Inhalt

Contents

Luftgütedaten 1998 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. Beispielhaft ist im Anhang graphisch die Verminderung der Emissionen der letzten 13 Jahre angeführt.

Um überhaupt den Erfolg von Sanierungsmaßnahmen nachweisen zu können, ist die Beobachtung der Schadstoffkonzentrationen mit Hilfe von Luftmeßnetzen sinnvoll. Mittlerweile sind in den meisten Meßgebieten Luftmeßnetze seit 1 bis 2 Jahrzehnten installiert, sodaß bei einer Verfolgung der Luftschadstoffdaten über mehrere Jahre ein Trend zur Verbesserung (oder auch Verschlechterung?) der Luftbelastung herauslesbar sein sollte. Sanierungsmaßnahmen in Betrieben und bei anderen Emittentengruppen müßten sich jedenfalls langfristig in einer verminderten Immissionsbelastung an Luftschadstoffen manifestieren.

Die Verfolgung *längerer Zeiträume* zur Bestimmung des Belastungstrends ist unbedingt notwendig, da aufgrund 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 1998 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. As an example the reduction of the annual emissions of Linz since 1985 can be taken from a chart in the appendix.

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 1 to 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 emittents should manifest in a reduced immission stress of air pollutants.

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

Luftgütevergleiche werden durch das Amt für Umweltschutz bereits seit mehreren Jahren durchgeführt, genaugenommen 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. 1997 wurde Städte bzw. Regionen aus Österreich und Deutschland (alte und neue Bundesländer), weiters Städte aus Schweden, Norwegen, Polen, Tschechien, Schweiz, Ungarn, Italien, Belgien, Spanien und Kroatien mit einbezogen. Leider wurden uns bis zum heutigen Tag keine Daten aus Großbritannien und Frankreich zur Verfügung gestellt. Für den Städtevergleich 1997 wurden uns diesmal auch keine Daten aus Helsinki und Oslo zur Verfügung gestellt.

Kritische Anmerkungen

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

1. die Zahl der Meßstellen sehr verschieden ist (die Anzahl der Meßstellen pro Meßgebiet ist in der Tabelle auf Seite 8 und den nachfolgenden Grafiken angeführt),
2. die Meßstellendichte unterschiedlich ist,
3. die Situierung der Meßstellen nicht immer vergleichbar ist (In manchen Städten hat man deswegen bei den Schadstoffkomponenten zwischen verkehrsbelasteten Meßstationen und anderen Meßstationen unterschieden).

Den Autoren sind diese Tatsachen durchaus bewußt. Trotz der erhobenen Einwände gibt es einige Argumente für die Fortführung der Städtevergleiche:

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 1997 comprised cities and regions of Austria, Germany (old and new federal provinces), cities from Sweden, Poland, Czech Republic, Switzerland, Hungary, Italy, Belgium, Spain and Croatia. Unfortunately up to the present day no data of Great Britain an France were placed to our disposal. Unfortunately for the comparison of air quality data in 1997 we were not supported by data from Oslo and Helsinki.

Critical remarks

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

1. The number of monitoring stations differs very much (the number of monitoring stations of each monitoring network is mentioned on page 8 and the following tables),
2. the density of distribution of the monitoring stations is different,
3. the location of the monitoring station not always is comparable (for that reason in some cities the network services distinguished between traffic-stressed and non-traffic-influenced monitoring stations).

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

1. Die Luftschadstoffmessungen werden im allgemeinen in der gleichen Weise durch-

geführt. Das bedeutet, daß die Luftüberwachung an bestimmten *Punkten* einer Stadt oder einer Region mit Hilfe automatisch registrierender Immissionsmeßstationen durchgeführt werden. Die gemessenen Konzentrationen repräsentieren die Belastung eines mehr oder weniger weiten Bereiches um die Meßstation. Die Art der Probenahme müßte also vergleichbar sein.

2. Die Luftgütestationen sollten an Punkten errichtet werden, die einen größeren Bereich um die Meßstation abdecken und nicht nur die Schadstoffbelastung an einem bestimmten Punkt. Ausgenommen sind besondere verkehrsbelastete Probenahmepunkte. Die Meßnetzbetreiber wurden eingeladen, diese Meßpunkte getrennt anzugeben, um die wirkliche Situation des überwachten Gebietes wiederzugeben. Wie bereits oben bemerkt, unterscheiden einige Städte zwischen verkehrsbelasteten und nicht vom Verkehr beeinflußten Meßstationen.
3. Schließlich wird eine stärker objektivierende Basis der Auswertungen besonders dann erreicht, wenn man längere Zeiträume betrachtet und daraus die Trends der Entwicklung der Schadstoffimmissionen abliest. Nachdem die Stadt Linz internationale und nationale Städtevergleiche schon seit einigen Jahren durchführt, wurden in diesen Bericht für einige Immissionskenngrößen auch eine mehrjährige *Trendentwicklung* für die einzelnen Immissionsgebiete mit aufgenommen.

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)

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

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

3. And finally the evaluations are put to a more objectified basis, if one observes longer term developments and derives from these the trends of the pollutant immissions. Since the city of Linz has been carrying out comparisons of the air quality for years, in this article the *trend developments* for the annual mean value of the past years for all immission regions have been included.

Immission reference values

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. 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)

Von den einzelnen Meßnetzbetreibern wurden die gewünschten Immissionsdaten in sehr unterschiedlicher Vollständigkeit zur Verfügung gestellt. Insbesondere betrifft dies die Percentil-Auswertungen und manchmal auch dieAuswertungen 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 Percentilwerte aufgelistet. Die Art der Percentilbildung ist - soweit bekannt - in den Tabellen jeweils vermerkt.

Mehrjahresvergleich

Ein gutes Bild über die Entwicklung der Luftbelastung geben die Grafiken wieder. Dabei wurden von den am Luftgütevergleich teilnehmenden Städte die Entwickung der Immissionsbelastung der letzten 6 Jahre 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.

- 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)

The individual monitoring network services supported us with immission data of very different completeness, especially referring to the evaluation of the percentiles or somtimes 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 calender 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 sevices supported us with are mentioned. If known the kind of formation of percentiles is remarked in the tables.

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 since 1992 are plotted.

The following statements can be given in analyzing 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. 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 1992 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. Entwicklung der Langzeitbelastung (Jahresmittelwerte) gegenüber 1996:

   SO_2: Nahezu alle Regionen *geringer* belastet
   Staub: Nahezu alle Regionen *geringer* belastet
   NO: Nahezu alle Regionen *höher* belastet
   NO_2: tendenziell *gleichbleibend*
   CO: uneinheitlich, tendenziell *gleichbleibend*
   O_3: uneinheitlich

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 1992 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. Development of the air pollution stress in comparison with 1996:

   SO_2: Nearly all regions *less* stressed
   particulates: Nearly all regions *less* stressed
   NO: Nearly all regions *higher* stressed
   NO_2: trend *constant*
   CO: nonuniform, trend *constant*
   O_3: nonuniform

Anzahl der Meßstellen/Number of monitoring stations

	Monitored Area	SO_2	partic-ulates	NO	NO_2	CO	O_3
Austria	Bludenz-Town-Hall	1	1	1	1	-	1
	Dornbirn-Stadtstraße	1	1	1	1	1	-
	Graz	6	6	6	6	2	4
	Hallein	3	1	-	1	1	1
	Innsbruck	3	3	3	3	2	3
	Klagenfurt	2	2	2	2	2	2
	Leoben/Göß/Donawitz	3	3	3	3	2	1
	Linz	10	10	10	10	10	3
	Salzburg	3	3	-	3	2	3
	St. Pölten	1	1	1	1	1	1
	Vienna	17	17	17	17	7	5
	Villach	1	1	1	1	1	1
Belgium	Brussels	7	3	7	7	5	5
Croatia	Zagreb	9	4	-	5	-	3
Denmark	Kopenhagen	1	1	2	2	2	1
French	Lyon-Agglomeration	17	5	18	18	4	8
Germany	Berlin	20	18	21	21	18	11
	Chemnitz	2	2	2	2	2	2
	Dresden	2	2	2	2	2	2
	Frankfurt	5	5	5	5	4	5
	Hamburg	8	8	8	8	5	2
	Karlsruhe	3	3	4	4	4	3
	Leipzig	3	3	3	3	3	3
	Mannheim	3	3	4	4	4	3
	Rhine Area Centre (Region Düsseldorf)	4	5	4	4	4	2
	Rhine Area South (Region Cologne, Bonn)	8	8	8	8	7	7
	Ruhr Area East (Region Dortmund)	9	9	9	9	7	4
	Ruhr Area Centre (Region Essen, Bochum)	8	8	9	9	8	5
	Ruhr Area West (Region Duisburg, Oberhausen)	8	8	8	8	8	5
	Munich	8	7	8	8	8	3
	Wiesbaden	1	1	1	1	1	1
Hungary	Budapest	8	8	-	8	8	2
	Debrecen	9	2	1	9	1	2
Italy	Milan	7	2	10	10	6	3
Luxemburg	Luxemburg	2	1	2	2	1	2
Netherlands	Rotterdam	12	5	4	4	1	4

cont. -->

Table: **Anzahl der Meßstellen/Number of monitoring stations, cont.**

	Monitored Area	SO_2	partic-ulates	NO	NO_2	CO	O_3
Spain	Barcelona	2	4	5	5	5	5
	Madrid	27	25	-	26	26	24
Switzerland	Basel-Outskirts	1	1	1	1	1	1
	Zurich-Centre	1	1	1	1	1	1
Sweden	Göteborg	3	1	2	3	1	3
	Stockholm	1	-	4	4	4	1

Quellen für die Immissionsdaten **Sources for the immission-data**

Barcelona, Madrid	Ministerio de Medio Ambiente, Juan Martines Sanchez Plaza de San de la Cruz, s/n E-28071 Madrid
Berlin	Umweltbundesamt, Bismarckplatz 1 D-14193 Berlin
Bludenz, Dornbirn	Umweltinstitut des Landes Vorarlberg, Montfortstraße 4, A-6901 Bregenz
Brussels	CELINE-IRCEL, Avenue des Arts, 10-11 B-1210 - Brussels
Budapest	Institute of State Public Health and Medical Officer Service Municipal Institute of Budapest H-1138 Budapest
Chemnitz, Dresden,Leipzig	Sächsisches Landesamt für Umwelt und Geologie Zur Wetterwarte 11 D-01109 Dresden
Debrecen	Debrecen Megyei Jogú Város Polgármesteri Hivatal Föépítészi Iroda Környezetvédelmi Csoport, Piac u. 20, H-4032 Debrecen
Frankfurt, Wiesbaden	Hessische Landesanstalt für Umwelt, Rheingaustrasse 186 D-65203 Wiesbaden
Graz, Leoben, Donawitz	Amt der Steiermärkischen Landesregierung, Fachabt. Ia (Ref. f. Luftgüteüberwachung), Landhausgasse 7, A-8010 Graz
Hamburg	Umweltbehörde, Amt für Umweltschutz, Marckmannstraße 129b, D-20539 Hamburg
Innsbruck	Amt der Tiroler Landesregierung, Landesforstdirektion Abt. Waldschutz-Luftgüte A-6020 Innsbruck
Karlsruhe, Mannheim	Landesanstalt für Umweltschutz Baden-Württemberg Postfach 210752 D-76157 Karlsruhe
Klagenfurt, Villach	Amt der Kärntner Landesregierung, Abt. 15 Umweltschutz und Technik, Flatschacher Straße 70, A-9020 Klagenfurt
Kopenhagen	National Environmenal Research Institute Atmospheric Environment Frederiksborvej 399

	DK-4000 Roskide
Linz	Amt der oö. Landesregierung, UA Luftreinhaltung und Energietechnik, Goethestraße 86, A-4020 Linz
Luxemburg	Umweltamt Luxemburg - Abteilung Luft & Lärm-Bereich Meßnetze und Immissionen L-1229 Luxemburg
Lyon	COPARLY-Comite pour le controle de la Pollution Atmospherique dans le Rhone et la region Lyonnaise, 63 avenue Roger Salengro F-69100 Villeurbanne
Milan	A.S.L.Citta, di Milano-P.M.I.P. –IV U.O.Fisica e Tutela dell'Ambiente, Sezione Fisica Ambientale-Via Juvara 22 I-20129 Milano
Munich	Bayerisches Landesamt für Umweltschutz, Dienstgebäude 2 Postfach 81 01 29 D-81901 München
Rhine Area, Ruhr Area	Landesumweltam Nordrhein-Westfalen Postfach 102363 D-450233 Essen
Rotterdam	Milieudienst Rijnmond, ´s-Gravelandseweg 565, Postbus 843 NL- 319 XT Schiedam
Salzburg, Hallein	Amt der Salzburger Landesregierung, Abt. 16, Postfach 527, A-5010 Salzburg
St. Pölten	Magistrat der Landeshauptstadt St. Pölten, Abteilung XIII, Umweltschutz- und Marktangelegenheiten, Roßmarkt 6, A-3100 St. Pölten
Stockholm, Goteborg	Environment and Health Protection Administration, Slb - analys Box 38024 S-10064 Stockholm
Zurich, Basel	Bundesamt für Umwelt, Wald und Landschaft (BUWAL), Abteilung Luftreinhaltung CH-3003 Bern
Vienna	Magistrat der Stadt Wien, MA 22, Ebendorferstraße 4, A-1082 Wien
Zagreb	State Directorate for Environmet Ulica grada Vukovara 78 HR-10000 Zagreb Croatia

Luftgütevergleich

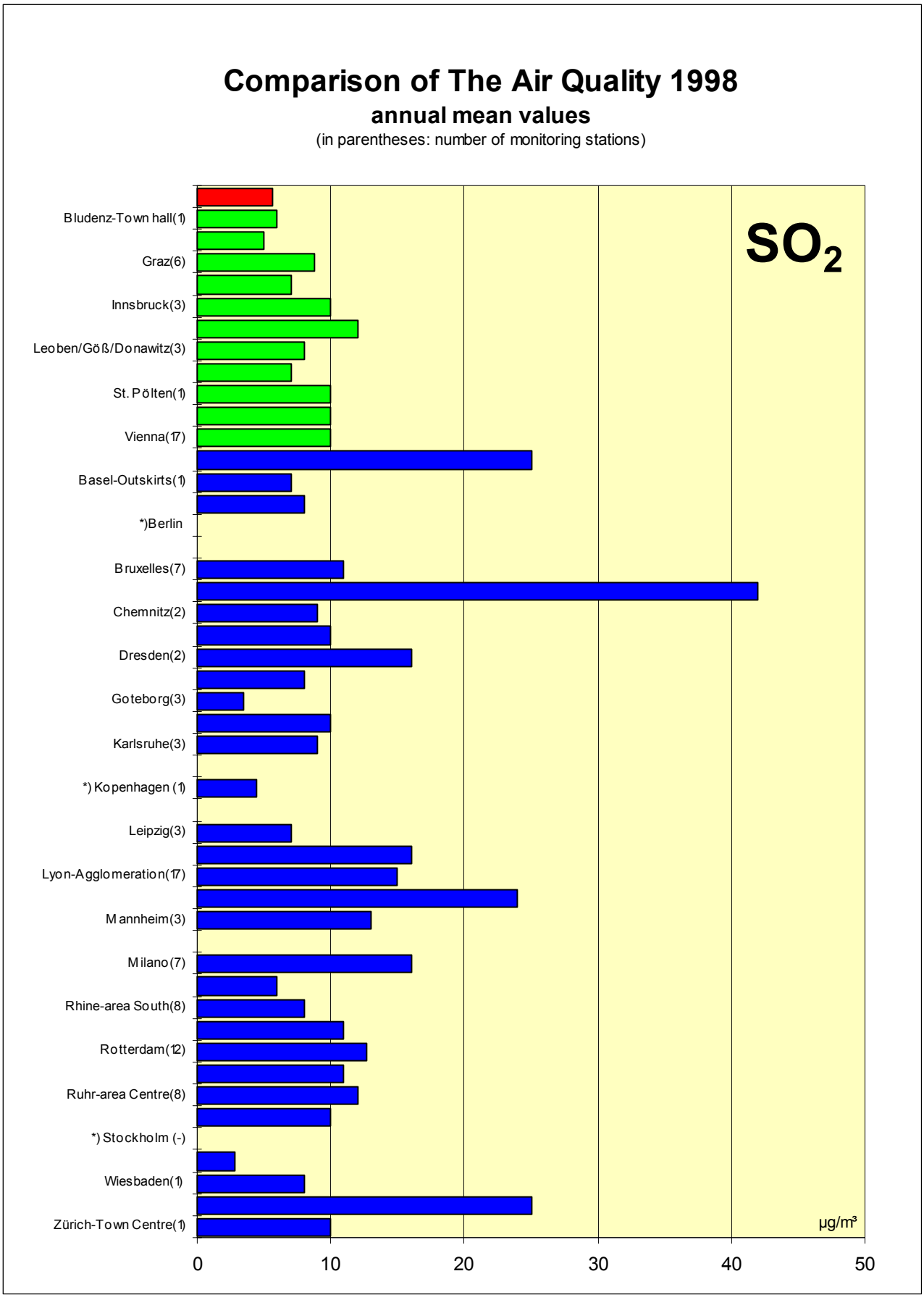
1998

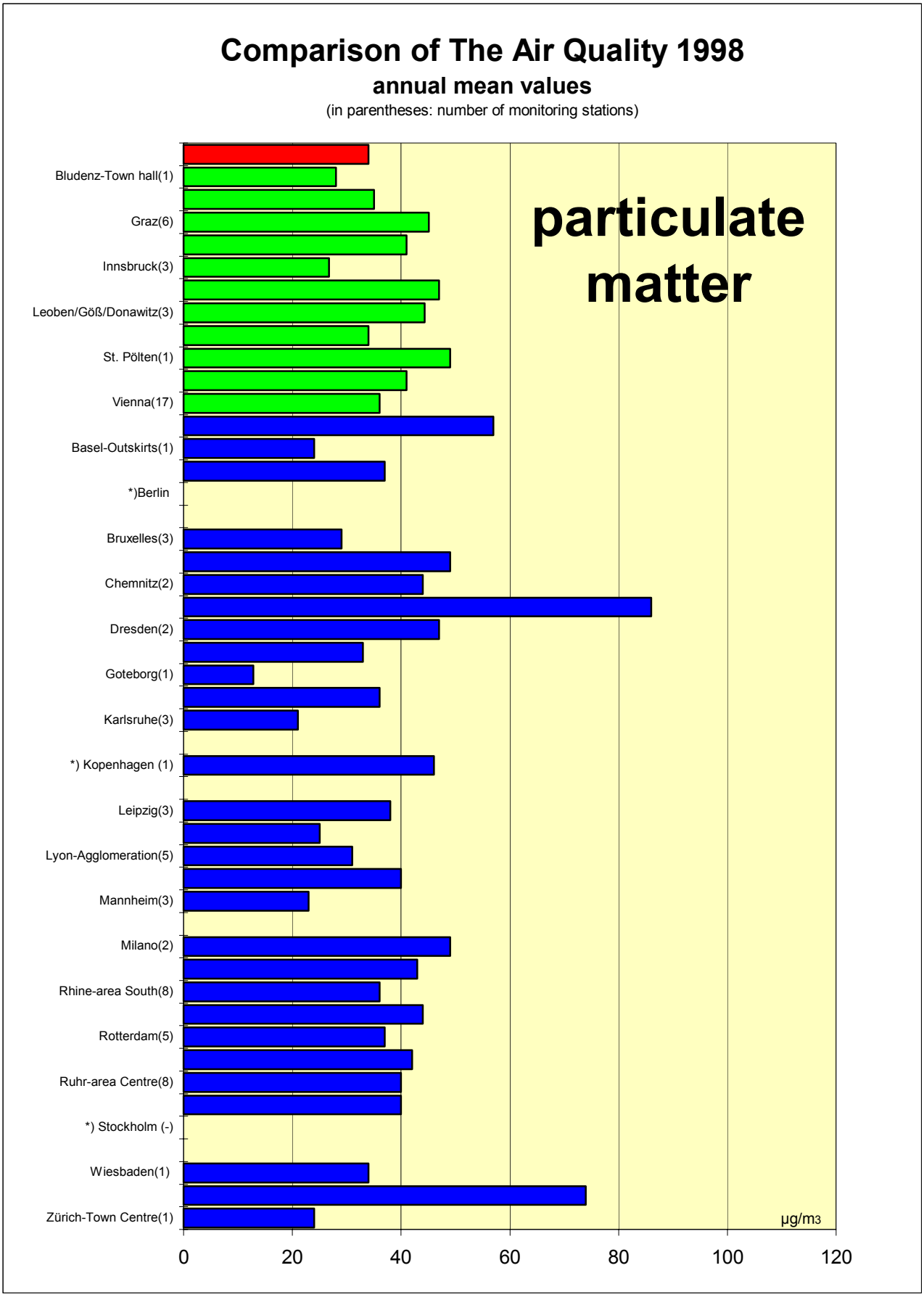
Jahresmittelwert (Gebietsmittel)

