelastungen 1993 -2004

Beurteilungsbasis: Jahresmittelwerte über alle Stationen einer Region (Details siehe Seite 81-109)

Overview over the development of the stress of air pollutants from 1993 through 2004

based on the mean of all annual mean values of a region (Details see pp. 81-109)

Austrian Towns, Cities and Regions

| | SO ₂ | | | TSP | | | NO | | | NO ₂ | | | CO | | | O ₃ | | |
|---------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|
| | Stress in 1993 ¹⁾ | Trend last 5 years | Stress in 2004 |
| Linz | blue | == | blue | yellow | == | yellow | blue | ↘ | blue | yellow | ↗ | yellow | blue | == | blue | yellow | == | yellow |
| Bludenz | yellow | == | blue | blue | ↘ | blue | 1994 | == | blue | yellow | == | blue | - | - | - | 1994 | ↗ | yellow |
| Dornbirn | blue | == | blue | yellow | - | 2000 | 1994 | == | yellow | yellow | == | yellow | 1998 | ↘ | blue | - | - | - |
| Graz | blue | ↘ | blue | yellow | ↘ | yellow | 1994 | ↘ | yellow | yellow | == | yellow | ↘ | blue | yellow | yellow | ↘ | yellow |
| Hallein | blue | == | blue | blue | - | 2001 | - | - | yellow | yellow | ↘ | yellow | ↘ | blue | yellow | ↗ | red | yellow |
| Innsbruck | yellow | ↘ | blue | yellow | ↗ | yellow | yellow | == | yellow | yellow | ↗ | yellow | ↘ | blue | yellow | yellow | == | yellow |
| Klagenfurt | yellow | ↘ | blue | yellow | ↘ | yellow | yellow | == | yellow | yellow | ↗ | yellow | ↘ | blue | yellow | yellow | ↘ | yellow |
| Region Leoben | blue | ↘ | blue | yellow | ↘ | yellow | blue | ↘ | blue | yellow | ↘ | blue | == | blue | yellow | yellow | == | yellow |
| Salzburg | blue | == | blue | blue | - | 2001 | - | - | yellow | == | yellow | red | ↘ | blue | yellow | yellow | == | yellow |
| St. Pölten | 1994 | ↓ | 1994 | - | 2002 | 1994 | ↑ | 1994 | 1994 | ↗ | blue | 1994 | ↗ | 1994 | 1994 | 1994 | == | 1994 |
| Vienna | yellow | == | blue | yellow | ↘ | blue | 1994 | == | blue | yellow | == | yellow | ↘ | blue | yellow | yellow | == | yellow |
| Villach | yellow | == | blue | red | ↘ | yellow | yellow | == | yellow | yellow | == | yellow | ↘ | blue | yellow | yellow | ↘ | blue |

¹ Or year, when data were primarily available

Overview over the development of the stress of air pollutant from 1993 through 2004

based on the mean of all annual mean values of a region (Details see pp. 81-109)

European Cities and regions

| | SO ₂ | | | TSP | | | NO | | | NO ₂ | | | CO | | | O ₃ | | |
|------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|
| | Stress in 1993 ²⁾ | Trend last 5 years | Stress in 2004 |
| Barcelona | 1994 | ↘ | | 1995 | - | 2000 | 1994 | ↘ | | 1994 | -- | | 1994 | ↘ | | 1994 | ↗ | |
| Basel | | -- | | | | 1998 | | -- | | | -- | | | | | 1999 | | ↗ |
| Belfast | | ↓ | | - | - | - | | | | | | | | | | | | == |
| Berlin | | ↘ | | | | 2001 | | | | | | | | | | | | == |
| Birmingham | | ↘ | | - | - | - | | | | | | | | | | | | ↗ |
| Bristol | | ↘ | | - | - | - | | ↗ | | | | | | | | | | == |
| Brussels | 1995 | -- | | - | - | - | 1995 | ↘ | | 1995 | -- | | 1995 | ↘ | | 1995 | -- | |
| Budapest | 1996 | ↘ | | 1996 | ↘ | | 1996 | - | | 1996 | - | | 1996 | - | | 1996 | - | |
| Chemnitz | | ↘ | | | | 2001 | | ↗ | | | | | | | | | | ↗ |
| Copenhagen | | -- | | 1994 | - | 2000 | 1994 | ↗ | | 1995 | ↗ | | 1998 | -- | | 1994 | ↗ | |
| Debrecen | | | 2001 | | | 2000 | 1995 | - | 2001 | | -- | 2001 | | - | 2001 | | - | 2001 |
| Dresden | | ↘ | | | | 2001 | | | | | ↘ | | | | | | | ↗ |
| Edinburgh | | ↘ | | - | - | - | | ↘ | | | ↗ | | | | | | ↑ | |
| Frankfurt | | -- | | | | 1999 | | ↘ | | | | | | | | | | ↗ |
| Gothenburg | | ↗ | | - | - | - | | | | | | | | | | | | ↗ |
| Hamburg | | -- | | | | 2003 | | ↗ | | | ↗ | | | | | | | == |
| Karlsruhe | | ↘ | | | | 2000 | | ↗ | | | | | | | | | | == |
| Leeds | | ↘ | | - | - | - | | | | | | | | | | | | ↗ |
| Leipzig | | -- | | | | 2001 | | | | | | | | | | | | ↗ |
| Lisbon | 1997 | ↘ | | - | - | - | - | - | 2003 | 1997 | ↘ | | 1997 | ↘ | | 1997 | ↗ | |
| Liverpool | | ↘ | | - | - | - | | ↓ | | | ↘ | | | | | | ↗ | |
| London | | ↘ | | - | - | - | | ↘ | | | | | | | | | | == |
| Luxemburg | 1996 | ↘ | 2003 | - | - | - | 1996 | ↘ | 2003 | 1996 | -- | | 1996 | ↘ | 2003 | 1996 | -- | 2003 |

² Or year, when data were primarily available

Overview over the development of the stress of air pollutant from 1993 through 2004

based on the mean of all annual mean values of a region (Details see pp. 81-109)

European Cities and regions

| | SO ₂ | | | TSP | | | NO | | | NO ₂ | | | CO | | | O ₃ | | |
|-----------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|------------------------------------|--------------------------|----------------------|
| | Stress in 1993 ³⁾ | Trend last 5 years | Stress in 2004 | Stress in 1993 ³⁾ | Trend last 5 years | Stress in 2004 | Stress in 1993 ³⁾ | Trend last 5 years | Stress in 2003 |
| Lyon | | ↓ | | - | - | - | | ↘ | | | == | | 1994 | ↗ | | 1994 | ↗ | |
| Madrid | 1994 | ↓ | | - | - | - | 1999 | ↘ | | 1994 | ↗ | 1994 | ↓ | | 1994 | ↗ | | |
| Mannheim | | ↓ | | | | 2000 | | ↘ | | | == | | | == | | | | ↗ |
| Milan | 1994 | ↘ | | 1994 | ↘ | | 1994 | ↘ | | 1994 | ↘ | 1994 | ↓ | | 1994 | == | | |
| Munich | | ↘ | | | | 2000 | | | | | ↗ | | | ↘ | | | | ↗ |
| Riga | 1999 | ↘ | | - | - | - | - | - | 1999 | ↗ | | - | - | | 1999 | ↗ | | |
| Rhine/Ruhr Area | | == | | | | - | 2002 | | | ↗ | | | | ↗ | | | | ↗ |
| Rotterdam | 1995 | == | | 1995 | ↘ | | 1995 | == | | 1995 | == | 1995 | == | | 1995 | ↗ | | |
| Sofia | 1999 | ↘ | | 1999 | ↗ | | | - | 1999 | ↗ | | 1999 | ↘ | | 1999 | ↗ | | |
| Stockholm | | == | | - | - | - | 1994 | ↗ | 1994 | ↗ | | 1994 | ↗ | | | | | ↗ |
| Warsaw | 1995 | ↘ | | 2001 | ↘ | | 2001 | == | | 1995 | == | 1995 | == | | 1995 | == | | |
| Wiesbaden | | == | | | | 1999 | | ↘ | | | == | | | == | | | | == |
| Zagreb | | ↓ | | | == | | | - | | 1994 | ↗ | | - | - | 1999 | ↗ | | |
| Zurich | | ↘ | | | | 1997 | | ↘ | | | == | | | == | | | | ↗ |

Legend:

- | | | |
|---|-------------------|--|
| | slightly stressed | (SO ₂ < 15, TSP < 30, NO < 30, NO ₂ < 30, CO < 1000, O ₃ < 30 µg/m ³) |
| | Medium stressed | (SO ₂ < 30, TSP < 60, NO < 60, NO ₂ < 60, CO < 2000, O ₃ < 60 µg/m ³) |
| | Highly stressed | (SO ₂ > 30, TSP > 60, NO > 60, NO ₂ > 60, CO > 2000, O ₃ > 60 µg/m ³) |
| | missing data | |

- | | | | |
|--|-----------------------------|--|------------------------|
| | slight stress decrease | | constant stress |
| | strong stress decrease | | slight stress increase |
| | very strong stress decrease | | strong stress increase |

³⁾ Or year, when data were primarily available

Overview over the development of the stress of air pollutant from 1993 through 2004

based on the mean of all annual mean values of a region (Details see pp. 81-109)

| | PM₁₀ | | |
|---------------|------------------------------|-------|----------------|
| | Stress in 2001 ³⁾ | Trend | Stress in 2004 |
| Linz | | == | |
| Bludenz | - | - | - |
| Dornbirn | 2002 | ↑ | |
| Graz | | == | |
| Hallein | 2002 | == | |
| Innsbruck | | ↗ | |
| Klagenfurt | 2002 | ↘ | |
| Region Leoben | 2003 | ↘ | |
| Salzburg | 2002 | == | |
| St. Pölten | 2002 | ↑ | |
| Vienna | 2002 | == | |
| Villach | 2002 | == | |
| Barcelona | | ↗ | |
| Basel | | == | |
| Belfast | == | | |
| Berlin | == | | |
| Birmingham | | ↗ | |
| Bristol | | ↗ | |
| Brussels | | ↗ | |
| Budapest | - | - | red |

| | PM₁₀ | | |
|------------|------------------------------|-------|----------------|
| | Stress in 2001 ³⁾ | Trend | Stress in 2004 |
| Chemnitz | | == | |
| Copenhagen | | ↗ | |
| Dresden | | ↘ | |
| Edinburgh | | == | |
| Frankfurt | | == | |
| Gothenburg | | ↗ | |
| Hamburg | | ↗ | |
| Karlsruhe | | == | |
| Leeds | | ↗ | |
| Leipzig | | == | |
| Lisbon | | red | red |
| Liverpool | | == | |
| London | | ↗ | blue |
| Luxemburg | | ↗ | 2003 |
| Lyon | | ↗ | |
| Madrid | | == | |
| Mannheim | | ↗ | |
| Milan | | ↘ | |
| Munich | | == | |
| Riga | | ↘ | red |

| | PM₁₀ | | |
|------------------|------------------------------|-------|----------------|
| | Stress in 2001 ³⁾ | Trend | Stress in 2004 |
| Rhine-/Ruhr Area | | == | |
| Rotterdam | red | ↘ | |
| Sofia | | ↑ | red |
| Stockholm | | ↘ | |
| Warsaw | | ↘ | |
| Wiesbaden | | ↘ | |
| Zagreb | | == | |
| Zurich | | == | |

Legend:

- slightly stressed ($PM_{10} < 20 \mu g/m^3$)
- Medium stressed ($PM_{10} < 40 \mu g/m^3$)
- Highly stressed ($PM_{10} > 40 \mu g/m^3$)
- missing data

³⁾ If values of 2001 are not available, values of the year 2002 or 2003 are compared

**Anzahl der Tage mit Überschreitungen des PM₁₀-Tagesmittelwertes von
50 µg/m³ in den Jahren 2001 bis 2004⁴⁾**

Beurteilungsbasis: Anzahl der Überschreitungen an der höchstbelasteten Station eines Messgebietes

**Number of days with exceedances of the PM₁₀ daily mean of 50 µg/m³ in
2001 through 2004⁵⁾**
based on the number of exceedances at the peak stressed monitoring station of a region

| | PM₁₀ | | | |
|---------------|--------------------------------------|---------------------------|----------------------------|--------------------------|
| | number of days >50 µg/m ³ | | | |
| | 2001 | 2002 | 2003 | 2004 |
| Linz | 88 | 79 | 78 | 46 |
| Bludenz | - | - | - | - |
| Dornbirn | - | 0 | 38 | 21 |
| Graz | 65 (159) ⁶⁾ | 99 (131) ⁶⁾ | 129 (131) ⁶⁾ | 97 (117) ⁶ |
| Hallein | - | 28 | 49 | 26 |
| Innsbruck | - | 50 | 61 | 52 |
| Klagenfurt | 36 | 58 | 74 | 80 |
| Region Leoben | 26 | 7 ⁷⁾ | 42 | 29 |
| Salzburg | - | 34 | 62 | 34 |
| St. Pölten | - | ? | 58 | 79 |
| Vienna | - | 57 | 95 | 54 |
| Villach | - | 24 | 35 | 25 |
| Barcelona | - | 86 | - | 47 |
| Basel | 11 | 22 | 23 | 16 |
| Belfast | 16 | 7 | 33 | 8 |
| Berlin | 60 | 91 | 117 | 62 |
| Birmingham | 2 | 1 | 5 | 4 |
| Bristol | 7 | 1 | 9 | 12 |
| Brussels | 52 | 153 | 163 | 127 |
| Budapest | - | - | - | 178 |
| Chemnitz | 41 | 20 | 35 | 12 |
| Copenhagen | - | 59 ⁸⁾ | 91 ⁹⁾ | - |

| | PM₁₀ | | | |
|------------------|--------------------------------------|--------------------------|--------------------------|--------------------------|
| | number of days >50 µg/m ³ | | | |
| | 2001 | 2002 | 2003 | 2004 |
| Frankfurt | 42 | 44 | 51 | 19 |
| Gothenburg | 1 | 10 | 12 | 2 |
| Hamburg | 22 (33) ⁶⁾ | 33 (43) ⁶⁾ | 62 | 20 |
| Karlsruhe | 6 | 27 (33) ⁶⁾ | 28 (33) ⁶⁾ | 14 (25) ⁶⁾ |
| Leeds | 3 | 3 | 9 | 4 |
| Leipzig | 109 | 63 | 92 | 49 |
| Liverpool | 4 | 2 | 1 | 14 |
| Lisbon | 230 | 222 | 183 | 147 |
| London | 28 | 29 | 61 | 107 |
| Luxemburg | 1 | 4 | 17 | - |
| Lyon | - | 83 | 124 | 71 |
| Madrid | - | 98 | - | 121 |
| Mannheim | 25 | 33 (44) ⁶⁾ | 28 (36) ⁶⁾ | 22 (41) ⁶⁾ |
| Milan | 148 | 177 | 137 | 139 |
| Munich | 64 | 75 | 123 | 59 |
| Riga | 57 | 74 | 105 | 160 |
| Rhine-/Ruhr Area | 40 | 48 | 58 | 38 |
| Rotterdam | 98 | 103 | 123 | 54 |
| Sofia | - | - | 225 | 178 |
| Stockholm | 101 | 113 | 80 | 80 |
| Warsaw | - | - | 89 | 184 |
| Wiesbaden | 15 | 35 | 19 | 11 |

⁴ Bei den Werten wurden bereits die Korrekturfaktoren berücksichtigt. Diese sind aus den Tabellen im Anhang zu ersehen.

⁵ For the number of exceedences the correction factors already have been considered. One can refer to the tables at the end of the report.

⁶ Peak stressed traffic station

⁷ Evaluation only for second half of the year

⁸ Evaluation from July 2001 – June 2002

⁹ Evaluation from July 2002 – June 2003

| | | | | |
|-----------|----|----|----|----|
| Dresden | 53 | 36 | 53 | 27 |
| Edinburgh | 3 | 8 | 2 | 0 |

| | | | | |
|--------|----|----|----|----|
| Zagreb | - | - | - | 75 |
| Zurich | 18 | 23 | 38 | 23 |

Anzahl der Überschreitungen des 1h-Grenzwertes für NO₂ von 200 µg/m³ im Jahr 2004

Beurteilungsbasis: Anzahl der Überschreitungen an der höchstbelasteten Station eines Messgebietes

Number exceedances of the NO₂ 1h mean value of 200 µg/m³ in 2004
based on the number of exceedances at the peak stressed monitoring station of a region

| NO ₂ | |
|-----------------|---|
| | number of 1 h mean values >200 µg/m ³ |
| 2004 | |
| Linz | 0 |
| Bludenz | 0 |
| Dornbirn | - |
| Graz | 0 |
| Hallein | 0 |
| Innsbruck | 0 |
| Klagenfurt | - |
| Region Leoben | 0 |
| Salzburg | 0 |
| St. Pölten | 0 |
| Vienna | 0 |
| Villach | 0 |
| Barcelona | 13 |
| Basel | 0 |
| Belfast | 0 |
| Berlin | 0 |
| Birmingham | 0 |
| Bristol | 0 |
| Brussels | 24 |
| Budapest | 1 |
| Chemnitz | 1 |
| Copenhagen | - |
| Dresden | 0 |
| Edinburgh | 0 |

| NO ₂ | |
|------------------|---|
| | number of 1 h mean values >200 µg/m ³ |
| 2004 | |
| Frankfurt | 0 |
| Gothenburg | 2 |
| Hamburg | 11 |
| Karlsruhe | 5 |
| Leeds | 0 |
| Leipzig | 1 |
| Liverpool | 0 |
| Lisbon | 52 |
| London | 542 |
| Luxemburg | - |
| Lyon | 35 |
| Madrid | 83 |
| Mannheim | 0 |
| Milan | 47 |
| Munich | 11 |
| Riga | 0 |
| Rhine-/Ruhr Area | 0 |
| Rotterdam | 10 |
| Sofia | 7 |
| Stockholm | 0 |
| Warsaw | 0 |
| Wiesbaden | 0 |
| Zagreb | - |
| Zurich | 0 |

Anzahl der Messstellen**Number of monitoring stations**

| Country | Monitored Area | SO ₂ | TSP | PM ₁₀ | NO | NO ₂ | CO | O ₃ |
|-------------|---------------------|-----------------|-----|------------------|----|-----------------|----|----------------|
| Austria | Bludenz | 1 | 1 | - | 1 | 1 | - | 1 |
| | Dornbirn | 1 | - | 1 | 1 | 1 | 1 | - |
| | Graz | 4 | 1 | 4 | 5 | 5 | 3 | 4 |
| | Hallein | 2 | - | 1 | 2 | 2 | 1 | 1 |
| | Innsbruck | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Klagenfurt | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Leoben/Göß/Donawitz | 3 | 1 | 2 | 3 | 3 | 1 | 1 |
| | Linz | 5 | 1 | 6 | 8 | 8 | 8 | 3 |
| | Salzburg | 3 | - | 3 | 3 | 3 | 2 | 2 |
| | St. Pölten | 1 | - | 2 | 2 | 2 | 1 | 1 |
| | Vienna | 12 | 4 | 11 | 17 | 17 | 4 | 5 |
| | Villach | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Belgium | Brussels | 9 | - | 6 | 11 | 11 | 8 | 7 |
| Bulgaria | Sofia | 7 | 2 | 5 | 4 | 7 | 4 | 3 |
| Croatia | Zagreb | 5 | 5 | 1 | - | 5 | - | 5 |
| Denmark | Copenhagen | 1 | - | 3 | 3 | 3 | 3 | 3 |
| France | Lyon | 10 | - | 11 | 15 | 15 | 5 | 8 |
| Germany | Berlin | 9 | - | 11 | 16 | 16 | 10 | 9 |
| | Chemnitz | 1 | - | 2 | 2 | 2 | 1 | 1 |
| | Dresden | 2 | - | 3 | 3 | 3 | 1 | 3 |
| | Frankfurt | 5 | - | 5 | 5 | 5 | 4 | 5 |
| | Hamburg | 11 | 3 | 11 | 16 | 16 | 7 | 6 |
| | Karlsruhe | 1 | - | 3 | 3 | 3 | 3 | 2 |
| | Leipzig | 1 | - | 3 | 3 | 3 | 1 | 1 |
| | Mannheim | 3 | - | 4 | 4 | 4 | 4 | 3 |
| | Munich | 4 | - | 4 | 5 | 5 | 4 | 3 |
| | Rhine/Ruhr Area | 15 | - | 26 | 24 | 24 | 1 | 18 |
| | Wiesbaden | 1 | - | 1 | 1 | 1 | 1 | 1 |
| Hungary, | Budapest | 6 | 2 | 7 | 9 | 9 | 10 | 8 |
| Italy | Milan | 1 | 1 | 2 | 9 | 9 | 5 | 3 |
| Latvia | Riga | 5 | - | 2 | 1 | 8 | 1 | 4 |
| Luxemburg | Luxemburg | 2 | - | 1 | 2 | 2 | 1 | 2 |
| Netherlands | Rotterdam | 9 | 5 | 5 | 4 | 4 | 1 | 3 |
| Poland | Warsaw | 11 | 1 | 11 | 8 | 10 | 5 | 4 |
| Portugal | Lisbon | 5 | - | 3 | 7 | 7 | 7 | 4 |

Anzahl der Messstellen**Number of monitoring stations**

| Country | Monitored Area | SO ₂ | TSP | PM ₁₀ | NO | NO ₂ | CO | O ₃ |
|-------------|----------------|-----------------|-----|------------------|----|-----------------|----|----------------|
| Spain | Barcelona | 2 | - | 4 | 3 | 3 | 3 | 3 |
| | Madrid | 27 | - | 25 | 27 | 27 | 25 | 26 |
| Switzerland | Basel | 1 | - | 1 | 1 | 1 | - | 1 |
| | Zurich | 1 | - | 1 | 1 | 1 | 1 | 1 |
| Sweden | Gothenburg | 3 | - | 1 | 2 | 3 | 1 | 3 |
| | Stockholm | 2 | - | 3 | 2 | 2 | 1 | 1 |
| U.K. | Belfast | 2 | - | 2 | 1 | 1 | 1 | 1 |
| | Birmingham | 3 | - | 2 | 3 | 3 | 3 | 3 |
| | 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 | 13 | - | 11 | 23 | 23 | 17 | 15 |

Quellen für die Immissionsdaten Sources for the immission-data

| | |
|---|--|
| Austria, Bludenz, Dornbirn | Umweltinstitut des Landes Vorarlberg Montfortstraße 4 A-6901 Bregenz Austria e-mail: umweltinstitut@vorarlberg.at Homepage: http://www.vorarlberg.at/umweltinstitut |
| Austria, Graz, Leoben, Donawitz | Amt der Steiermärkischen Landesregierung Fachabt. Ia (Ref. für Luftgüteüberwachung) Landhausgasse 7 A-8010 Graz e-mail: fa17c@stmk.gv.at Homepage: http://www.umwelt.steiermark.at/ |
| Austria, Innsbruck | Amt der Tiroler Landesregierung Abt. Waldschutz-Luftgüte Bürgerstrasse 36 A-6020 Innsbruck Austria e-mail: an.weber@tirol.gv.at Homepage: http://www.tirol.gv.at/luft |
| Austria, Linz | Amt der oö. Landesregierung Abt. Umwelt- und Anlagentechnik Goethestraße 86 A-4020 Linz Austria e-mail: elisabeth.danninger@ooe.gv.at Homepage: http://www.ooe.gv.at/umwelt/ |
| Austria, Salzburg | Amt der Salzburger Landesregierung, Abt. 16 Postfach 527 A-5010 Salzburg e-mail: alexander.kranabetter@salzburg.gv.at Homepage: http://www.salzburg.gv.at/ |
| Austria, St. Pölten | Magistrat der Landeshauptstadt St. Pölten Abteilung XIII Roßmarkt 6 A-3100 St. Pölten Austria e-mail: marktamt@st-poelten.gv.at Homepage: http://www.noe.gv.at/Umwelt/Luft.htm |

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| Austria, Vienna | Magistrat der Stadt Wien, MA 22 Ebendorferstraße 4 A-1082 Wien Austria e-mail: scg@m22.magwien.gv.at Homepage: http://www.wien.at/ma22/luftgue.html |
| Austria, Klagenfurt, Villach | Amt der Kärntner Landesregierung Abt. 15 (Umweltschutz und Technik) Flatschacher Straße 70 A-9020 Klagenfurt e-mail: abt15.Luftimmission@ktn.gv.at Homepage: http://www.ktn.gv.at |
| Belgium Brussels | CELINE-IRCEL Avenue des Arts, 10-11 B-1210 – Bruxelles Belgium e-mail: rasse@irceline.be Homepage: http://www irceline.be/ |
| Bulgaria Sofia | Executive Environmental Agency 136 Tzar Boris III 6 Lvd. BG-1618 Sofia Bulgaria e-mail: Serafimov@nfp-bg.eionet.eu.int Homepage: http://nfp-bg.eionet.eu.int/ |
| Croatia Zagreb | Institute of Medical Research and Occupational Health Ksaverska cesta 2 HR-10000 Zagreb Croatia e-mail: vadic@imi.hr Homepage: - |
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| Germany, Berlin | Berliner Luftgütemessnetz BLUME, Senatsverwaltung für Stadtentwicklung, IX B 33 Brückenstraße 6 D-10179 Berlin Germany e-mail: efthalia.nulis@senstadt.verwalt-berlin.de Homepage http://www.stadtentwicklung.berlin.de/umwelt/luftqualitaet/index.shtml |
| Germany, Chemnitz, Dresden, Leipzig | Sächsisches Landesamt für Umwelt und Geologie Zur Wetterwarte 11 D-01109 Dresden e-mail: frank.berger@lfug.smul.sachsen.de Homepage: http://www.lfug.de |
| Germany, Frankfurt, Wiesbaden | Hessische Landesamt für Umwelt und Geologie Rheingaustrasse 186 D-65203 Wiesbaden Germany e-mail: w.stec-lazaj@hlug.de Homepage: http://www.hlug.de |
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| Latvia Riga | Ministry of Environmental of the Republic of Latvia Latvian Environment, Geology and Meteorology Agency Observations Network Department 165 Maskavas str. LV-1019 Riga Latvia e-mail: EPOC@meteo.lv Homepage: http://www.meteo.lv |
| Luxemburg Luxemburg | Administration de l'Environnement, Dèpartement Air/Bruit 16, rue Eugène RUPPERT L-2453 Luxemburg e-mail: Serge.solagna@aev.etat.lu Homepage: - |
| Netherlands Rotterdam | DCMR- Environmental Protection Agency 's-Gravelandseweg 565, Postbox 843 NL- 3100 AV Schiedam The Netherlands e-mail: jel@dcmr.nl Homepage: http://www.dcmr.nl |
| Poland Warsaw | WIOS Warszawa ul. Bartycka 110A PL-00-716 Warszawa Poland e-mail: mirsa@wios.warszawa.pl - , monitoring@wios.warszawa.pl Homepage: http://www.wios.warszawa.pl |
| Portugal <i>Lisbon</i> | MUNICIPALITY OF LISBON - Department of Environment and Green Spaces Environmental Control Division Av. 24 de Julho 171-C Lisboa- 1399-021 <i>Portugal</i> e-mail: dca@cm-lisboa.pt Homepage: http://www.qualar.org/ |
| Romania Bucharest | Agentia de Protectia Mediului Bucuresti Bd. Regina Elisabeta nr. 47, et. 3, cam. 330, sector 5 RO-Bucuresti Romania e-mail: bucur@mappm.ro e-mail: apmbuc@automation.ipa.ro Homepage: - |

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| Switzerland Basel, Zurich | Bundesamt für Umwelt, Wald und Landschaft Abteilung Luft, NIS, Sicherheit CH-3003 Bern Switzerland e-mail: rudolf.weber@buwal.admin.ch Homepage: http://www.umwelt-schweiz.ch/buwal/de/fachgebiete/fg_luft/luftbelastung/index.html |
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Luftgütevergleich

2004

Jahresmittelwert (Gebietsmittel)

Comparison of The Air Quality

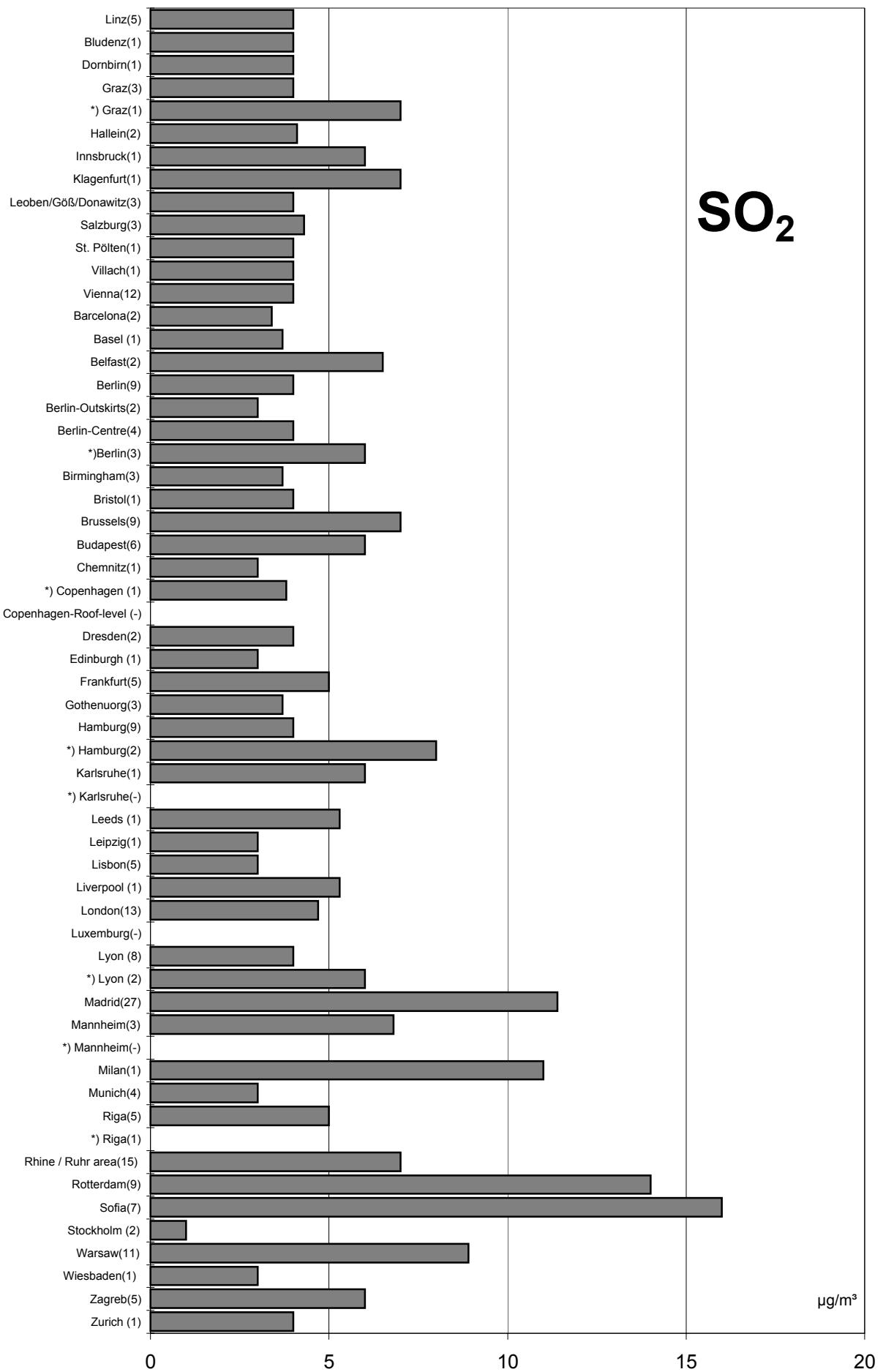
2004

Annual Mean Values

Comparison of The Air Quality in 2004

annual mean values

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

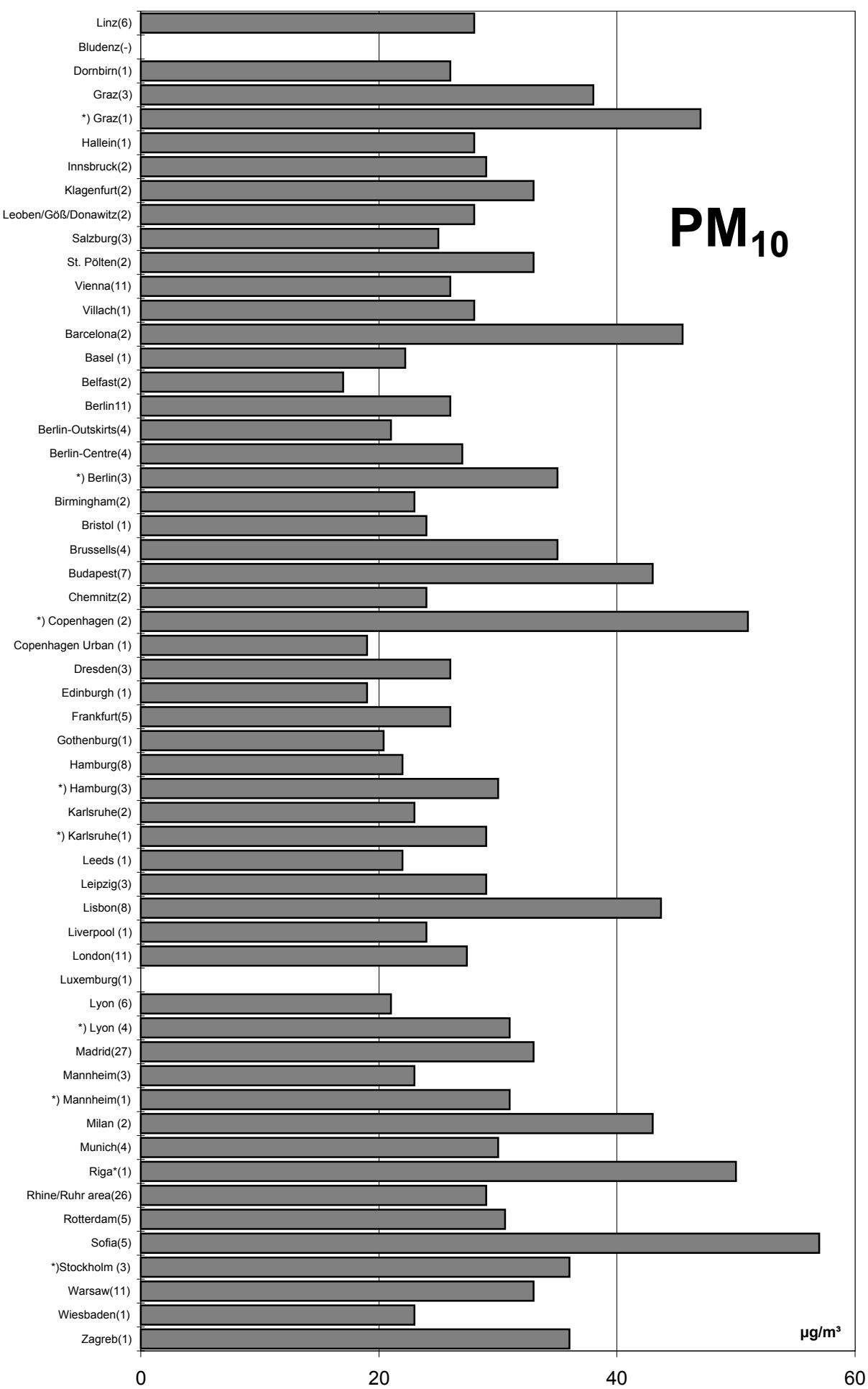
**) no data

Comparison of The Air Quality in 2004

27

annual mean values

(in parentheses: number of monitoring stations)



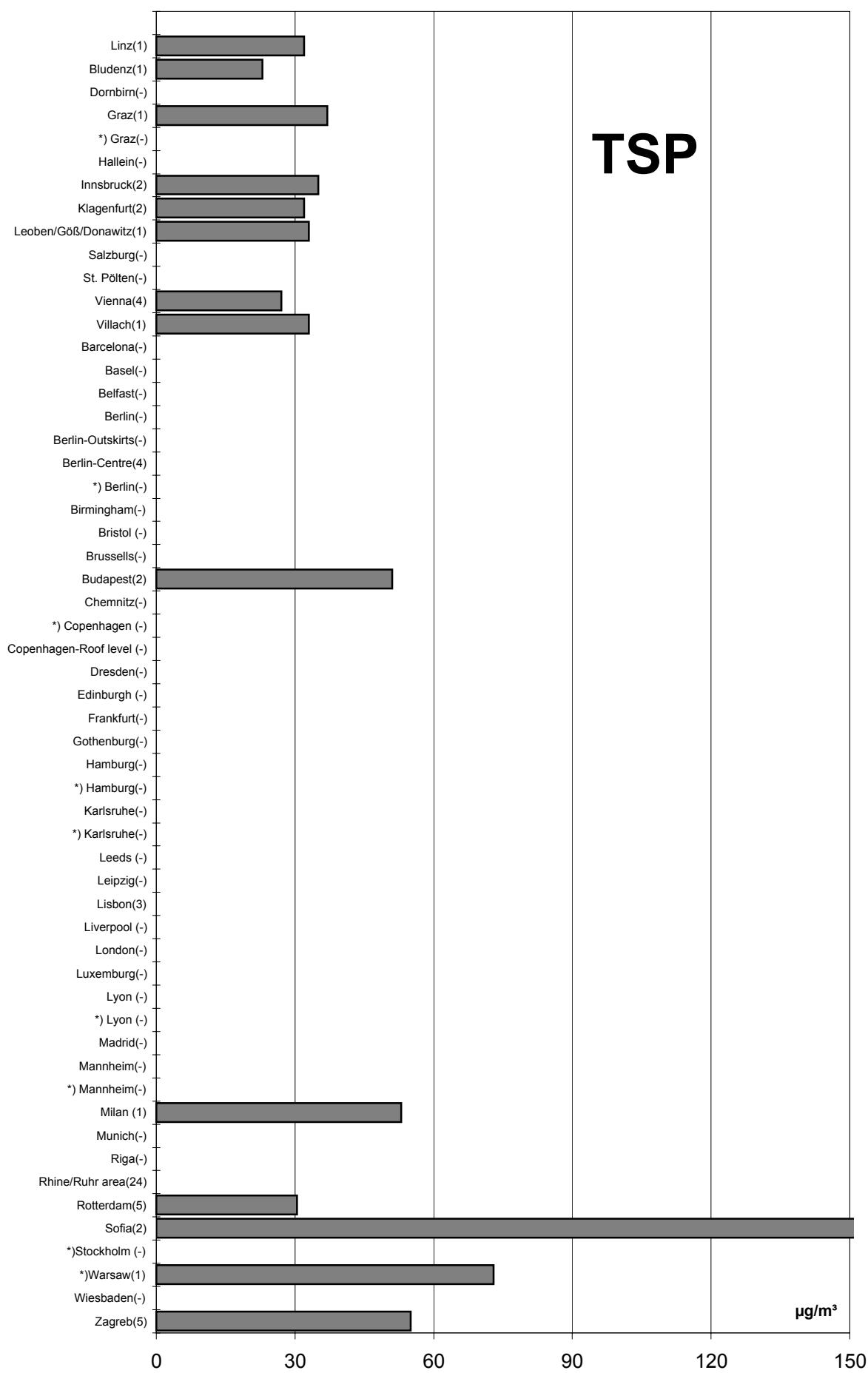
*) traffic-influenced monitoring stations

**) no data

Comparison of The Air Quality in 2004

annual mean values

(in parentheses: number of monitoring stations)



^{*)}traffic-influenced monitoring station

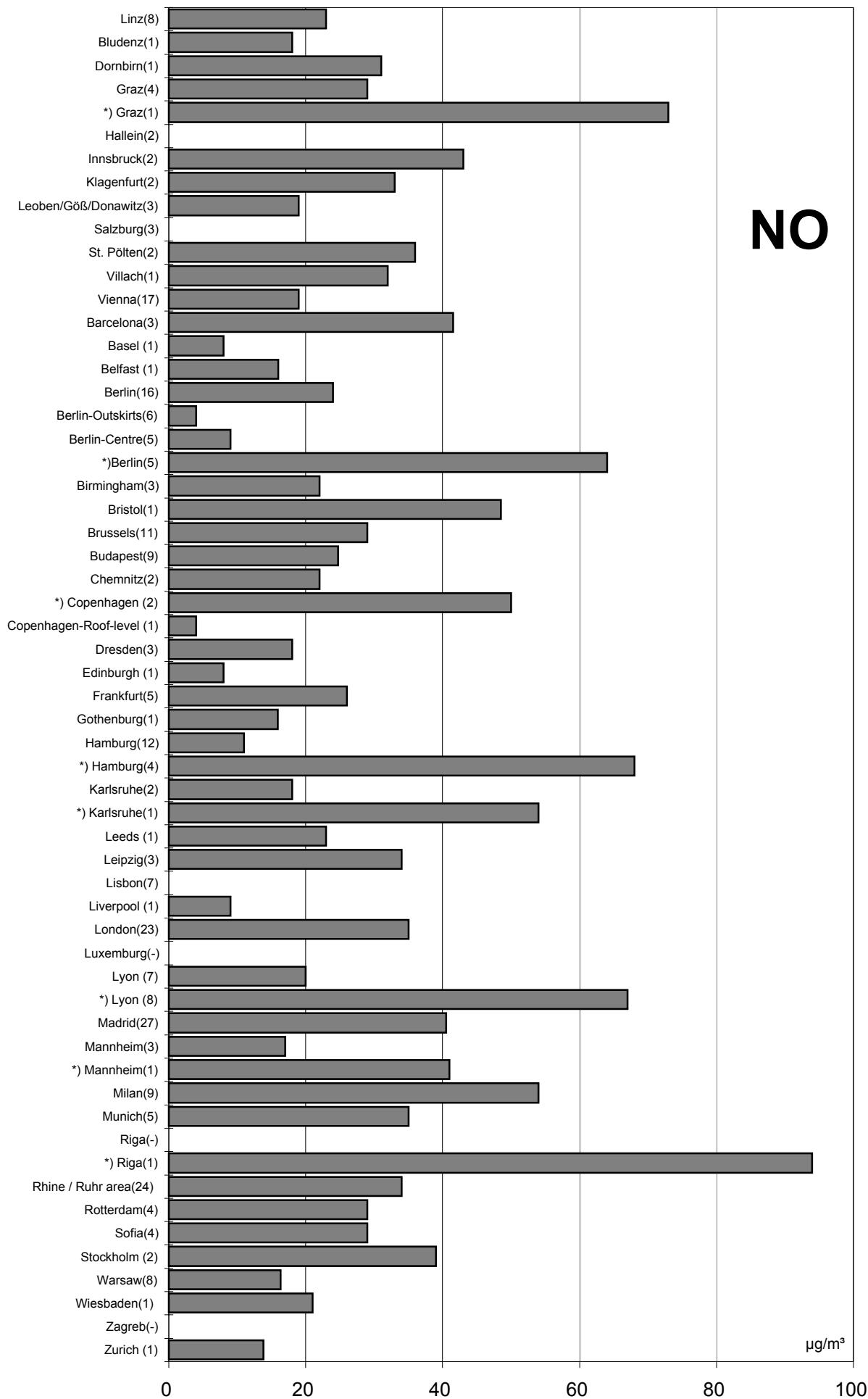
^{**})no data

Comparison of The Air Quality in 2004

29

annual mean values

(in parentheses: number of monitoring stations)



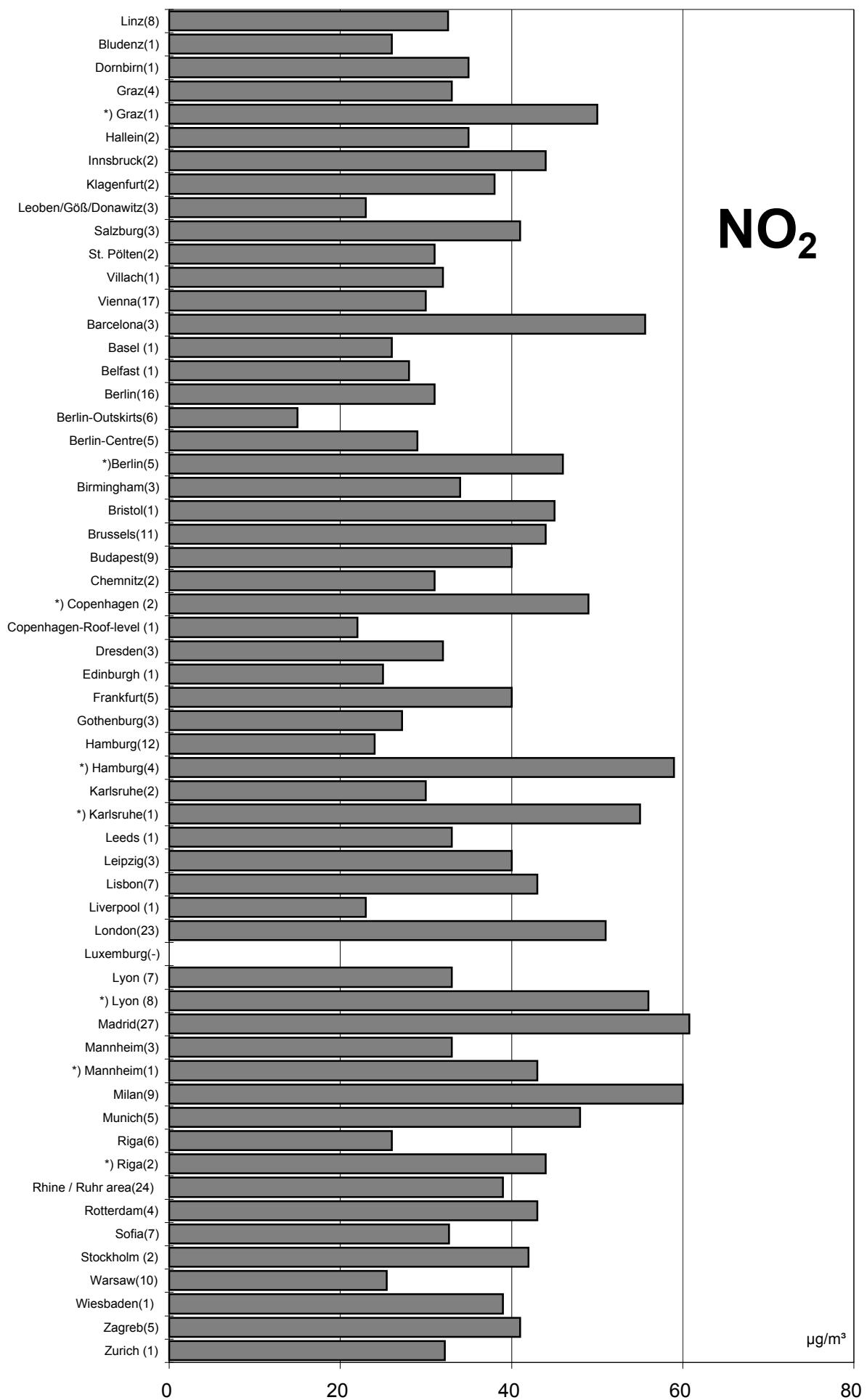
*) traffic-influenced monitoring stations

**) no data

Comparison of The Air Quality in 2004

annual mean values

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

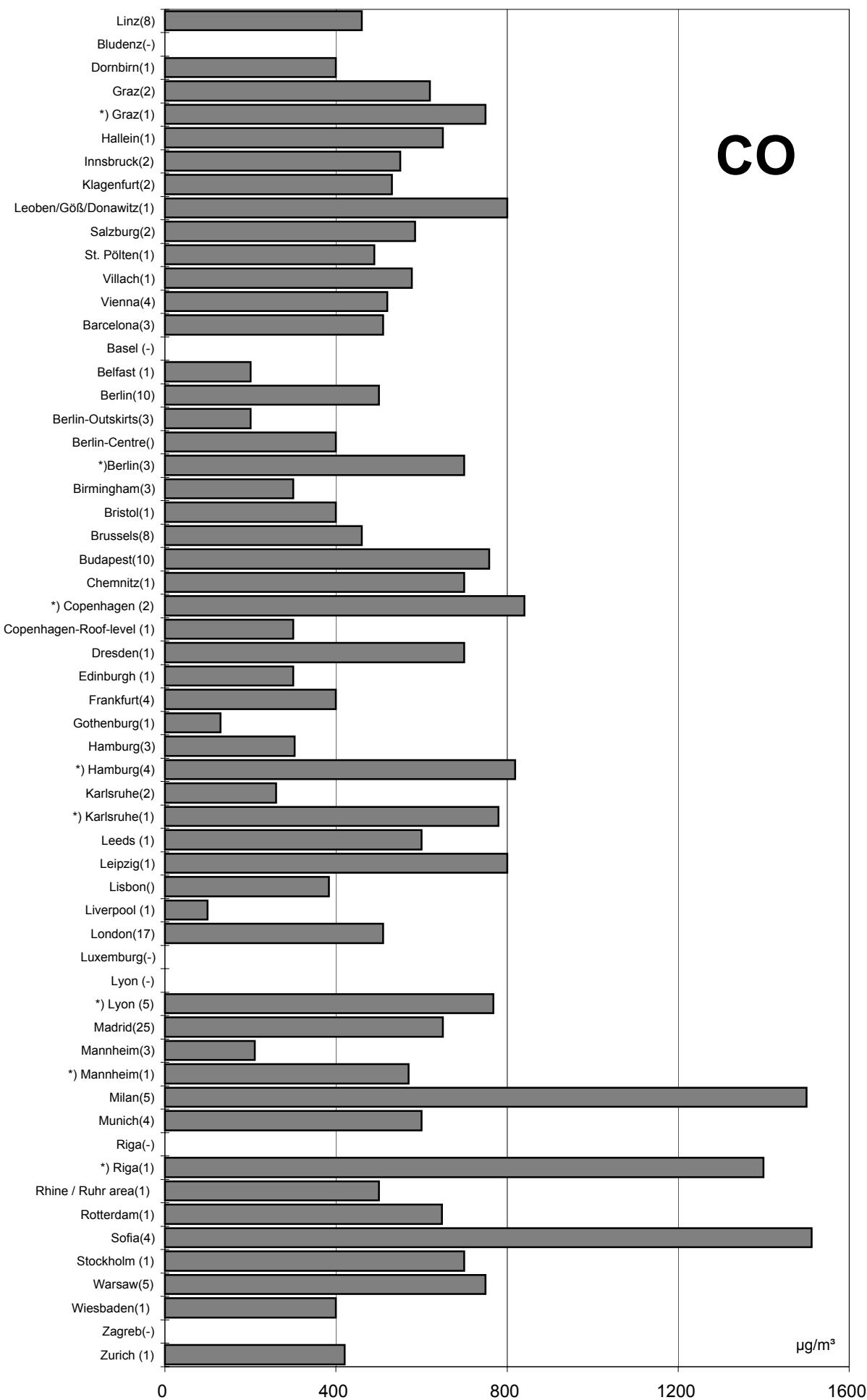
**) no data

Comparison of The Air Quality in 2004

31

annual mean values

(in parentheses: number of monitoring stations)



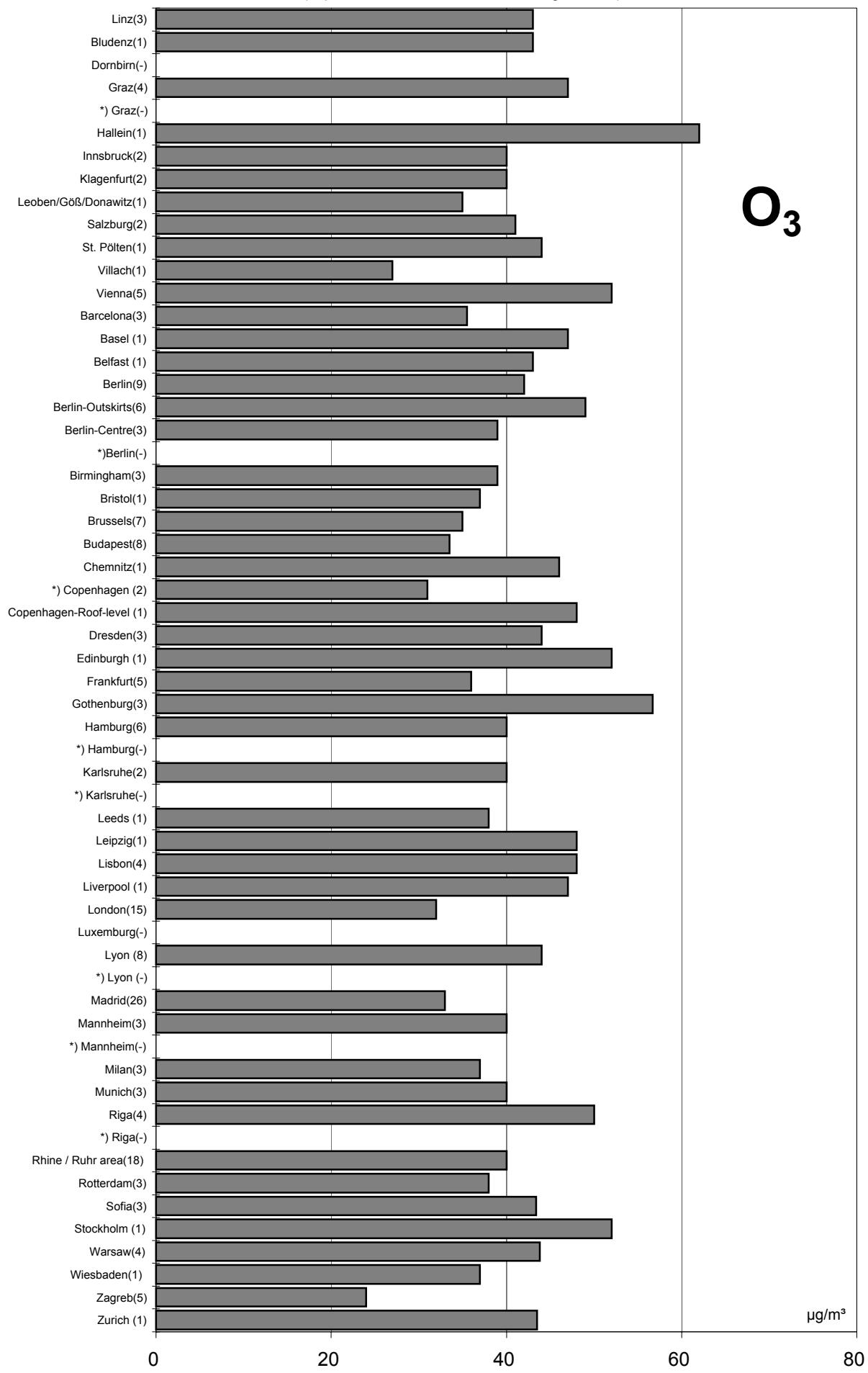
*) traffic-influenced monitoring stations

**) no data

Comparison of The Air Quality in 2004

annual mean values

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**) no data

Luftgütevergleich

2004

max. Monatsmittelwert

Comparison of The Air Quality

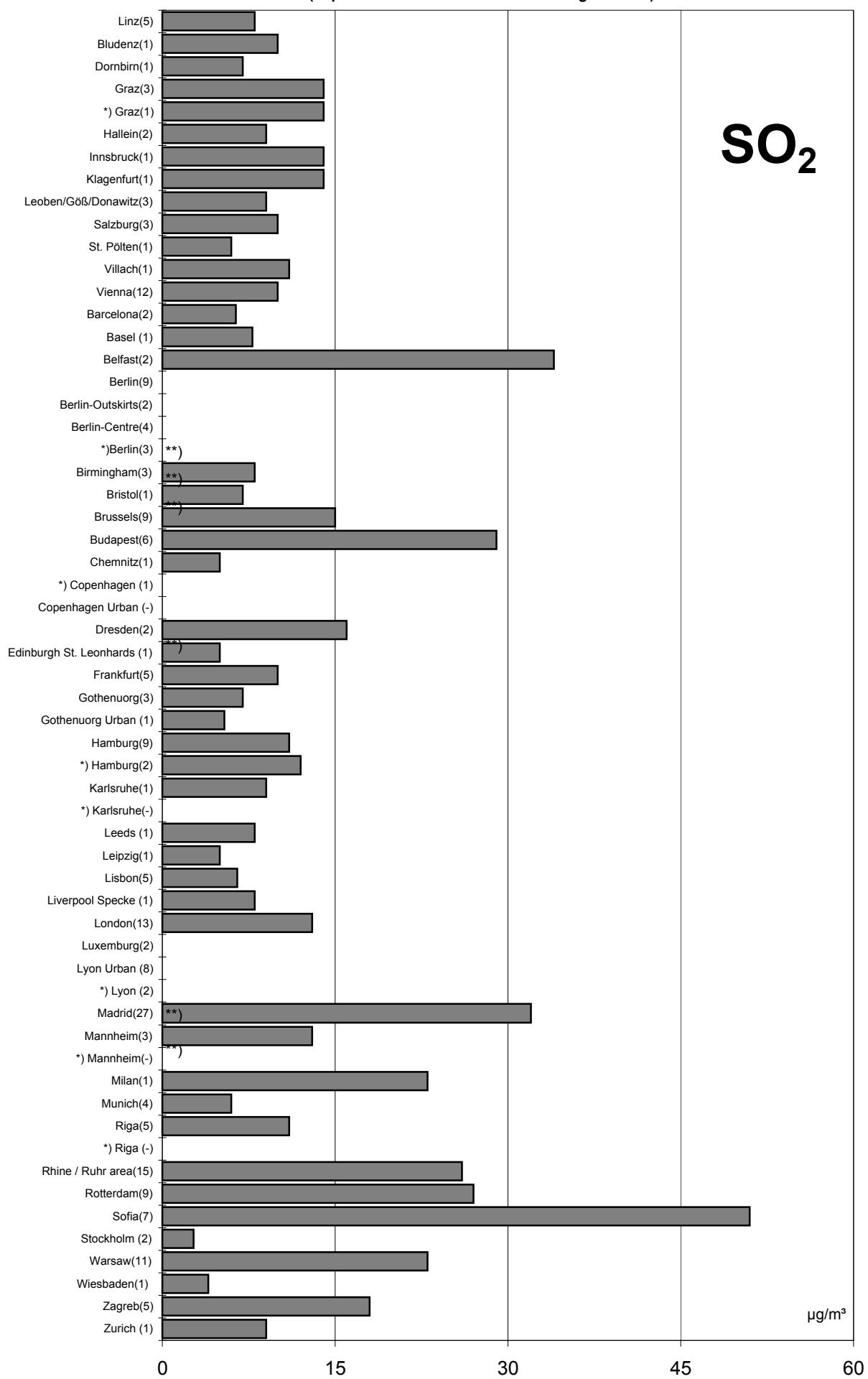
2004

Max. Monatly Mean Values

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

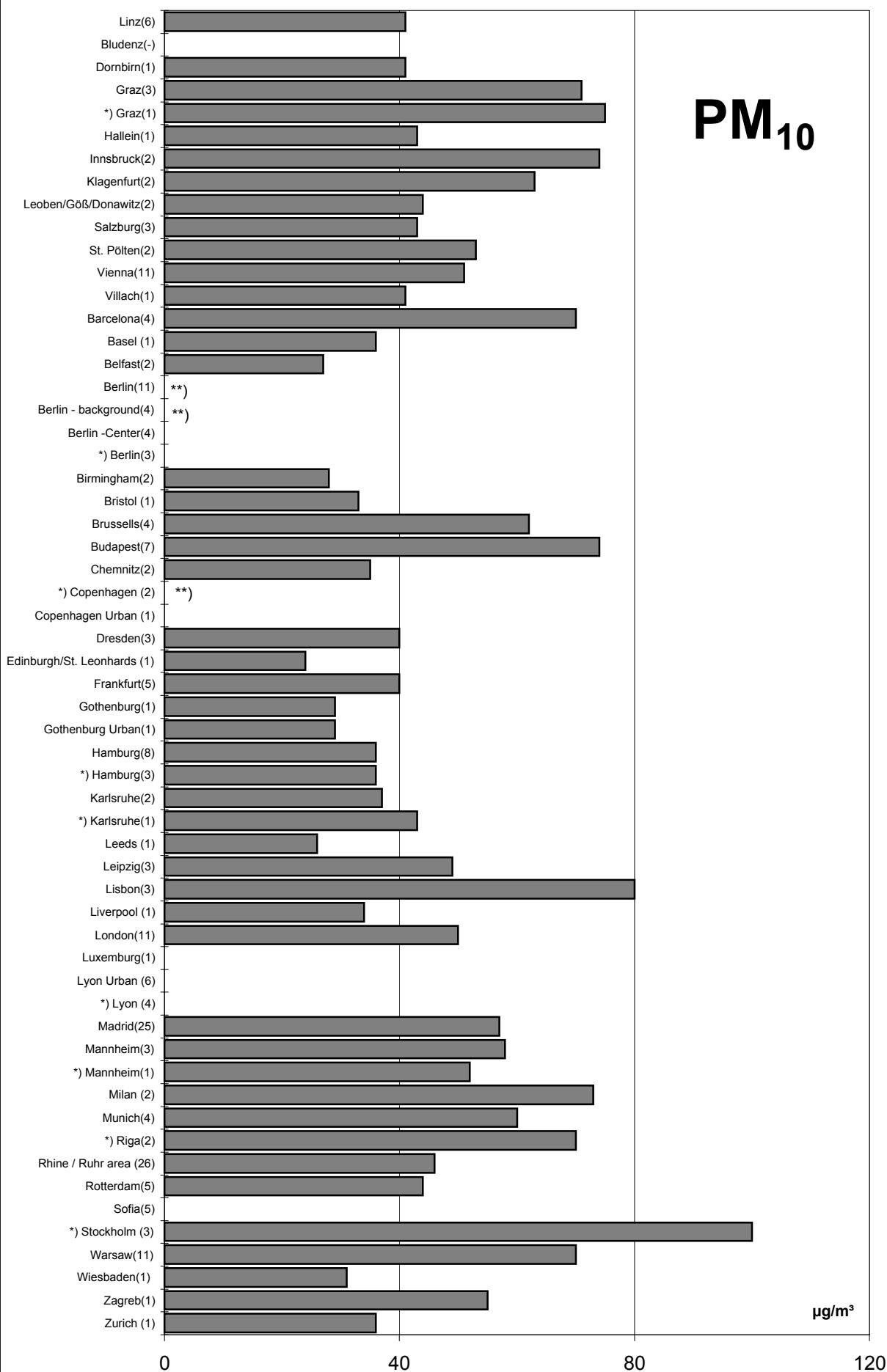
**) no data

Comparison of The Air Quality in 2004

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

35

(in parentheses: number of monitoring stations)



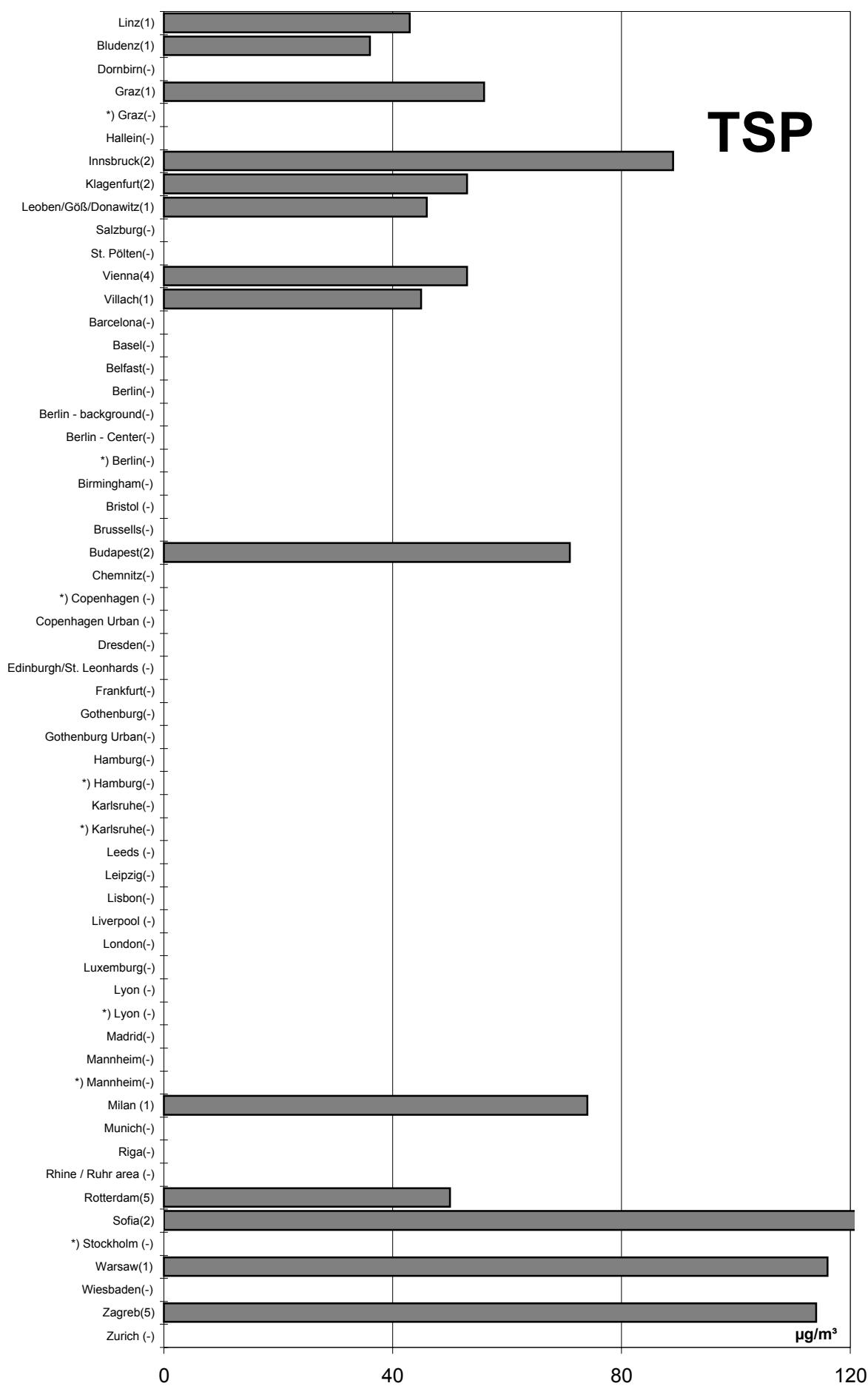
*) traffic-influenced monitoring stations

**) no data

Comparison of The Air Quality 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring station

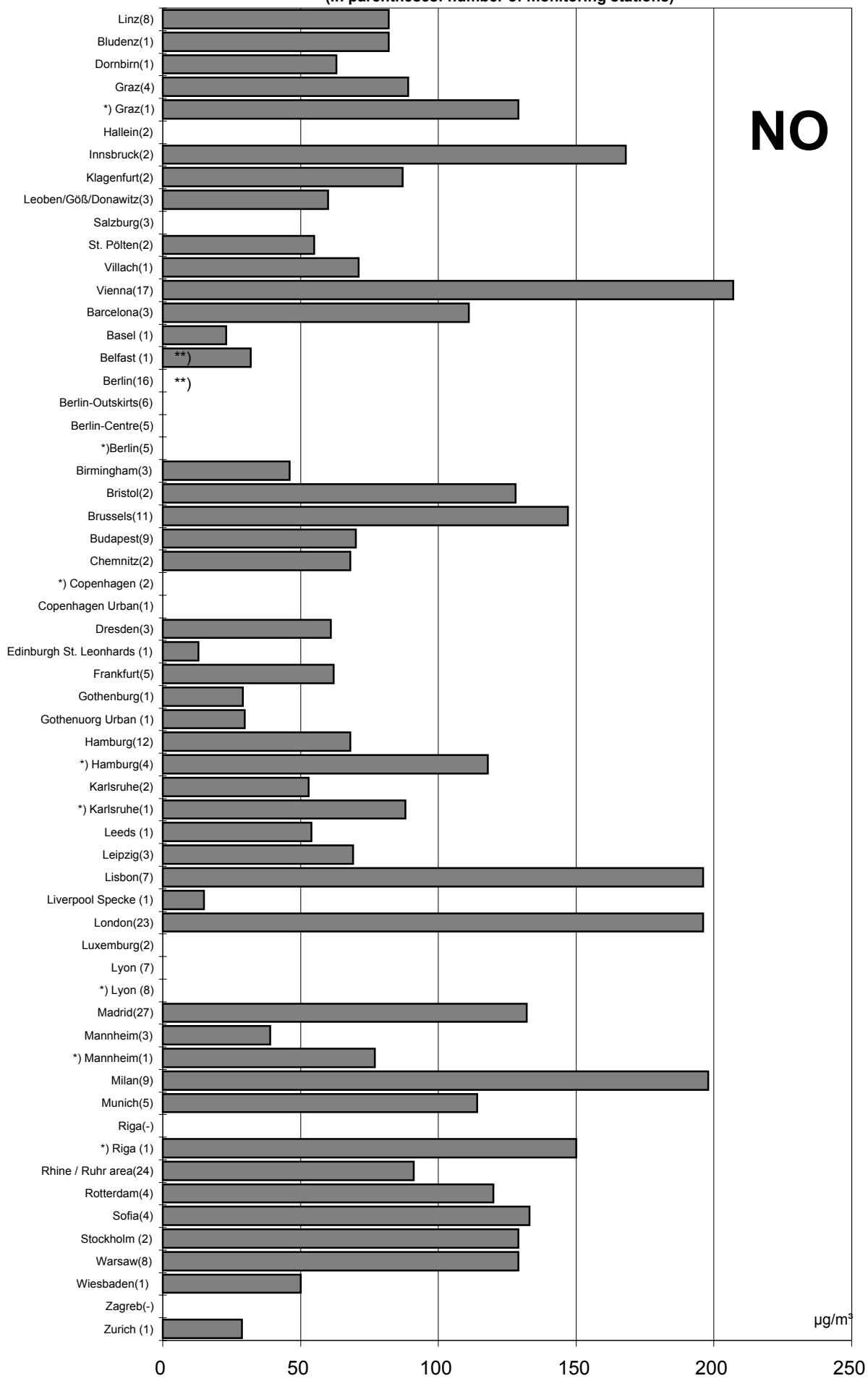
**) no data

Comparison of The Air Quality in 2004

37

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

(in parentheses: number of monitoring stations)



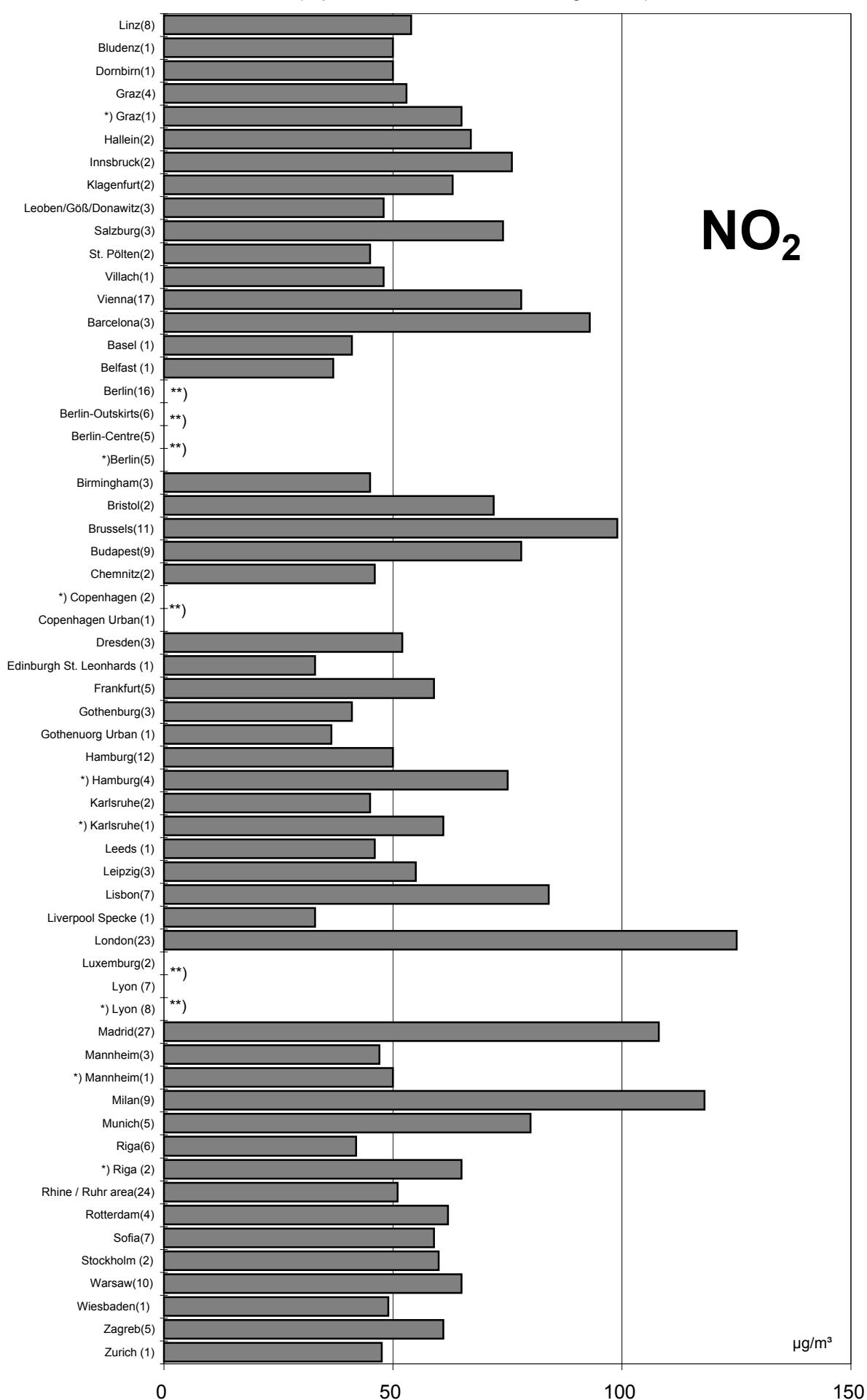
*) traffic-influenced monitoring stations