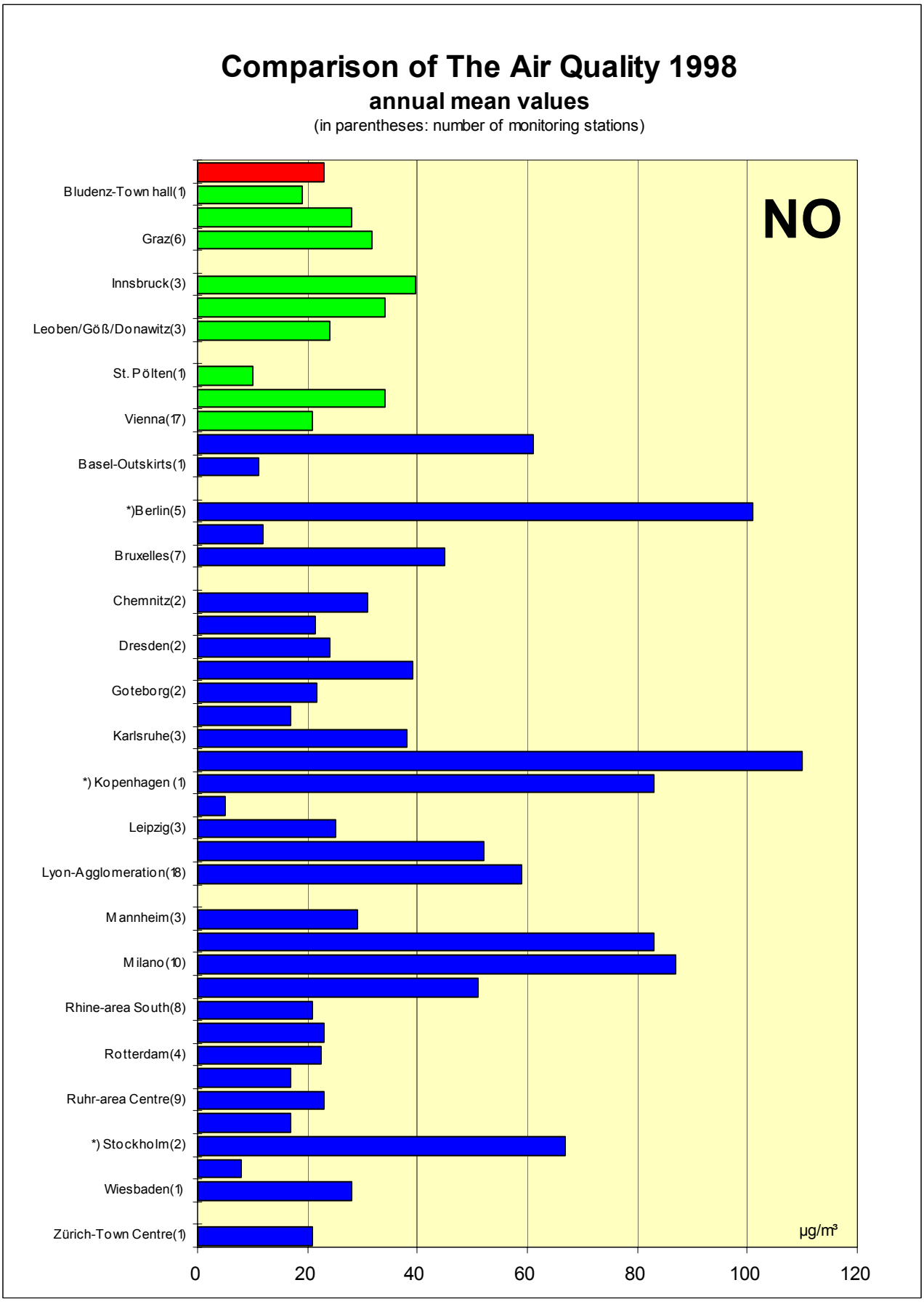
Comparison of The Air Quality

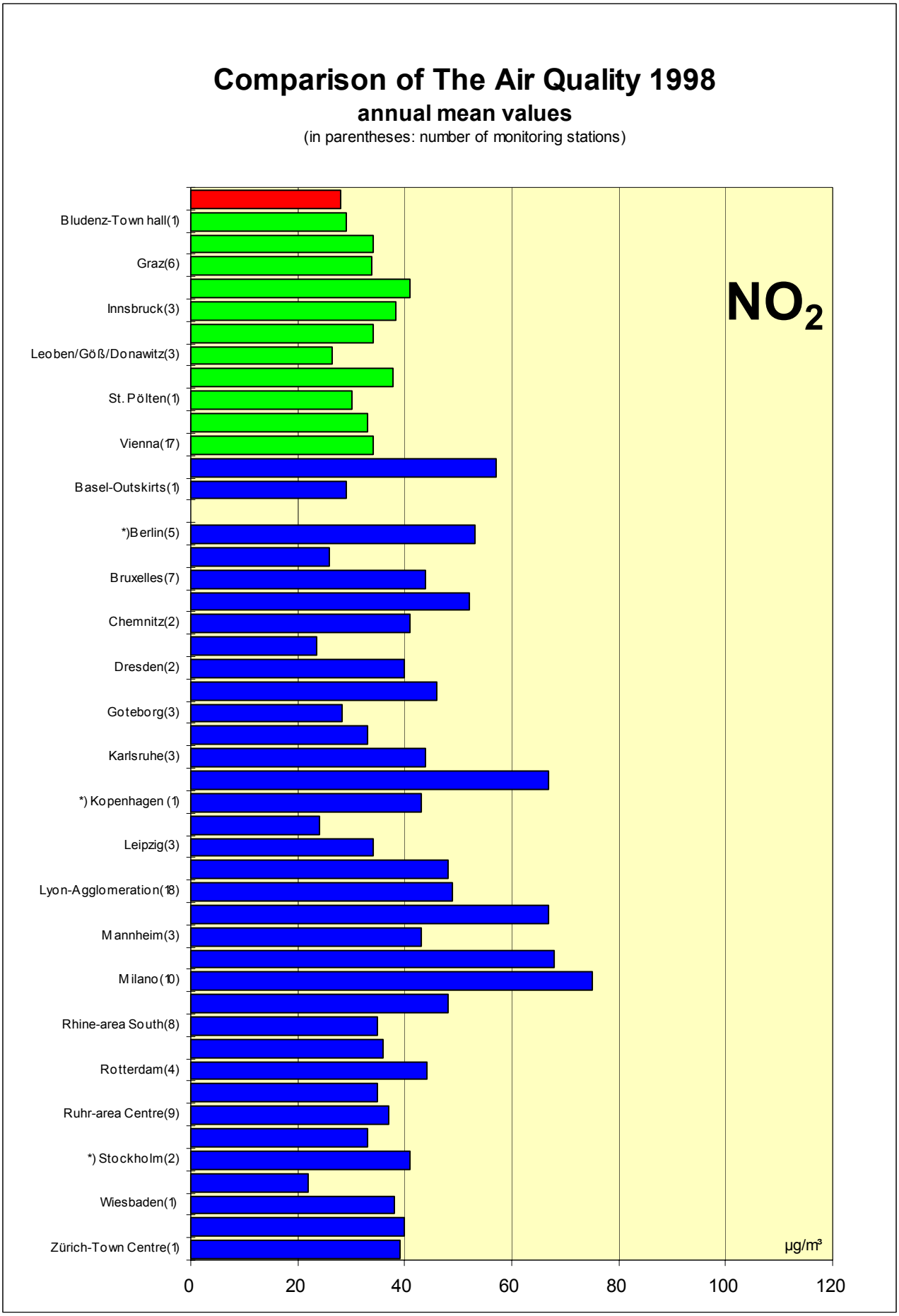
1998

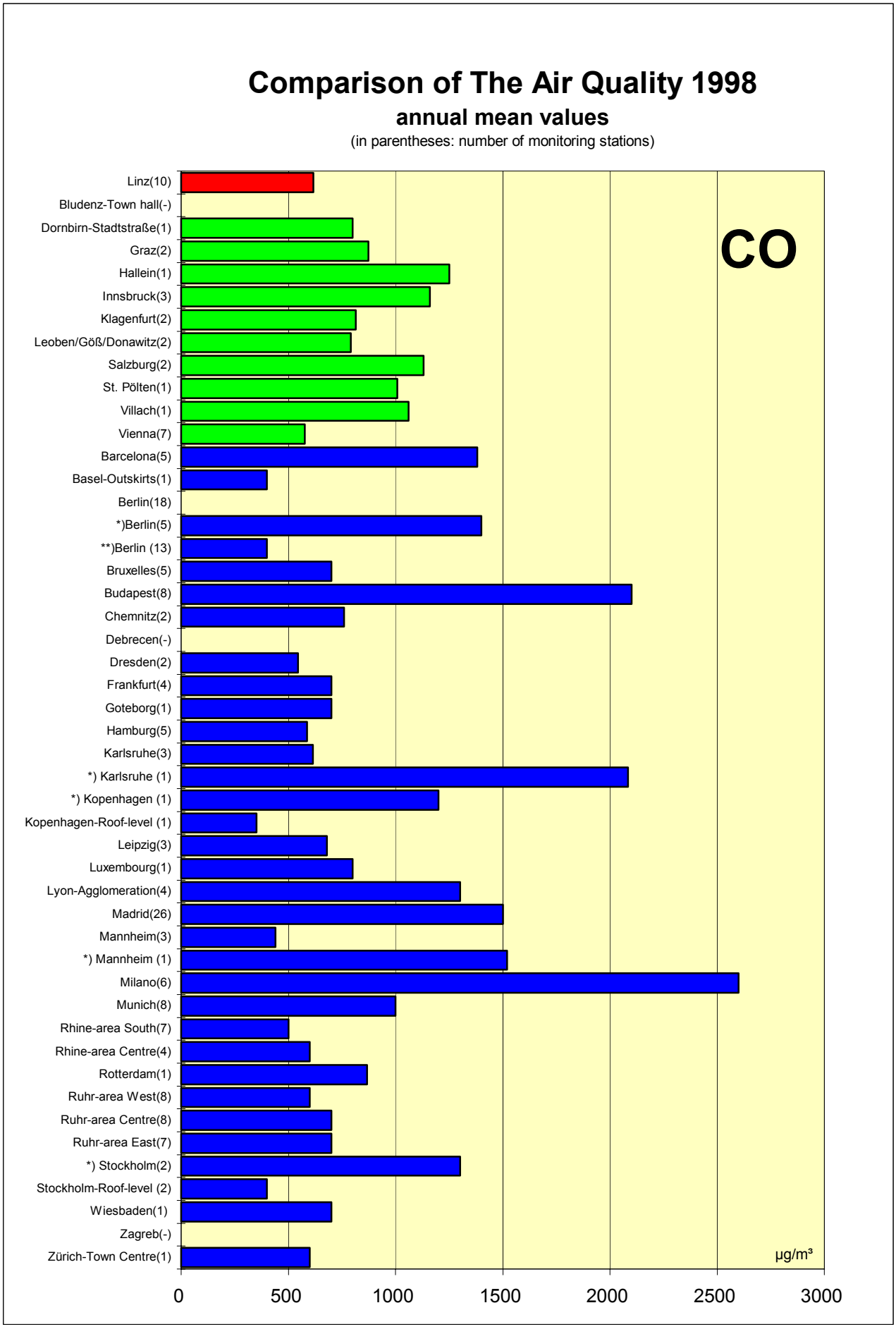
Annual Mean Values

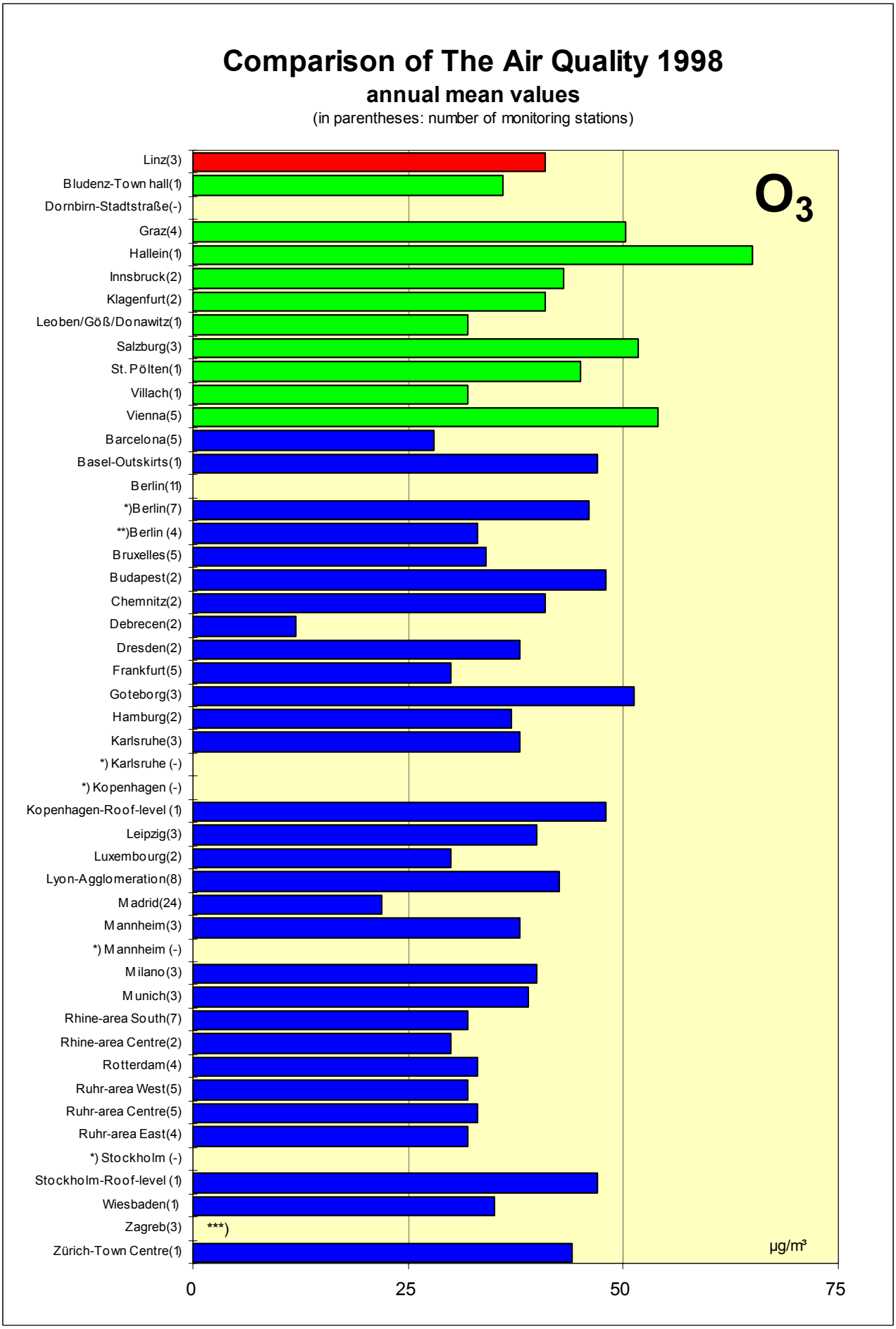

Comparison of The Air Quality 1998
annual mean values
(in parentheses: number of monitoring stations)
SO2
Bludenz-Town hall(1)
Graz(6)
Innsbruck(3)
Leoben/Göß/Donawitz(3)
St. Pölten(1)
Vienna(17)
Basel-Outskirts(1)
*)Berlin
Bruxelles(7)
Chemnitz(2)
Dresden(2)
Goteborg(3)
Karlsruhe(3)
*) Kopenhagen (1)
Leipzig(3)
Lyon-Agglomeration(17)
Mannheim(3)
Milano(7)
Rhine-area South(8)
Rotterdam(12)
Ruhr-area Centre(8)
*) Stockholm (-)
Wiesbaden(1)
Zürich-Town Centre(1)
µg/m³
0
10
20
30
40
50


Comparison of The Air Quality 1998
annual mean values
(in parentheses: number of monitoring stations)
particulate matter
Bludenz-Town hall(1)
Graz(6)
Innsbruck(3)
Leoben/Göß/Donawitz(3)
St. Pölten(1)
Vienna(17)
Basel-Outskirts(1)
*)Berlin
Bruxelles(3)
Chemnitz(2)
Dresden(2)
Goteborg(1)
Karlsruhe(3)
*) Kopenhagen (1)
Leipzig(3)
Lyon-Agglomeration(5)
Mannheim(3)
Milano(2)
Rhine-area South(8)
Rotterdam(5)
Ruhr-area Centre(8)
*) Stockholm (-)
Wiesbaden(1)
Zürich-Town Centre(1)
µg/m3
0
20
40
60
80
100
120


Comparison of The Air Quality 1998
annual mean values
(in parentheses: number of monitoring stations)
NO
Bludenz-Town hall(1)
Graz(6)
Innsbruck(3)
Leoben/Göß/Donawitz(3)
St. Pölten(1)
Vienna(17)
Basel-Outskirts(1)
*)Berlin(5)
Bruxelles(7)
Chemnitz(2)
Dresden(2)
Goteborg(2)
Karlsruhe(3)
*) Kopenhagen (1)
Leipzig(3)
Lyon-Agglomeration(18)
Mannheim(3)
Milano(10)
Rhine-area South(8)
Rotterdam(4)
Ruhr-area Centre(9)
*) Stockholm(2)
Wiesbaden(1)
Zürich-Town Centre(1)
µg/m³
0
20
40
60
80
100
120


Comparison of The Air Quality 1998
annual mean values
(in parentheses: number of monitoring stations)
NO2
Bludenz-Town hall(1)
Graz(6)
Innsbruck(3)
Leoben/Göß/Donawitz(3)
St. Pölten(1)
Vienna(17)
Basel-Outskirts(1)
*)Berlin(5)
Bruxelles(7)
Chemnitz(2)
Dresden(2)
Goteborg(3)
Karlsruhe(3)
*) Kopenhagen (1)
Leipzig(3)
Lyon-Agglomeration(18)
Mannheim(3)
Milano(10)
Rhine-area South(8)
Rotterdam(4)
Ruhr-area Centre(9)
*) Stockholm(2)
Wiesbaden(1)
Zürich-Town Centre(1)
µg/m³
0
20
40
60
80
100
120


Comparison of The Air Quality 1998
annual mean values
(in parentheses: number of monitoring stations)
CO
Linz(10)
Bludenz-Town hall(-)
Dornbirn-Stadtstraße(1)
Graz(2)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(2)
Salzburg(2)
St. Pölten(1)
Villach(1)
Vienna(7)
Barcelona(5)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin (13)
Bruxelles(5)
Budapest(8)
Chemnitz(2)
Debrecen(-)
Dresden(2)
Frankfurt(4)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(4)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(6)
Munich(8)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(1)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(7)
*) Stockholm(2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
µg/m³
0
500
1000
1500
2000
2500
3000


Comparison of The Air Quality 1998
annual mean values
(in parentheses: number of monitoring stations)
O3
Linz(3)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(-)
Graz(4)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(11)
*)Berlin(7)
**)Berlin (4)
Bruxelles(5)
Budapest(2)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(2)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (-)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(8)
Madrid(24)
Mannheim(3)
*) Mannheim (-)
Milano(3)
Munich(3)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(4)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
*) Stockholm (-)
Stockholm-Roof-level (1)
Wiesbaden(1)
Zagreb(3)
***)
Zürich-Town Centre(1)
µg/m³
0
25
50
75