**) no data

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

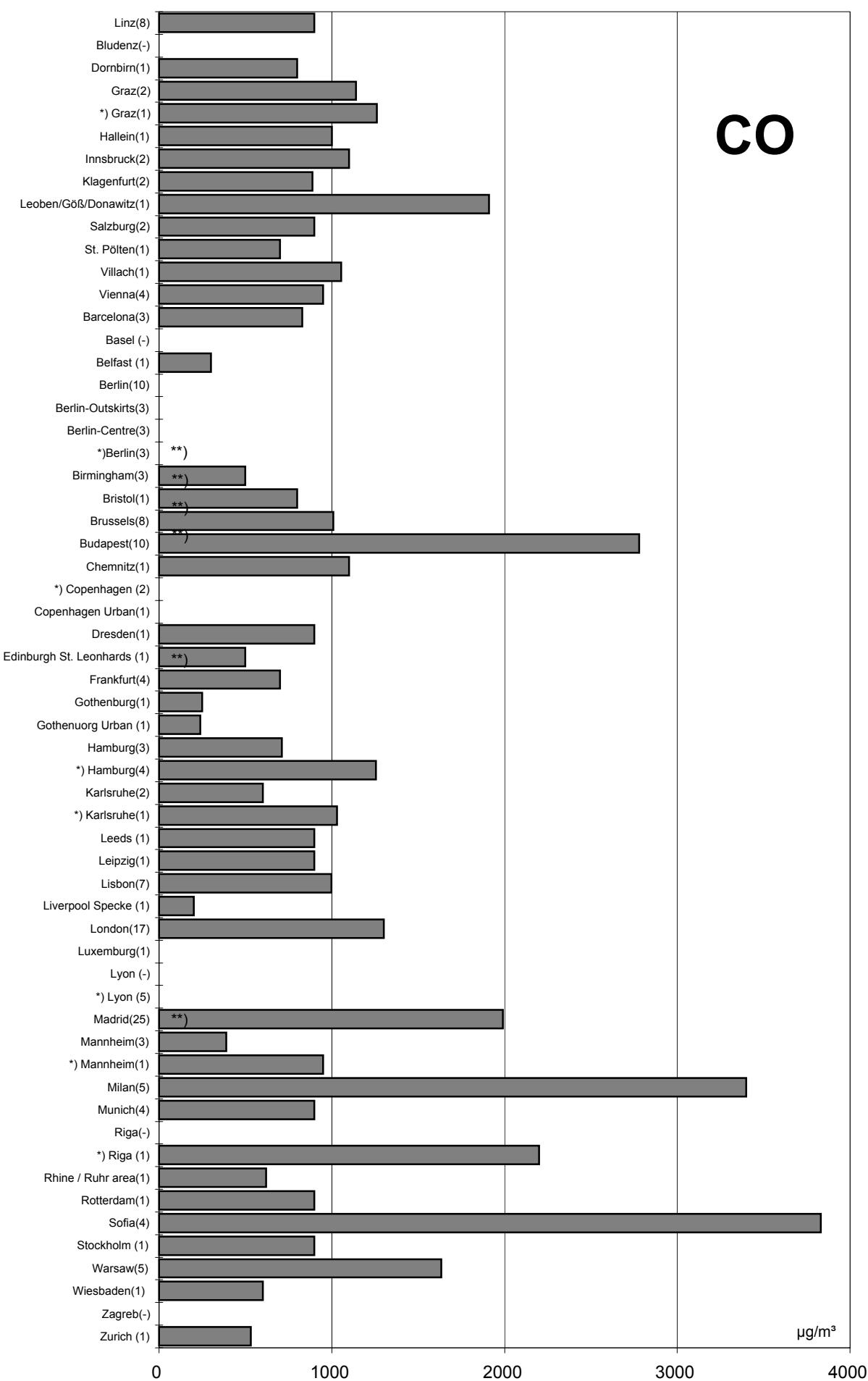
**) no data

Comparison of The Air Quality in 2004

39

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

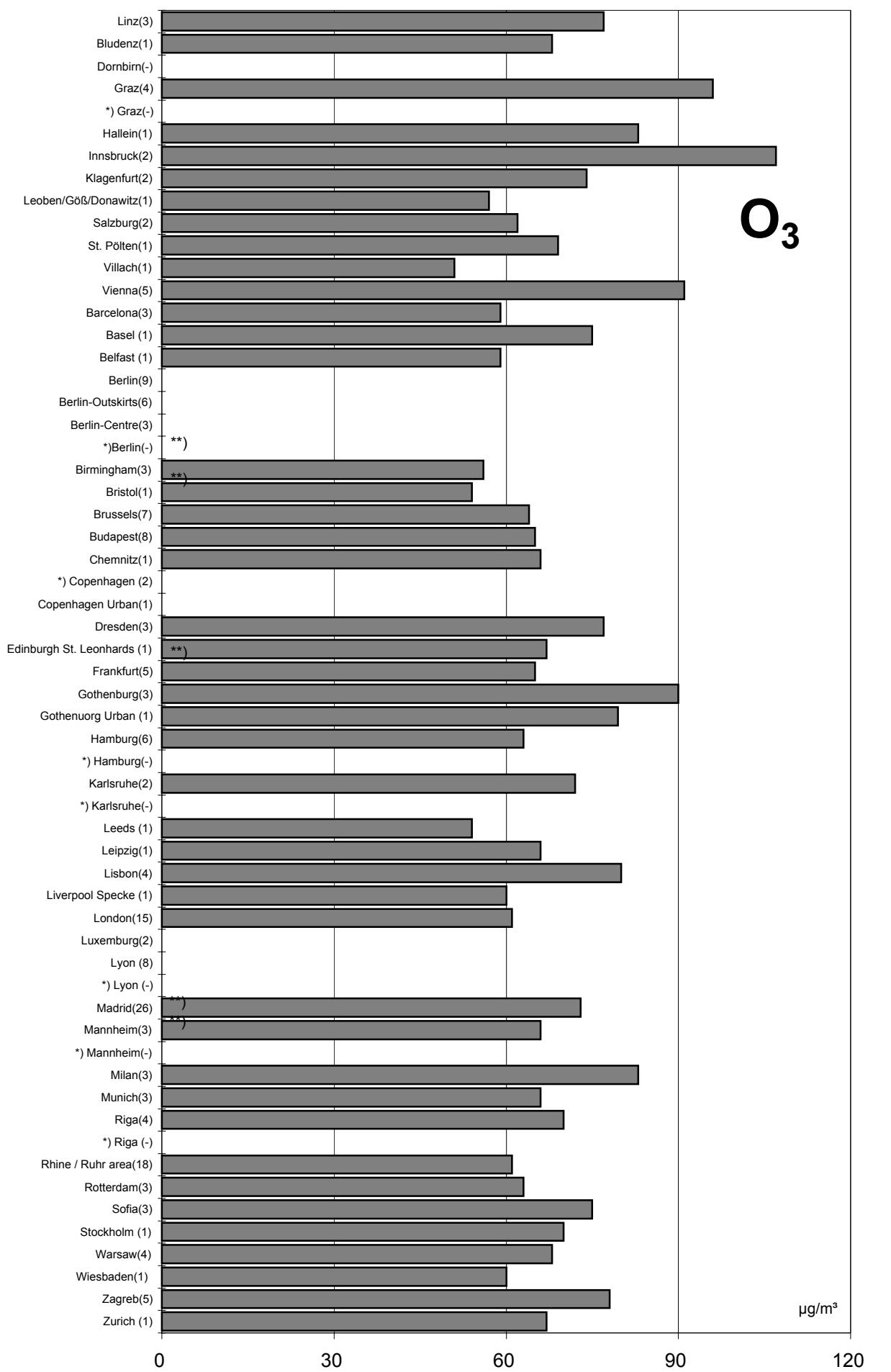
**) no data

Magistrat Linz - Umwelt- und Technik-Center

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**) no data

Luftgütevergleich

2004

max. Tagesmittelwert

Comparison of The Air Quality

2004

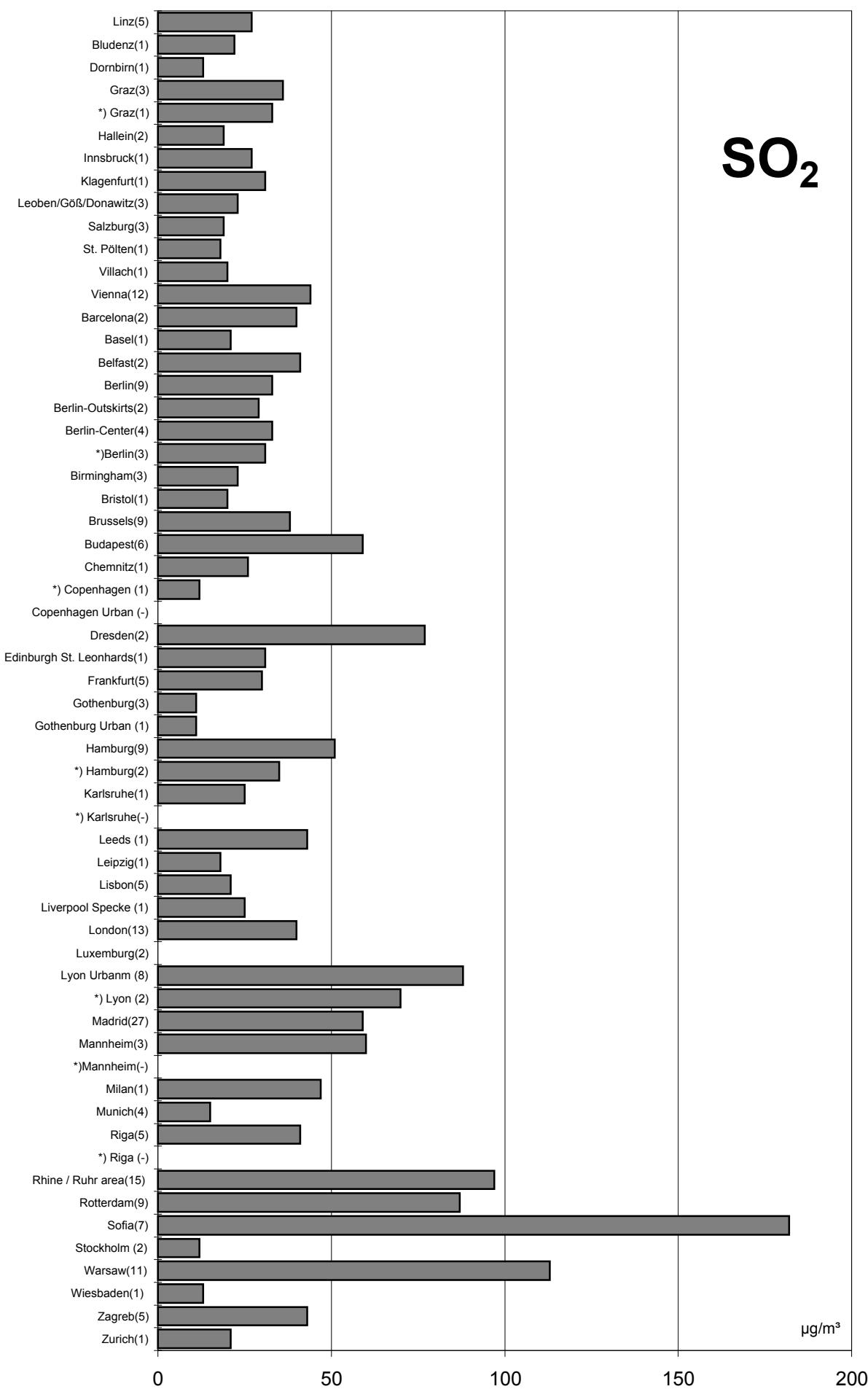
Max. Daily Mean Values

Comparison of The Air Quality in 2004

42

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

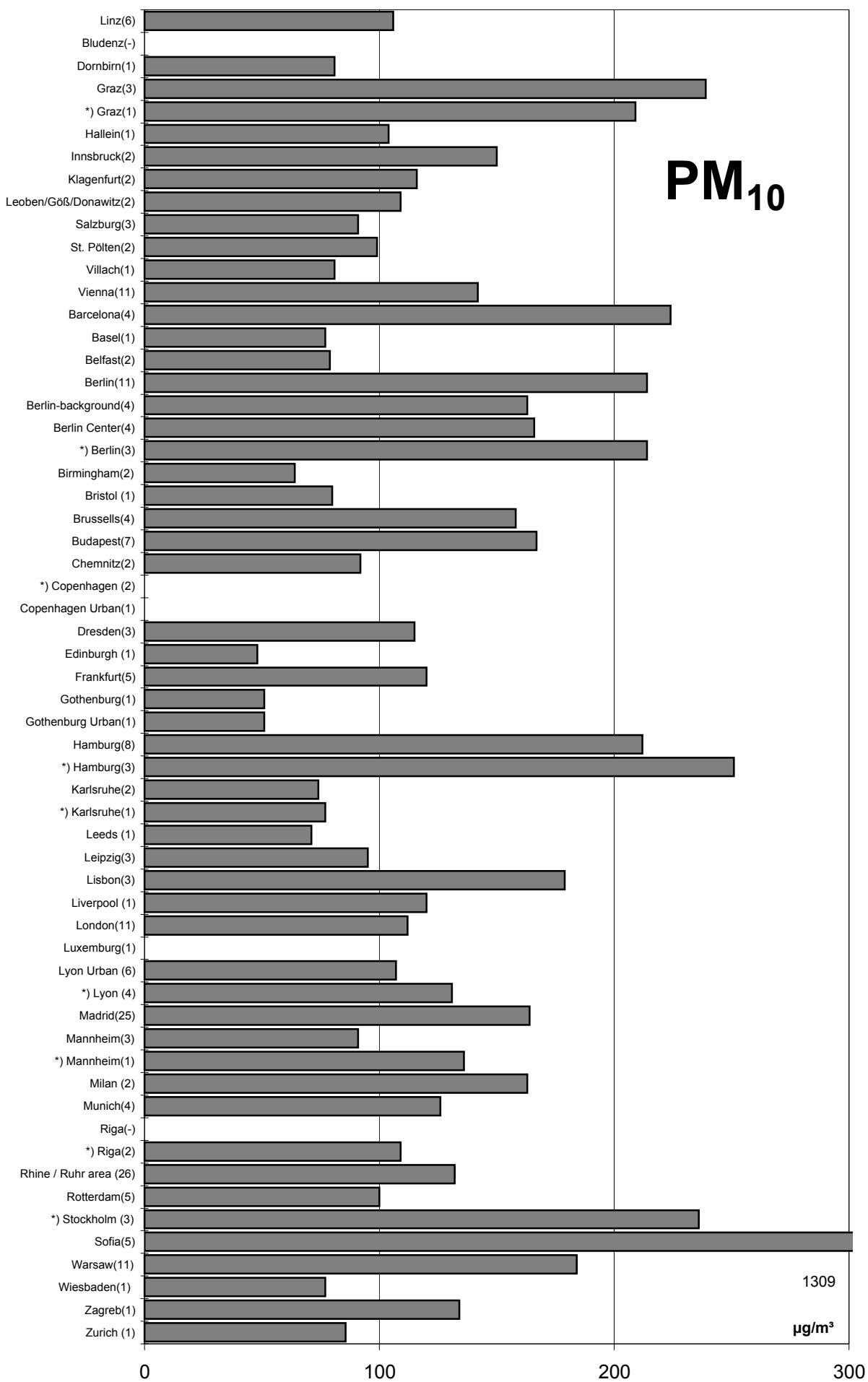
**)no data

Comparison of The Air Quality in 2004

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

43

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

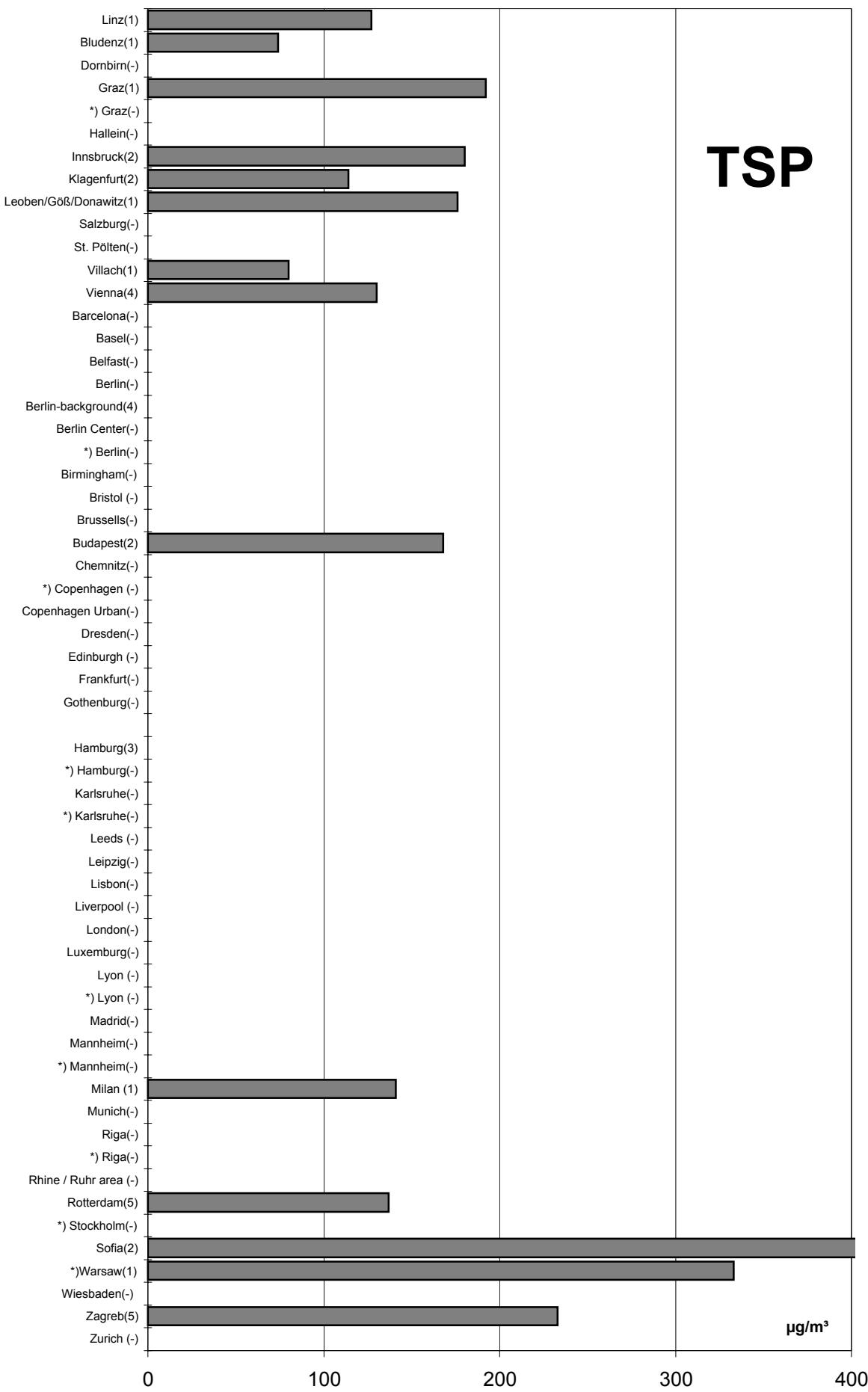
**) no data

Magistrat Linz - Umwelt- und Technik-Center

Comparison of The Air Quality 2004

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

(in parentheses: number of monitoring stations)



*)traffic-influenced monitoring station

**)no data

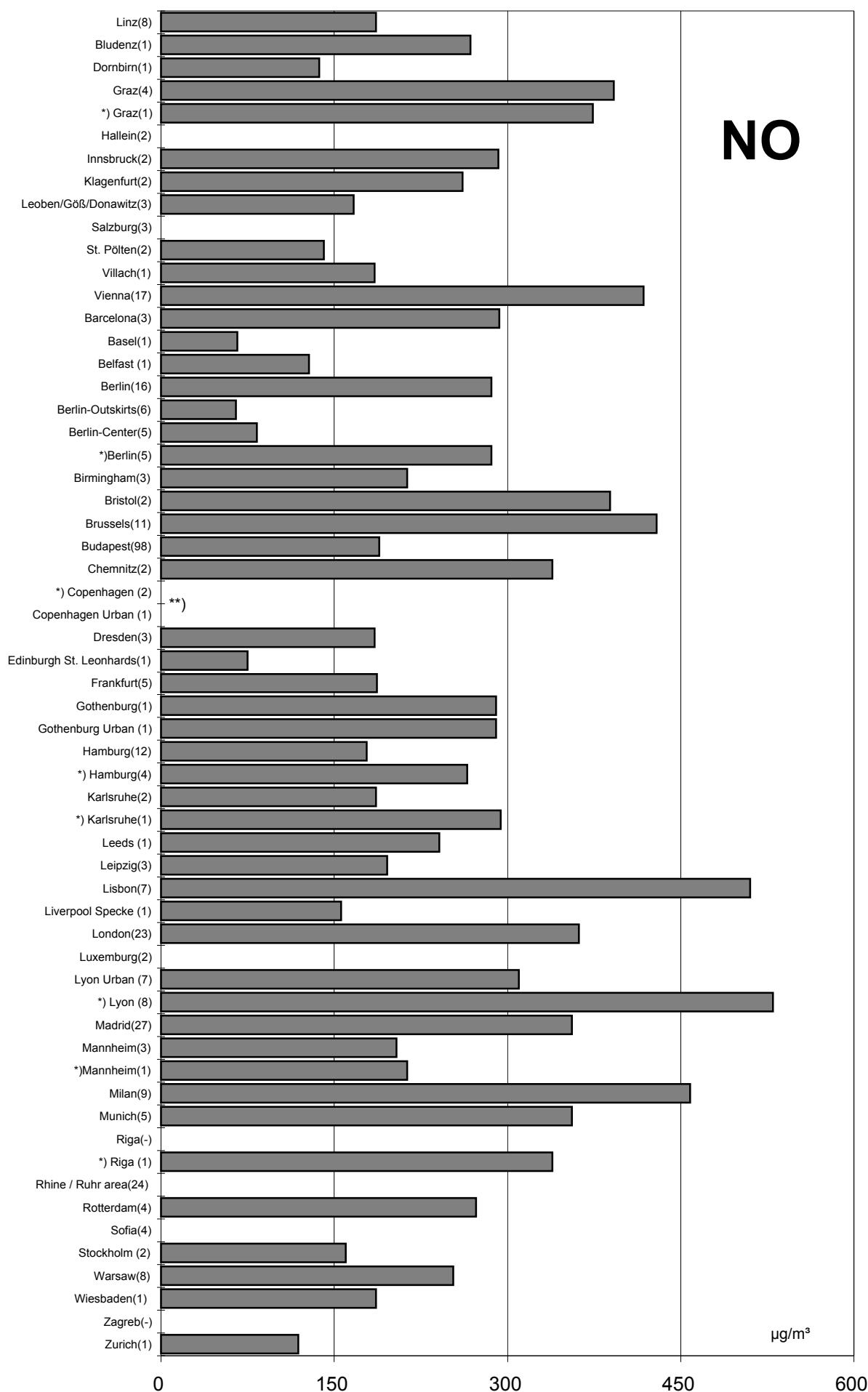
Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)

45

NO



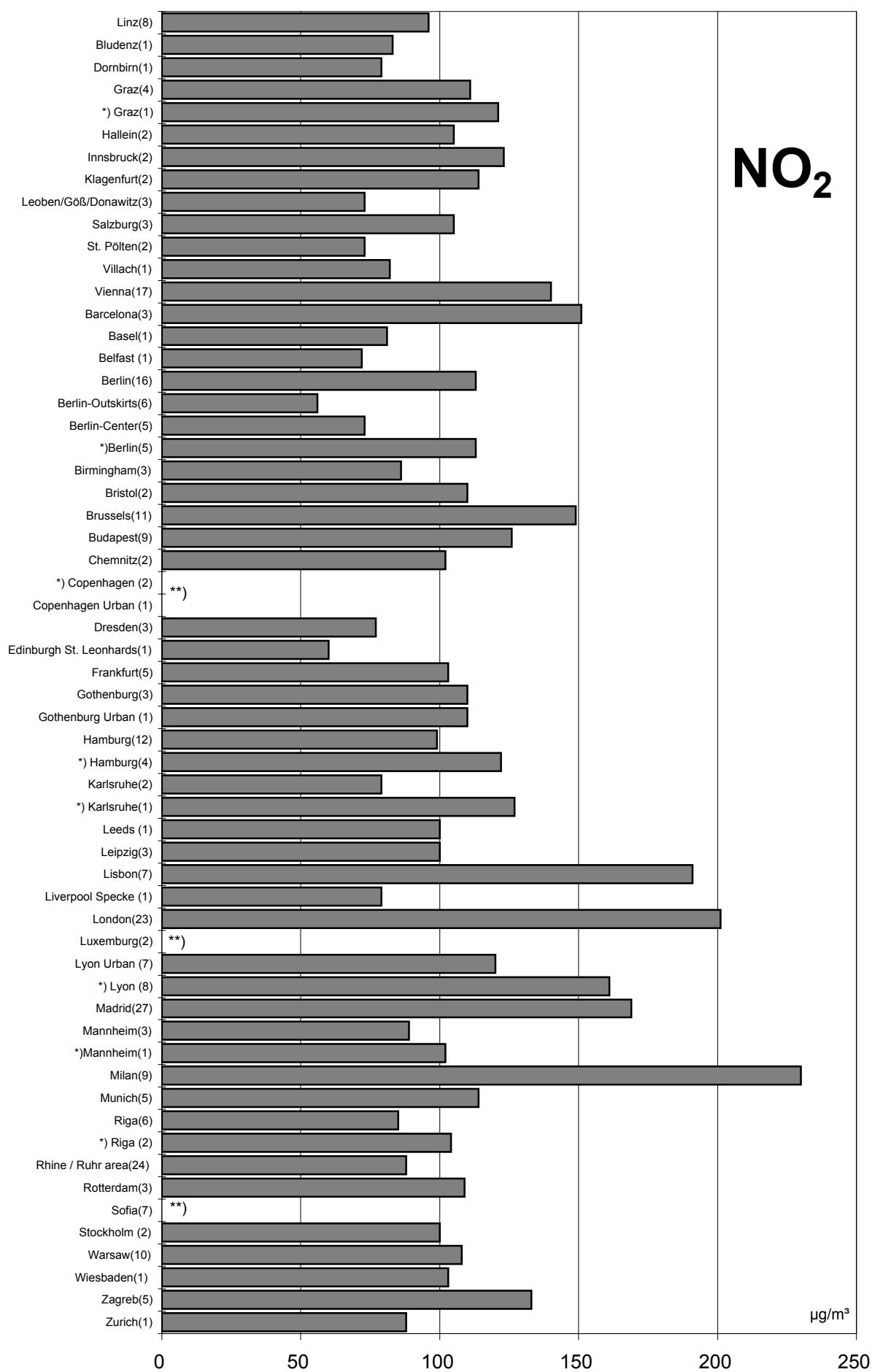
*) traffic-influenced monitoring stations

**)no data

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

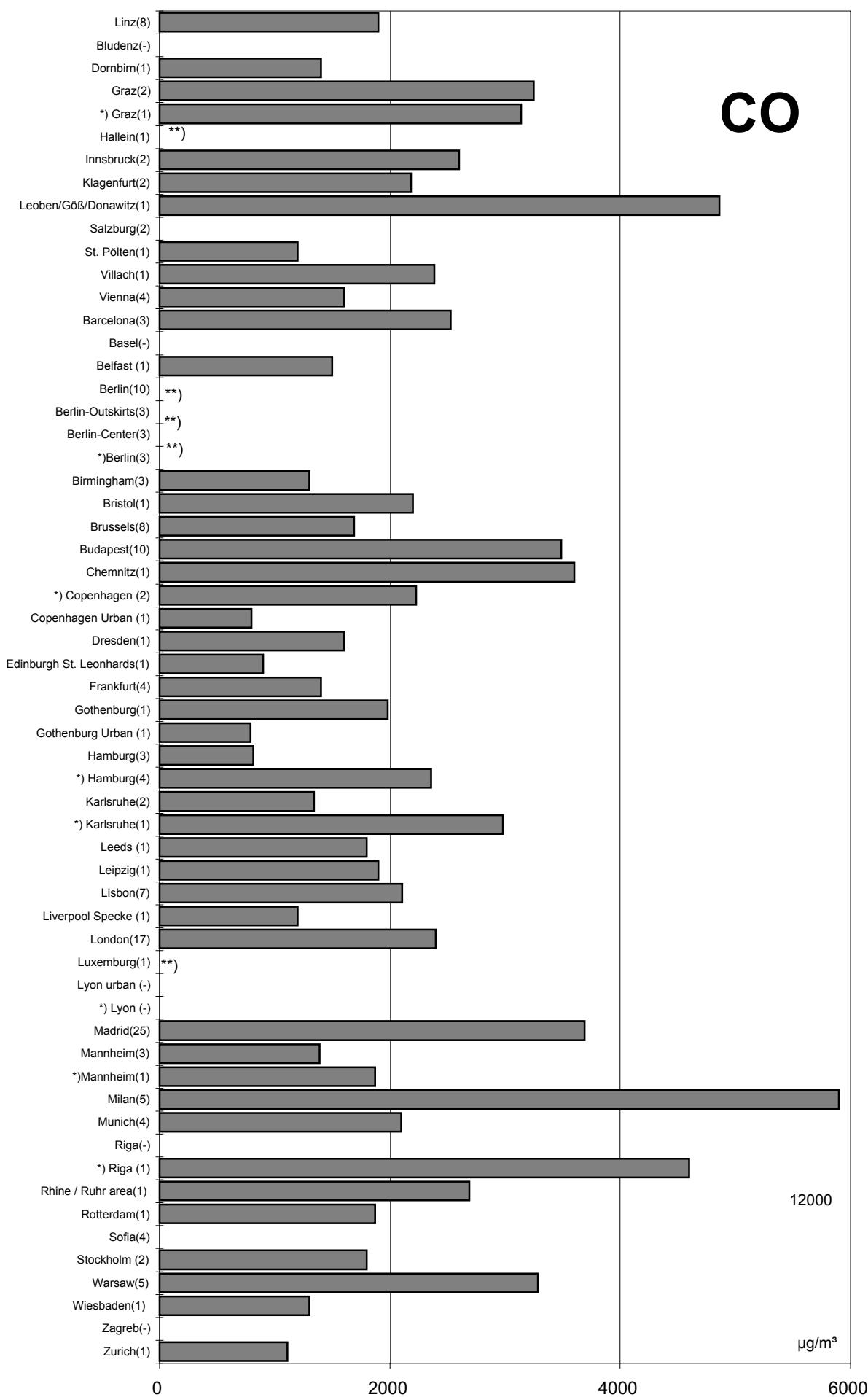
**)no data

Comparison of The Air Quality in 2004

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

47

(in parentheses: number of monitoring stations)



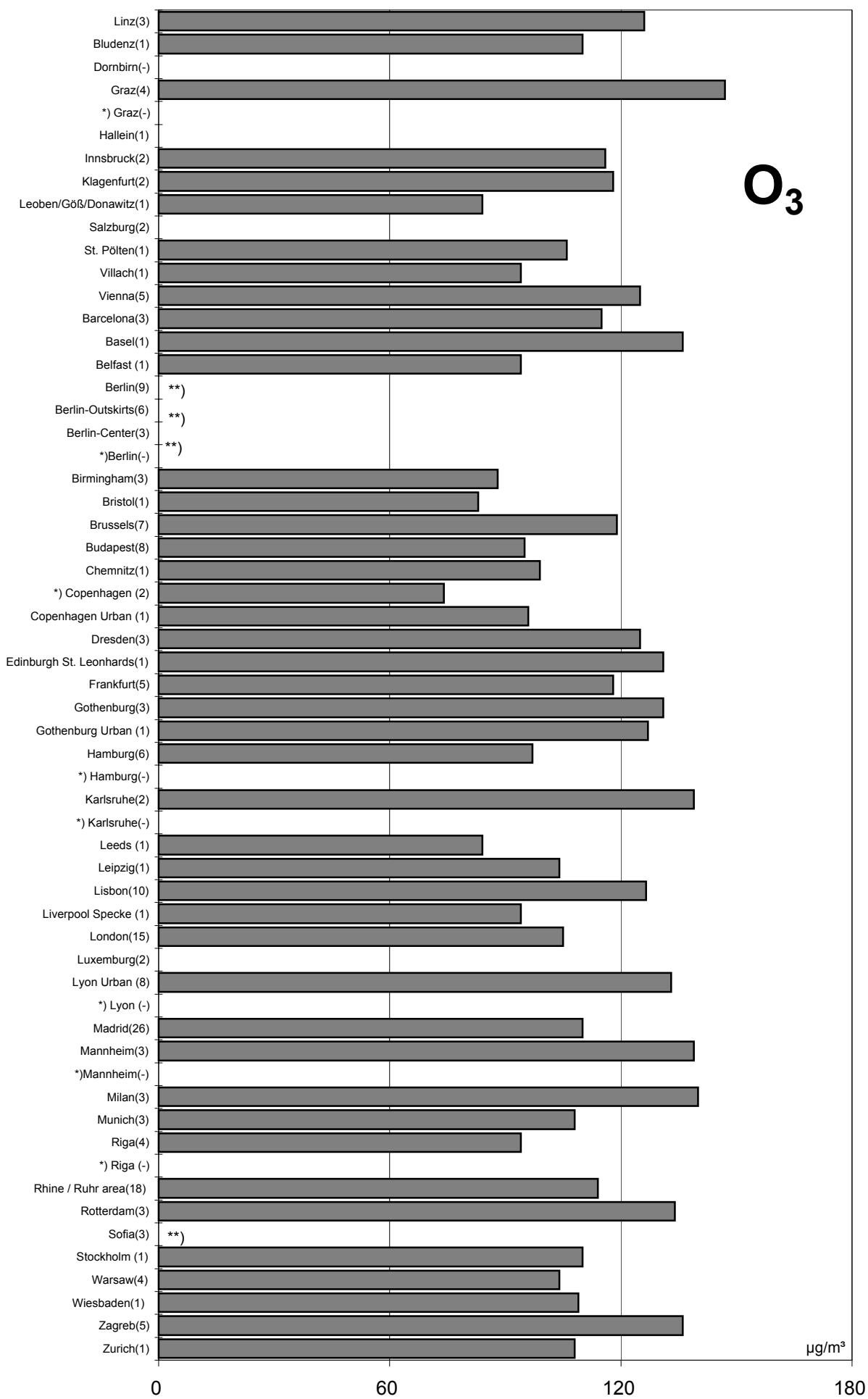
*) traffic-influenced monitoring stations

**)no data

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

**)

Luftgütevergleich

2004

max. 3h-Mittelwert

Comparison of The Air Quality

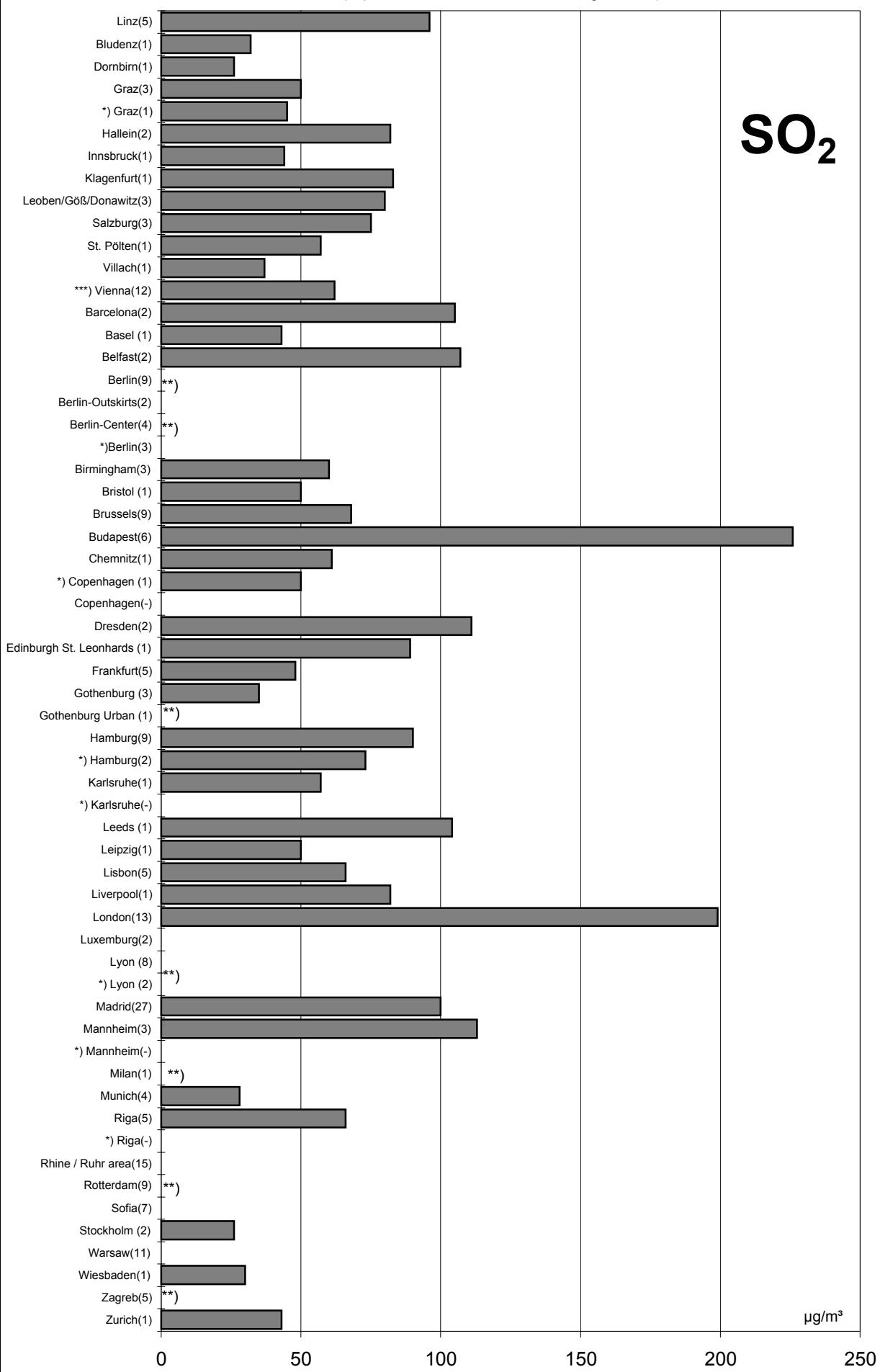
2004

Max. 3h- Mean Values

Comparison of The Air Quality in 2004

max. 3h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



SO₂

*) traffic-influenced monitoring stations

**) no data

***)max. 99,9 Percentile

Umwelt- und Technik Center

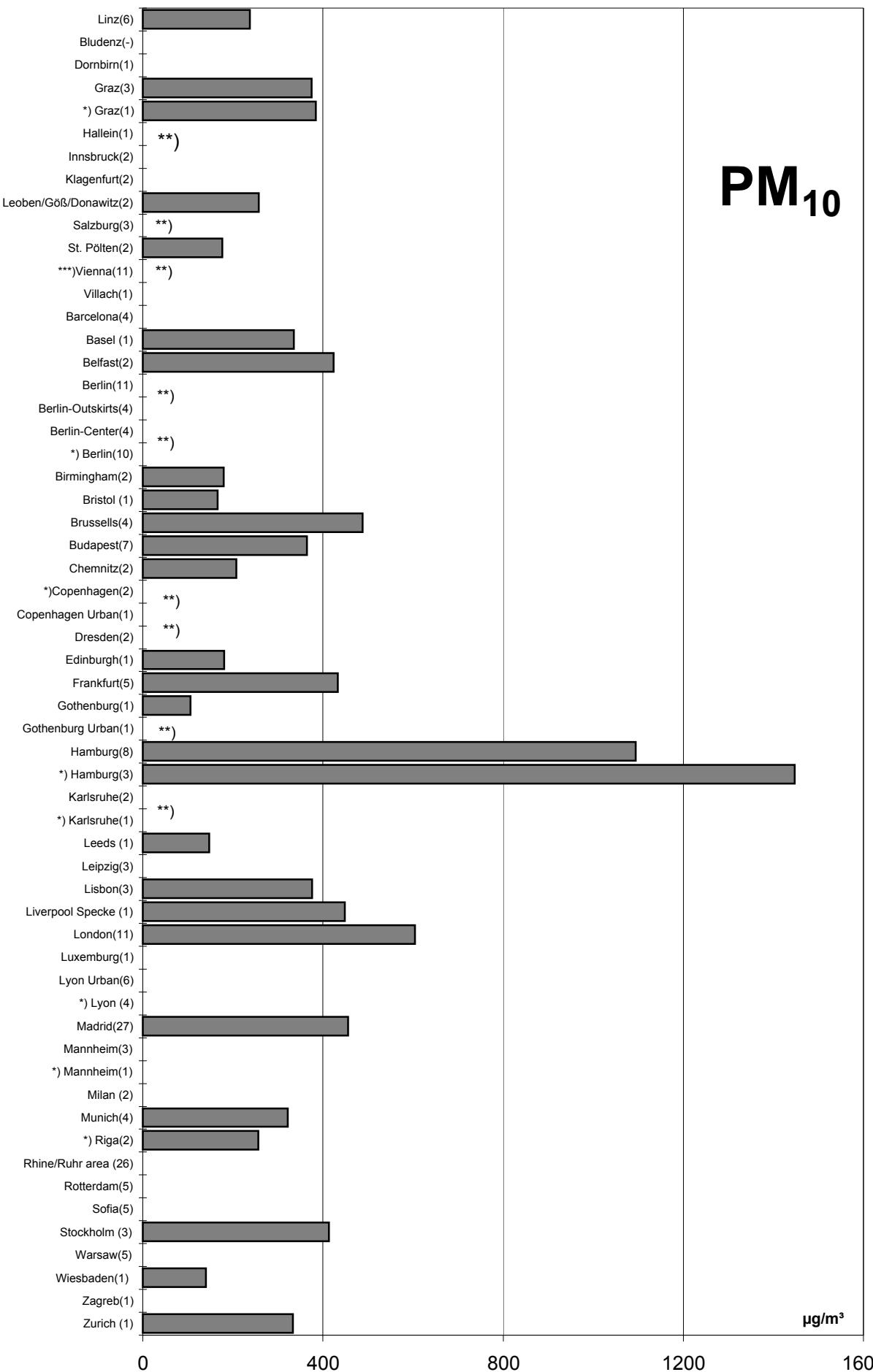
S:\UTC\Produkte\US\Städtevergleich\2004\Tabellen, Grafiken\LGV[Max. 3MW.xls]SO2-sw

Comparison of The Air Quality in 2004

max. 3h mean values (max. stressed monitoring station)

51

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**) no data

***)max. 99,9 Percentile

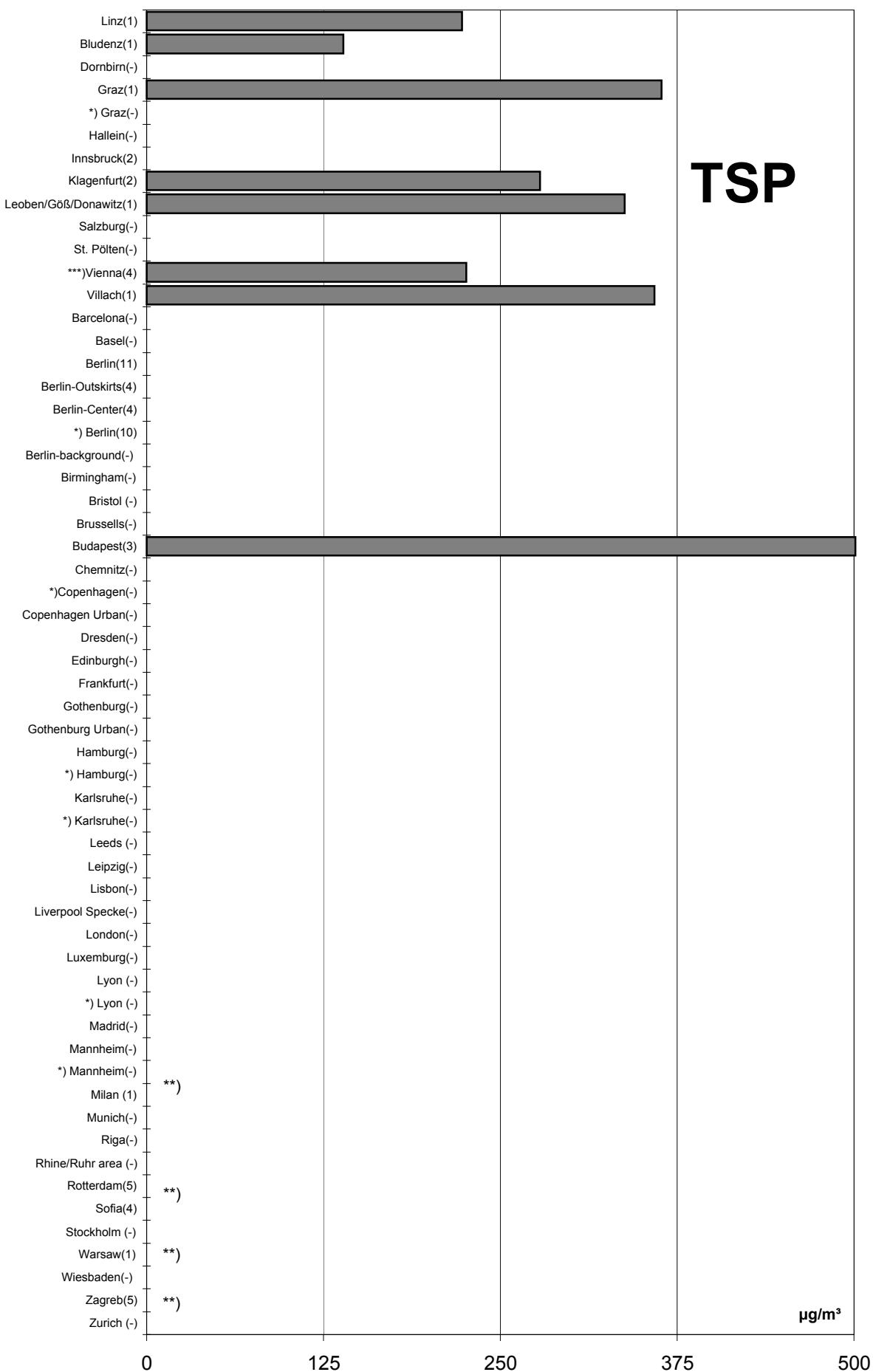
Umwelt- und Technik Center

S:\UTC\Produkte\US\Städtevergleich\2004\Tabellen, Grafiken\LGV[Max. 3MW.xls]PM10-SW

Comparison of The Air Quality 2004

max. 3h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**) no data

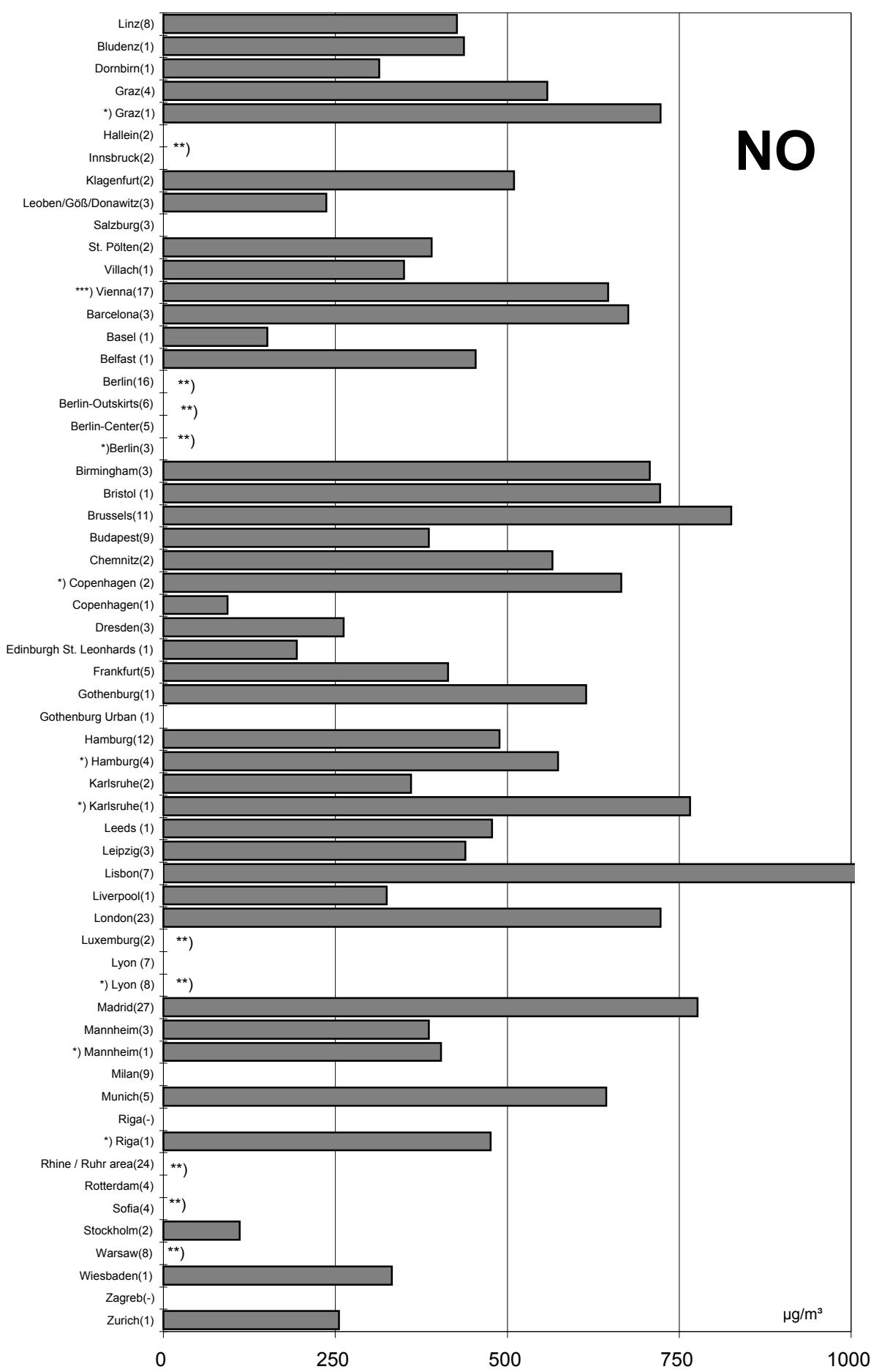
***)max. 99,9 Percentile

Comparison of The Air Quality in 2004

53

max. 3h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

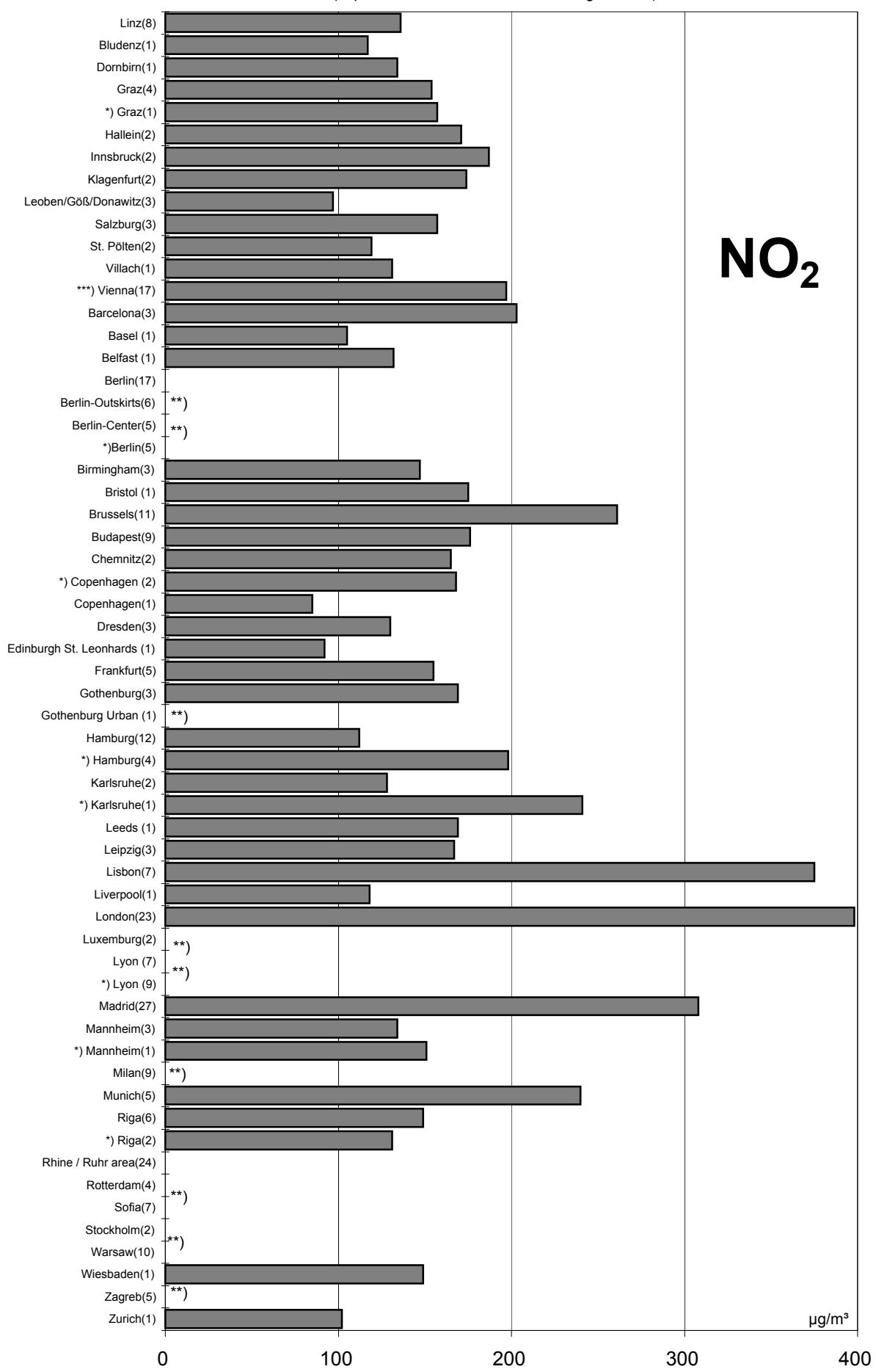
**)no data

***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

max. 3h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

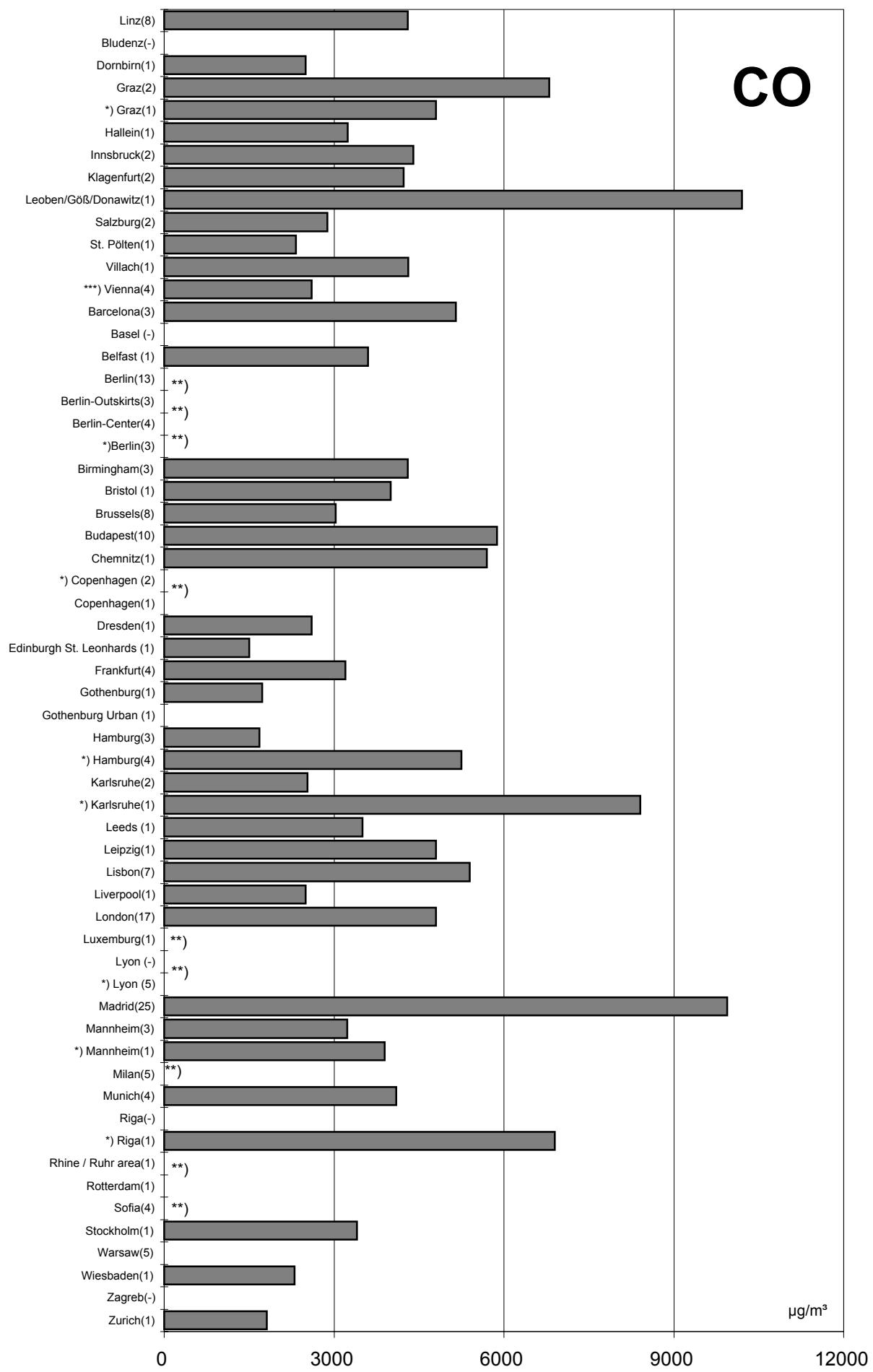
***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

55

max. 3h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

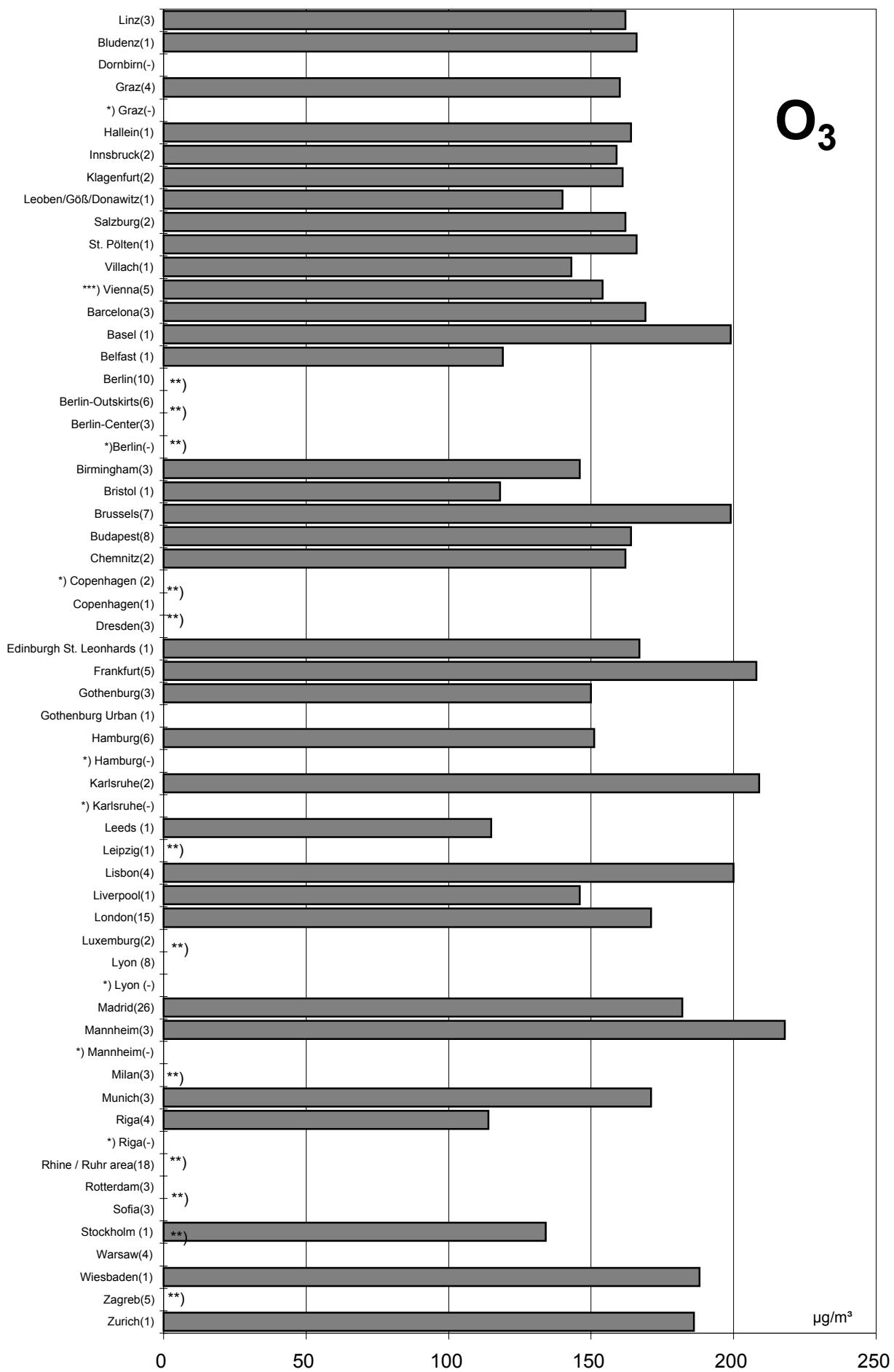
**)no data

***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

max. 3h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

***)max. 99,9-Percentile

Luftgütevergleich

2004

max. 1h-Mittelwert

Comparison of The Air Quality

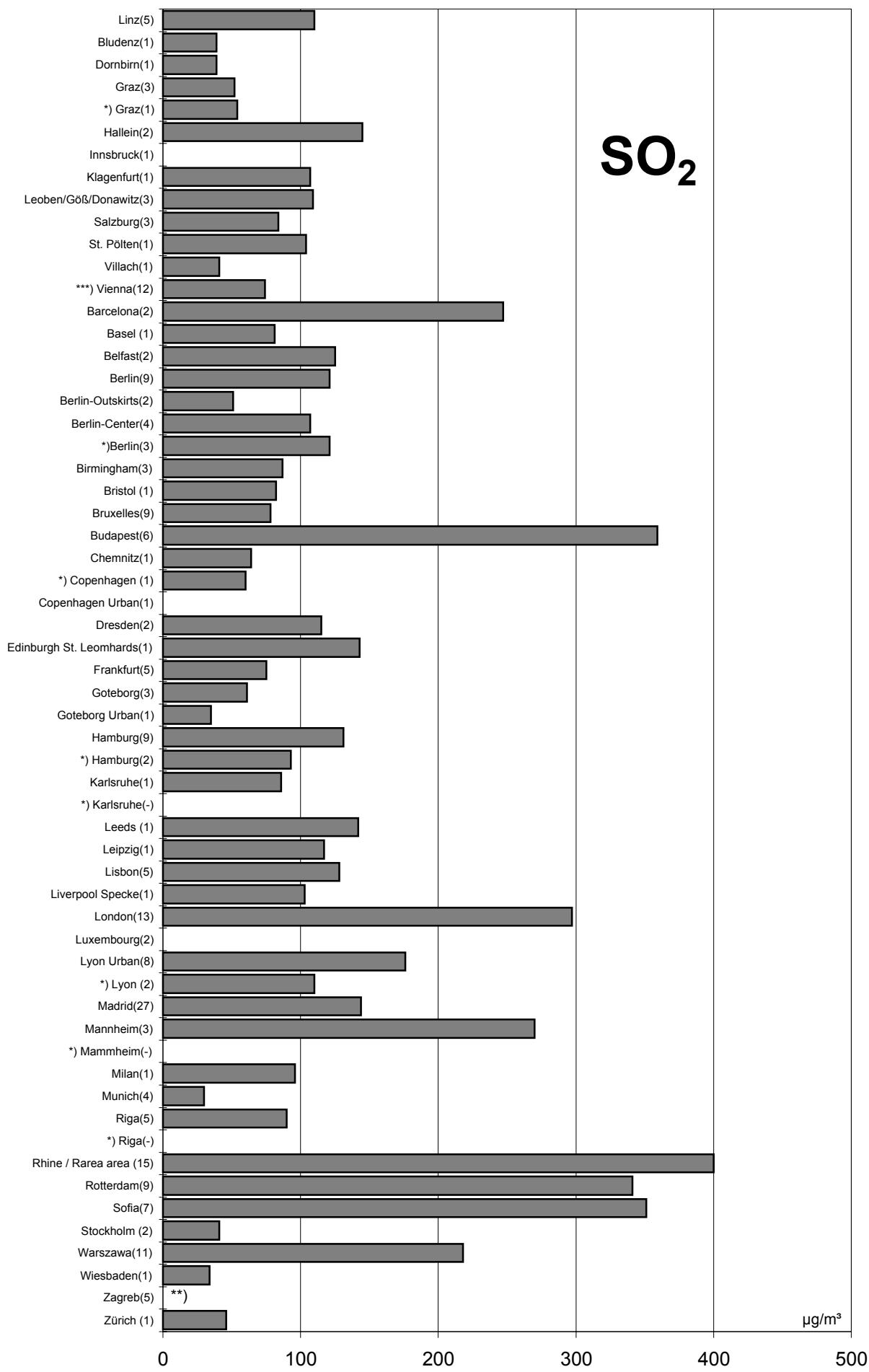
2004

Max. 1h- Mean Values

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

***)max. 99,9-Percentile

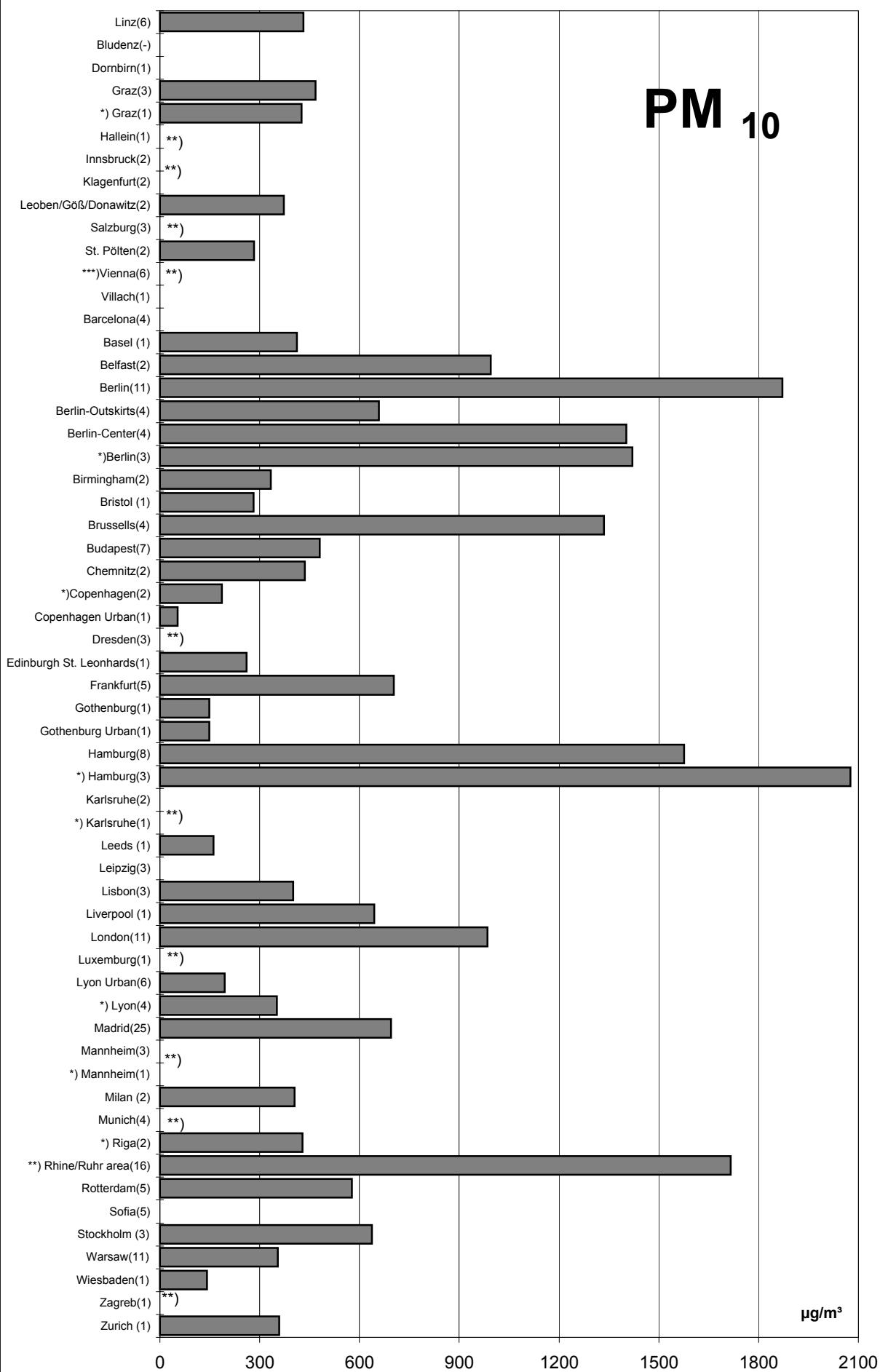
Comparison of The Air Quality in 2004

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

59

(in parentheses: number of monitoring stations)

PM 10



*)traffic-influenced monitoring station

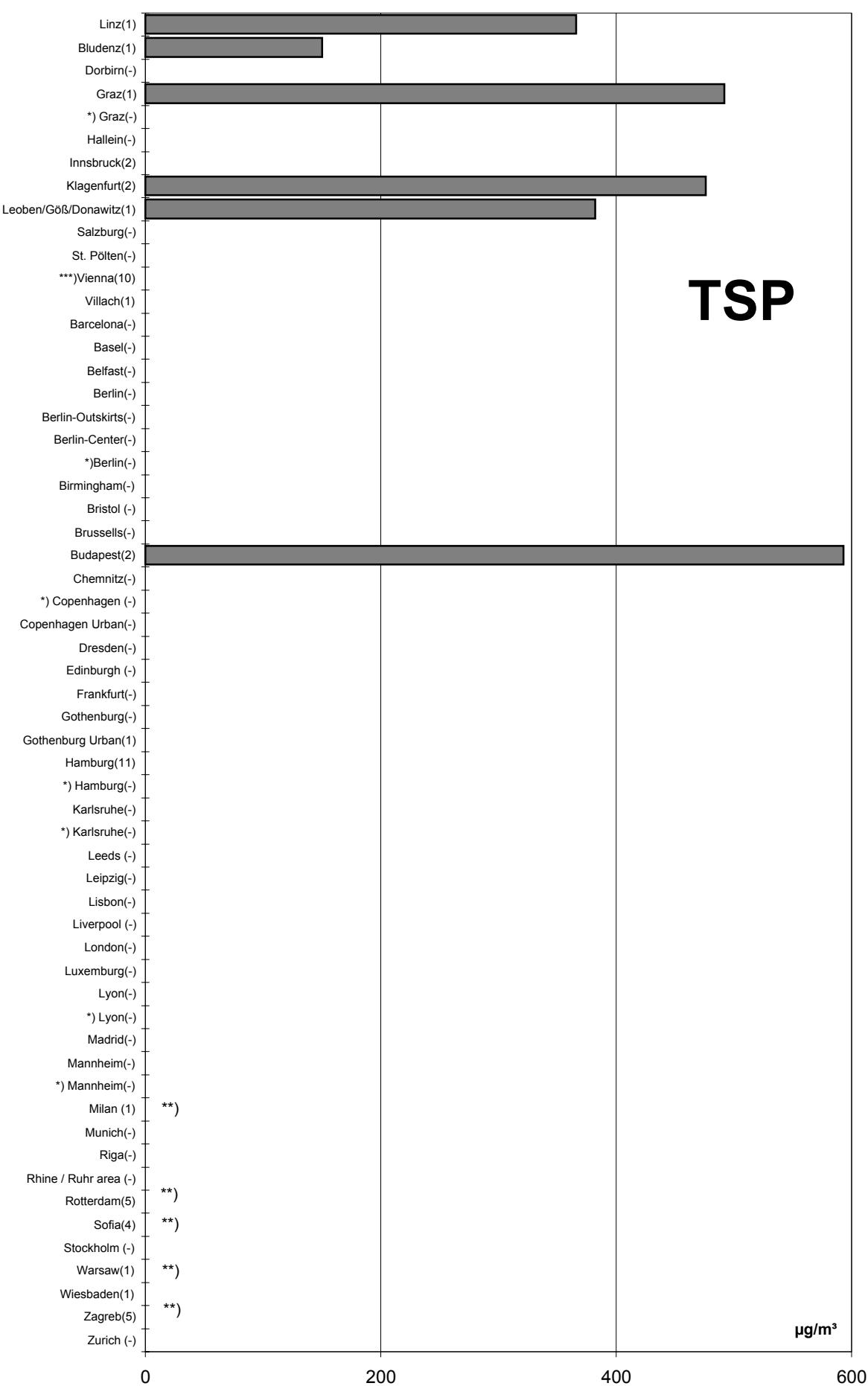
**)no data

***) max. 99,9 Percentile

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring station

**) no data

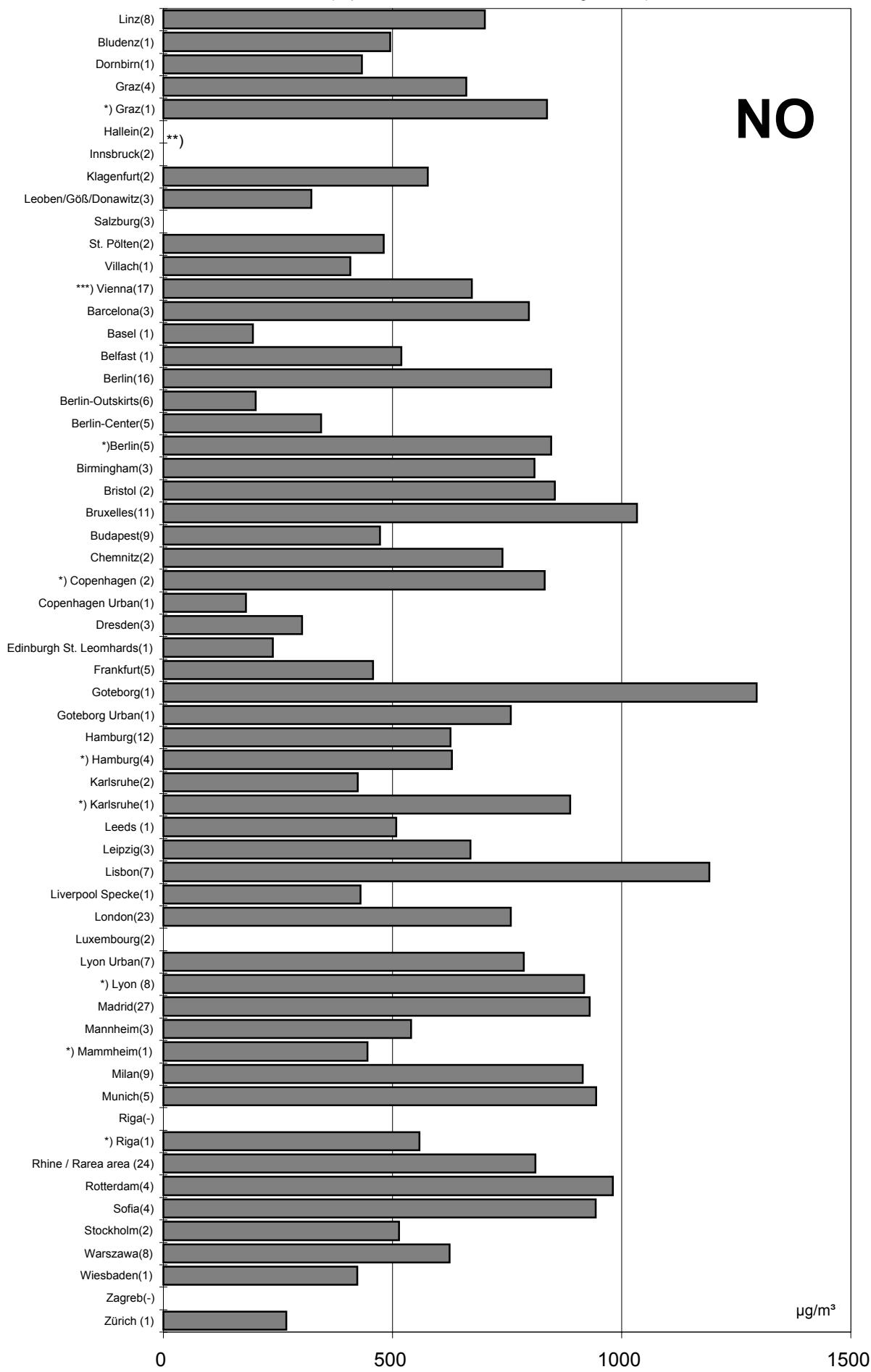
***) max. 99,9 Percentile

Comparison of The Air Quality in 2004

61

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

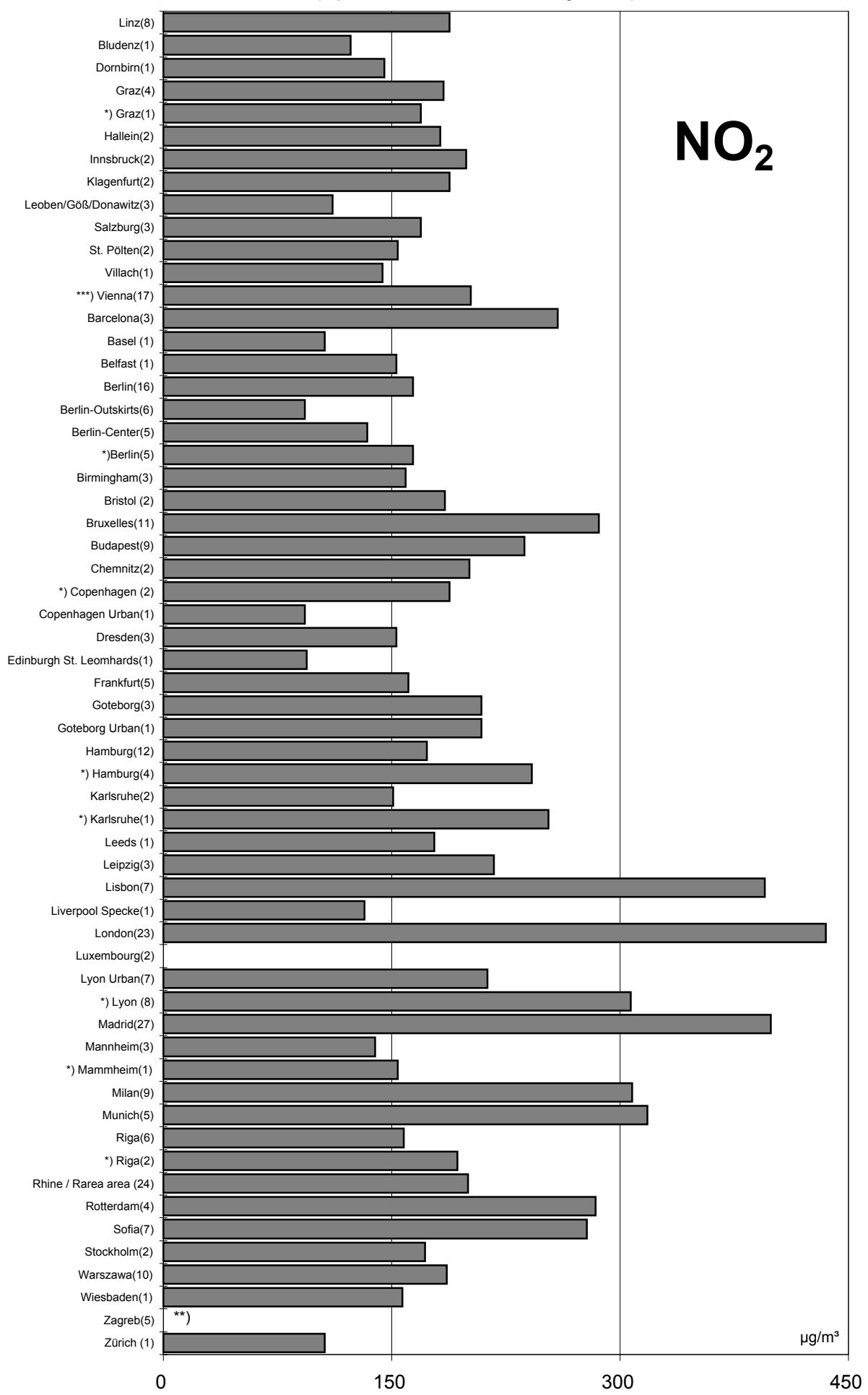
**)no data

***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

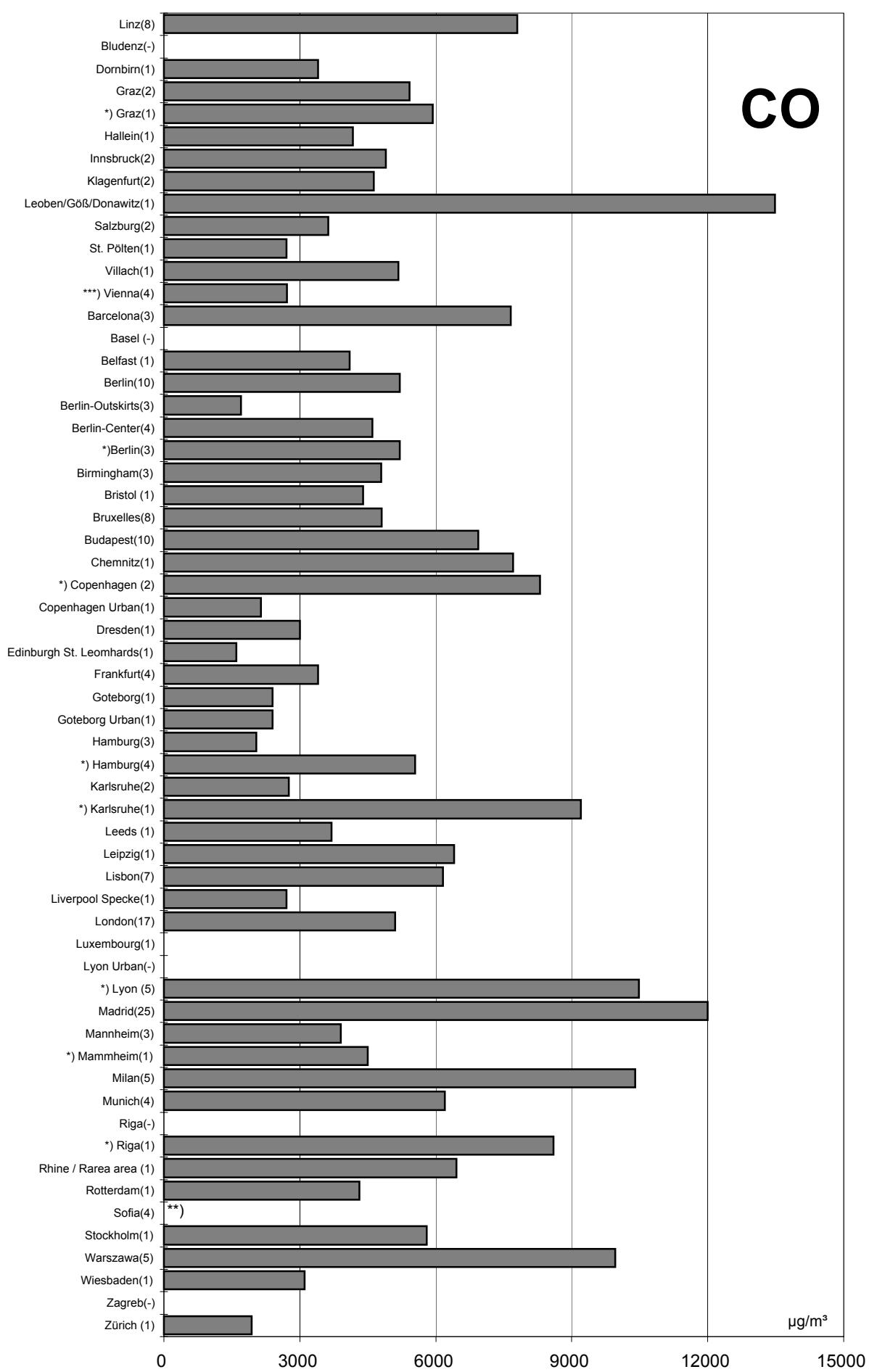
***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