Luftgütevergleich

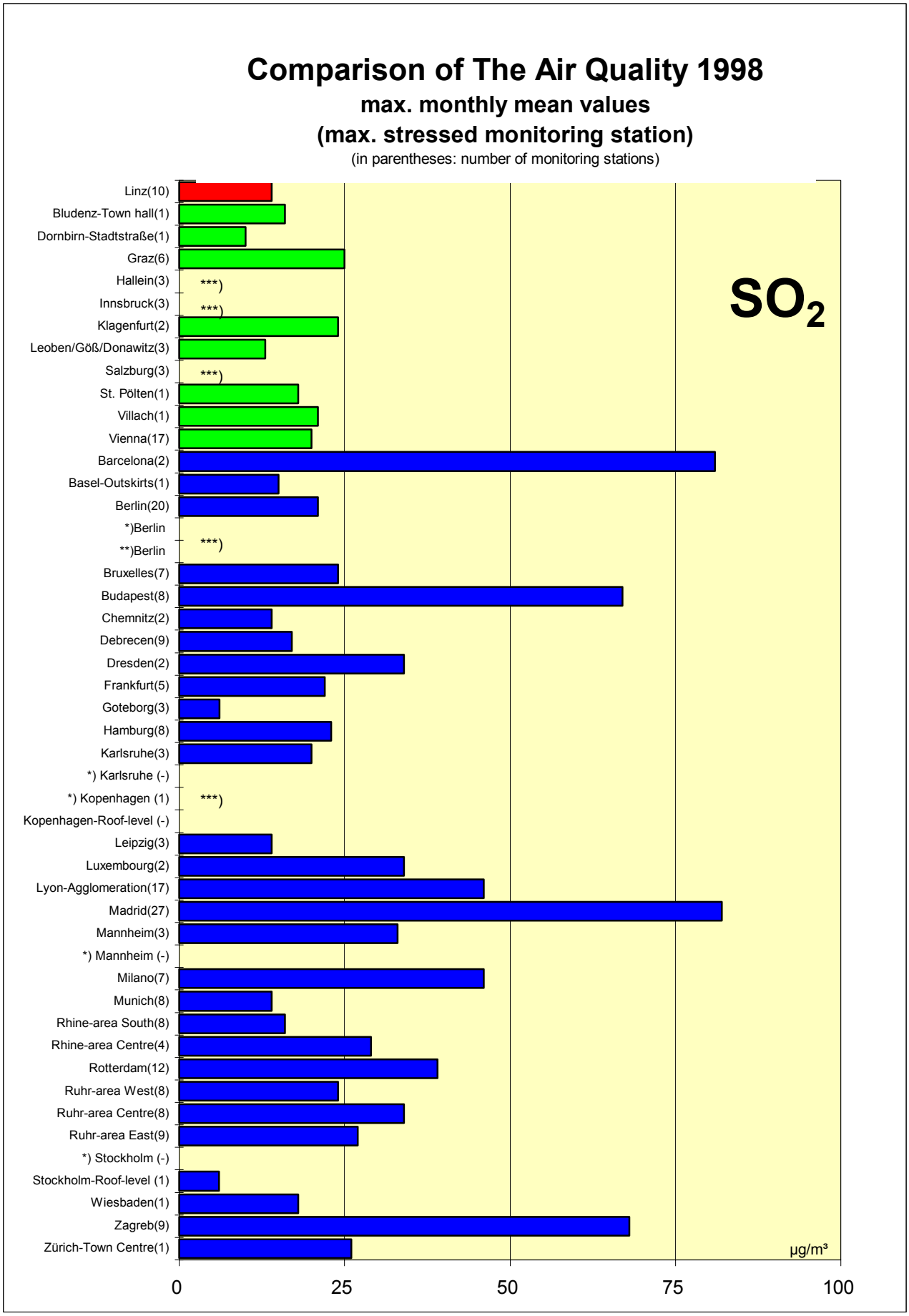
1998

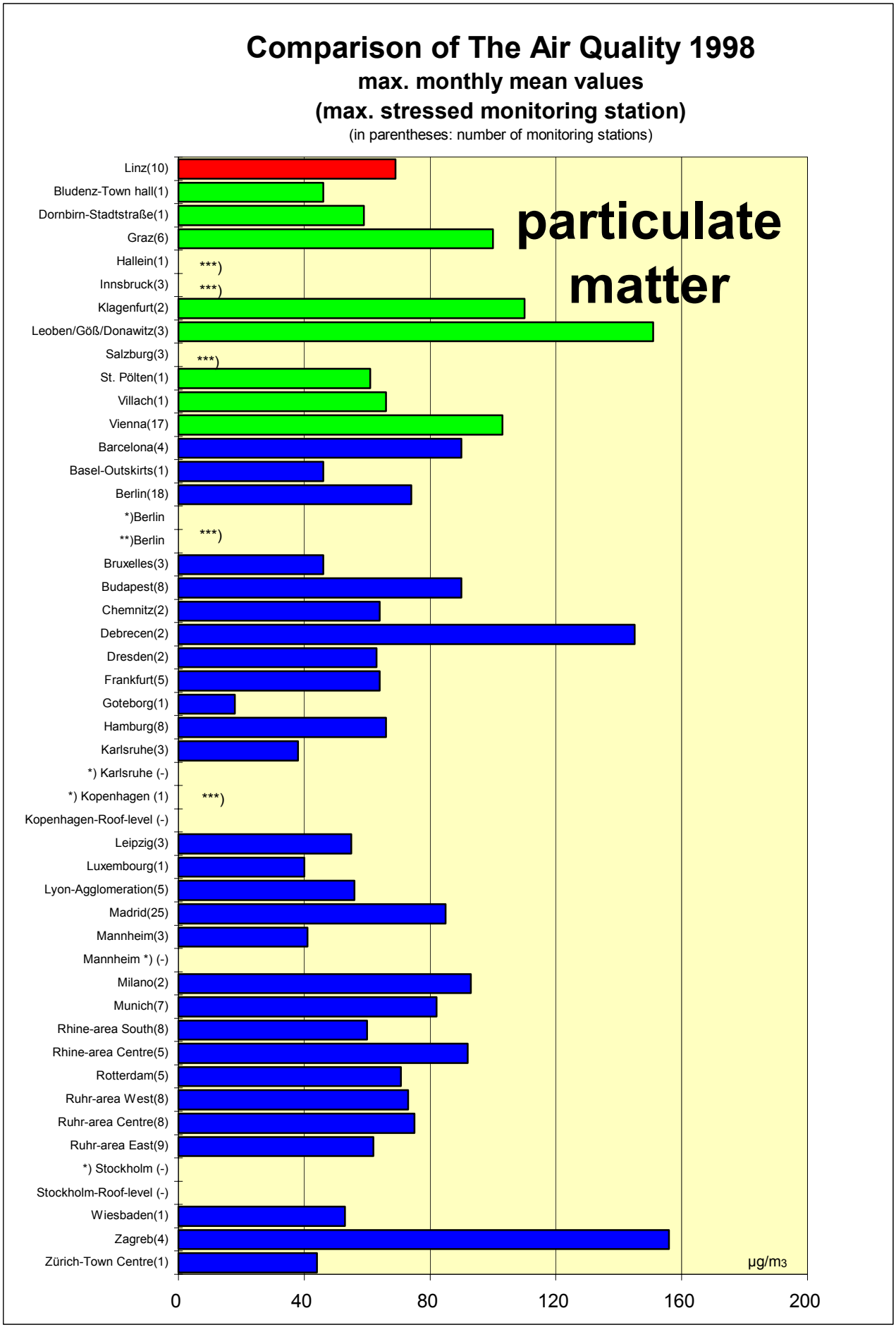
max. Monatsmittelwert

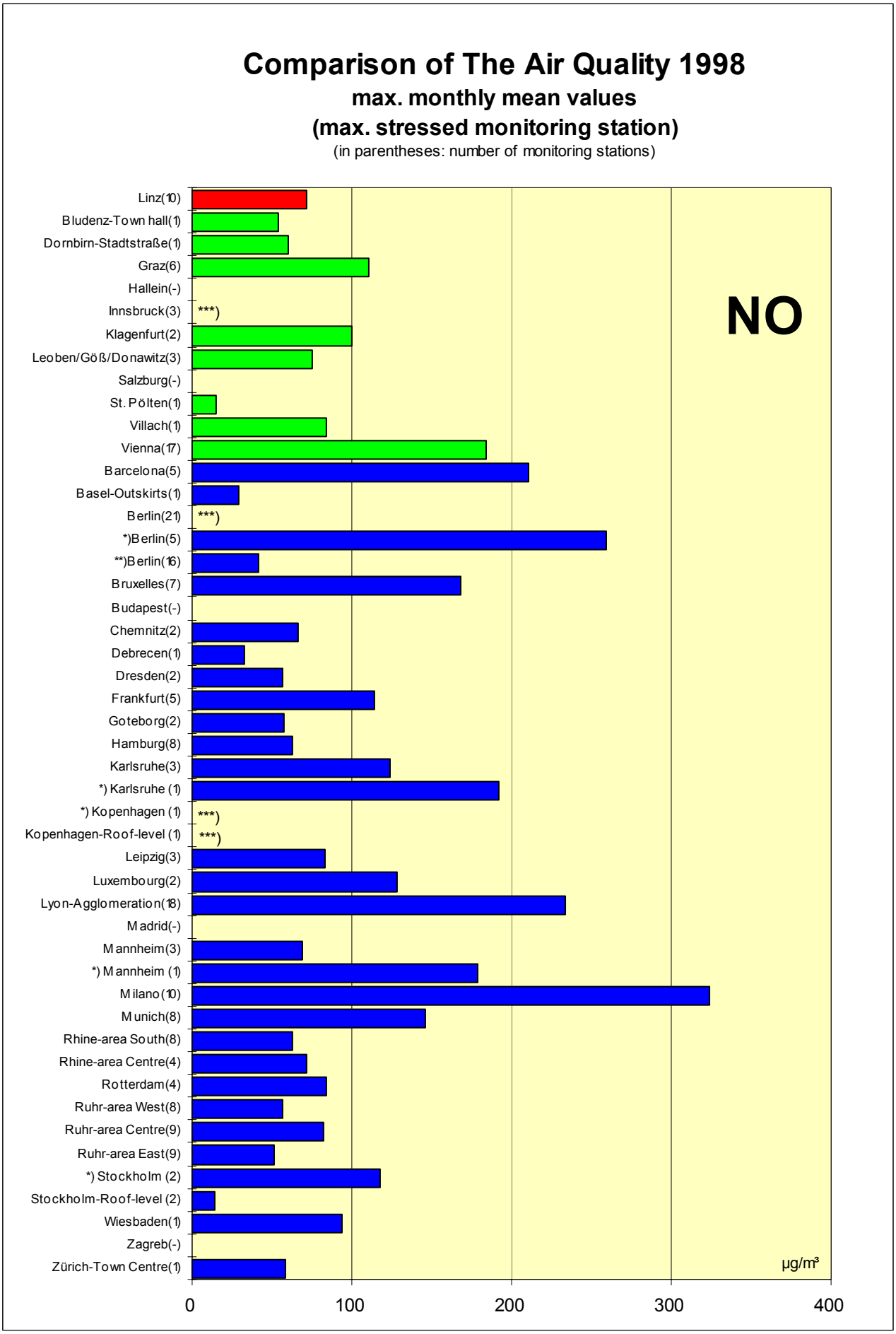
Comparison of The Air Quality

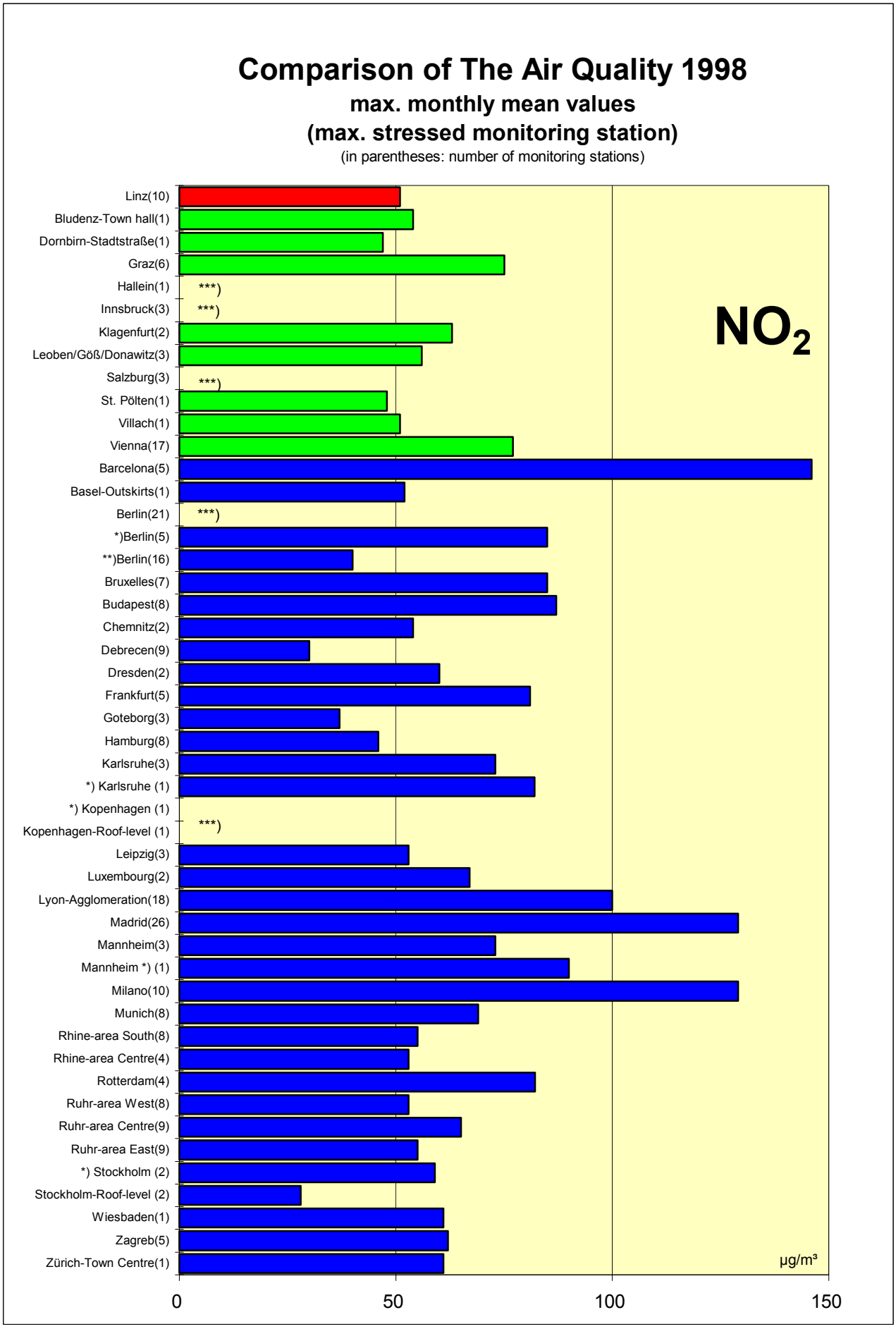
1998

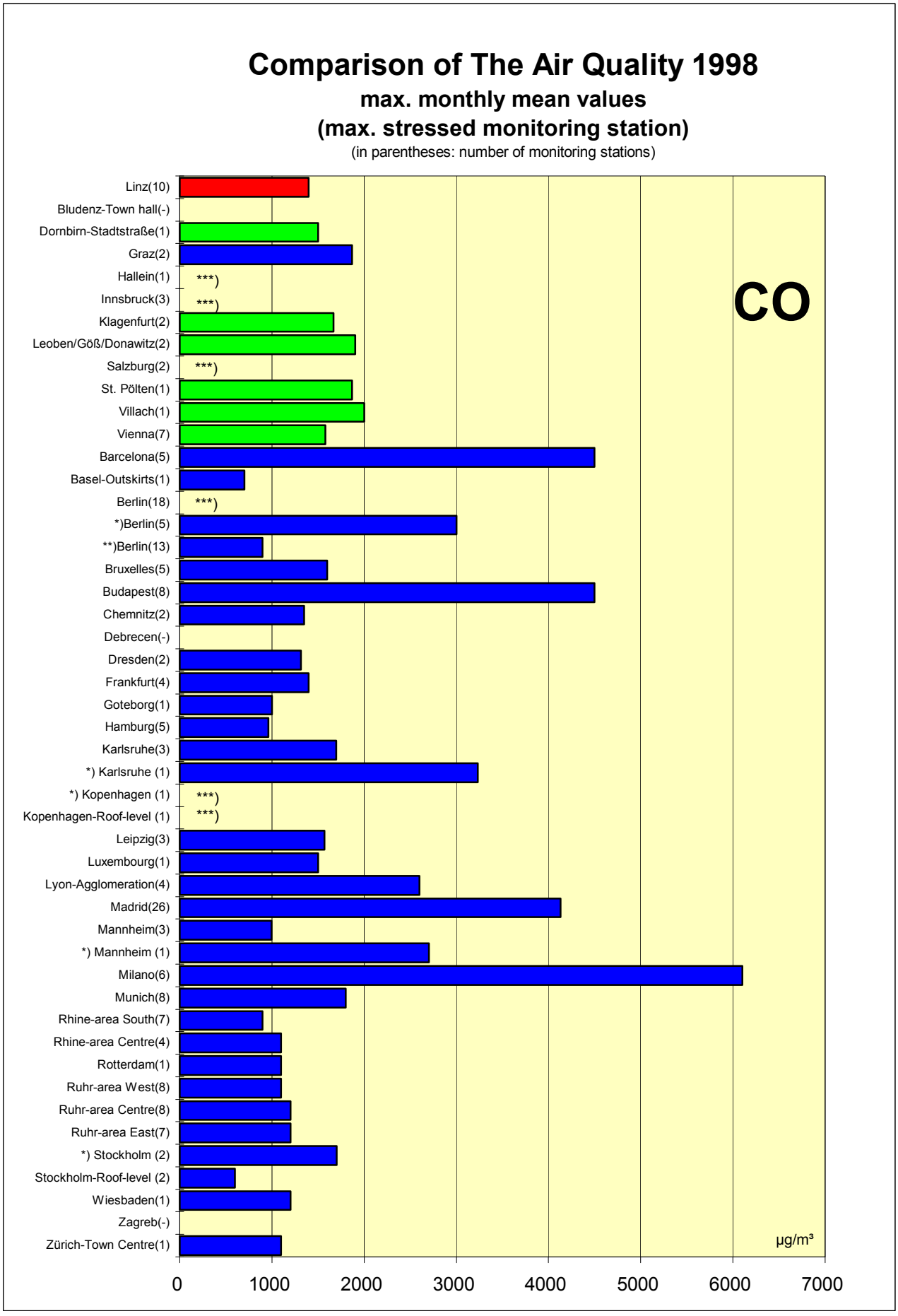
Max. Monthly Mean Values

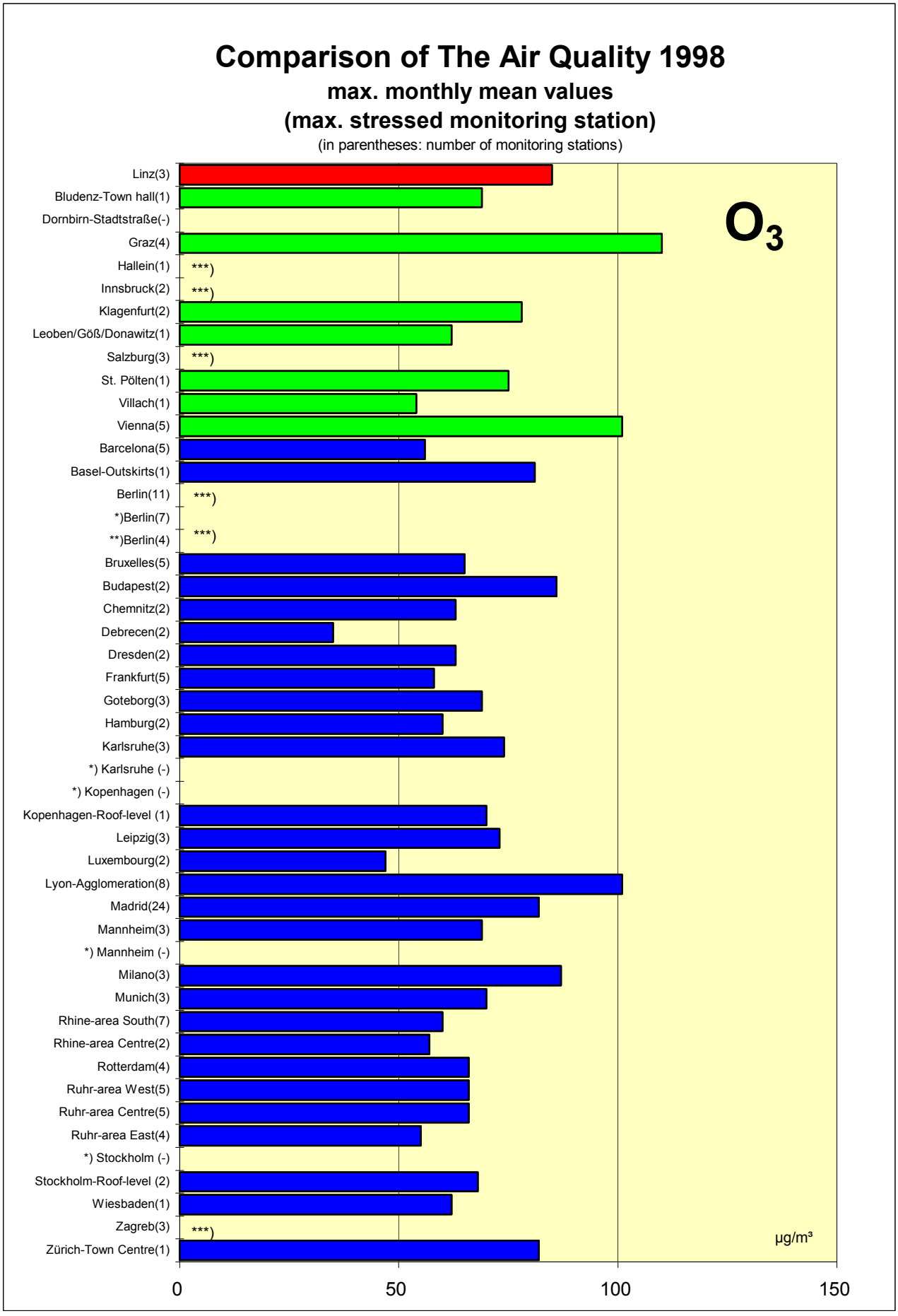

Comparison of The Air Quality 1998
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(20)
*)Berlin
**)Berlin
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(9)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(17)
Madrid(27)
Mannheim(3)
*) Mannheim (-)
Milano(7)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(12)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (-)
Stockholm-Roof-level (1)
Wiesbaden(1)
Zagreb(9)
Zürich-Town Centre(1)
***)
***)
***)
***)
µg/m³
0
25
50
75
100


Comparison of The Air Quality 1998
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
particulate matter
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
***)
Innsbruck(3)
***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
***)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(4)
Basel-Outskirts(1)
Berlin(18)
*)Berlin
**)Berlin
***)
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (1)
***)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(5)
Madrid(25)
Mannheim(3)
Mannheim *) (-)
Milano(2)
Munich(7)
Rhine-area South(8)
Rhine-area Centre(5)
Rotterdam(5)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (-)
Stockholm-Roof-level (-)
Wiesbaden(1)
Zagreb(4)
Zürich-Town Centre(1)
µg/m3
0
40
80
120
160
200


Comparison of The Air Quality 1998
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(-)
Innsbruck(3)
***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(-)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(5)
Basel-Outskirts(1)
Berlin(21)
***)
*)Berlin(5)
**)Berlin(16)
Bruxelles(7)
Budapest(-)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(5)
Goteborg(2)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
***)
Kopenhagen-Roof-level (1)
***)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(-)
Mannheim(3)
*) Mannheim (1)
Milano(10)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
Ruhr-area West(8)
Ruhr-area Centre(9)
Ruhr-area East(9)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400


Comparison of The Air Quality 1998
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
***)
Innsbruck(3)
***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
***)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(5)
Basel-Outskirts(1)
Berlin(21)
***)
*)Berlin(5)
**)Berlin(16)
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(9)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
***)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(26)
Mannheim(3)
Mannheim *) (1)
Milano(10)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
Ruhr-area West(8)
Ruhr-area Centre(9)
Ruhr-area East(9)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(5)
Zürich-Town Centre(1)
µg/m³
0
50
100
150


Comparison of The Air Quality 1998
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
CO
Linz(10)
Bludenz-Town hall(-)
Dornbirn-Stadtstraße(1)
Graz(2)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(2)
Salzburg(2)
St. Pölten(1)
Villach(1)
Vienna(7)
Barcelona(5)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin(13)
Bruxelles(5)
Budapest(8)
Chemnitz(2)
Debrecen(-)
Dresden(2)
Frankfurt(4)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(4)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(6)
Munich(8)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(1)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(7)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
1000
2000
3000
4000
5000
6000
7000


Comparison of The Air Quality 1998
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O3
Linz(3)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(-)
Graz(4)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(11)
*)Berlin(7)
**)Berlin(4)
Bruxelles(5)
Budapest(2)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(2)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (-)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(8)
Madrid(24)
Mannheim(3)
*) Mannheim (-)
Milano(3)
Munich(3)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(4)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
*) Stockholm (-)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
50
100
150

Luftgütevergleich

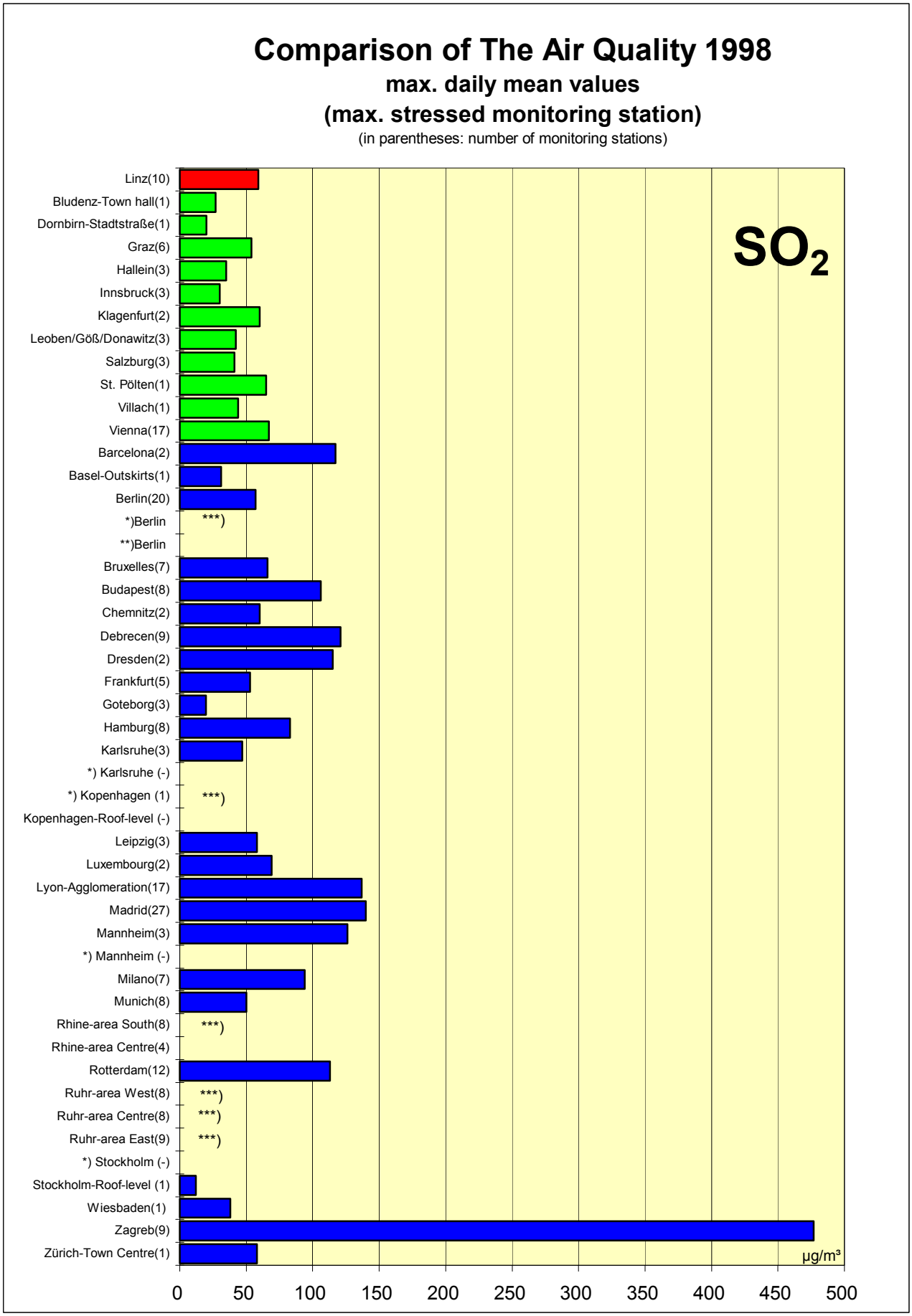
1998

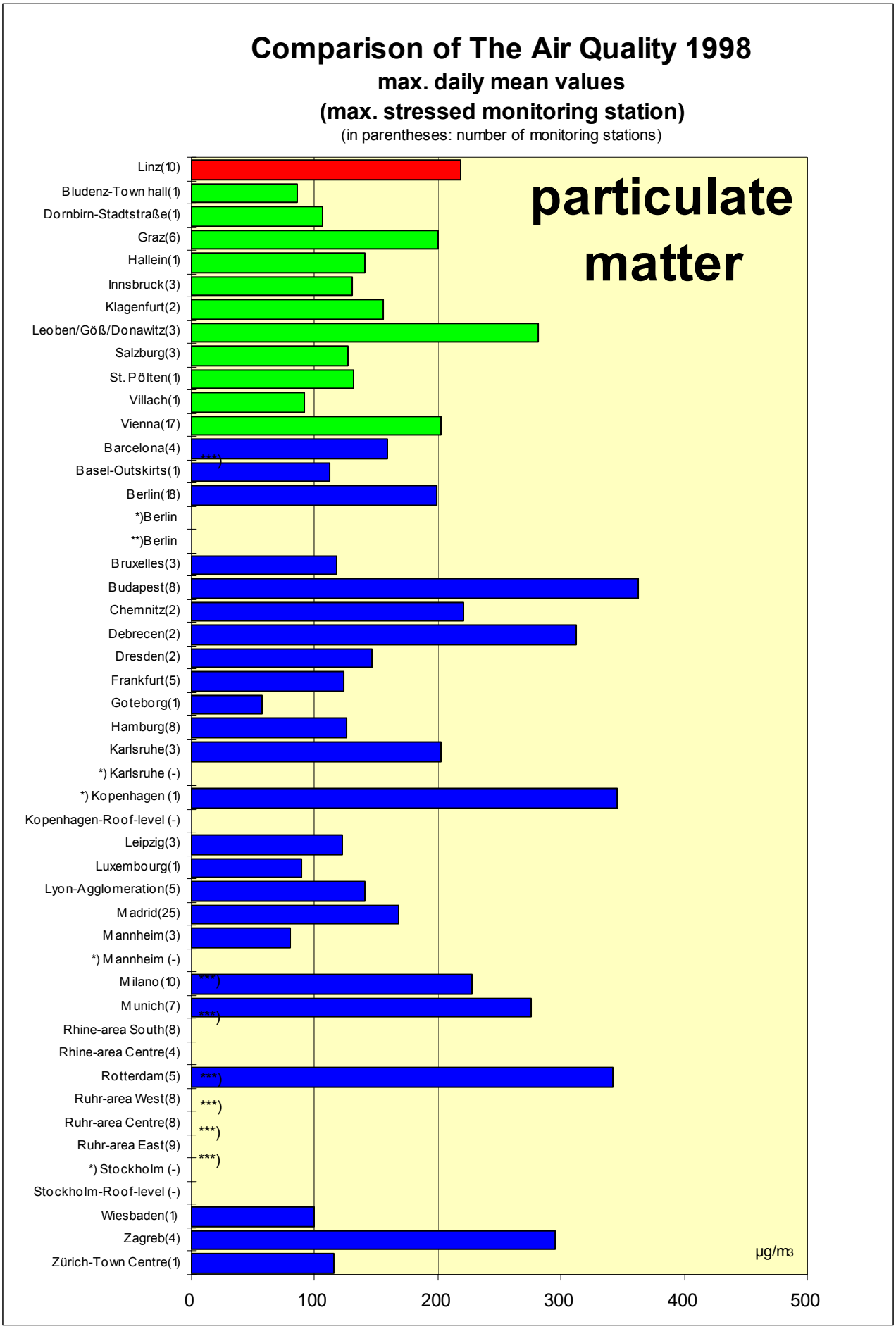
max. Tagesmittelwert

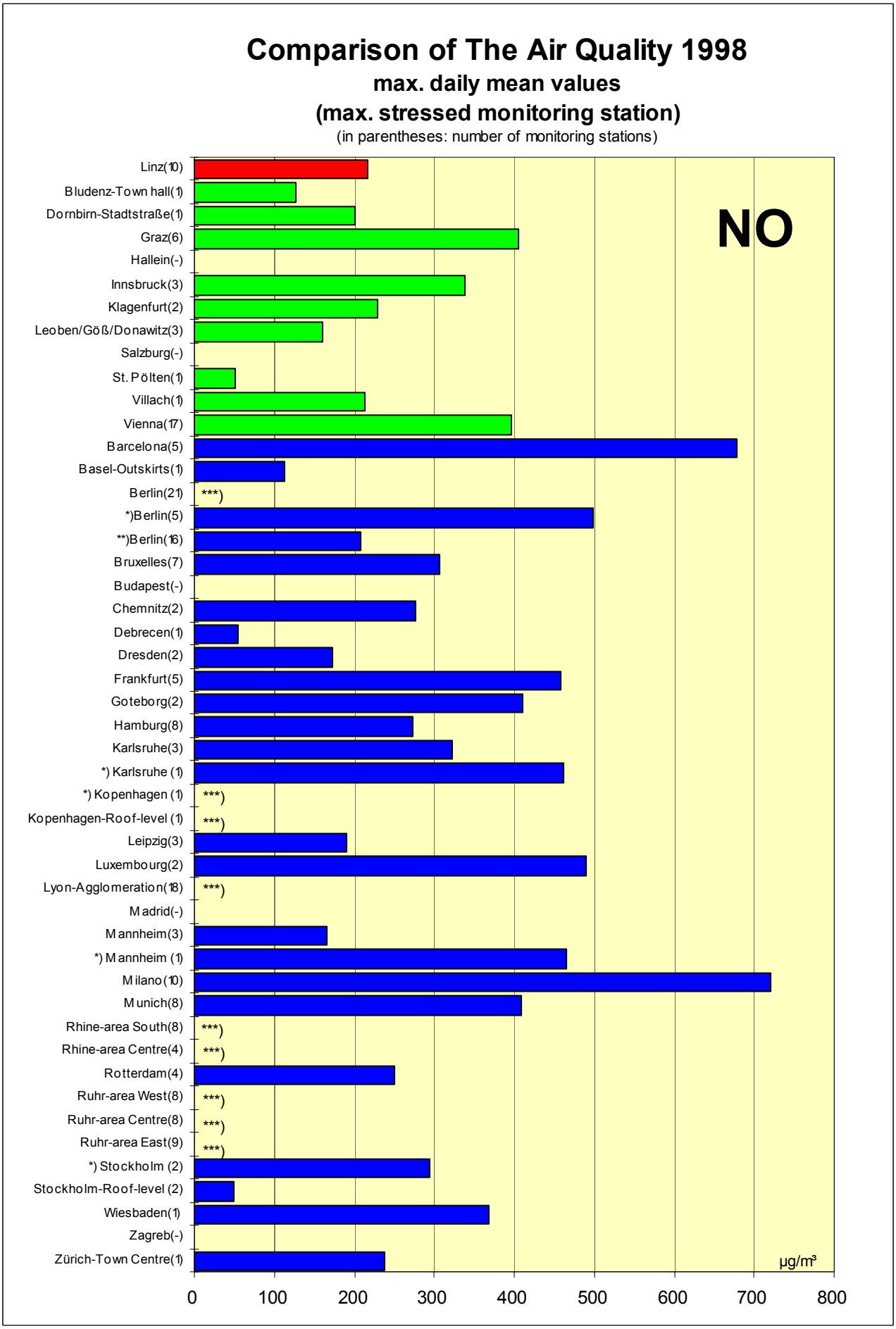
Comparison of The Air Quality

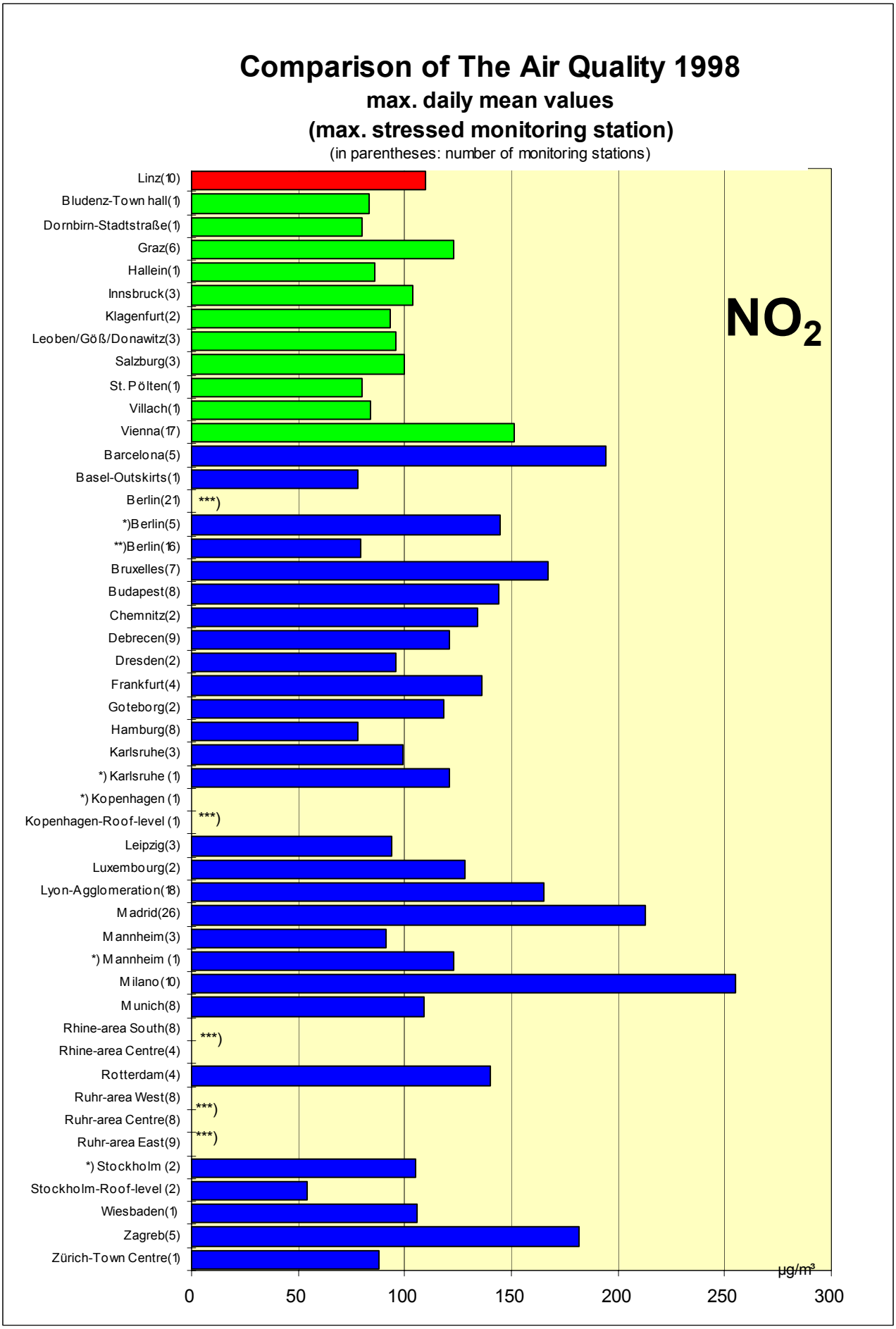
1998

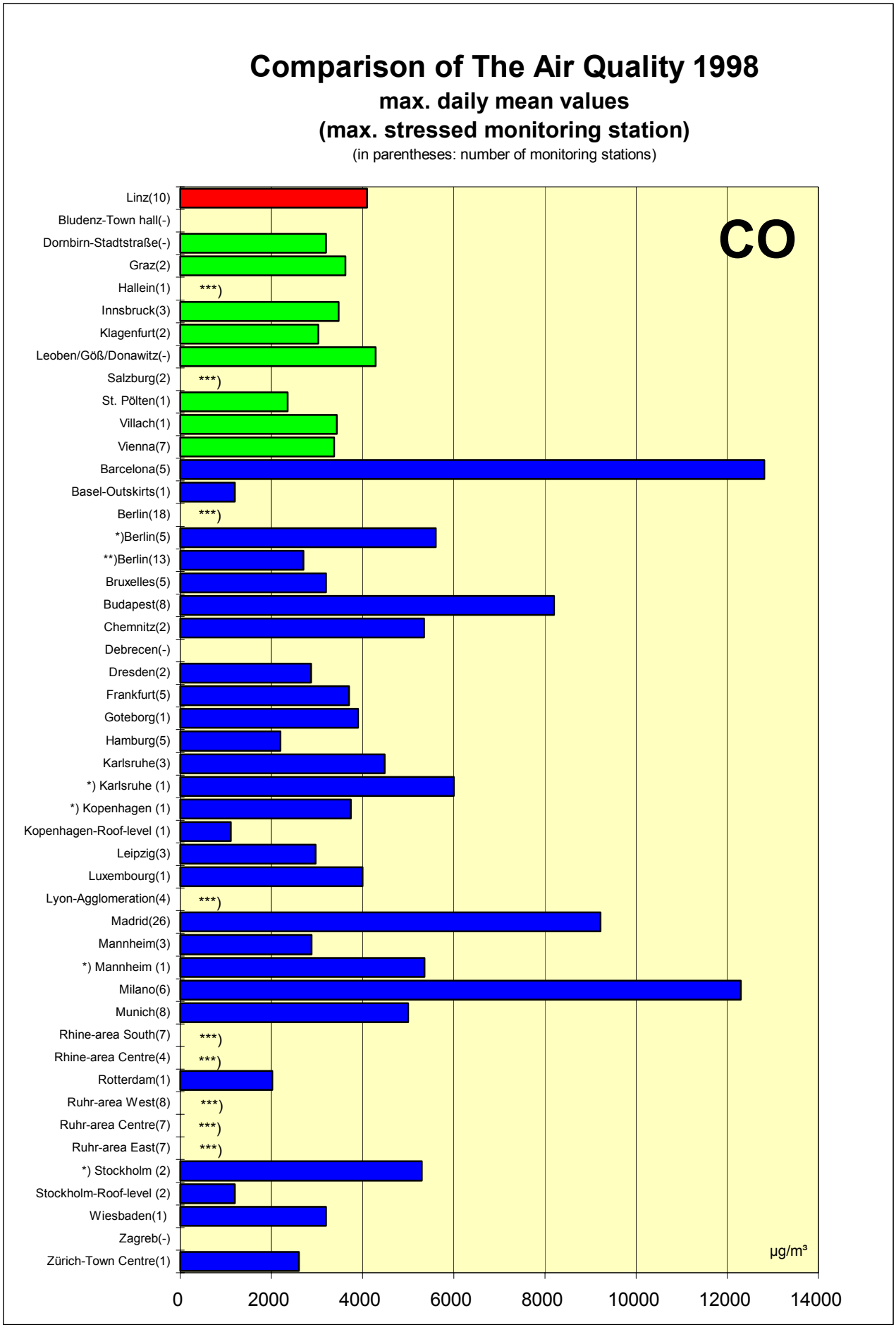
Max. Daily Mean Values

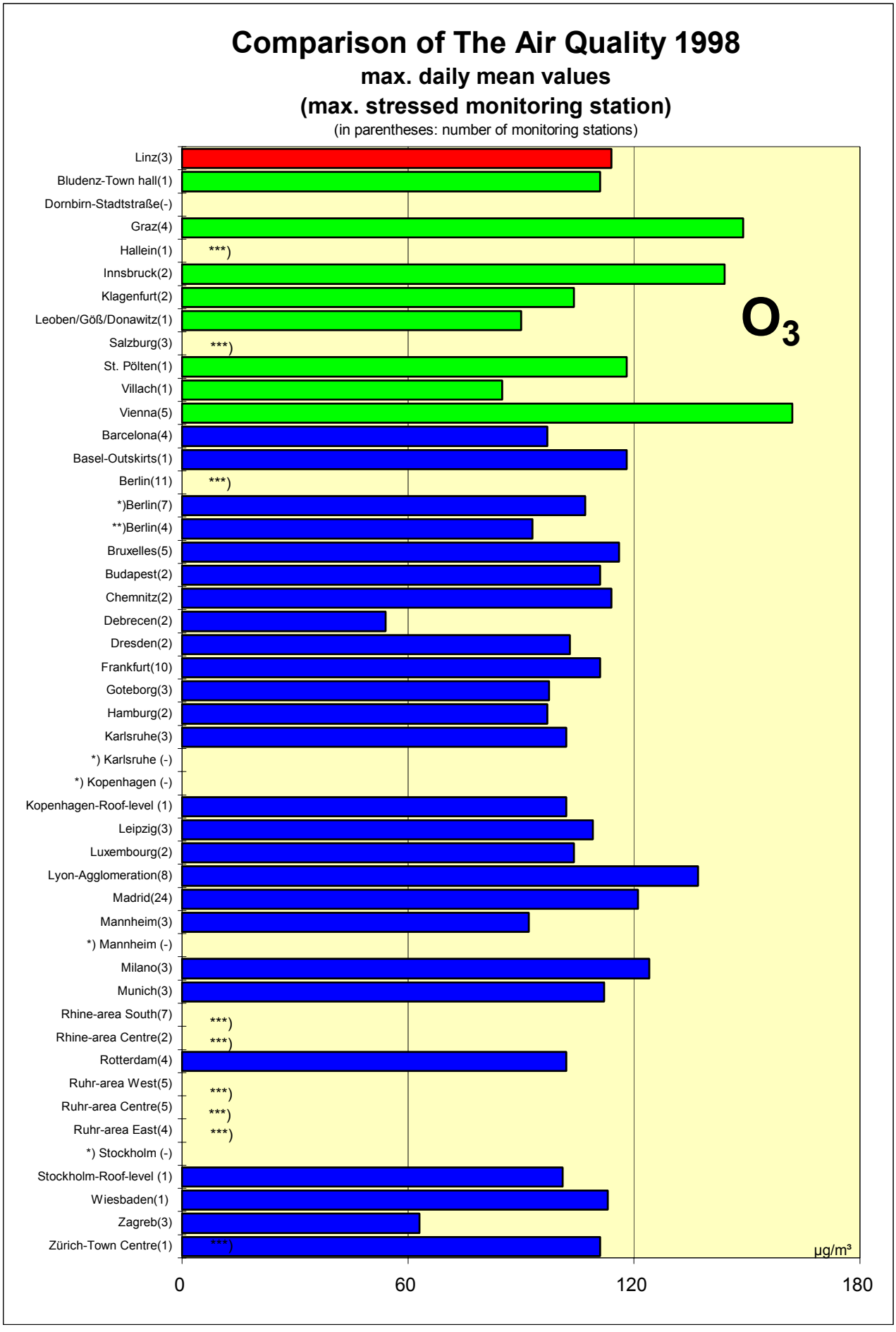

Comparison of The Air Quality 1998
max. daily mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(20)
*)Berlin ***)
**)Berlin
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(9)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (1) ***)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(17)
Madrid(27)
Mannheim(3)
*) Mannheim (-)
Milano(7)
Munich(8)
Rhine-area South(8) ***)
Rhine-area Centre(4)
Rotterdam(12)
Ruhr-area West(8) ***)
Ruhr-area Centre(8) ***)
Ruhr-area East(9) ***)
*) Stockholm (-)
Stockholm-Roof-level (1)
Wiesbaden(1)
Zagreb(9)
Zürich-Town Centre(1)
µg/m³
0
50
100
150
200
250
300
350
400
450
500


Comparison of The Air Quality 1998
max. daily mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
particulate matter
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(4)
***)
Basel-Outskirts(1)
Berlin(18)
*)Berlin
**)Berlin
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(5)
Madrid(25)
Mannheim(3)
*) Mannheim (-)
Milano(10)
***)
Munich(7)
***)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(5)
***)
Ruhr-area West(8)
***)
Ruhr-area Centre(8)
***)
Ruhr-area East(9)
***)
*) Stockholm (-)
Stockholm-Roof-level (-)
Wiesbaden(1)
Zagreb(4)
Zürich-Town Centre(1)
µg/m3
0
100
200
300
400
500


Comparison of The Air Quality 1998
max. daily mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(-)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(-)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(5)
Basel-Outskirts(1)
Berlin(21)
*)Berlin(5)
**)Berlin(16)
Bruxelles(7)
Budapest(-)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(5)
Goteborg(2)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(-)
Mannheim(3)
*) Mannheim (1)
Milano(10)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
100
200
300
400
500
600
700
800


Comparison of The Air Quality 1998
max. daily mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(5)
Basel-Outskirts(1)
Berlin(21)
***)
*)Berlin(5)
**)Berlin(16)
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(9)
Dresden(2)
Frankfurt(4)
Goteborg(2)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
***)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(10)
Munich(8)
Rhine-area South(8)
***)
Rhine-area Centre(4)
Rotterdam(4)
Ruhr-area West(8)
***)
Ruhr-area Centre(8)
Ruhr-area East(9)
***)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(5)
Zürich-Town Centre(1)
µg/m³
0
50
100
150
200
250
300


Comparison of The Air Quality 1998
max. daily mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
CO
Linz(10)
Bludenz-Town hall(-)
Dornbirn-Stadtstraße(-)
Graz(2)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(-)
Salzburg(2)
St. Pölten(1)
Villach(1)
Vienna(7)
Barcelona(5)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin(13)
Bruxelles(5)
Budapest(8)
Chemnitz(2)
Debrecen(-)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(4)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(6)
Munich(8)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(1)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
2000
4000
6000
8000
10000
12000
14000


Comparison of The Air Quality 1998
max. daily mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O3
Linz(3)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(-)
Graz(4)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(5)
Barcelona(4)
Basel-Outskirts(1)
Berlin(11)
*)Berlin(7)
**)Berlin(4)
Bruxelles(5)
Budapest(2)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(2)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (-)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(8)
Madrid(24)
Mannheim(3)
*) Mannheim (-)
Milano(3)
Munich(3)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(4)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
*) Stockholm (-)
Stockholm-Roof-level (1)
Wiesbaden(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
60
120
180

Luftgütevergleich

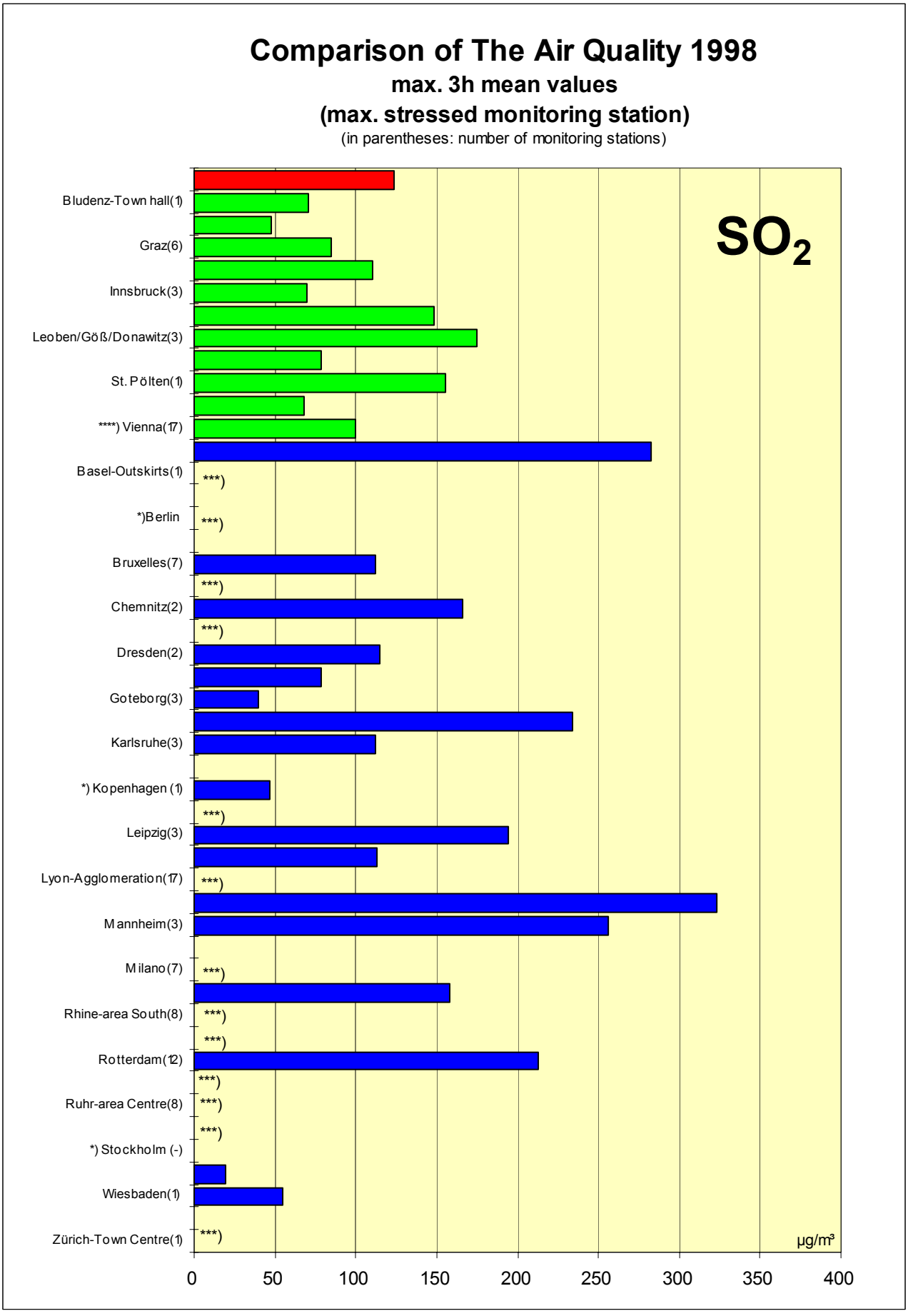
1998

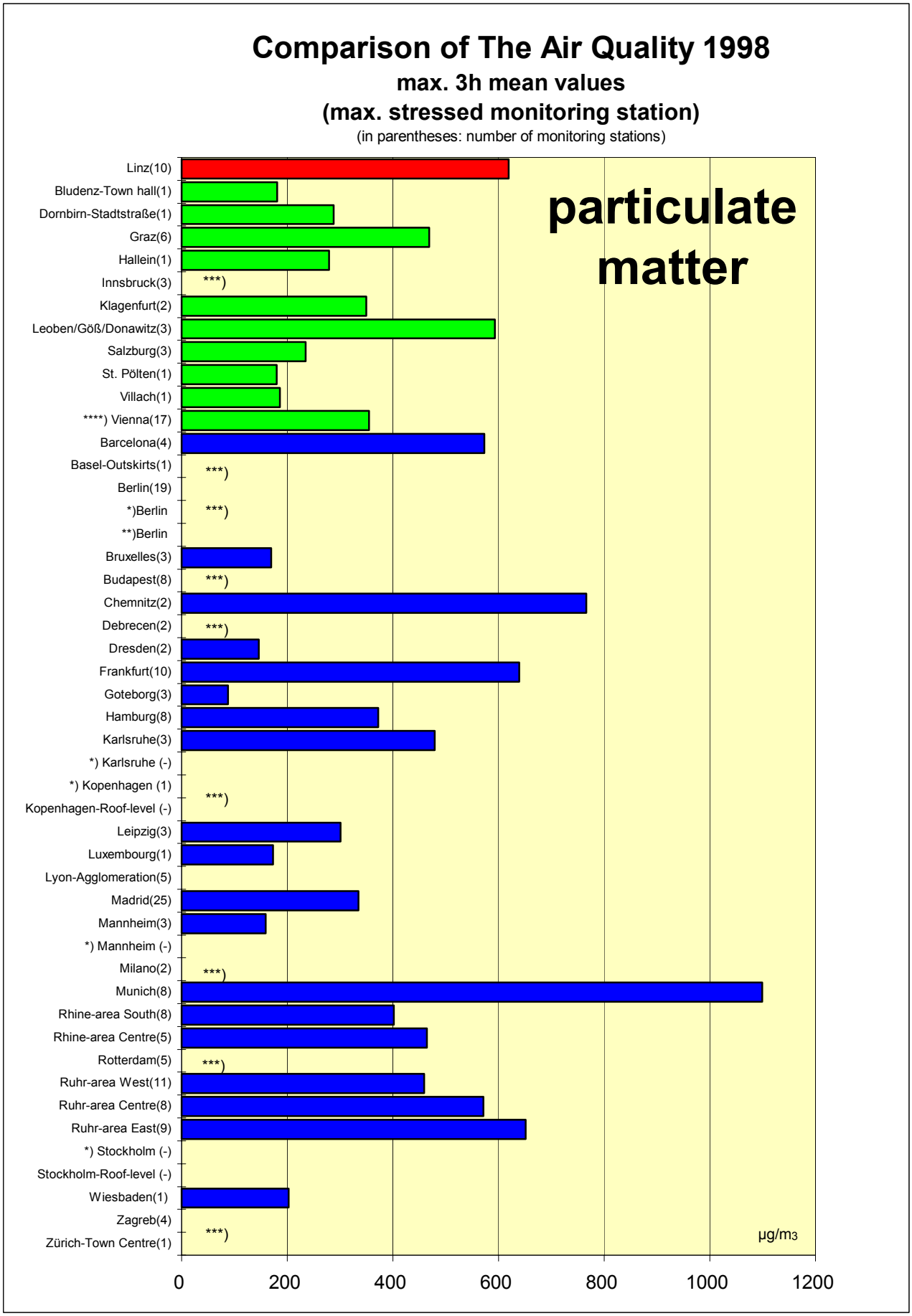
max. 3h-Mittelwerte

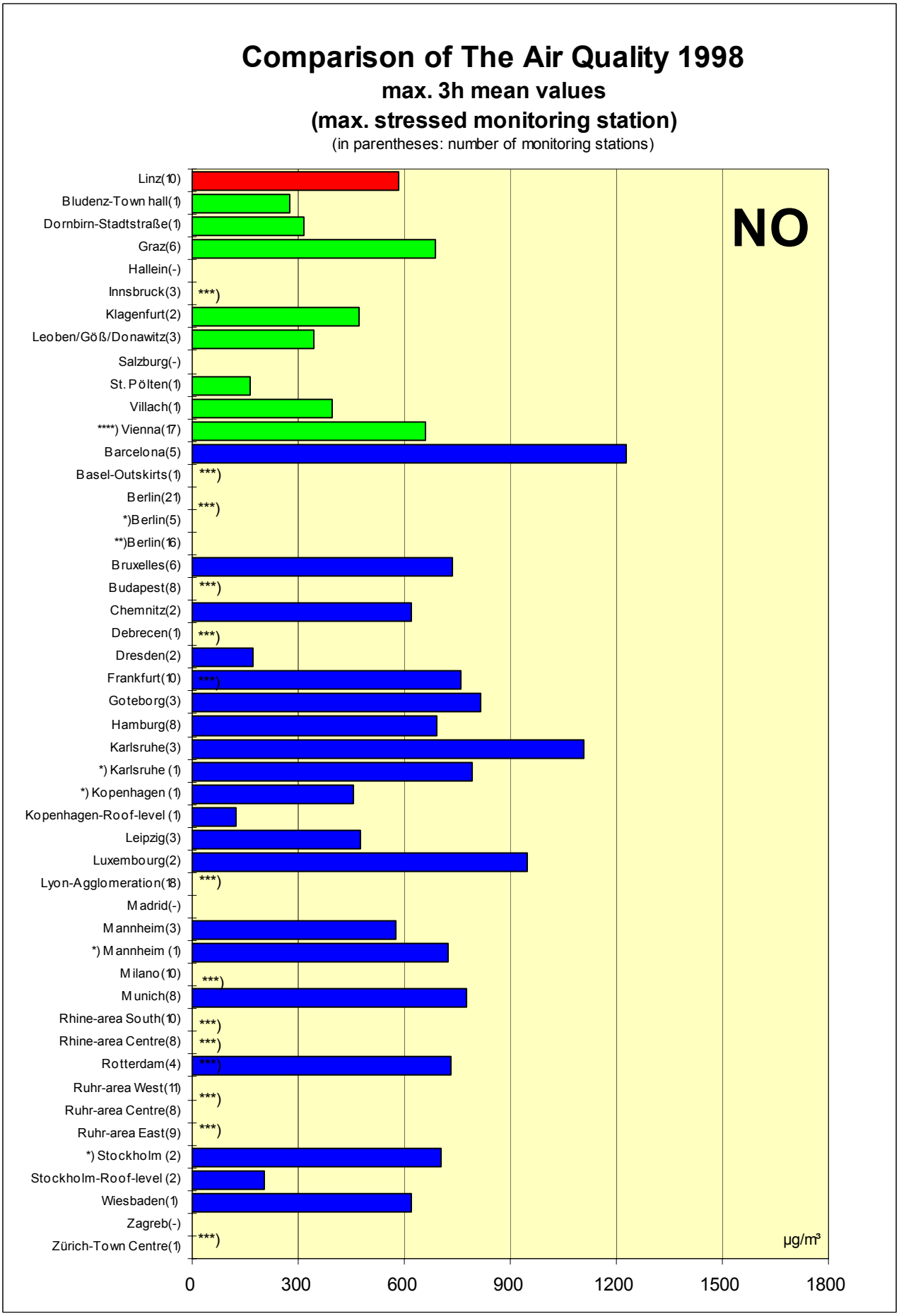
Comparison of The Air Quality

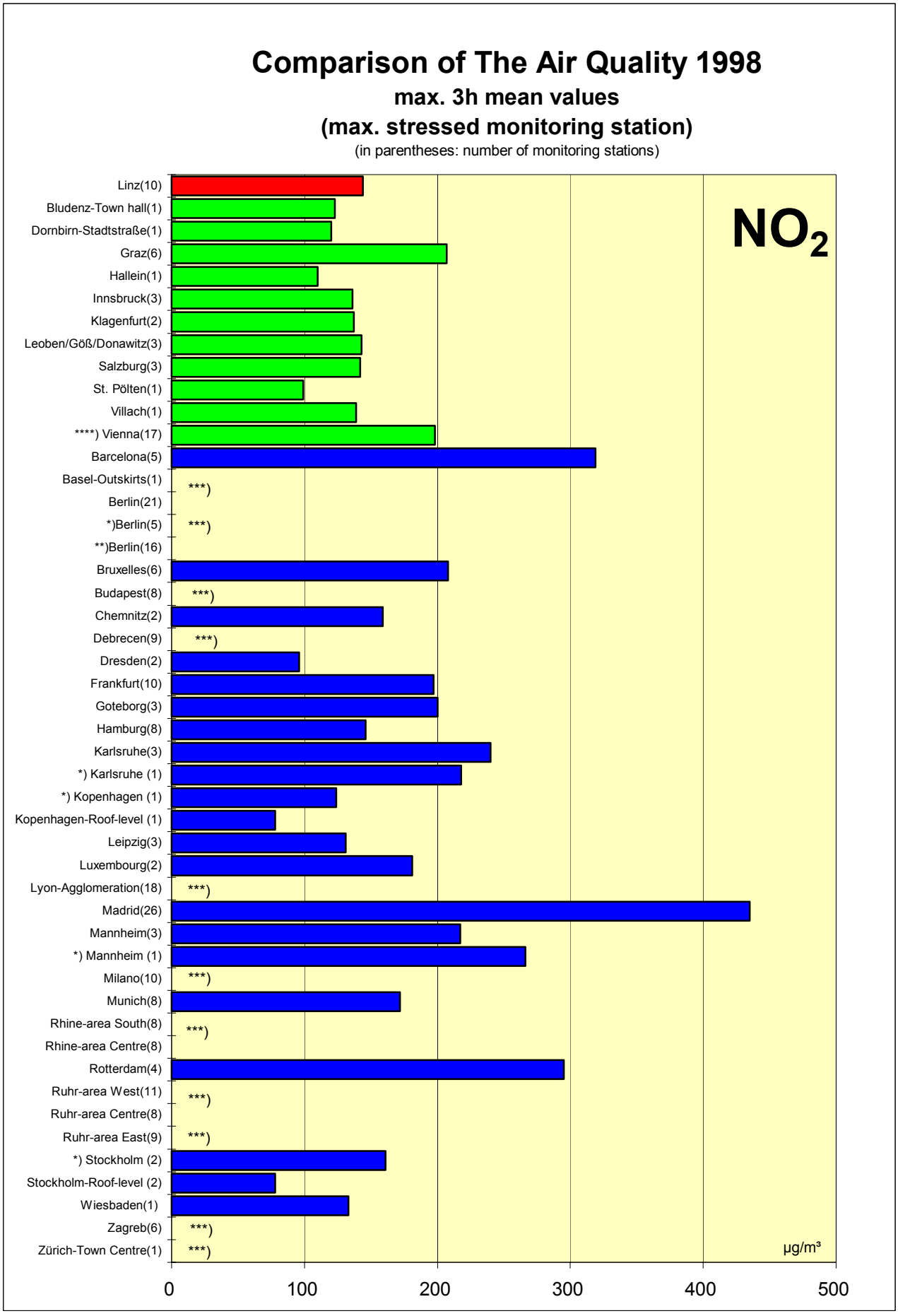
1998

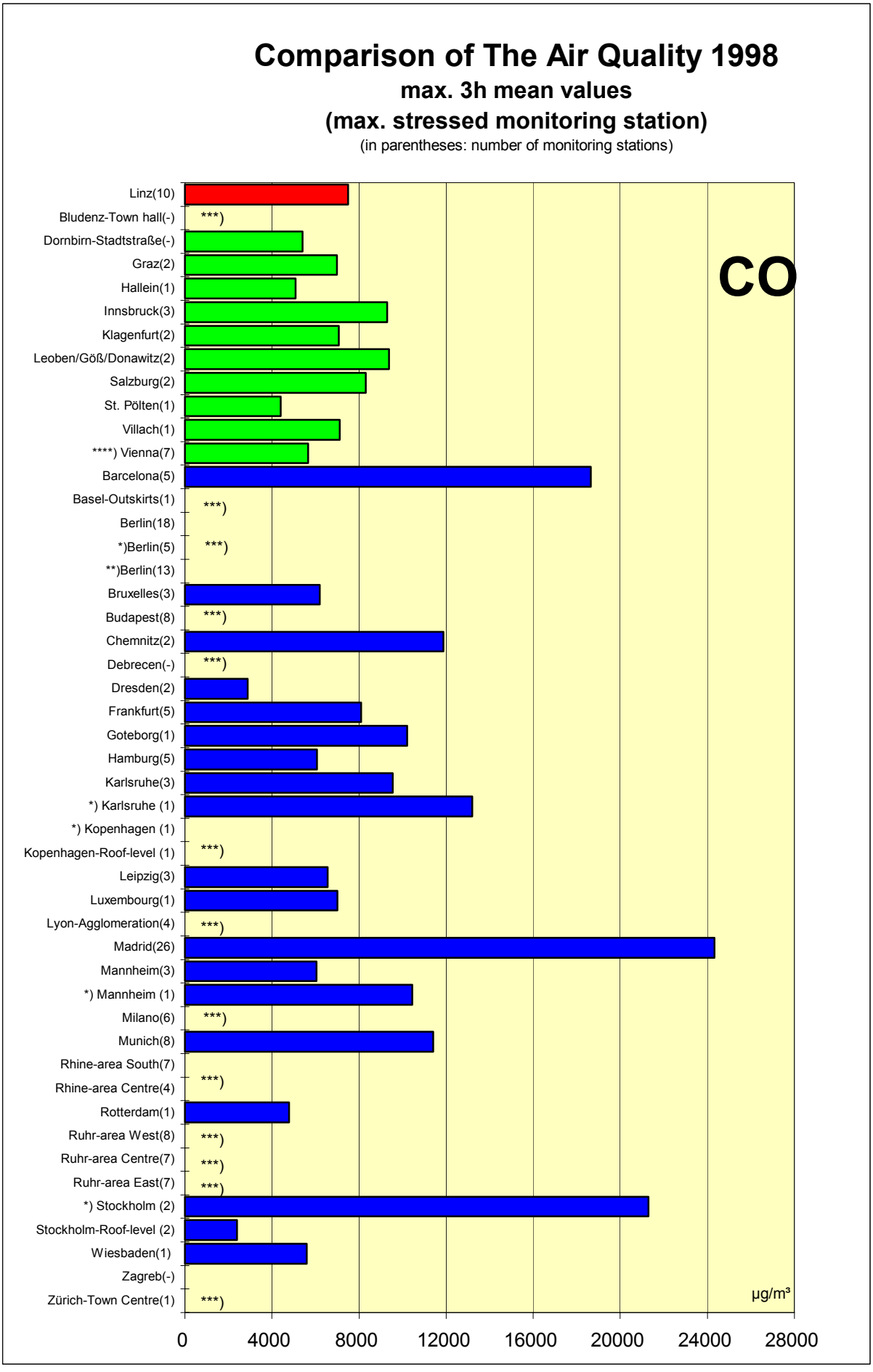
Max. 3h- Mean Values

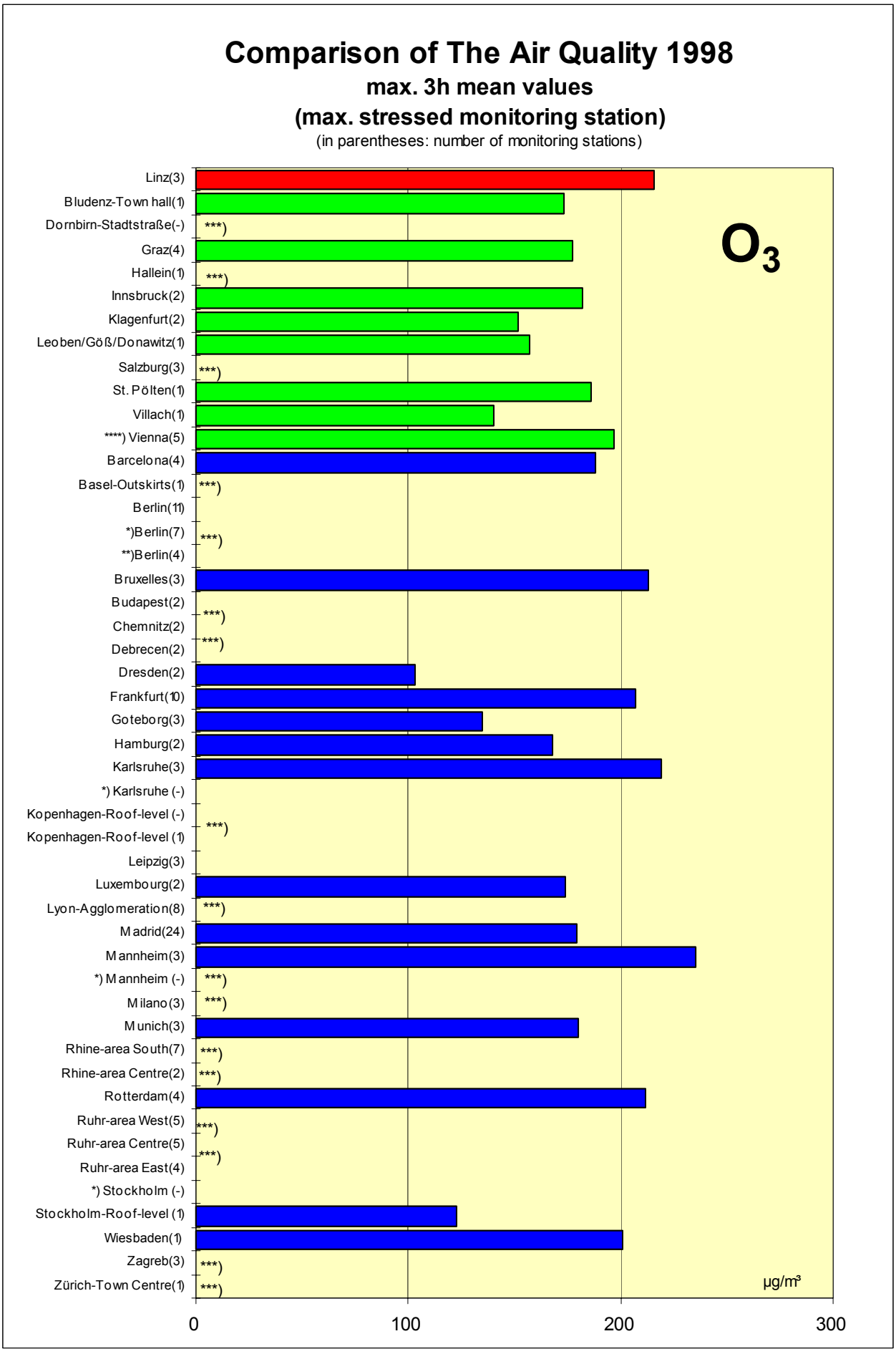

Comparison of The Air Quality 1998
max. 3h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Bludenz-Town hall(1)
Graz(6)
Innsbruck(3)
Leoben/Göß/Donawitz(3)
St. Pölten(1)
****) Vienna(17)
Basel-Outskirts(1)
***)
*)Berlin
***)
Bruxelles(7)
***)
Chemnitz(2)
***)
Dresden(2)
Goteborg(3)
Karlsruhe(3)
*) Kopenhagen (1)
***)
Leipzig(3)
Lyon-Agglomeration(17)
***)
Mannheim(3)
Milano(7)
***)
Rhine-area South(8)
***)
***)
Rotterdam(12)
***)
Ruhr-area Centre(8)
***)
***)
*) Stockholm (-)
Wiesbaden(1)
Zürich-Town Centre(1)
***)
µg/m³
0
50
100
150
200
250
300
350
400