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

63

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

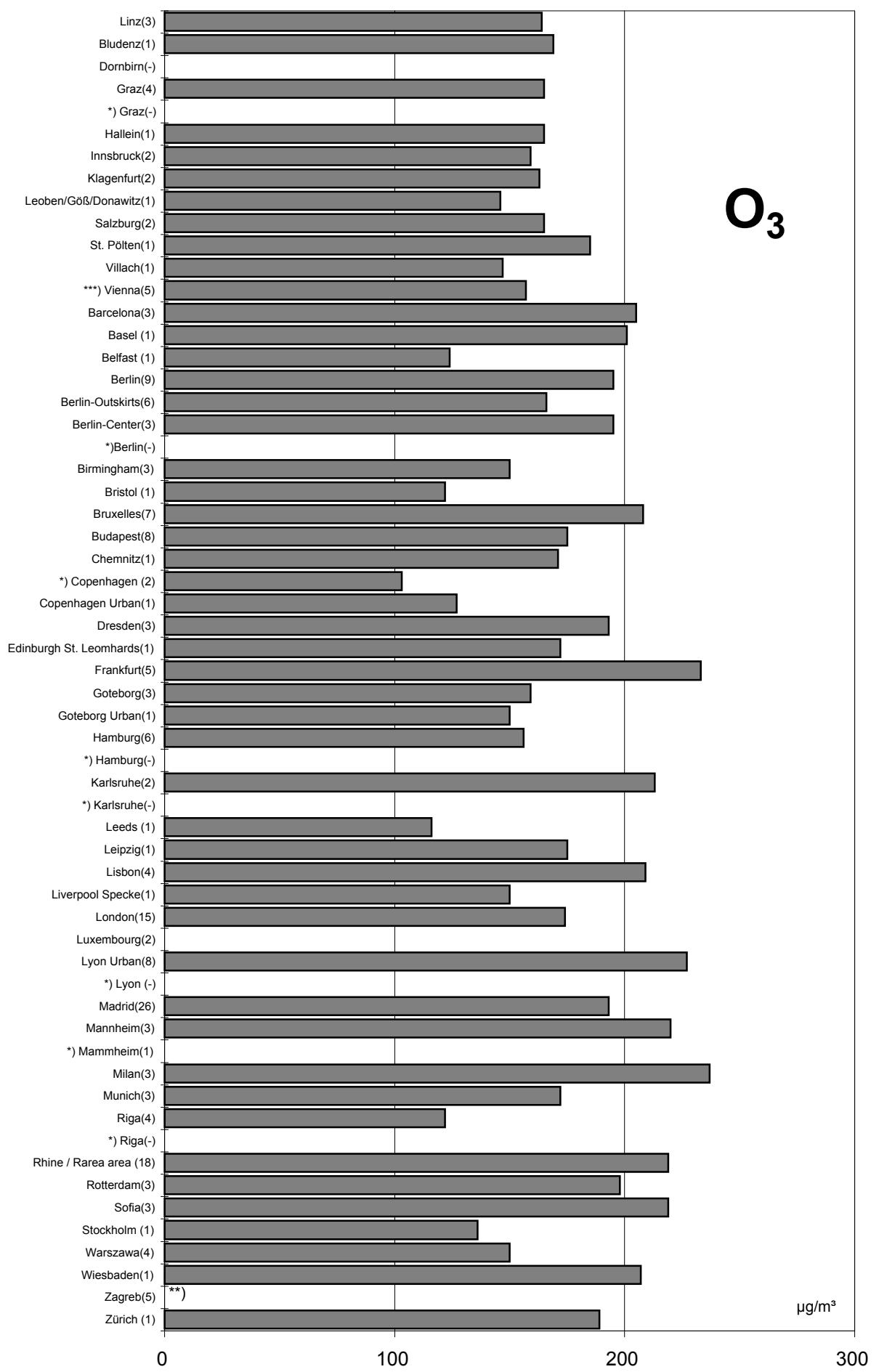
**)no data

***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

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

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

***)max. 99,9-Percentile

Luftgütevergleich

2004

max. Halbstunden-Mittelwert

Comparison of The Air Quality

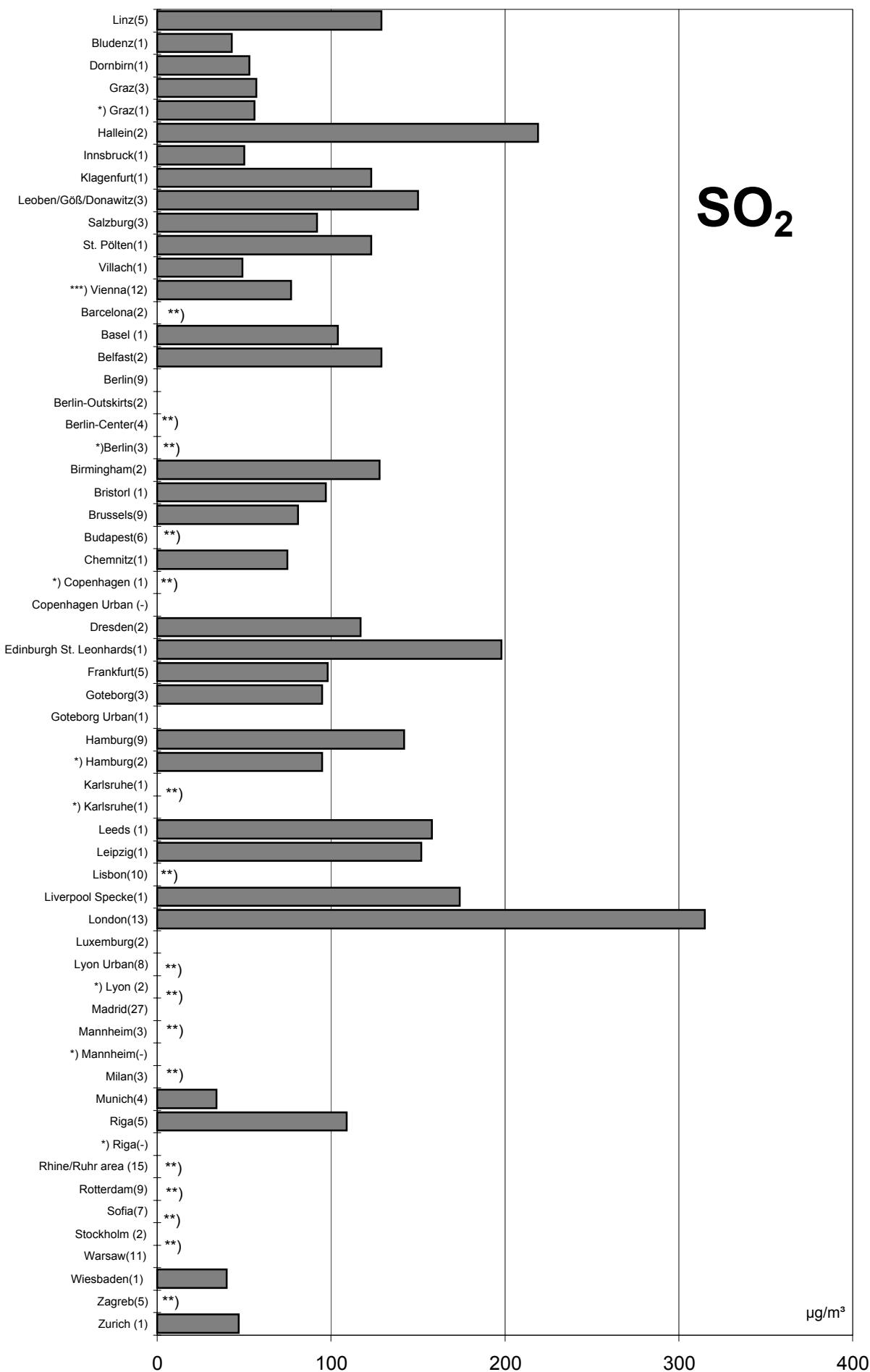
2004

Max. 1/2h- Mean Values

Comparison of The Air Quality in 2004

max. 1/2-h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

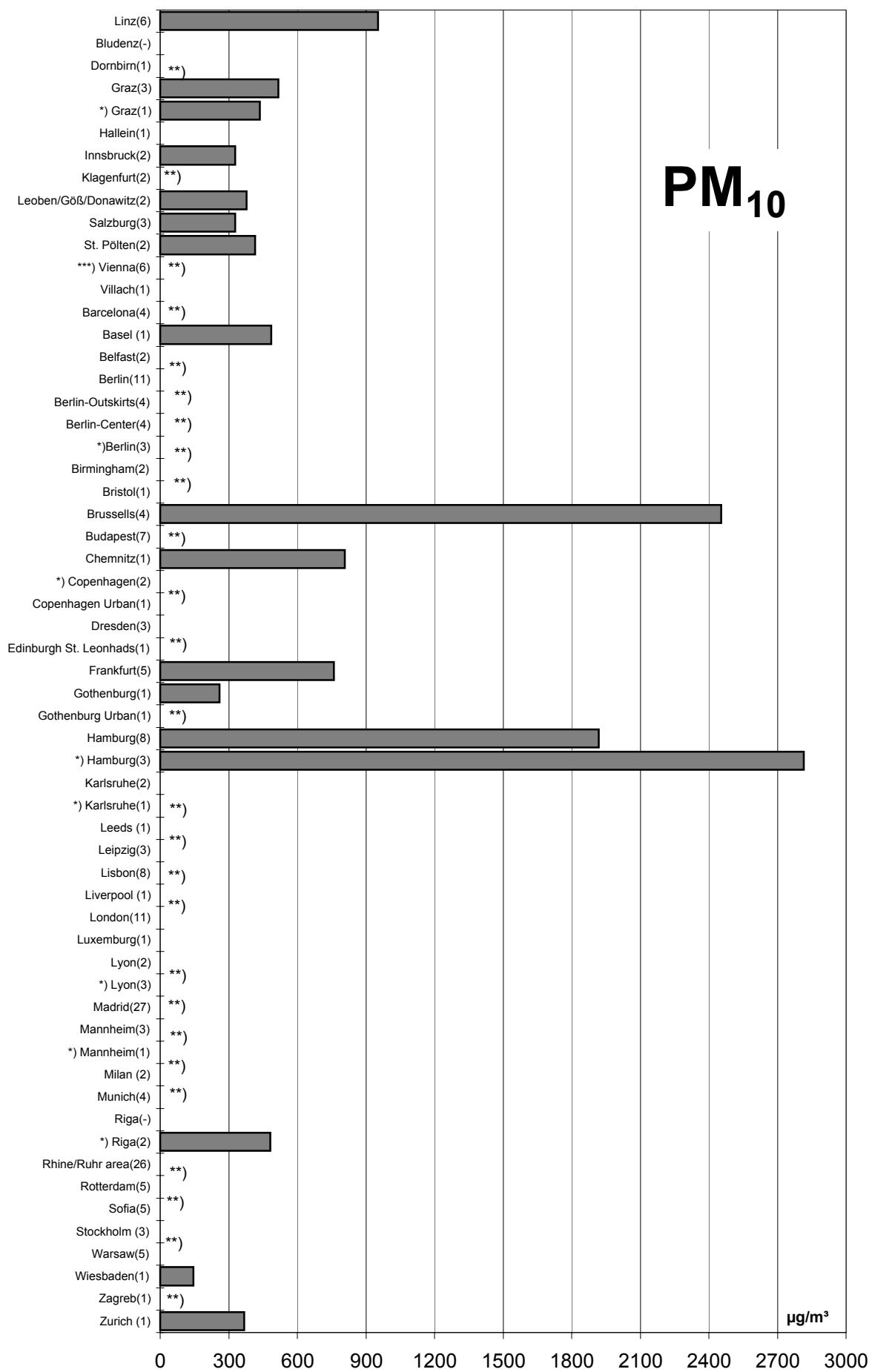
***)max. 99,9-Percentile

Comparison of The Air Quality 2004

max. 1/2-h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)

67



*) traffic-influenced monitoring stations

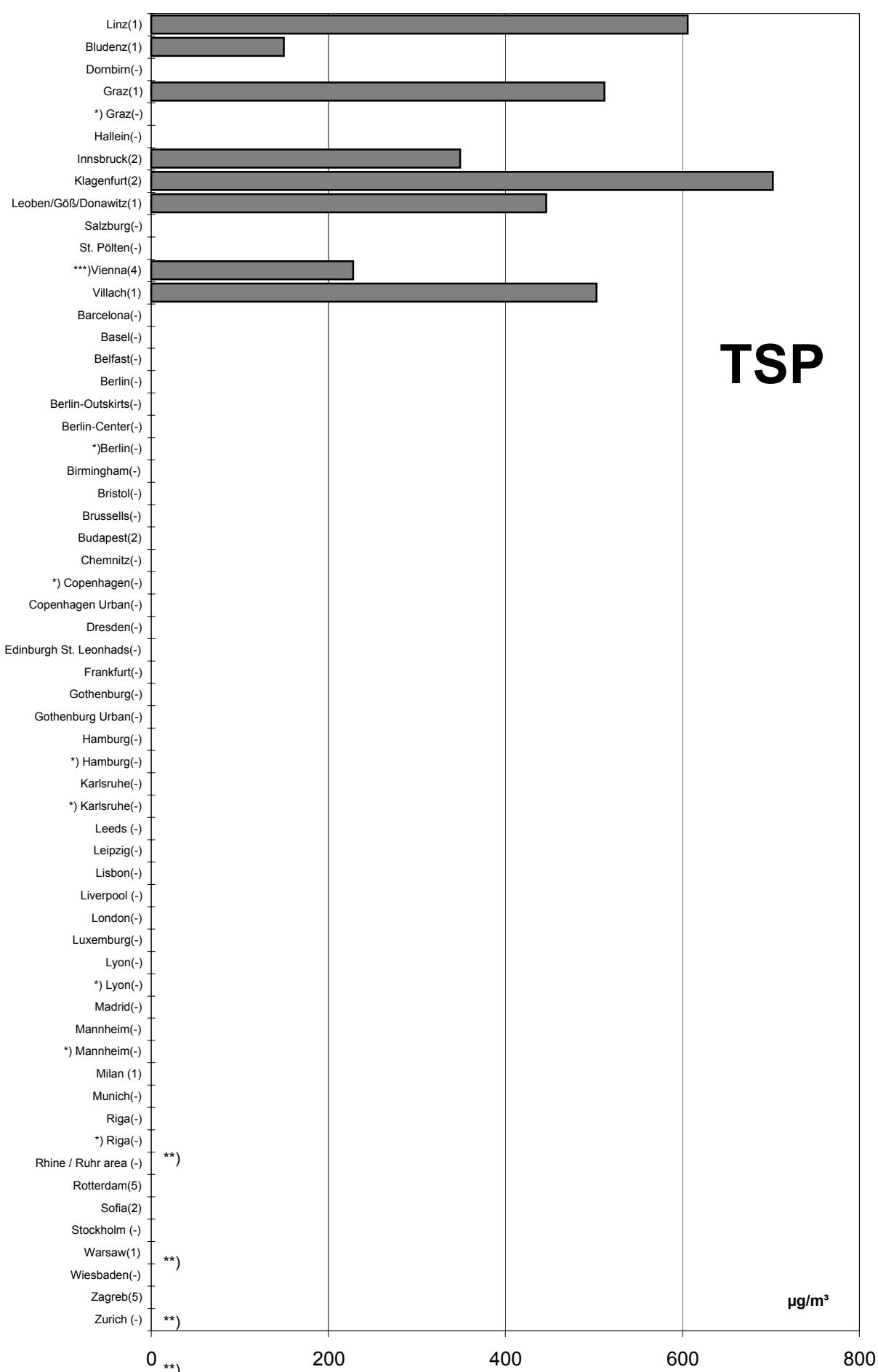
**)no data

***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

max. 1/2-h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

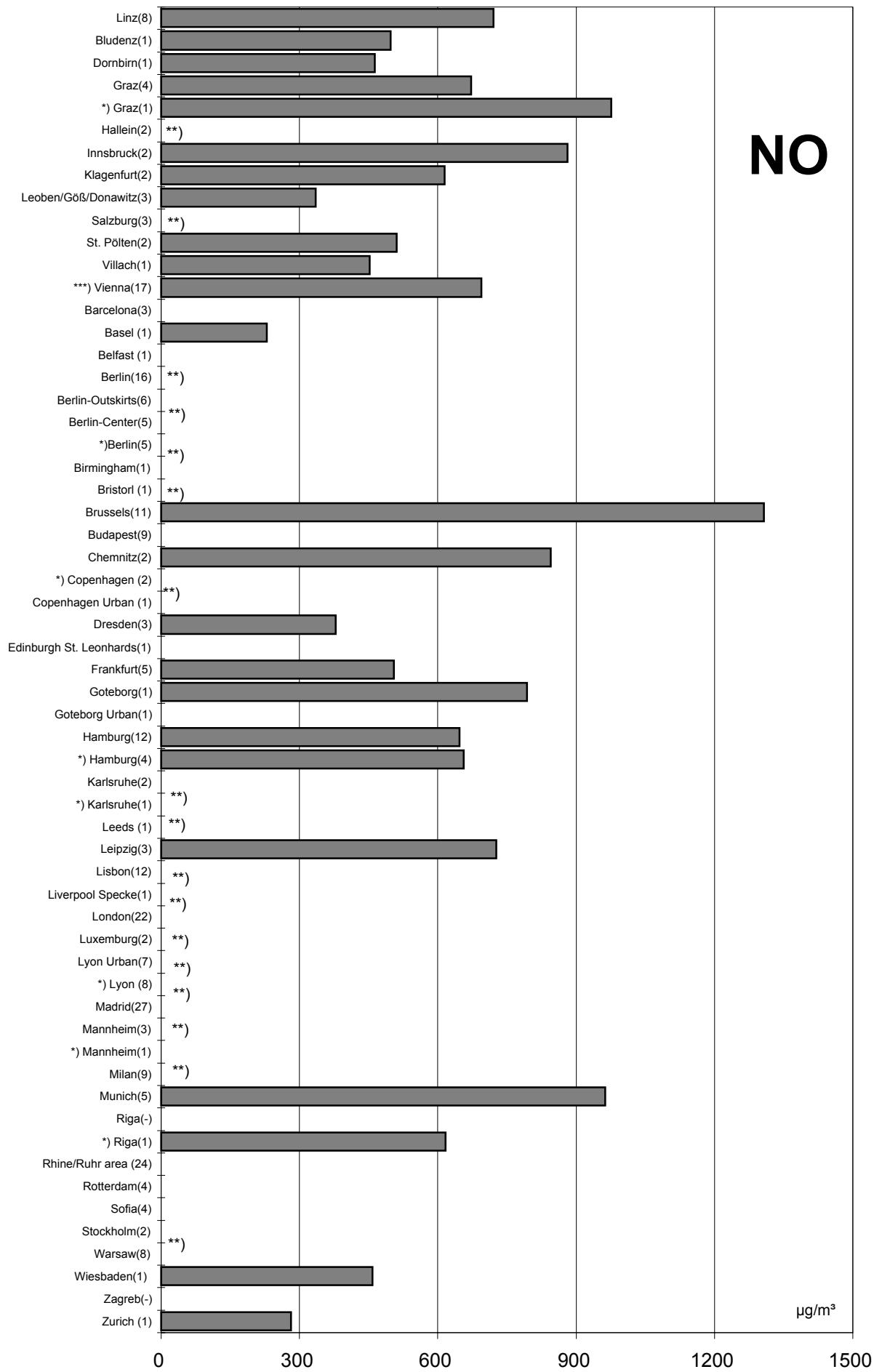
***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

max. 1/2-h mean values (max. stressed monitoring station)

69

(in parentheses: number of monitoring stations)



NO

*) traffic-influenced monitoring stations

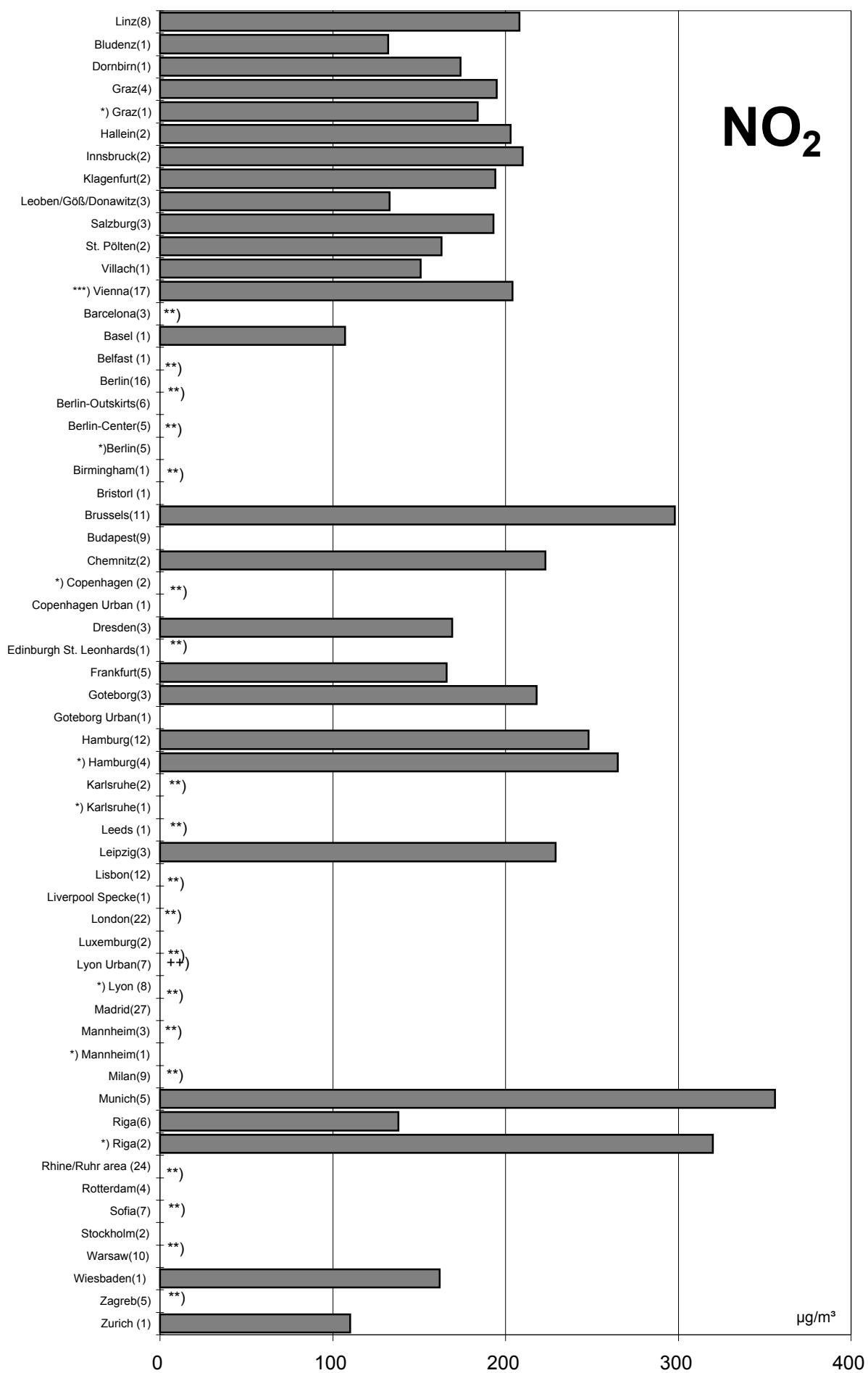
**)no data

***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

max. 1/2-h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

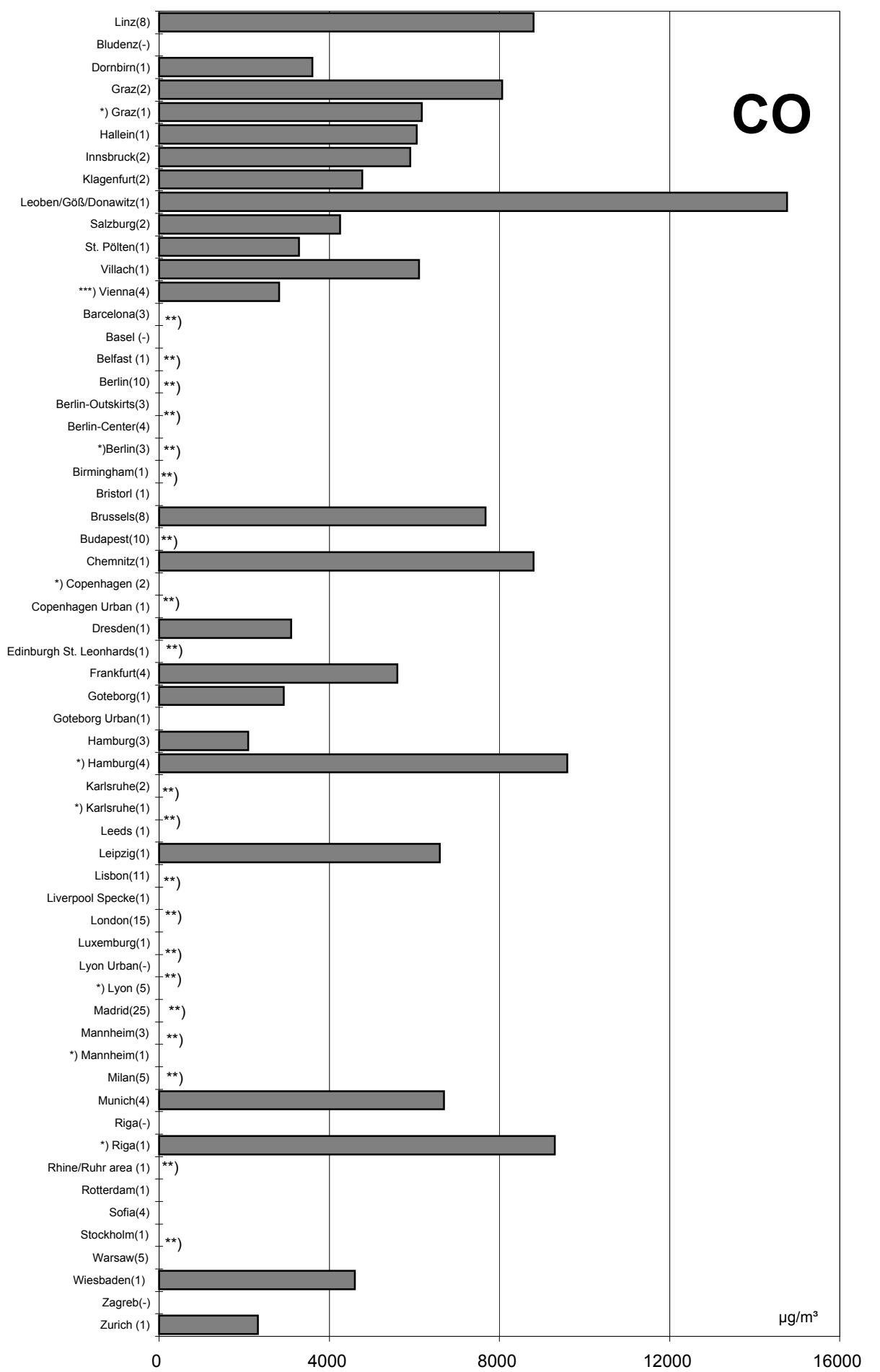
***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

71

max. 1/2-h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

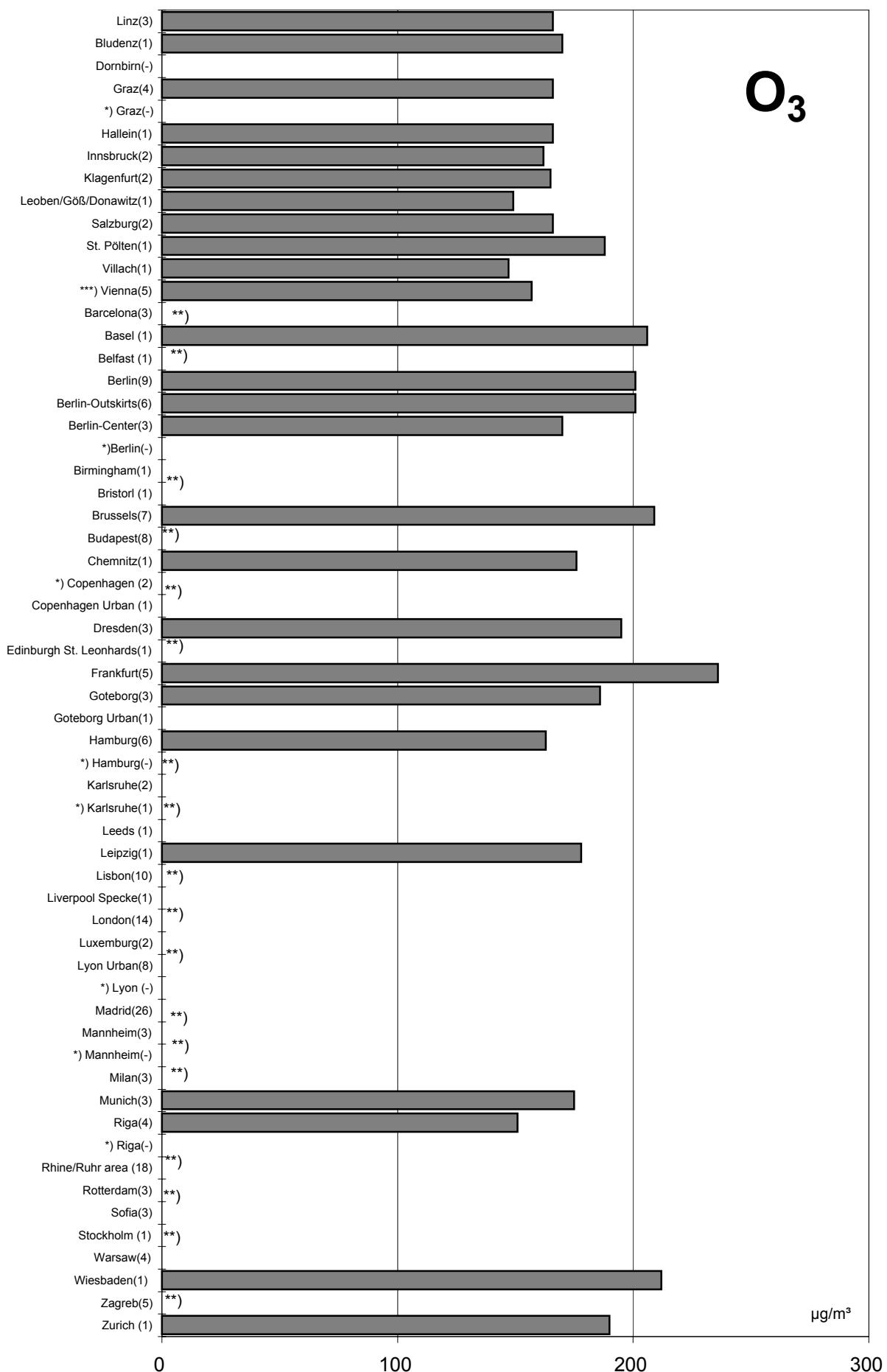
**)no data

***)max. 99,9-Percentile

Comparison of The Air Quality in 2004

max. 1/2-h mean values (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

***)max. 99,9-Percentile

Luftgütevergleich

2004

max. 98-Percentil/Jahr

Comparison of The Air Quality

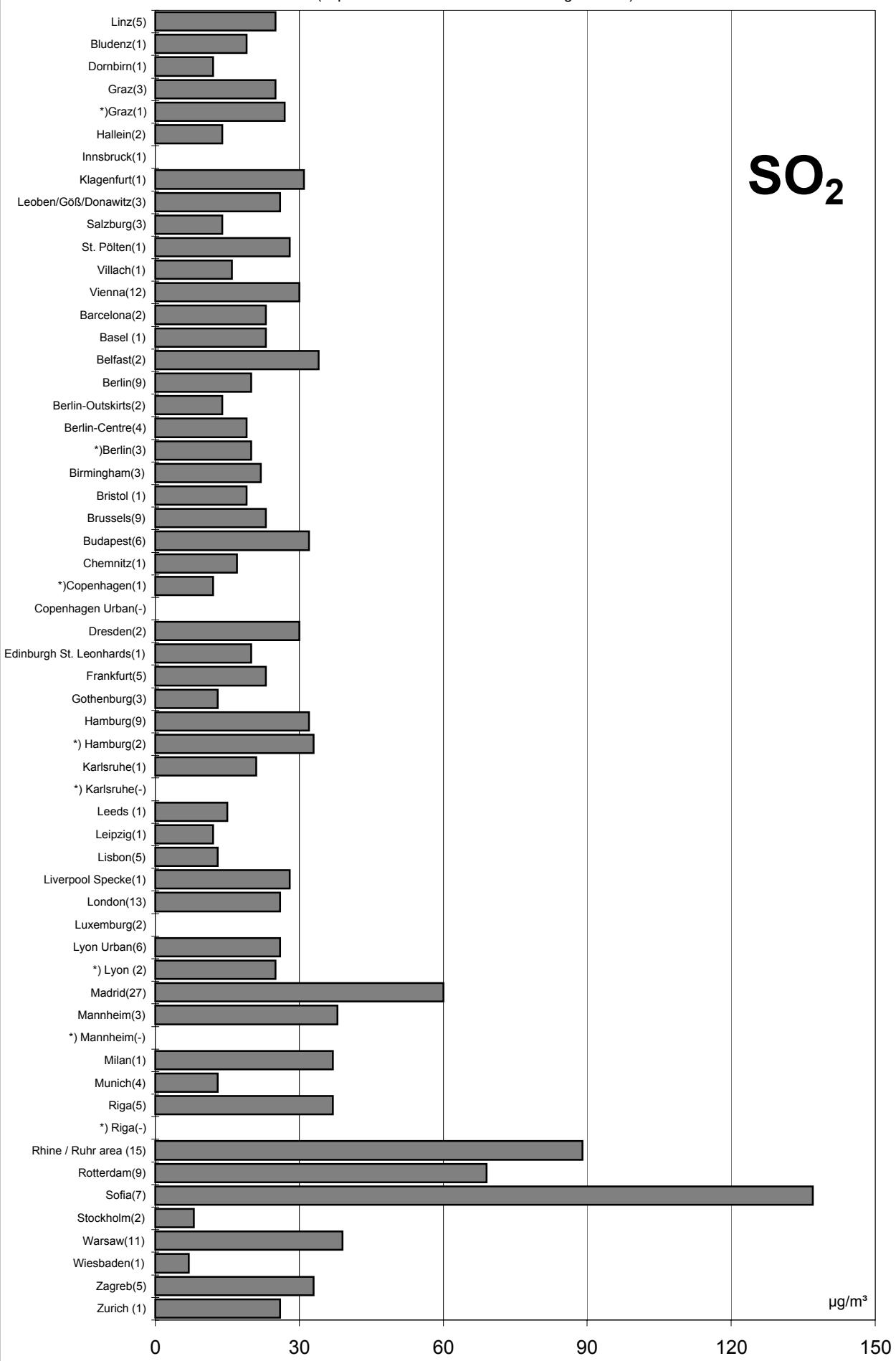
2004

Max. 98- Percentile per Year

Comparison of The Air Quality in 2004

max. 98-Percentile (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

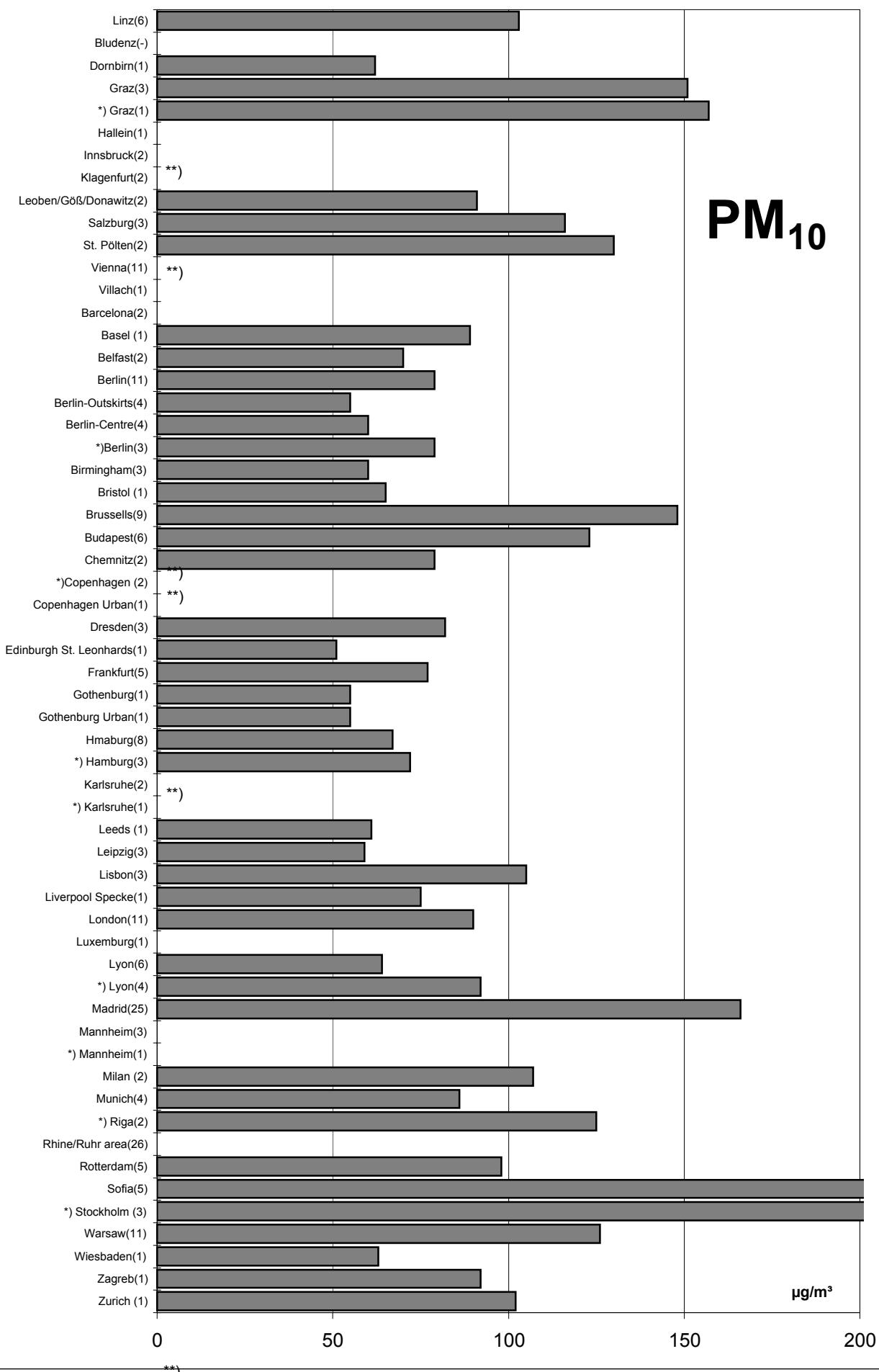
**)no data

Comparison of The Air Quality in 2004

max. 98-Percentile (max. stressed monitoring station)

75

(in parentheses: number of monitoring stations)



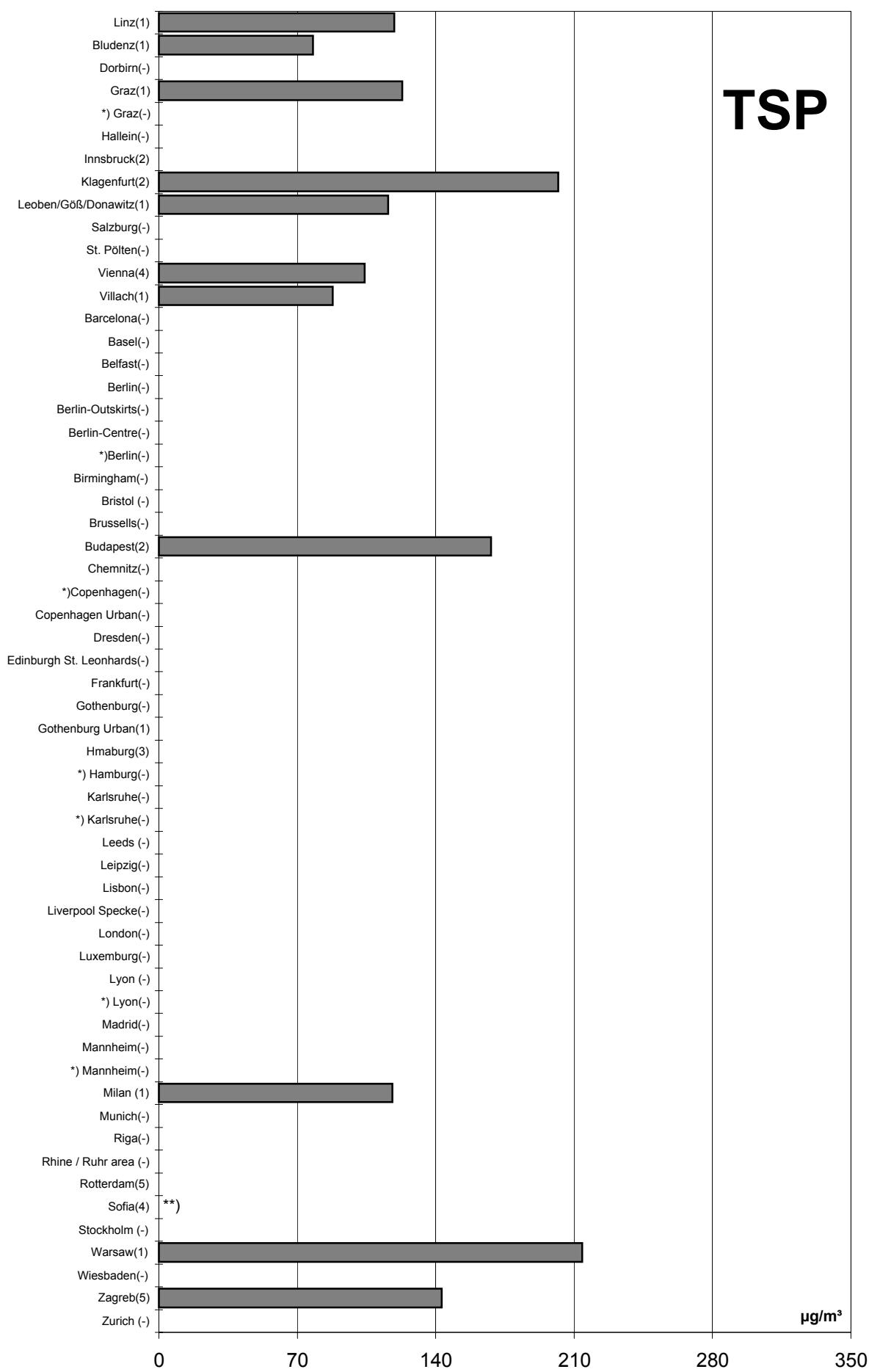
*) traffic-influenced monitoring stations

**)no data

Comparison of The Air Quality 2004

max. 98-Percentile (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

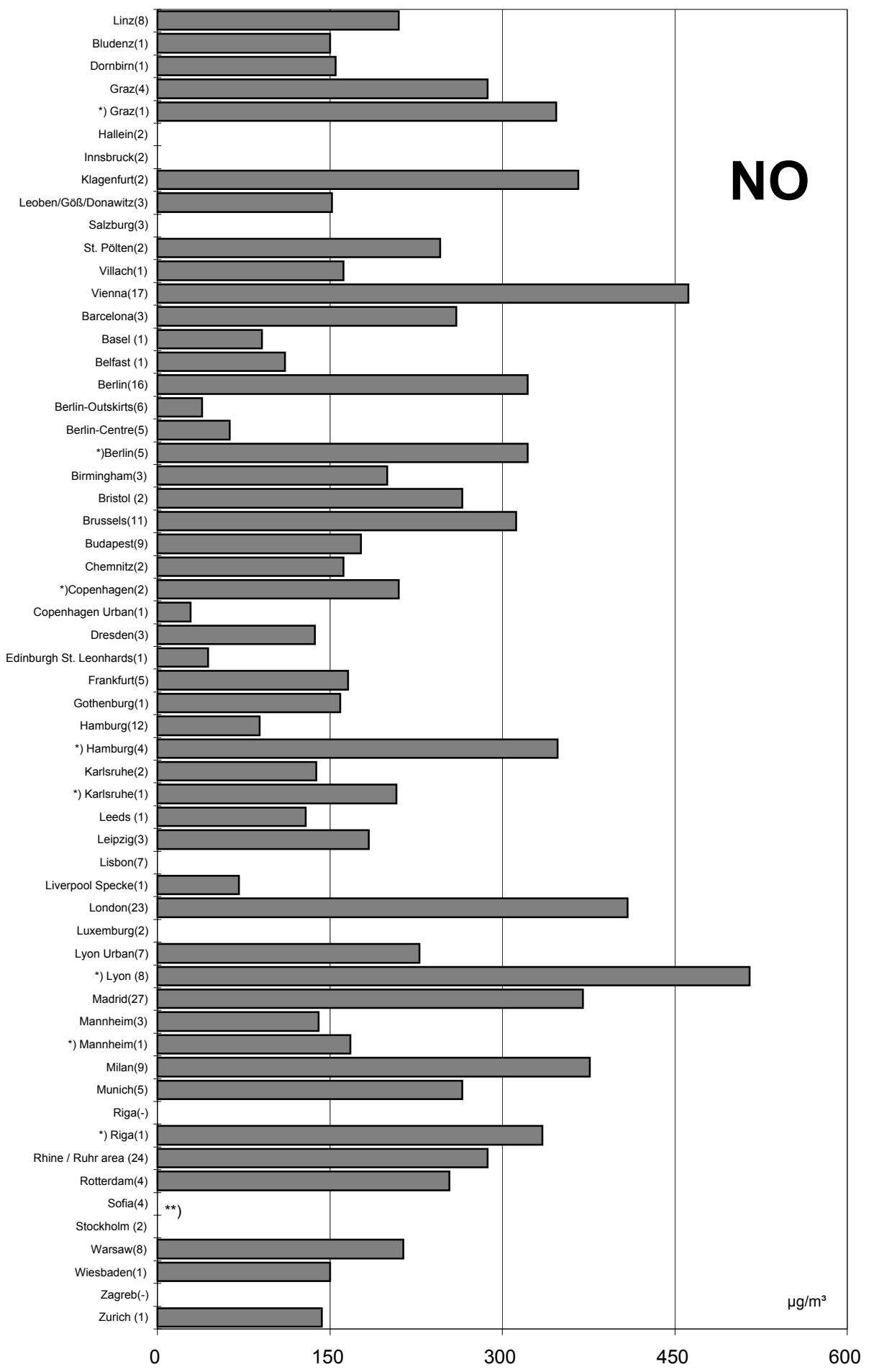
**) no data

Comparison of The Air Quality in 2004

77

max. 98-Percentile (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**) no data

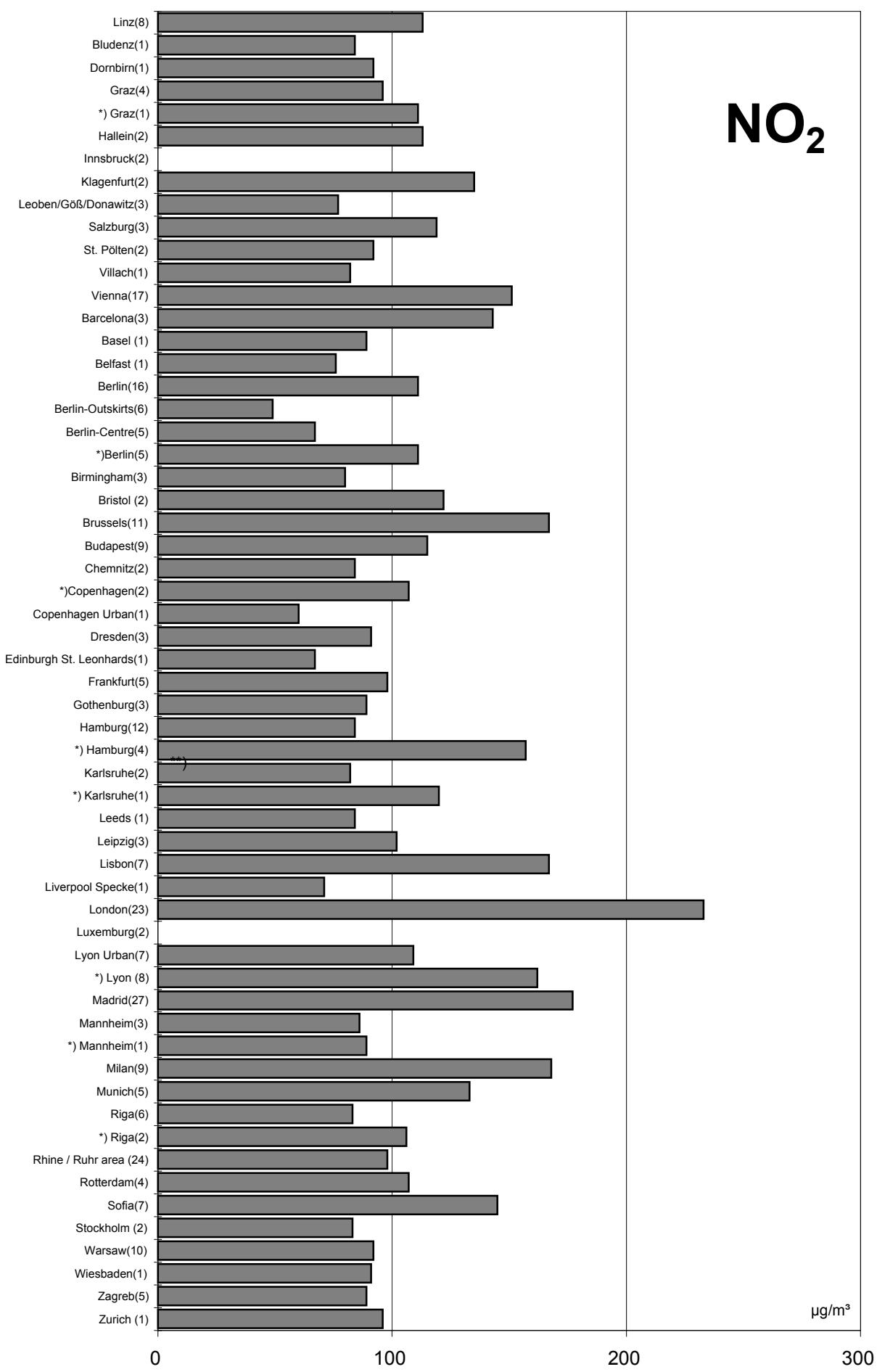
MAGISTRAT LINZ - Amt für Natur- und Umweltschutz

S:\anu\Abteilung\MT\Immission\Städtevergleich\2003\Tabellen, Grafiken\LGV[Max. 98-Percentil .xls]NO-sw

Comparison of The Air Quality in 2004

max. 98-Percentile (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

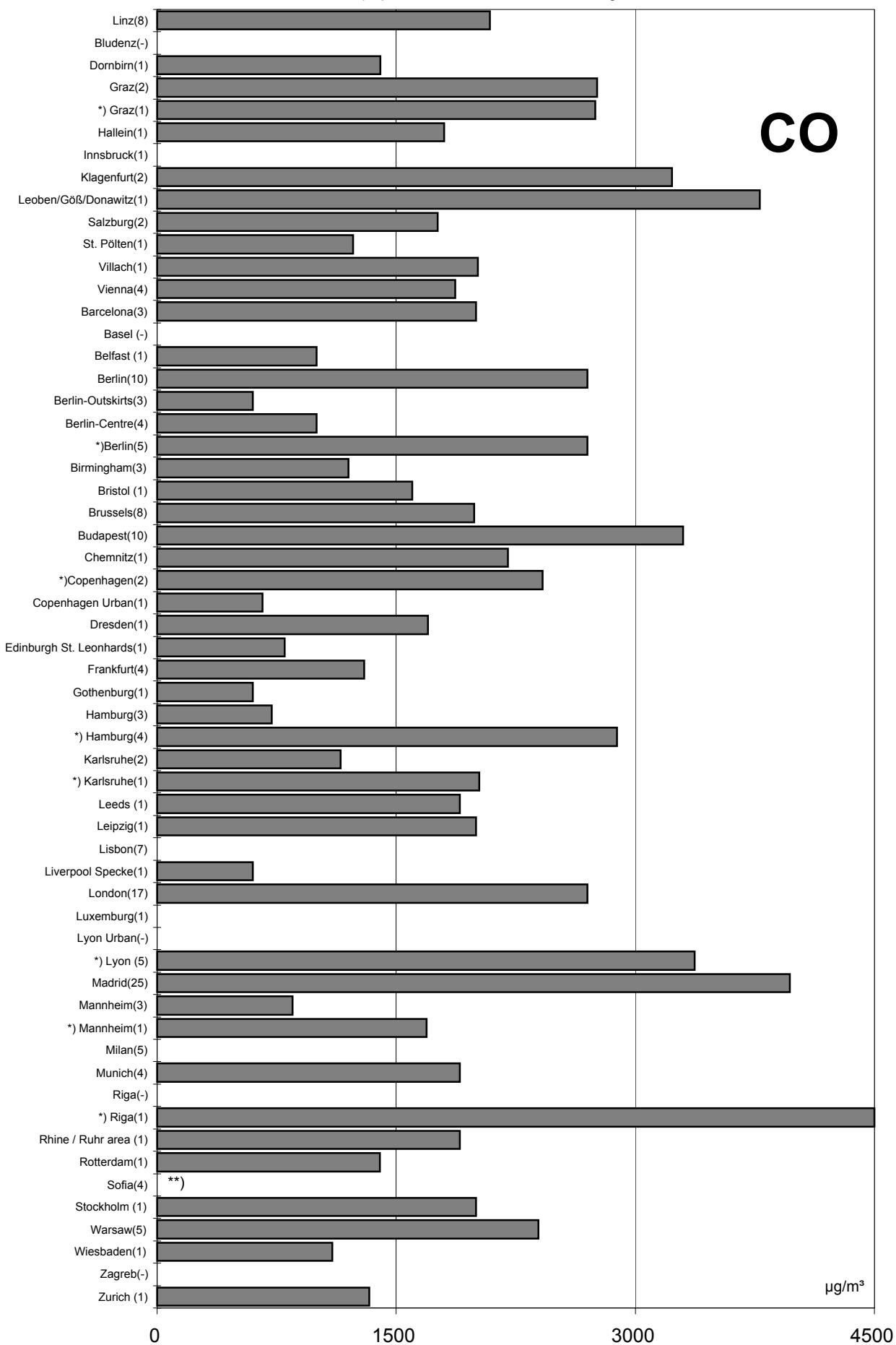
**)no data

Comparison of The Air Quality in 2004

79

max. 98-Percentile (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



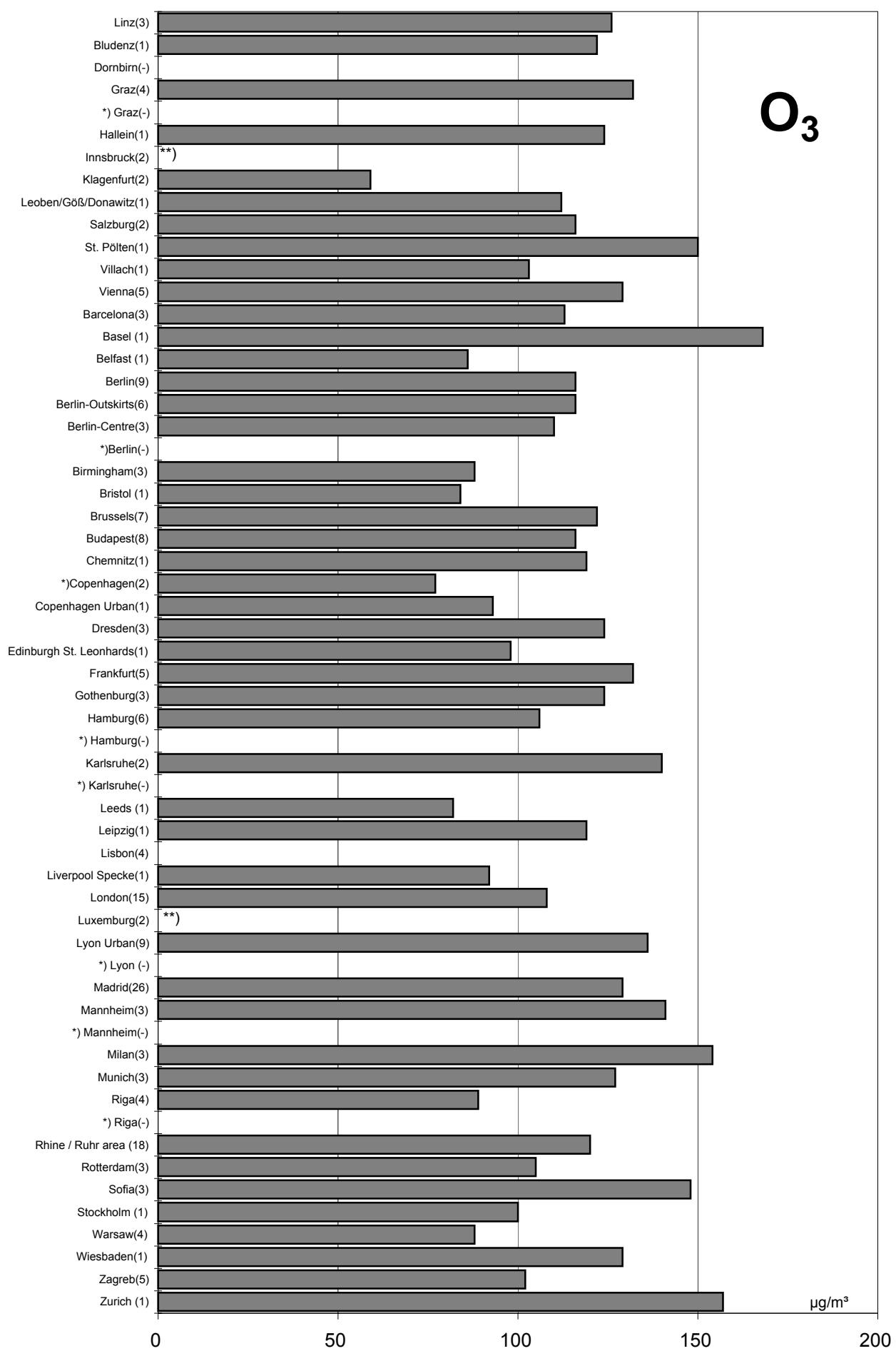
*) traffic-influenced monitoring stations

**)no data

Comparison of The Air Quality in 2004

max. 98-Percentile (max. stressed monitoring station)

(in parentheses: number of monitoring stations)



*) traffic-influenced monitoring stations

**)no data

Jahresvergleich

1992-2004

Jahresmittelwert

Comparison of The Air Quality Over The Years

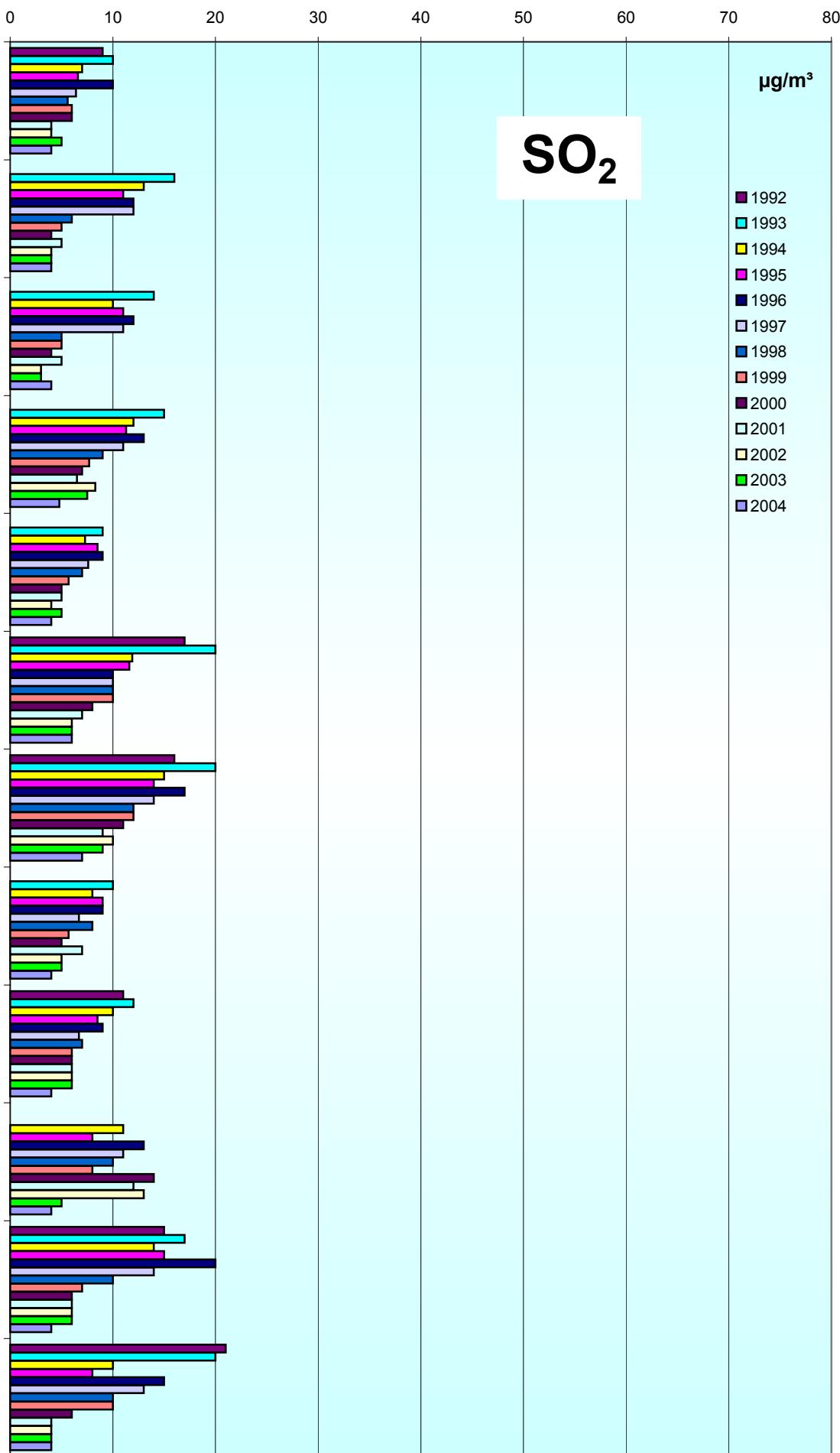
1992-2004

Annual Mean Values

Comparison of The Air Quality 1992 - 2004

Annual mean values

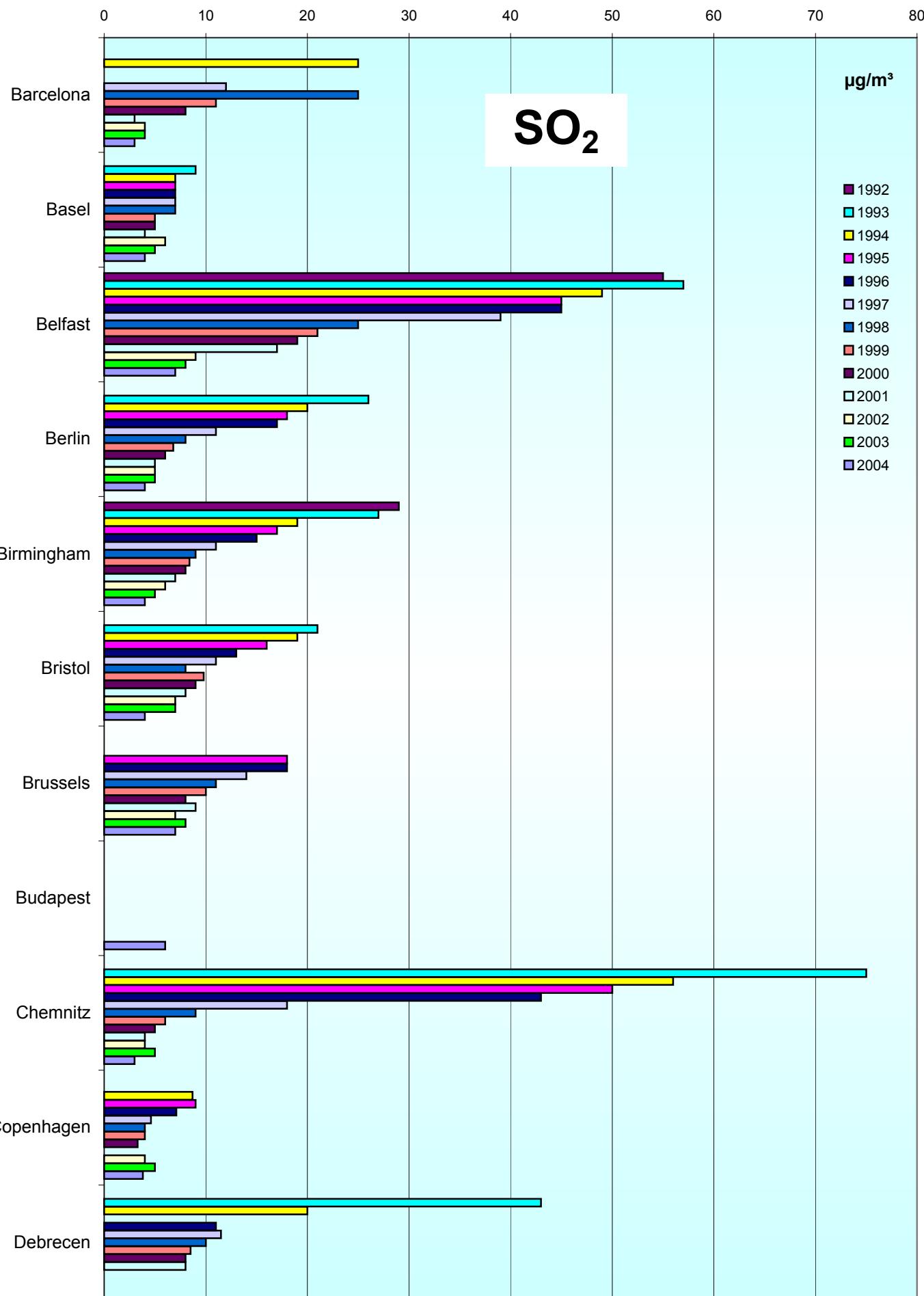
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

83

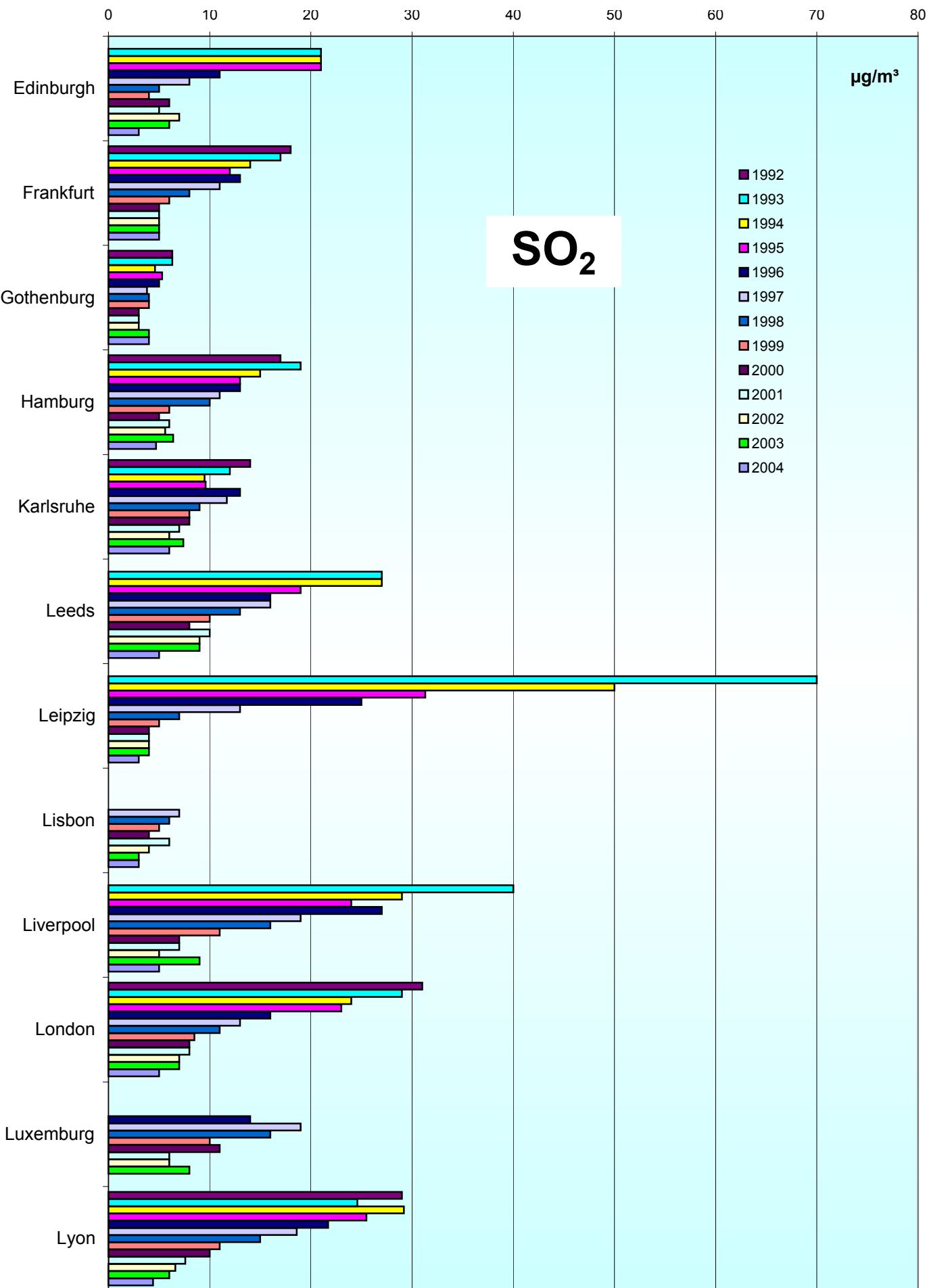
Annual mean values
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

Annual mean values

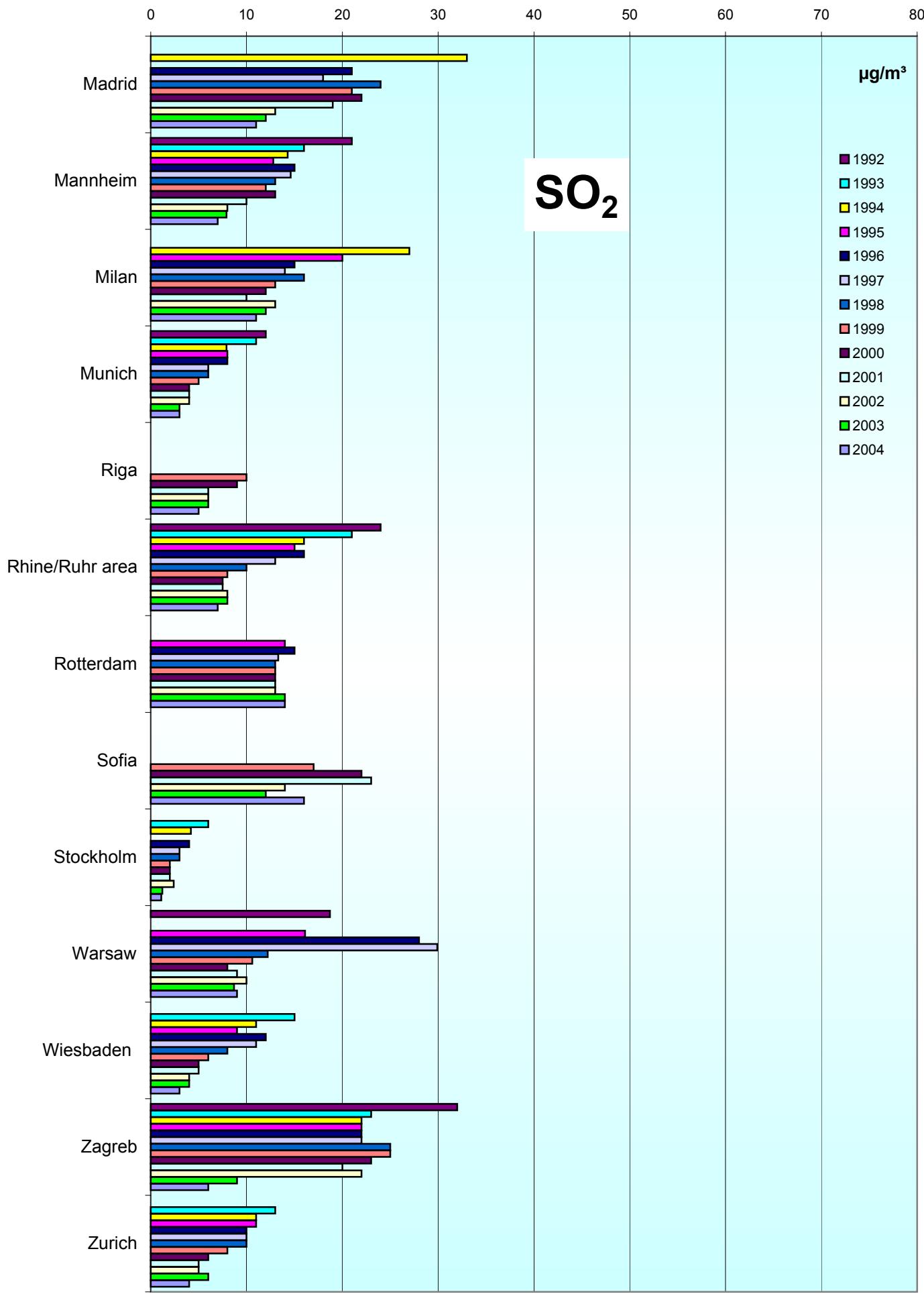
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

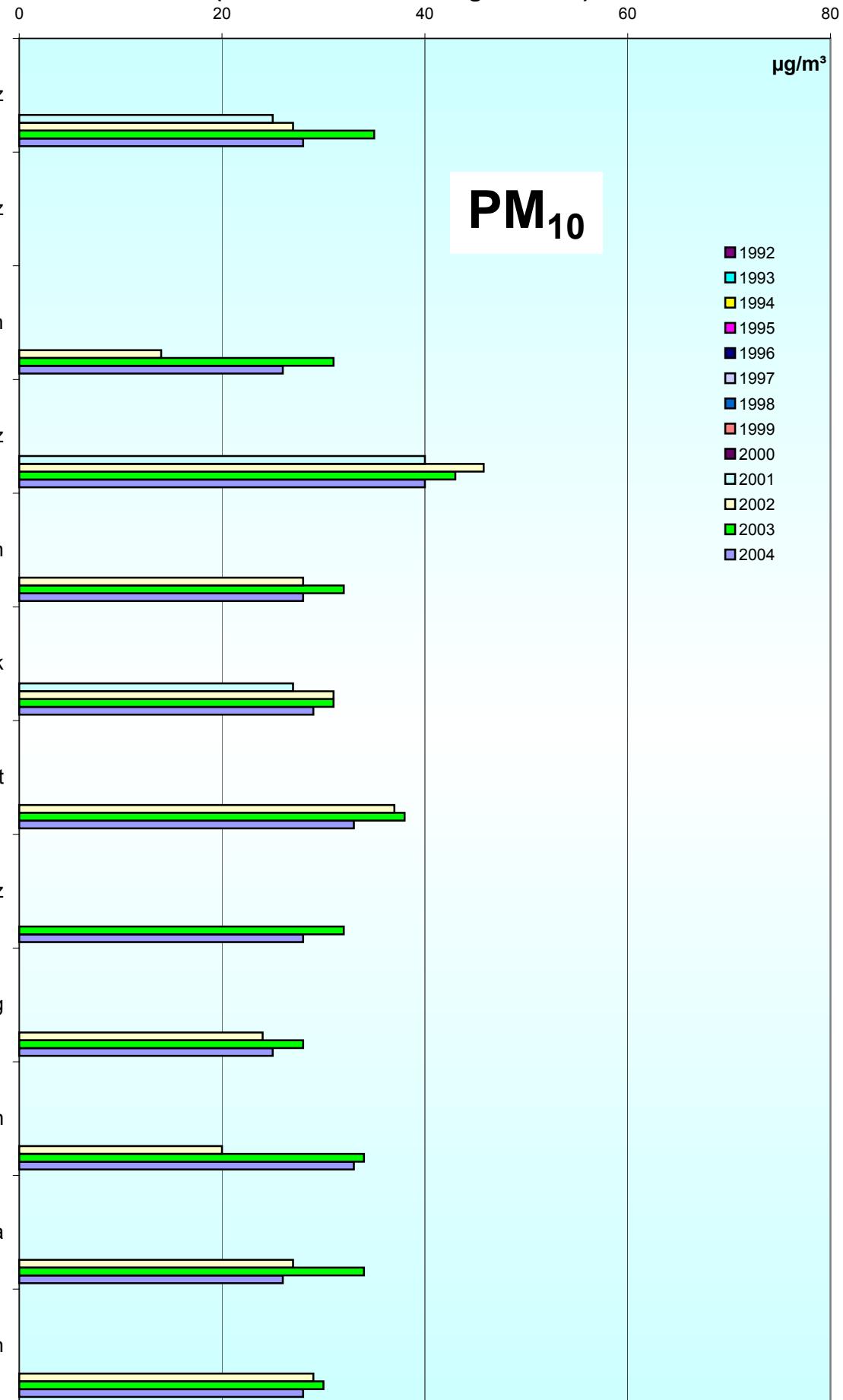
Annual mean values (mean of all monitoring stations)