Comparison of The Air Quality 1998
max. 3h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
particulate matter
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(4)
Basel-Outskirts(1)
Berlin(19)
*)Berlin
**)Berlin
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(5)
Madrid(25)
Mannheim(3)
*) Mannheim (-)
Milano(2)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(5)
Rotterdam(5)
Ruhr-area West(11)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (-)
Stockholm-Roof-level (-)
Wiesbaden(1)
Zagreb(4)
Zürich-Town Centre(1)
***)
µg/m3
0
200
400
600
800
1000
1200


Comparison of The Air Quality 1998
max. 3h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(-)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(-)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(5)
Basel-Outskirts(1)
Berlin(21)
*)Berlin(5)
**)Berlin(16)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(-)
Mannheim(3)
*) Mannheim (1)
Milano(10)
Munich(8)
Rhine-area South(10)
Rhine-area Centre(8)
Rotterdam(4)
Ruhr-area West(11)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
300
600
900
1200
1500
1800


Comparison of The Air Quality 1998
max. 3h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(5)
Basel-Outskirts(1)
***)
Berlin(21)
*)Berlin(5)
***)
**)Berlin(16)
Bruxelles(6)
Budapest(8)
***)
Chemnitz(2)
Debrecen(9)
***)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
***)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(10)
***)
Munich(8)
Rhine-area South(8)
***)
Rhine-area Centre(8)
Rotterdam(4)
Ruhr-area West(11)
***)
Ruhr-area Centre(8)
Ruhr-area East(9)
***)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(6)
***)
Zürich-Town Centre(1)
***)
µg/m³
0
100
200
300
400
500


Comparison of The Air Quality 1998
max. 3h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
CO
Linz(10)
Bludenz-Town hall(-)
Dornbirn-Stadtstraße(-)
Graz(2)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(2)
Salzburg(2)
St. Pölten(1)
Villach(1)
****) Vienna(7)
Barcelona(5)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin(13)
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(-)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(4)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(6)
Munich(8)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(1)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
4000
8000
12000
16000
20000
24000
28000


Comparison of The Air Quality 1998
max. 3h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O3
Linz(3)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(-)
Graz(4)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(5)
Barcelona(4)
Basel-Outskirts(1)
Berlin(11)
*)Berlin(7)
**)Berlin(4)
Bruxelles(3)
Budapest(2)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(2)
Karlsruhe(3)
*) Karlsruhe (-)
Kopenhagen-Roof-level (-)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(8)
Madrid(24)
Mannheim(3)
*) Mannheim (-)
Milano(3)
Munich(3)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(4)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
*) Stockholm (-)
Stockholm-Roof-level (1)
Wiesbaden(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
100
200
300

Luftgütevergleich

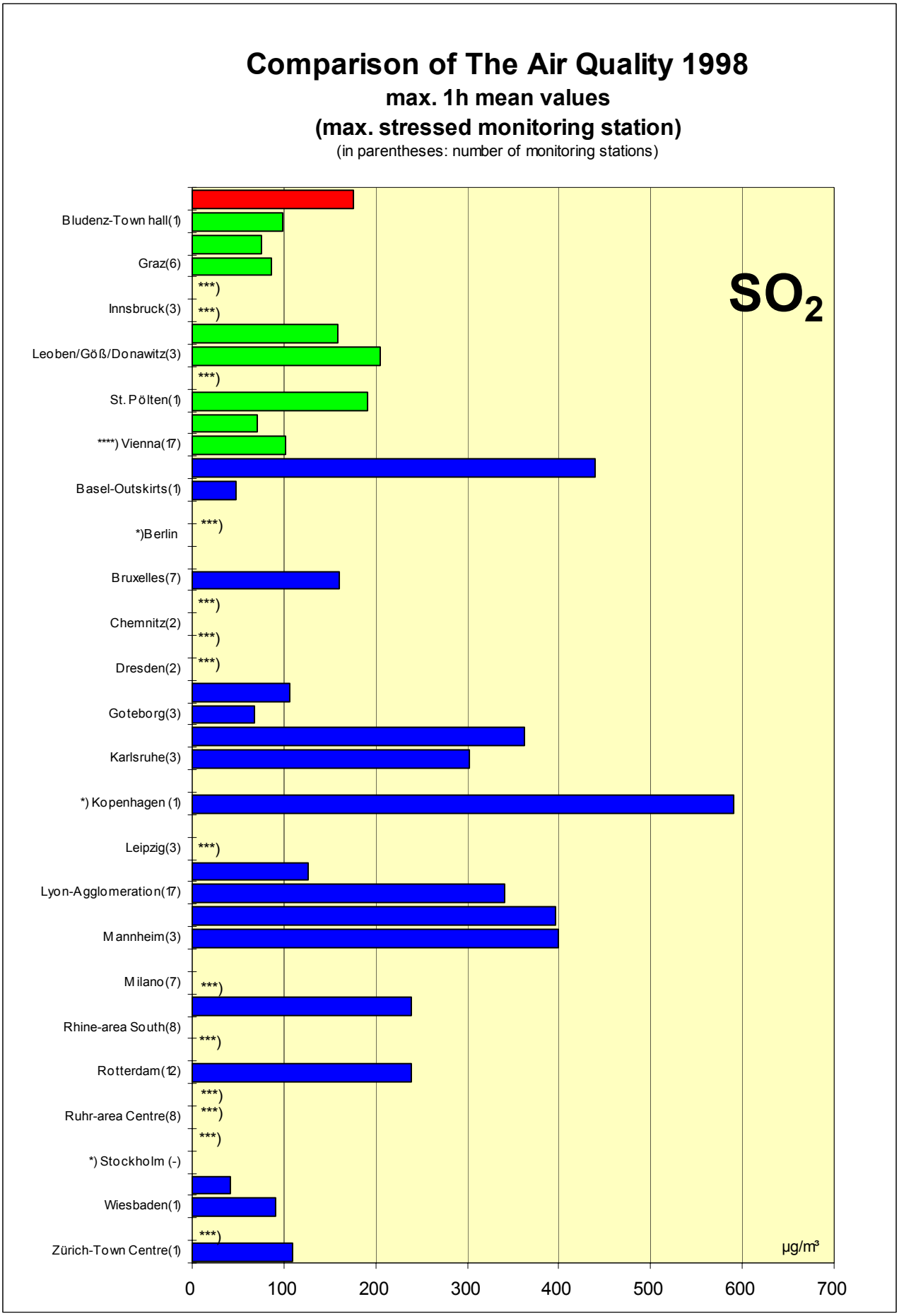
1998

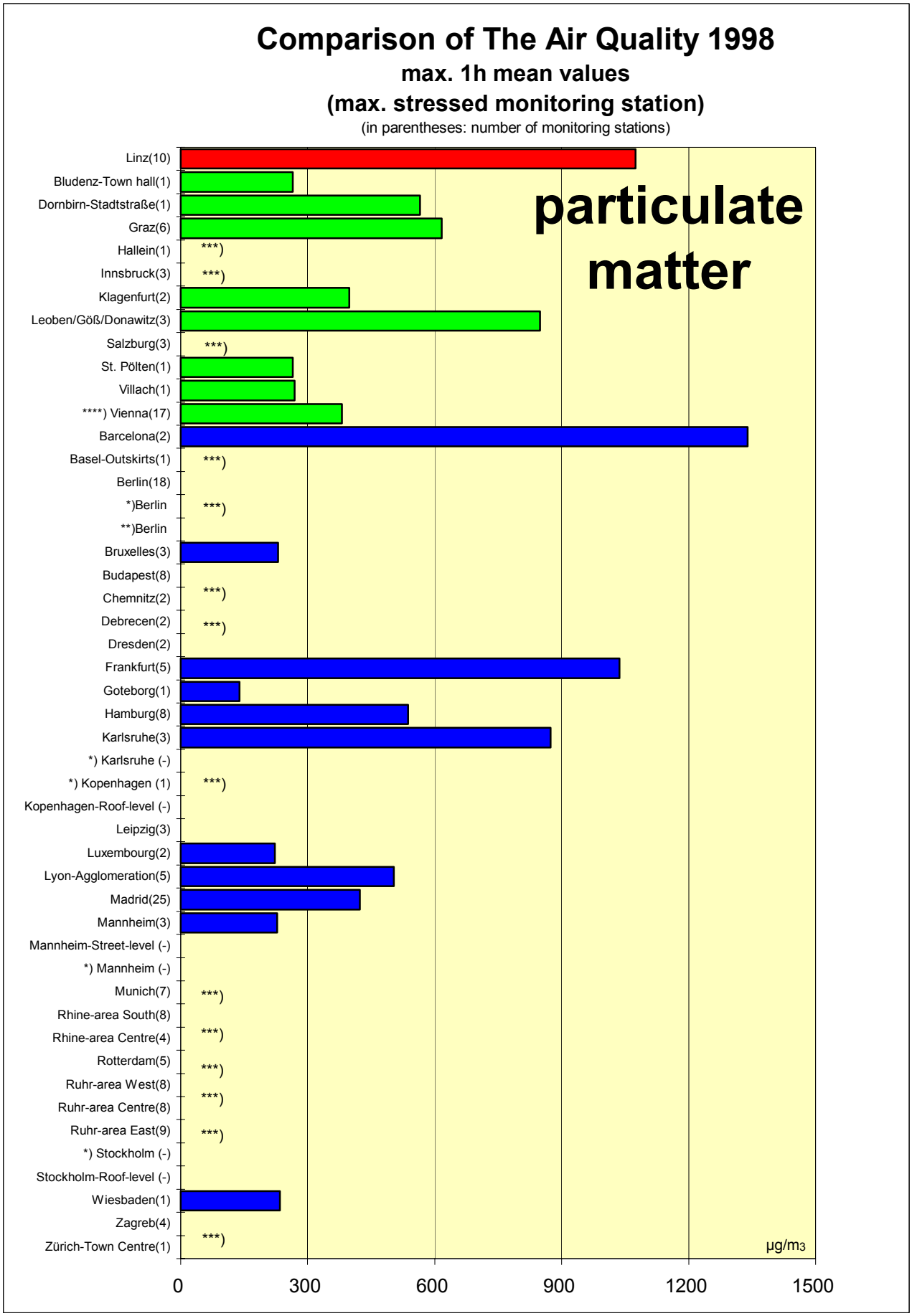
max. 1h-Mittelwerte

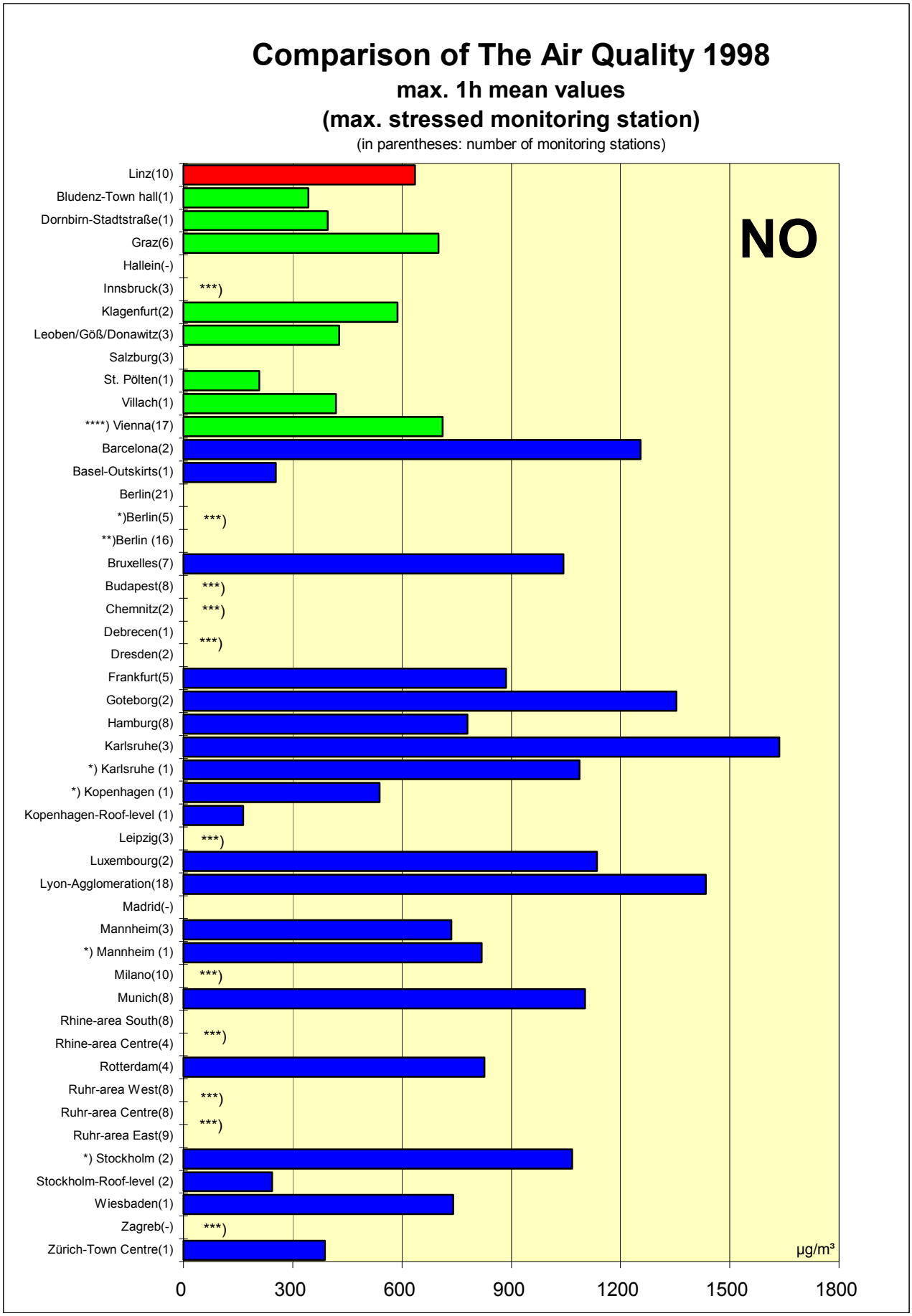
Comparison of The Air Quality

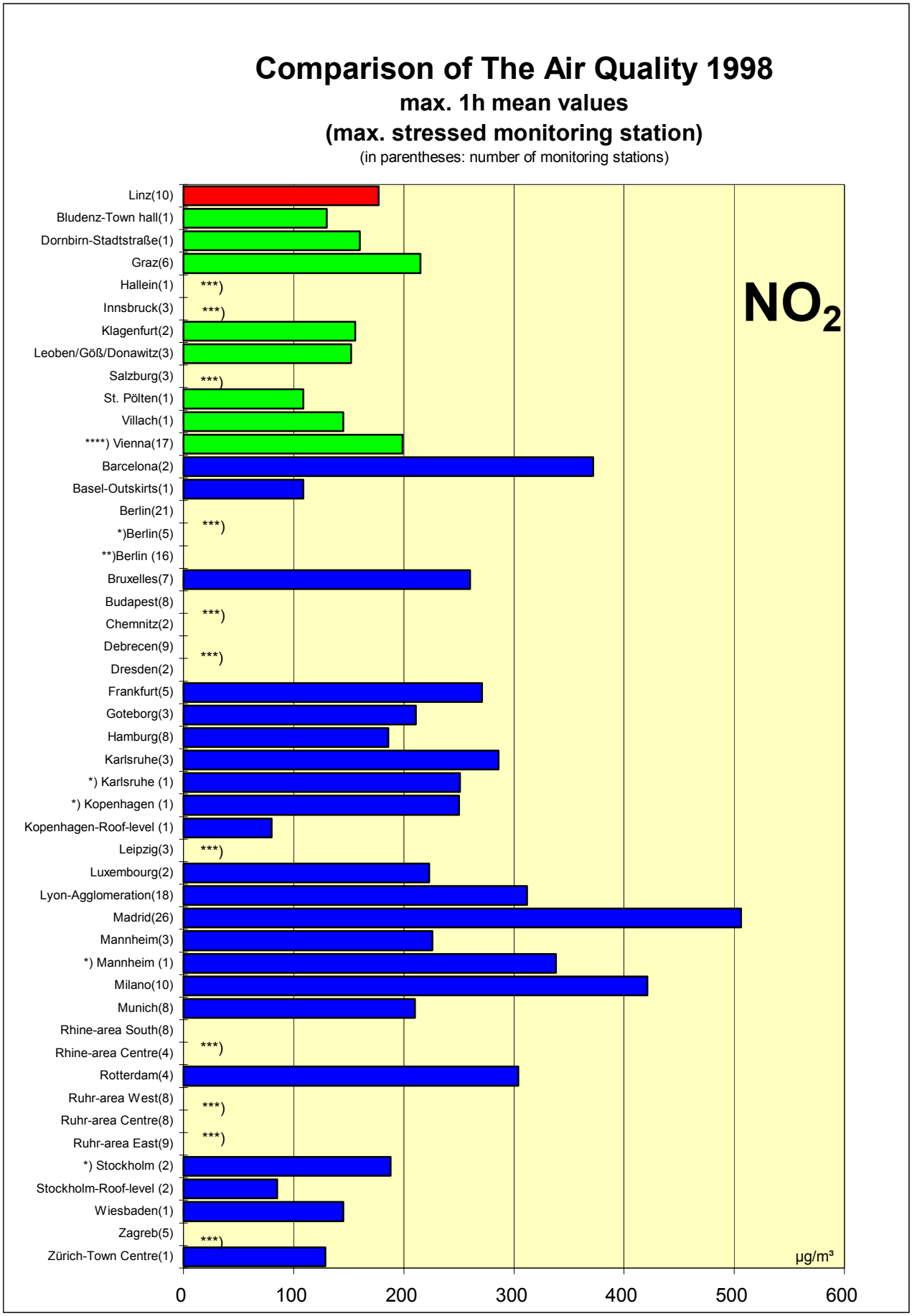
1998

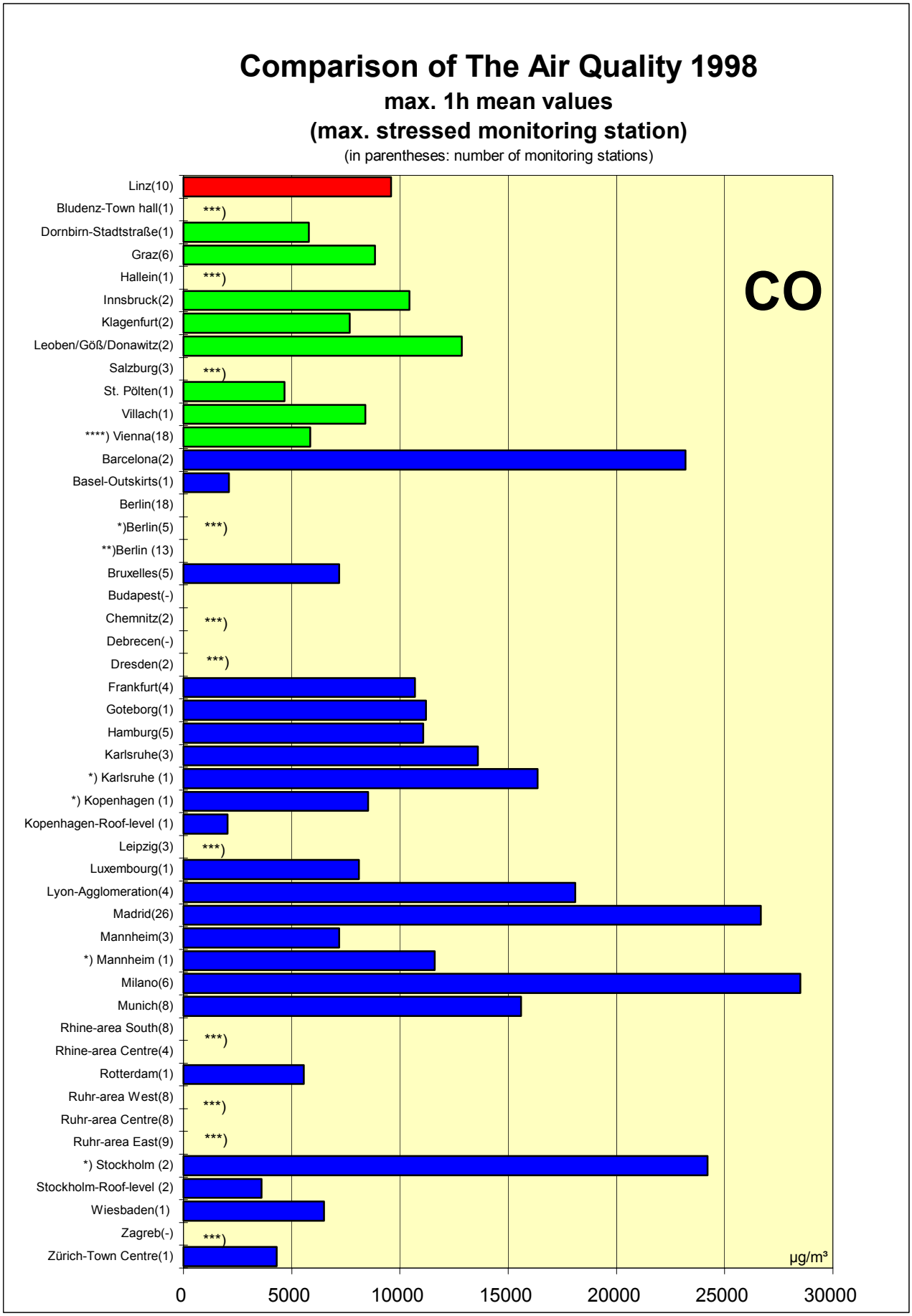
Max. 1h-Mean Values

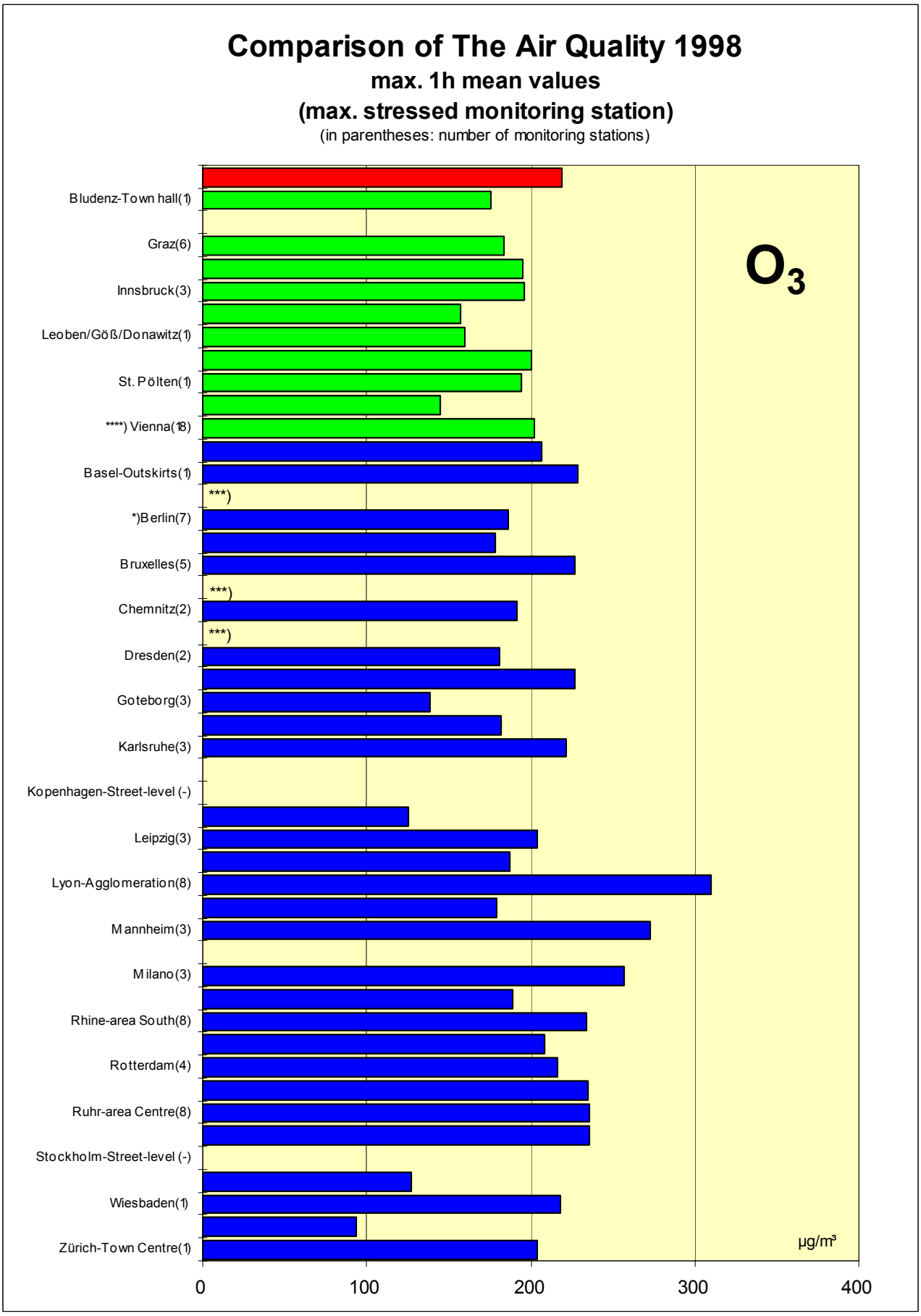

Comparison of The Air Quality 1998
max. 1h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Bludenz-Town hall(1)
Graz(6)
***)
Innsbruck(3)
***)
Leoben/Göß/Donawitz(3)
***)
St. Pölten(1)
****) Vienna(17)
Basel-Outskirts(1)
*)Berlin
***)
Bruxelles(7)
***)
Chemnitz(2)
***)
Dresden(2)
***)
Goteborg(3)
Karlsruhe(3)
*) Kopenhagen (1)
Leipzig(3)
***)
Lyon-Agglomeration(17)
Mannheim(3)
Milano(7)
***)
Rhine-area South(8)
***)
Rotterdam(12)
***)
Ruhr-area Centre(8)
***)
***)
*) Stockholm (-)
Wiesbaden(1)
***)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400
500
600
700


Comparison of The Air Quality 1998
max. 1h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
particulate matter
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(18)
*)Berlin
**)Berlin
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (-)
*) Kopenhagen (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(5)
Madrid(25)
Mannheim(3)
Mannheim-Street-level (-)
*) Mannheim (-)
Munich(7)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(5)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (-)
Stockholm-Roof-level (-)
Wiesbaden(1)
Zagreb(4)
Zürich-Town Centre(1)
***)
µg/m3
0
300
600
900
1200
1500


Comparison of The Air Quality 1998
max. 1h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(-)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin(5)
**)Berlin (16)
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(5)
Goteborg(2)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(-)
Mannheim(3)
*) Mannheim (1)
Milano(10)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
300
600
900
1200
1500
1800


Comparison of The Air Quality 1998
max. 1h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
***)
Innsbruck(3)
***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
***)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin(5)
***)
**)Berlin (16)
Bruxelles(7)
Budapest(8)
Chemnitz(2)
***)
Debrecen(9)
Dresden(2)
***)
Frankfurt(5)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
***)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(10)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
***)
Rotterdam(4)
Ruhr-area West(8)
Ruhr-area Centre(8)
***)
Ruhr-area East(9)
***)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(5)
***)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400
500
600


Comparison of The Air Quality 1998
max. 1h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
CO
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(2)
Salzburg(3)
St. Pölten(1)
Villach(1)
**** Vienna(18)
Barcelona(2)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin (13)
Bruxelles(5)
Budapest(-)
Chemnitz(2)
Debrecen(-)
Dresden(2)
Frankfurt(4)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
*) Karlsruhe (1)
*) Kopenhagen (1)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(4)
Madrid(26)
Mannheim(3)
*) Mannheim (1)
Milano(6)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(1)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
*) Stockholm (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
5000
10000
15000
20000
25000
30000


Comparison of The Air Quality 1998
max. 1h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O3
Bludenz-Town hall(1)
Graz(6)
Innsbruck(3)
Leoben/Göß/Donawitz(1)
St. Pölten(1)
****) Vienna(18)
Basel-Outskirts(1)
***)
*)Berlin(7)
Bruxelles(5)
***)
Chemnitz(2)
***)
Dresden(2)
Goteborg(3)
Karlsruhe(3)
Kopenhagen-Street-level (-)
Leipzig(3)
Lyon-Agglomeration(8)
Mannheim(3)
Milano(3)
Rhine-area South(8)
Rotterdam(4)
Ruhr-area Centre(8)
Stockholm-Street-level (-)
Wiesbaden(1)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400

Luftgütevergleich

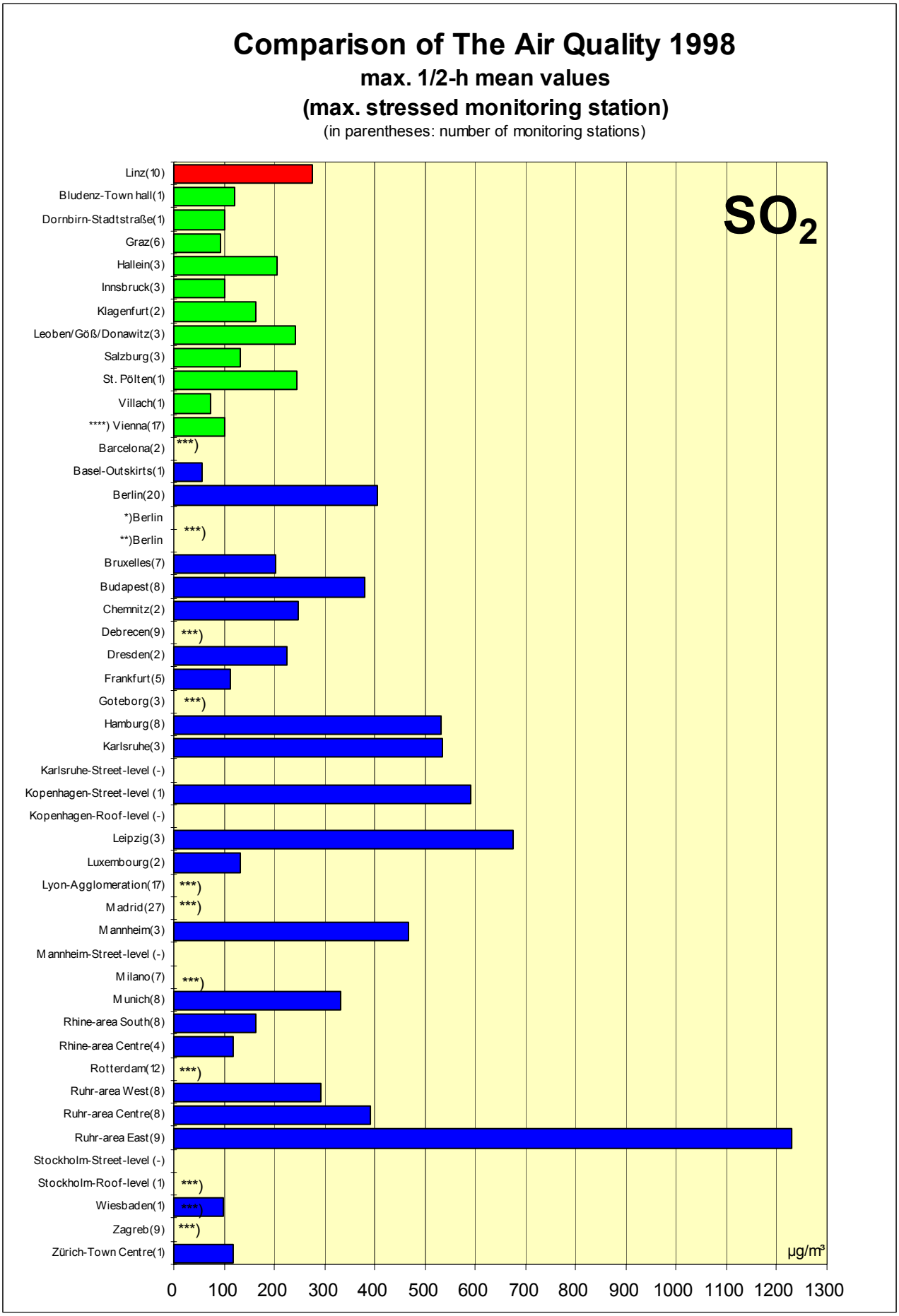
1998

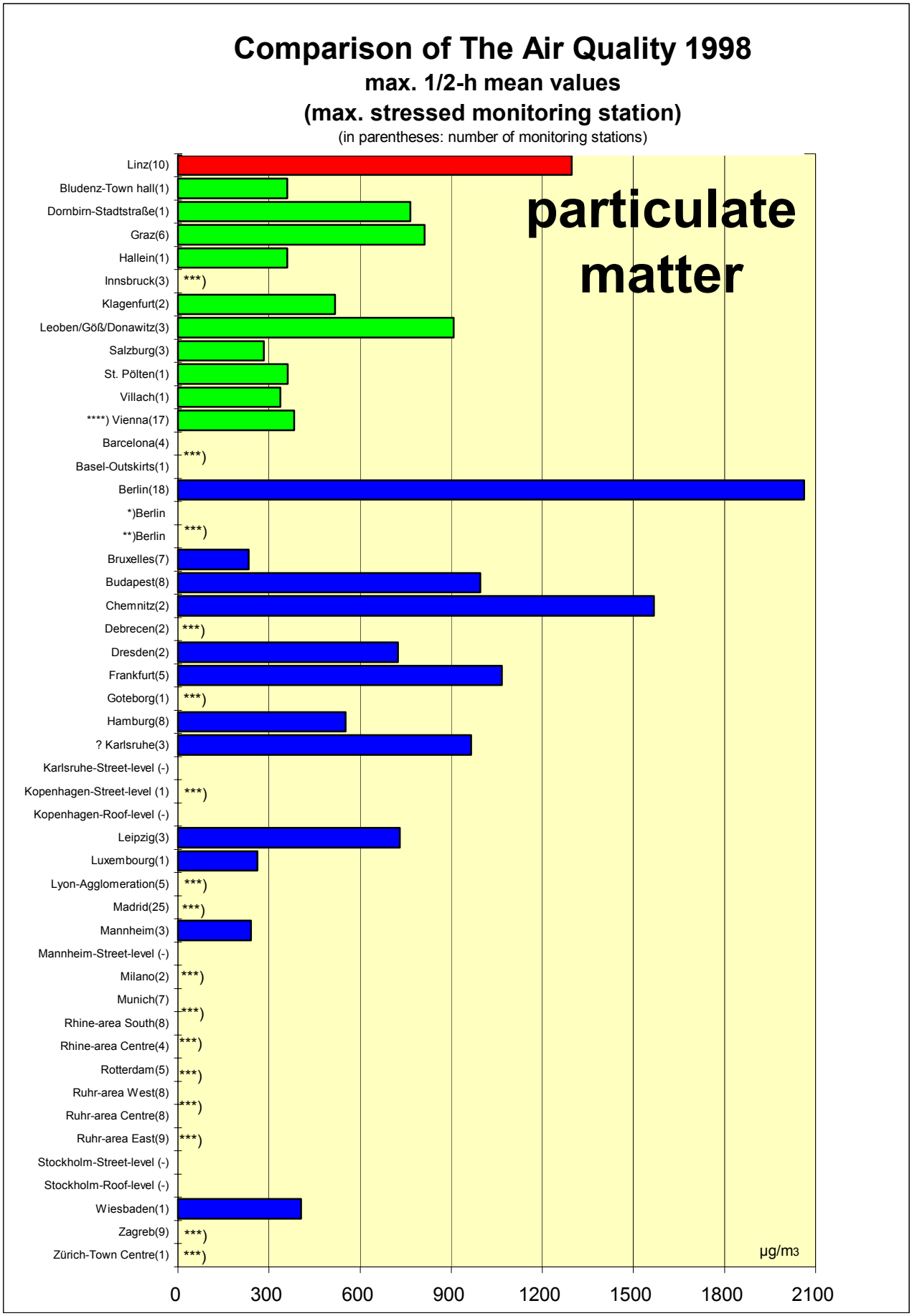
max. Halbstunden-Mittelwerte

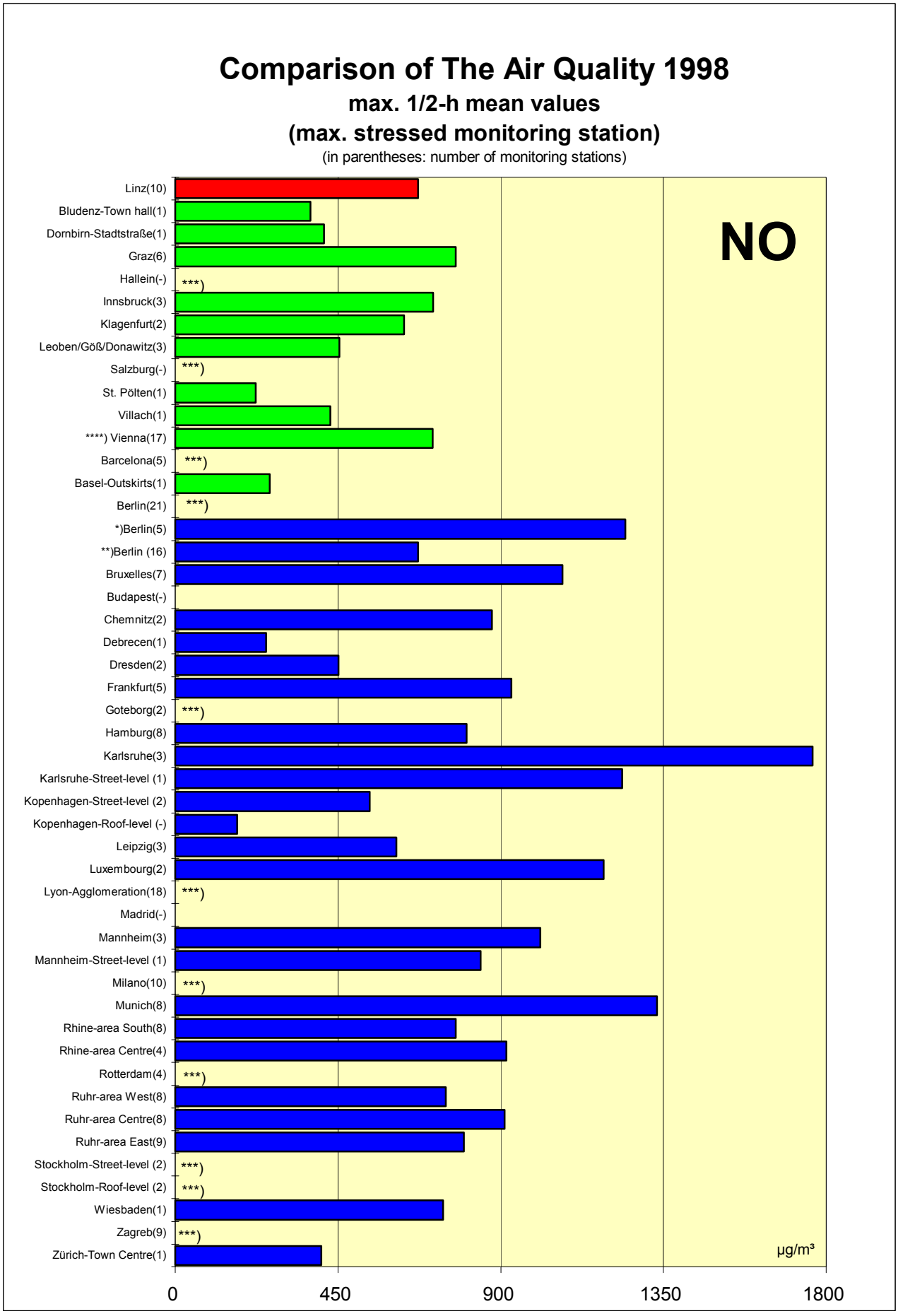
Comparison of The Air Quality

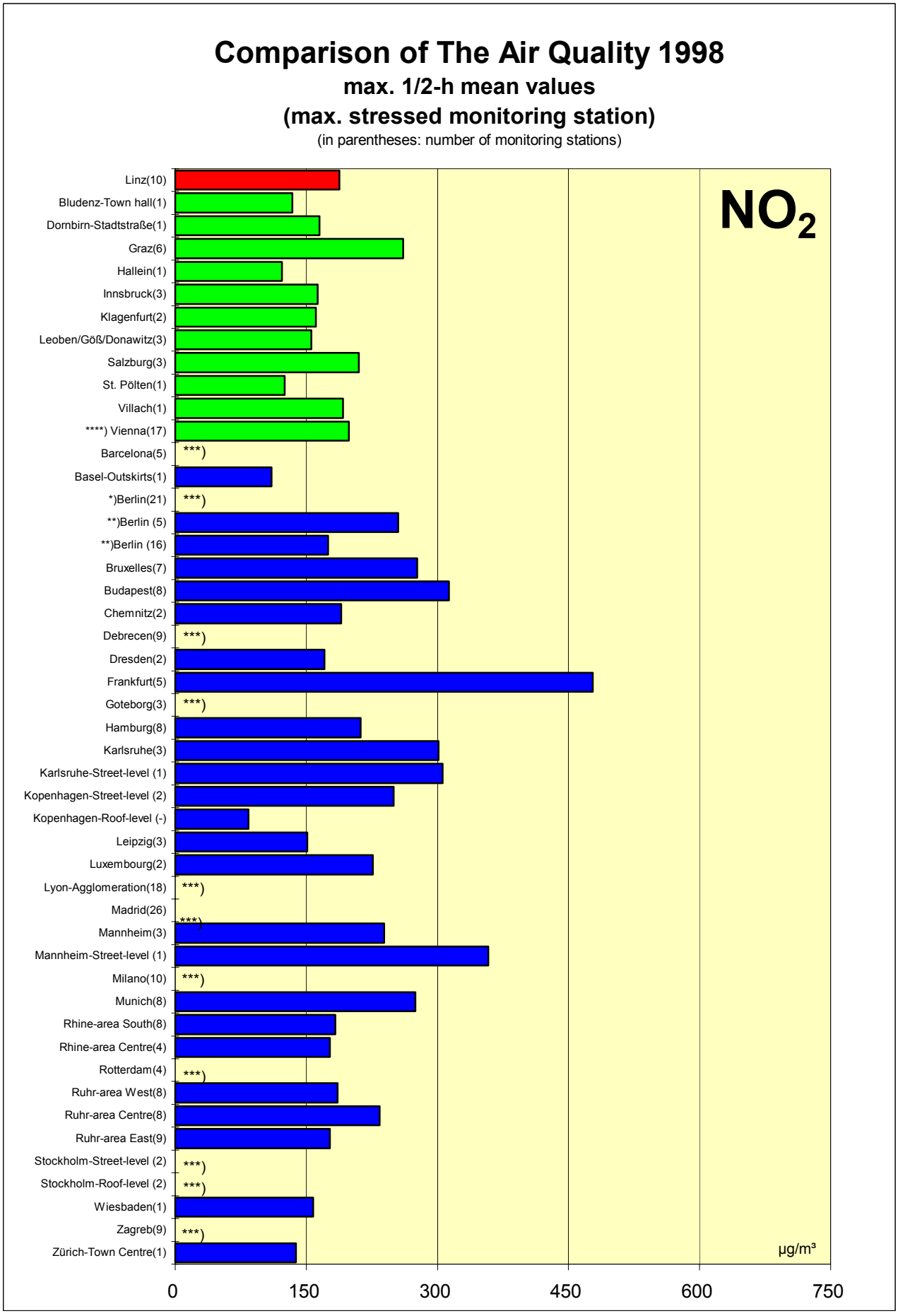
1998

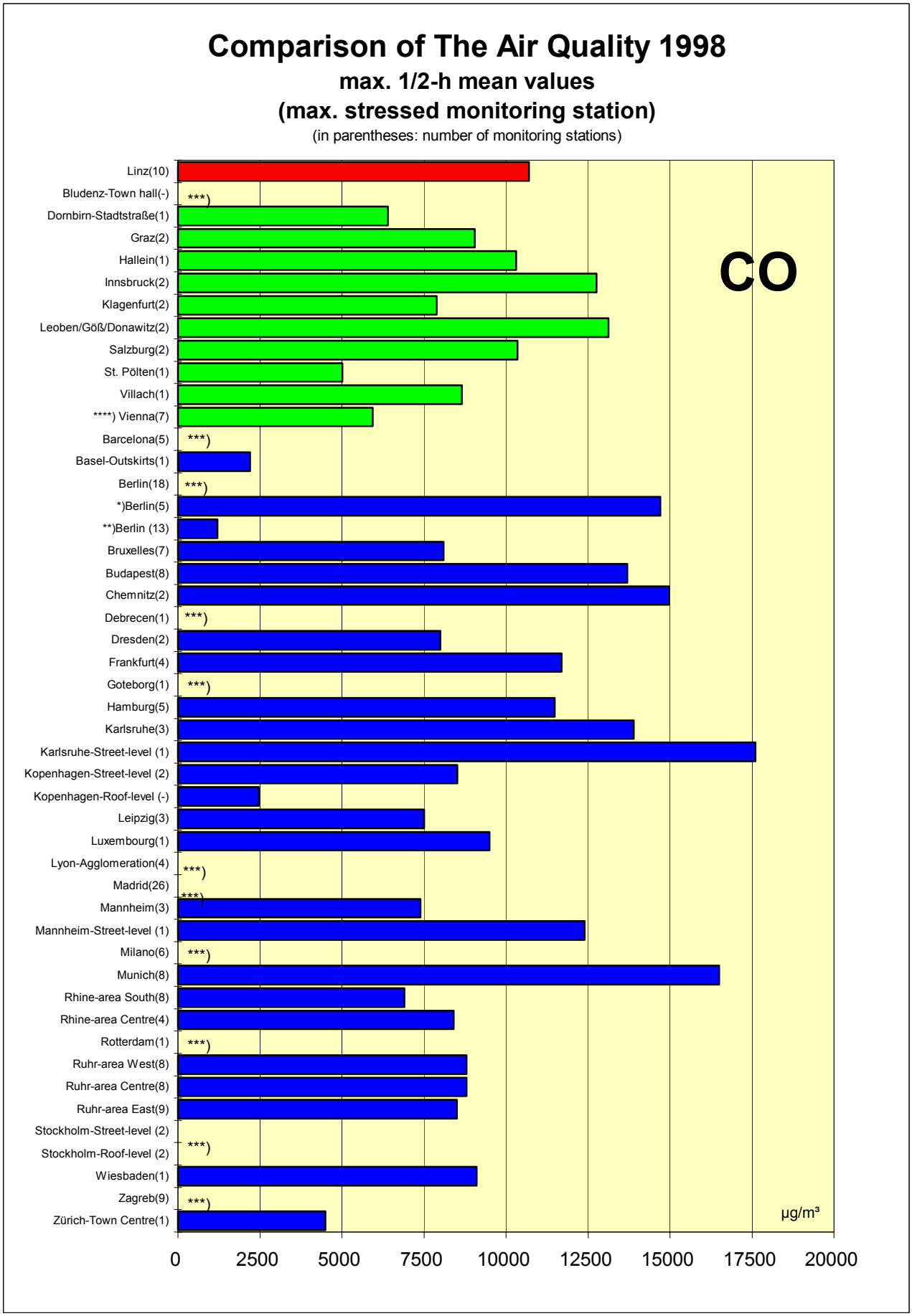
Max. 1/2h-Mean Values

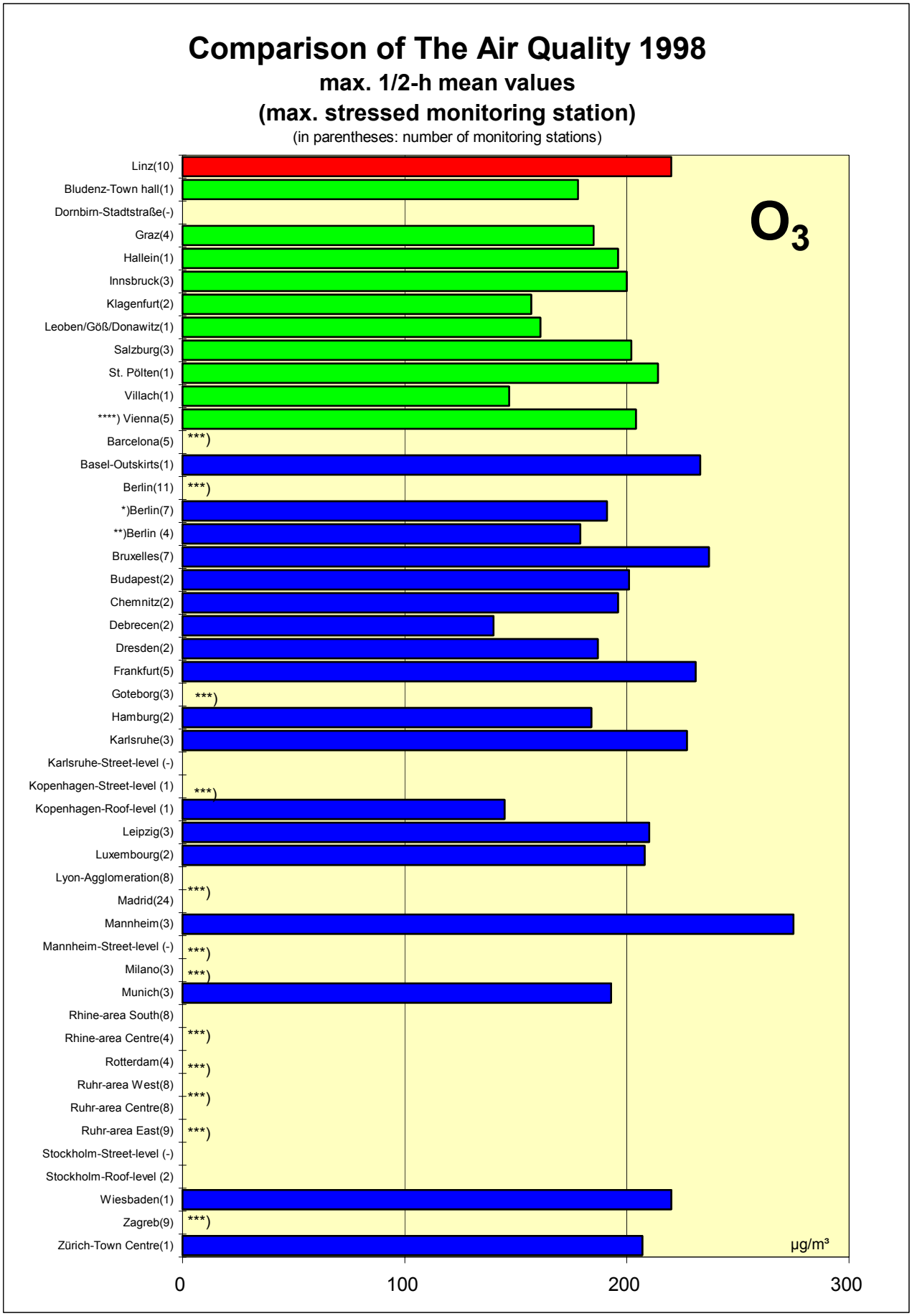

Comparison of The Air Quality 1998
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(2) ***)
Basel-Outskirts(1)
Berlin(20)
*)Berlin
)Berlin *)
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(9) ***)
Dresden(2)
Frankfurt(5)
Goteborg(3) ***)
Hamburg(8)
Karlsruhe(3)
Karlsruhe-Street-level (-)
Kopenhagen-Street-level (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(17) ***)
Madrid(27) ***)
Mannheim(3)
Mannheim-Street-level (-)
Milano(7) ***)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(12) ***)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (-)
Stockholm-Roof-level (1) ***)
Wiesbaden(1) ***)
Zagreb(9) ***)
Zürich-Town Centre(1)
µg/m³
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300


Comparison of The Air Quality 1998
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
particulate matter
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(4)
Basel-Outskirts(1)
Berlin(18)
*)Berlin
**)Berlin
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(8)
? Karlsruhe(3)
Karlsruhe-Street-level (-)
Kopenhagen-Street-level (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(5)
Madrid(25)
Mannheim(3)
Mannheim-Street-level (-)
Milano(2)
Munich(7)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(5)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (-)
Stockholm-Roof-level (-)
Wiesbaden(1)
Zagreb(9)
Zürich-Town Centre(1)
***)
µg/m3
0
300
600
900
1200
1500
1800
2100


Comparison of The Air Quality 1998
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(-)
***)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(-)
***)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(5)
***)
Basel-Outskirts(1)
Berlin(21)
***)
*)Berlin(5)
**)Berlin (16)
Bruxelles(7)
Budapest(-)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(5)
Goteborg(2)
***)
Hamburg(8)
Karlsruhe(3)
Karlsruhe-Street-level (1)
Kopenhagen-Street-level (2)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
***)
Madrid(-)
Mannheim(3)
Mannheim-Street-level (1)
Milano(10)
***)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
***)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
***)
Stockholm-Roof-level (2)
***)
Wiesbaden(1)
Zagreb(9)
***)
Zürich-Town Centre(1)
µg/m³
0
450
900
1350
1800