85



Comparison of The Air Quality 1992 - 2004

**Annual mean values
(mean of all monitoring stations)**

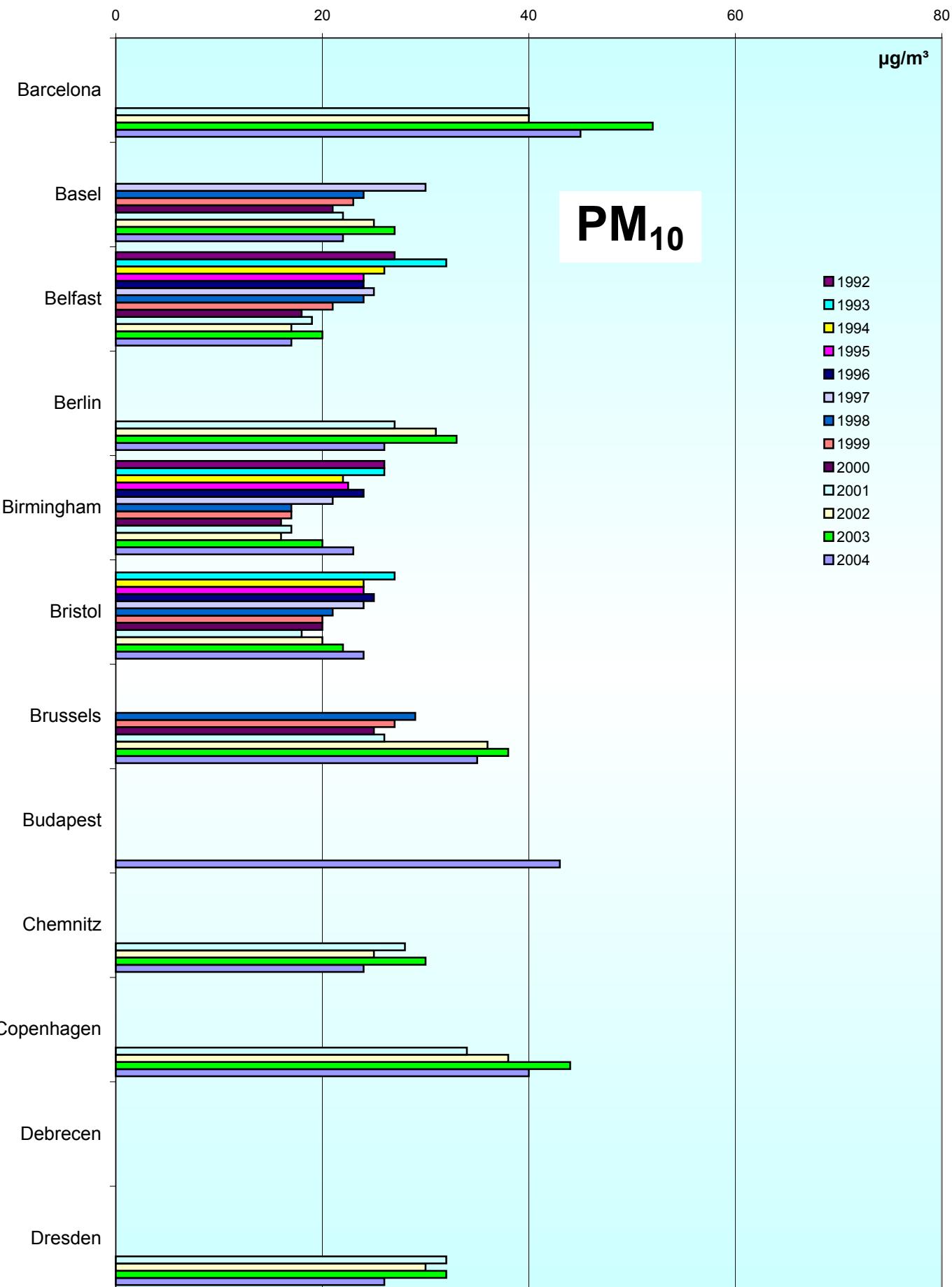


Comparison of The Air Quality 1992 - 2004

87

Annual mean values

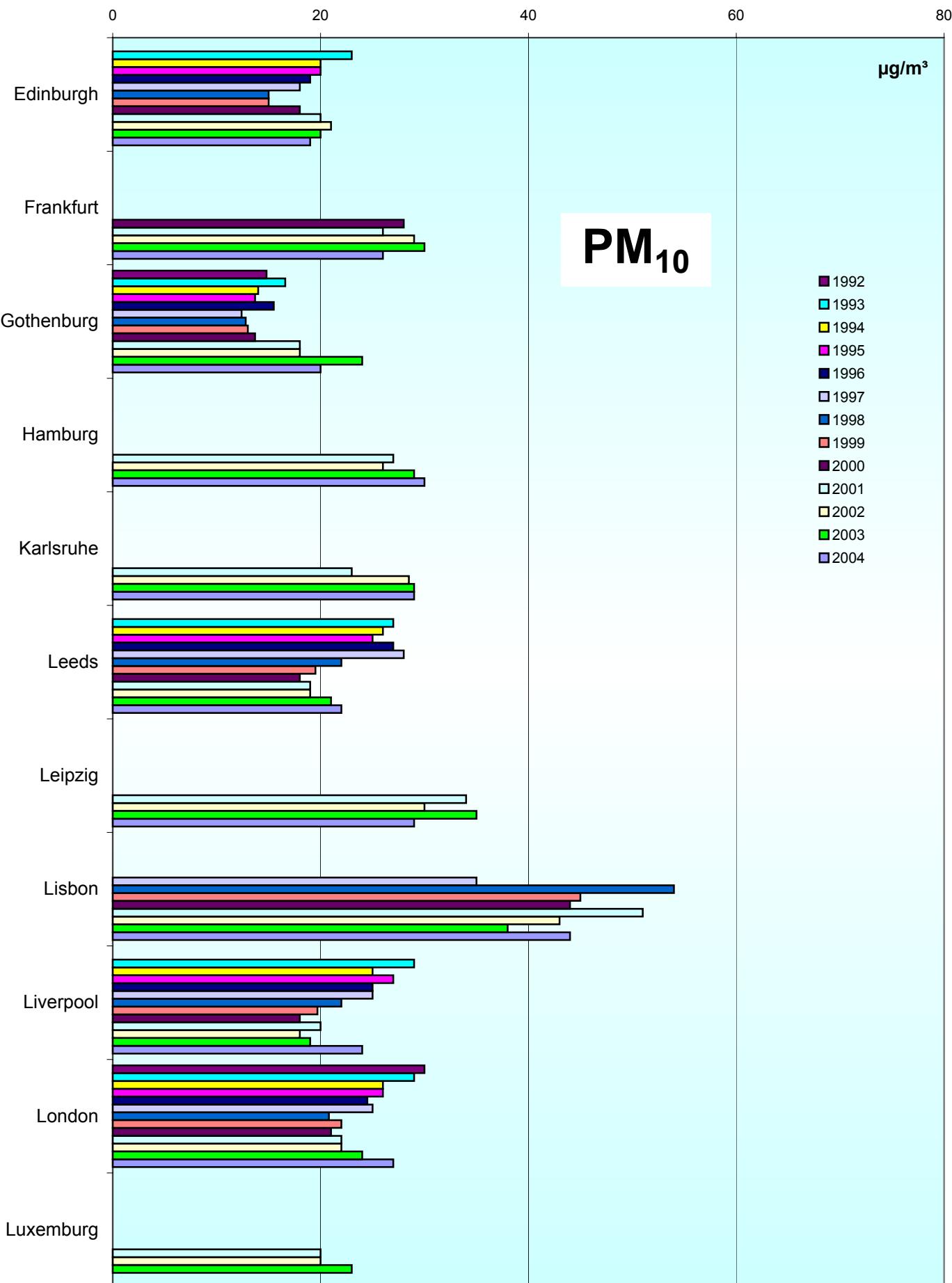
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

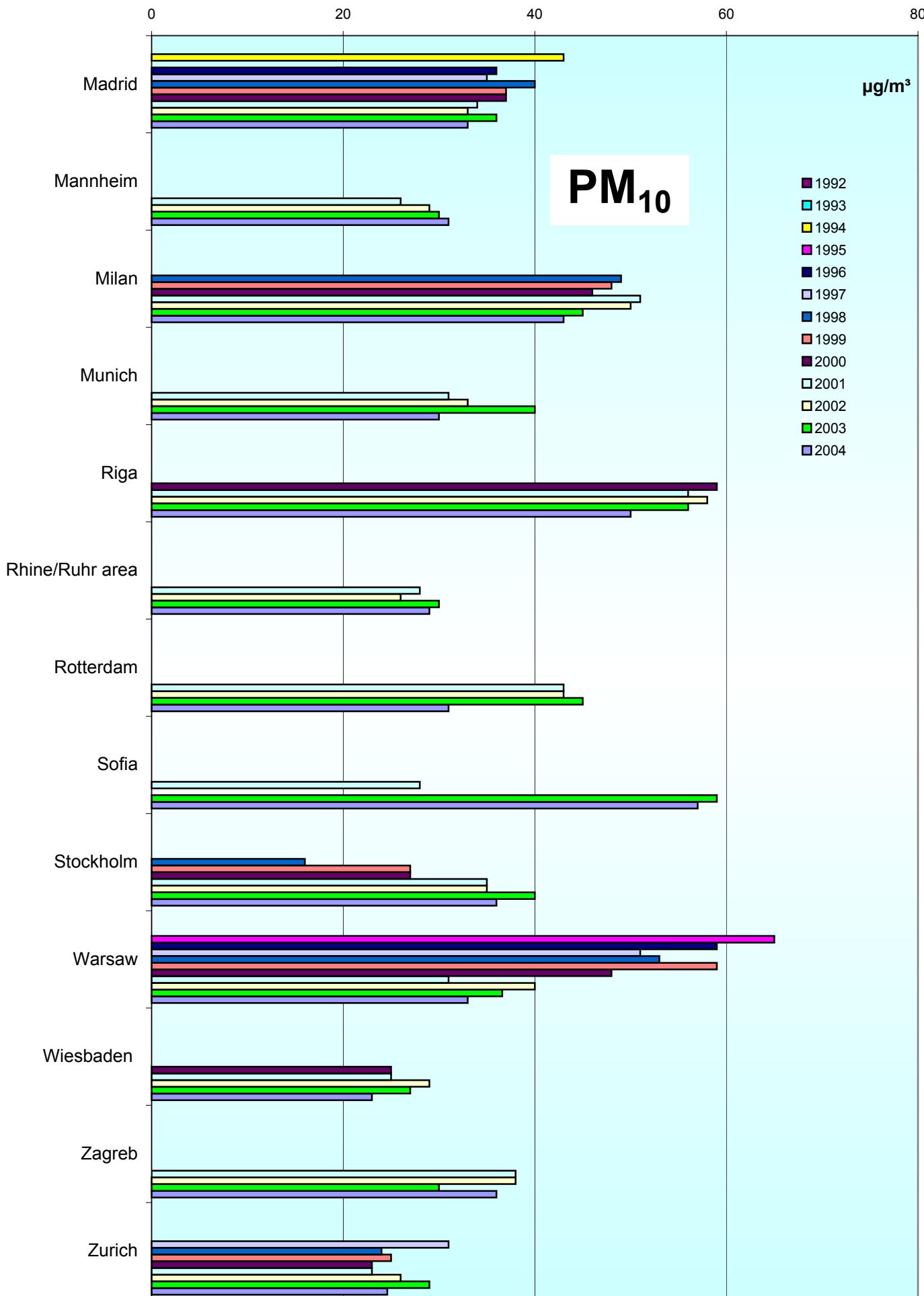
Annual mean values

(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004
Annual mean values (mean of all monitoring stations)

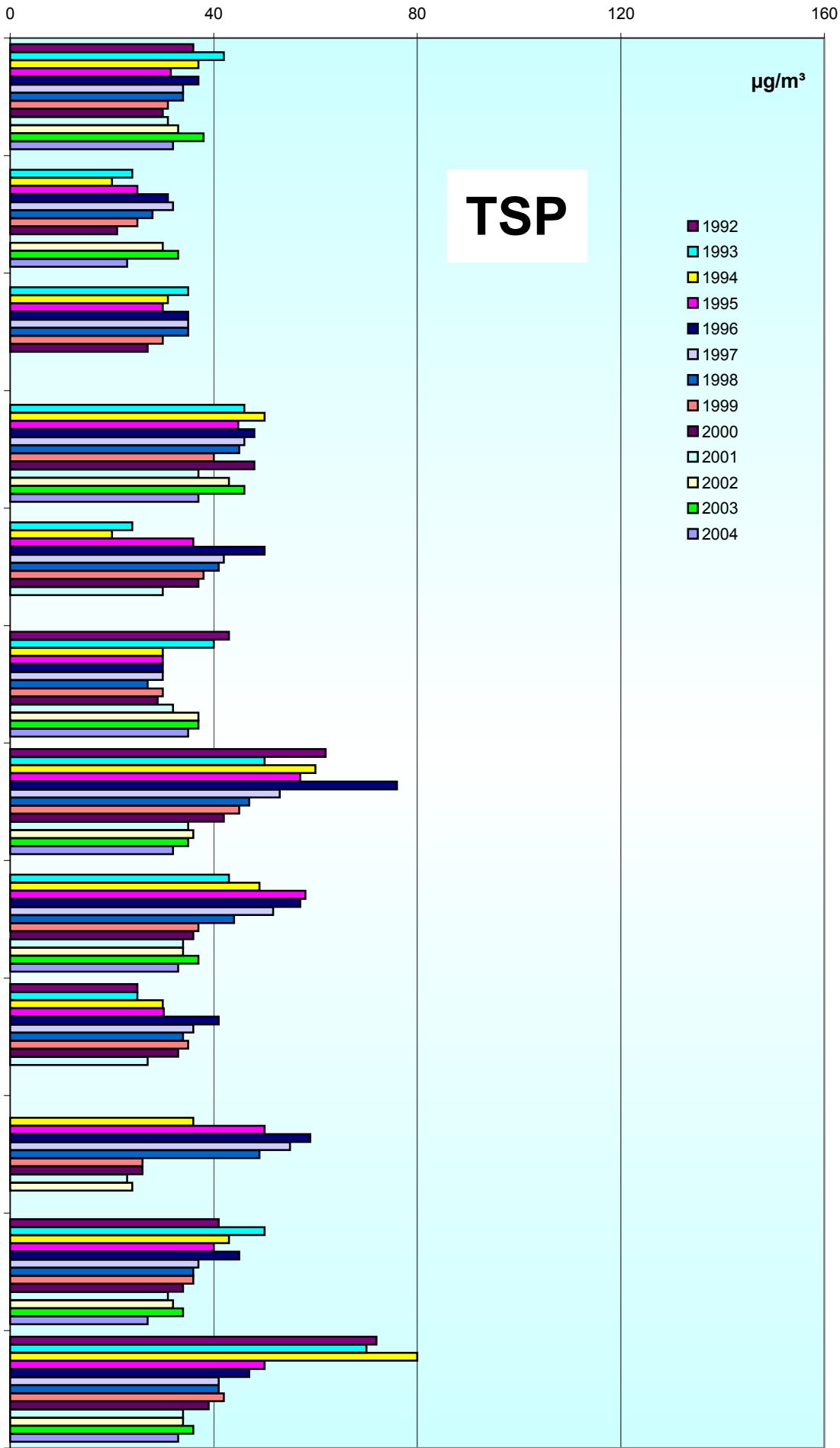
89



Comparison of The Air Quality 1992 - 2004

Annual mean values

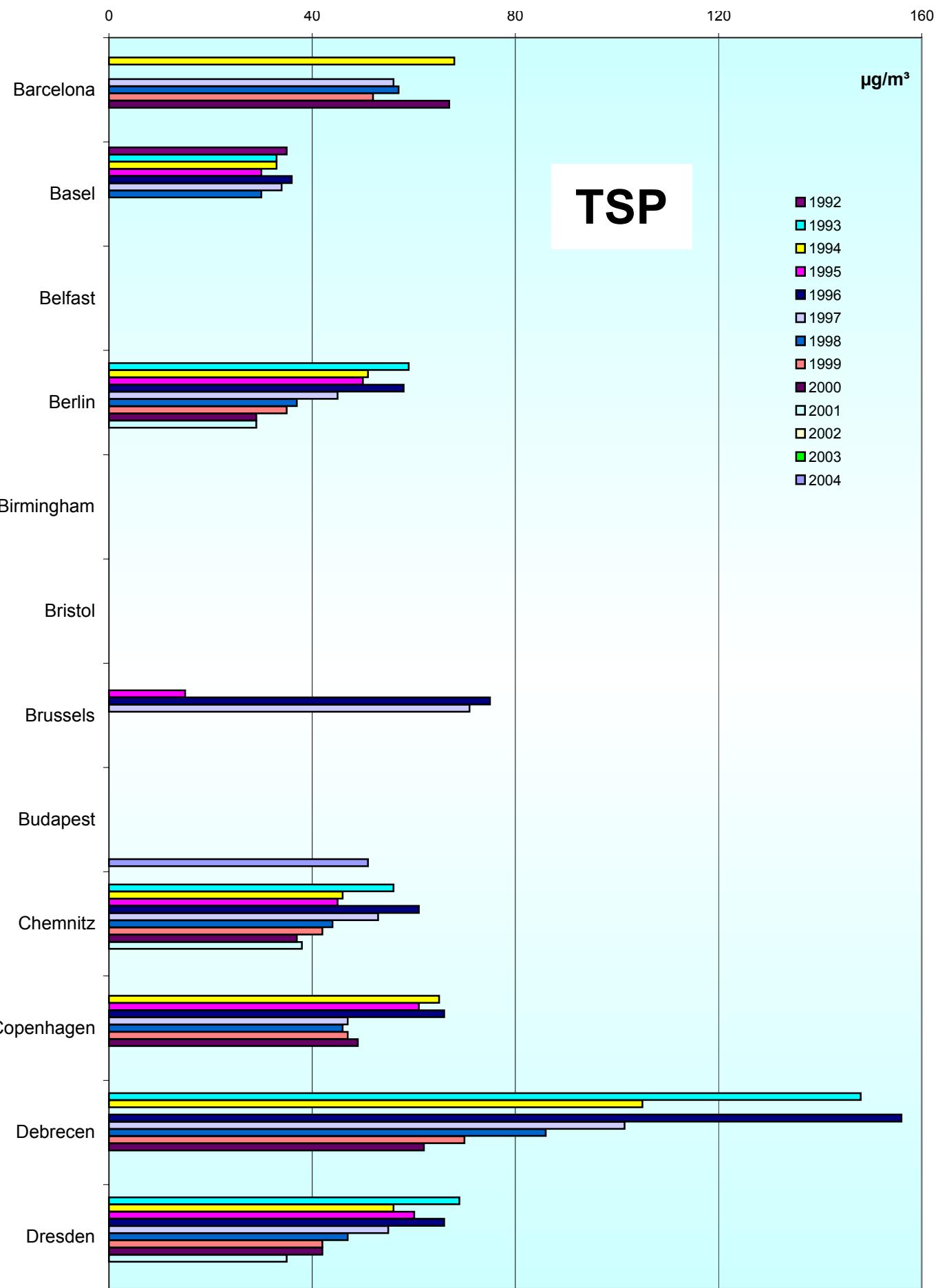
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

91

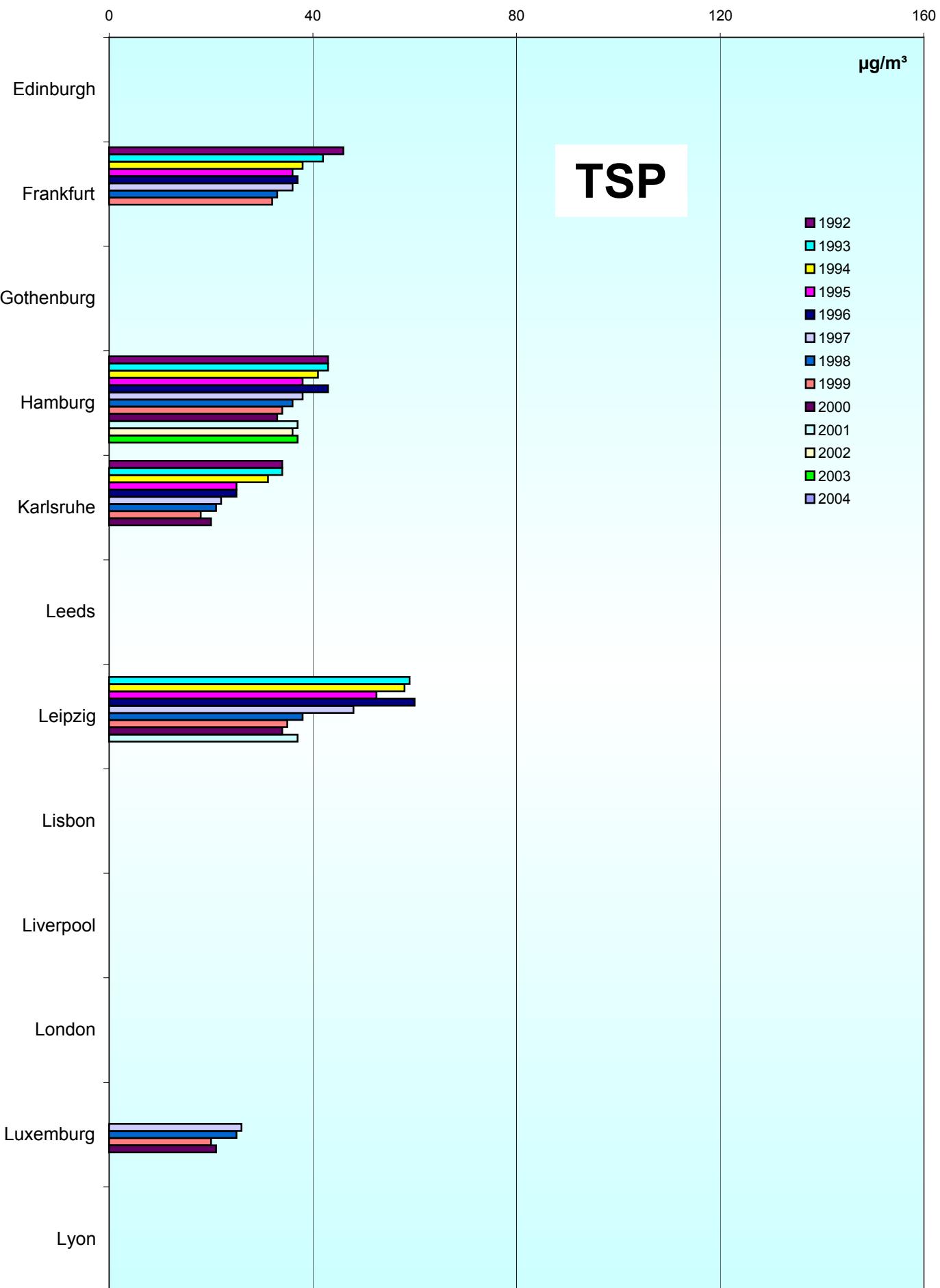
Annual mean values
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

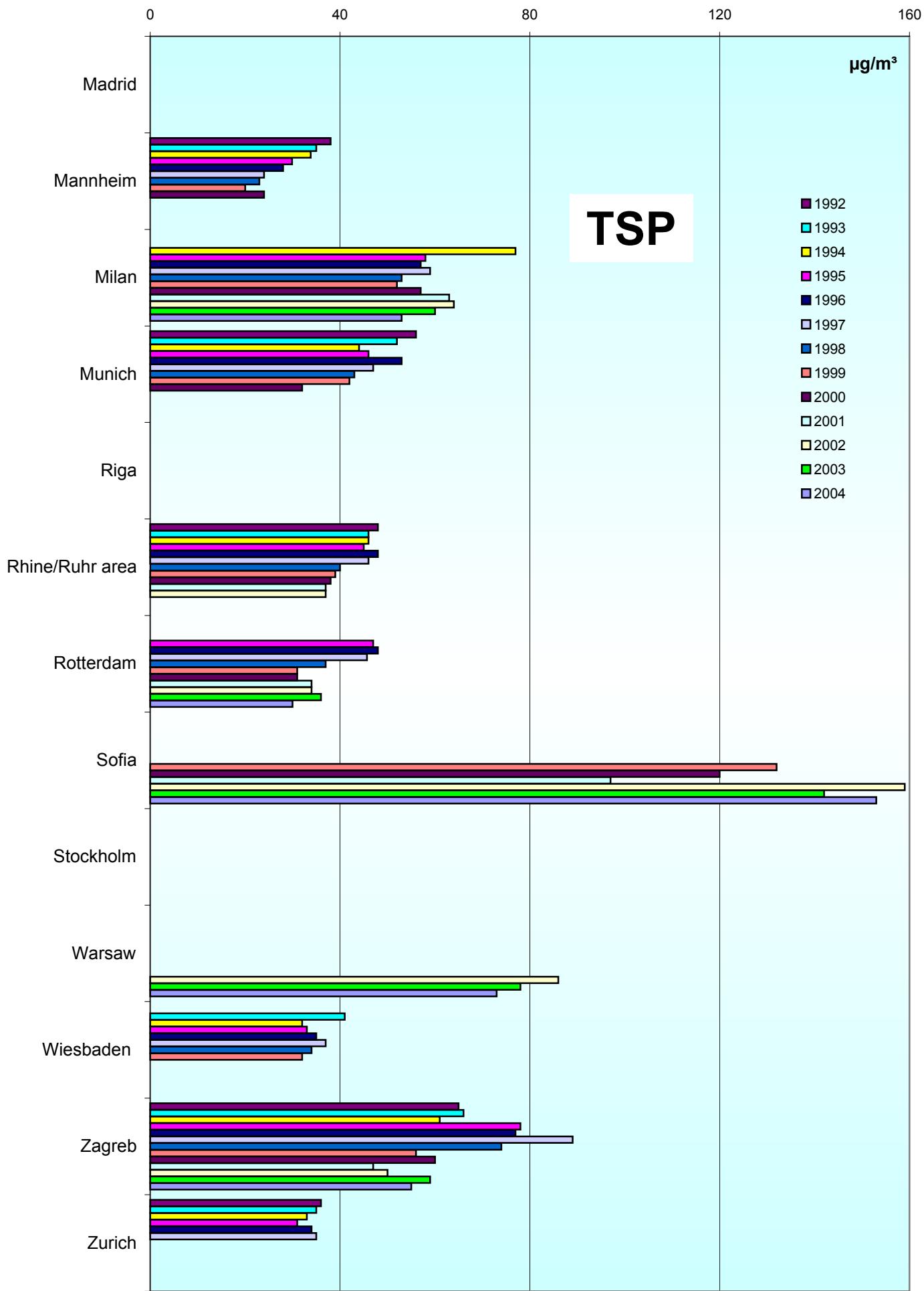
Annual mean values

(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004
Annual mean values (mean of all monitoring stations)

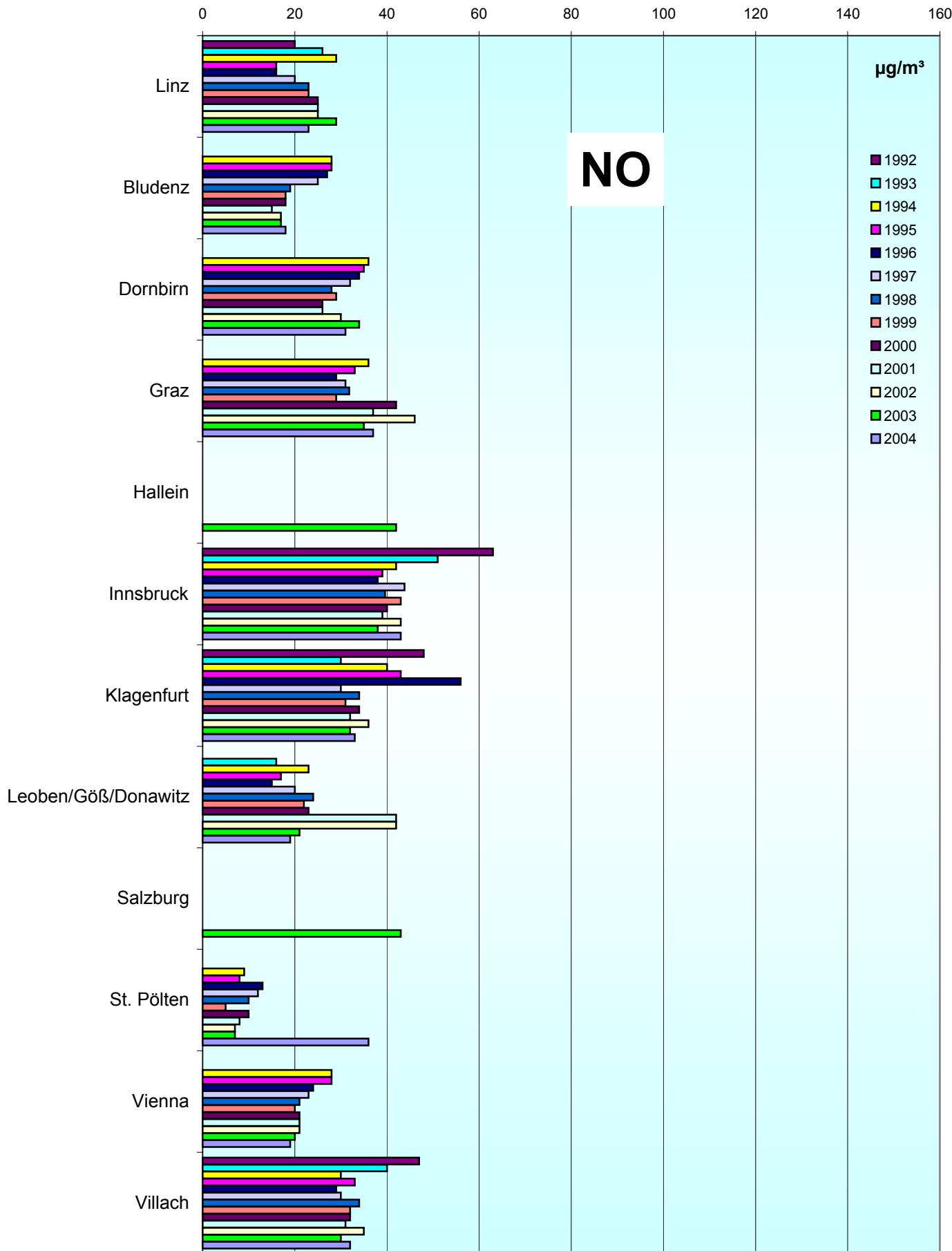
93



Comparison of The Air Quality 1992 - 2004

Annual mean values

(mean of all monitoring stations)

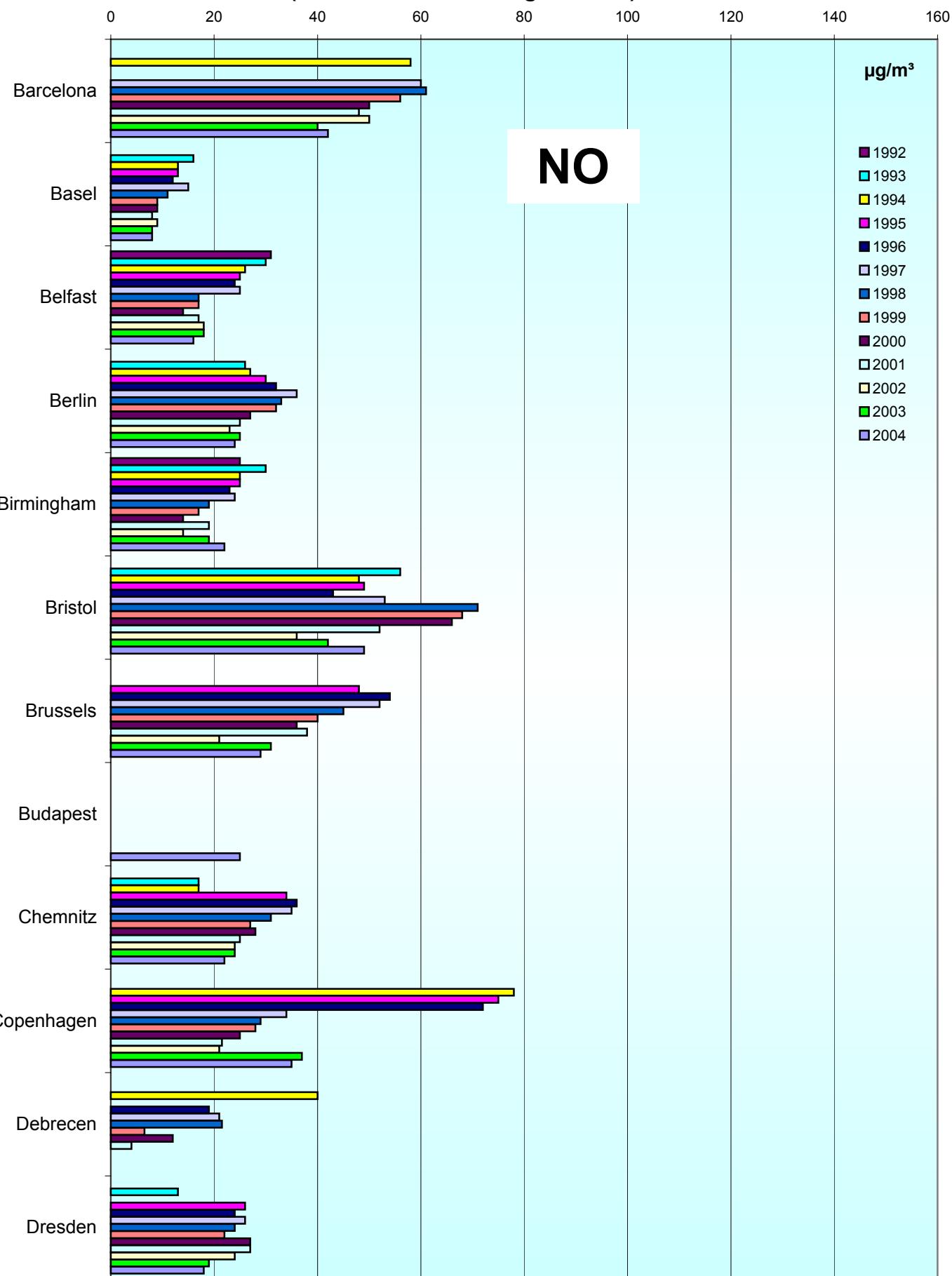


Comparison of The Air Quality 1992 - 2004

95

Annual mean values

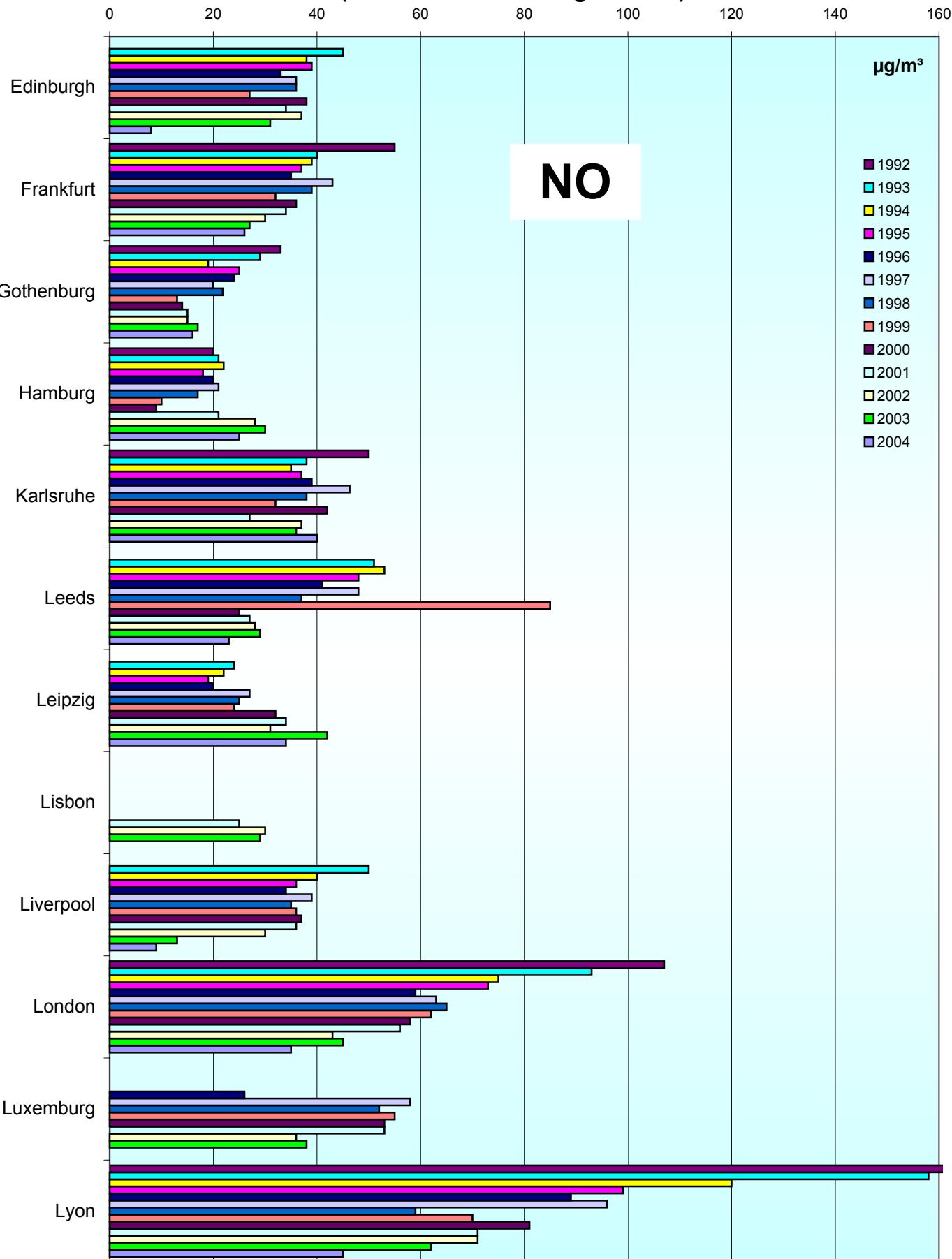
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

Annual mean values

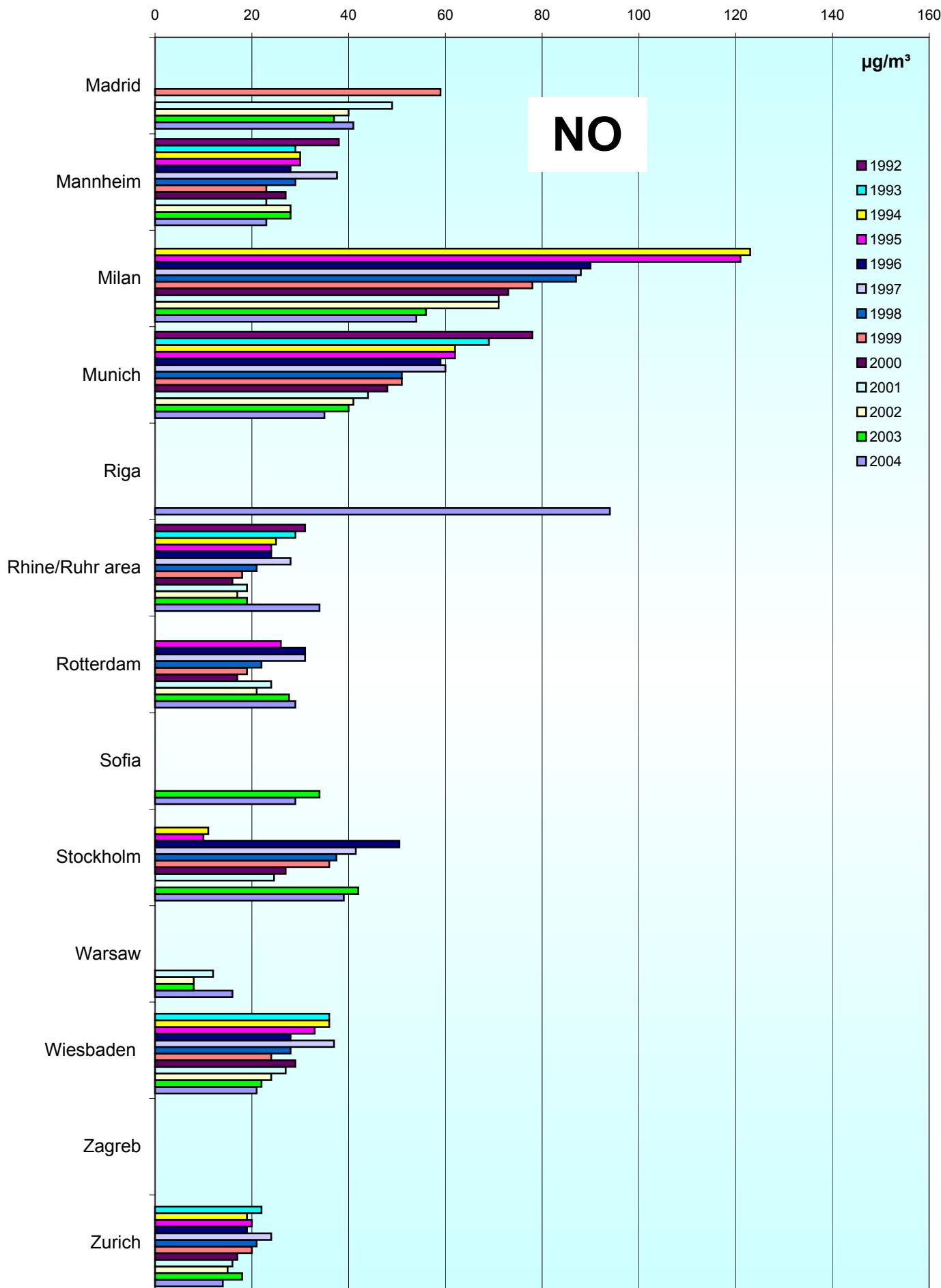
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

Annual mean values (mean of all monitoring stations)

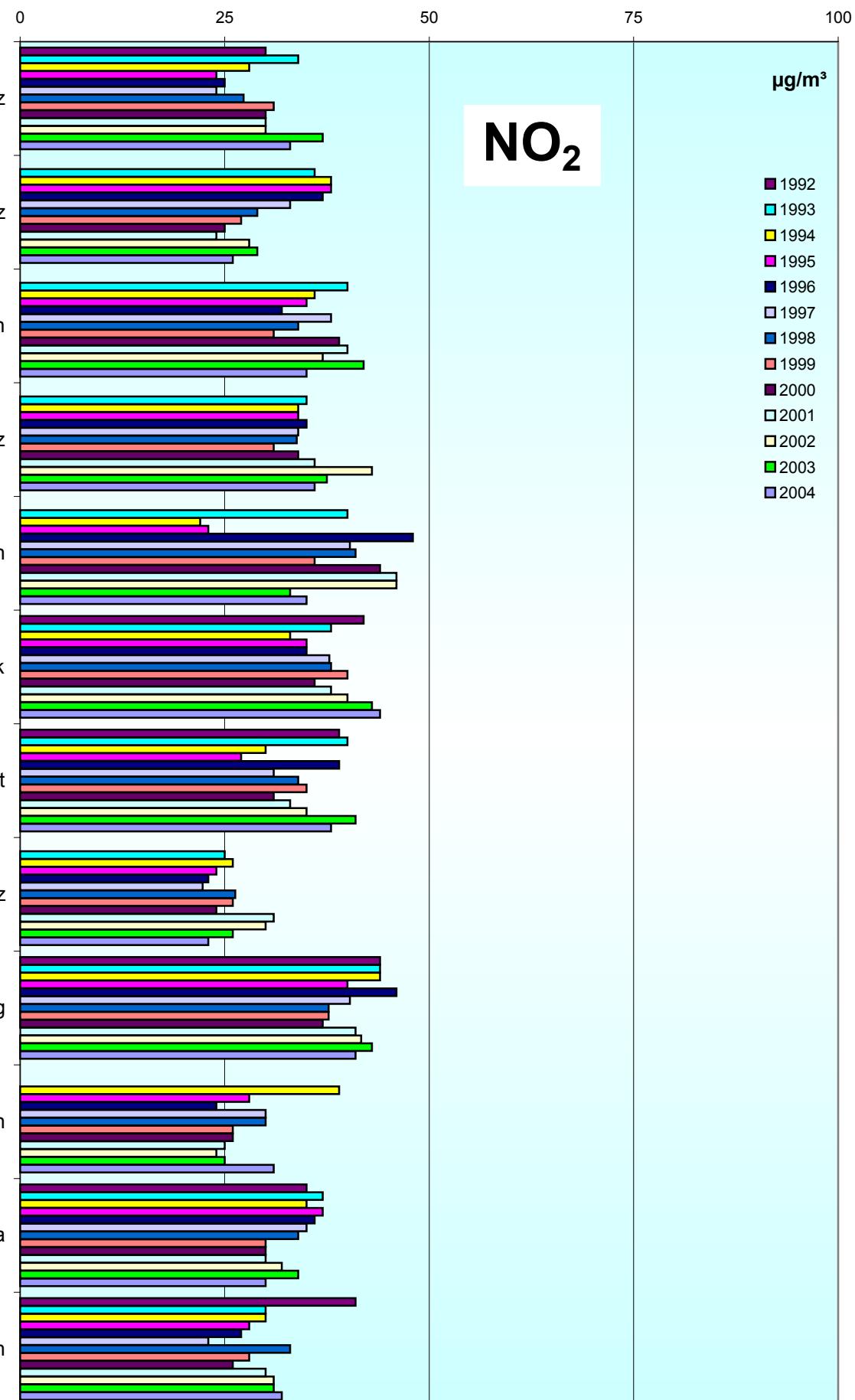
97



Comparison of The Air Quality 1992 - 2004

Annual mean values

(mean of all monitoring stations)

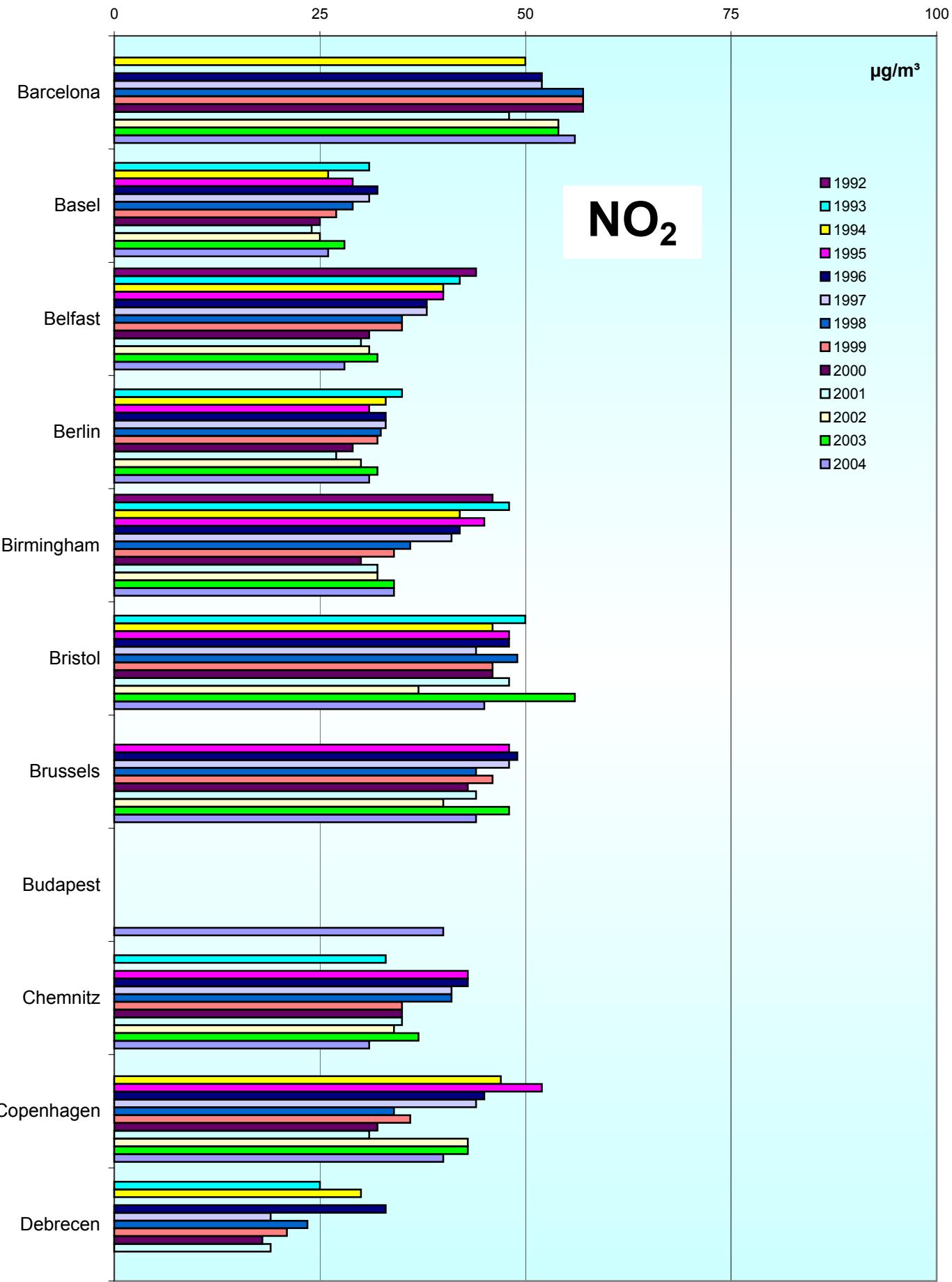


Comparison of The Air Quality 1992 - 2004

99

Annual mean values

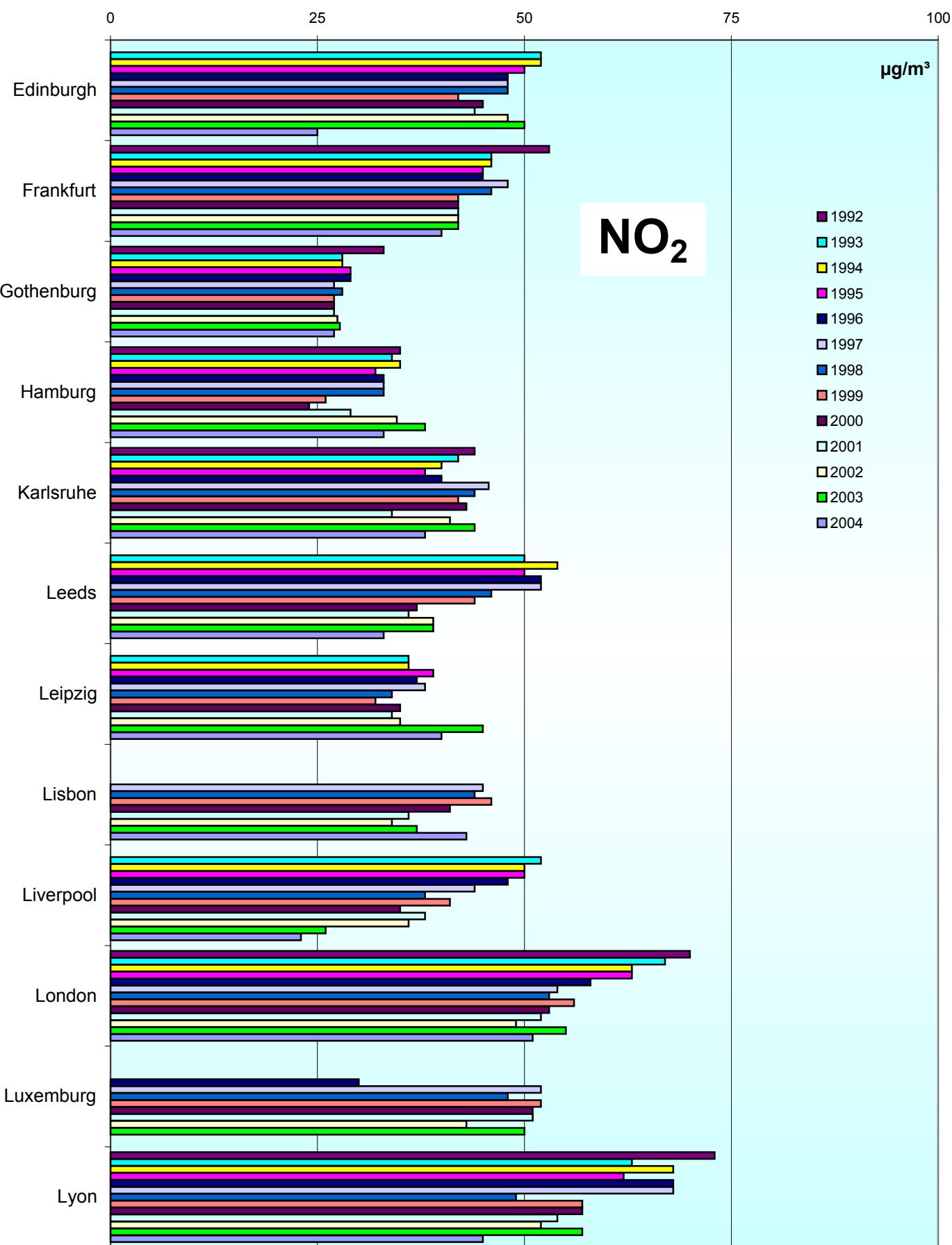
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

Annual mean values

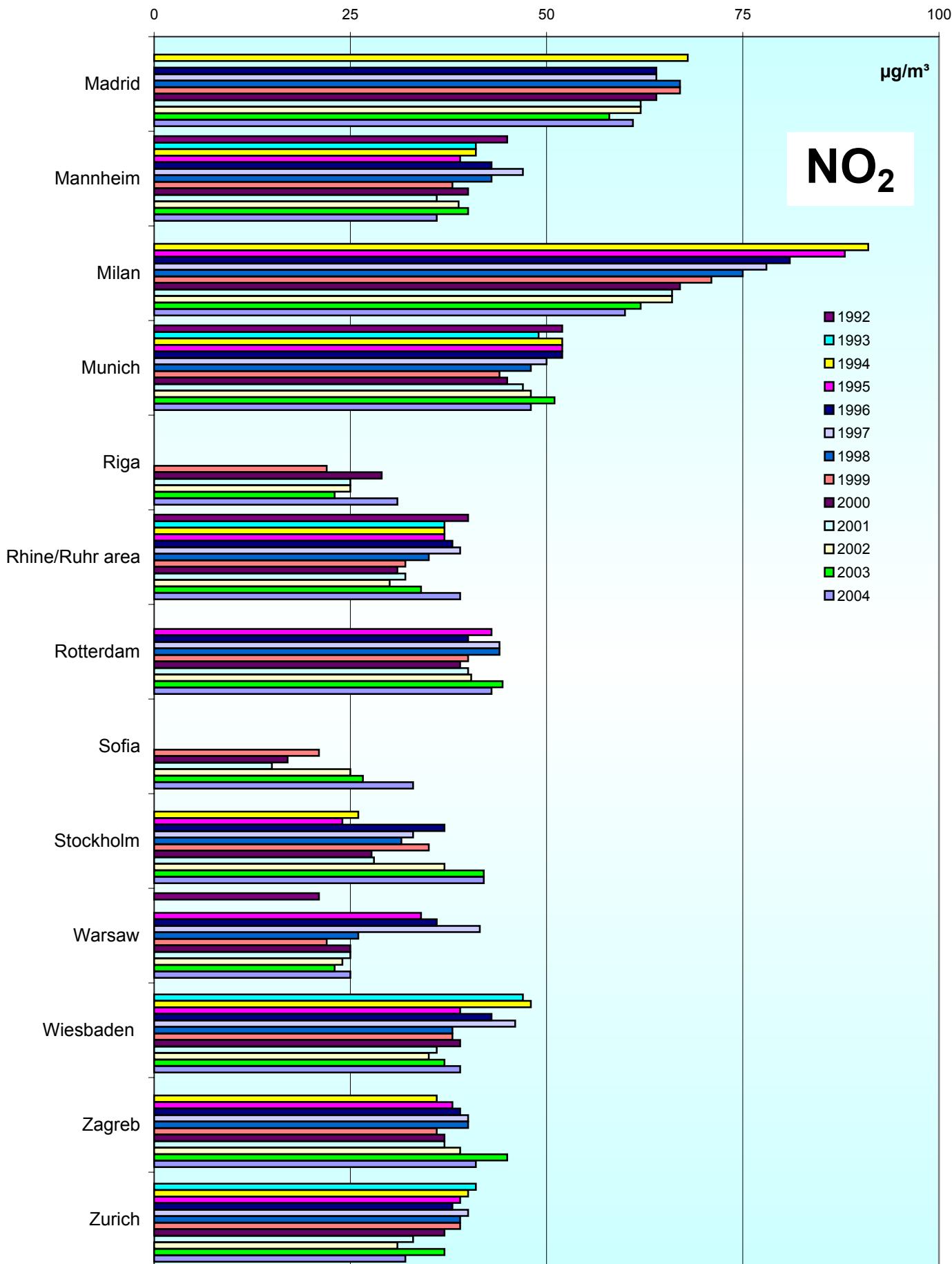
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

101

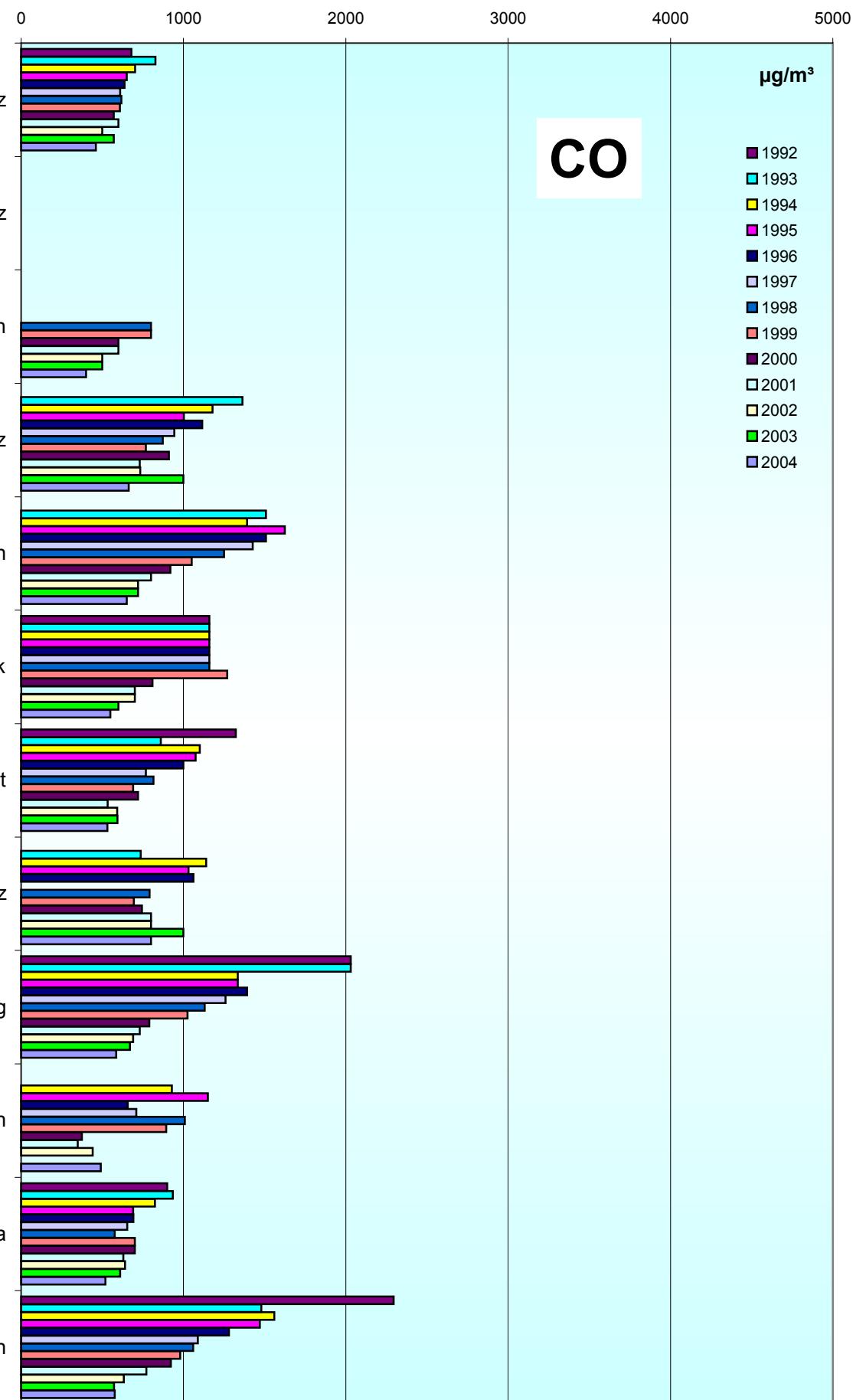
Annual mean values
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

Annual mean values

(mean of all monitoring stations)

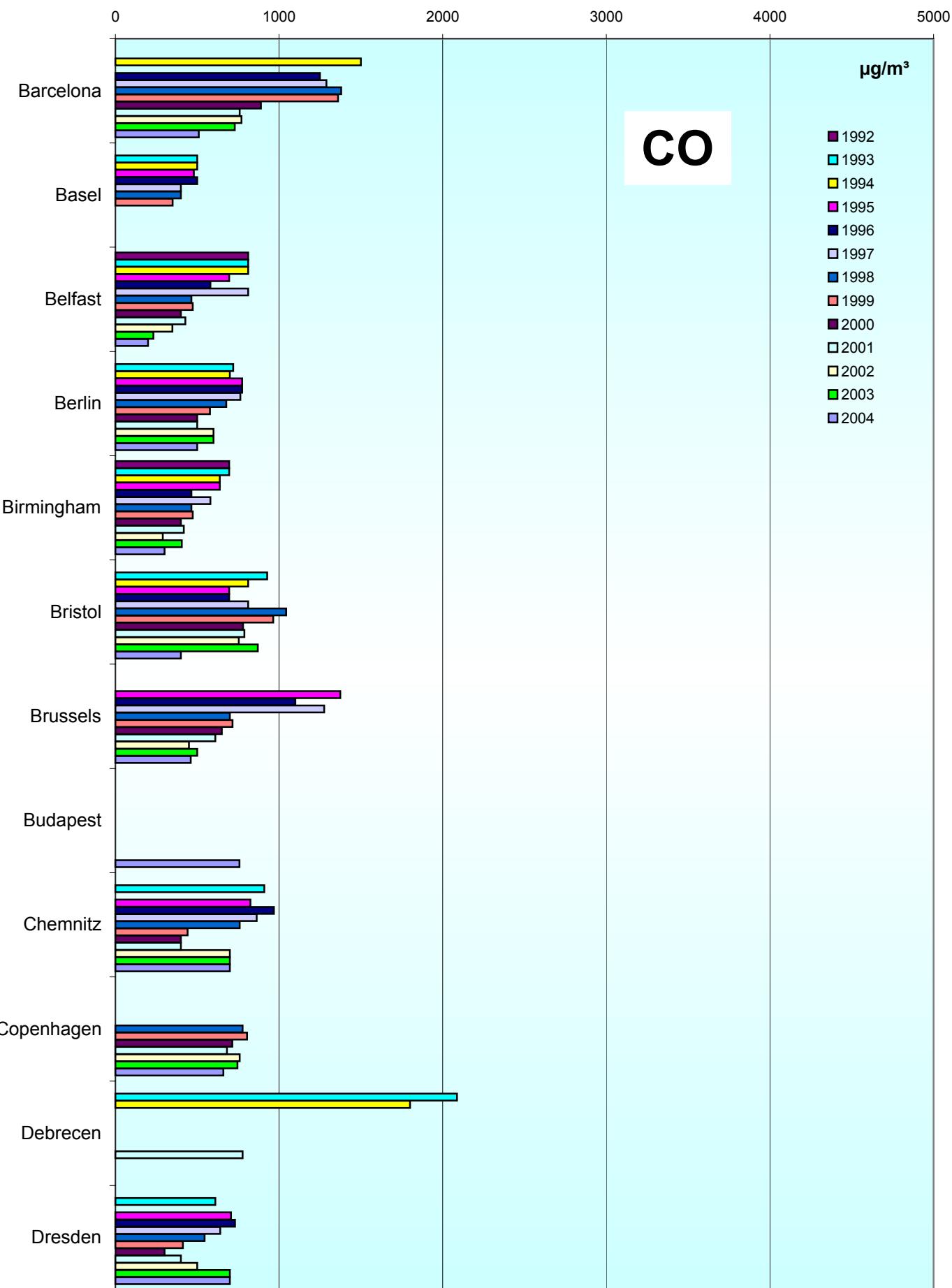


Comparison of The Air Quality 1992 - 2004

103

Annual mean values

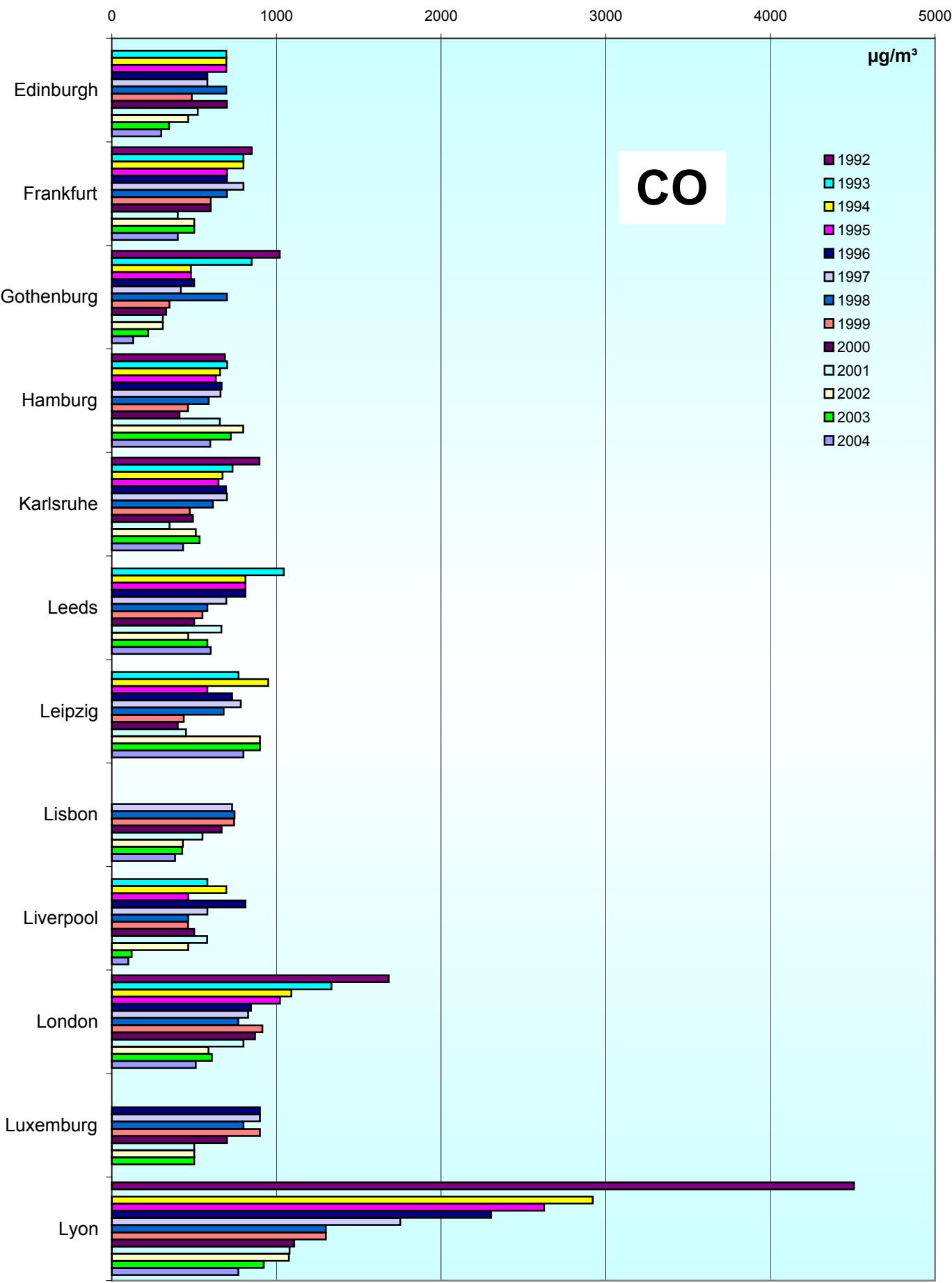
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

Annual mean values

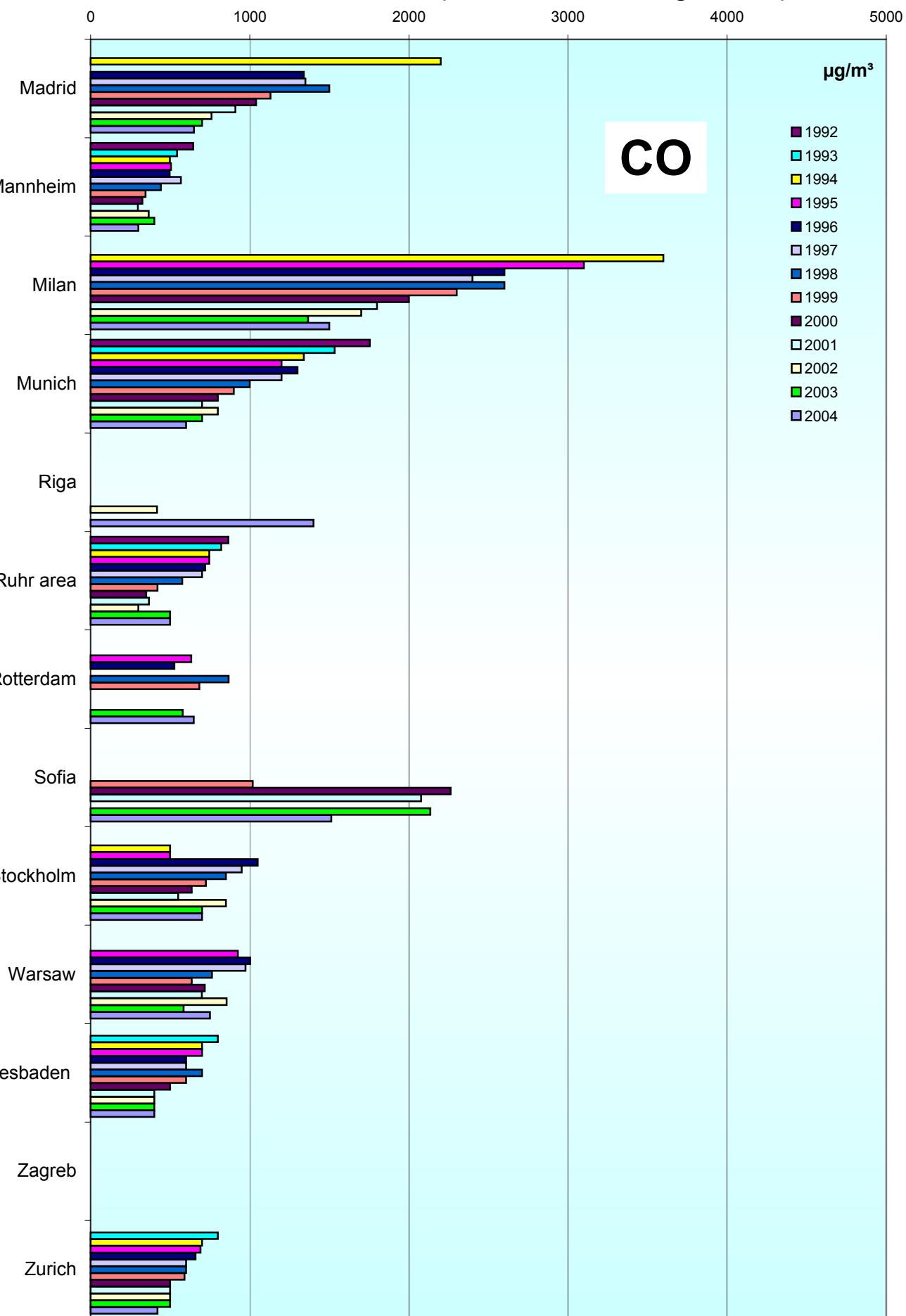
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

Annual mean values (mean of all monitoring stations)

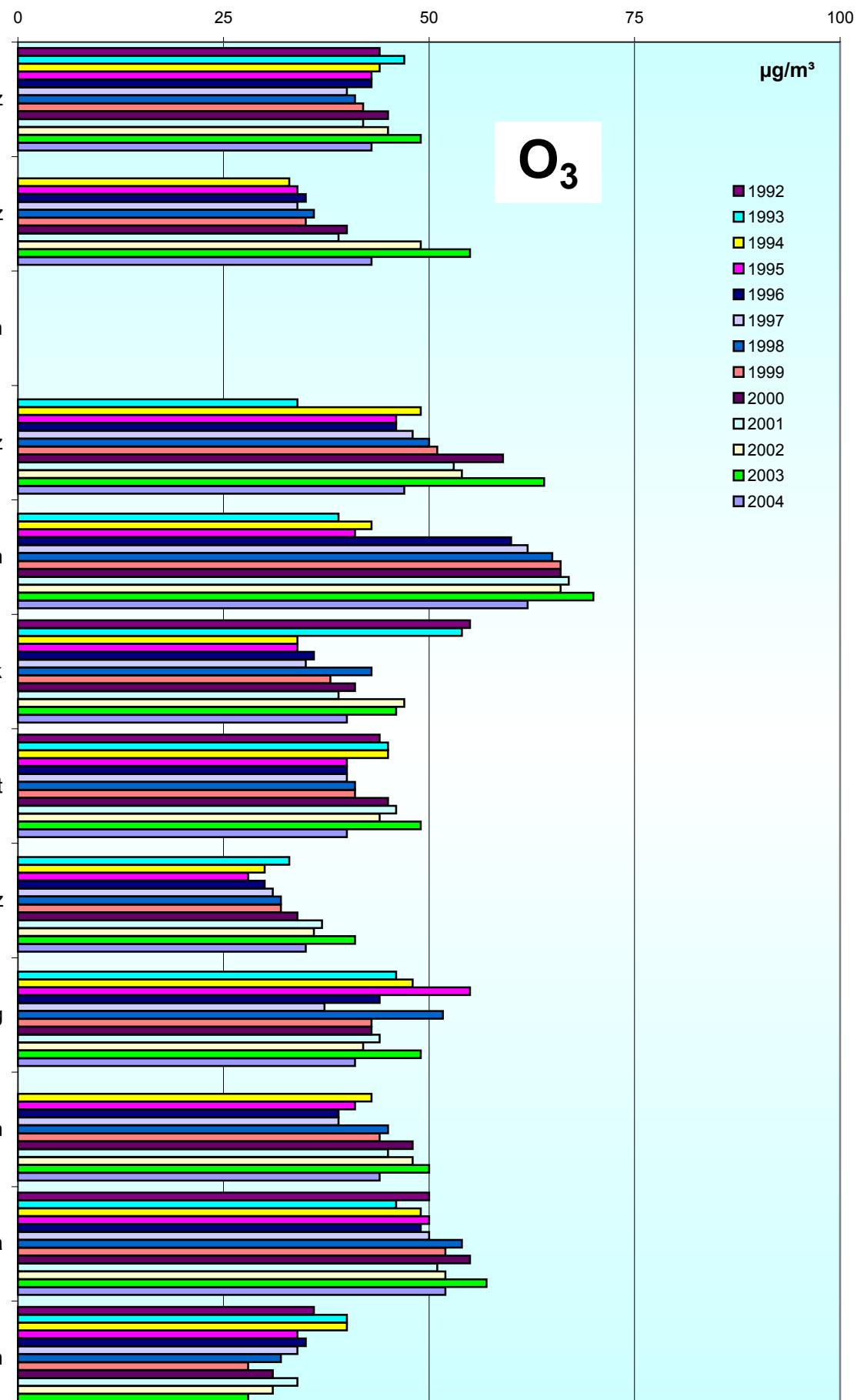
105



Comparison of The Air Quality 1992 - 2004

Annual mean values

(mean of all monitoring stations)

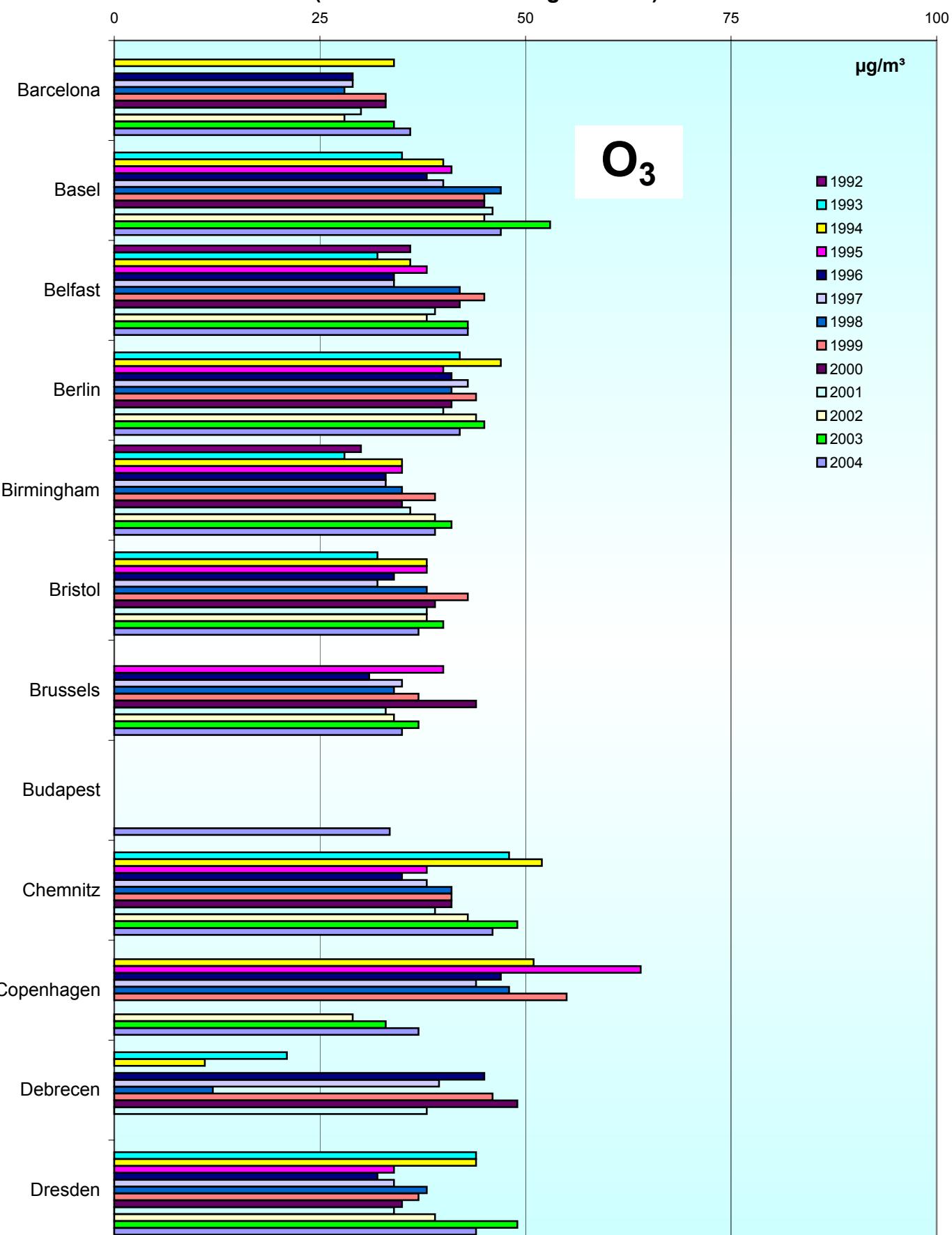


Comparison of The Air Quality 1992 - 2004

107

Annual mean values

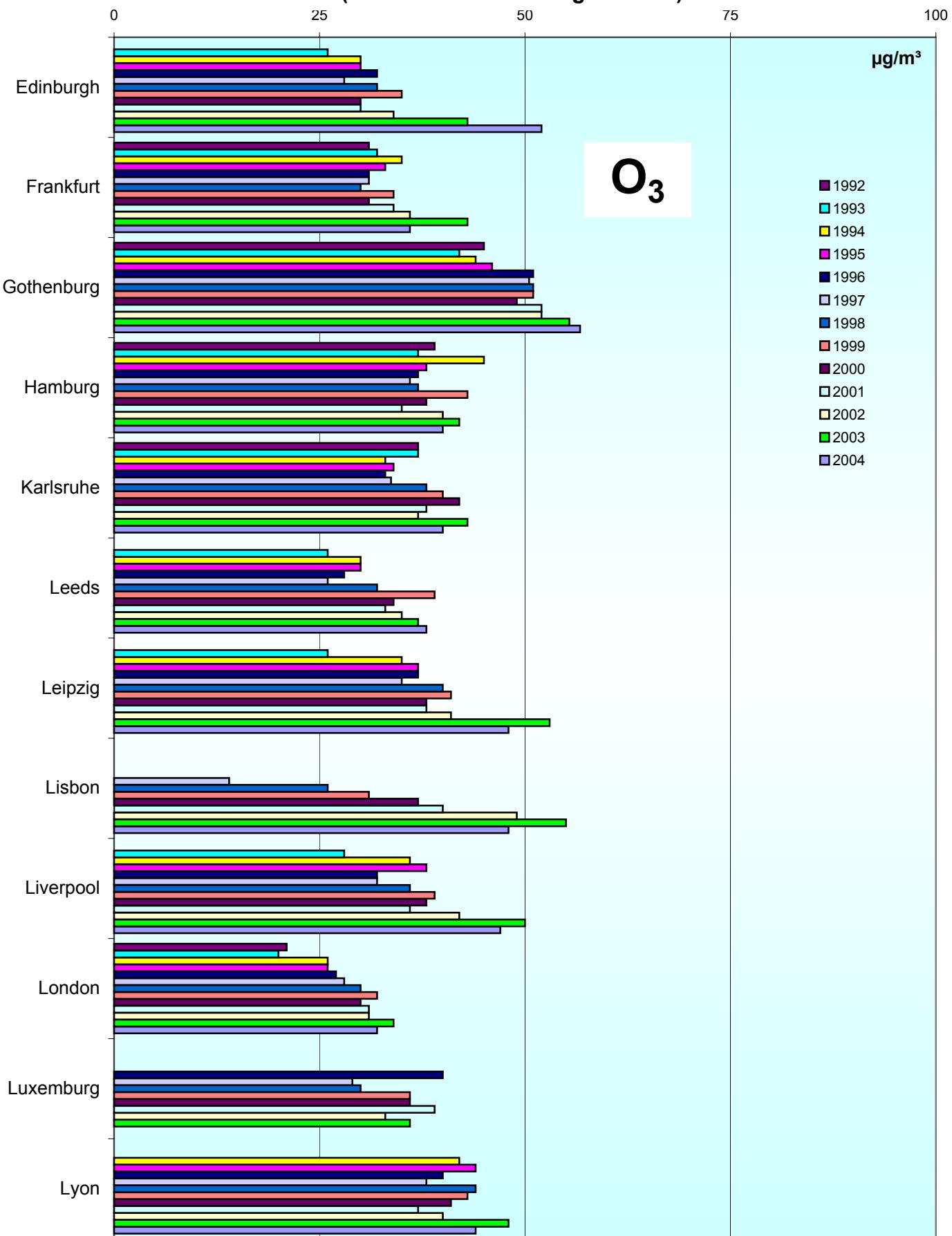
(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004

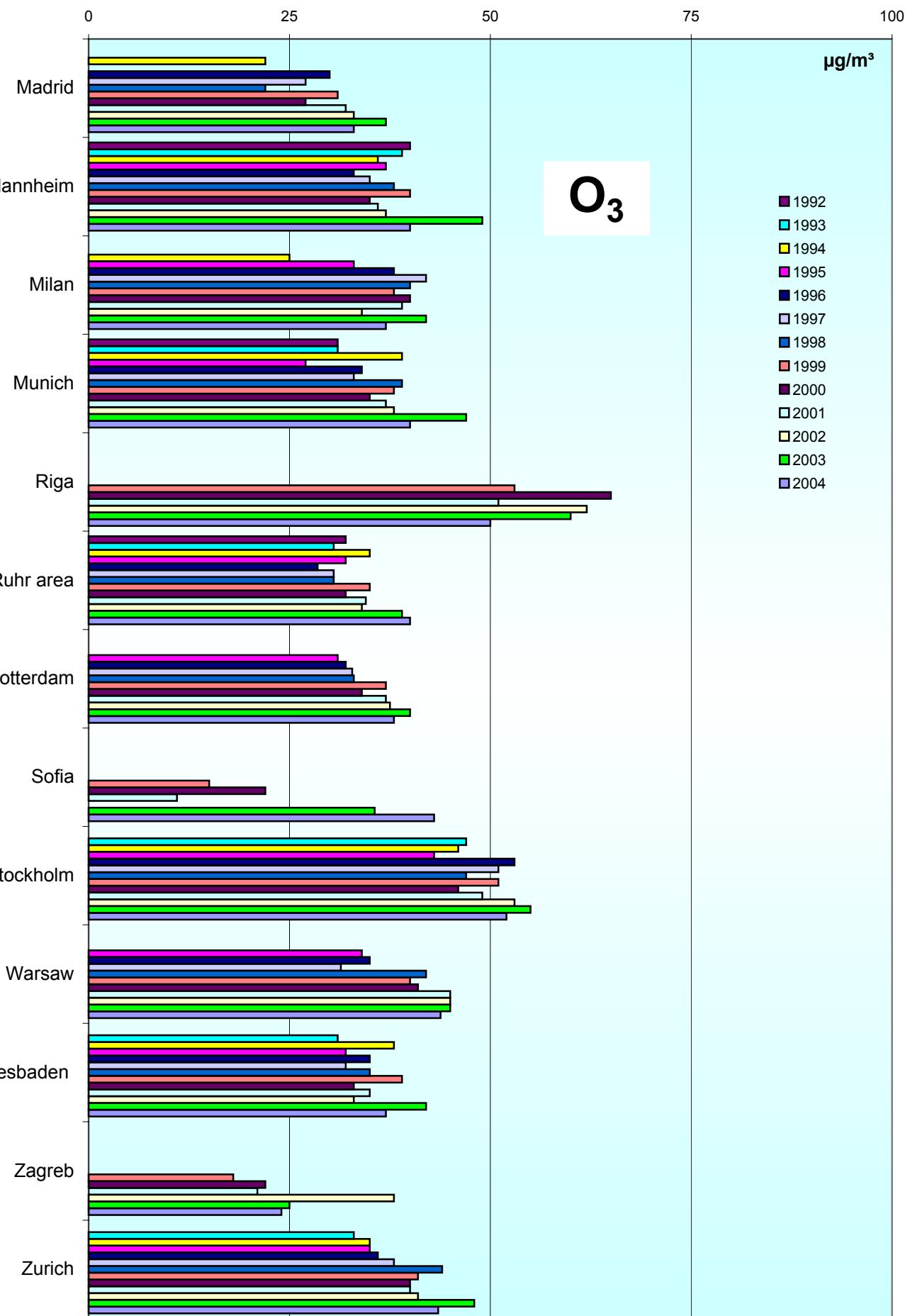
Annual mean values

(mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2004
Annual mean values (mean of all monitoring stations)

109



Jahresvergleich

1992-2004

max. Tagesmittelwert

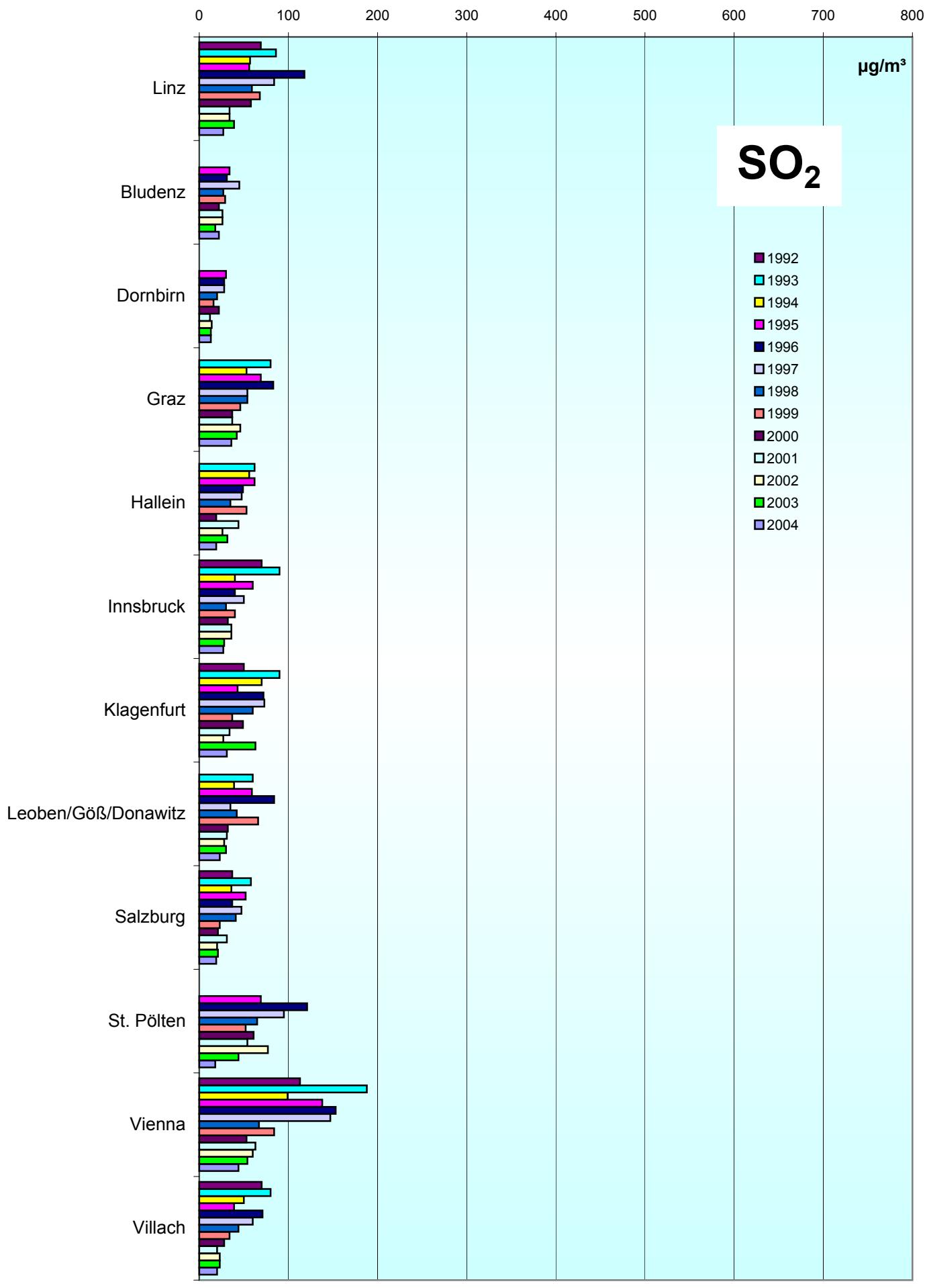
Comparison of The Air Quality Over The Years

1992-2004

Max. Daily Mean Values

Comparison of The Air Quality 1992 - 2004

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

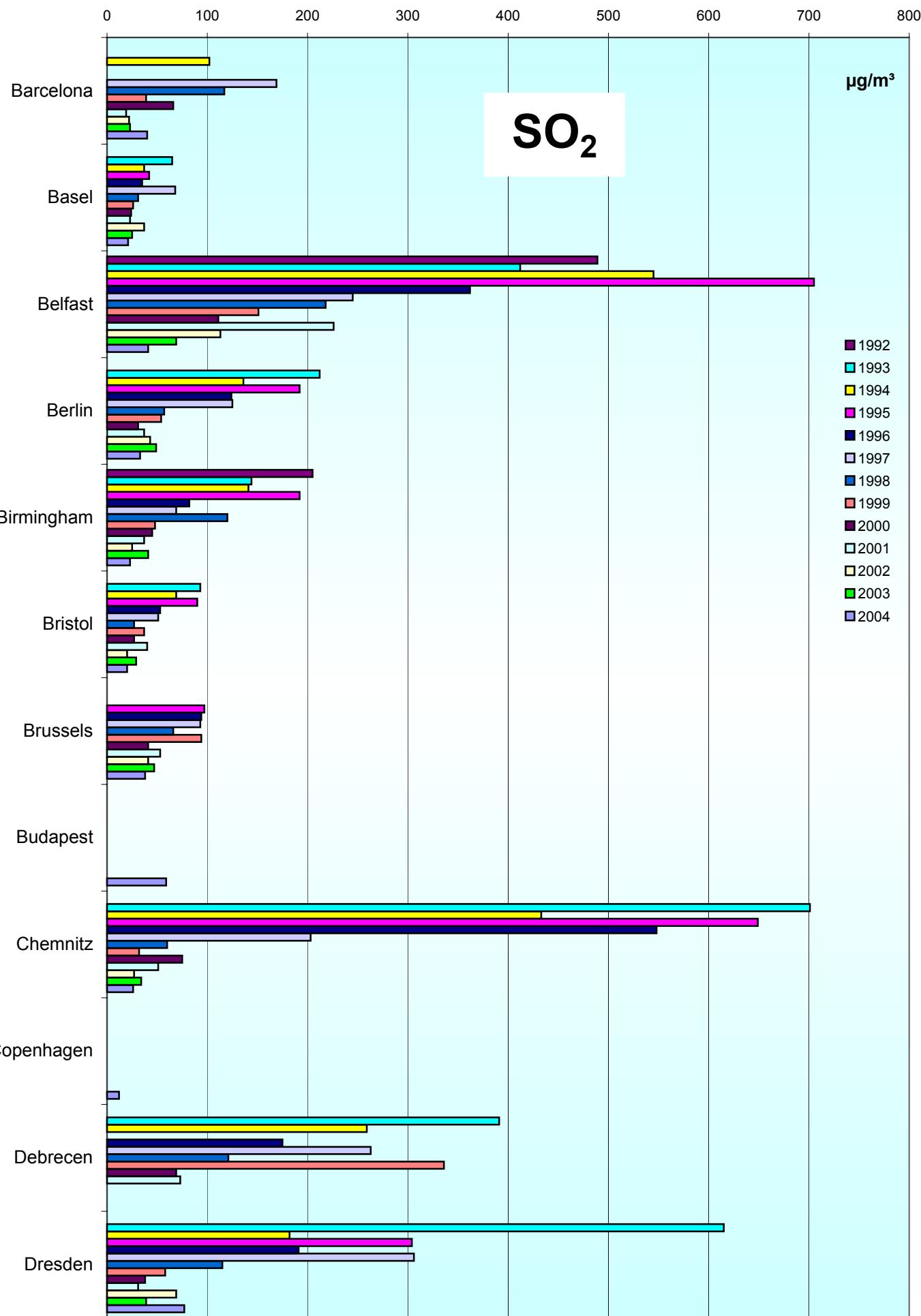


Comparison of The Air Quality 1992 - 2004

113

max. daily mean values

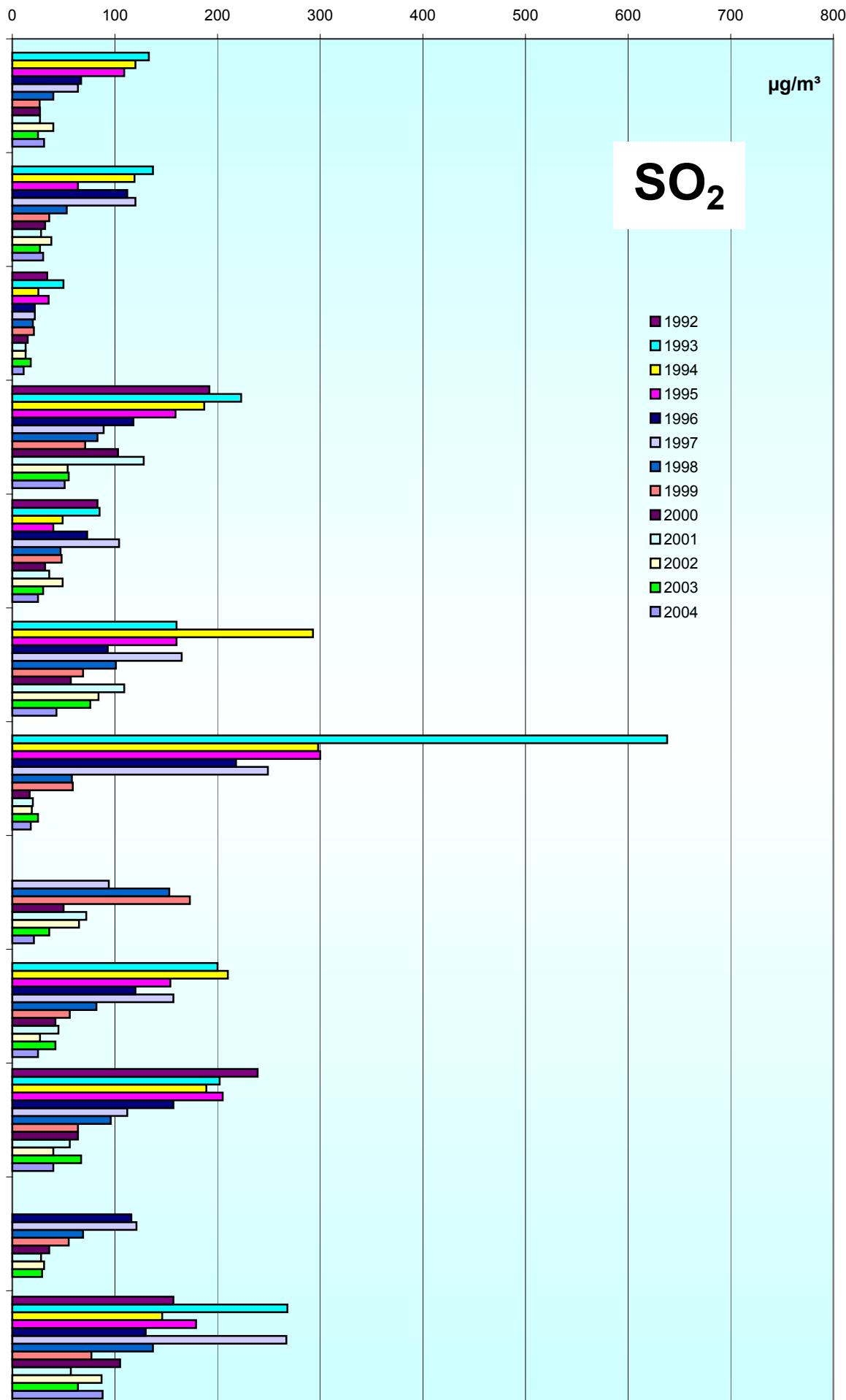
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

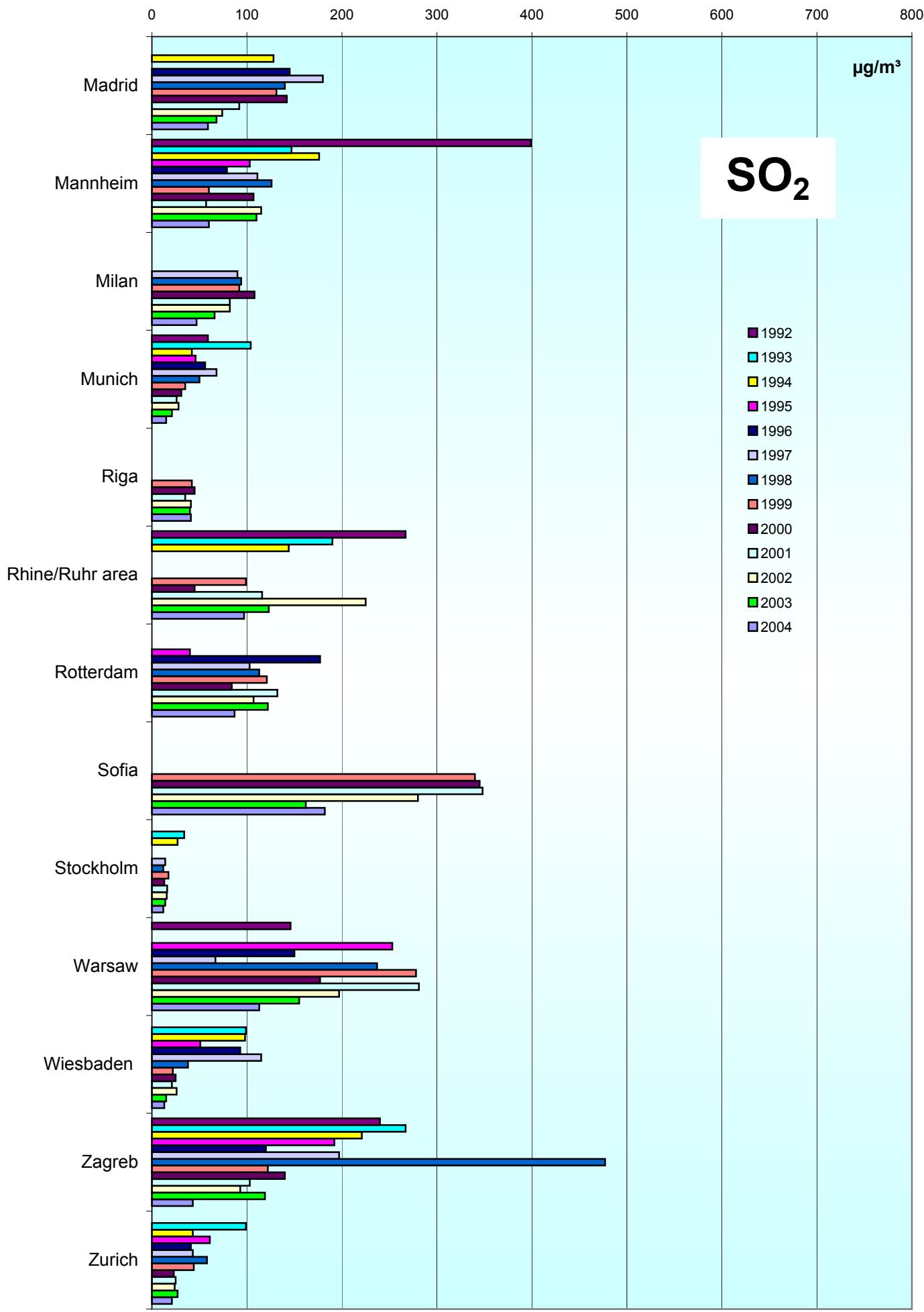
max. daily mean values

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. daily mean values (peak-stressed monitoring station)

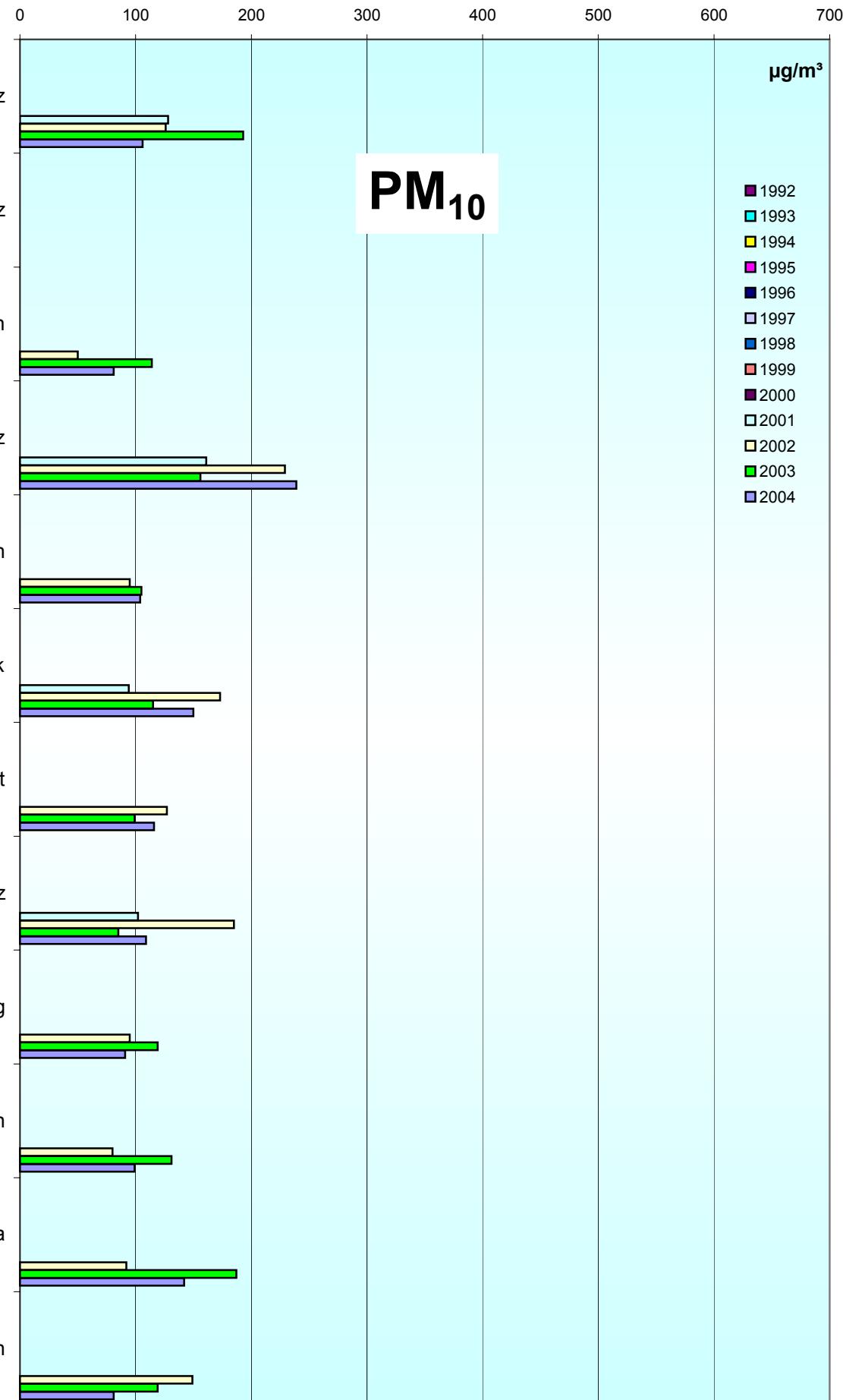
115



Comparison of The Air Quality 1992 - 2004

max. daily mean values

(peak-stressed monitoring station)

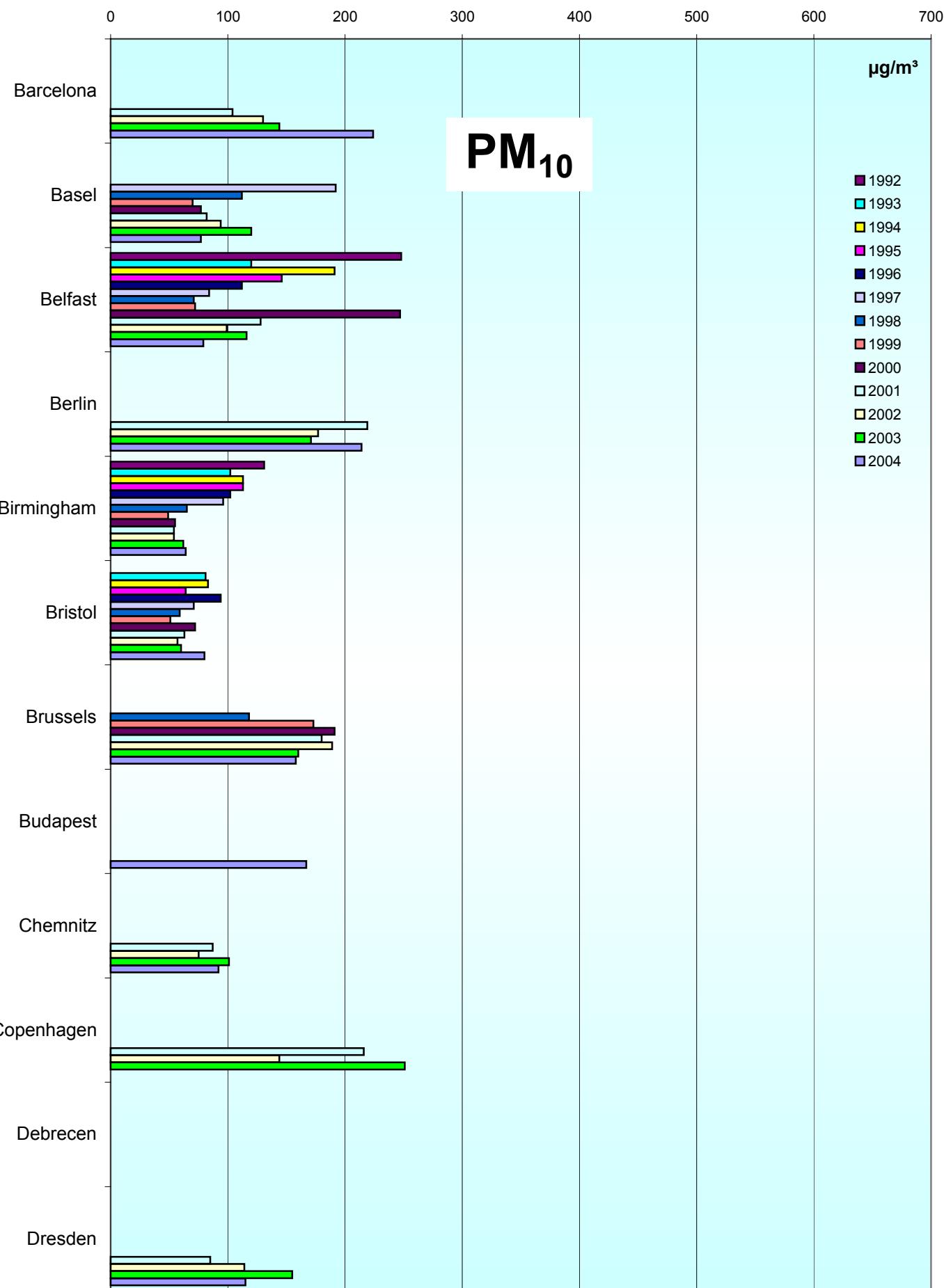


Comparison of The Air Quality 1992 - 2004

117

max. daily mean values

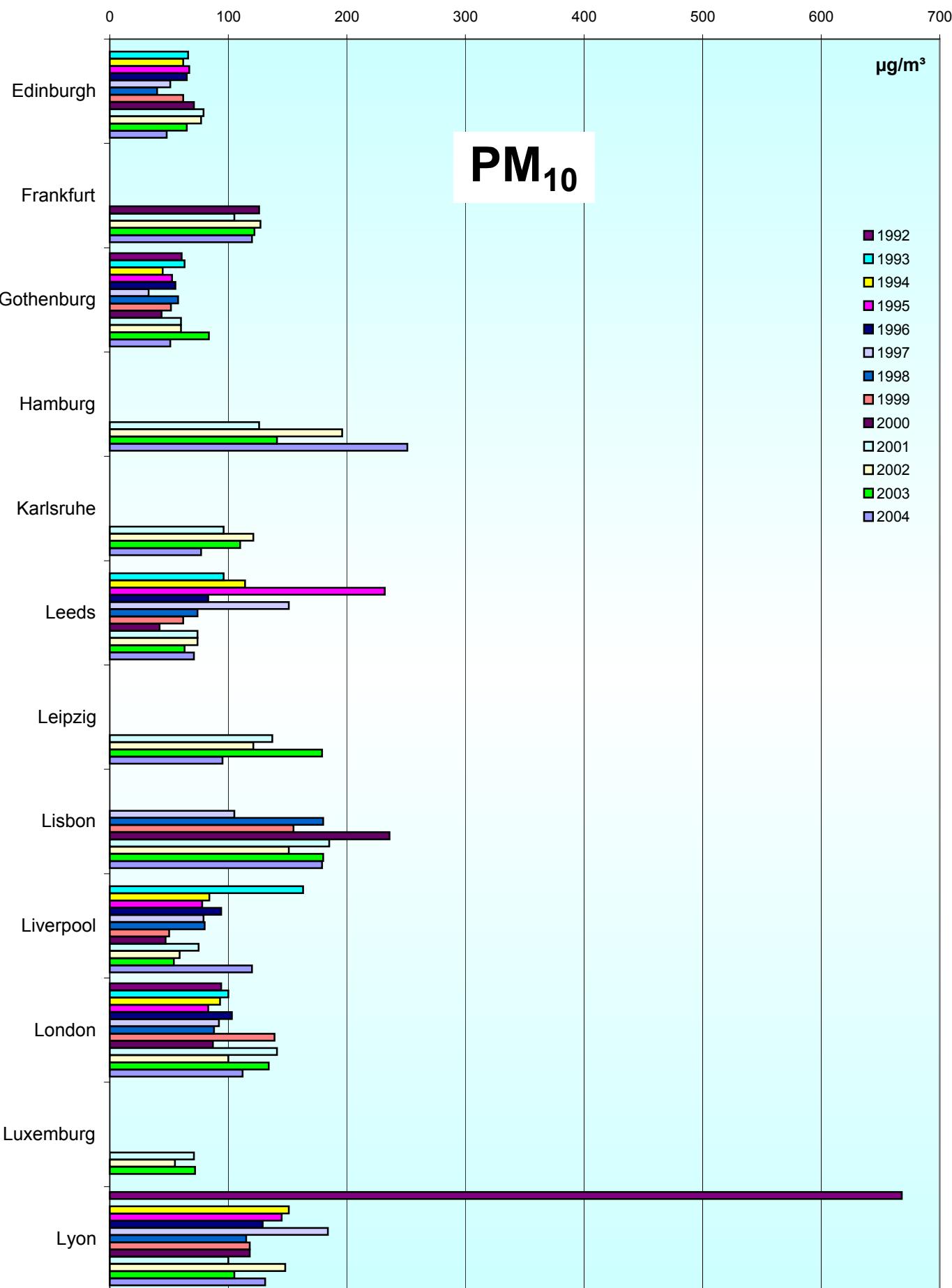
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

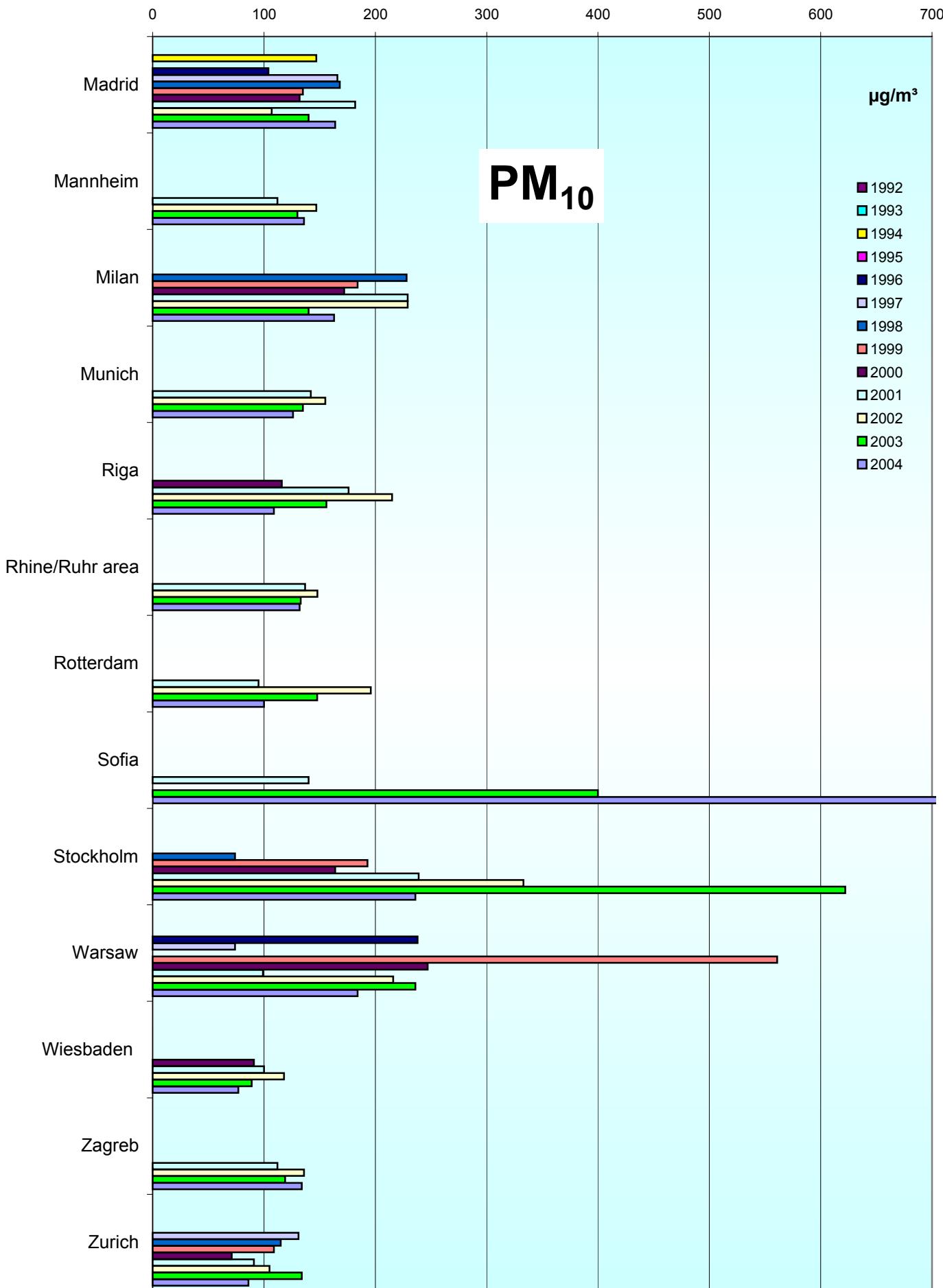
max. daily mean values

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. daily mean values (peak-stressed monitoring station)

119

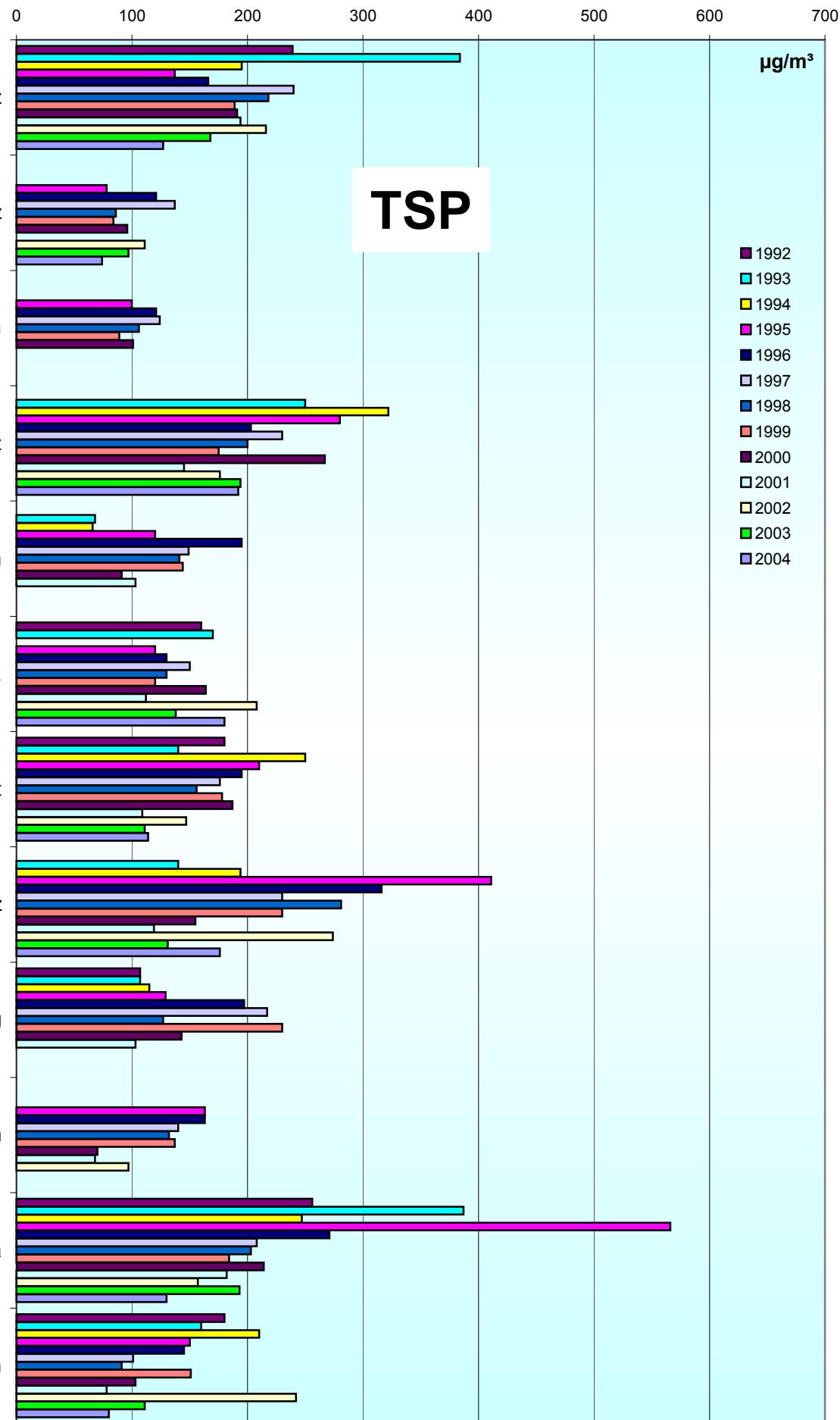


Comparison of The Air Quality 1992 - 2004

120

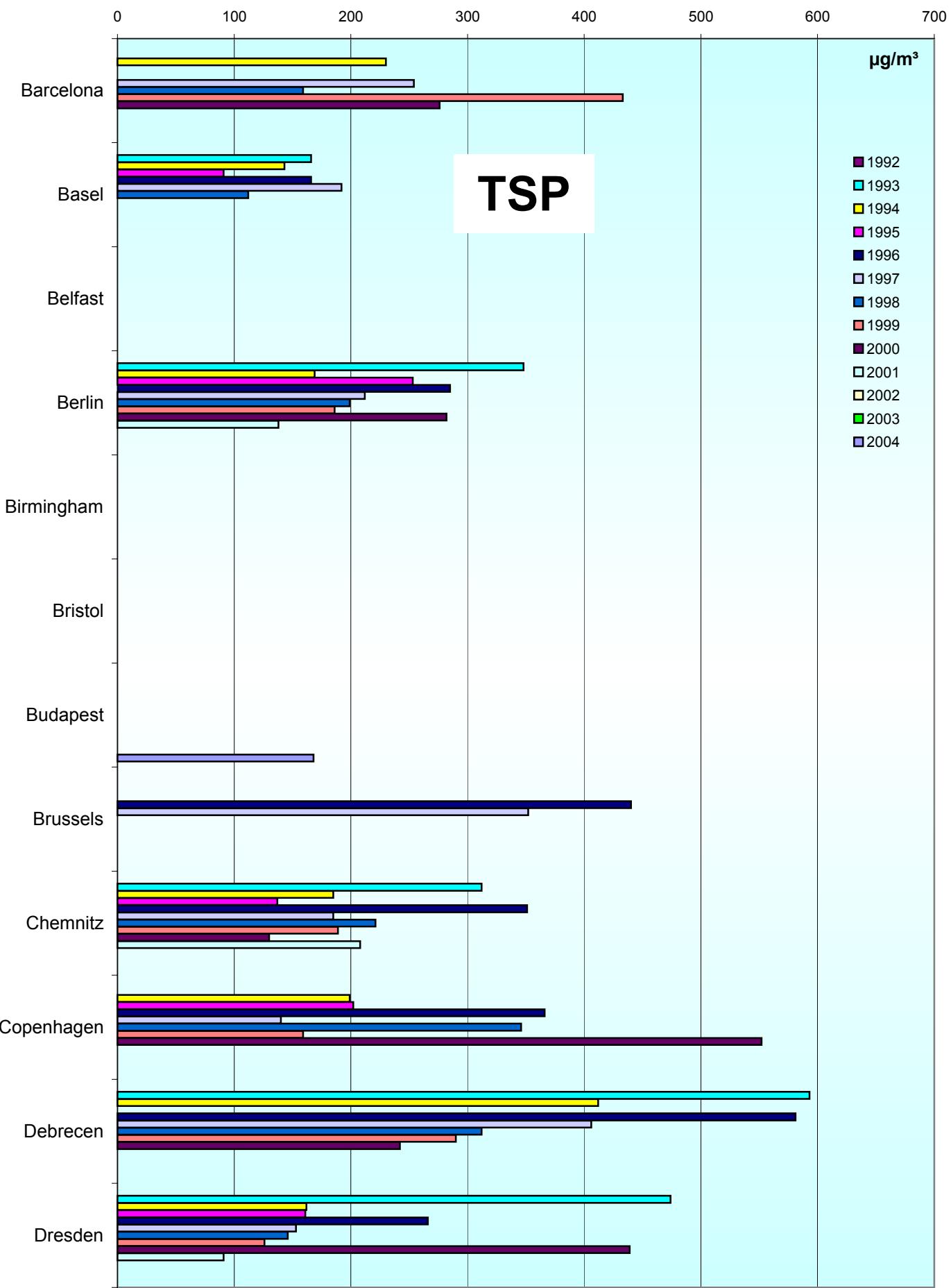
max. daily mean values

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. daily mean values
(peak-stressed monitoring station)

121

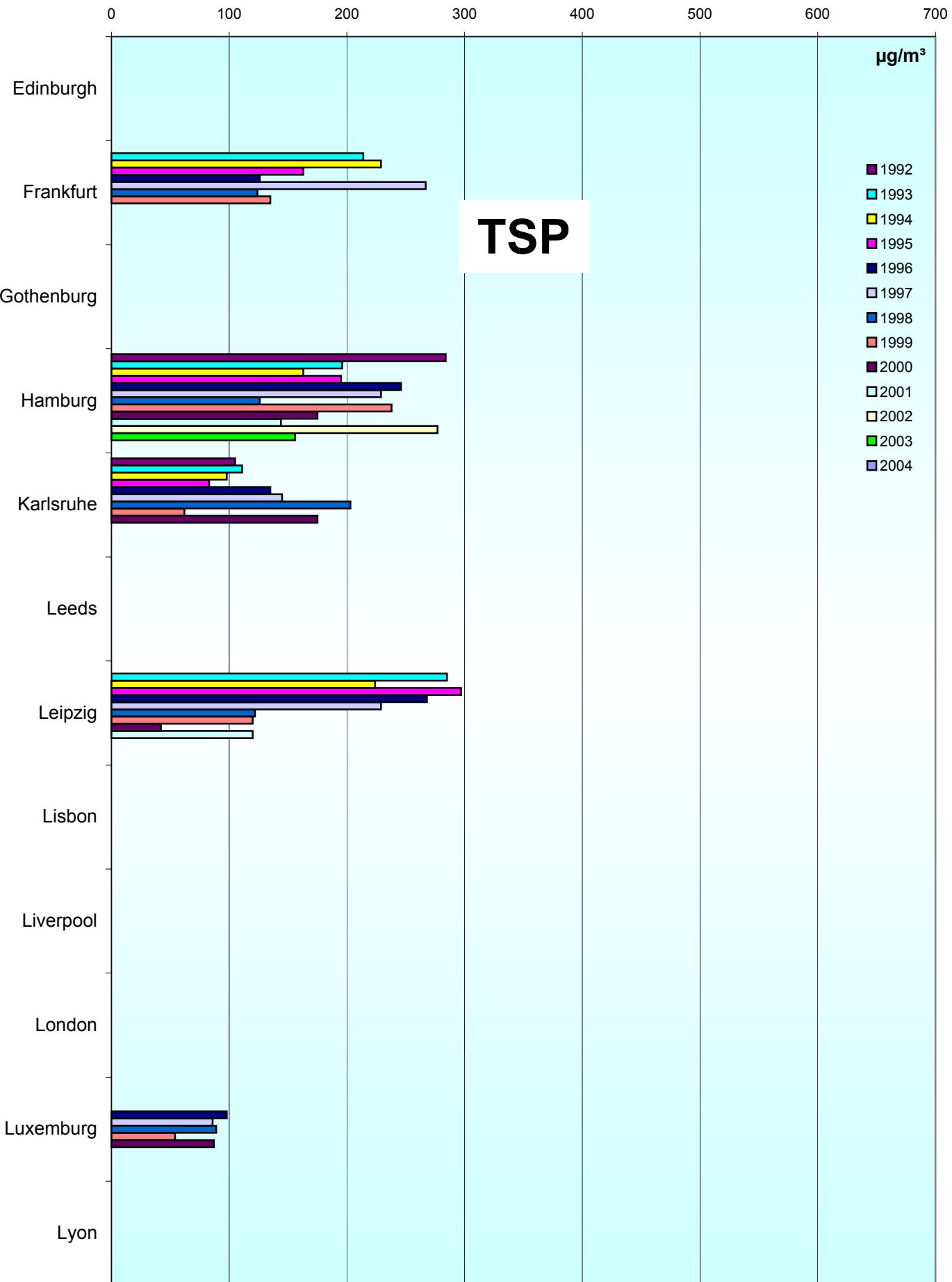


Comparison of The Air Quality 1992 - 2004

122

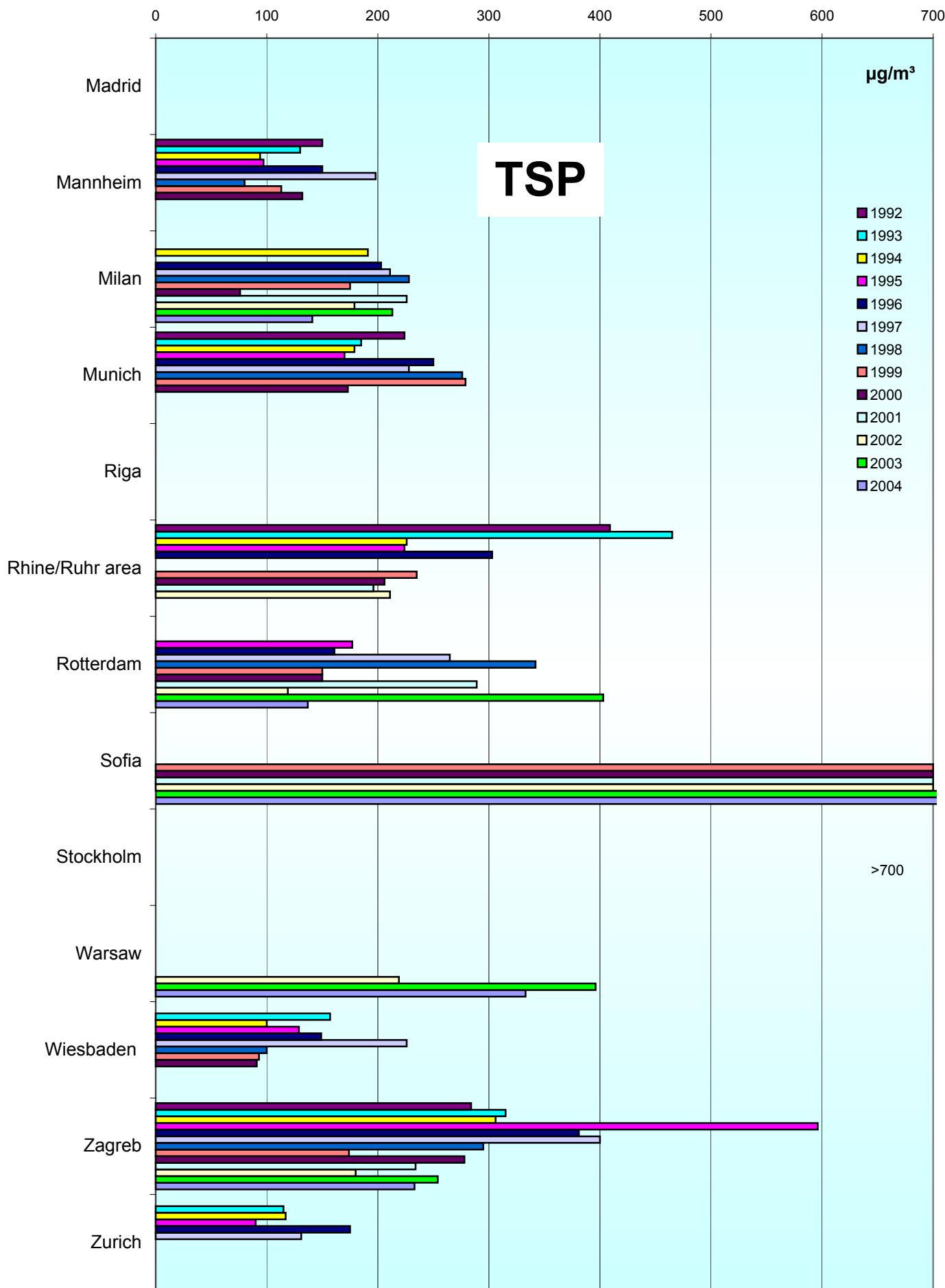
max. daily mean values

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. daily mean values (peak-stressed monitoring station)

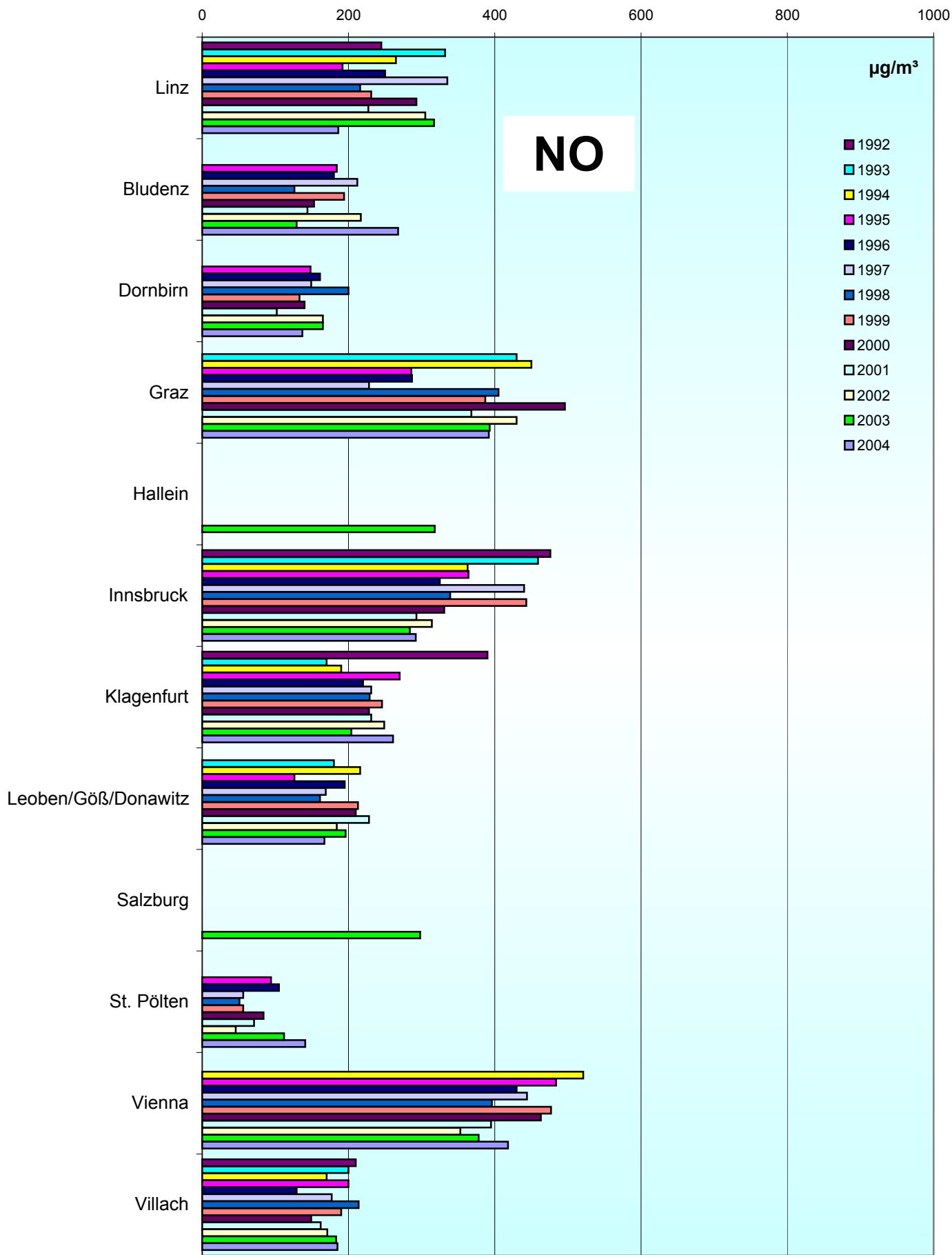
123



Comparison of The Air Quality 1992 - 2004

max. daily mean values

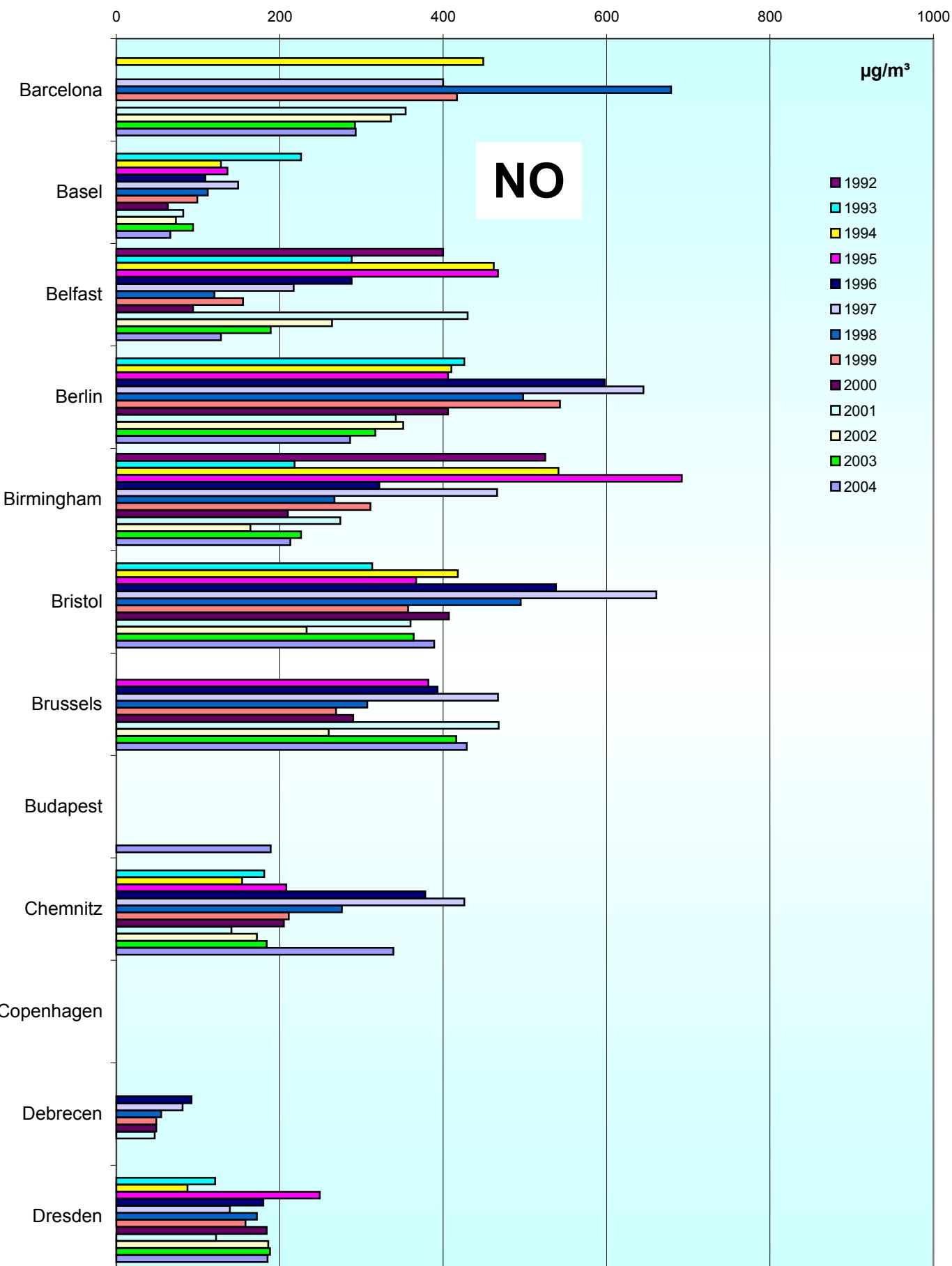
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

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

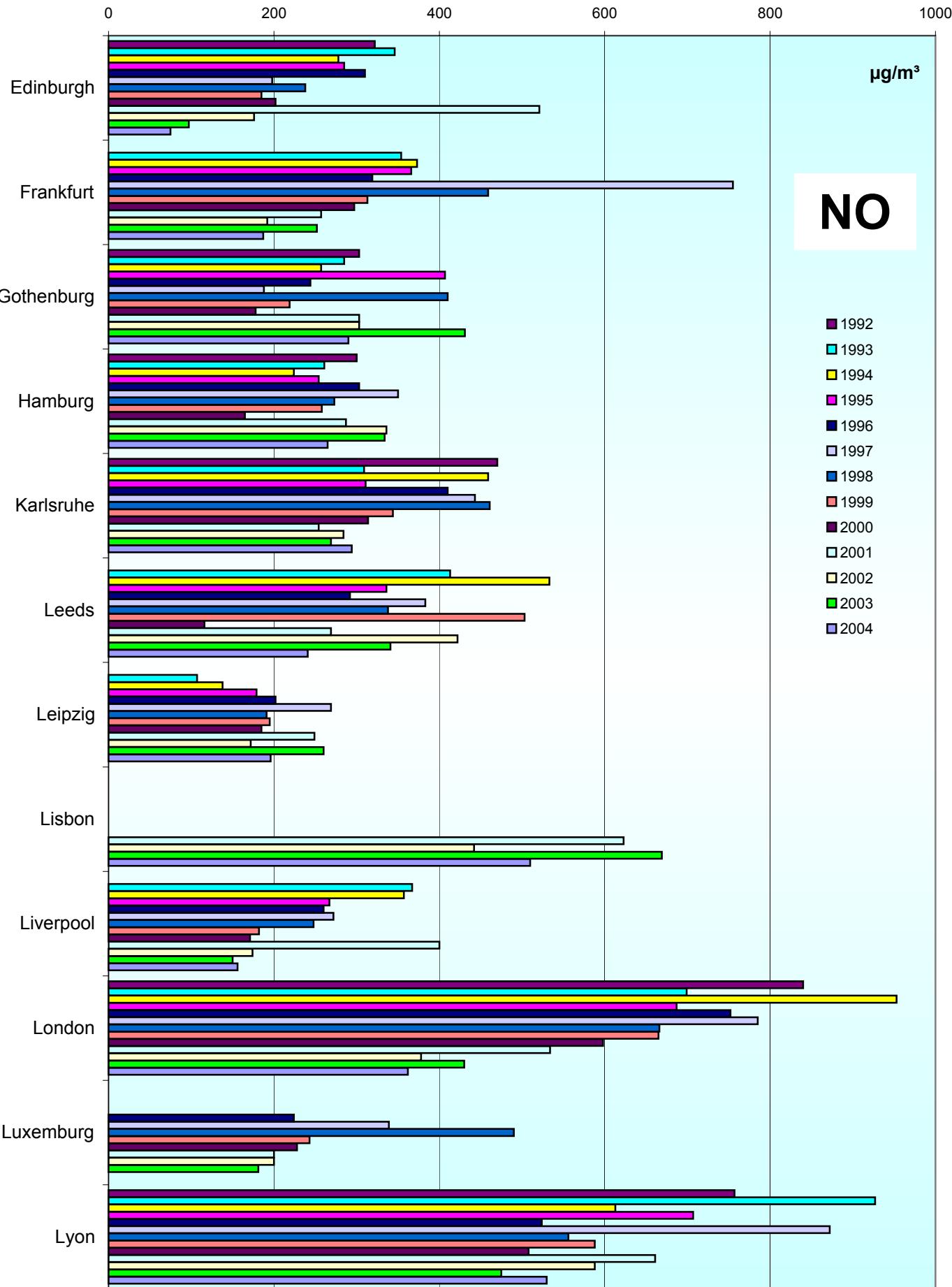
125



Comparison of The Air Quality 1992 - 2004

max. daily mean values

(peak-stressed monitoring station)

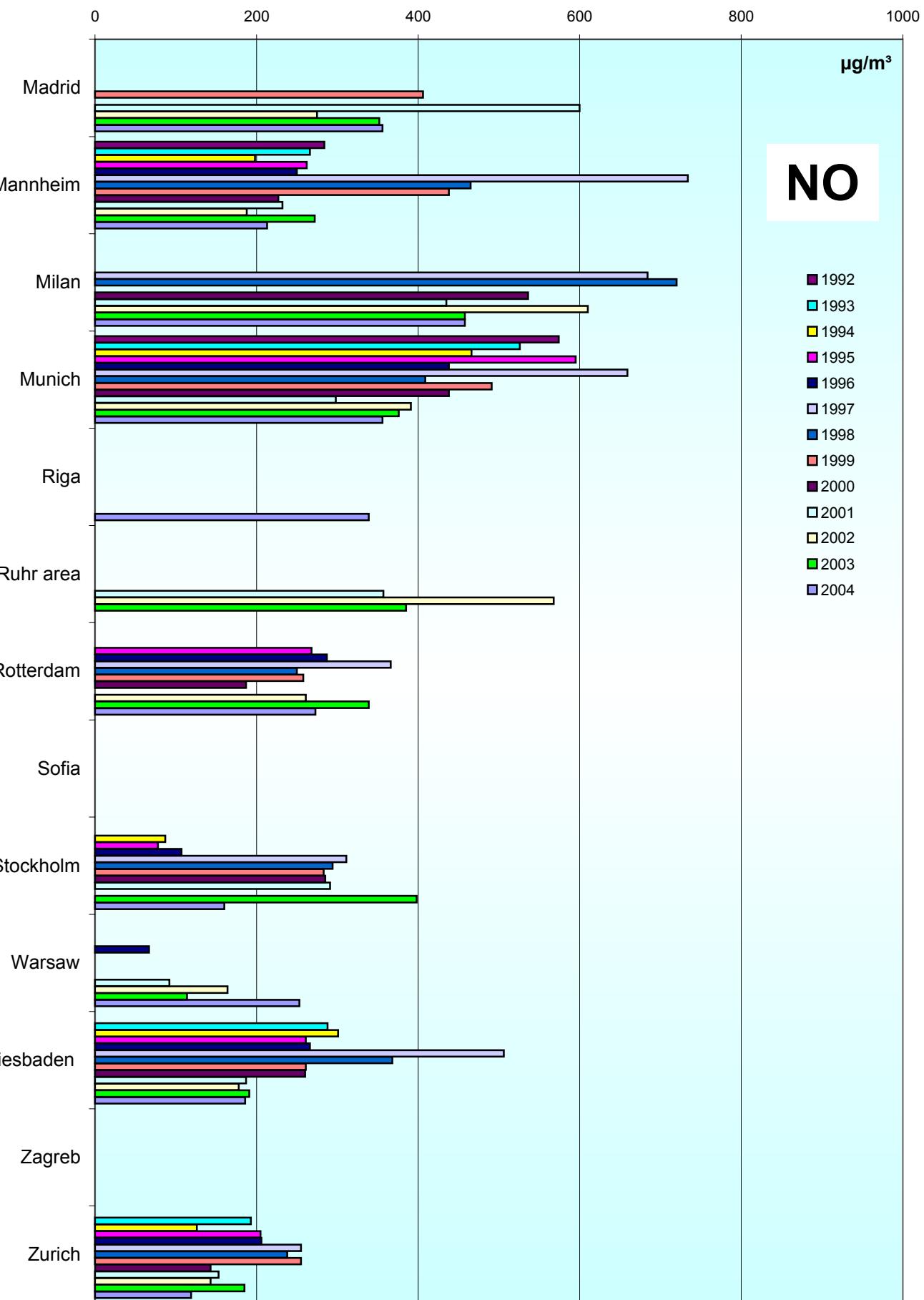


Comparison of The Air Quality 1992 - 2004

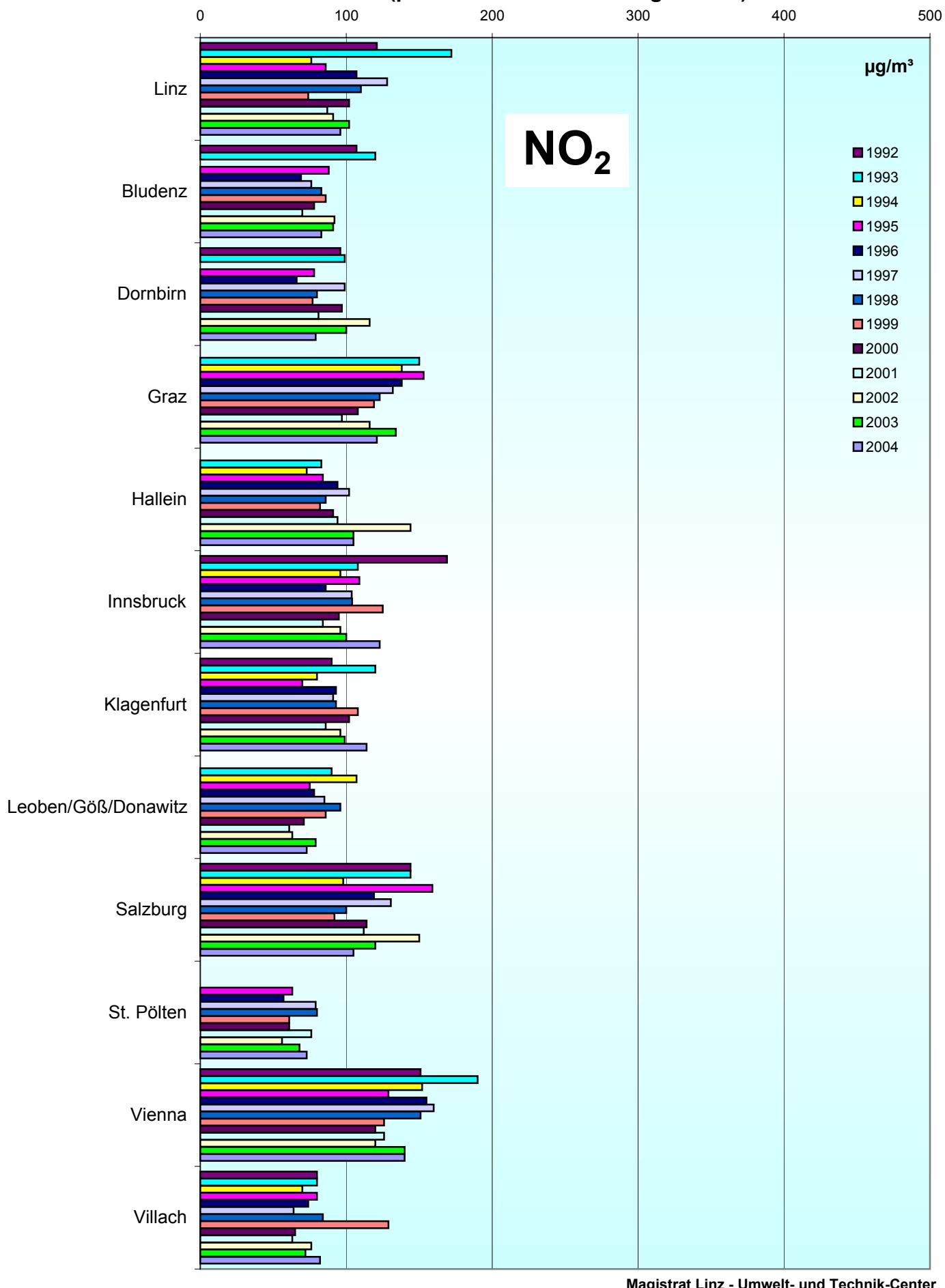
127

max. daily mean values

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. daily mean values
(peak-stressed monitoring station)

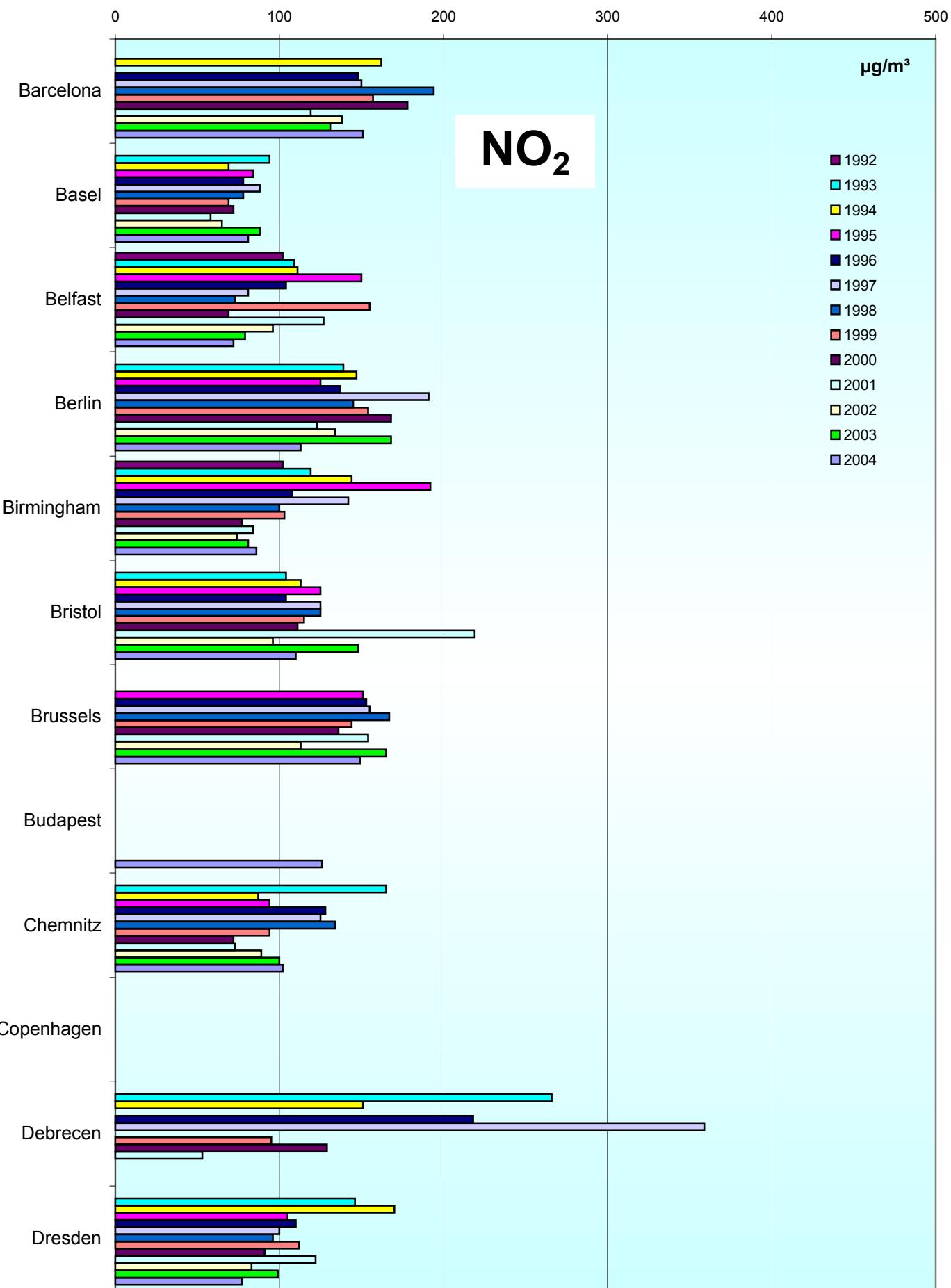


Comparison of The Air Quality 1992 - 2004

129

max. daily mean values

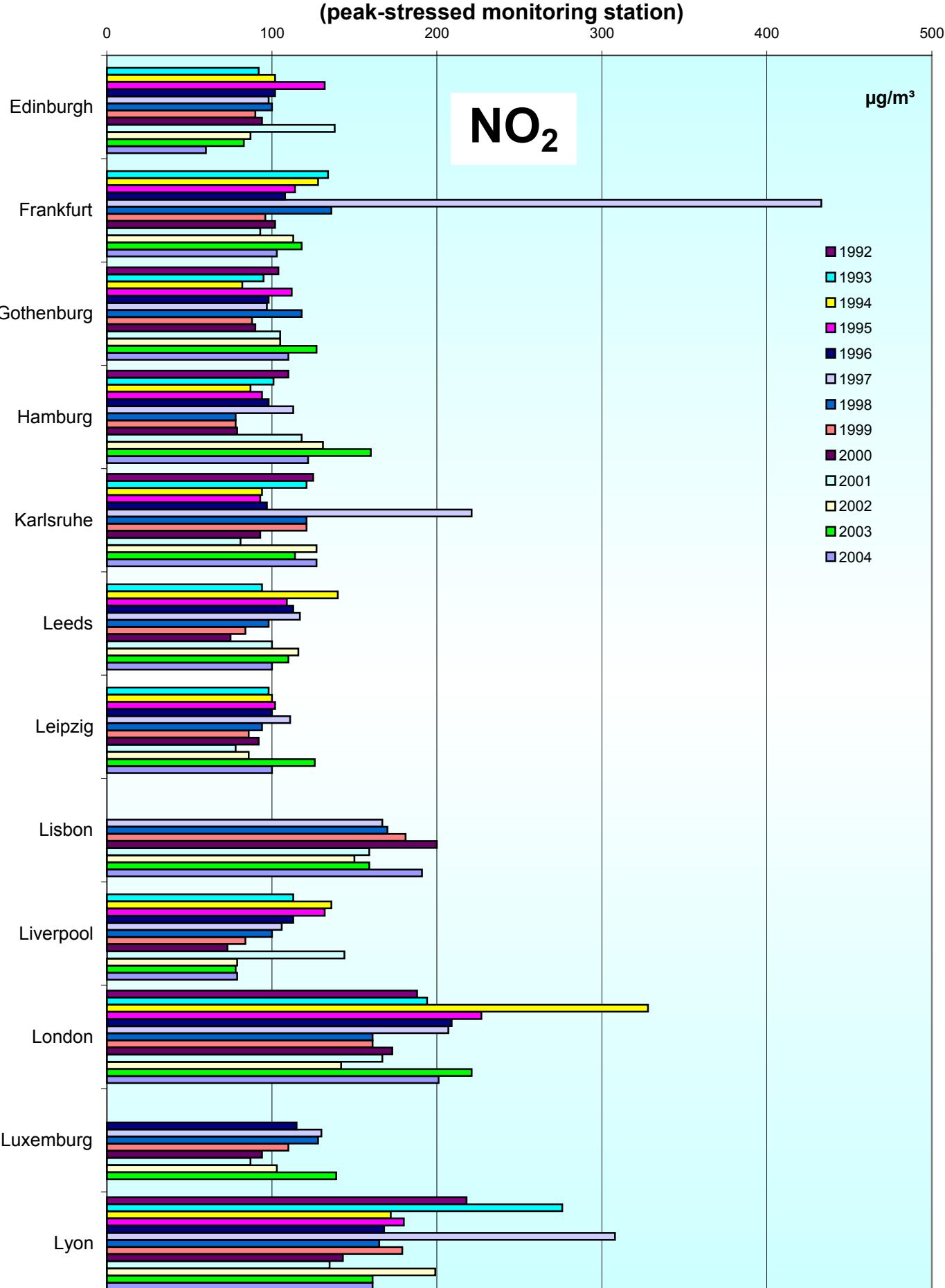
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. daily mean values