Comparison of The Air Quality 1998
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(17)
Barcelona(5)
***)
Basel-Outskirts(1)
*)Berlin(21)
***)
**)Berlin (5)
**)Berlin (16)
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(9)
***)
Dresden(2)
Frankfurt(5)
Goteborg(3)
***)
Hamburg(8)
Karlsruhe(3)
Karlsruhe-Street-level (1)
Kopenhagen-Street-level (2)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
***)
Madrid(26)
***)
Mannheim(3)
Mannheim-Street-level (1)
Milano(10)
***)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
***)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
***)
Stockholm-Roof-level (2)
***)
Wiesbaden(1)
Zagreb(9)
***)
Zürich-Town Centre(1)
µg/m³
0
150
300
450
600
750


Comparison of The Air Quality 1998
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
CO
µg/m³
Linz(10)
Bludenz-Town hall(-)
***)
Dornbirn-Stadtstraße(1)
Graz(2)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(2)
Salzburg(2)
St. Pölten(1)
Villach(1)
****) Vienna(7)
Barcelona(5)
***)
Basel-Outskirts(1)
Berlin(18)
***)
*)Berlin(5)
**)Berlin (13)
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(1)
***)
Dresden(2)
Frankfurt(4)
Goteborg(1)
***)
Hamburg(5)
Karlsruhe(3)
Karlsruhe-Street-level (1)
Kopenhagen-Street-level (2)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(4)
***)
Madrid(26)
***)
Mannheim(3)
Mannheim-Street-level (1)
Milano(6)
***)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(1)
***)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
***)
Wiesbaden(1)
Zagreb(9)
***)
Zürich-Town Centre(1)
0
2500
5000
7500
10000
12500
15000
17500
20000


Comparison of The Air Quality 1998
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O3
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(-)
Graz(4)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(5)
Barcelona(5)
***)
Basel-Outskirts(1)
Berlin(11)
***)
*)Berlin(7)
**)Berlin (4)
Bruxelles(7)
Budapest(2)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(3)
***)
Hamburg(2)
Karlsruhe(3)
Karlsruhe-Street-level (-)
Kopenhagen-Street-level (1)
***)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(8)
***)
Madrid(24)
Mannheim(3)
Mannheim-Street-level (-)
***)
Milano(3)
***)
Munich(3)
Rhine-area South(8)
***)
Rhine-area Centre(4)
***)
Rotterdam(4)
***)
Ruhr-area West(8)
***)
Ruhr-area Centre(8)
***)
Ruhr-area East(9)
Stockholm-Street-level (-)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(9)
***)
Zürich-Town Centre(1)
µg/m³
0
100
200
300

Luftgütevergleich

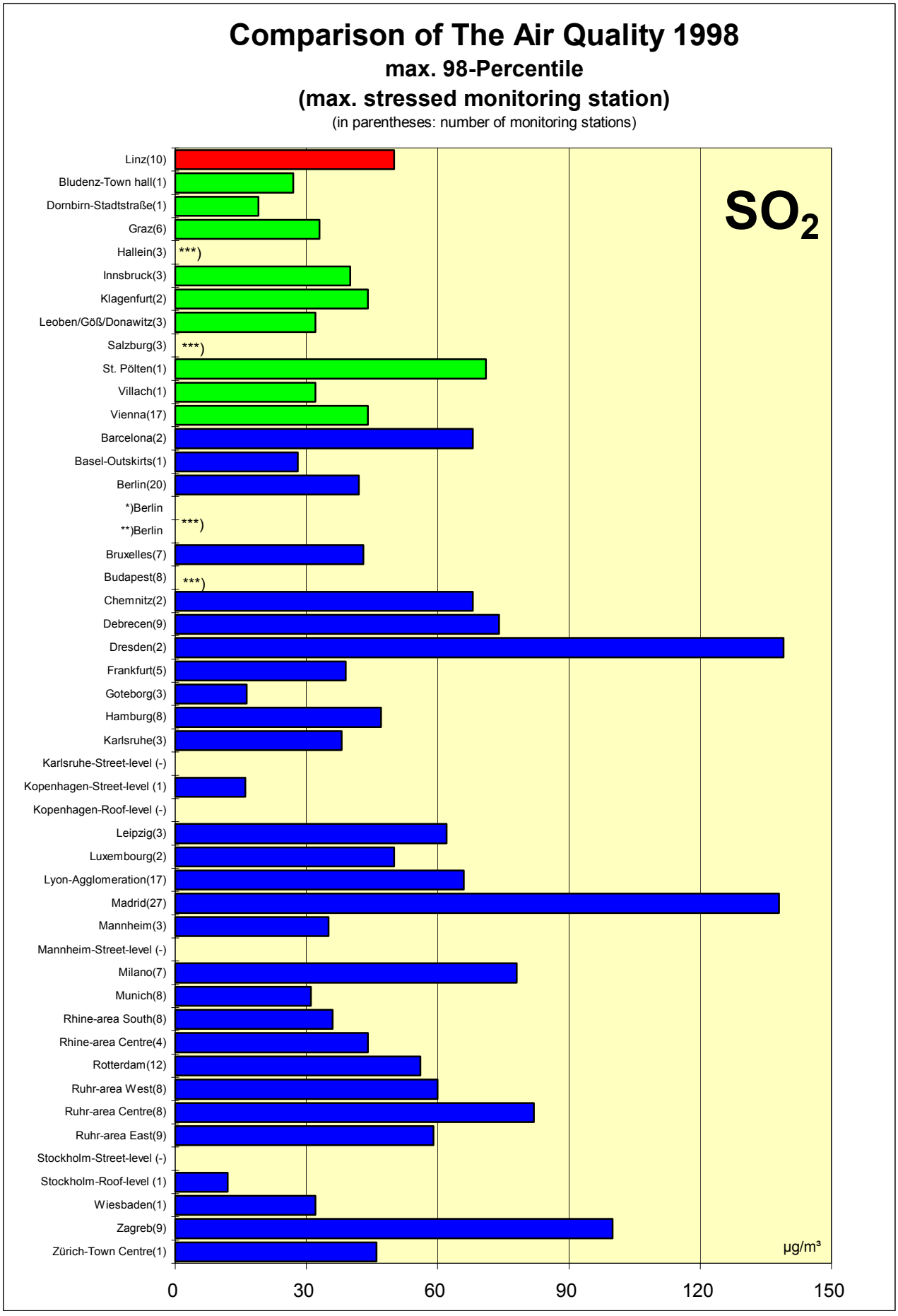
1998

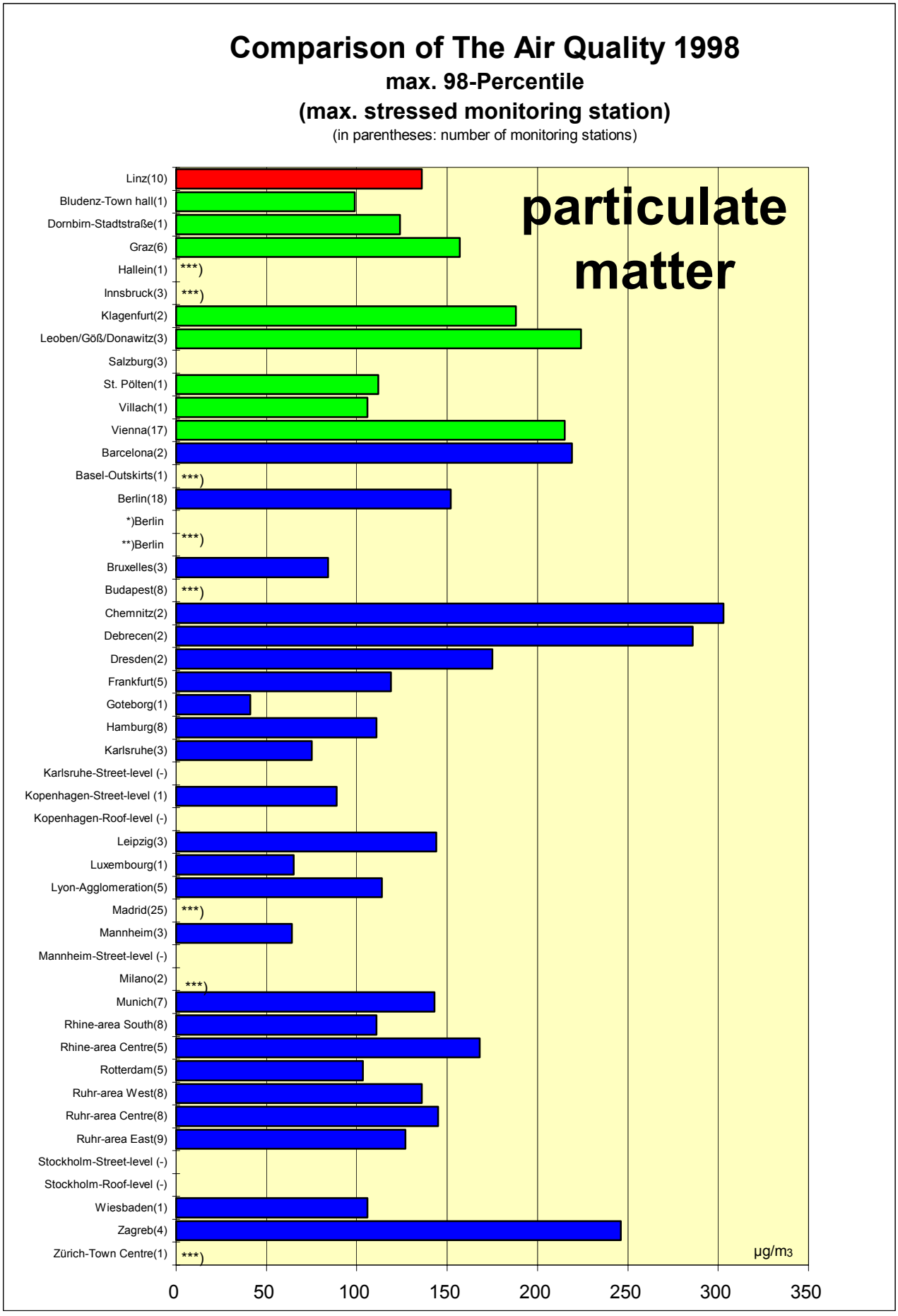
max. 98-Percentil/Jahr

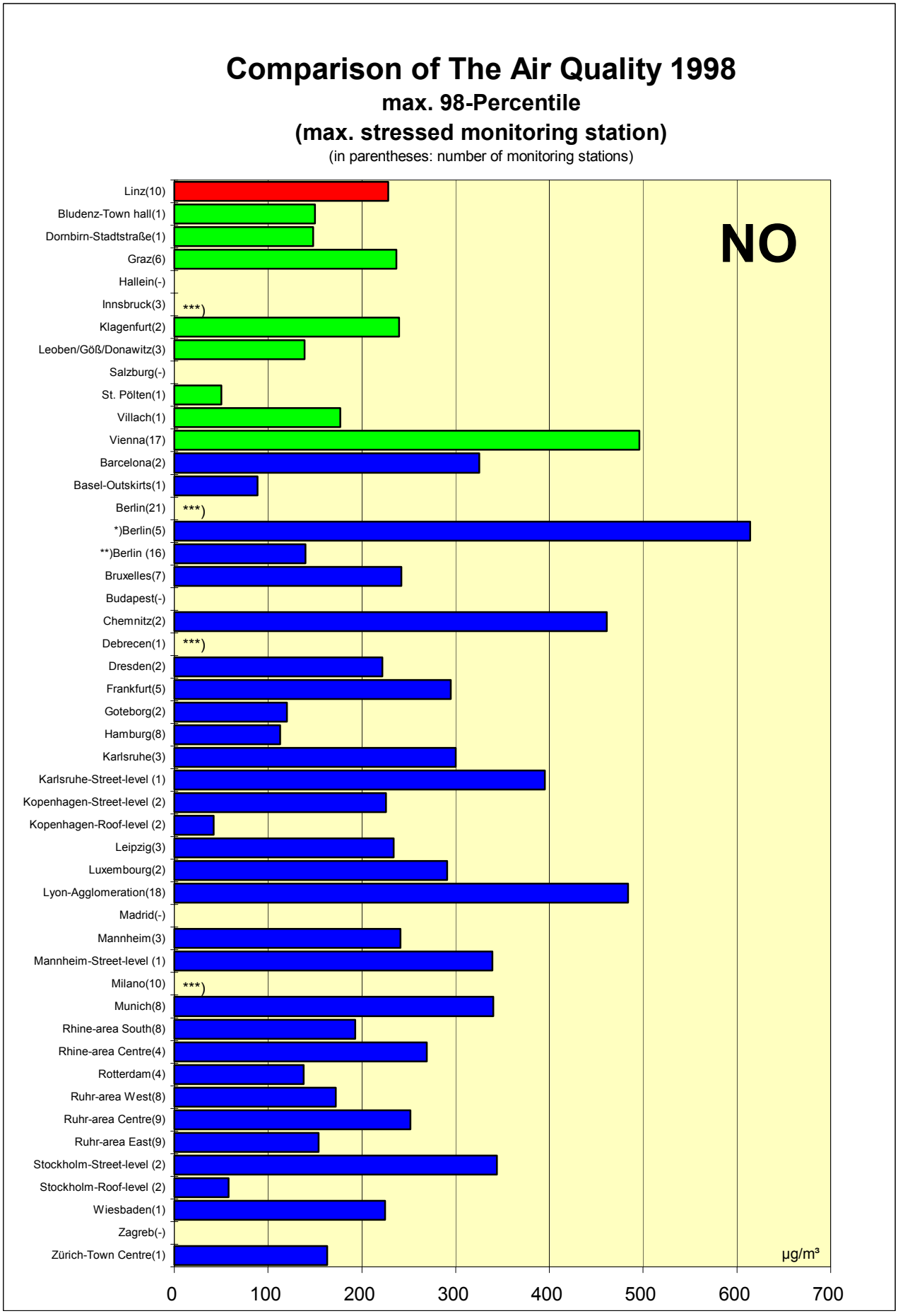
Comparison of The Air Quality

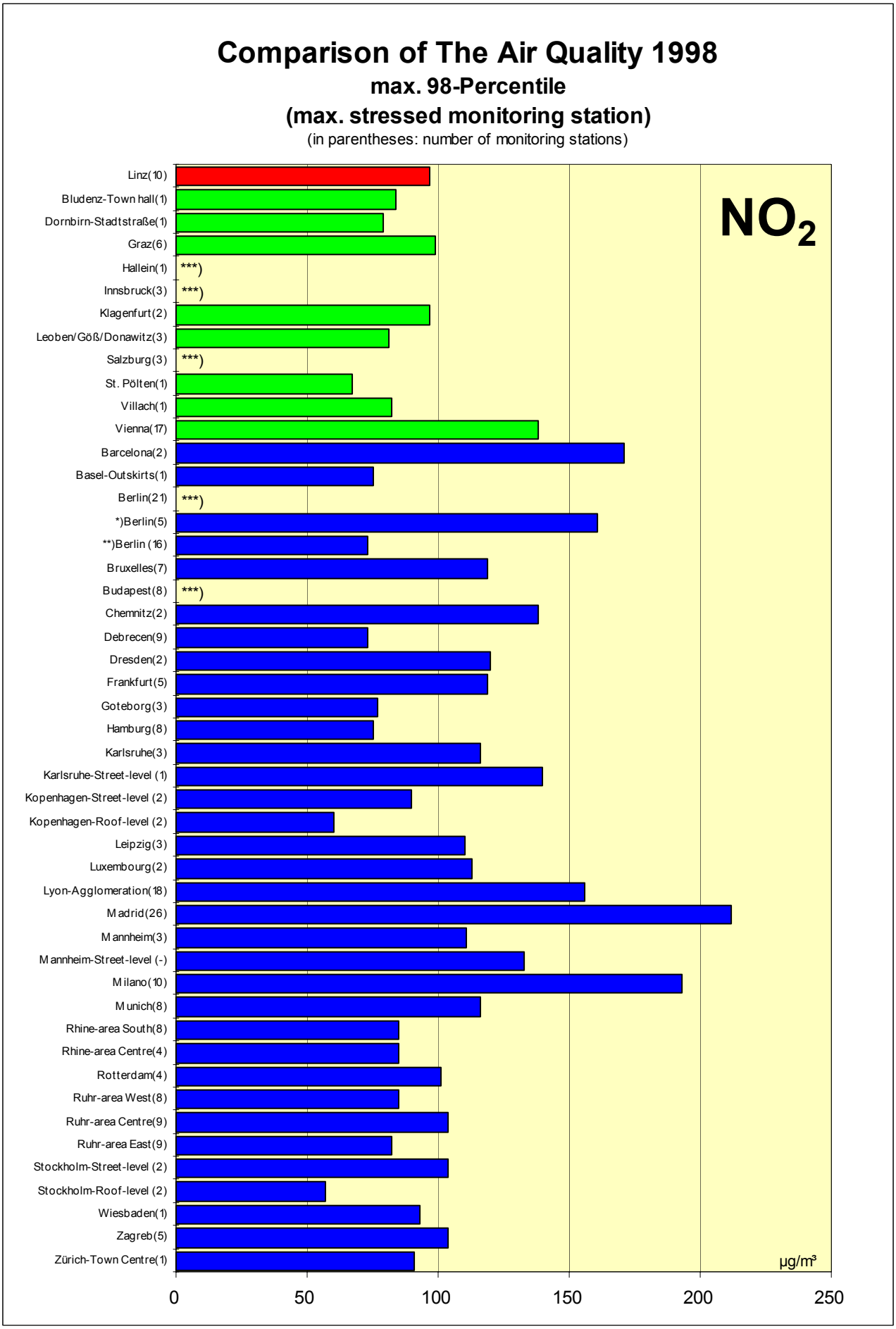
1998

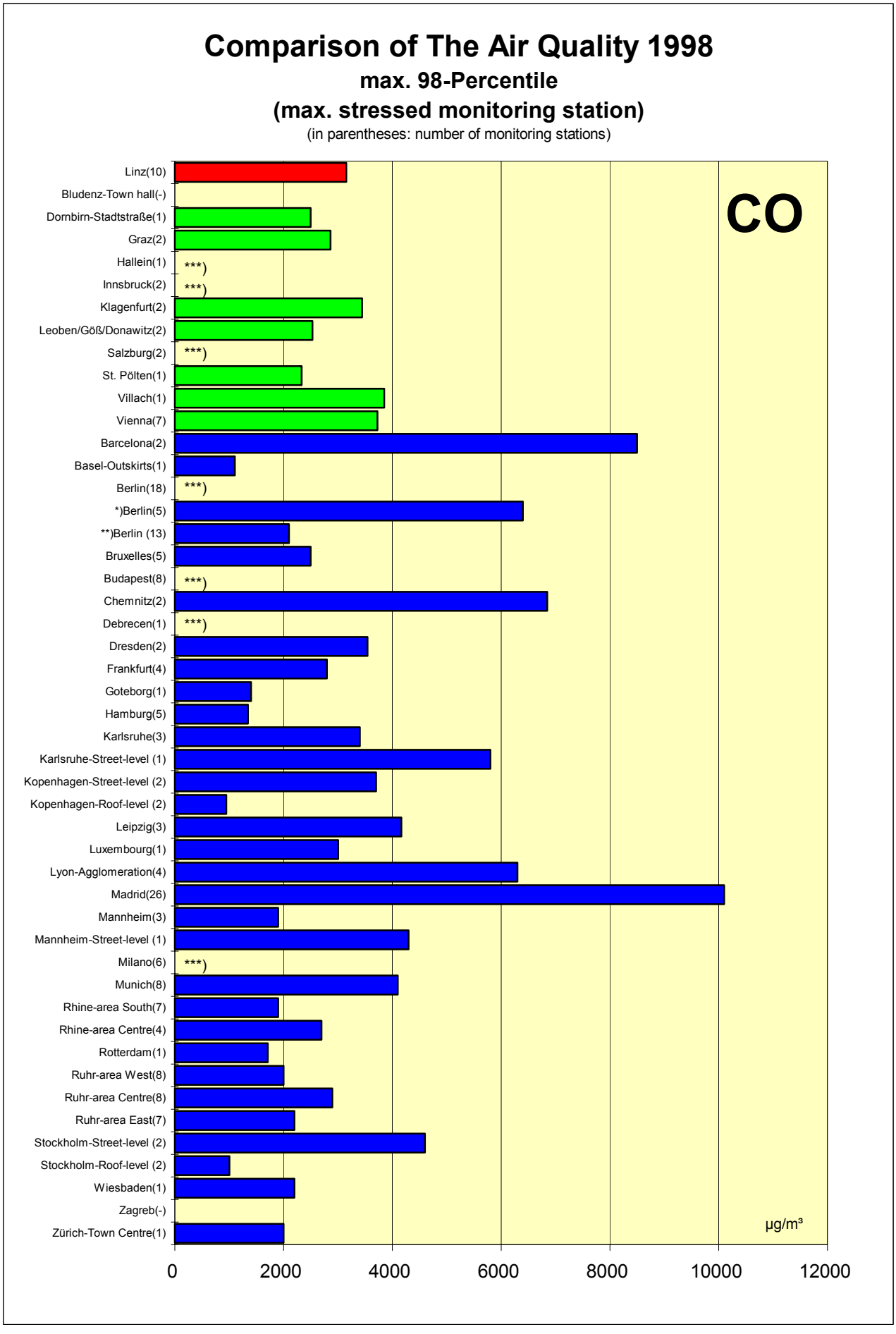
Max. 98-Percentile per Year

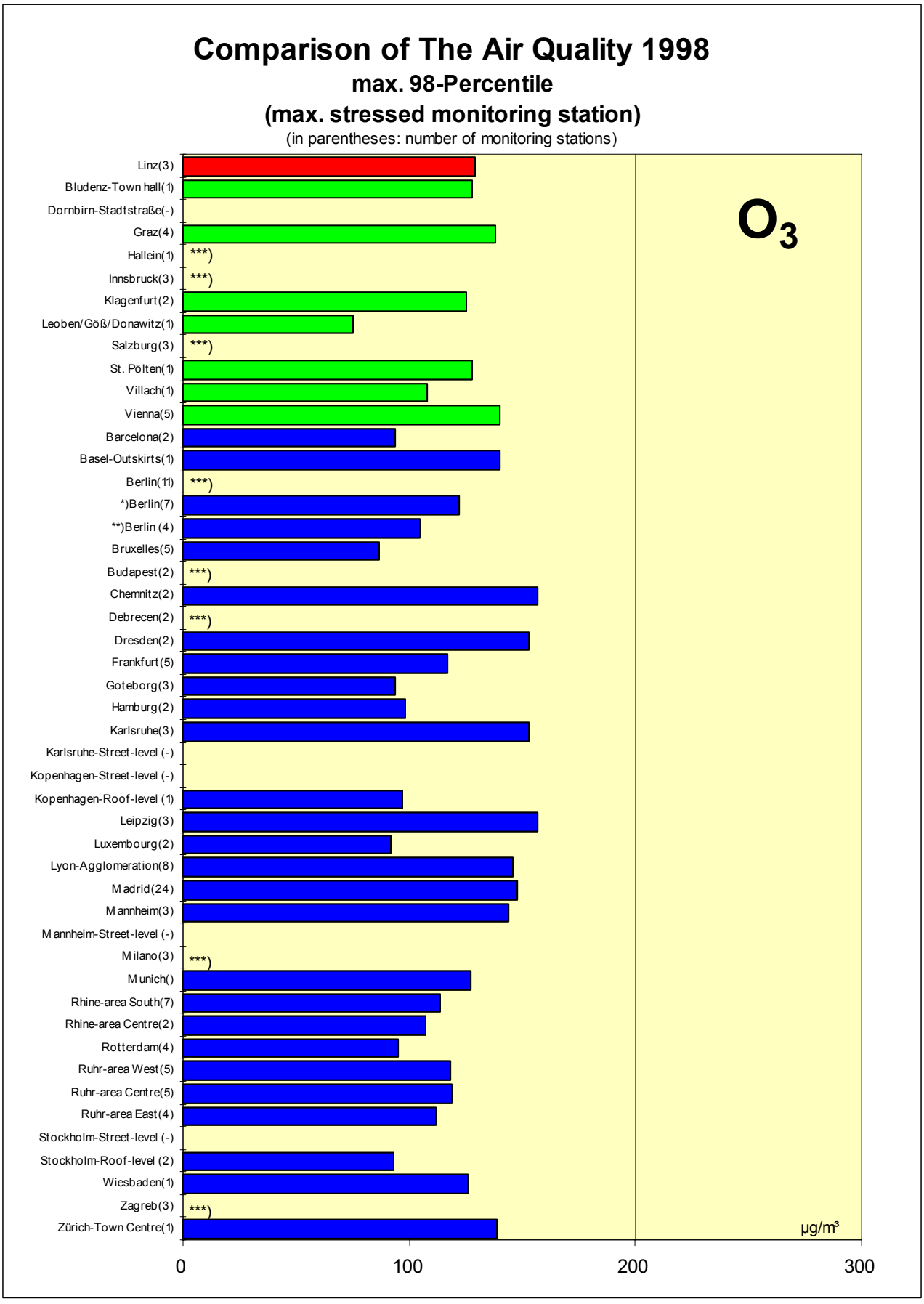

Comparison of The Air Quality 1998
max. 98-Percentile
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3) ***)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3) ***)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(20)
*)Berlin
)Berlin *)
Bruxelles(7)
Budapest(8) ***)
Chemnitz(2)
Debrecen(9)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
Karlsruhe-Street-level (-)
Kopenhagen-Street-level (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(17)
Madrid(27)
Mannheim(3)
Mannheim-Street-level (-)
Milano(7)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(12)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (-)
Stockholm-Roof-level (1)
Wiesbaden(1)
Zagreb(9)
Zürich-Town Centre(1)
µg/m³
0
30
60
90
120
150


Comparison of The Air Quality 1998
max. 98-Percentile
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
particulate matter
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1) ***)
Innsbruck(3) ***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(2)
Basel-Outskirts(1) ***)
Berlin(18)
*)Berlin
)Berlin *)
Bruxelles(3)
Budapest(8) ***)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(8)
Karlsruhe(3)
Karlsruhe-Street-level (-)
Kopenhagen-Street-level (1)
Kopenhagen-Roof-level (-)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(5)
Madrid(25) ***)
Mannheim(3)
Mannheim-Street-level (-)
Milano(2) ***)
Munich(7)
Rhine-area South(8)
Rhine-area Centre(5)
Rotterdam(5)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (-)
Stockholm-Roof-level (-)
Wiesbaden(1)
Zagreb(4)
Zürich-Town Centre(1) ***)
µg/m3
0
50
100
150
200
250
300
350


Comparison of The Air Quality 1998
max. 98-Percentile
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(-)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(-)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin(5)
**)Berlin (16)
Bruxelles(7)
Budapest(-)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(5)
Goteborg(2)
Hamburg(8)
Karlsruhe(3)
Karlsruhe-Street-level (1)
Kopenhagen-Street-level (2)
Kopenhagen-Roof-level (2)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(-)
Mannheim(3)
Mannheim-Street-level (1)
Milano(10)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
Ruhr-area West(8)
Ruhr-area Centre(9)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
***)
***)
***)
µg/m³
0
100
200
300
400
500
600
700


Comparison of The Air Quality 1998
max. 98-Percentile
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(1) ***)
Innsbruck(3) ***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3) ***)
St. Pölten(1)
Villach(1)
Vienna(17)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21) ***)
*)Berlin(5)
**)Berlin (16)
Bruxelles(7)
Budapest(8) ***)
Chemnitz(2)
Debrecen(9)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(8)
Karlsruhe(3)
Karlsruhe-Street-level (1)
Kopenhagen-Street-level (2)
Kopenhagen-Roof-level (2)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(18)
Madrid(26)
Mannheim(3)
Mannheim-Street-level (-)
Milano(10)
Munich(8)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(4)
Ruhr-area West(8)
Ruhr-area Centre(9)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(5)
Zürich-Town Centre(1)
µg/m³
0
50
100
150
200
250