(peak-stressed monitoring station)

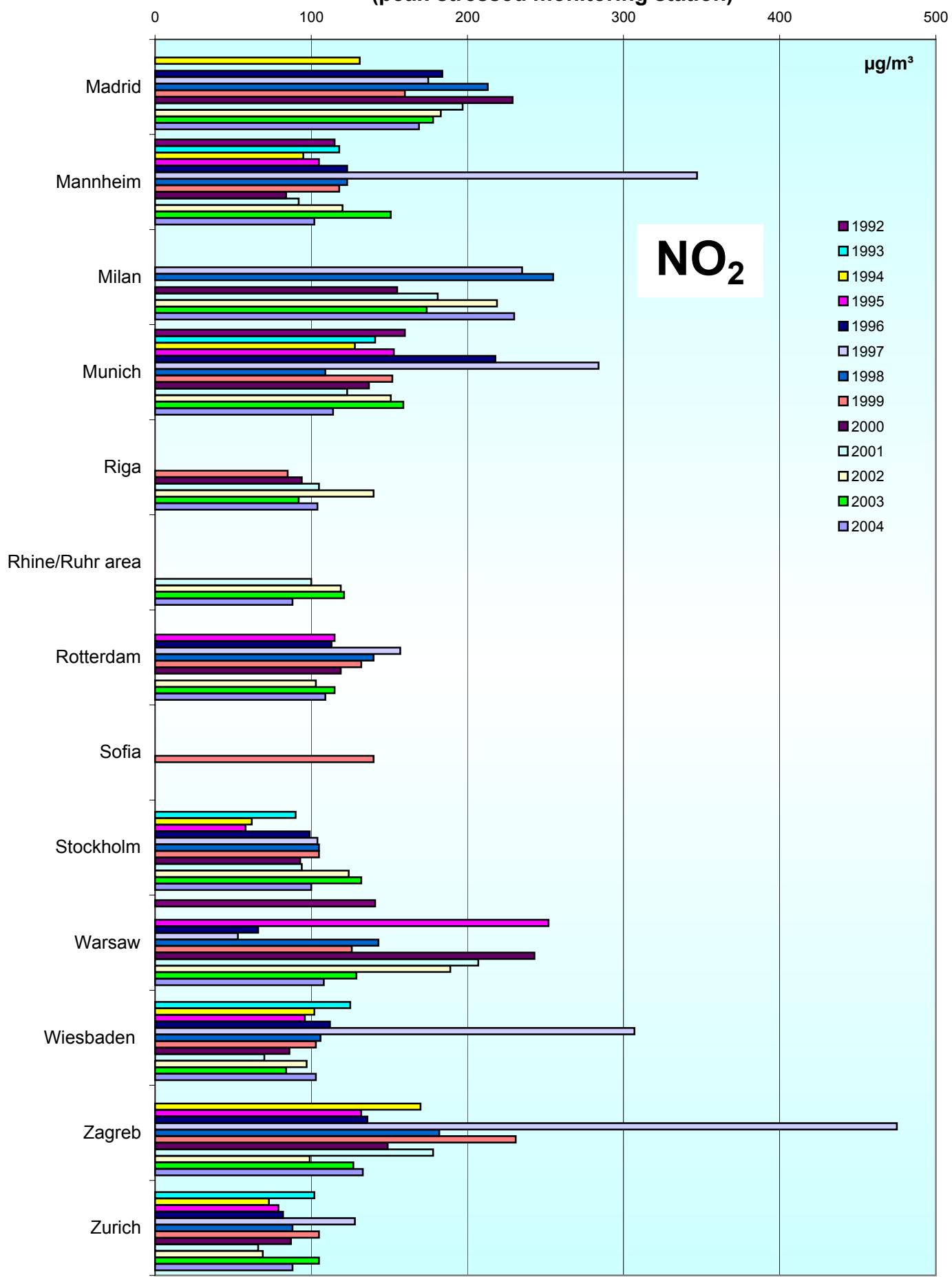


Comparison of The Air Quality 1992 - 2004

131

max. daily mean values

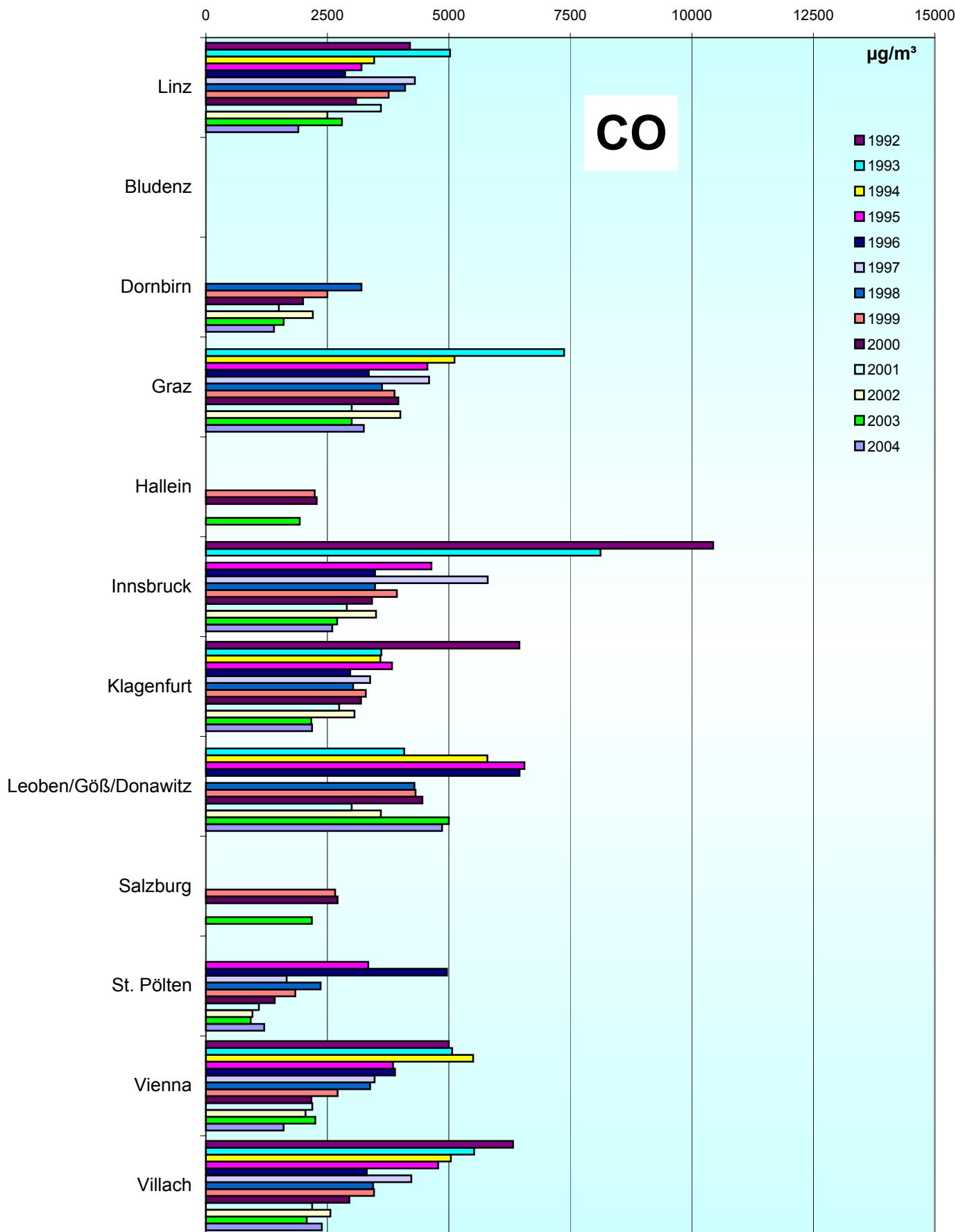
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. daily mean values

(peak-stressed monitoring station)

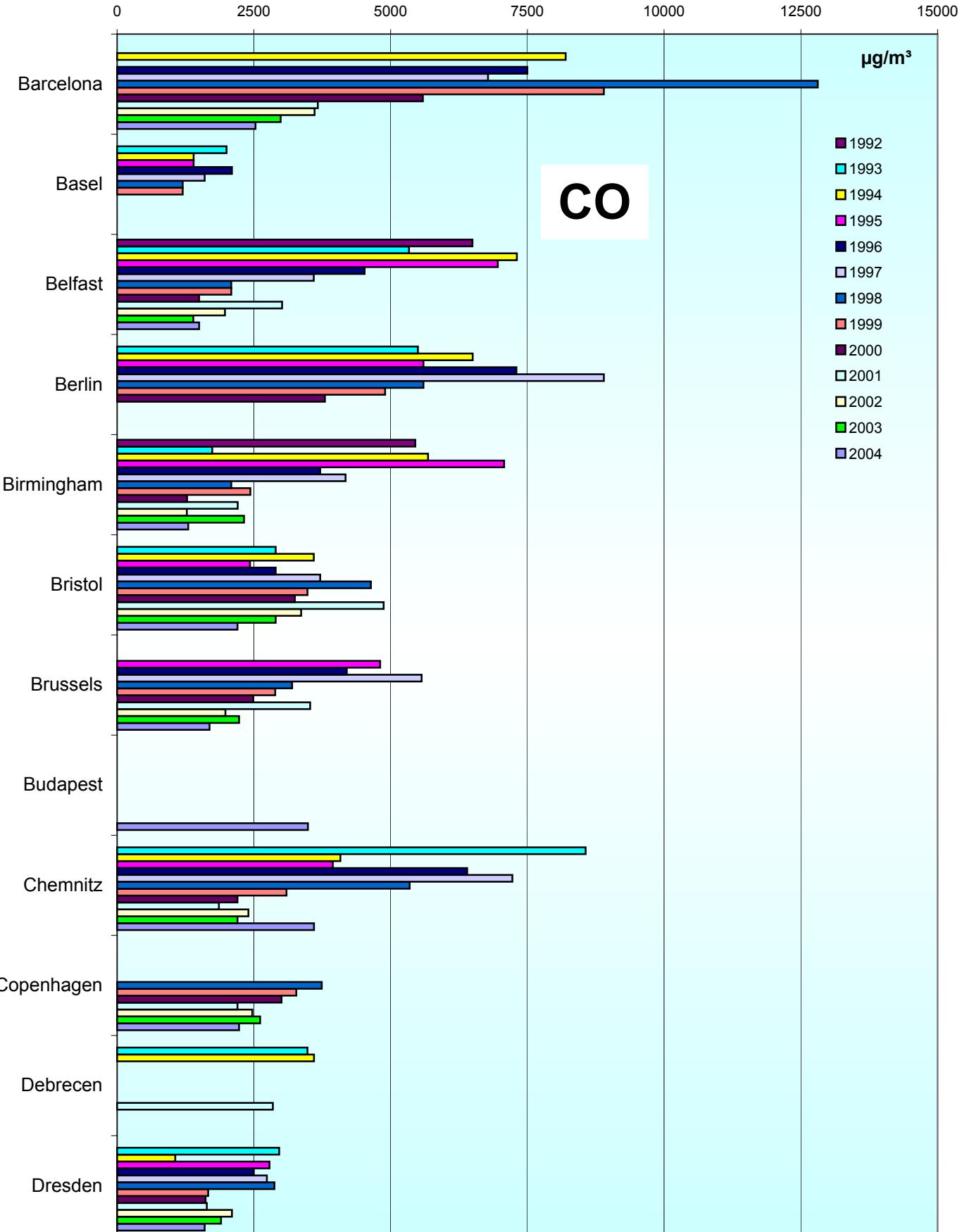


Comparison of The Air Quality 1992 - 2004

133

max. daily mean values

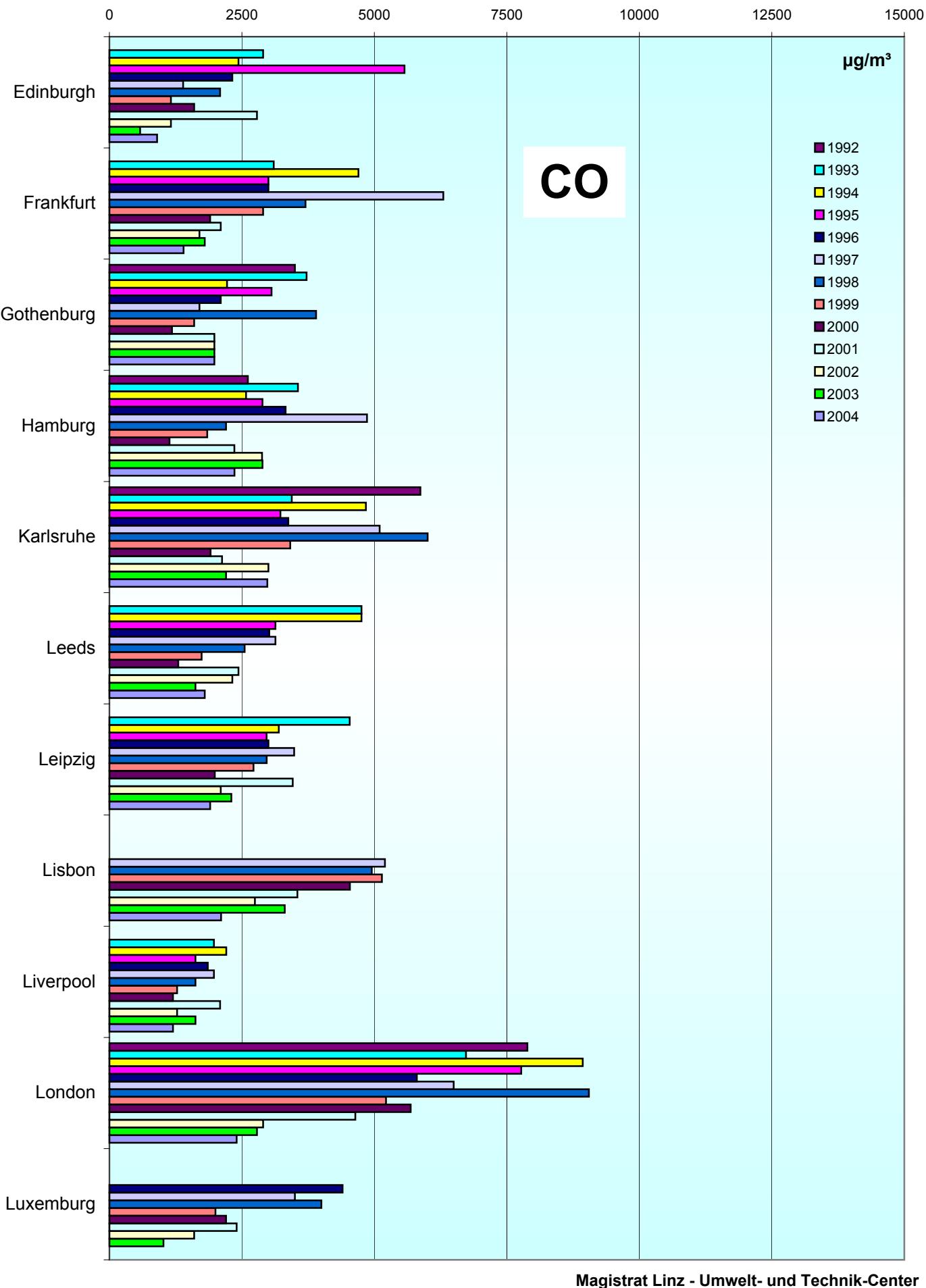
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. daily mean values

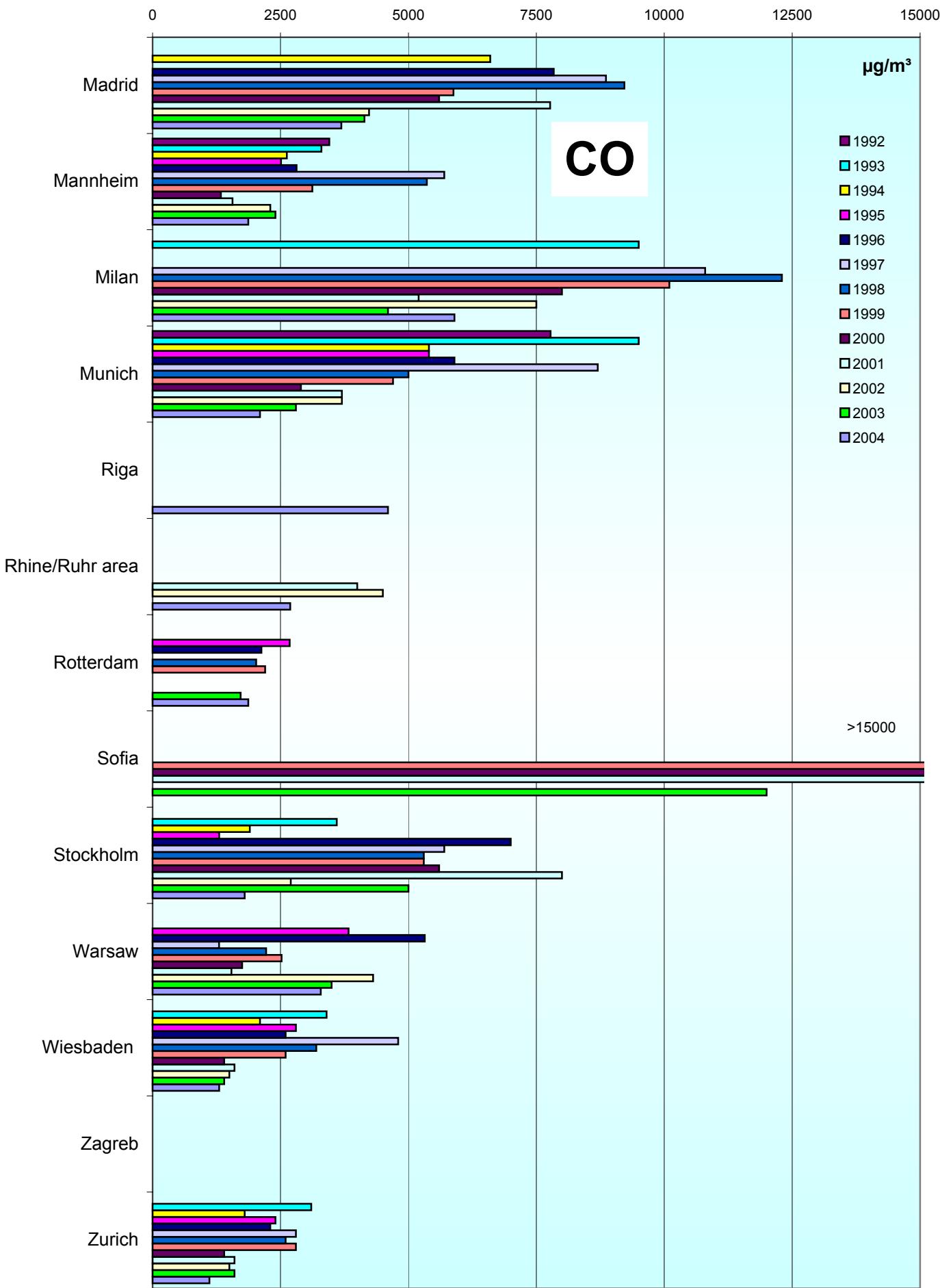
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

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

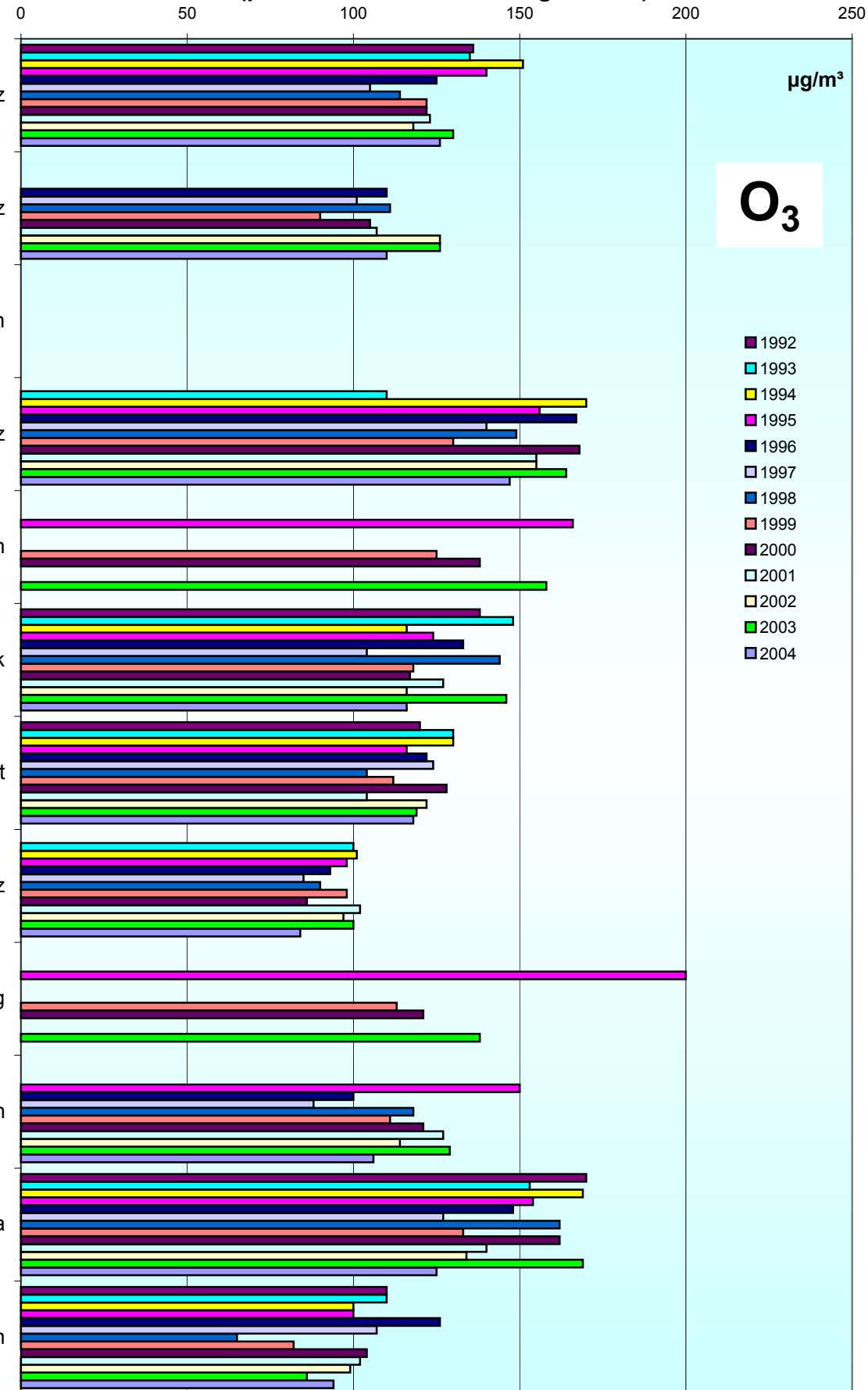
135



Comparison of The Air Quality 1992 - 2004

max. daily mean values

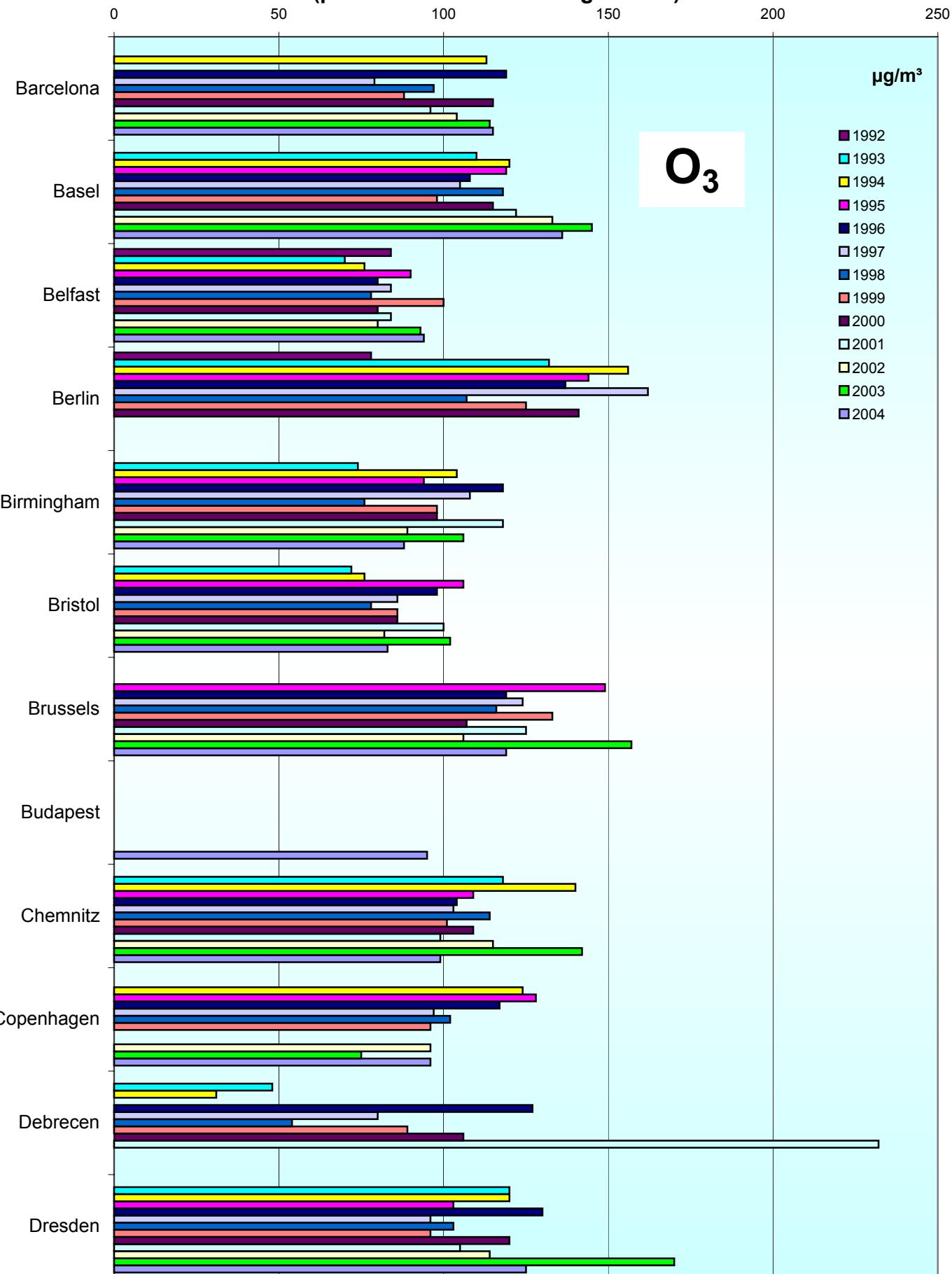
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

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

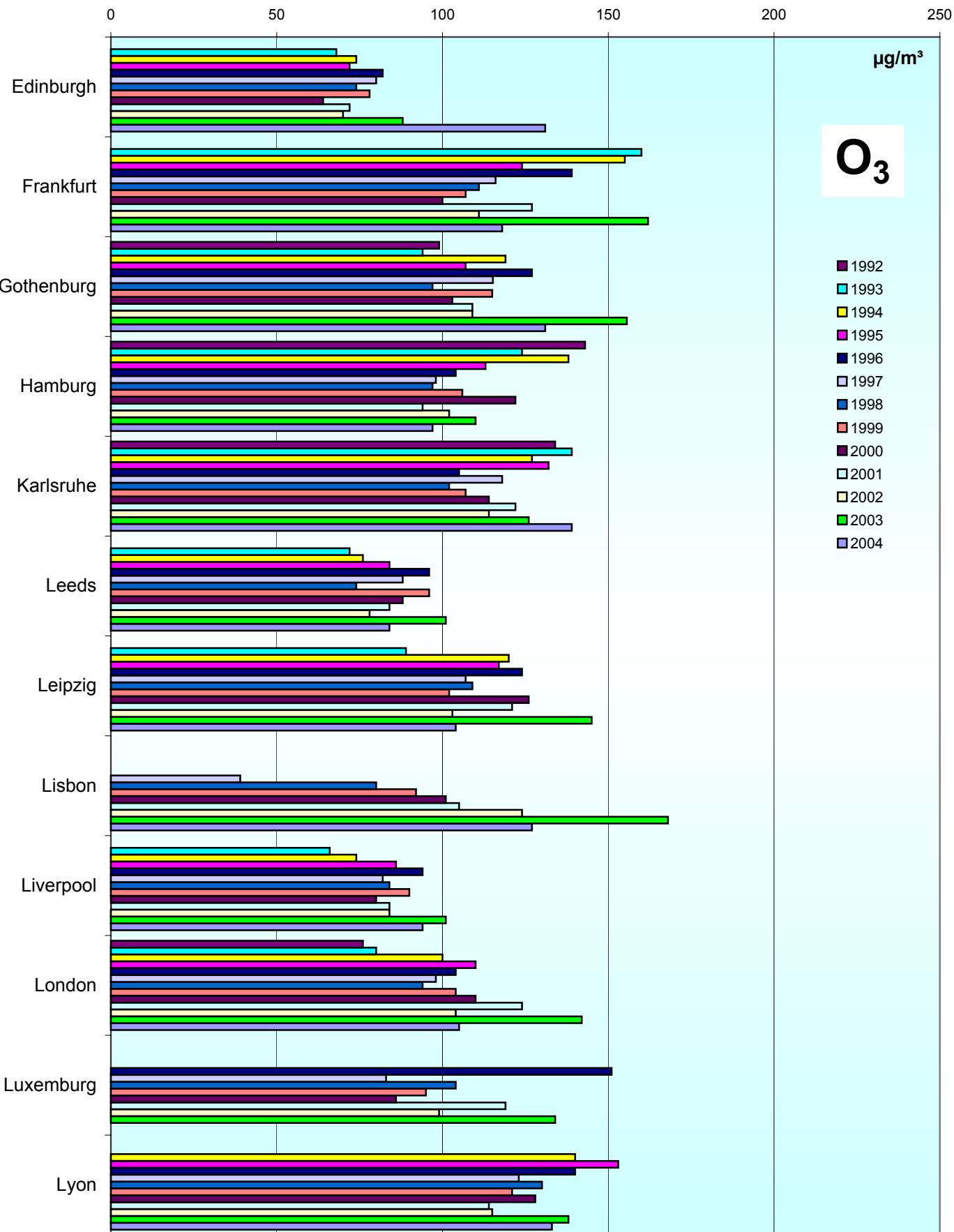
137



Comparison of The Air Quality 1992 - 2004

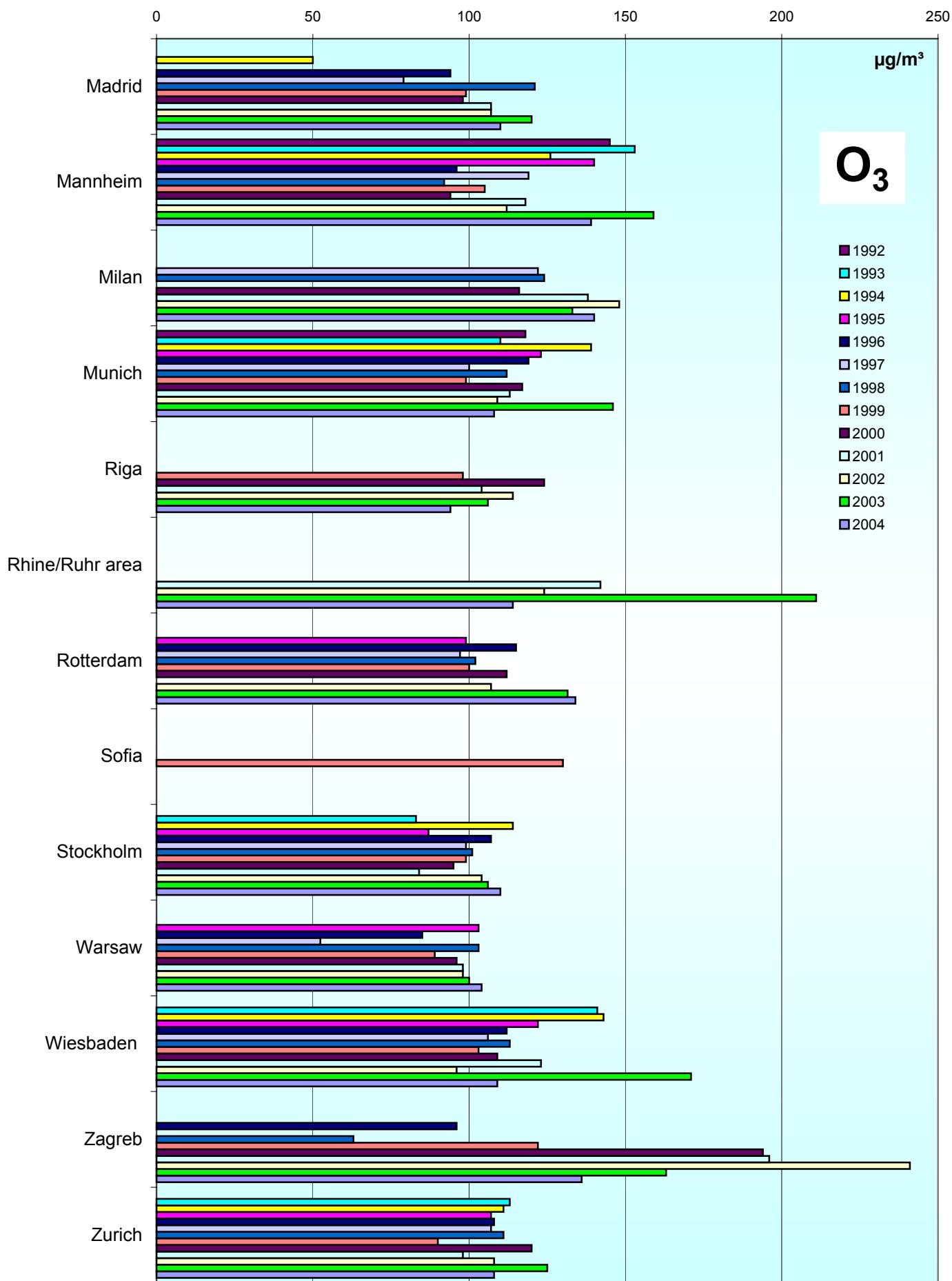
max. daily mean values

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. daily mean values (peak-stressed monitoring station)

139



Jahresvergleich

1992-2004

max. 98-Percentile

Comparison of The Air Quality Over The Years

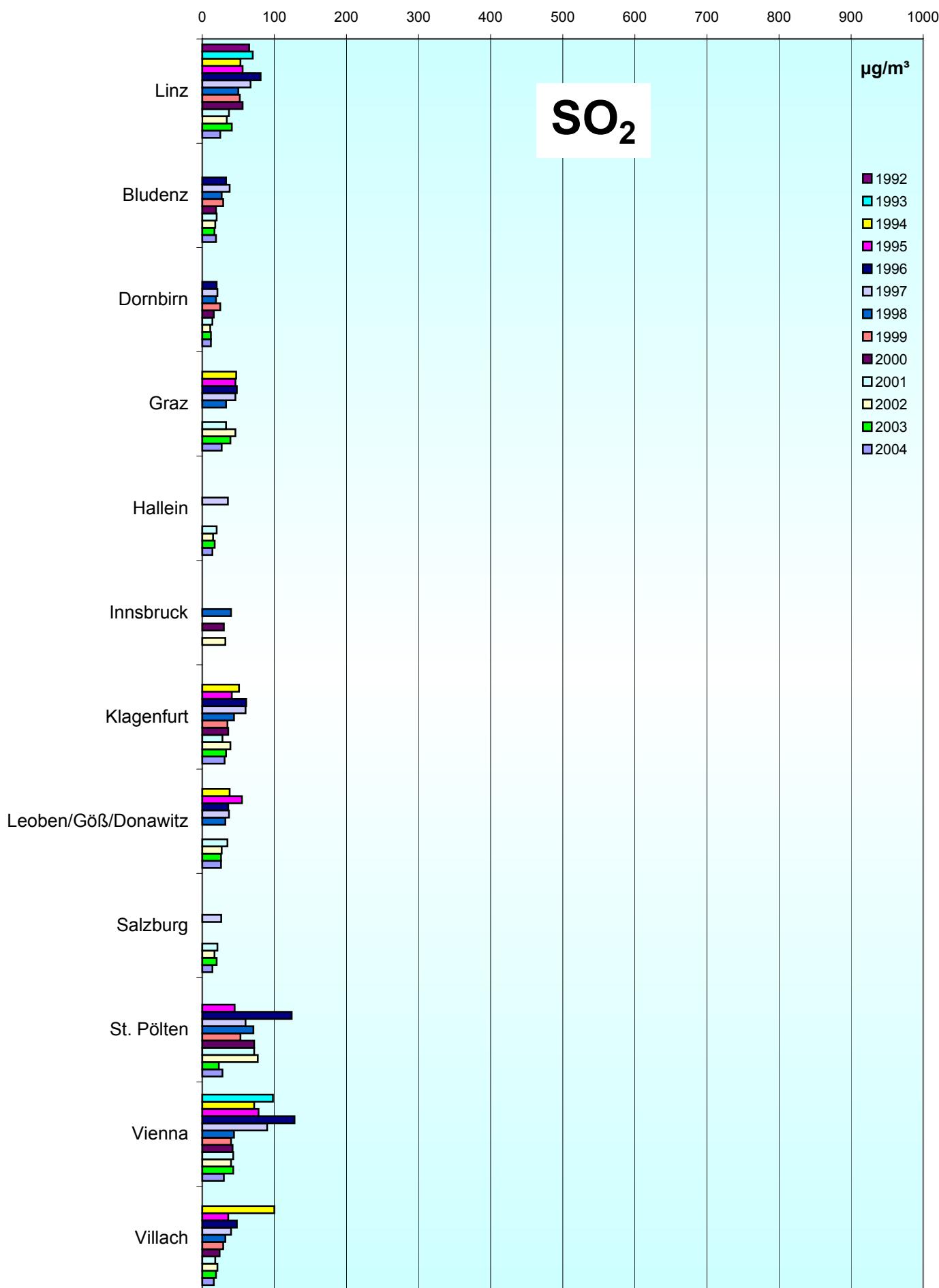
1992-2004

Max. 98-Percentiles

Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

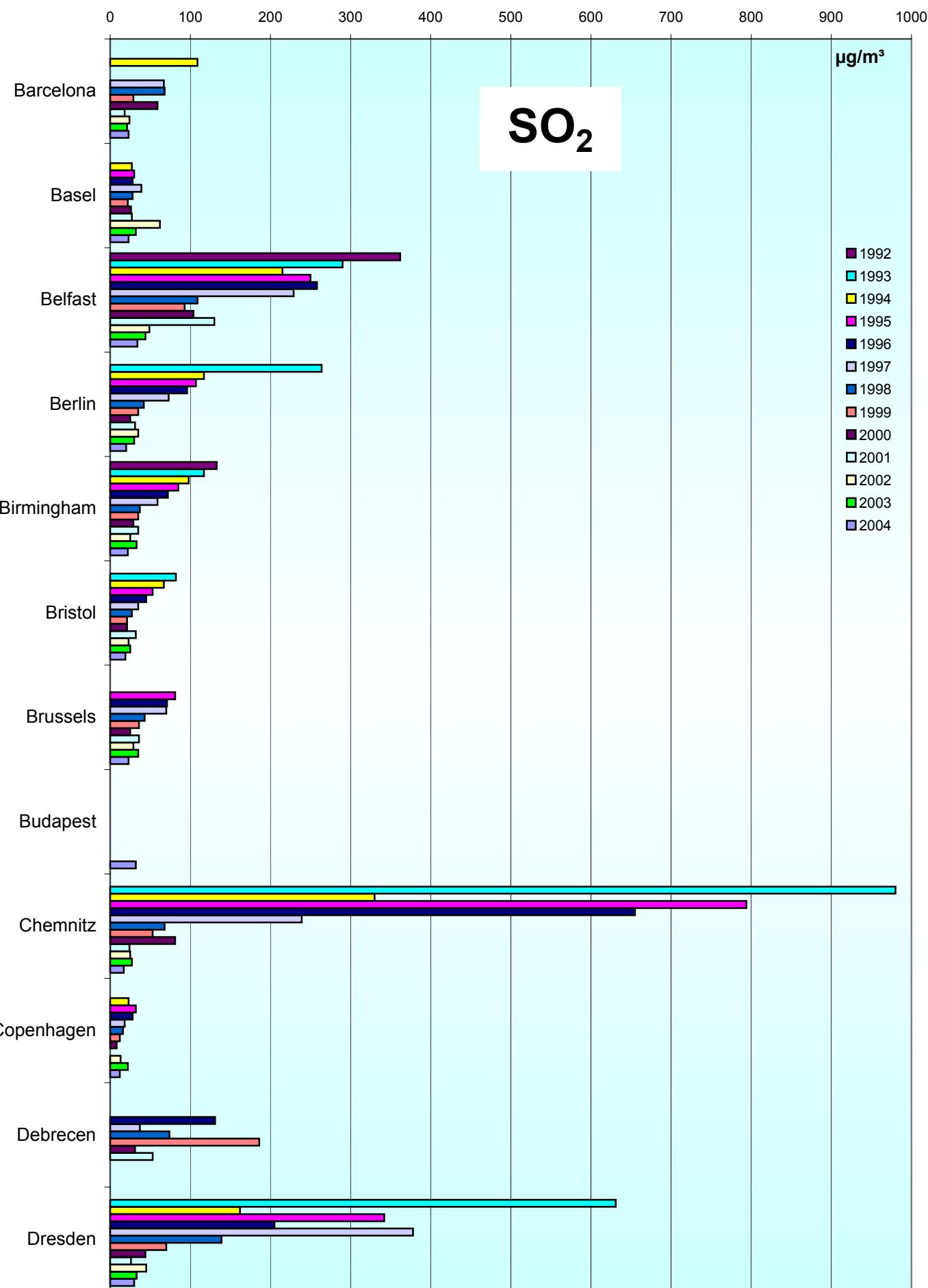


Comparison of The Air Quality 1992 - 2004

143

max. 98 percentile

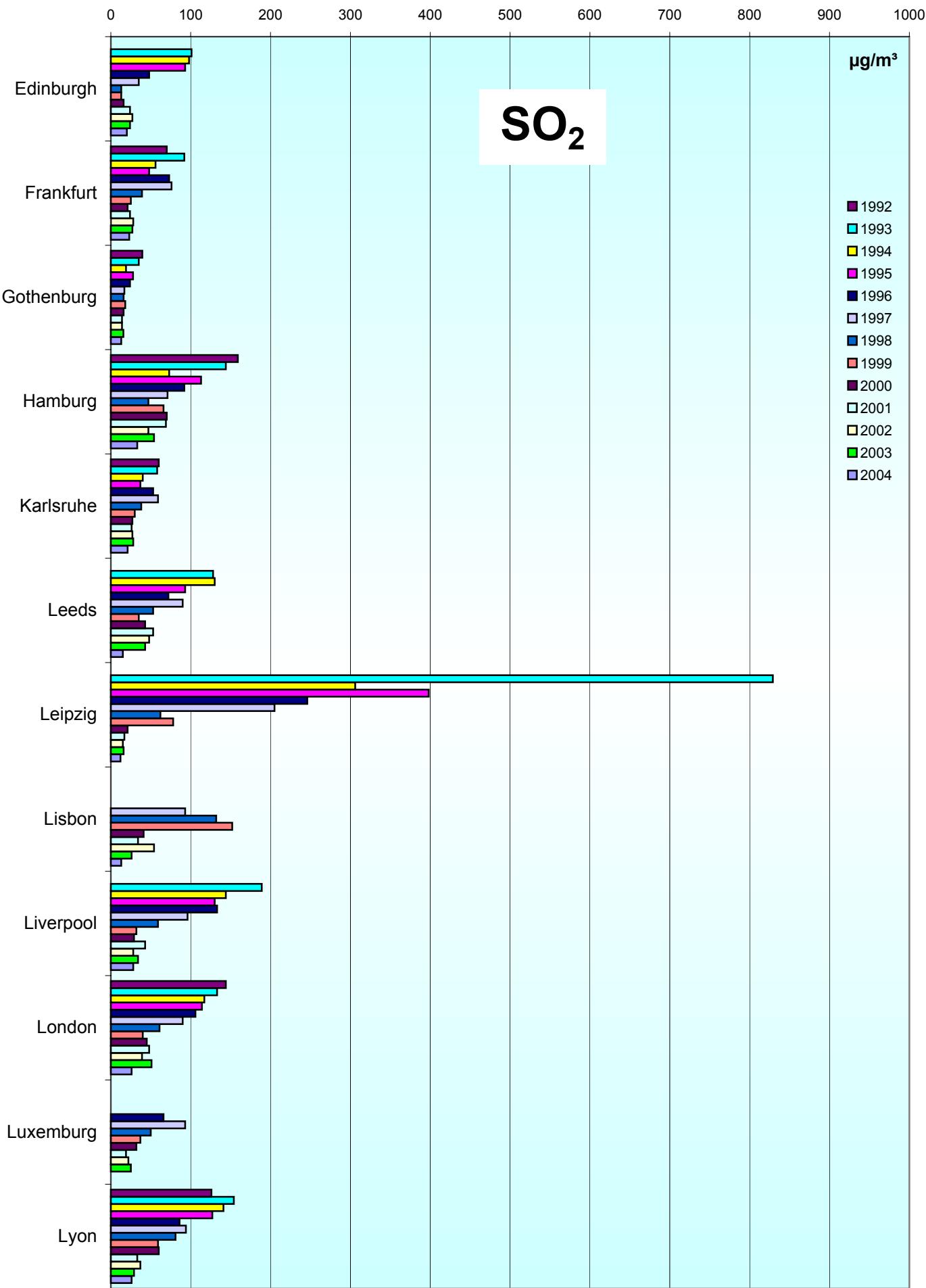
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2003

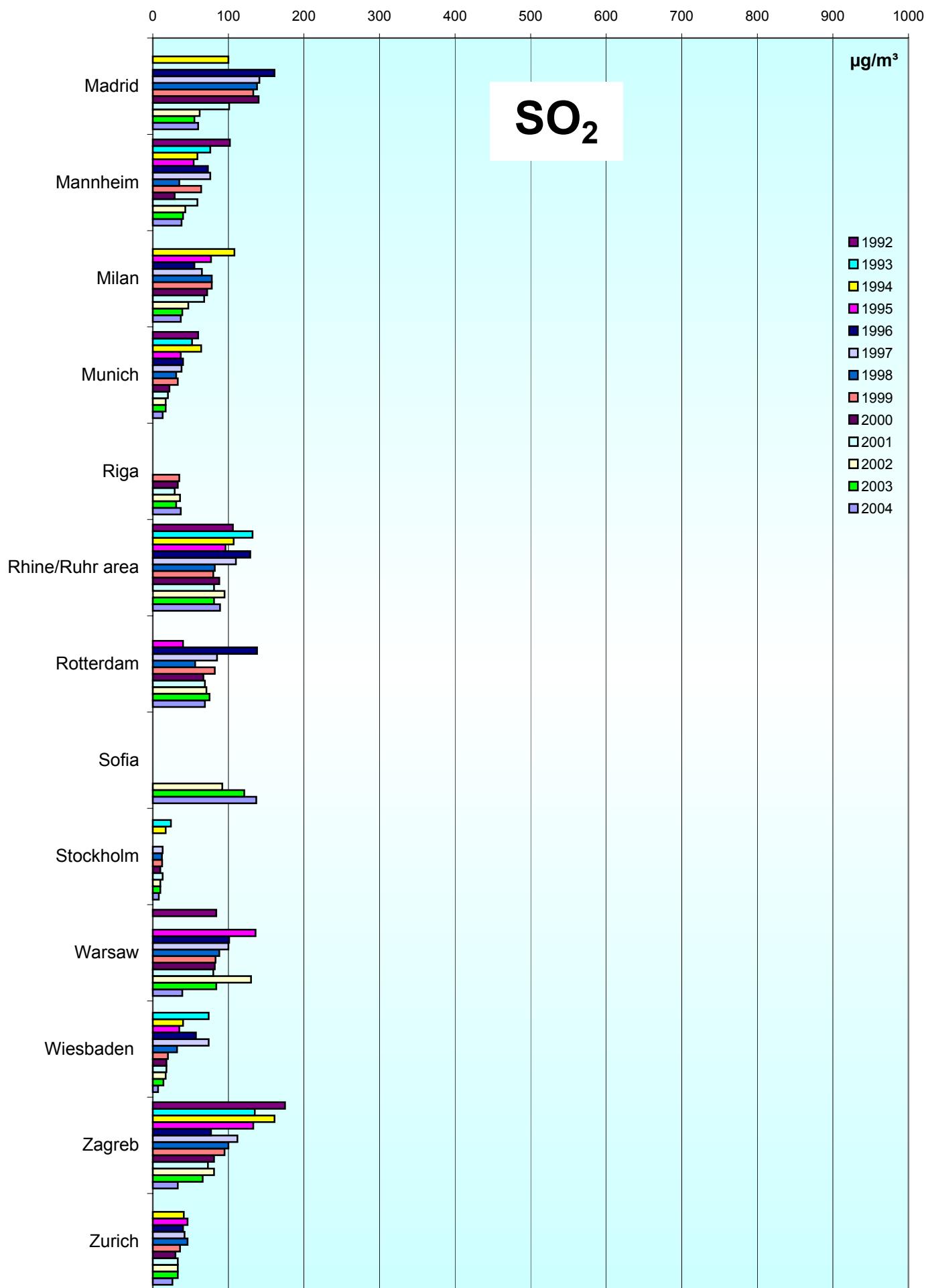
max. 98 percentile

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. 98 percentile (peak-stressed monitoring station)

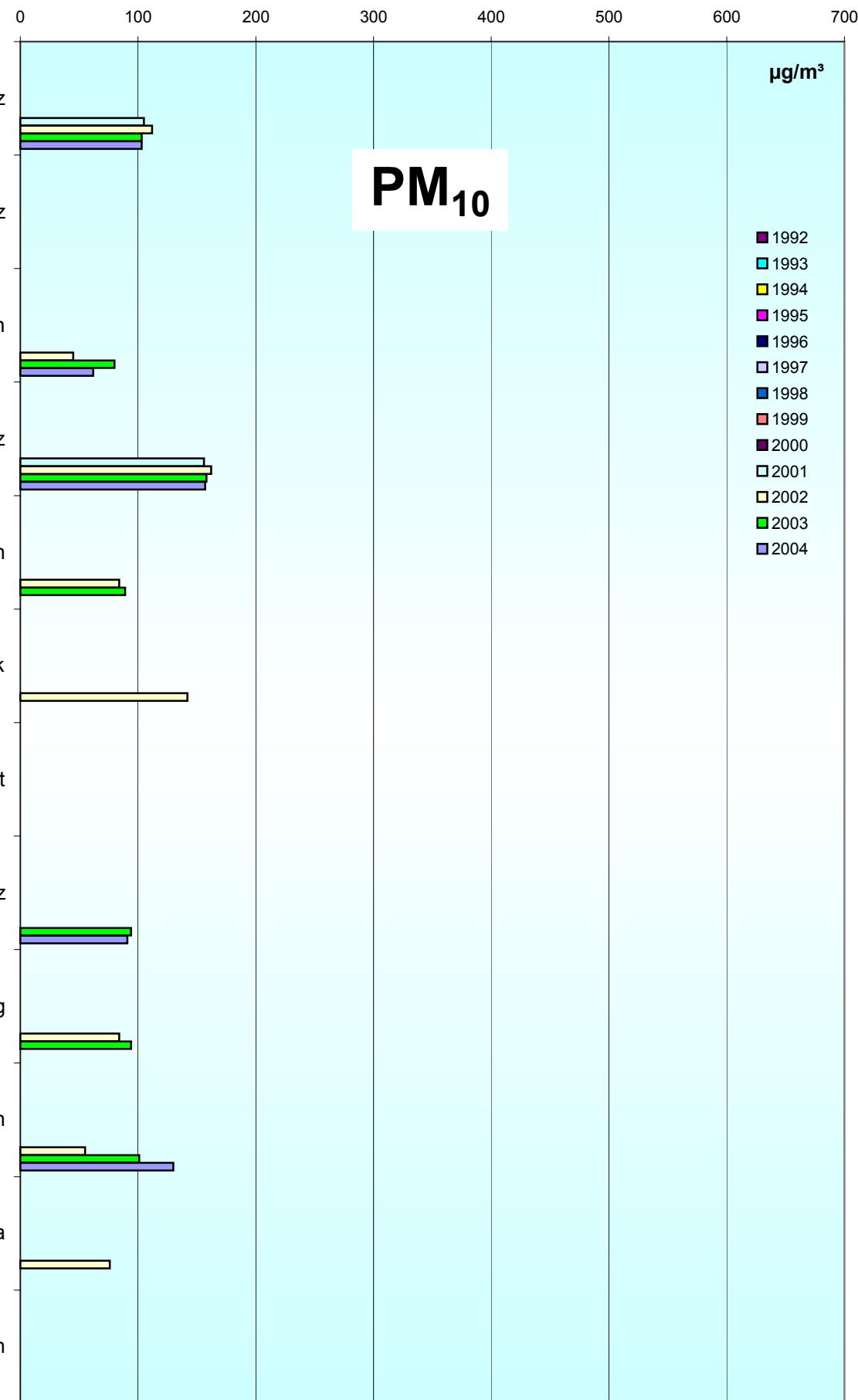
145



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

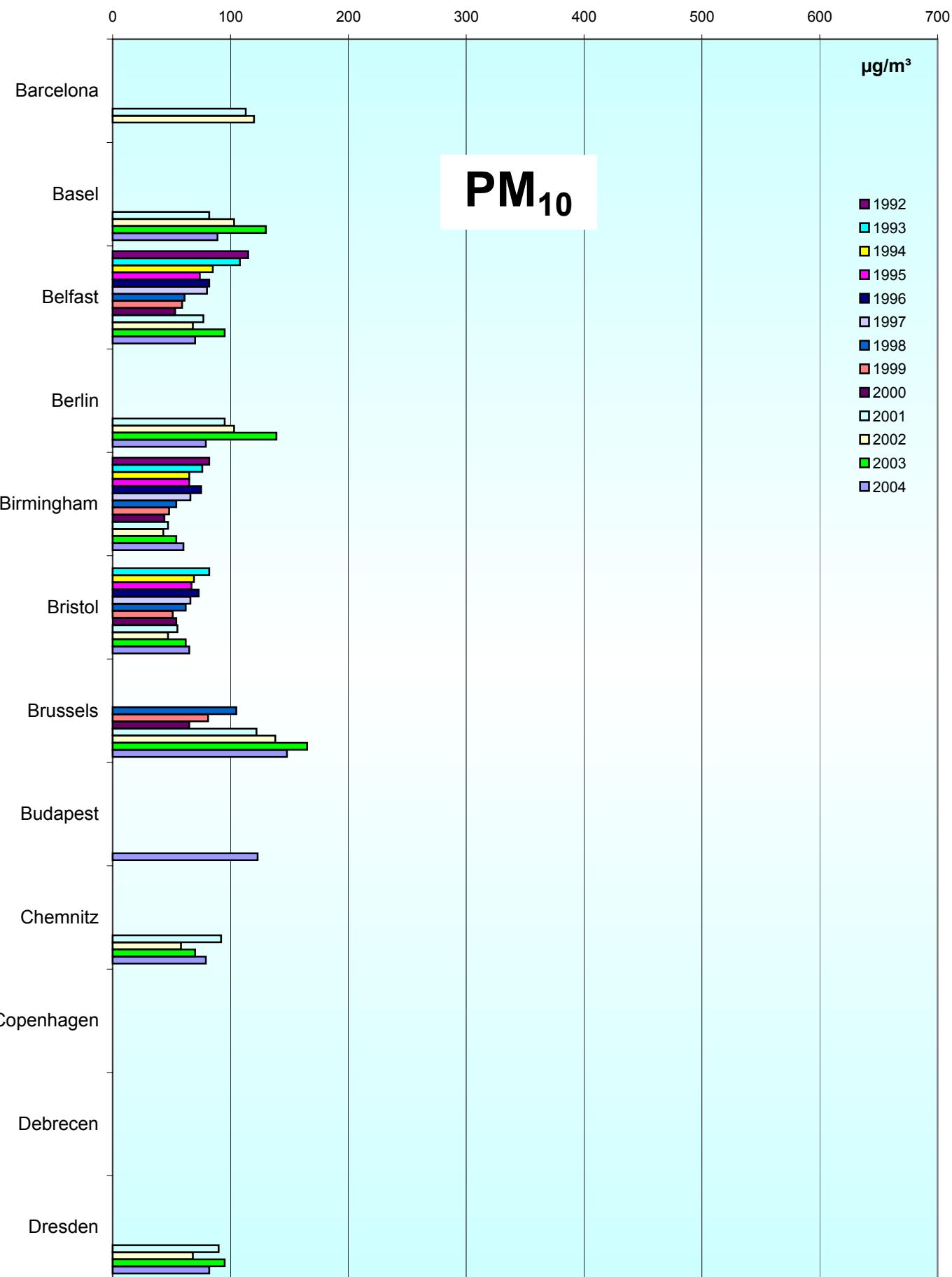
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

147

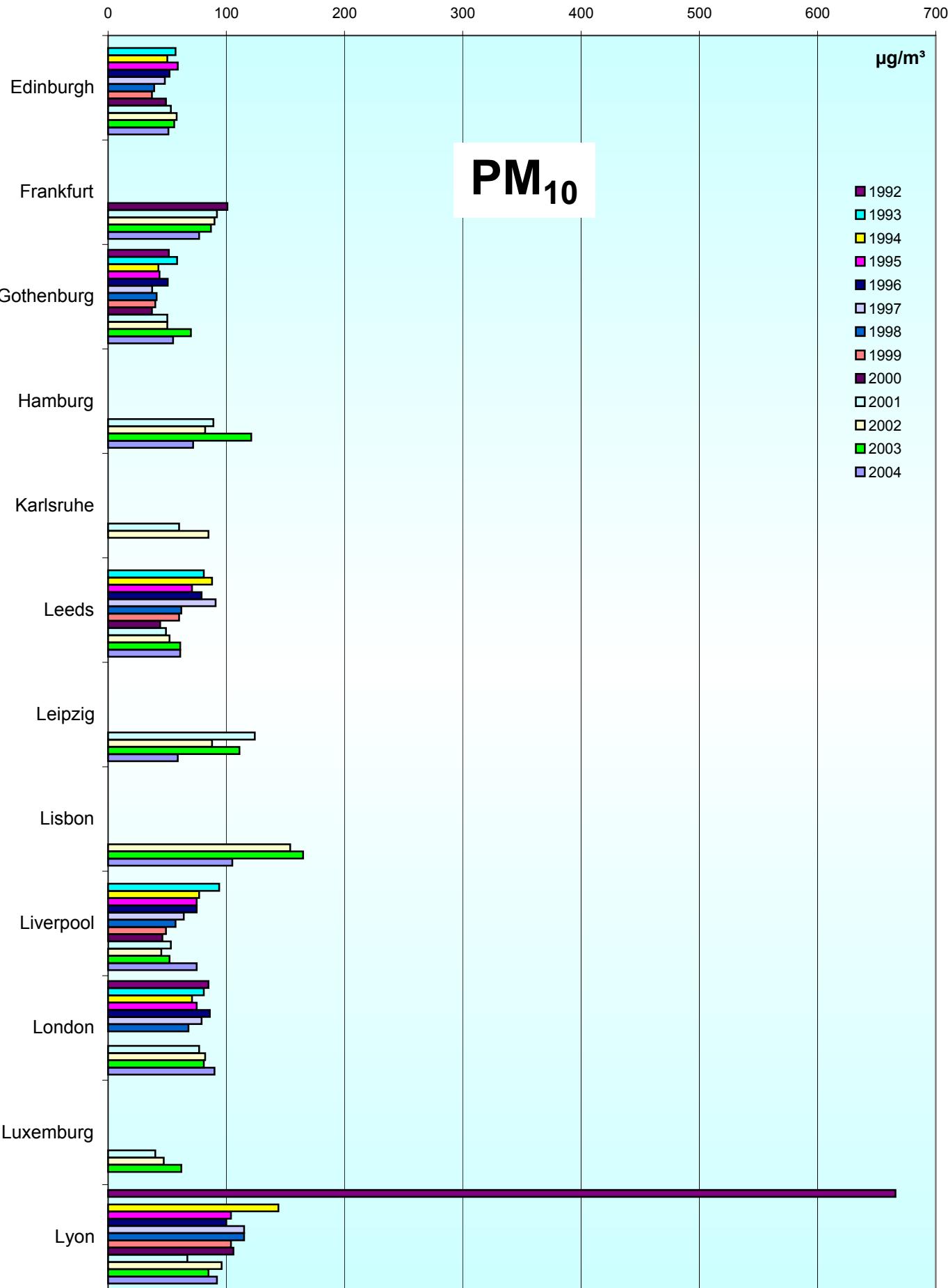
max. 98 percentile
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

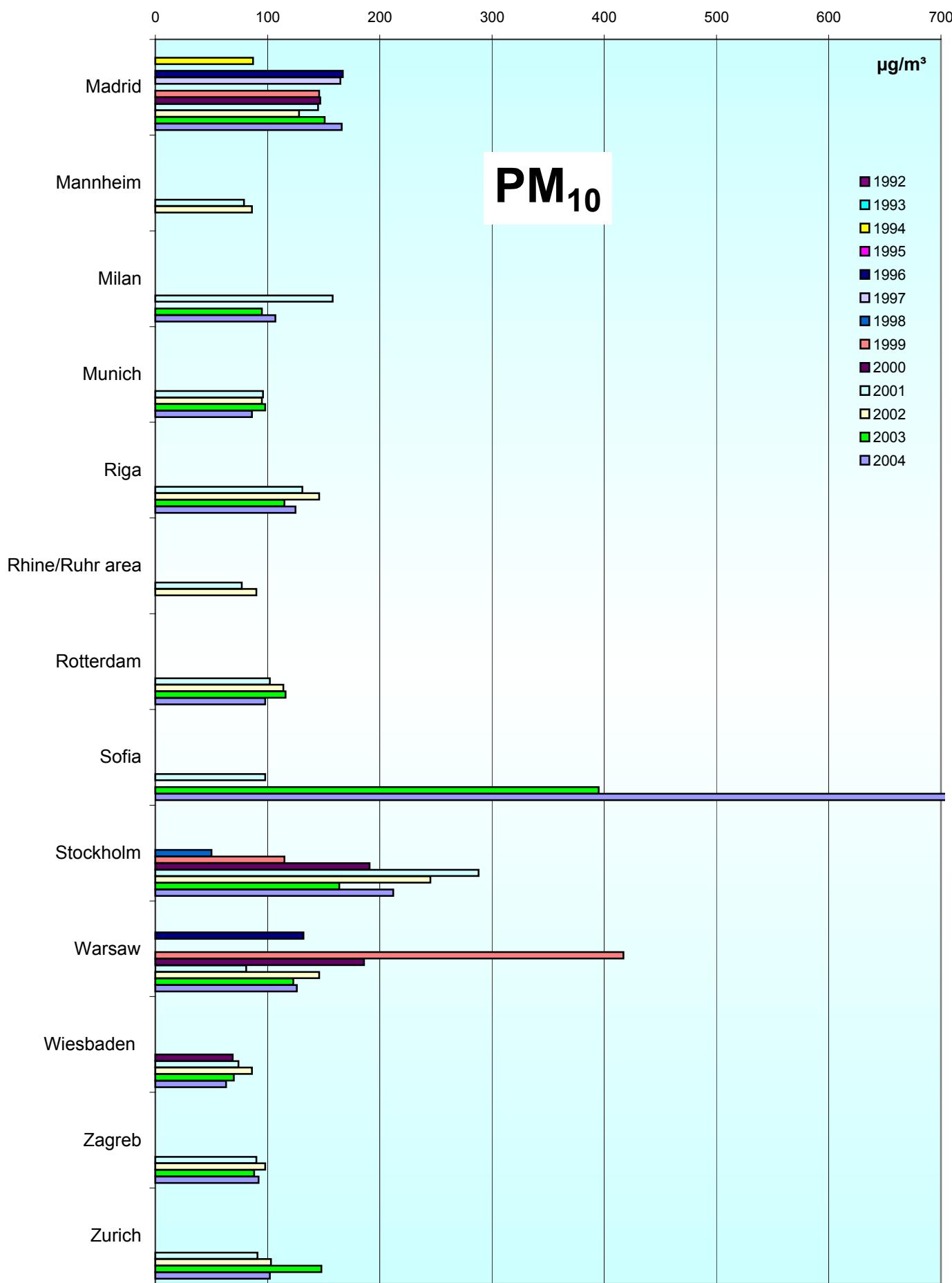


Comparison of The Air Quality 1992 - 2004

149

max. 98 percentile

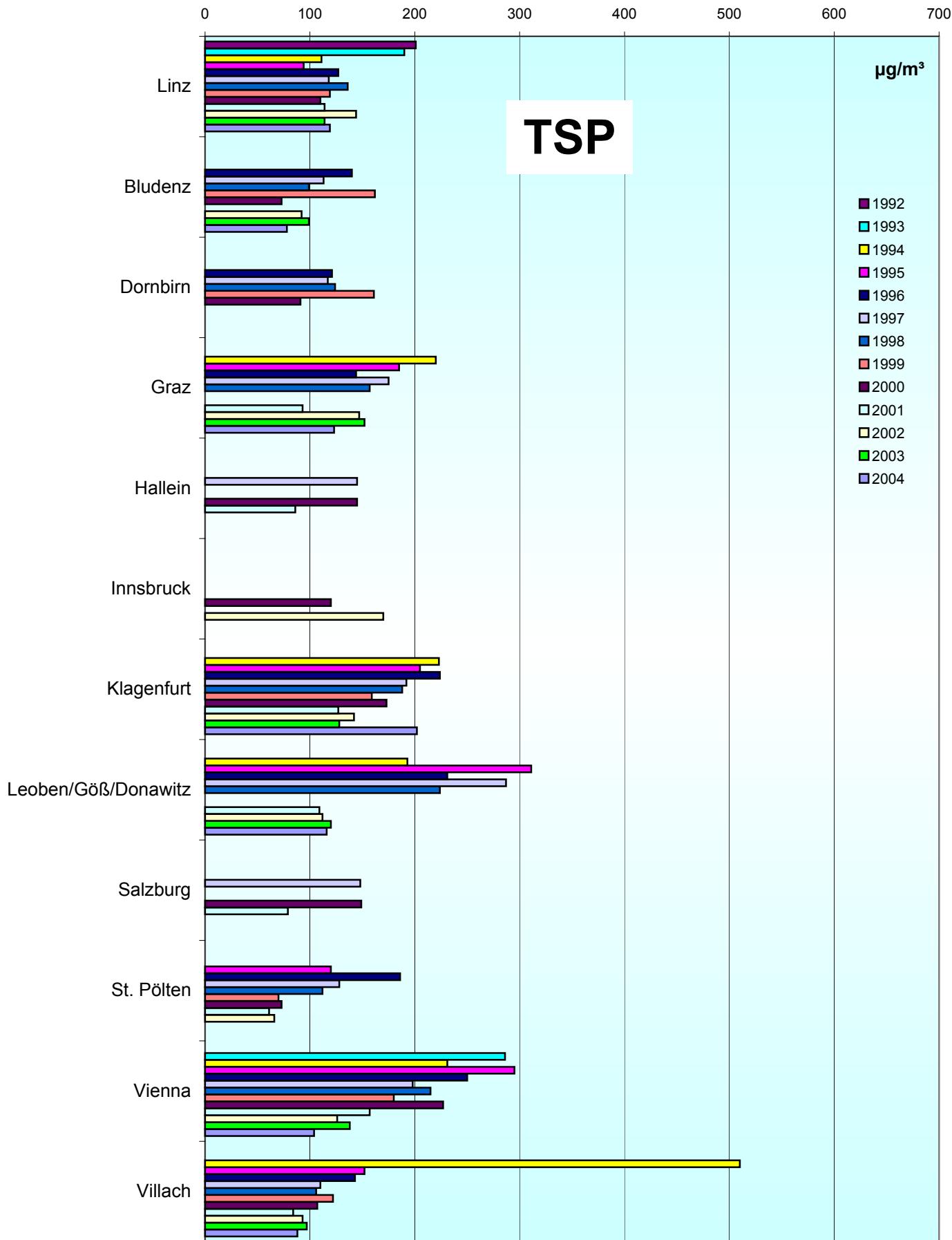
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

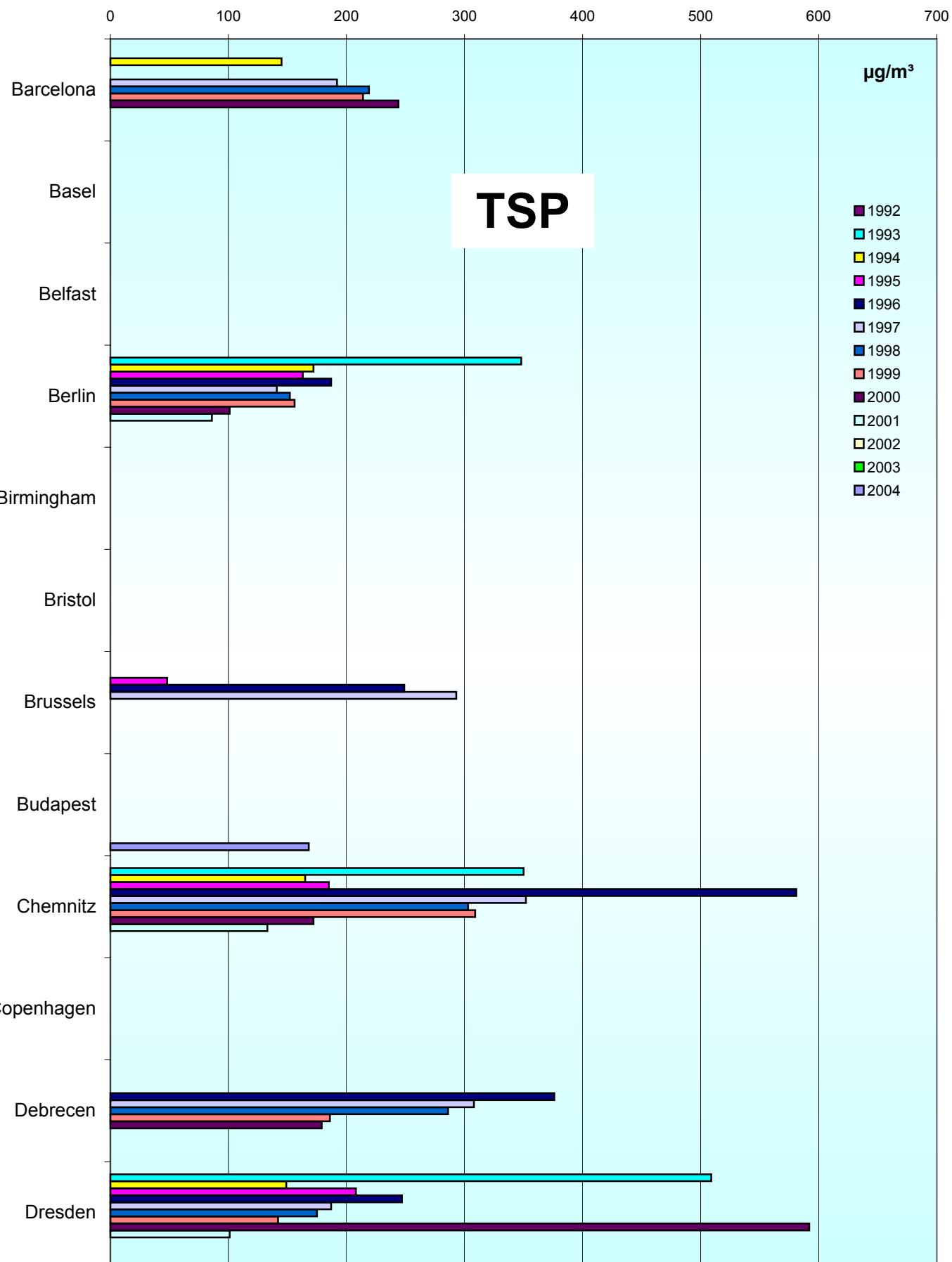
max. 98 percentile

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. 98 percentile
(peak-stressed monitoring station)

151

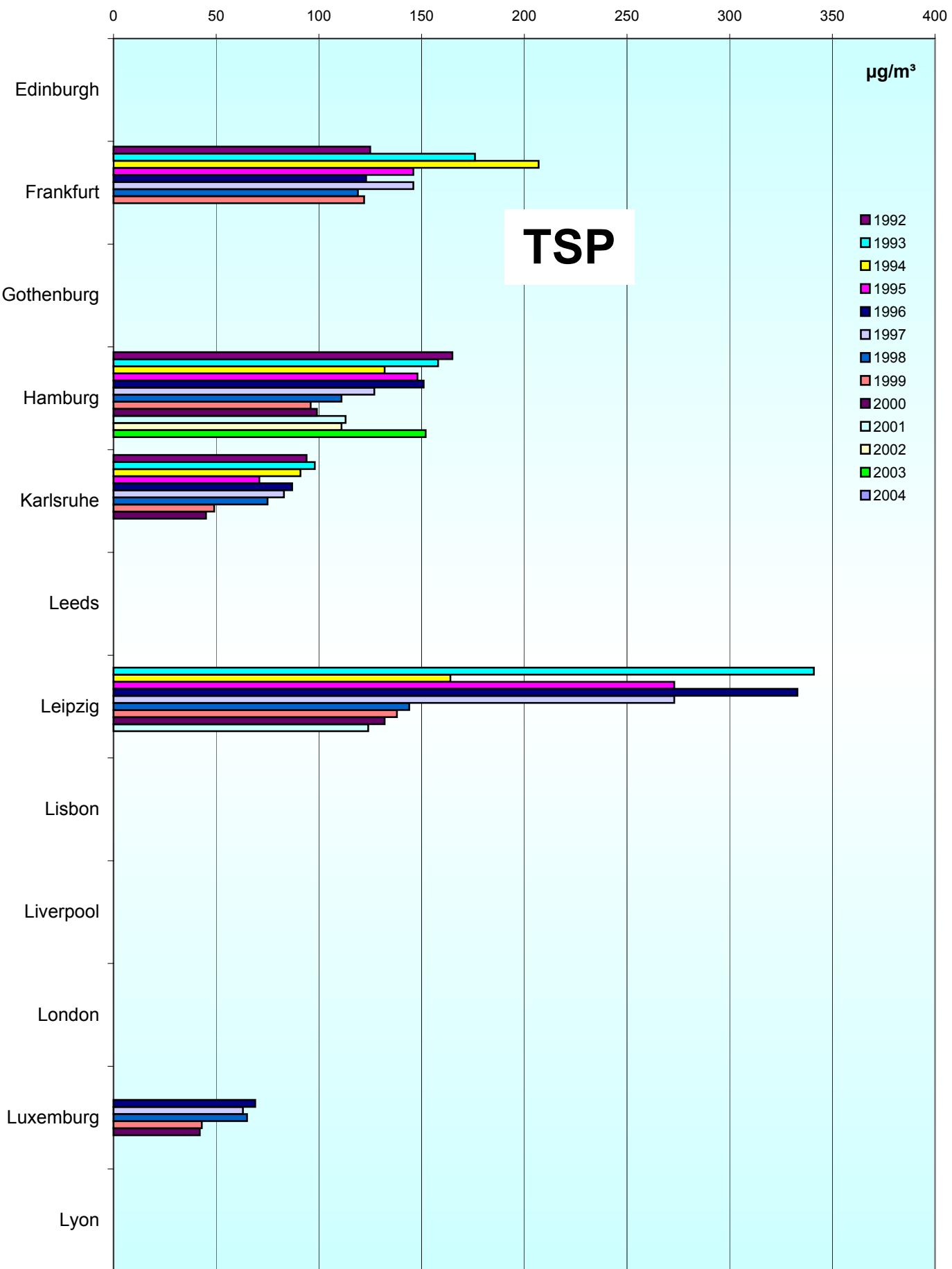


Comparison of The Air Quality 1992 - 2004

152

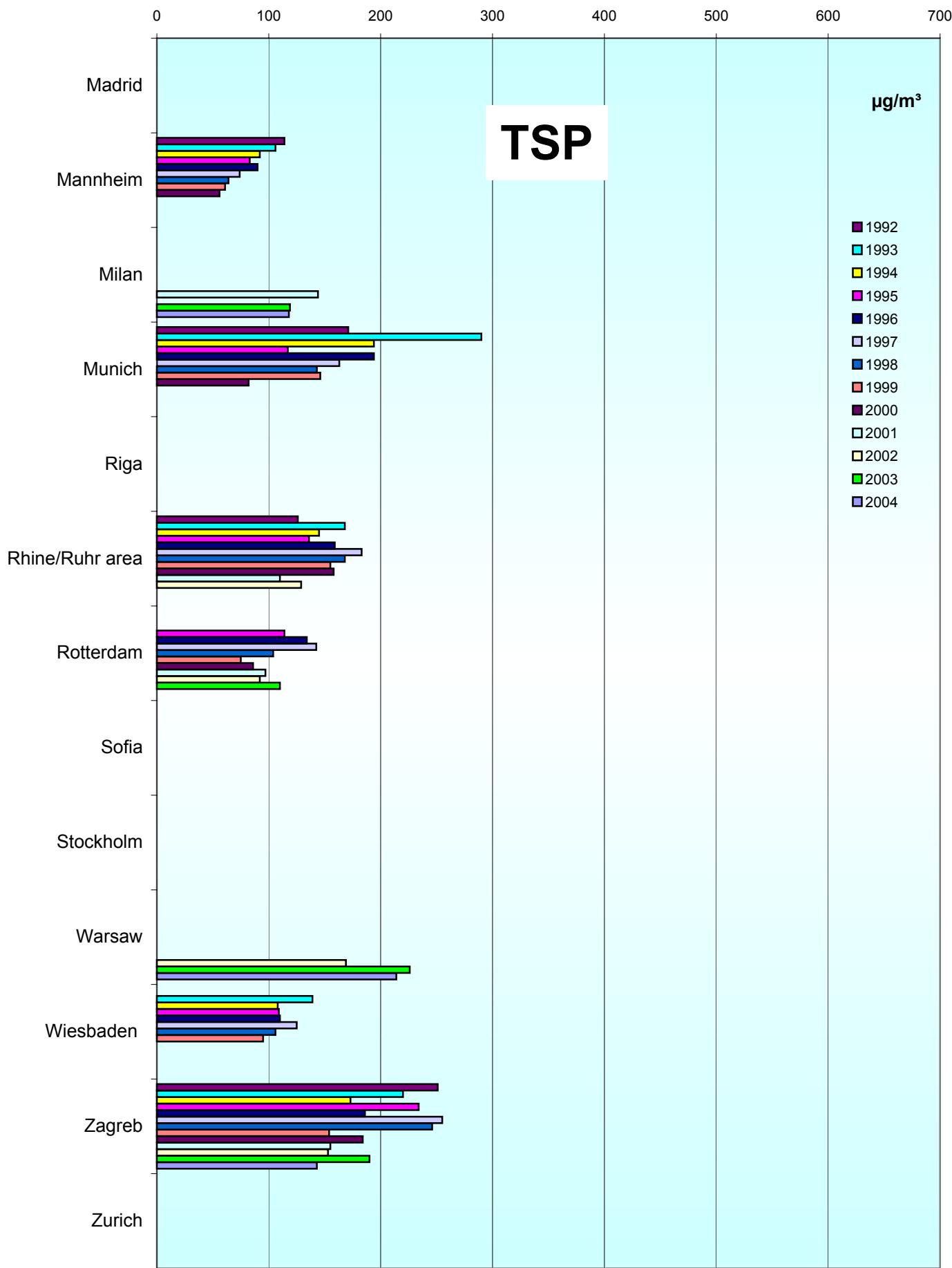
max. 98 percentile

(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004
max. 98 percentile (peak-stressed monitoring station)

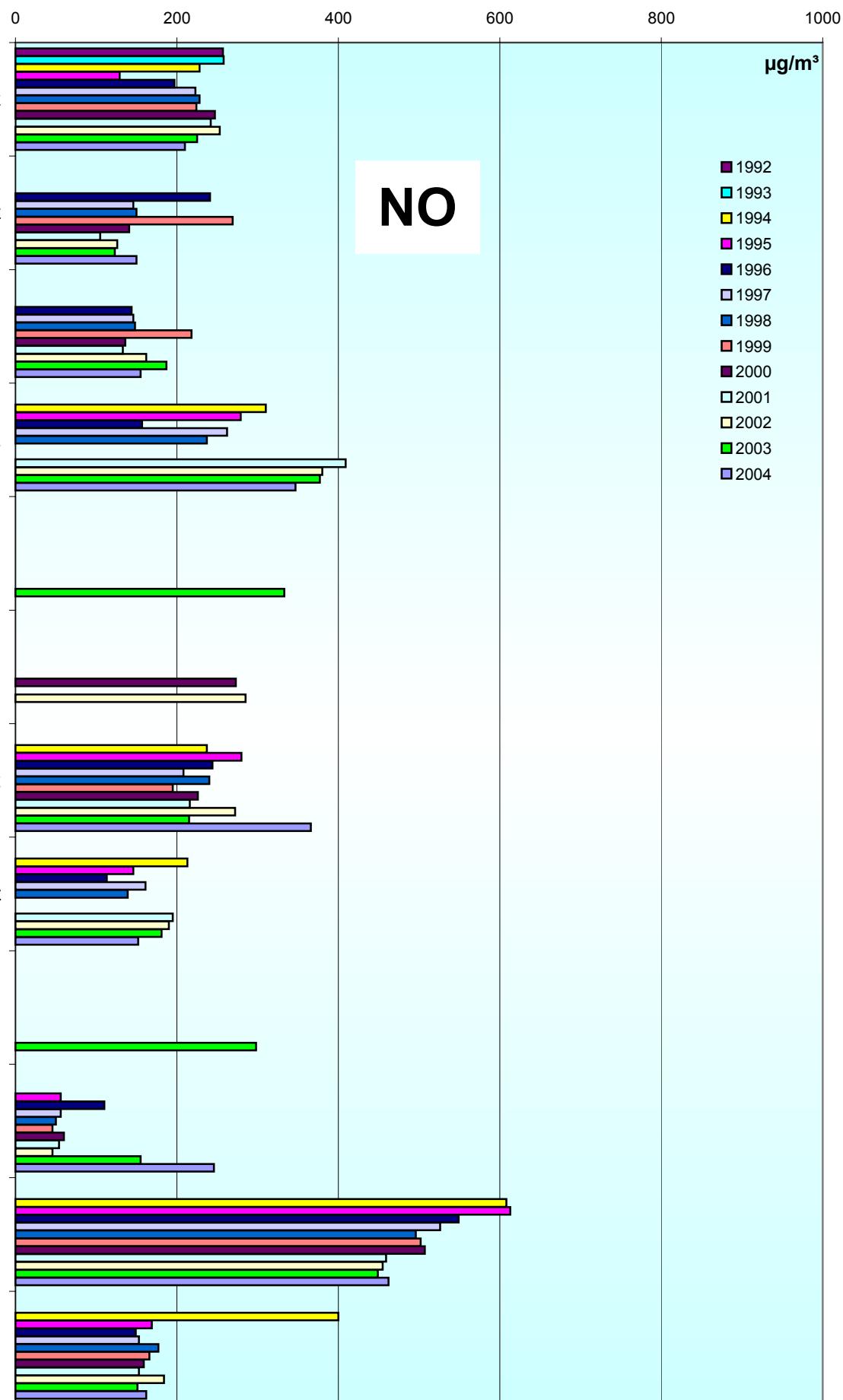
153



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

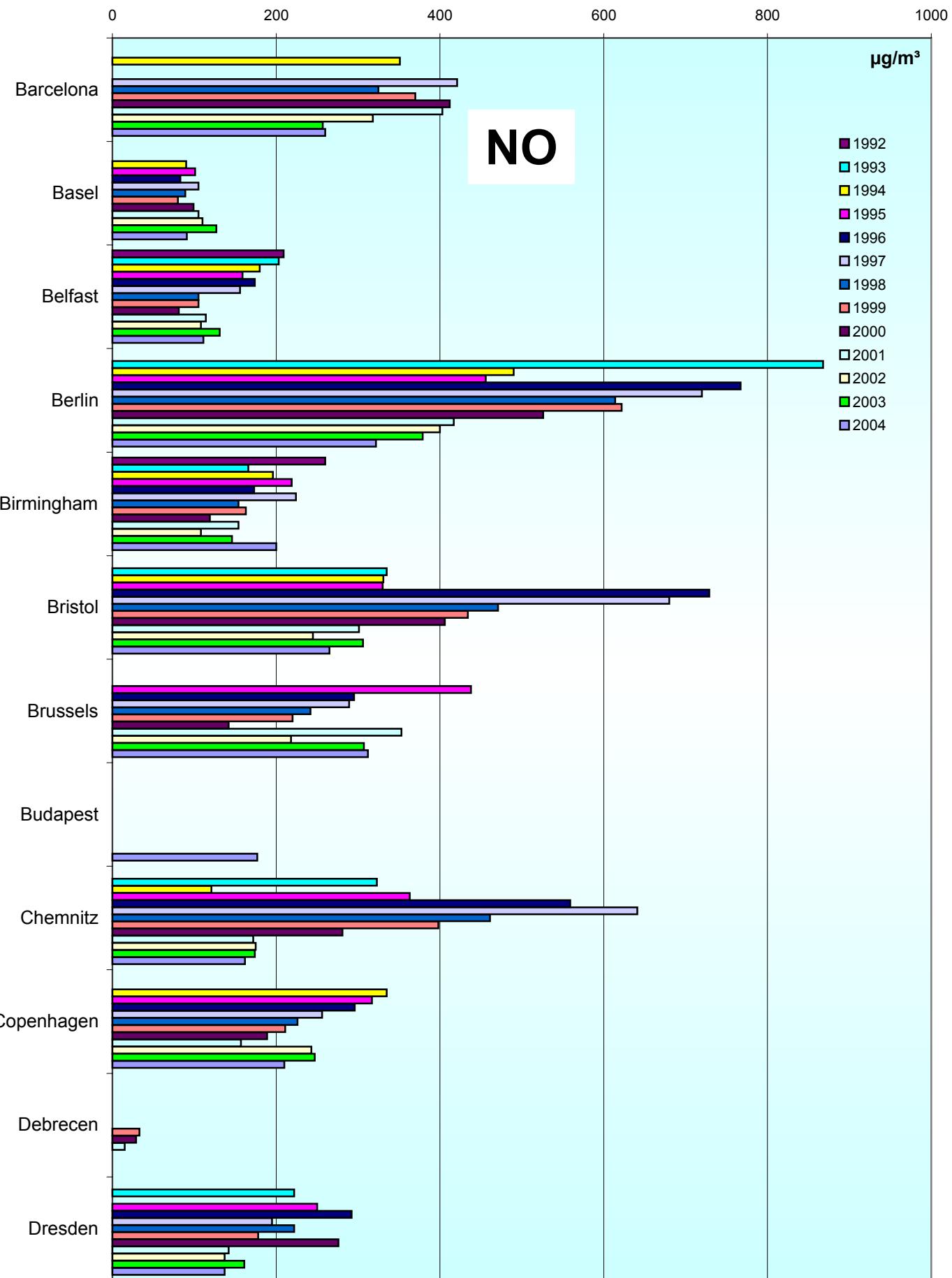


Comparison of The Air Quality 1992 - 2004

155

max. 98 percentile

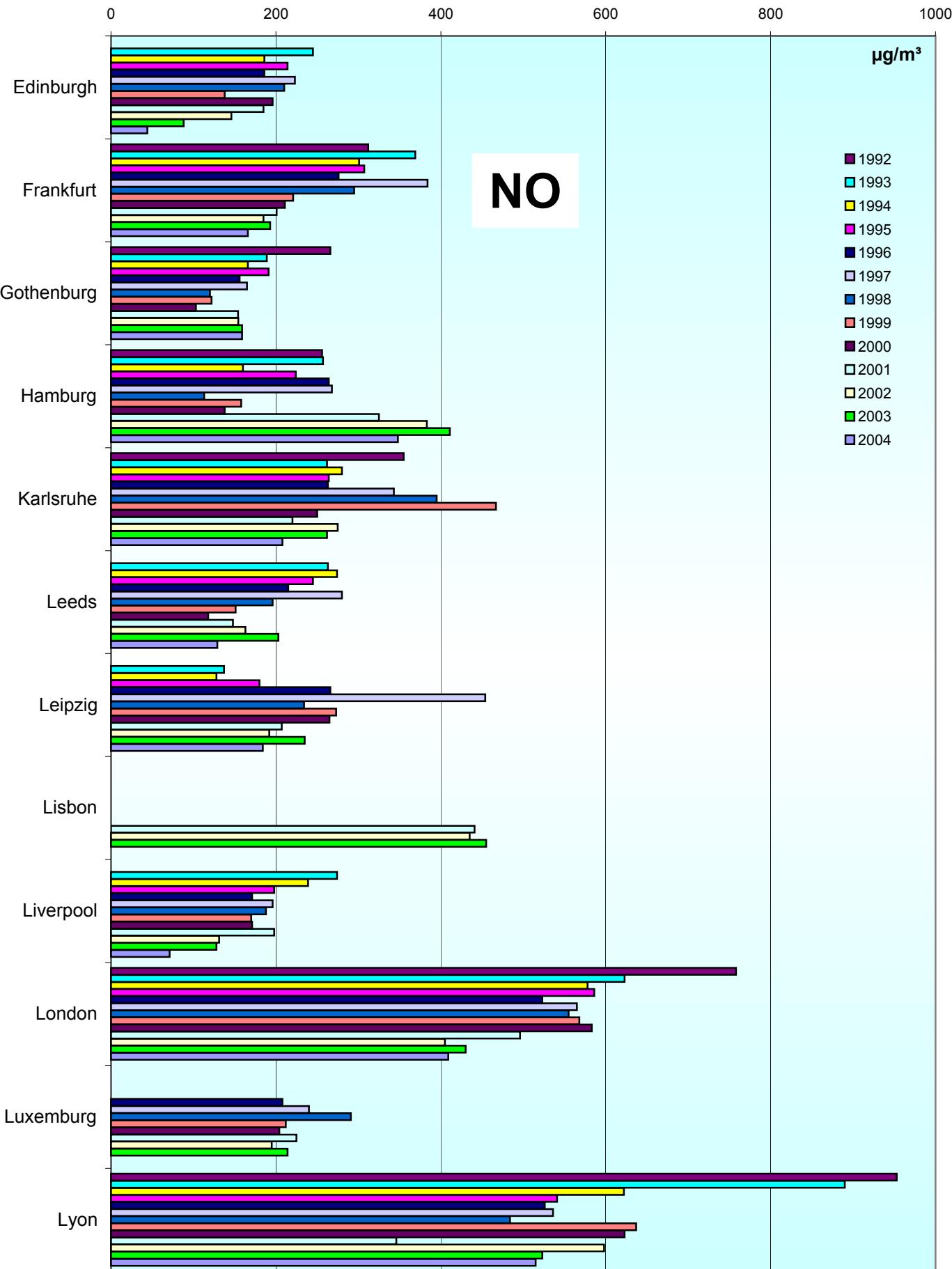
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

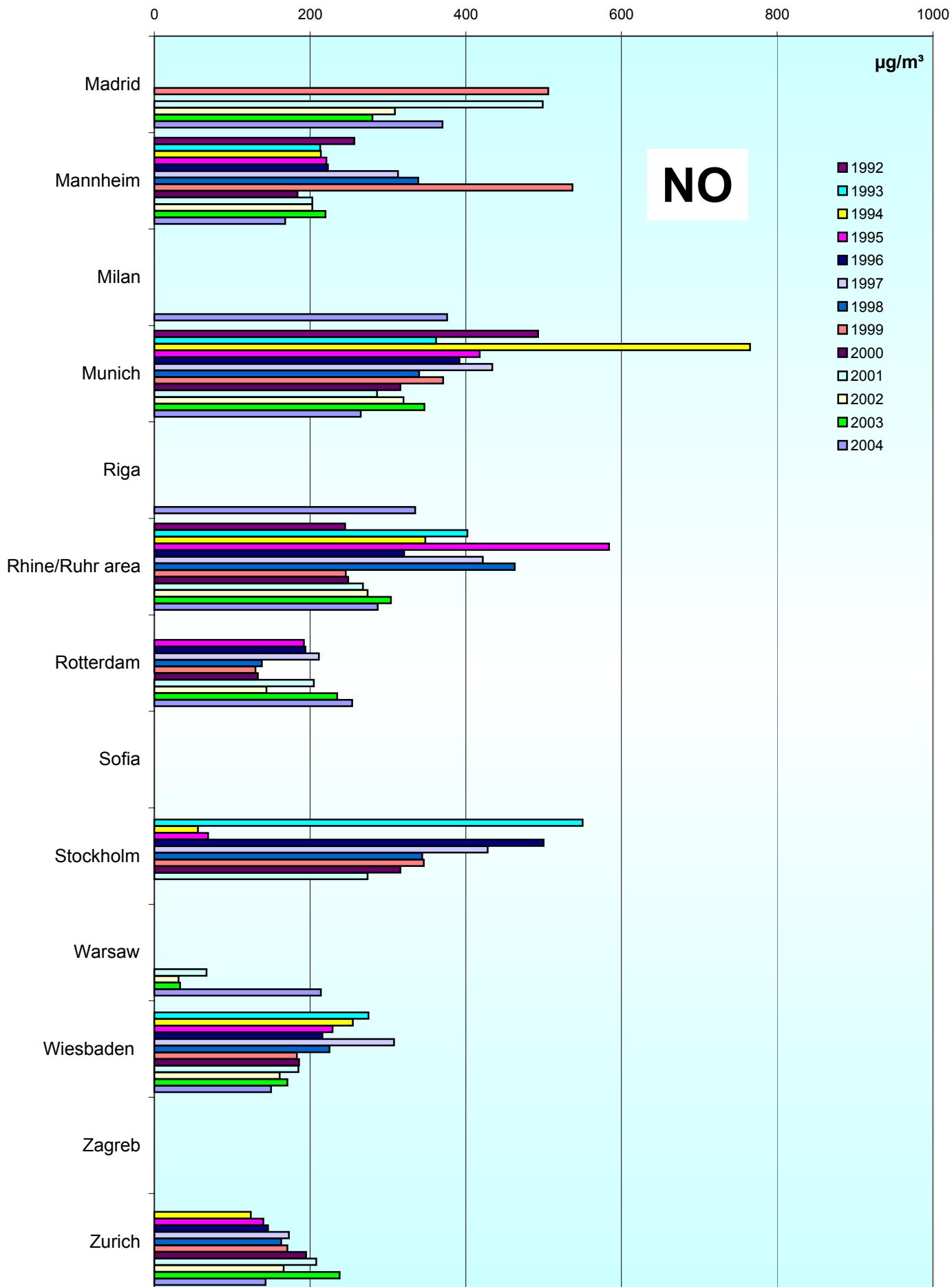
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. 98 percentile (peak-stressed monitoring station)

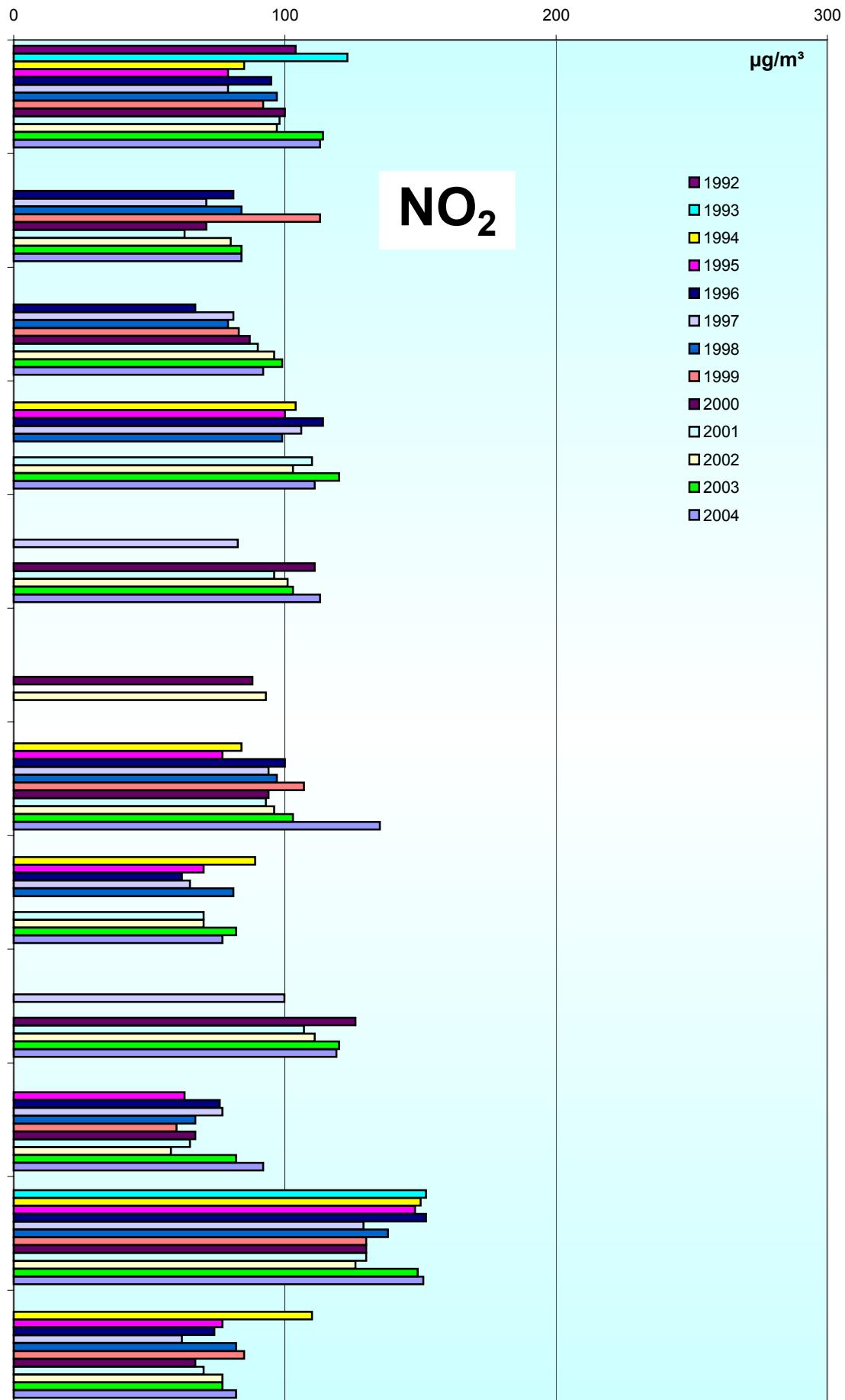
157



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

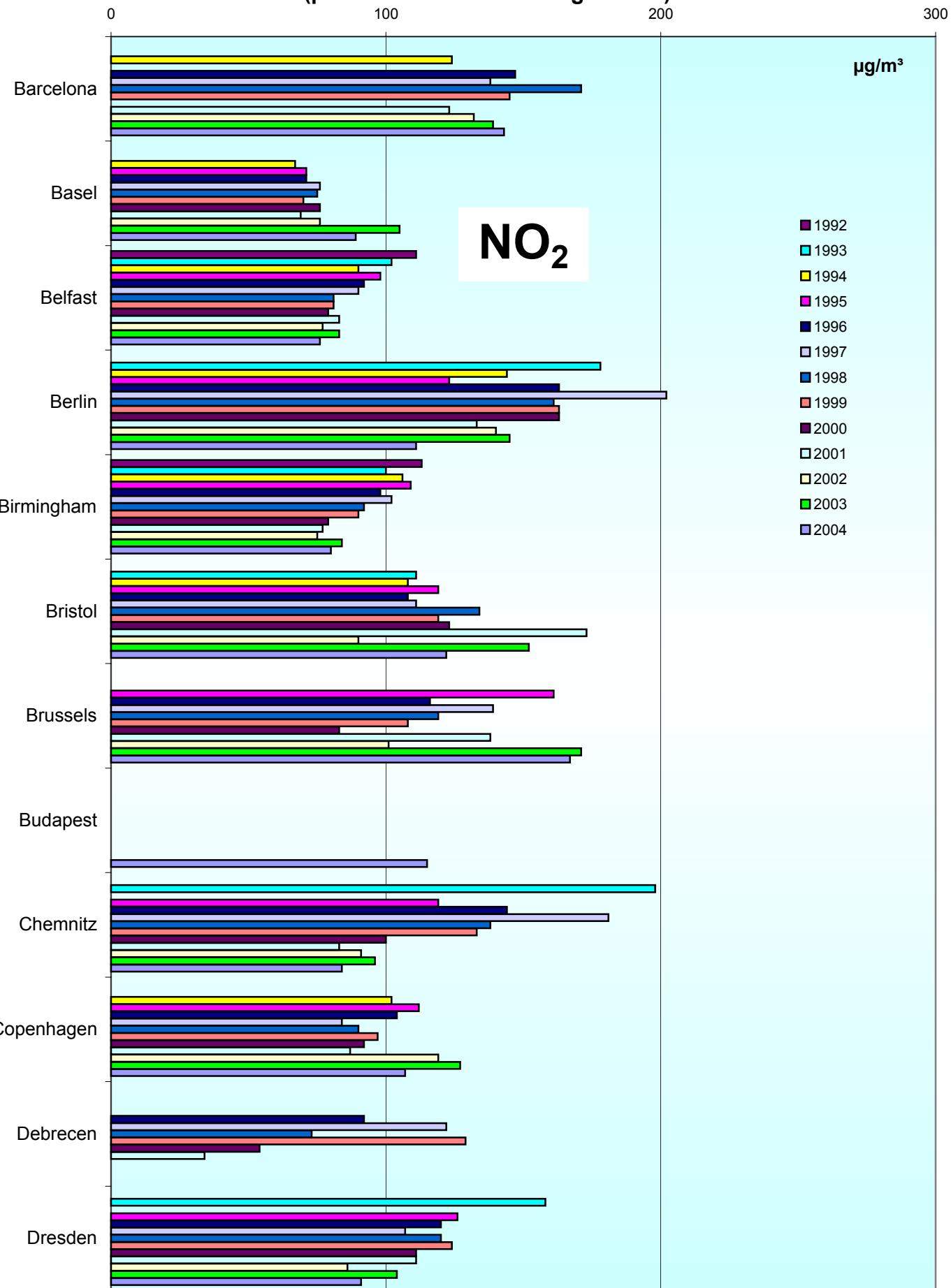


Comparison of The Air Quality 1992 - 2004

159

max. 98 percentile

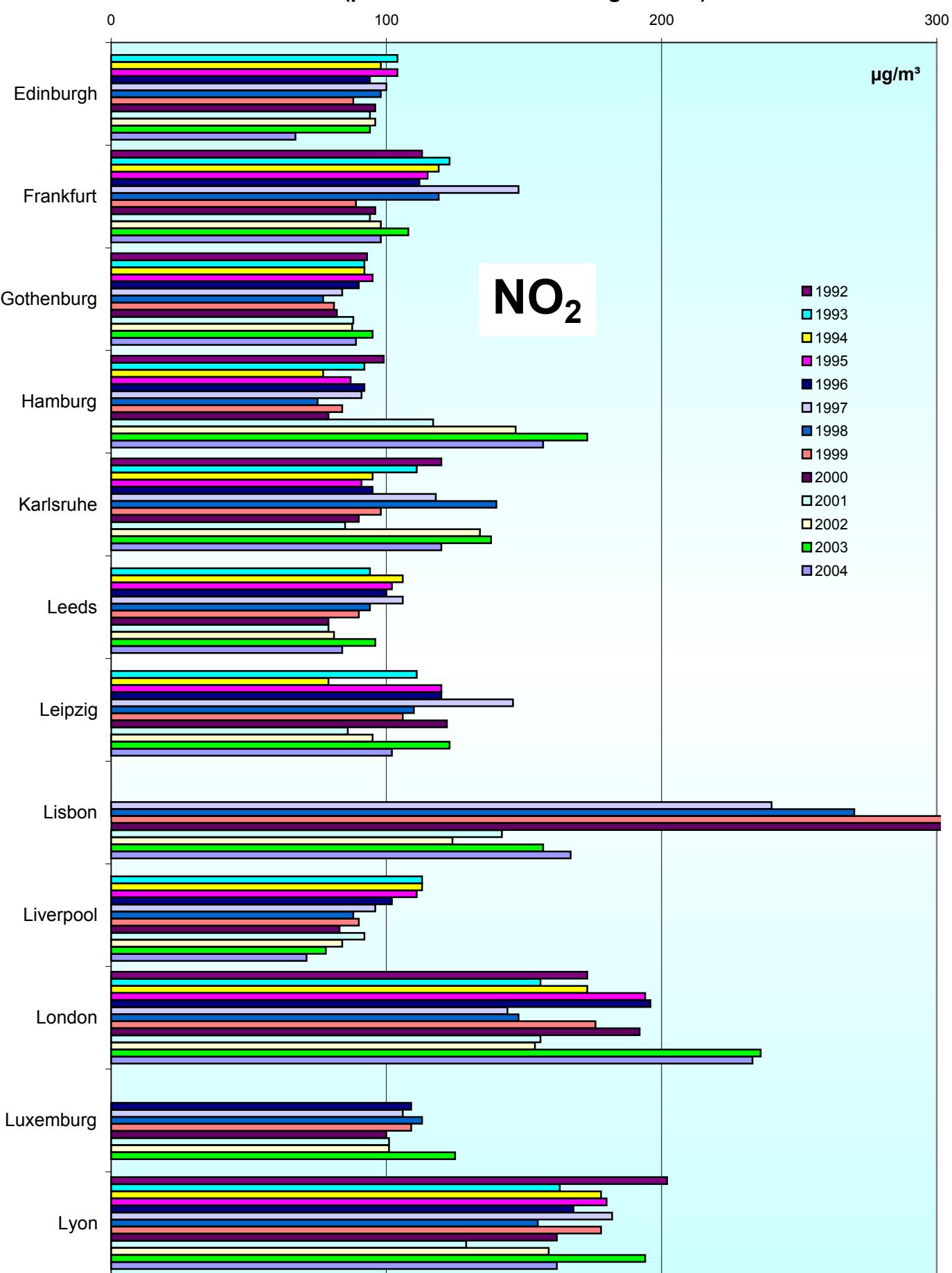
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

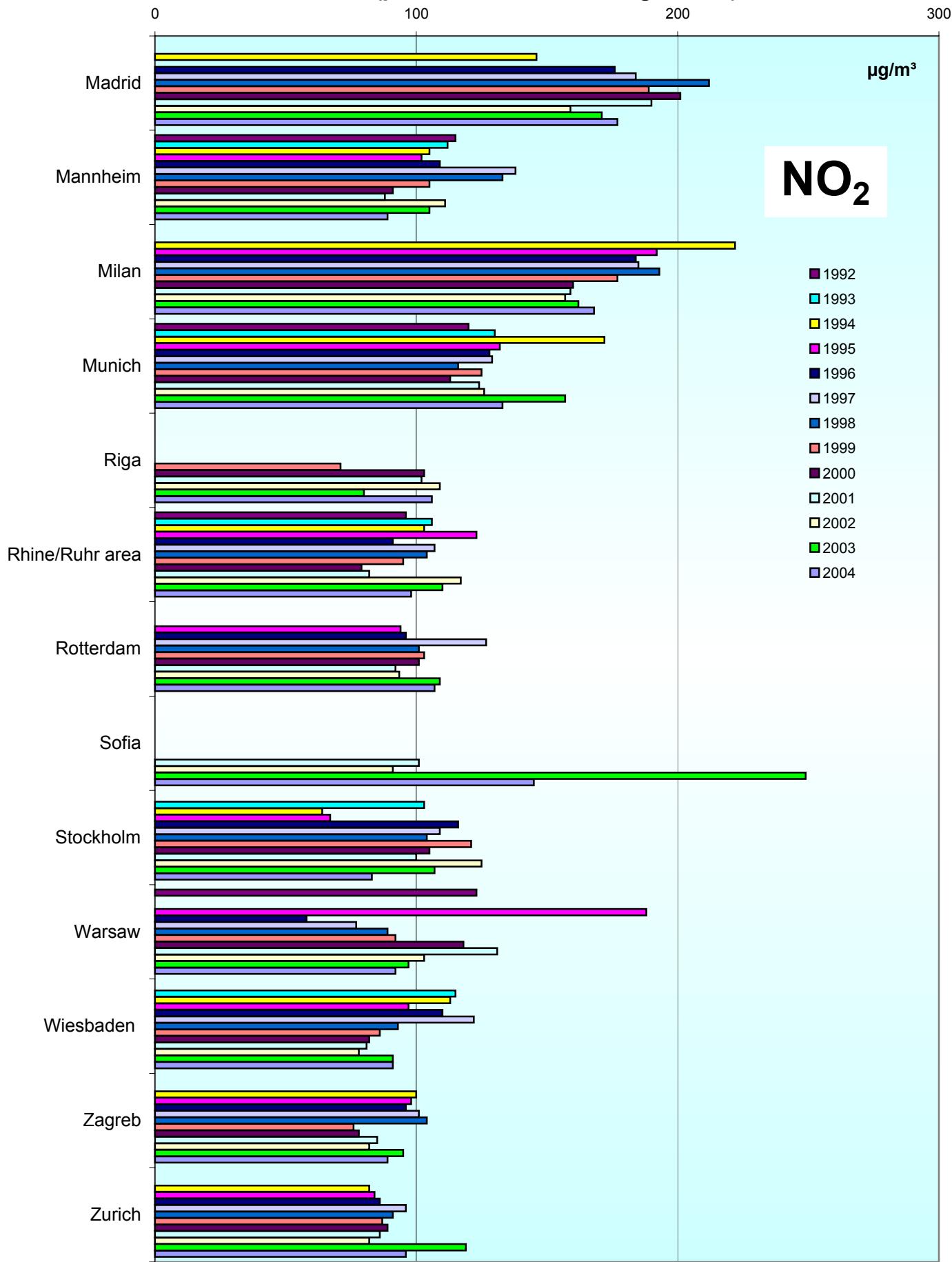


Comparison of The Air Quality 1992 - 2004

161

max. 98 percentile

(peak-stressed monitoring station)



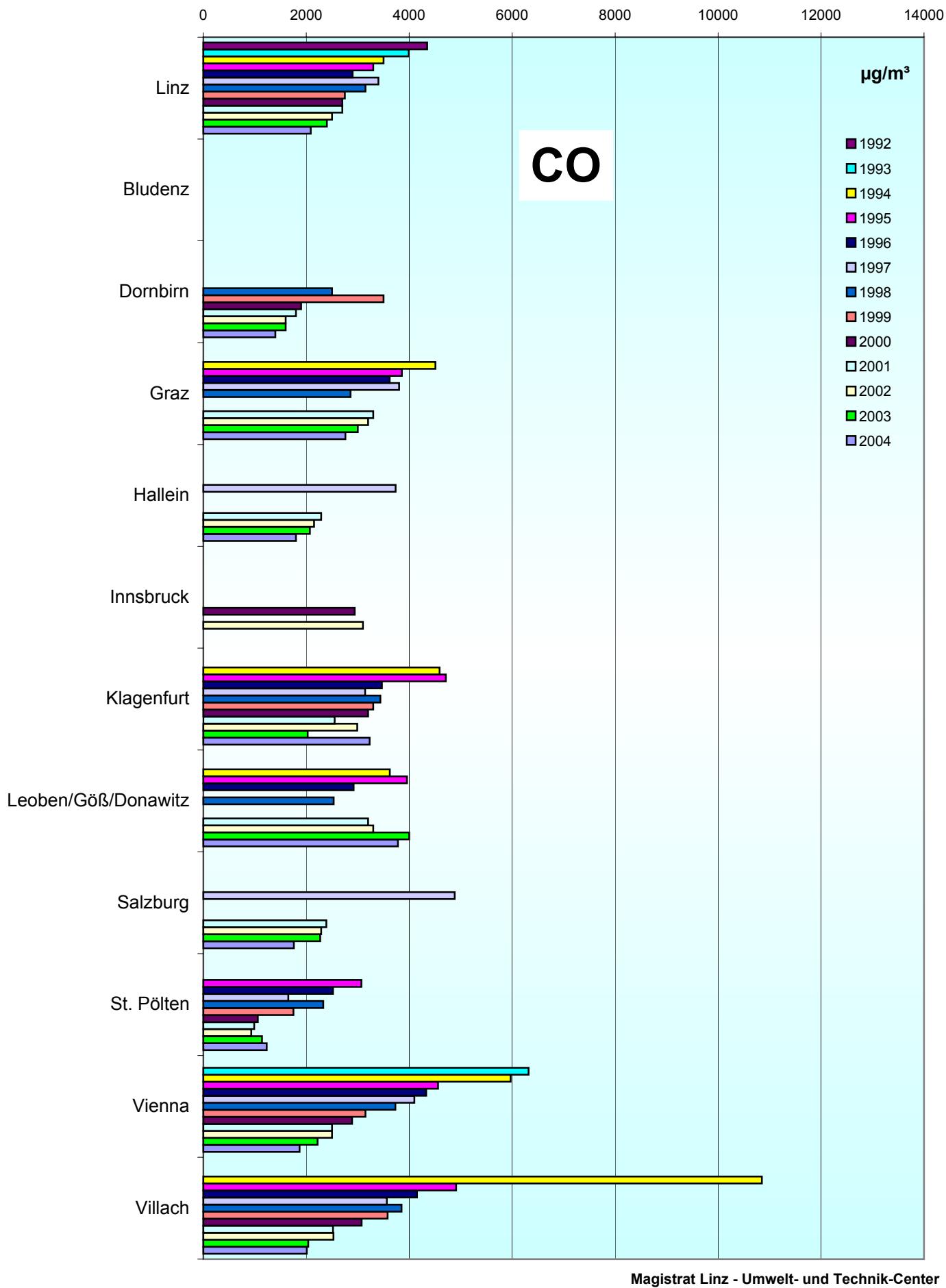
NO₂

$\mu\text{g}/\text{m}^3$

Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

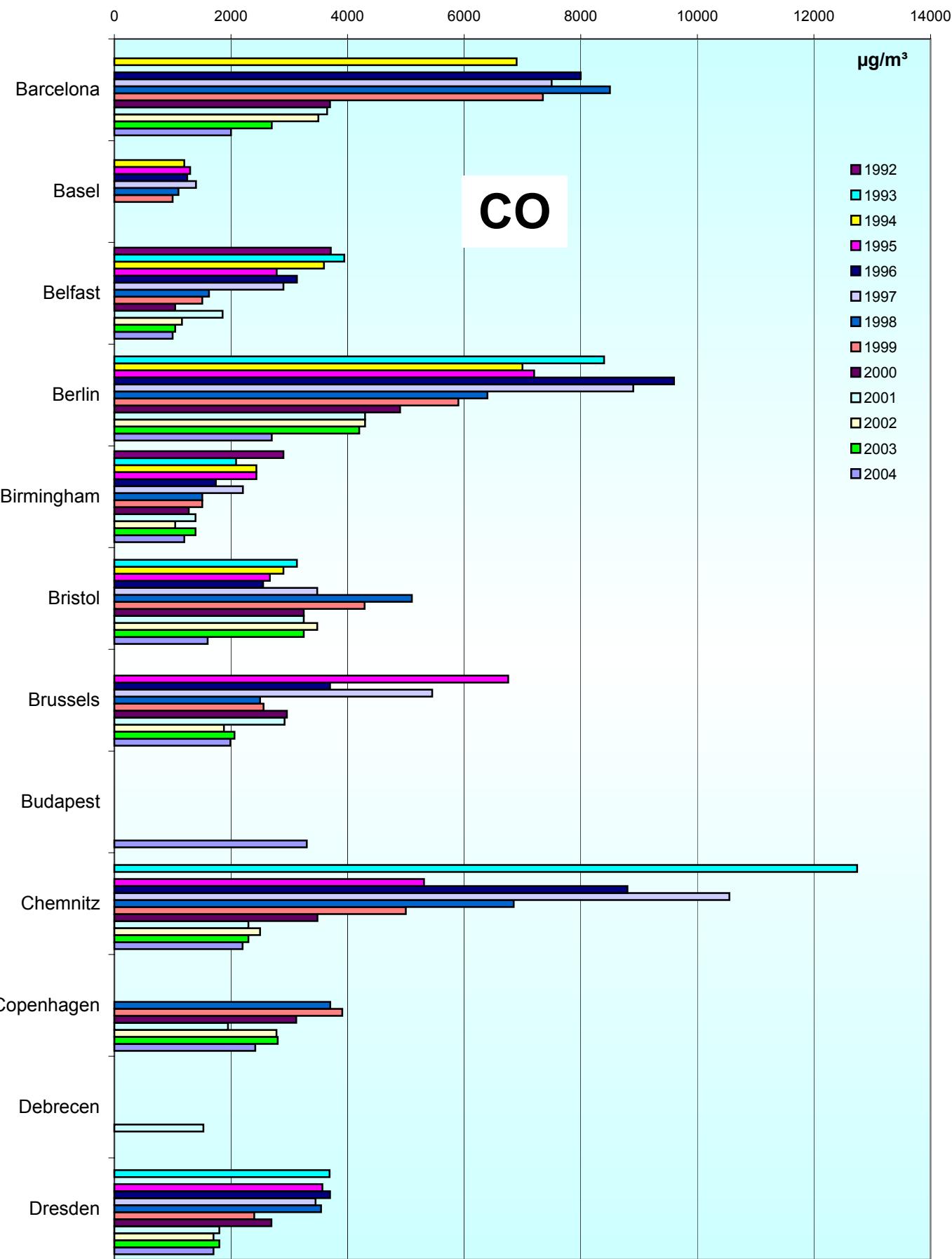


Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

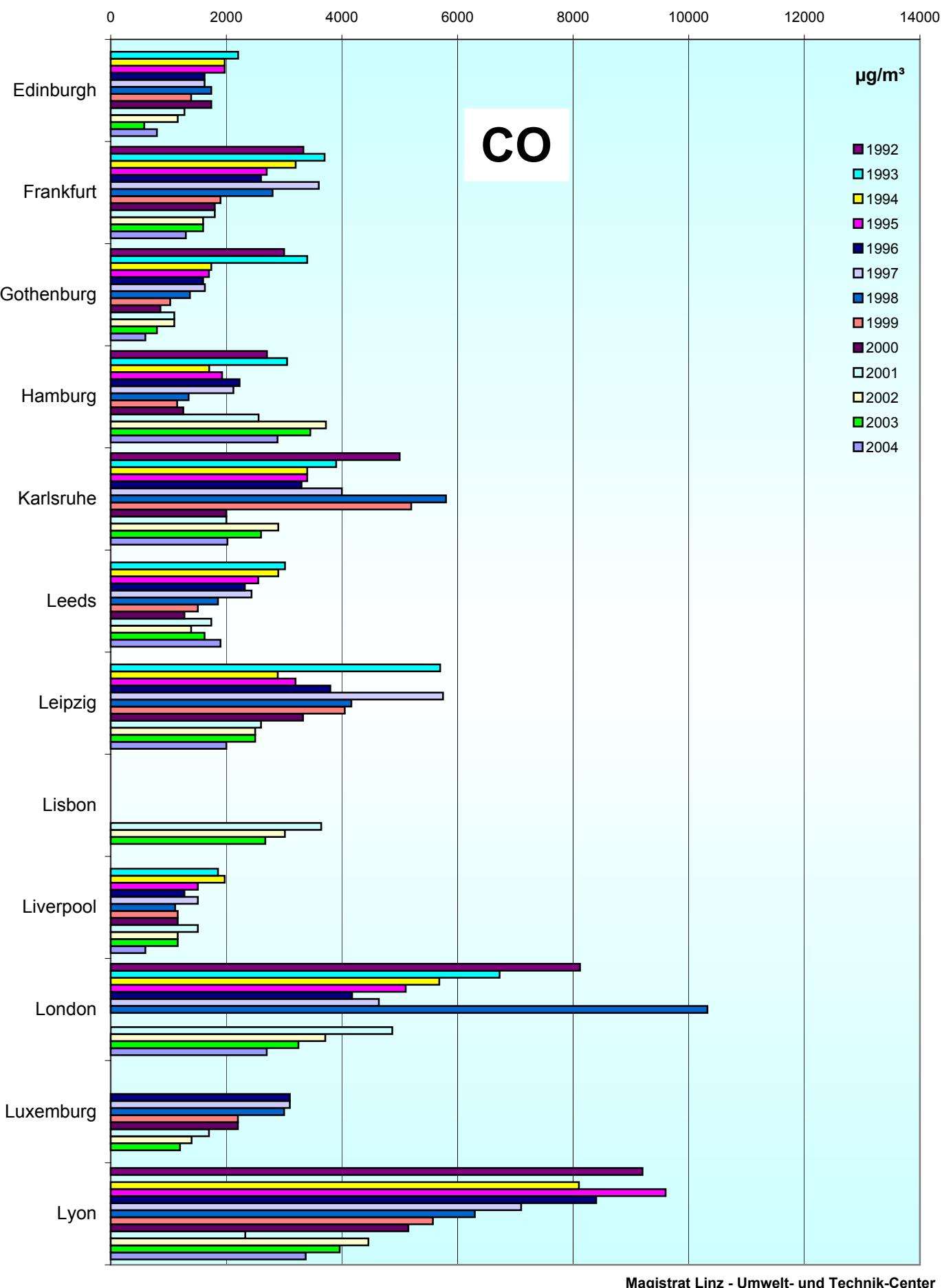
163



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

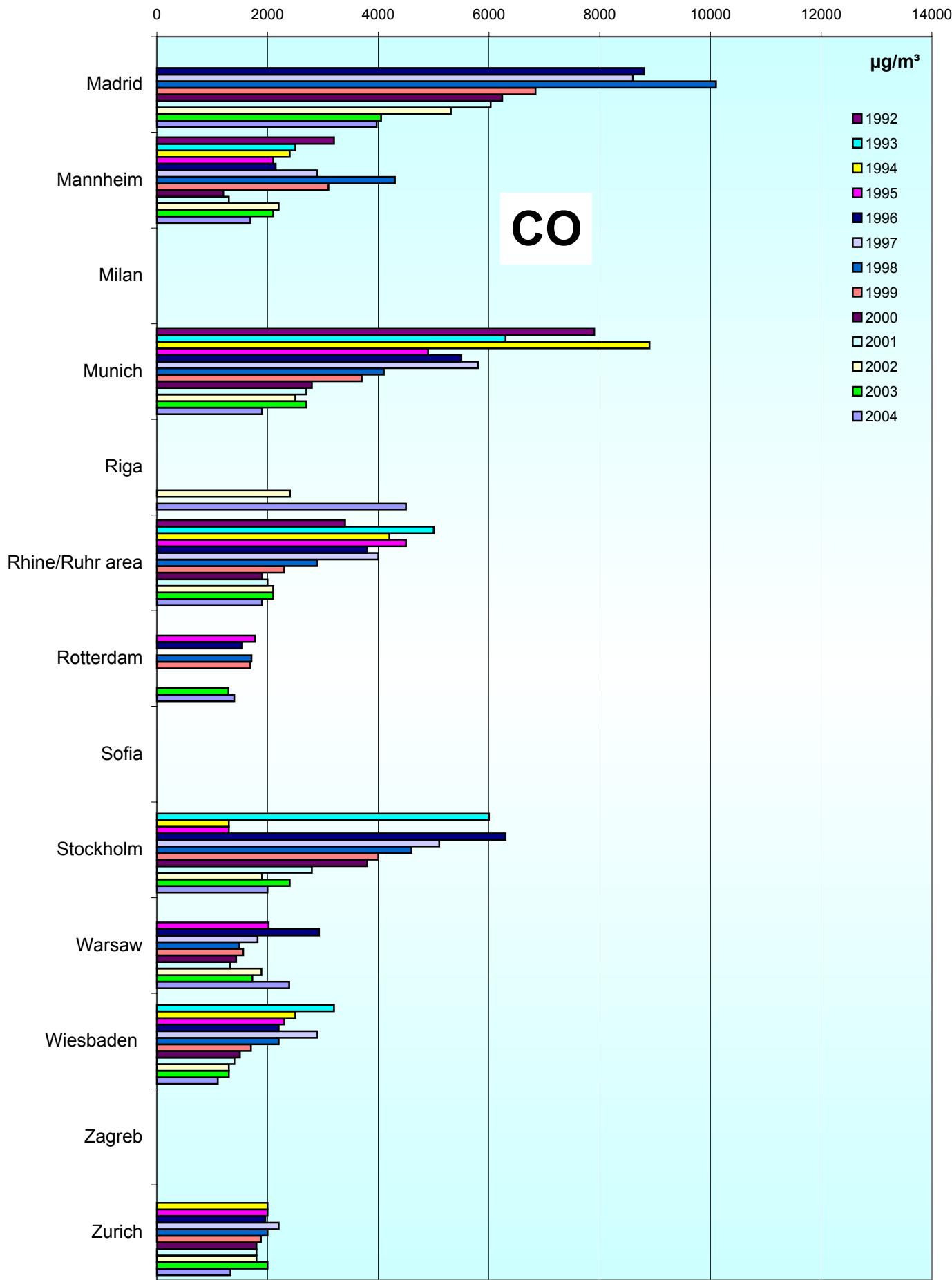
(peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2004

max. 98 percentile (peak-stressed monitoring station)

165



Comparison of The Air Quality 1992 - 2004

max. 98 percentile

(peak-stressed monitoring station)

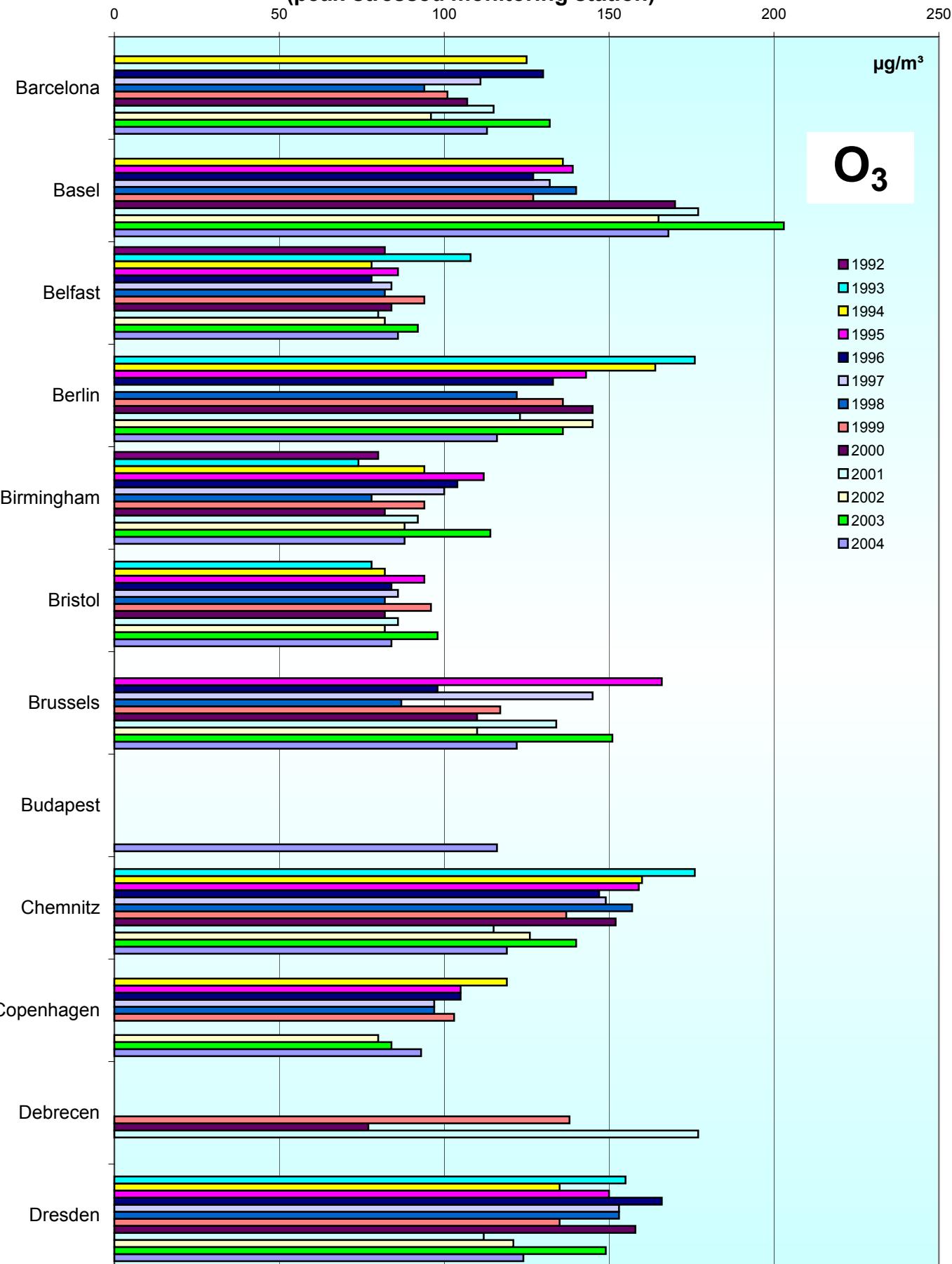


Comparison of The Air Quality 1992 - 2004

167

max. 98 percentile

(peak-stressed monitoring station)

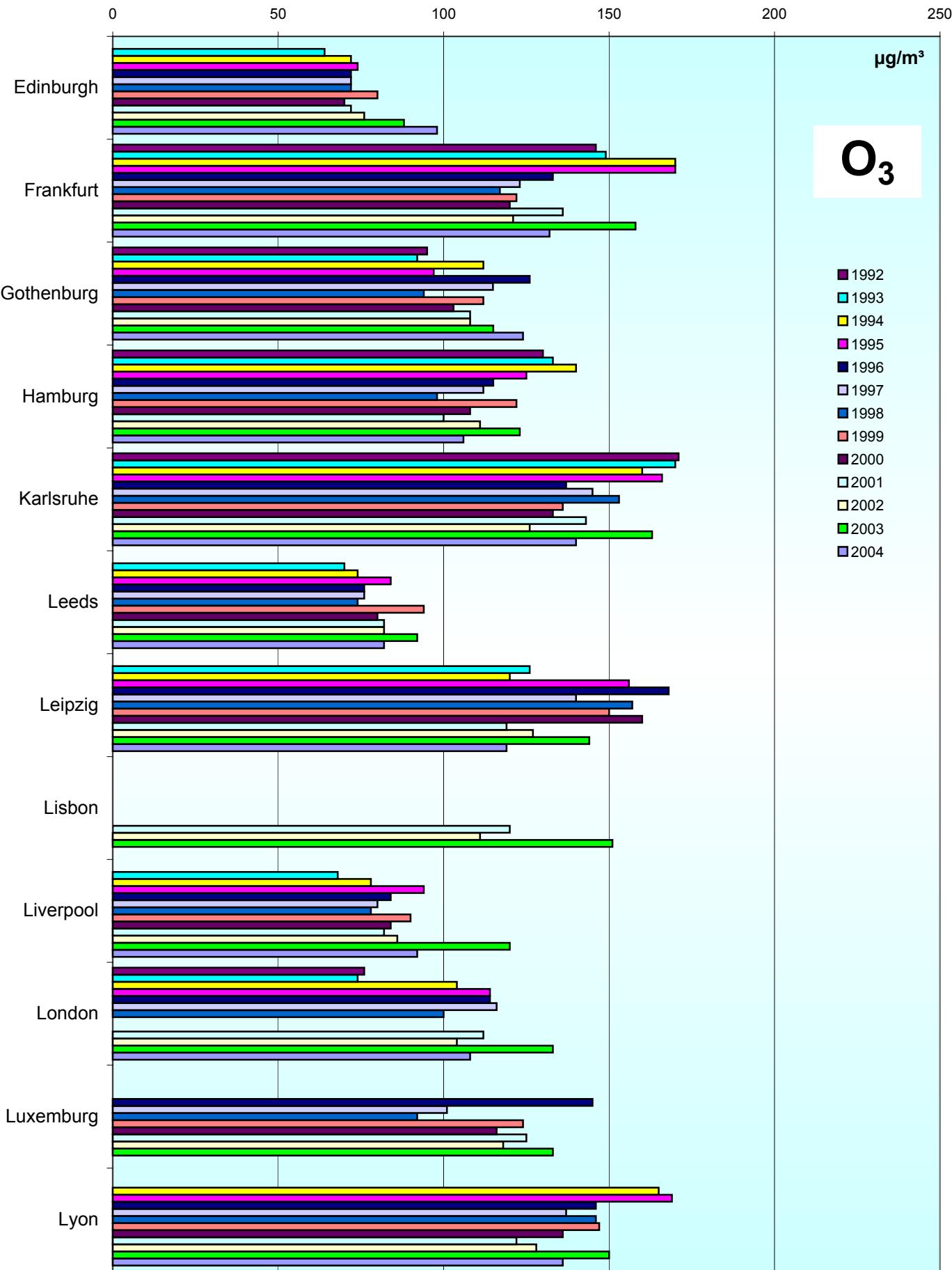


Comparison of The Air Quality 1992 - 2004

max. 98 percentile

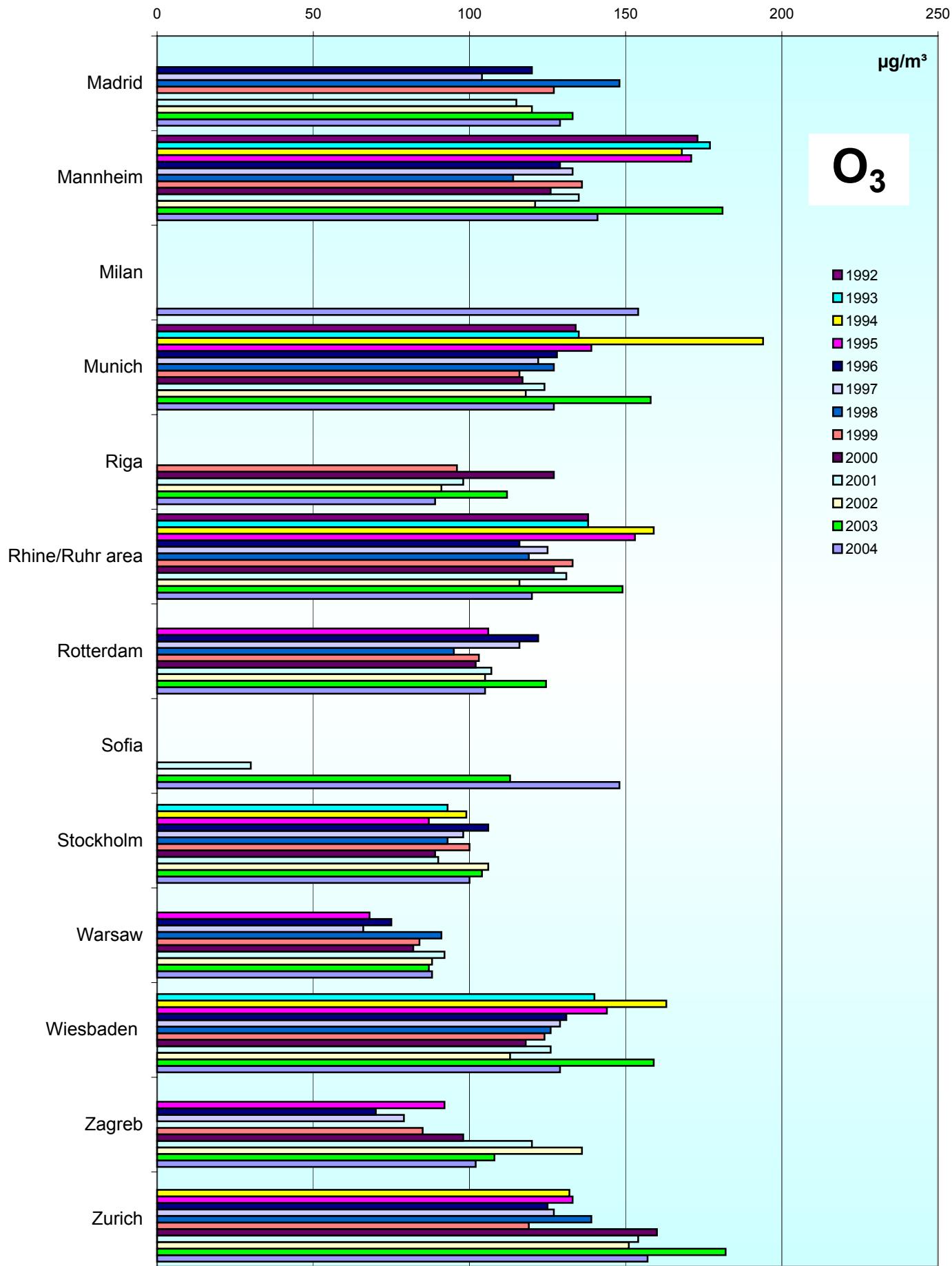
(peak-stressed monitoring station)

168



Comparison of The Air Quality 1992 - 2004
max. 98 percentile (peak-stressed monitoring station)

169



Jahresvergleich

1993 - 2004

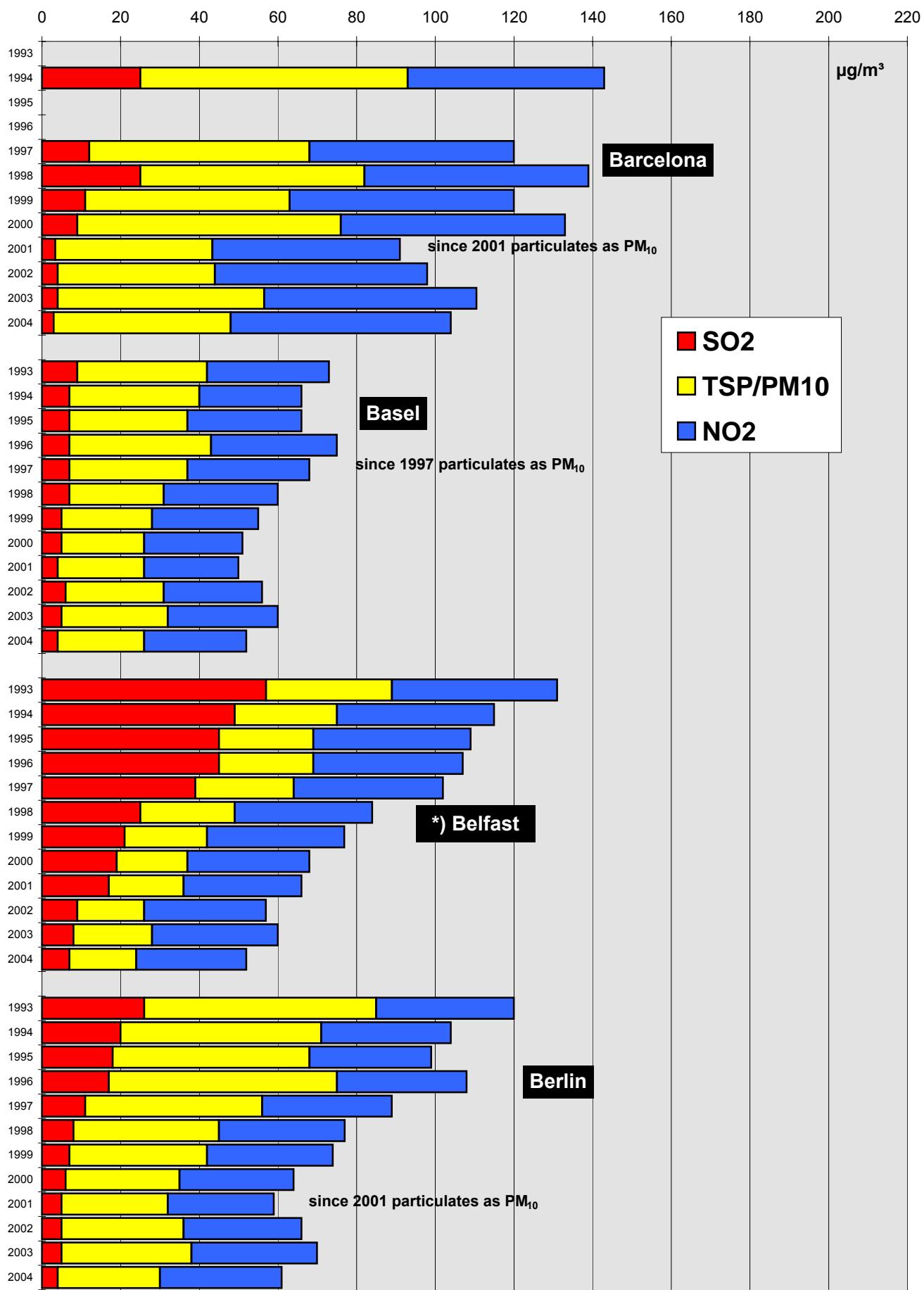
Jahresmittelwerte, ΣSO_2 , TSP/PM10, NO_2

Comparison Of The Air Quality

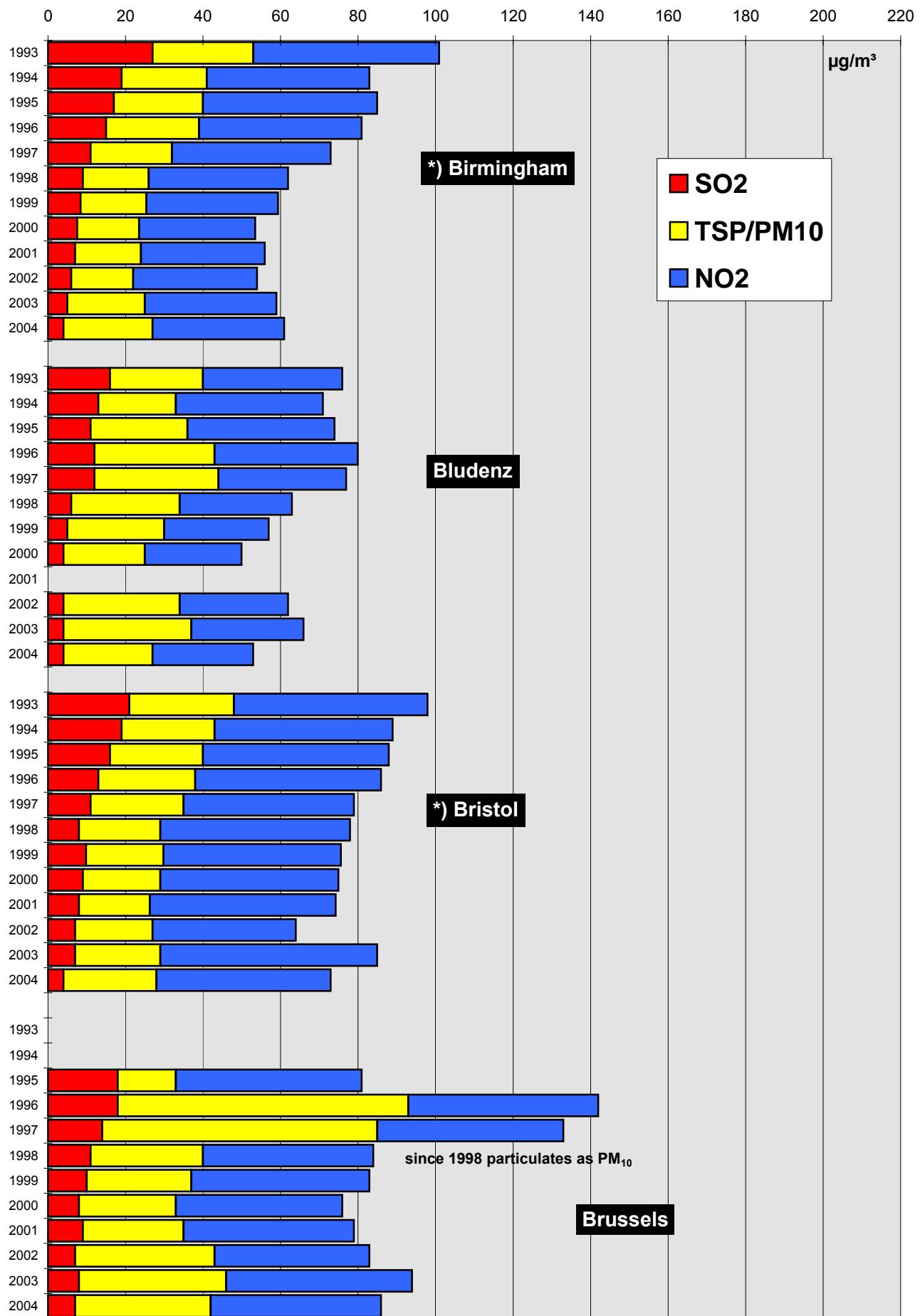
1993 - 2004

Annual Mean Values, ΣSO_2 , TSP/PM10, NO_2

Comparison Of The Air Quality 1993-2004
Development of the annual mean values, ΣSO_2 , TSP/PM₁₀, NO₂
(mean of all monitoring stations)

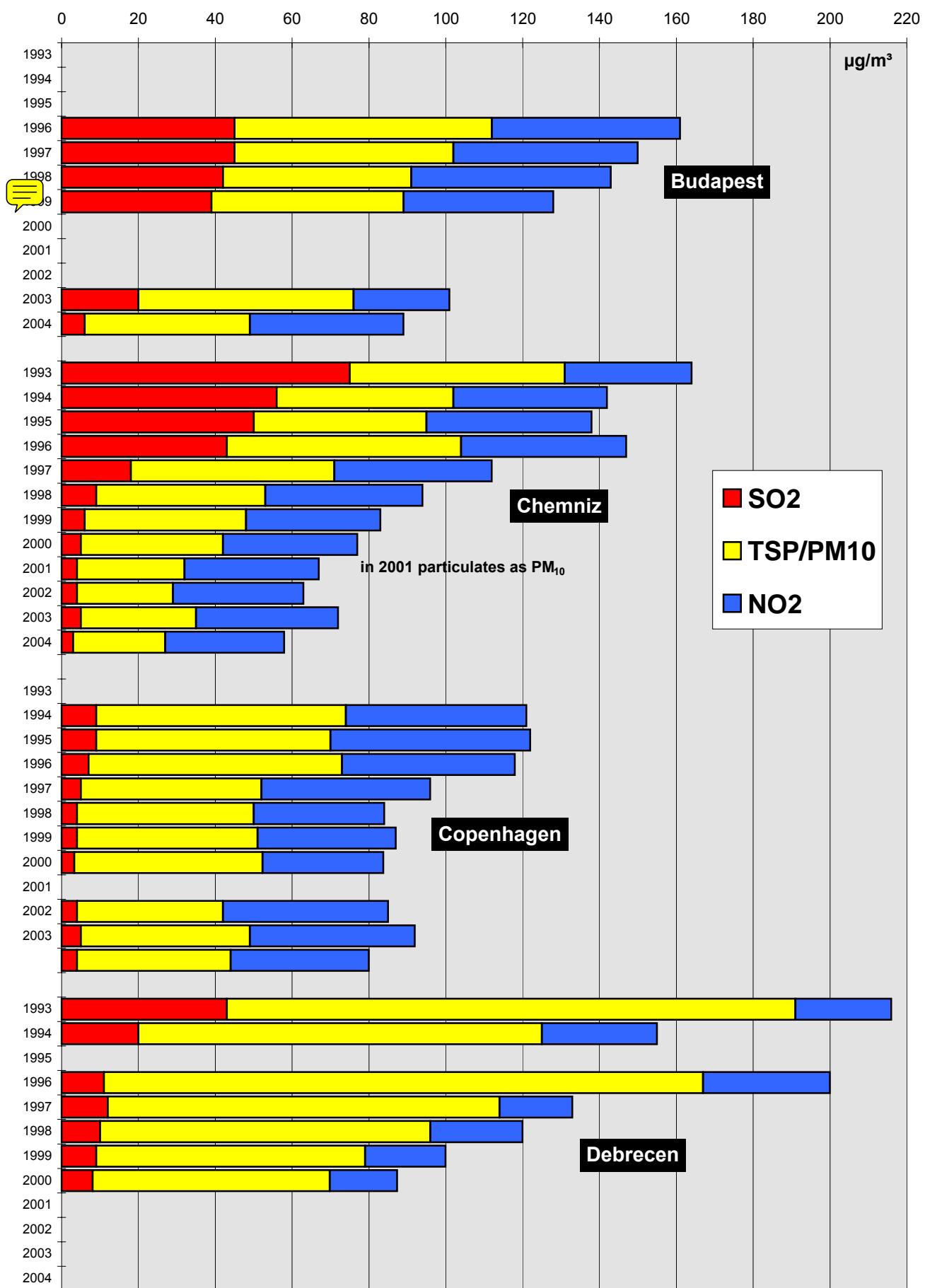


Development of the annual mean values, ΣSO_2 , TSP/PM₁₀, NO₂
 (mean of all monitoring stations)



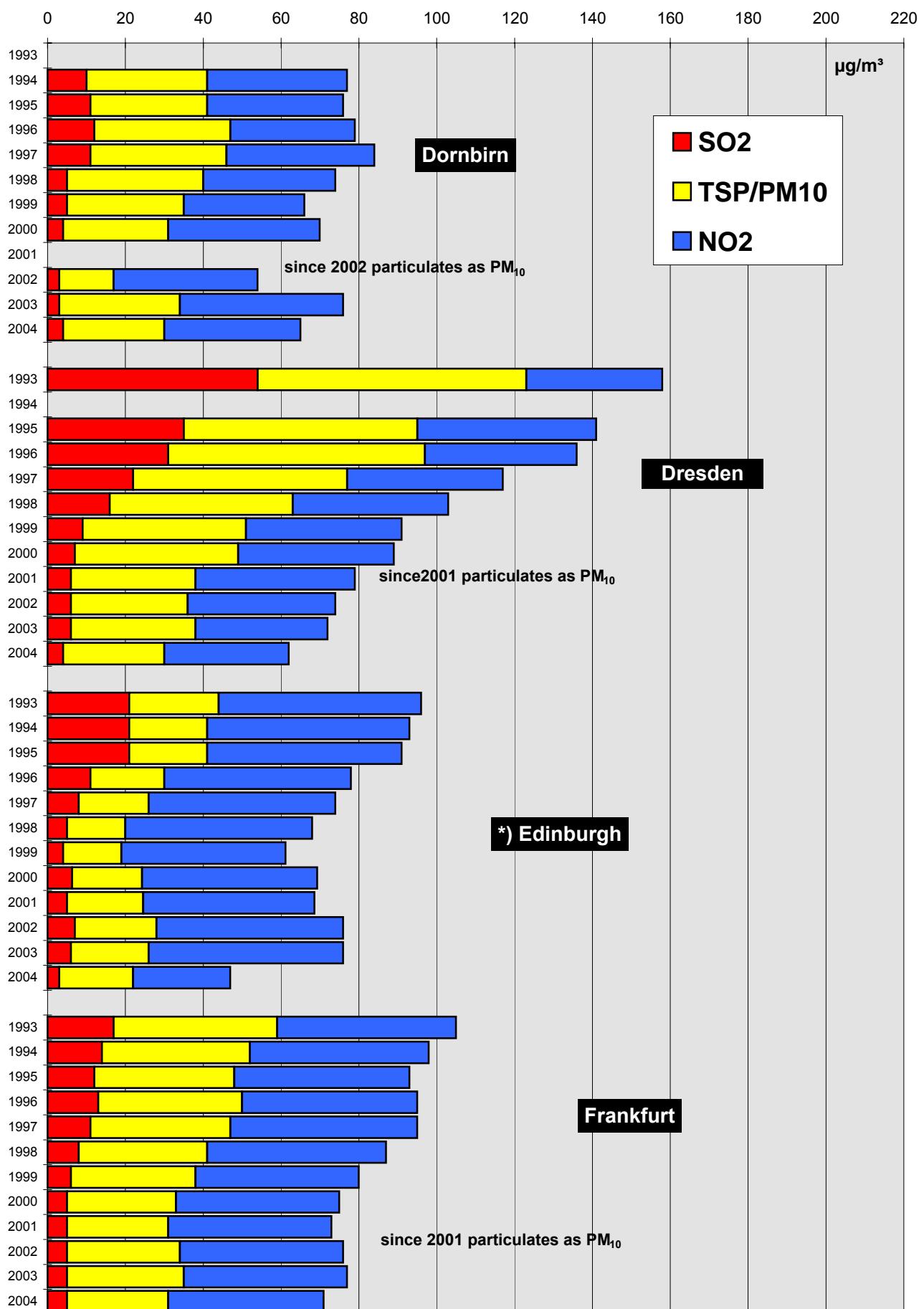
*) particulates calculated as PM 10

Comparison Of The Air Quality 1993-2004
Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂
(mean of all monitoring stations)

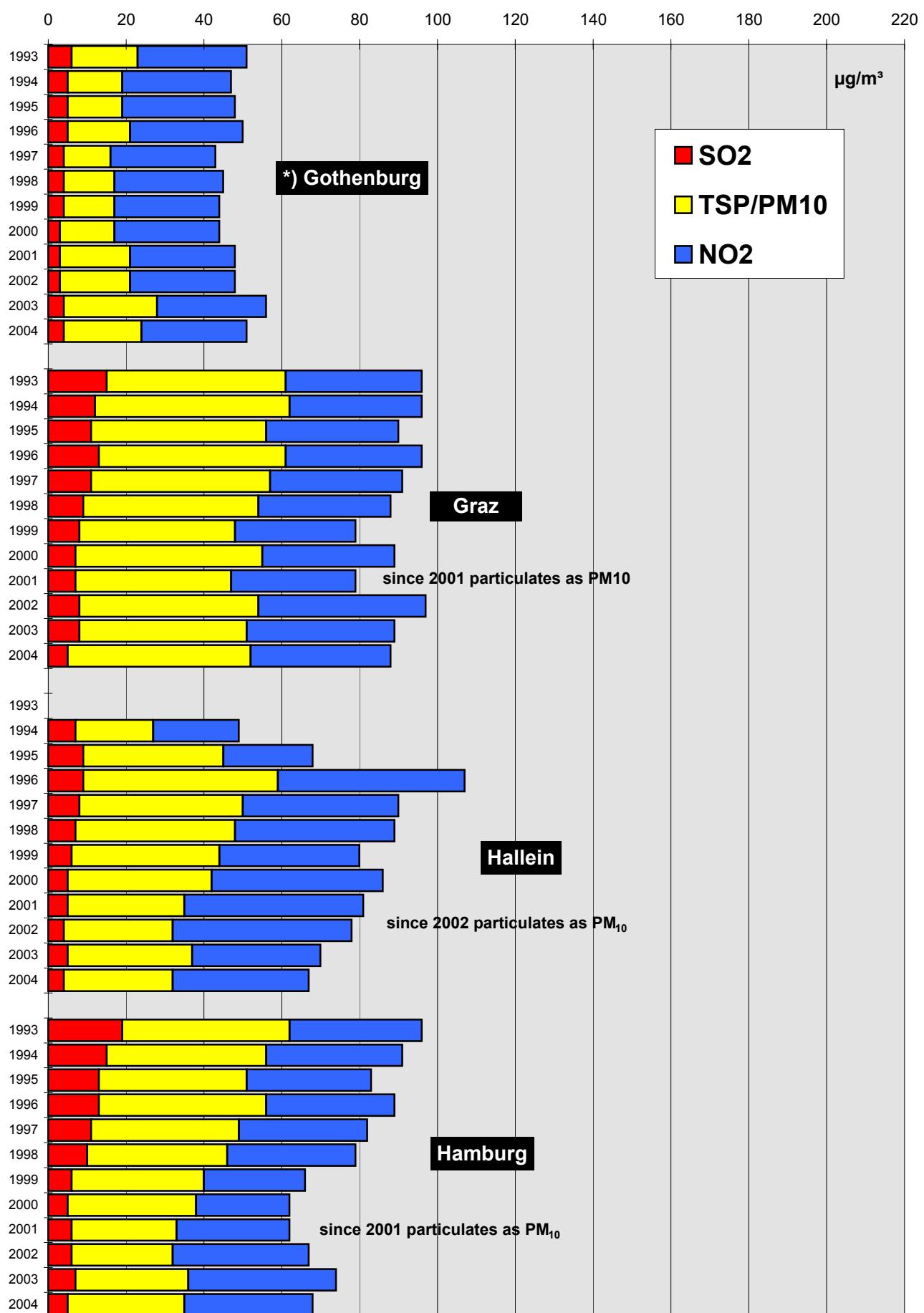


*) particulates calculated as PM₁₀

Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂
(mean of all monitoring stations)



Comparison Of The Air Quality 1993-2004
Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂
(mean of all monitoring stations)

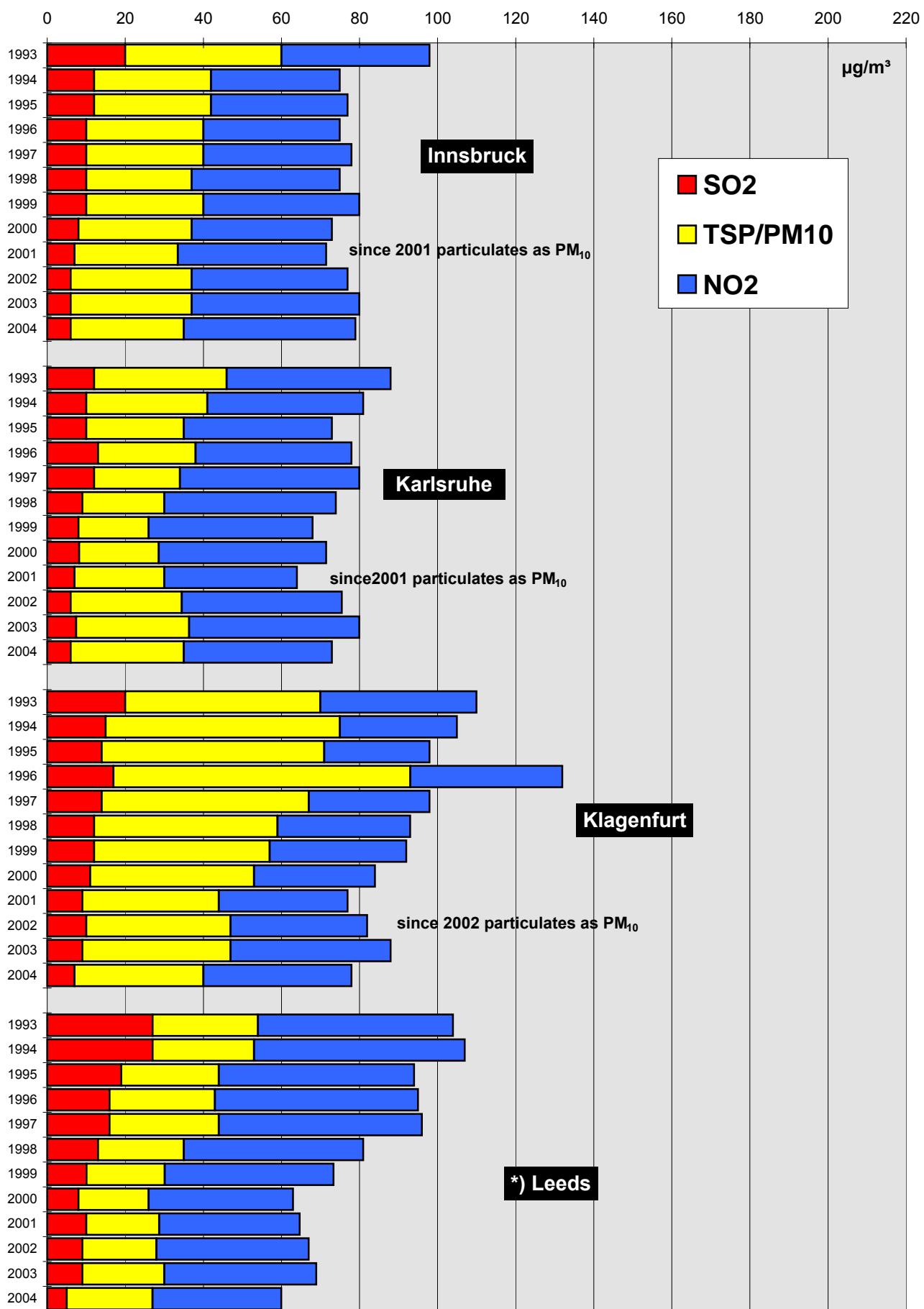


*) particulates calculated as PM₁₀

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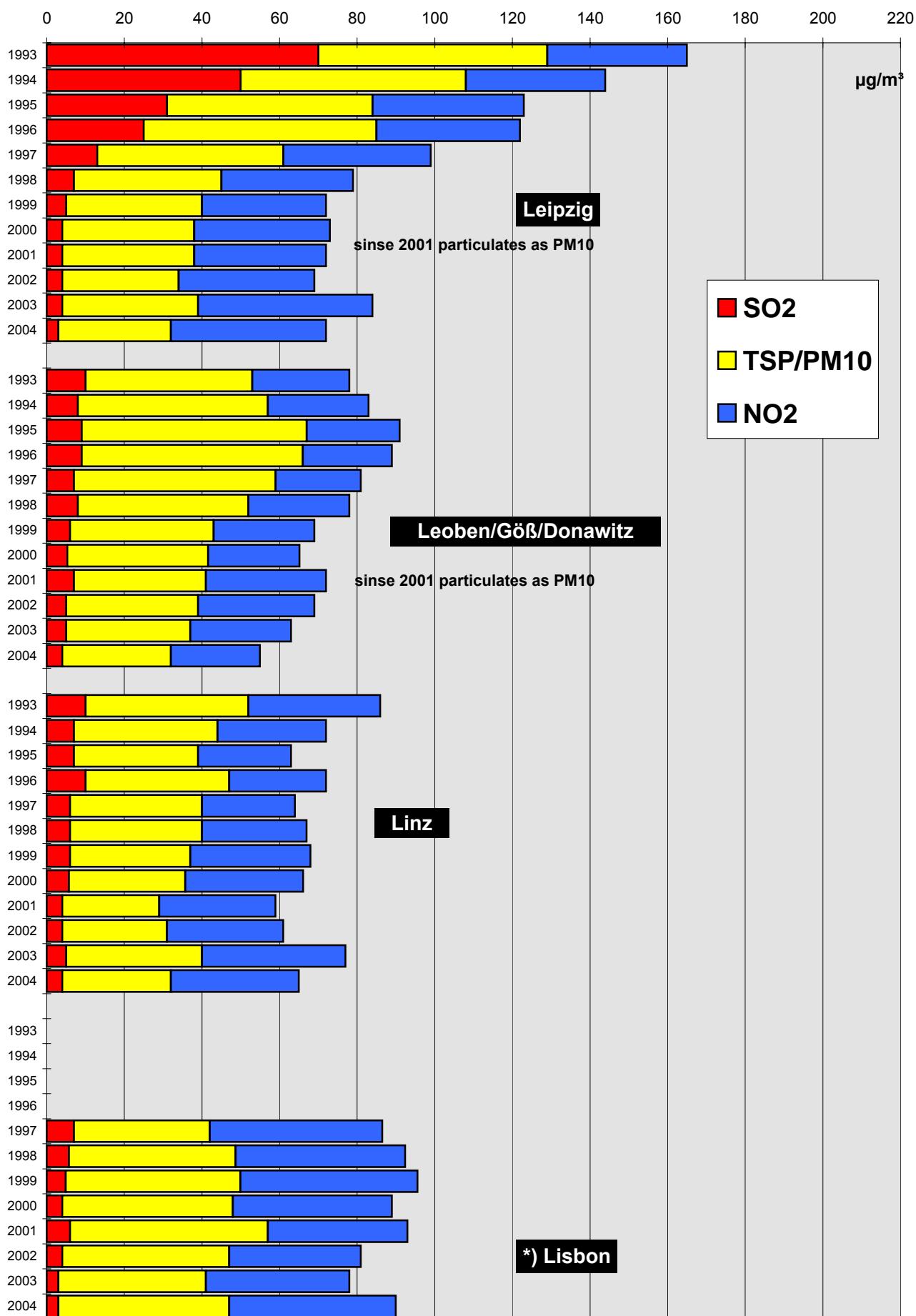
Comparison Of The Air Quality 1993-2004
Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂
(mean of all monitoring stations)

177



*) particulates calculated as PM₁₀

Comparison Of The Air Quality 1993-2004
Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂
(mean of all monitoring stations)

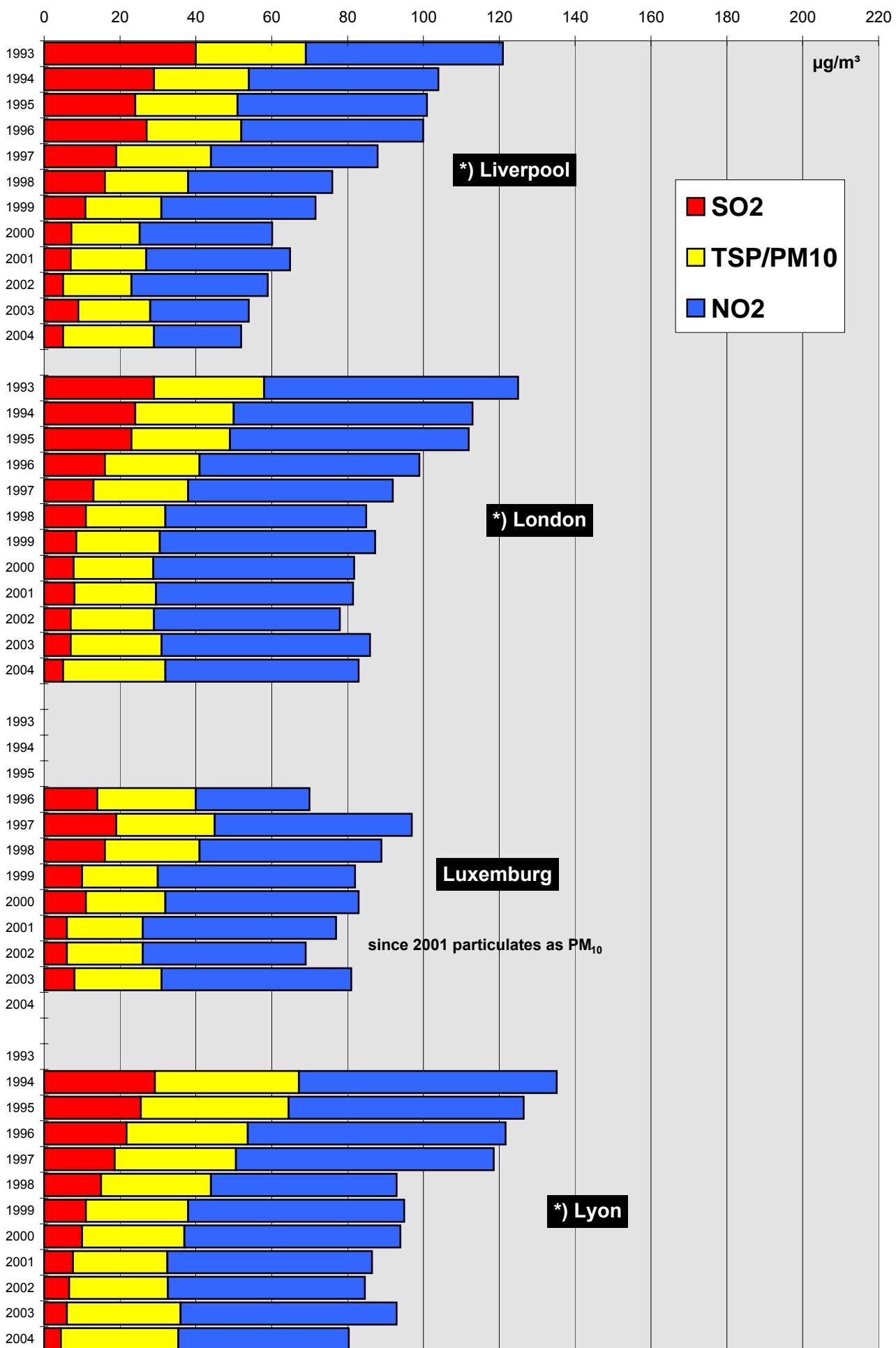
*) particulates calculated as PM₁₀

Comparison Of The Air Quality 1993-2004

179

Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂

(mean of all monitoring stations)



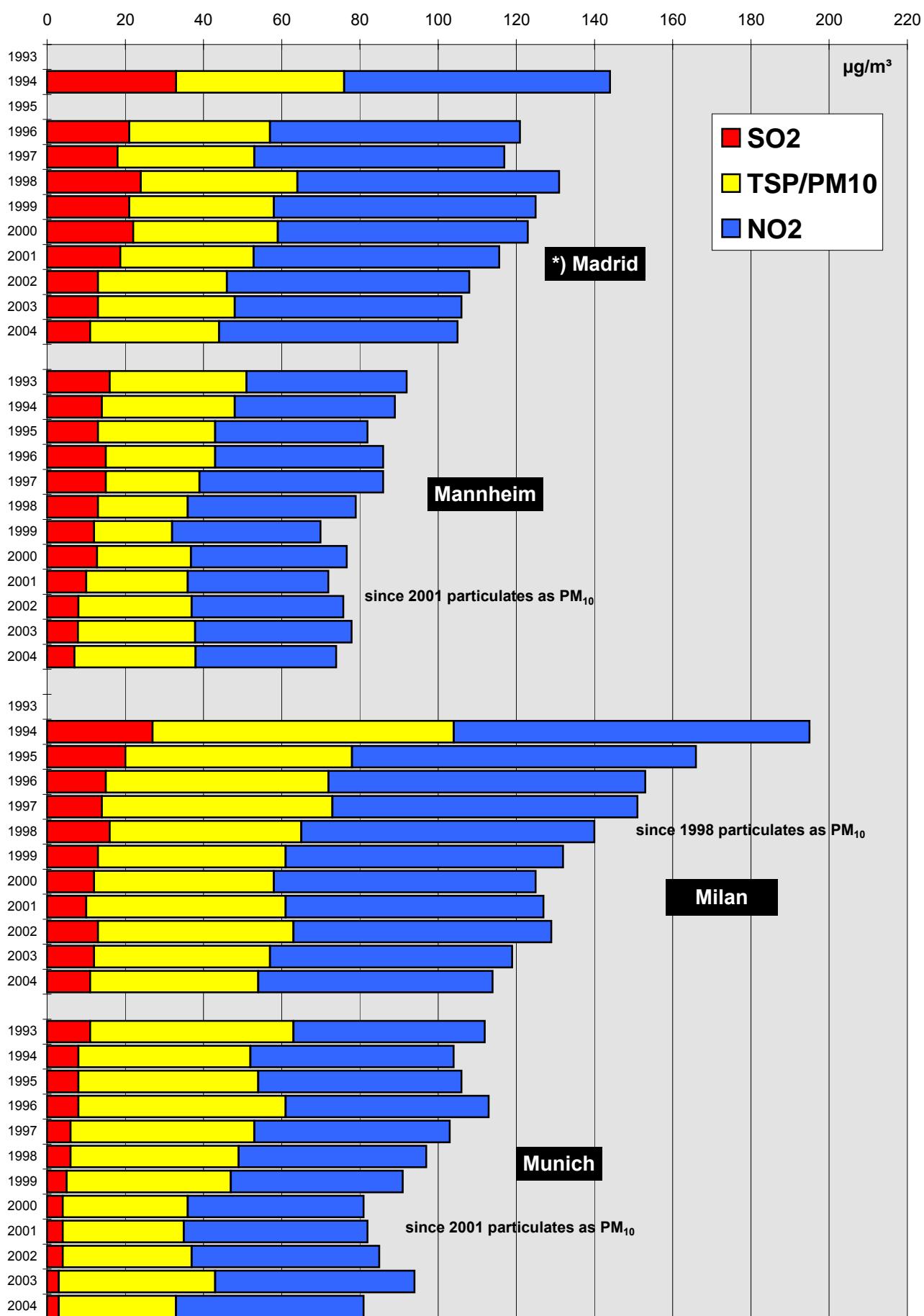
*) particulates calculated as PM₁₀

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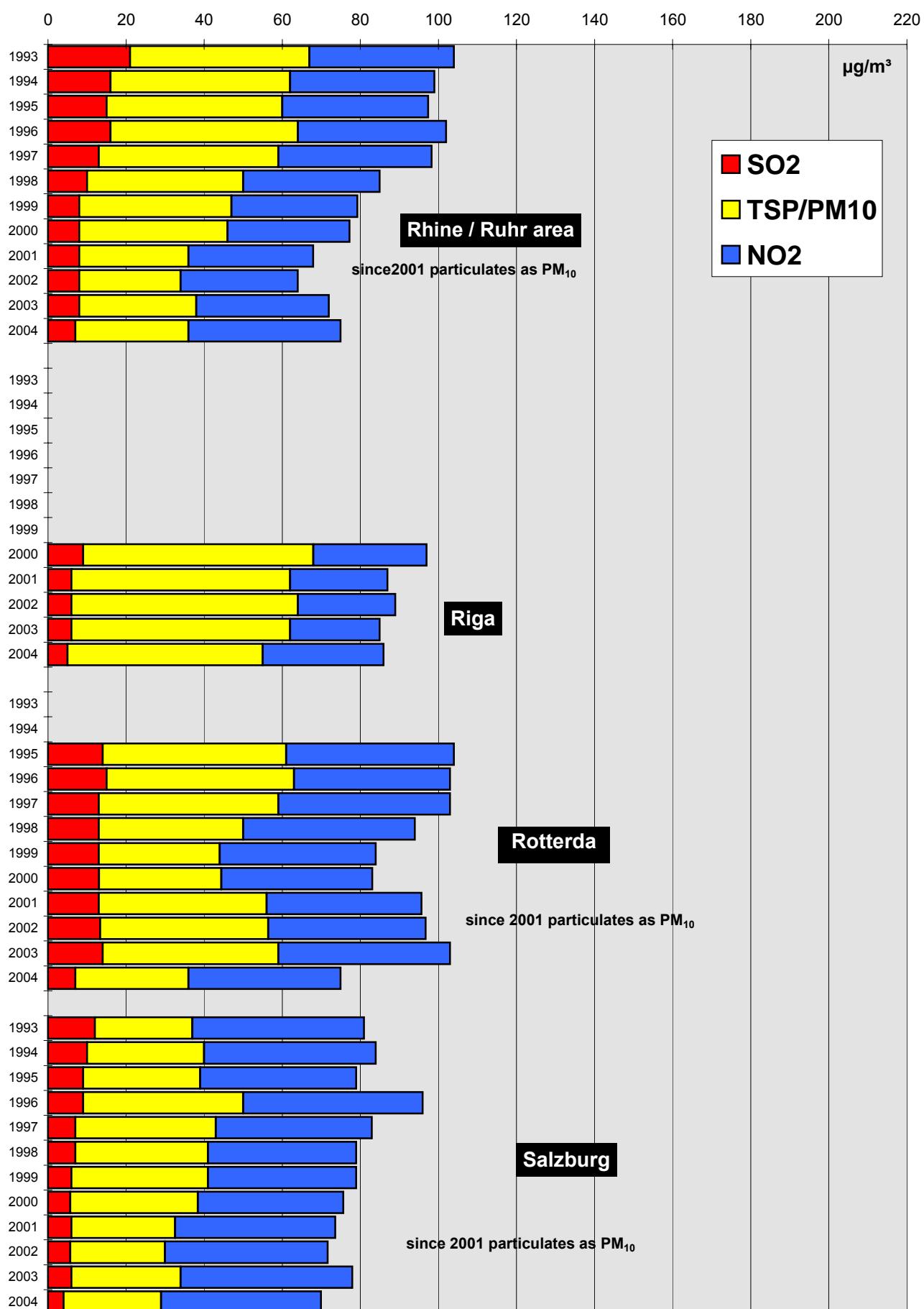
Comparison Of The Air Quality 1993-2004

180

Development of the annual mean values, ΣSO_2 , TSP/PM₁₀, NO₂ (mean of all monitoring stations)



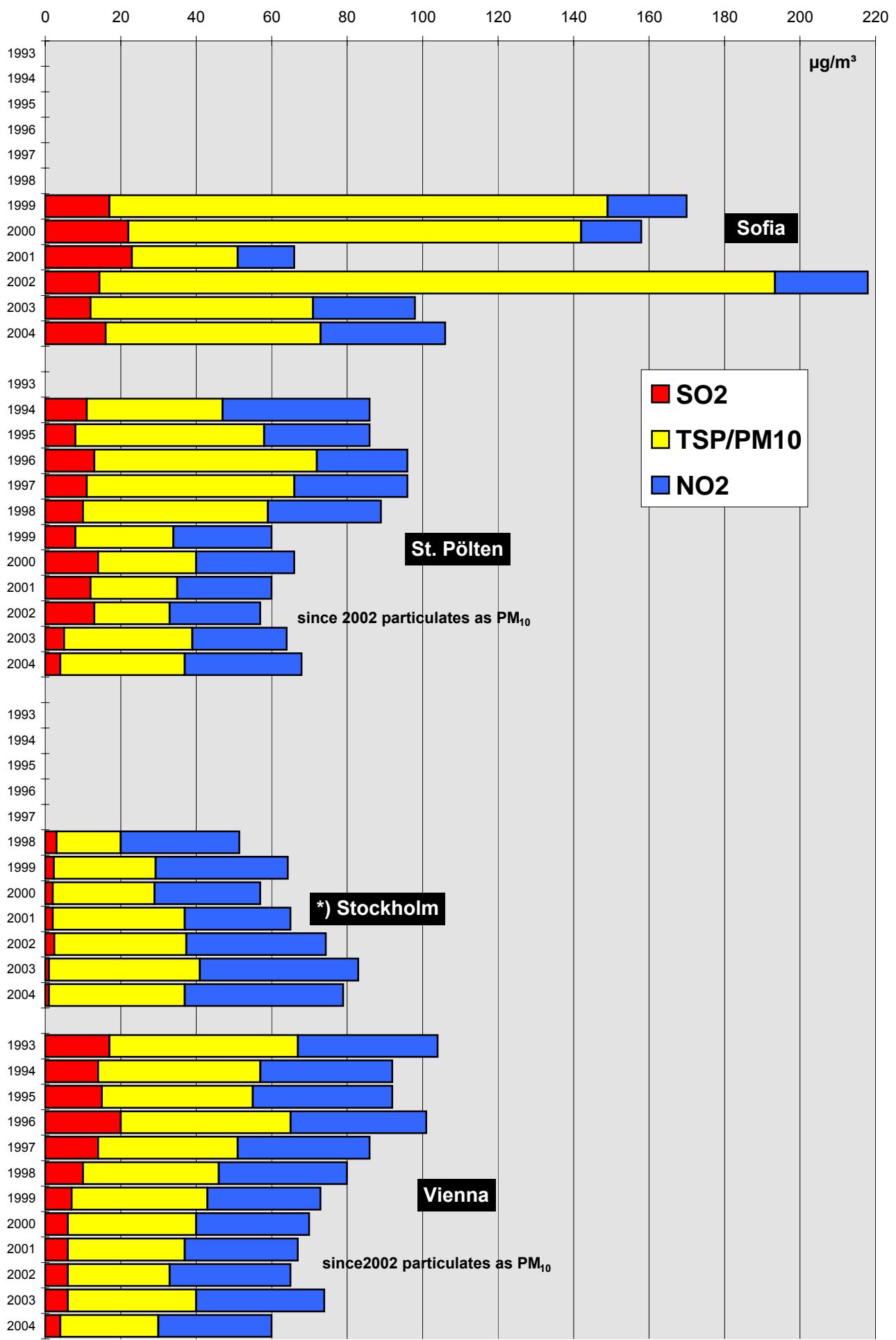
Comparison Of The Air Quality 1993-2004
Development of the annual mean values, ΣSO_2 , TSP/PM₁₀, NO₂
(mean of all monitoring stations)



*) particulates calculated as PM₁₀

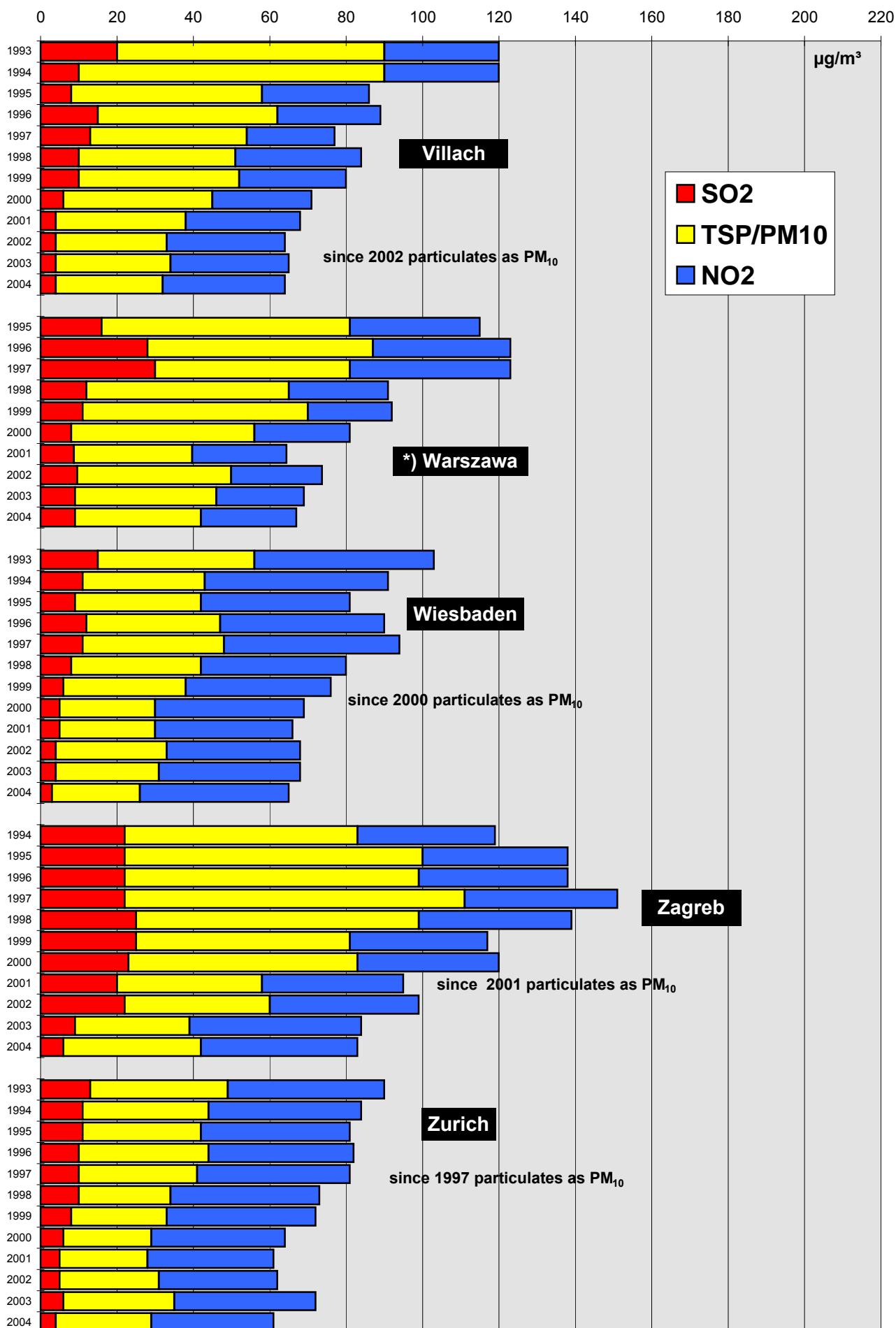
Magistrat Linz - Umwelt- und Technik-Center

Comparison Of The Air Quality 1993-2004
Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂
(mean of all monitoring stations)

*) particulates calculated as PM₁₀

Magistrat Linz - Umwelt- und Technik-Center

Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂
 (mean of all monitoring stations)



Luftgütekennzahlen 2004

der einzelnen

Vergleichsregionen

Immission Reference Values 2004

Of All Compared Regions

Comparison of The Air Quality in 2004

Barcelona

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | ** max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | *** Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|-------------------|-------------------------------|---|---|---|---|--|---|--|
| SO ₂ | 2 | 3,4 | 6 | 40 | 105 | 247 | - | 22,5 |
| TSP | - | - | - | - | - | - | - | - |
| *PM ₁₀ | 3 | 45,5 | 70 | 224 | - | - | - | - |
| NO | 3 | 41,5 | 111 | 293 | 676 | 799 | - | 260 |
| NO ₂ | 3 | 55,6 | 93 | 152 | 203 | 259 | - | 143 |
| CO | 3 | 510 | 830 | 2530 | 5150 | 7650 | - | 2000 |
| O ₃ | 3 | 35,6 | 59 | 115 | 169 | 205 | - | 113 |

| | | |
|--------------------|--|-------------|
| PM ₁₀ : | Monitoring method(s) used: | Gravimetric |
| | Correction factor for this method according to EU-directive 1999/30/EC): | 1 |
| | Number of limit violations of the daily mean standard of 50 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 47 |
| | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 13 |

* Gravimetric method only

** Static average (not moving average)

*** Maximum 98 percentile of 1-hour values

Basel

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 3,7 | 8 | 21 | 43 | 81 | 105 | 23,4 |
| TSP | 1 | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 22,4 | 36 | 77 | 235 | 412 | 485 | 88,6 |
| NO | 1 | 7,8 | 23 | 66 | 151 | 195 | 229 | 90,6 |
| NO ₂ | 1 | 25,9 | 41 | 81 | 105 | 106 | 107 | 88,6 |
| CO | 1 | - | - | - | - | - | - | - |
| O ₃ | 1 | 47,4 | 75 | 136 | 199 | 201 | 206 | 168 |

| | | |
|--------------------|--|--|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 16 |
| | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 0 |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 2 | 6,5 | 34 | 41 | 107 | 125 | 129 | 34 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 2 | 17 | 27 | 79 | 424 | 995 | - | 70 |
| NO | 1 | 16 | 32 | 128 | 454 | 519 | - | 111 |
| NO ₂ | 1 | 28 | 37 | 72 | 132 | 153 | - | 76 |
| CO | 1 | 200 | 300 | 1500 | 3600 | 4100 | - | 1000 |
| O ₃ | 1 | 43 | 59 | 94 | 119 | 124 | - | 86 |

| | | | | | | | | |
|--------------------|---|--|--|--|--|--|--|--|
| 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 2004 (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 2004: | | | | | | |

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 3 | 3,7 | 8 | 23 | 60 | 87 | 128 | 22 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 2 | 23 | 28 | 64 | 180 | 334 | - | 60 |
| NO | 3 | 22 | 46 | 213 | 707 | 810 | - | 200 |
| NO ₂ | 3 | 34 | 45 | 86 | 147 | 159 | - | 80 |
| CO | 3 | 300 | 500 | 1300 | 4300 | 4800 | - | 1200 |
| O ₃ | 3 | 39 | 56 | 88 | 146 | 150 | - | 88 |

| | | | | | | | | |
|--------------------|---|--|--|--|--|--|--|--|
| 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 2004 (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 2004: | | | | | | |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|-------------------------------------|--|-------------------------------------|---|---|--------------------------------------|--------------------------------------|---------------------------------------|---|
| SO₂ | 9/2/4/3 | 4/3/4/6 | - | 33/29/33/31 | - | 121/51/107/121 | - | 20/14/19/20 |
| station types | a/b/c/d | a/b/c/d | - | a/b/c/d | - | a/b/c/d | - | a/b/c/d |
| PM₁₀¹⁾ | 11/4/4/3 | 26/21/27/35 | - | 214/163/166/214 | - | 1872/658/1403/14 20 | - | 79/55/60/79 |
| station types | a/b/c/d | a/b/c/d | - | a/b/c/d | - | a/b/c/d | - | a/b/c/d |
| NO | 16/6/5/5 | 24/4/9/64 | - | 286/65/83/286 | - | 846/201/344/846 | - | 322/39/63/322 |
| NO₂ | 16/6/5/5 | 31/15/29/46 | - | 113/56/73/113 | - | 164/93/134/164 | - | 111/49/67/111 |
| 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/m³) | 10/3/4/3 | 0,5/0,2/0,4/0,7 | - | - | 3,7/1,5/3,7/3,7 | 5,2/1,7/4,6/5,2 | - | 2,7/0,6/1,0/2,7 |
| station types | a/b/c/d | a/b/c/d | - | - | a/b/c/d | a/b/c/d | - | a/b/c/d |
| O₃ | 9/3/6 | 42/39/49 | - | - | 166/148/166 | 195/166/195 | 201/170/201 | 116/110/116 |
| station types | a/c/b | a/c/b | - | - | a/c/b | a/c/b | a/c/b | a/c/b |
| PM₁₀: | number of exceedances of the daily mean value of 50 µg/m³ at the highest stressed station in 2004 (measured values including correction factor for the PM10-measurement according to EU-directive 1999/30/EU) | | | | | | | 62 |

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

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

³ e. g.: per year, per month,

Comments:

- 1) PM₁₀ (only monitoring PM₁₀)
- 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 NO₂ and NO)
- c Downtown
- d traffically influenced stations

98-percentiles:

- SO₂: 98%-value of the hour's means
PM₁₀: 98%- value of the daily means
NO, NO₂: 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 O₃ are determined as max 8h mean values.
Max. daily mean values CO and O₃ are not calculated.
Max ½ h mean values are only registered for O₃.

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 1 | 4 | 10 | 22 | 32 | 39 | 43 | 19 |
| TSP | 1 | 23 | 36 | 74 | 139 | 150 | 150 | 78 |
| PM ₁₀ | 0 | - | - | - | - | - | - | - |
| NO | 1 | 18 | 82 | 268 | 437 | 495 | 498 | 150 |
| NO ₂ | 1 | 26 | 50 | 83 | 117 | 123 | 132 | 84 |
| CO | - | - | - | - | - | - | - | - |
| O ₃ | 1 | 43 | 68 | 110 | 166 | 169 | 170 | 122 |

| | | | | | | | | |
|--------------------|---|--|--|--|--|--|--|--|
| 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 2004 (measured values including correction factor): | | | | | | | |
| | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | | | | | | |

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 1 | 4 | 7 | 20 | 50 | 82 | 97 | 19 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 24 | 33 | 80 | 166 | 281 | - | 65 |
| NO | 2 | 49 | 128 | 389 | 722 | 854 | - | 265 |
| NO ₂ | 2 | 45 | 72 | 110 | 175 | 185 | - | 122 |
| CO | 1 | 400 | 800 | 2200 | 4000 | 4400 | - | 1600 |
| O ₃ | 1 | 37 | 54 | 83 | 118 | 122 | - | 84 |

| | | | | | | | | |
|--------------------|---|--|--|--|--|--|--|--|
| 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 2004 (measured values including correction factor): | | | | | | | |
| | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | | | | | | |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

Brussels

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 9 | 7 | 15 | 38 | 68 | 78 | 81 | 23 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 4 | 35 | 62 | 158 | 488 | 1335 | 2453 | 148 |
| NO | 11 | 29 | 147 | 429 | 826 | 1033 | 1037 | 312 |
| NO ₂ | 11 | 44 | 99 | 149 | 261 | 286 | 298 | 167 |
| CO | 8 | 460 | 1010 | 1690 | 3030 | 4810 | 7670 | 1990 |
| O ₃ | 7 | 35 | 64 | 119 | 199 | 208 | 209 | 122 |

| | | |
|--------------------|--|------------------------|
| PM ₁₀ : | Monitoring method(s) used: | TEOM |
| | Correction factor for this method according to EU-directive 1999/30/EC): | 1,47 |
| | Number of limit violations of the daily mean standard of 50 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 127 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 24 at station 41B003 * |

Comments:

* Station 41B003 is a traffic station located on the inner boulevard of Brussels. It is where the highest concentrations for NO, NO₂ and CO are observed.

Budapest

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 6 | 6 | 29 | 59 | 226 | 359 | - | *32 |
| TSP | 2 | 51 | 71 | 168 | 502 | 593 | - | *168 |
| PM ₁₀ | 7 | 43 | 74 | 167 | 364 | 481 | - | **123 |
| NO | 9 | 25 | 71 | 189 | 386 | 473 | - | *177 |
| NO ₂ | 9 | 40 | 78 | 126 | 176 | 237 | - | *115 |
| CO | 10 | 758 | 2779 | 3489 | 5881 | 6936 | - | *3300 |
| O ₃ | 8 | 33 | 65 | 95 | 164 | 175 | - | *115 |

| | | |
|--------------------|--|---------------------|
| PM ₁₀ : | Monitoring method(s) used: | β -absorption |
| | 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 178 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 1 |

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

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

³ e. g.: per year, per month,

* max. 98 percentile of 1 hour mean values

** max. 98 percentile of 1 daily mean values

Comparison of The Air Quality in 2004

Copenhagen (traffic station)

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 4 | - | - | 50 | 60 | - | 12 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 2 | 51 | - | - | - | 186 | - | - |
| NO | 2 | 50 | - | - | 666 | 832 | - | 210 |
| NO ₂ | 2 | 49 | - | - | 168 | 188 | - | 107 |
| CO | 2 | 841 | - | 2230 | - | 8297 | - | 2417 |
| O ₃ | 2 | 31 | - | 74 | - | 103 | - | 77 |

| | | |
|--------------------|--|--|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | |

Copenhagen Urban

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | - | - | - | - | - | - | - | - |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 19 | - | - | - | 53 | - | - |
| NO | 1 | 4 | - | - | 93 | 180 | - | 29 |
| NO ₂ | 1 | 22 | - | - | 85 | 93 | - | 60 |
| CO | 1 | 300 | - | 797 | - | 2140 | - | 661 |
| O ₃ | 1 | 48 | - | 96 | - | 127 | - | 93 |

| | | |
|--------------------|--|--|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

Chemnitz

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 3 | 5 | 26 | 61 | 64 | 75 | 17 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 2 | 24 | 35 | 92 | 208 | 435 | 808 | 79 |
| NO | 2 | 22 | 68 | 339 | 566 | 740 | 845 | 162 |
| NO ₂ | 2 | 31 | 46 | 102 | 165 | 201 | 223 | 84 |
| CO | 1 | 700 | 1100 | 3600 | 5700 | 7700 | 8800 | 2200 |
| O ₃ | 1 | 46 | 66 | 99 | 162 | 171 | 176 | 119 |

| | | | | |
|--------------------|--|--|----|--|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | | 12 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | | 1 | |

Dornbirn

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 4 | 7 | 13 | 26 | 39 | 53 | 12 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 26 | 41 | 81 | - | - | - | 62 |
| NO | 1 | 31 | 63 | 137 | 314 | 433 | 463 | 155 |
| NO ₂ | 1 | 35 | 50 | 79 | 134 | 145 | 174 | 92 |
| CO | 1 | 400 | 800 | 1400 | 2500 | 3400 | 3600 | 1400 |
| O ₃ | - | - | - | - | - | - | - | - |

| | | | | |
|--------------------|--|---------------|----|--|
| PM ₁₀ : | Monitoring method(s) used: | Gravimetrisch | | |
| | Correction factor for this method according to EU-directive 1999/30/EC): | 1 | | |
| | Number of limit violations of the daily mean standard of 50 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | | 21 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | | 0 | |

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

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

3 e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 2 | 4 | 16 | 77 | 111 | 115 | 117 | 30 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 3 | 26 | 40 | 115 | - | - | - | 82 |
| NO | 3 | 18 | 61 | 185 | 262 | 303 | 379 | 137 |
| NO ₂ | 3 | 32 | 52 | 77 | 130 | 153 | 169 | 91 |
| CO | 1 | 700 | 900 | 1600 | 2600 | 3000 | 3100 | 1700 |
| O ₃ | 3 | 44 | 77 | 125 | - | 193 | 195 | 124 |

| | | | | |
|--------------------|---|--|----|--|
| 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 2004 (measured values including correction factor): | | 27 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | 0 | |

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 1 | 3 | 5 | 31 | 89 | 143 | 198 | 20 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 19 | 24 | 48 | 181 | 261 | - | 51 |
| NO | 1 | 8 | 13 | 75 | 194 | 239 | - | 44 |
| NO ₂ | 1 | 25 | 33 | 60 | 92 | 94 | - | 67 |
| CO | 1 | 300 | 500 | 900 | 1500 | 1600 | - | 800 |
| O ₃ | 1 | 52 | 67 | 131 | 167 | 172 | - | 98 |

| | | | | |
|--------------------|---|--|---|--|
| 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 2004 (measured values including correction factor): | | 0 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | 0 | |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

Frankfurt

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 5 | 5 | 10 | 30 | 48 | 75 | 98 | 23 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 5 | 26 | 40 | 120 | 433 | 703 | 760 | 77 |
| NO | 5 | 26 | 62 | 187 | 414 | 457 | 505 | 166 |
| NO ₂ | 5 | 40 | 59 | 103 | 155 | 161 | 166 | 98 |
| CO | 5 | 400 | 700 | 1400 | 3200 | 3400 | 5600 | 1300 |
| O ₃ | 5 | 36 | 65 | 118 | 208 | 233 | 236 | 132 |

| | | | | |
|--------------------|--|---------------------|--|--|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 19 | | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 0 | | |

Gothenburg

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 3 | 3,7 | 7 | 11 | 35 | 61 | 95 | 13 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 20,4 | 29 | 51 | 106 | 149 | 259 | 55 |
| NO | 1 | 15,9 | 29 | 290 | 615 | 1295 | 793 | 159 |
| NO ₂ | 3 | 27,2 | 41 | 110 | 169 | 209 | 218 | 89 |
| CO | 1 | 130 | 250 | 1730 | 1980 | 2400 | 2930 | 600 |
| O ₃ | 3 | 56,7 | 90 | 131 | 150 | 159 | 186 | 124 |

| | | | | |
|--------------------|--|------|--|--|
| PM ₁₀ : | Monitoring method(s) used: | TEOM | | |
| | Correction factor for this method according to EU-directive 1999/30/EC): | +20% | | |
| | Number of limit violations of the daily mean standard of 50 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 2 | | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 2 | | |

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

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

3 e. g.: per year, per month,

Comparison of The Air Quality in 2004

Gothenburg (urban Background)

| | 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 | 1 | 4,1 | 5 | 11 | - | 35 | - | 13 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 20,4 | 29 | 51 | - | 149 | - | 55 |
| NO | 1 | 15,9 | 29 | 289 | - | 758 | - | - |
| NO ₂ | 1 | 24,9 | 37 | 110 | - | 209 | - | 78 |
| CO | 1 | 130 | 240 | 790 | - | 2400 | - | 600 |
| O ₃ | 1 | 55,2 | 80 | 127 | - | 150 | - | 118 |

| | | |
|--------------------|---|------|
| 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 2004 (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 2004: | 1 |

Graz

| | 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 | 3 | 4 | 14 | 36 | 50 | 52 | 57 | 25 |
| TSP | 1 | 37 | 56 | 192 | 364 | 492 | 512 | 123 |
| PM ₁₀ | 3 | 38 | 71 | 239 | 375 | 468 | 516 | 151 |
| NO | 4 | 29 | 89 | 392 | 558 | 661 | 672 | 287 |
| NO ₂ | 4 | 33 | 53 | 111 | 154 | 184 | 195 | 96 |
| CO | 2 | 620 | 1140 | 3250 | 4680 | 5420 | 8070 | 2760 |
| O ₃ | 4 | 47 | 96 | 147 | 160 | 165 | 166 | 132 |

| | | |
|--------------------|---|------------|
| 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 2004 (measured values including correction factor): | 97 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 |

comments: Station "Graz Ost" has been taken out of duty Nov. 11 2004 due to construction works directly beside the monitoring station. Station is being established at another point close to the present station.

Comparison of The Air Quality in 2004

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 [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 | 1 | 7 | 14 | 33 | 45 | 54 | 56 | 27 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 47 | 75 | 209 | 384 | 426 | 435 | 157 |
| NO | 1 | 73 | 129 | 374 | 723 | 837 | 976 | 347 |
| NO ₂ | 1 | 50 | 65 | 121 | 157 | 169 | 184 | 111 |
| CO | 1 | 750 | 1260 | 3140 | 4800 | 5930 | 6180 | 2750 |
| O ₃ | - | - | - | - | - | - | - | - |

| | | |
|--------------------|---|------------|
| 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 2004 (measured values including correction factor): | 117 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | - |

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 2 | 4 | 9 | 19 | 82 | 145 | 219 | 14 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 28 | 43 | 104 | - | - | - | - |
| NO | 2 | - | - | - | - | - | - | - |
| NO ₂ | 2 | 35 | 67 | 105 | 171 | 182 | 203 | 113 |
| CO | 1 | 650 | 1000 | - | 3240 | 4170 | 6060 | 1800 |
| O ₃ | 1 | 62 | 83 | - | 164 | 165 | 166 | 124 |

| | | |
|--------------------|---|-----------------|
| 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 2004 (measured values including correction factor): | 26 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 |

¹ arithmetic mean value of all monitoring stations of the affected area ² max. value of all monitoring stations of the affected area
³ e. g.: per year, per month,

Location of the monitoring stations:

One heavily traffically influenced
 One station in green area

Comparison of The Air Quality in 2004

Hamburg

| | 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 | 9/2* | 4/8* | 11/12* | 51/35* | 90/73* | 131/93* | 142/95* | 32/33* |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 8/3* | 22/30* | 36/36* | 212/251* | 1094/1447* | 1567/2076* | 1918/2815* | 67/72* |
| NO | 12/4* | 11/68* | 68/118* | 178/265* | 489/574* | 627/630* | 647/656* | 89/346* |
| NO ₂ | 12/4* | 24/59* | 50/75* | 99/122* | 112/198* | 173/242* | 248/265* | 84/157* |
| CO | 3/4* | 303/819* | 712/1255* | 813/2359* | 1680/5252* | 2040/5541* | 2100/9592* | 720/2886* |
| O ₃ | 6 | 40 | 63 | 97 | 151 | 156 | 163 | 106 |

| | | |
|--------------------|---|--|
| PM ₁₀ : | Monitoring method(s) used: | TEOM (8 stations), β-absorption (3 stations) |
| | Correction factor for this method according to EU-directive 1999/30/EC): | 1.3(TEOM) / 1.2 β-absorption |
| | Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2004 (measured values including correction factor): | 20 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 11 |

* traffic-influenced monitoring stations

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 1 | 6 | 14 | 27 | 44 | - | 50 | - |
| TSP | 2 | 35 | 89 | 180 | 339 | - | 394 | - |
| PM ₁₀ | 2 | 29 | 74 | 150 | - | - | 328 | - |
| NO | 2 | 43 | 168 | 292 | - | - | 881 | - |
| NO ₂ | 2 | 44 | 76 | 123 | 187 | 199 | 210 | - |
| CO | 2 | 550 | 1100 | 2600 | 4400 | 4900 | 5900 | - |
| O ₃ | 2 | 40 | 107 | 116 | 159 | 159 | 162 | - |

| | | |
|--------------------|---|--------------|
| PM ₁₀ : | Monitoring method(s) used: | β-absorption |
| | 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 2004 (measured values including correction factor): | 52 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

Karlsruhe

| | 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 | 1 | 6 | 9 | 25 | 57 | 86 | - | 21 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 2 | 23 | 37 | 74 | - | - | - | - |
| NO | 2 | 18 | 53 | 186 | 360 | 424 | - | 138 |
| NO ₂ | 2 | 30 | 45 | 79 | 128 | 151 | - | 82 |
| CO | 2 | 260 | 600 | 1340 | 2530 | 2760 | - | 1150 |
| O ₃ | 2 | 40 | 72 | 139 | 209 | 213 | - | 140 |

| | | | | |
|--------------------|---|-----------------|----|---|
| 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 2004 (measured values including correction factor): | | 14 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | | 0 |

Karlsruhe (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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | - | - | - | - | - | - | - | - |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 29 | 43 | 77 | - | - | - | - |
| NO | 1 | 54 | 88 | 294 | 766 | 888 | - | 208 |
| NO ₂ | 1 | 55 | 61 | 127 | 241 | 253 | - | 120 |
| CO | 1 | 780 | 1030 | 2980 | 8410 | 9200 | - | 2020 |
| O ₃ | - | - | - | - | - | - | - | - |

| | | | | |
|--------------------|---|-------------------|-------|---|
| 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 2004 (measured values including correction factor): | | 25 ** | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | | 5 |

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

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

³ e. g.: per year, per month,

comments: look for Mannheim

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 1 | 7 | 14 | 31 | 83 | 107 | 123 | 31 |
| TSP | 2 | 32 | 53 | 114 | 278 | 476 | 702 | 202 |
| PM ₁₀ | 2 | 33 | 63 | 116 | * | * | * | * |
| NO | 2 | 33 | 87 | 261 | 510 | 577 | 615 | 366 |
| NO ₂ | 2 | 38 | 63 | 114 | 174 | 188 | 194 | 135 |
| CO | 2 | 531 | 889 | 2185 | 4227 | 4635 | 4778 | 3230 |
| O ₃ | 2 | 40 | 74 | 118 | 161 | 163 | 165 | 59 |

| | | | | |
|--------------------|---|-----------------|--|--|
| 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 2004 (measured values including correction factor): | 80 | | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 | | |

* PM₁₀-values are monitored gravimetrically by means of high volume sampler, so smallest time unit is daily mean value

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 1 | 5 | 8 | 43 | 104 | 142 | 158 | 15 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 22 | 26 | 71 | 147 | 161 | - | 61 |
| NO | 1 | 23 | 54 | 241 | 478 | 508 | - | 129 |
| NO ₂ | 1 | 33 | 46 | 100 | 169 | 178 | - | 84 |
| CO | 1 | 600 | 900 | 1800 | 3500 | 3700 | - | 1900 |
| O ₃ | 1 | 38 | 54 | 84 | 115 | 116 | - | 82 |

| | | | | |
|--------------------|---|---|--|--|
| 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 2004 (measured values including correction factor): | 4 | | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 | | |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 3 | 5 | 18 | 50 | 117 | 152 | 12 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 3 | 29 | 49 | 95 | * | * | * | 59 |
| NO | 3 | 34 | 69 | 196 | 439 | 670 | 727 | 184 |
| NO ₂ | 3 | 40 | 55 | 100 | 167 | 217 | 229 | 102 |
| CO | 1 | 800 | 900 | 1900 | 4800 | 6400 | 6600 | 2000 |
| O ₃ | 1 | 48 | 66 | 104 | ** | 175 | 178 | 119 |

| | | | | |
|--------------------|---|--|----|--|
| 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 2004 (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 2004: | | 1 | |

* Daily mean is smallest time unit

** Not calculated

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 3 | 4,4 | 9 | 23 | 80 | 109 | 150 | 26 |
| TSP | 1 | 33 | 46 | 176 | 338 | 382 | 446 | 116 |
| PM ₁₀ | 2 | 28 | 44 | 109 | 257 | 373 | 377 | 91 |
| NO | 3 | 19 | 60 | 167 | 237 | 323 | 335 | 152 |
| NO ₂ | 3 | 23 | 48 | 73 | 97 | 111 | 133 | 77 |
| CO | 1 | 800 | 1910 | 4860 | 10200 | 13480 | 14760 | 3780 |
| O ₃ | 1 | 35 | 57 | 84 | 140 | 146 | 149 | 112 |

| | | | | |
|--------------------|---|--------------|--|----|
| PM ₁₀ : | Monitoring method(s) used: | continuously | | |
| | 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 2004 (measured values including correction factor): | | | 29 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | | 0 |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 5 | 4 | 8 | 27 | 96 | 110 | 129 | 25 |
| TSP | 1 | 32 | 43 | 127 | 228 | 336 | 606 | 119 |
| PM ₁₀ | 6 | 28 | 41 | 106 | 238 | 431 | 953 | 103 |
| NO | 8 | 23 | 82 | 186 | 427 | 701 | 721 | 210 |
| NO ₂ | 8 | 33 | 54 | 96 | 136 | 188 | 208 | 113 |
| CO | 8 | 460 | 900 | 1900 | 4300 | 7800 | 8800 | 2087 |
| O ₃ | 3 | 43 | 77 | 126 | 162 | 164 | 166 | 126 |

| | | |
|--------------------|---|-------------|
| PM ₁₀ : | Monitoring method(s) used: | |
| | 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 2004 (measured values including correction factor): | 46 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 |

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 5 | 2,9 | 7 | 21 | 66 | 128 | - | 13 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 3 | 43,7 | 80 | 179 | 376 | 401 | - | 105 |
| NO | 7 | - | 196 | 510 | 1090 | 1191 | - | - |
| NO ₂ | 7 | 43,3 | 82 | 191 | 375 | 395 | - | 167 |
| CO | 7 | 384 | 997 | 2108 | 5395 | 6159 | - | - |
| O ₃ | 4 | 47,9 | 80 | 127 | 200 | 209 | - | - |

| | | |
|--------------------|---|---|
| PM ₁₀ : | Monitoring method(s) used: | Beta Radiation |
| | Correction factor for this method according to EU-directive 1999/30/EC): | 1,18 in hotspot statons 1,11 inbackground stations |
| | Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2004 (measured values including correction factor): | 147 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 52 |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 1 | 5,3 | 8 | 25 | 82 | 103 | 174 | 28 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 24 | 34 | 120 | 449 | 645 | - | 75 |
| NO | 1 | 9 | 15 | 156 | 325 | 430 | - | 71 |
| NO ₂ | 1 | 23 | 33 | 79 | 118 | 132 | - | 71 |
| CO | 1 | 100 | 200 | 1200 | 2500 | 2700 | - | 600 |
| O ₃ | 1 | 47 | 60 | 94 | 146 | 150 | - | 92 |

| | | | | |
|--------------------|---|--|----|--|
| 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 2004 (measured values including correction factor): | | 14 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | 0 | |

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 13 | 5 | 13 | 40 | 199 | 297 | 315 | 26 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 11 | 27 | 50 | 112 | 604 | 985 | - | 90 |
| NO | 23 | 35 | 196 | 362 | 723 | 758 | - | 409 |
| NO ₂ | 23 | 51 | 125 | 201 | 398 | 435 | - | 233 |
| CO | 17 | 510 | 1300 | 2400 | 4800 | 5100 | - | 2700 |
| O ₃ | 15 | 32 | 61 | 105 | 171 | 174 | - | 108 |

| | | | | |
|--------------------|---|--|-------|--|
| 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 2004 (measured values including correction factor): | | 107 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | * 542 | |

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

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

³ e. g.: per year, per month,

* Marylebone Road (traffic station)

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 8 | 4 | - | 88 | - | 176 | - | 26 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 6 | 21 | - | 107 | - | 195 | - | 64 |
| NO | 7 | 20 | - | 310 | - | 786 | - | 228 |
| NO ₂ | 7 | 33 | - | 120 | - | 213 | - | 109 |
| CO | - | - | - | - | - | - | - | - |
| O ₃ | 8 | 44 | - | 133 | - | 227 | - | 136 |

| | | | | |
|--------------------|---|--|--|--|
| 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 2004 (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 2004: | | | |

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 2 | 6 | - | 70 | - | 110 | - | 25 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 4 | 31 | - | 131 | - | 352 | - | 92 |
| NO | 8 | 67 | - | 530 | - | 918 | - | 515 |
| NO ₂ | 8 | 56 | - | 161 | - | 307 | - | 162 |
| CO | 5 | 768 | - | - | - | 10481 | - | 3373 |
| 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 2004 (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 2004: | | | |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|---------------------|-------------------------------|---|---|---|--|--|---|---|
| SO ₂ | 27 | 11,4 | 32 | 59 | 100 | 144 | - | 60 |
| TSP | - | - | - | - | - | - | - | - |
| ***PM ₁₀ | 25 | 33,3 | 57 | 164 | 456 | 695 | - | 166 |
| NO | 27 | 40,5 | 132 | 356 | 777 | 930 | - | 370 |
| NO ₂ | 27 | 60,7 | 108 | 169 | 308 | 398 | - | 177 |
| CO | 25 | 650 | 1990 | 3690 | 9940 | 12000 | - | 3970 |
| O ₃ | 26 | 33,2 | 73 | 110 | 182 | 193 | - | 129 |

| | | |
|--------------------|---|--------------------------|
| 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 2004 (measured values including correction factor): | 121 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 83 |

* Static average (not moving average)

** Maximum 98 percentile of 1-hour values

*** Not core with 1,1 Factor

Mannheim

| | 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 | 3 | 6,8 | 13 | 60 | 113 | 270 | - | 38 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 3 | 23 | 58 | 91 | - | - | - | - |
| NO | 3 | 17 | 39 | 204 | 386 | 540 | - | 140 |
| NO ₂ | 3 | 33 | 47 | 89 | 134 | 139 | - | 86 |
| CO | 3 | 210 | 390 | 1390 | 3230 | 3900 | - | 850 |
| O ₃ | 3 | 40 | 66 | 139 | 218 | 220 | - | 141 |

| | | |
|--------------------|---|-----------------|
| 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 2004 (measured values including correction factor): | 20 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

Mannheim (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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|---|---|---|--|--|---|---|
| SO ₂ | - | - | - | - | - | - | - | - |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 31 | 52 | 136 | - | - | - | - |
| NO | 1 | 41 | 77 | 213 | 404 | 445 | - | 168 |
| NO ₂ | 1 | 43 | 50 | 102 | 151 | 154 | - | 89 |
| CO | 1 | 570 | 950 | 1780 | 3890 | 4550 | - | 1690 |
| O ₃ | - | - | - | - | - | - | - | - |

| | | |
|--------------------|---|-------------------|
| | Monitoring method(s) used: | gravimetrically * |
| PM ₁₀ : | 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 2004 (measured values including correction factor): | 41 ** |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 |

comments:

* gravimetrically from daily sample

** according to data from UMEG, annual values 2004

For PM₁₀ the data acquisition for the determination for the number of exceedances of the daily mean value was changed for gravimetrically monitoring. Due to discrepancies between gravimetry and beta-absorption values < daily mean were abandoned.

Comparison of The Air Quality in 2004

Milan

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 11 | 23 | 47 | - | 96 | - | 37 |
| TSP | 1 | 53 | 74 | 141 | - | - | - | 118 |
| PM ₁₀ | 2 | 43 | 73 | 163 | - | 405 | - | 107 |
| NO | 9 | 54 | 198 | 458 | - | 915 | - | 376 |
| NO ₂ | 6 | 60 | 118 | 230 | - | 308 | - | 168 |
| CO | 5 | 1500 | 3400 | 5900 | - | 10400 | - | - |
| O ₃ | 3 | 37 | 83 | 140 | - | 237 | - | 154 |

| | | |
|--------------------|--|---|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 139 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 47 |

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|-------------------------|-------------------------------|---|---|---|--|--|---|--|
| PM ₁₀ grav. | 1 | 66 | 113 | 198 | - | - | - | 175 |
| PM ₁₀ TEOM | 1 | 26 | 41 | 88 | - | - | - | 65 |
| PM _{2,5} grav. | 1 | 55 | 94 | 152 | - | - | - | 140 |
| Benzene | 2 | 3,9 | 6,7 | 17,2 | - | 48,1 | - | - |

| | | |
|--------------------|--|-------------------------|
| PM ₁₀ : | Monitoring method(s) used: | Gravimetical monitoring |
| | Correction factor for this method according to EU-directive 1999/30/EC): | 1 |
| | Number of limit violations of the daily mean standard of 50 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 172 |

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

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

³ e. g.: per year, per month,

For SO₂, TSP, PM₁₀ TEOM and Gravimetric, PM_{2,5} TEOM and Gravimetric max 98° percentile per year of the average 24 hour concentrations levels

For NO, NO₂, O₃ max 98° percentile per year of the average 1 hour concentrations levels

Correction factor for PM₁₀: 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.

Comparison of The Air Quality in 2004

Munich

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 4 | 3 | 6 | 15 | 28 | 30 | 34 | 13 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 4 | 30 | 60 | 126 | 322 | - | - | 86 |
| NO | 5 | 35 | 114 | 356 | 644 | 944 | 963 | 265 |
| NO ₂ | 5 | 48 | 80 | 114 | 240 | 318 | 356 | 133 |
| CO | 4 | 600 | 900 | 2100 | 4100 | 6200 | 6700 | 1900 |
| O ₃ | 3 | 40 | 66 | 108 | 171 | 172 | 175 | 127 |

| | | | | | | | | |
|--------------------|--|--|--|--|--|--|--|--|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | | | | | | | |
| | NO ₂ Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | | | | | | | |

Riga

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 5 | 5 | 11 | 41 | 66 | 90 | 109 | 37 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 2* | 50 | 70 | 109 | 256 | 429 | 481 | 125 |
| NO | 1* | 94 | 150 | 339 | 476 | 559 | 617 | 335 |
| NO ₂ | 6/2* | 26/44* | 42/65* | 85/104* | 149/131* | 158/193* | 138/320* | 83/106* |
| CO | 1* | 1400 | 2200 | 4600 | 6900 | 8600 | 9300 | 4500 |
| O ₃ | 4 | 50 | 70 | 94 | 114 | 122 | 151 | 89 |

| | | | | | | | | |
|--------------------|--|--|--|--|--|--|--|--|
| PM ₁₀ : | Monitoring method(s) used: beta absorption | | | | | | | |
| | Correction factor for this method according to EU-directive 1999/30/EC): | | | | | | | |
| | Number of limit violations of the daily mean standard of 50 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | | | | | | | |
| | NO ₂ Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | | | | | | | |

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

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

³ e. g.: per year, per month,

Comments: daily PM₁₀ measurements in Riga with SM200 ADAM (Atmospheric Dust Automatic Monitor) and with Dust Analyser ESM FH62 R3, HORIBA. The equipment employs the beta-ray attenuation or beta absorption method.

* traffic monitoring stations

Comparison of The Air Quality in 2004

Rhine / Ruhr area

| | 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 | 15 | 7 | 26 | 97 | | 400 | | 89 |
| TSP | | | | | | | | |
| PM ₁₀ | 26 | 29 | 46 | 132 | | 1716 * | | |
| NO | 24 | 34 | 91 | | | 812 | | 287 |
| NO ₂ | 24 | 39 | 51 | 88 | | 200 | | 98 |
| CO | 1 | 500 | 620 | 2690 | | 6450 | | 1900 |
| O ₃ | 18 | 40 | 61 | 114 | | 219 | | 120 |

| | | | |
|--------------------|---|--|--------------------|
| PM ₁₀ : | Monitoring method(s) used: | 1) Beta-absorption, 2) Oscillating micro balance | |
| | Correction factor for this method according to EU-directive 1999/30/EC): | | 1) 1.16 2) 1.25 |
| | Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2004 (measured values including correction factor): | | 38 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | 0 |

comments:

reference temperature for gaseous substances: 20 °C

Without traffic-influenced measurements and other special monitoring activities

The statistical parameters for PM₁₀ are based on continuous measurements.

* The max. 1h-value for PM₁₀ was monitored Jan 01 2004, 0:00- 1:00 h (New Years Eve fireworks!)

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 9 | 14,2 | 27 | 87 | - | 341 | - | 69 * |
| TSP | 5 | 30,4 | 50 | 137 | - | - | - | 76 ** |
| PM ₁₀ | 5 | 30,6 | 44 | 100 | - | 577 | - | 98 * |
| NO | 4 | 29,3 | 120 | 273 | - | 980 | - | 254 * |
| NO ₂ | 4 | 43 | 62 | 109 | - | 284 | - | 107 * |
| CO | 1 | 648 | 899 | 1870 | - | 4318 | - | 1398 * |
| O ₃ | 3 | 38 | 63 | 134 | - | 198 | - | 105 * |

| | | | |
|--------------------|---|-----------------------------------|--|
| PM ₁₀ : | Monitoring method(s) used: | TEOM with SES unit at 30 degree C | |
| | 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 2004 (measured values including correction factor): | 54 | |
| | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 10 | |

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

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

³ e. g.: per year, per month,

Comments:

- The email address in your master data sheet is wrong. I have included the correct one. Can you please change it, it has been wrong for a number of years! Fortunately you do send the mail to the correct address.
- We have changed all of our TEOMs from operating temperature 50 degrees to 30 degrees
- We have determined a new correction factor for the new TEOM operating temperatures based on gravimetric measurements

* 1h mean value

** daily mean Value

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|--|--|--|---|---|--|---|
| SO ₂ | 3 | 4,3 | 10 | 19 | 75 | 84 | 92 | 14 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 3 | 25 | 43 | 91 | - | - | - | - |
| NO | 3 | - | - | - | - | - | - | - |
| NO ₂ | 3 | 41 | 74 | 105 | 157 | 169 | 193 | 119 |
| CO | 2 | 585 | 900 | - | 2880 | 3630 | 4260 | 1760 |
| O ₃ | 2 | 41 | 62 | - | 162 | 165 | 166 | 116 |

| | | |
|--------------------|---|-----------------------|
| PM ₁₀ : | Monitoring method(s) used: | gravimetrically, TEOM |
| | Correction factor for this method according to EU-directive 1999/30/EC): | 1,11 |
| | Number of limit violations of the daily mean standard of 50 µg/m³ at the highest stressed station in 2004 (measured values including correction factor): | 34 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 0 |

comments:

Location of the monitoring stations:

- One monitoring station heavily traffically influenced
- One monitoring station in business area
- One monitoring station in residential area

Sofia

| | 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 | 7 | 16 | 51 | 182 | | 351 | | 137 |
| TSP | 2 | 153 | 277 | 750 | | | | |
| PM ₁₀ | 5 | 57.5 | | 1309 | | | | 1217 |
| NO | 4 | 29.3 | 132 | | | 943 | | |
| NO ₂ | 7 | 32.6 | 58 | | | 278 | | 145 |
| CO | 4 | 1512 | 3830 | | | | | |
| O ₃ | 3 | 43.4 | 75 | | | 218 | | 148 |

| | | |
|--------------------|---|---|
| PM ₁₀ : | Monitoring method(s) used: | EN12341 – gravimetric method and 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 2004 (measured values including correction factor): | 178 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | 7 |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

St. Pölten

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. ½ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 4 | 6 | 18 | 57 | 104 | 123 | 28 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 2 | 33 | 53 | 99 | 177 | 283 | 416 | 130 |
| NO | 2 | 36 | 55 | 141 | 390 | 481 | 511 | 246 |
| NO ₂ | 2 | 31 | 45 | 73 | 119 | 154 | 163 | 92 |
| CO | 1 | 490 | 700 | 1200 | 2330 | 2710 | 3290 | 1230 |
| O ₃ | 1 | 44 | 69 | 106 | 166 | 185 | 188 | 150 |

| | | |
|--------------------|--|---------------------------|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 79 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 0 |

Stockholm

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. ½ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 2 | 1.1 | 2.7 | | | | | |
| TSP | | | | | | | | |
| PM ₁₀ | 3 | 36 | 100 | 236 | | 637 | | |
| NO | 2 | 39 | | 160 | | 514 | | |
| NO ₂ | 2 | 42 | 60 | 100 | | 172 | | |
| CO | 1 | 0.7 | 0.9 | 1.8 | | 5.8 | | |
| O ₃ | 1 | 52 | 70 | 110 | | 136 | | |

| | | |
|--------------------|--|------|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 80 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 0 |

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

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

³ e. g.: per year, per month,

Comments:

SO₂: passive sampler, roof level city centre+ urban area

PM₁₀, NO, NO₂, CO: street level city centre

O₃: roof level city centre

Comparison of The Air Quality in 2004

Villach

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 4 | 11 | 20 | 37 | 41 | 49 | 16 |
| TSP | 1 | 33 | 45 | 80 | 359 | 490 | 503 | 88 |
| PM ₁₀ | 1 | 28 | 41 | 81 | * | * | * | * |
| NO | 1 | 32 | 71 | 185 | 350 | 408 | 452 | 162 |
| NO ₂ | 1 | 32 | 48 | 82 | 131 | 144 | 151 | 82 |
| CO | 1 | 577 | 1053 | 2385 | 4312 | 5170 | 6110 | 2011 |
| O ₃ | 1 | 27 | 51 | 94 | 143 | 147 | 147 | 103 |

| | | |
|--------------------|--|-----------------|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 25 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 0 |

* PM₁₀-values are monitored gravimetrically by means of high volume sampler, so smallest time unit is daily mean value

Warsaw

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 11 | 8,9 | 23 | 113 | - | 218 | - | 39 |
| TSP | 1 | 73,3 | 116 | 333 | - | - | - | 214 |
| PM ₁₀ | 11 | 33,3 | 70 | 184 | - | 354 | - | 126 |
| NO | 8 | 16,3 | 129 | 253 | - | 624 | - | 214 |
| NO ₂ | 10 | 25,4 | 65 | 108 | - | 186 | - | 92 |
| CO | 5 | 750 | 1634 | 3287 | - | 9954 | - | 2391 |
| O ₃ | 4 | 43,8 | 68 | 104 | - | 150 | - | 88 |

| | | |
|--------------------|--|--|
| PM ₁₀ : | Monitoring method(s) used: | automatic TEOM 1400, manual gravimetric method, radiometric method |
| | Correction factor for this method according to EU-directive 1999/30/EC): | TEOM-factor 1,15 Beta monitoring factor 1,3 |
| | Number of limit violations of the daily mean standard of 50 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 184 – factor 1,3 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 0 |

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

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

³ e. g.: per year, per month,

Comments: Maximum concentration NO, NO₂, CO occurred on traffic hot-spot station

Comparison of The Air Quality in 2004

Vienna

| | Number of monitoring stations | Annual mean value ¹ [µg/m ³] | max. monthly mean value ² [µg/m ³] | max. daily mean value ² [µg/m ³] | max. 99,9 Percentile 3h-mean value ² [µg/m ³] | max. 99,9 Percentile 1h-mean value ² [µg/m ³] | max. 99,9 Percentile 1/2h-mean value ² [µg/m ³] | Max. 98-Percentile per ^{2,3} [µg/m ³] |
|------------------|-------------------------------|--|--|--|---|---|---|---|
| SO ₂ | 12 | 4 | 10 | 44 | 62 | 74 | 77 | 30 |
| TSP | 4 | 27 | 53 | 130 | 226 | 232 | 228 | 104 |
| PM ₁₀ | 11 | 26 | 51 | 142 | - | - | - | - |
| NO | 17 | 19 | 207 | 418 | 647 | 673 | 694 | 462 |
| NO ₂ | 17 | 30 | 78 | 140 | 197 | 202 | 204 | 151 |
| CO | 4 | 520 | 950 | 1600 | 2600 | 2720 | 2820 | 1870 |
| O ₃ | 5 | 52 | 91 | 125 | 154 | 157 | 157 | 129 |

| | | | |
|--------------------|---|--|--|
| PM ₁₀ : | Monitoring method(s) used: | gravimetrically (9 stations), continuously (β -absorption, 2 stations) | |
| | Correction factor for this method according to EU-directive 1999/30/EC): | | calculated every quarter for each of the monitoring stations |
| | Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2004 (measured values including correction factor): | | 54 |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2004: | | 8 |

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

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

³ e. g.: per year, per month,

comments:

PM₁₀: No short time values mentioned due, because mostly the gravimetical monitoring method was uses! Instead of short time maxima again **99.9 % percentiles** are mentioned in order to filter out the highest outliers (have to be explained, New Years Eve's fireworks). The short time percentiles were calculated glidingly from 1/2h mean values.

For each PM₁₀ station, which measures only continuously, in every quarter of the year a new factor is calculated (factor with offset).

The 1h-percentile for TSP is – in comparison with the 1/2h mean percentile really a bit higher, because this was a result of a calculative rounding due to a the less number of valid 1h mean values.

Comparison of The Air Quality in 2004

Wiesbaden

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 3 | 4 | 13 | 30 | 34 | 40 | 7 |
| TSP | - | - | - | - | - | - | - | - |
| PM ₁₀ | 1 | 23 | 31 | 77 | 140 | 142 | 145 | 63 |
| NO | 1 | 21 | 50 | 186 | 332 | 423 | 458 | 150 |
| NO ₂ | 1 | 39 | 49 | 103 | 149 | 157 | 162 | 91 |
| CO | 1 | 400 | 600 | 1300 | 2300 | 3100 | 4600 | 1100 |
| O ₃ | 1 | 37 | 60 | 109 | 188 | 207 | 212 | 129 |

| | | | | |
|--------------------|--|---------------------|--|----|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 11 | | 11 |
| | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | 0 | | 0 |

Zagreb

| | Number of monitoring stations | Annual mean value ¹ [$\mu\text{g}/\text{m}^3$] | max. monthly mean value ² [$\mu\text{g}/\text{m}^3$] | max. daily mean value ² [$\mu\text{g}/\text{m}^3$] | max. 3h mean value ² [$\mu\text{g}/\text{m}^3$] | max. 1h mean value ² [$\mu\text{g}/\text{m}^3$] | max. $\frac{1}{2}$ h mean value ² [$\mu\text{g}/\text{m}^3$] | Max. 98-Percentile per ^{2,3} [$\mu\text{g}/\text{m}^3$] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 5 | 6 | 18 | 43 | - | - | - | 33 |
| TSP | 5 | 55 | 114 | 233 | - | - | - | 143 |
| PM ₁₀ | 1 | 36 | 55 | 134 | - | - | - | 92 |
| NO | - | - | - | - | - | - | - | - |
| NO ₂ | 5 | 41 | 61 | 133 | - | - | - | 89 |
| CO | - | - | - | - | - | - | - | - |
| O ₃ | 5 | 24 | 78 | 136 | - | - | - | 102 |

| | | | | |
|--------------------|--|----|--|----|
| 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 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004 (measured values including correction factor): | 75 | | 75 |
| | Number of limit violations of the 1h mean standard of 200 $\mu\text{g}/\text{m}^3$ at the highest stressed station in 2004: | | | |

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

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

³ e. g.: per year, per month,

Comparison of The Air Quality in 2004

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 ^{2,3} [µg/m³] |
|------------------|-------------------------------|---|---|---|--|--|---|--|
| SO ₂ | 1 | 4.2 | 9 | 21 | 43 | 46 | 47 | 25 |
| TSP | 1 | | | | | | | |
| PM ₁₀ | 1 | 24.6 | 36 | 86 | 333 | 359 | 368 | 102 |
| NO | 1 | 13.8 | 29 | 119 | 255 | 268 | 282 | 143 |
| NO ₂ | 1 | 32.2 | 48 | 88 | 102 | 106 | 110 | 96 |
| CO | 1 | 420 | 530 | 1110 | 1810 | 1940 | 2320 | 1330 |
| O ₃ | 1 | 43.5 | 67 | 108 | 186 | 189 | 191 | 157 |

| | | | |
|--------------------|---|---|---|
| PM ₁₀ : | Monitoring method(s) used: | β-meter-measurement, calibrated with gravimetical 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 2004 (measured values including correction factor): | 23 | |
| NO ₂ | Number of limit violations of the 1h mean standard of 200 µg/m³ at the highest stressed station in 2004: | | 0 |

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

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

³ e. g.: per year, per month,

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Wilfried Hager, Erhard Glötzl

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- 3/94 **Ozonauswertung Großraum Linz 1989 - 1994**
Walter Medinger, Wolfgang Hansl

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- 1/95 **Statistisch-klimatologische Bearbeitung von Windmessungen aus dem Raum Linz**
Manfred Hofko
- 2/95 **Assoziation von Pollen und partikulären Aerosolen in Linz 1991 II. Teil**
Herwog Schinko, R. Schmidt
- 3/95 **Luftgütedaten 1994; Nationaler und internationaler Städtevergleich**
Wilfried Hager, Fereydoun Sameh
- 4/95 **Formaldehydmessungen in Kindergärten, Schulen, Horten, Seniorenheimen und im Neuen Rathaus**
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Gerhard Utri
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Wilfried Hager, Harald Panhofer, Fereydoun Sameh
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Wilfried Hager, Fereydoun Sameh
- 7/96 Baubiologische Tage 1996 - Tagungsband
- 8/96 **Beschwerden über Umweltbelastungen 1988 - 1995**
Herbert Gutternigg, Thomas Resch
- 1/97 **Modellierung des Schadstofftransports und der Schadstoffverteilung zur Anwendung über städtischem Gebiet mit komplexen Geländeverhältnissen**
Thara V. Prabha, Inst. für Meteorologie und Physik, Universität für Bodenkultur, Wien
- 2/97 **Air Quality Data 1996; Austrian and International Comparison of Cities and Regions**
Wilfried Hager, Fereydoun Sameh
- 1/98 **„Industrieschnee“ in Linz 1996, 1997, 1998**
Wilfried Hager
- 2/98 **Air Quality Data in 1997; Austrian and European Comparison of Cities and Regions**
Wilfried Hager, Fereydoun Sameh
- 3/98 **Energiebedarf der Haushalte sowie Emissionen des Hausbrandes in der Landeshauptstadt Linz**
Gerhard Utri
- 4/98 **Wärmeinselstruktur des Linzer Raumes und damit verbundene belüftungsrelevante Strömungssysteme (Zwischenbericht)**
Univ.-Prof. Dr. Erich Mursch-Radlgruber

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