Comparison of The Air Quality 1998
max. 98-Percentile
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
CO
Linz(10)
Bludenz-Town hall(-)
Dornbirn-Stadtstraße(1)
Graz(2)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(2)
Salzburg(2)
St. Pölten(1)
Villach(1)
Vienna(7)
Barcelona(2)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin (13)
Bruxelles(5)
Budapest(8)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(4)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
Karlsruhe-Street-level (1)
Kopenhagen-Street-level (2)
Kopenhagen-Roof-level (2)
Leipzig(3)
Luxembourg(1)
Lyon-Agglomeration(4)
Madrid(26)
Mannheim(3)
Mannheim-Street-level (1)
Milano(6)
Munich(8)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(1)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(7)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
2000
4000
6000
8000
10000
12000


Comparison of The Air Quality 1998
max. 98-Percentile
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O3
Linz(3)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(-)
Graz(4)
Hallein(1)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(5)
Barcelona(2)
Basel-Outskirts(1)
Berlin(11)
*)Berlin(7)
**)Berlin (4)
Bruxelles(5)
Budapest(2)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(5)
Goteborg(3)
Hamburg(2)
Karlsruhe(3)
Karlsruhe-Street-level (-)
Kopenhagen-Street-level (-)
Kopenhagen-Roof-level (1)
Leipzig(3)
Luxembourg(2)
Lyon-Agglomeration(8)
Madrid(24)
Mannheim(3)
Mannheim-Street-level (-)
Milano(3)
Munich()
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(4)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
Stockholm-Roof-level (2)
Wiesbaden(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
100
200
300

Jahresvergleich

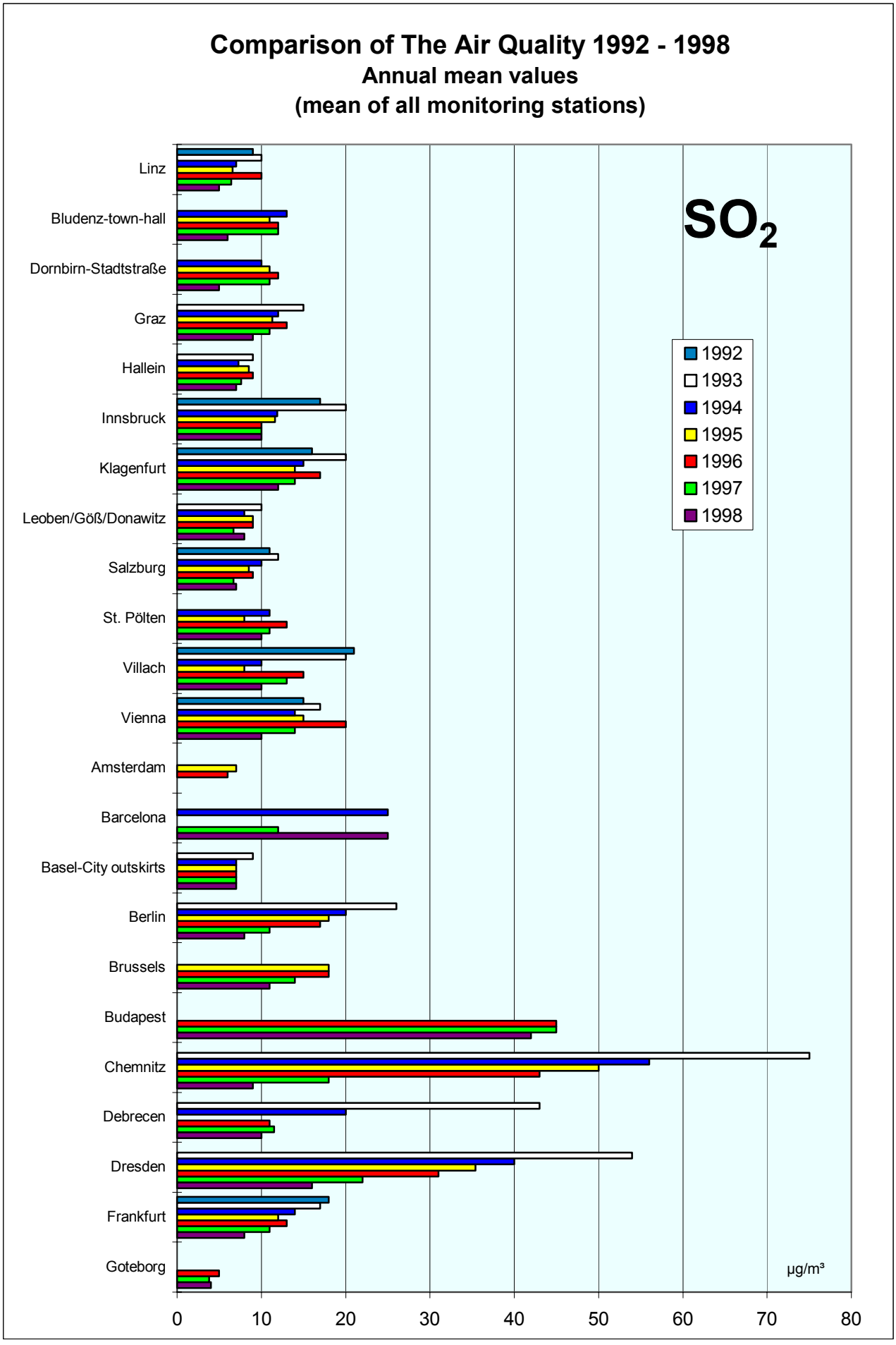
1992 - 1998

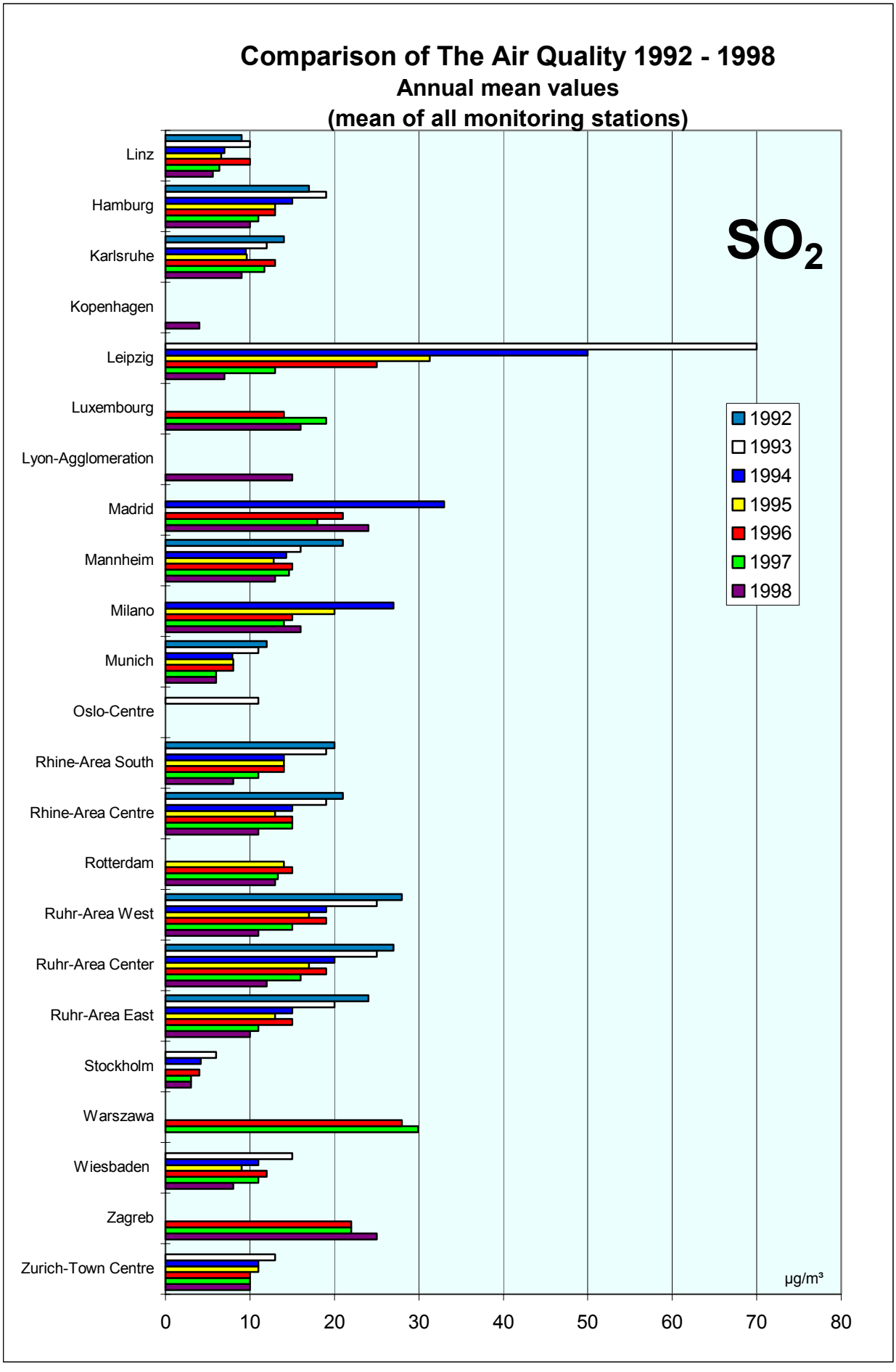
Jahresmittelwerte

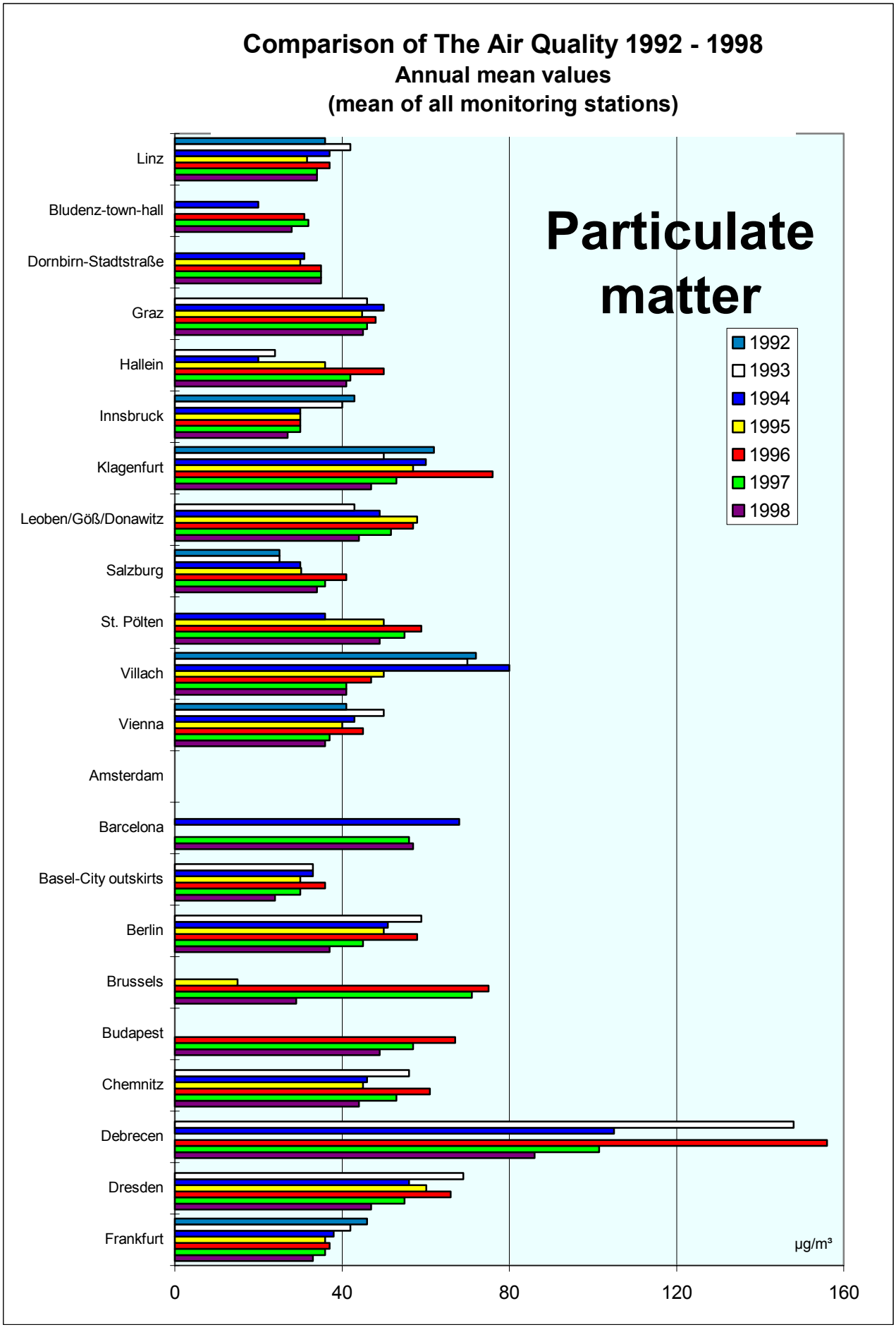
Comparison of The Air Quality Over The Years

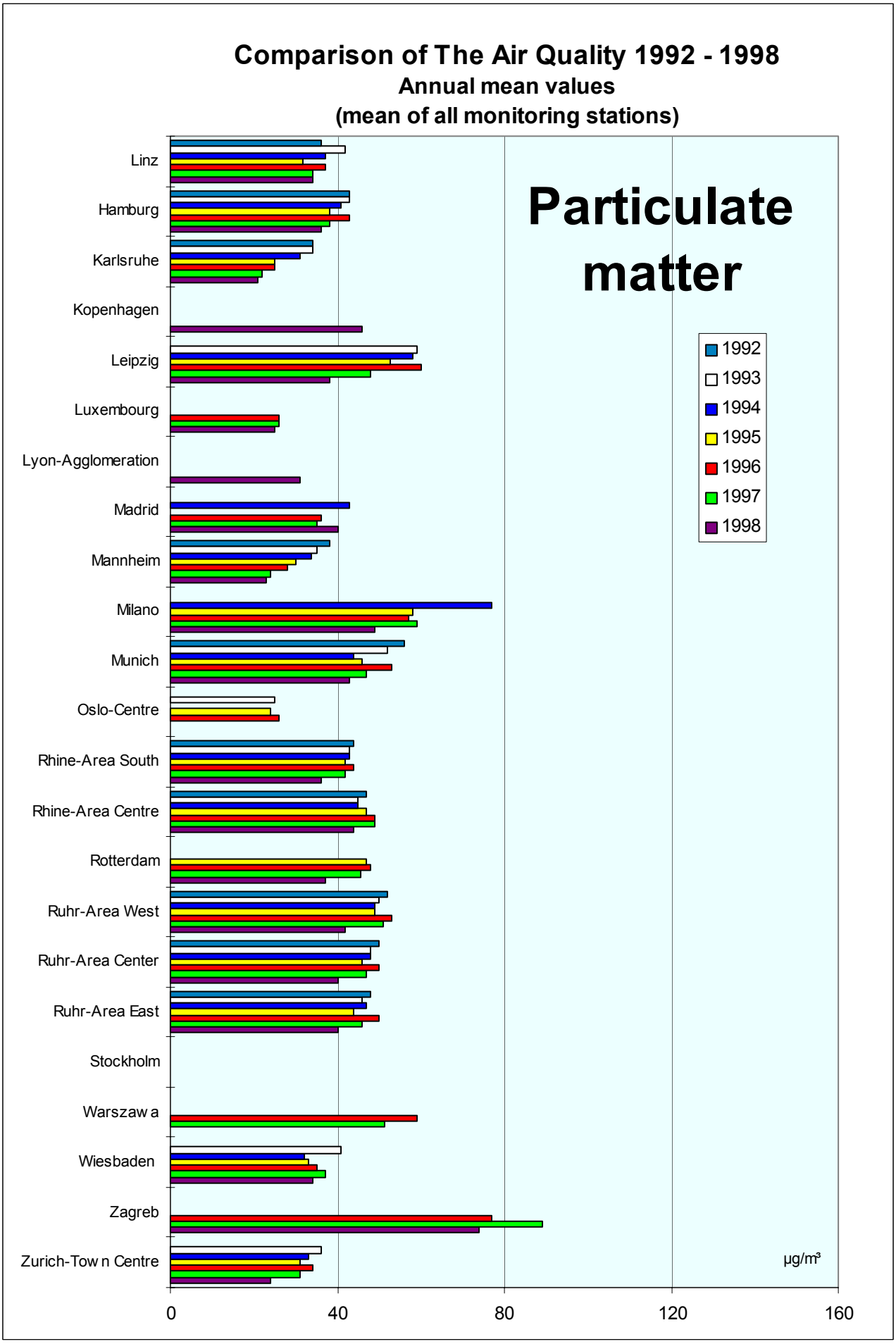
1992 - 1998

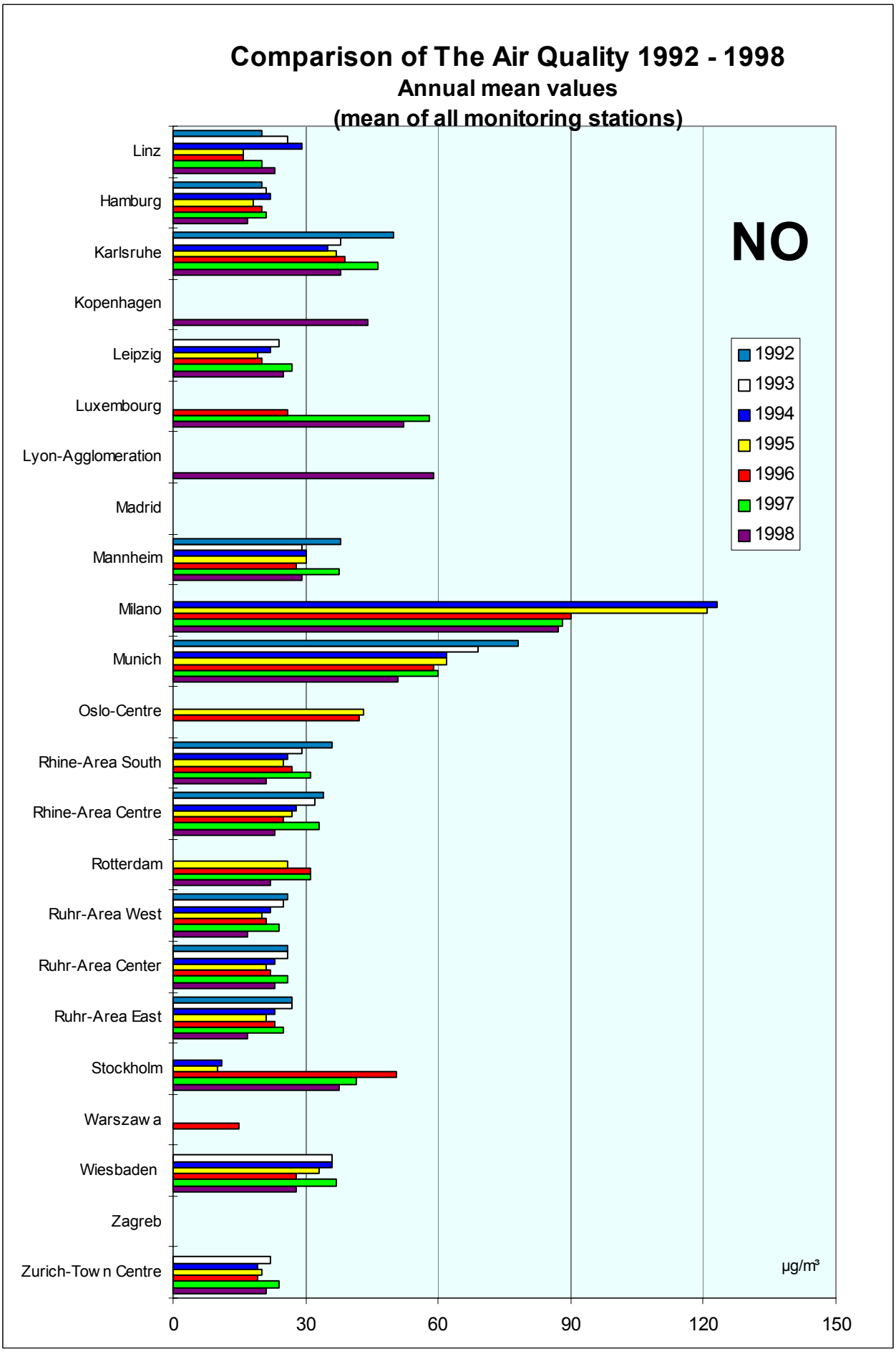
Annual Mean Values

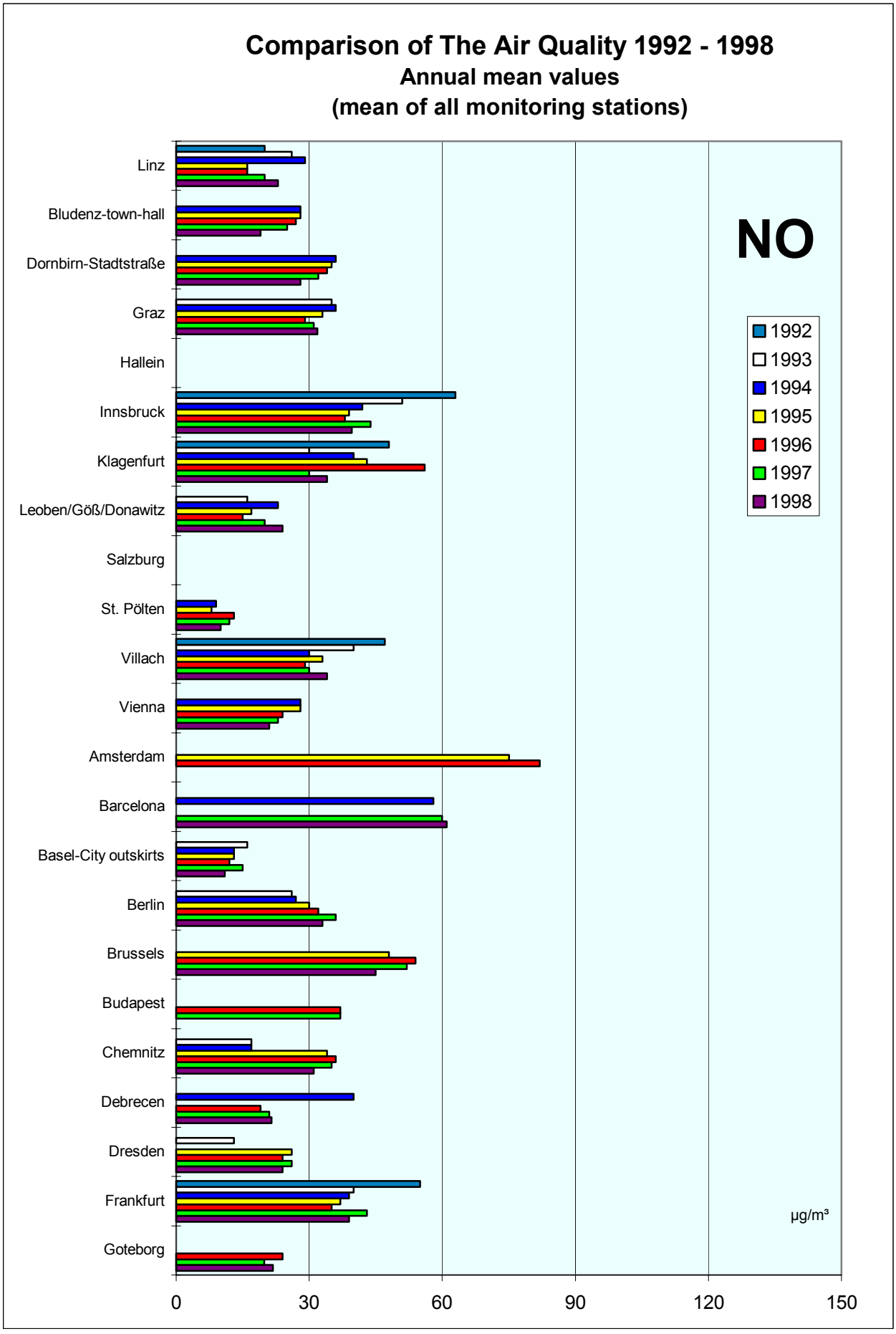

Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
SO2
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
10
20
30
40
50
60
70
80

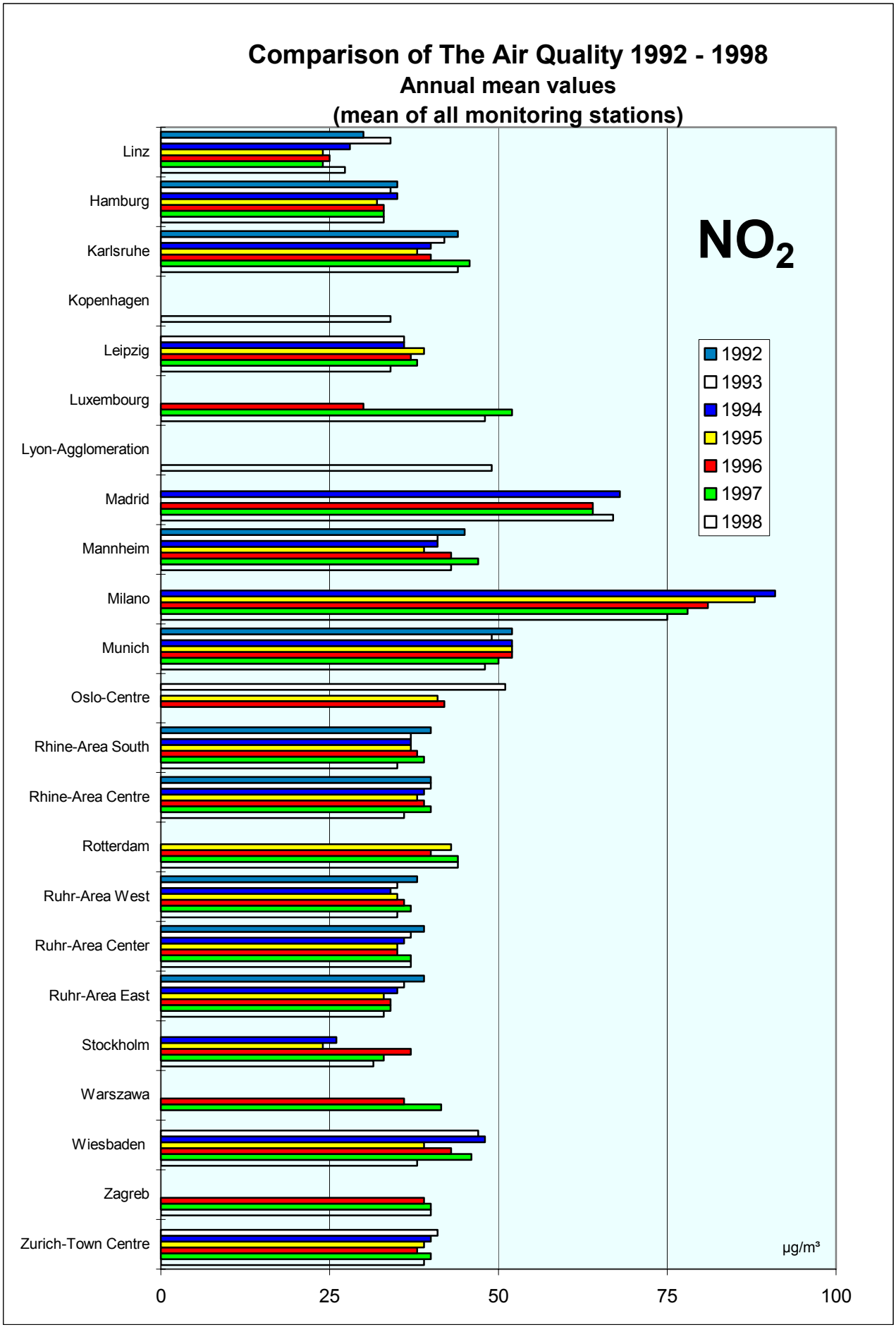

Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
SO2
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
1992
1993
1994
1995
1996
1997
1998
µg/m³
0
10
20
30
40
50
60
70
80

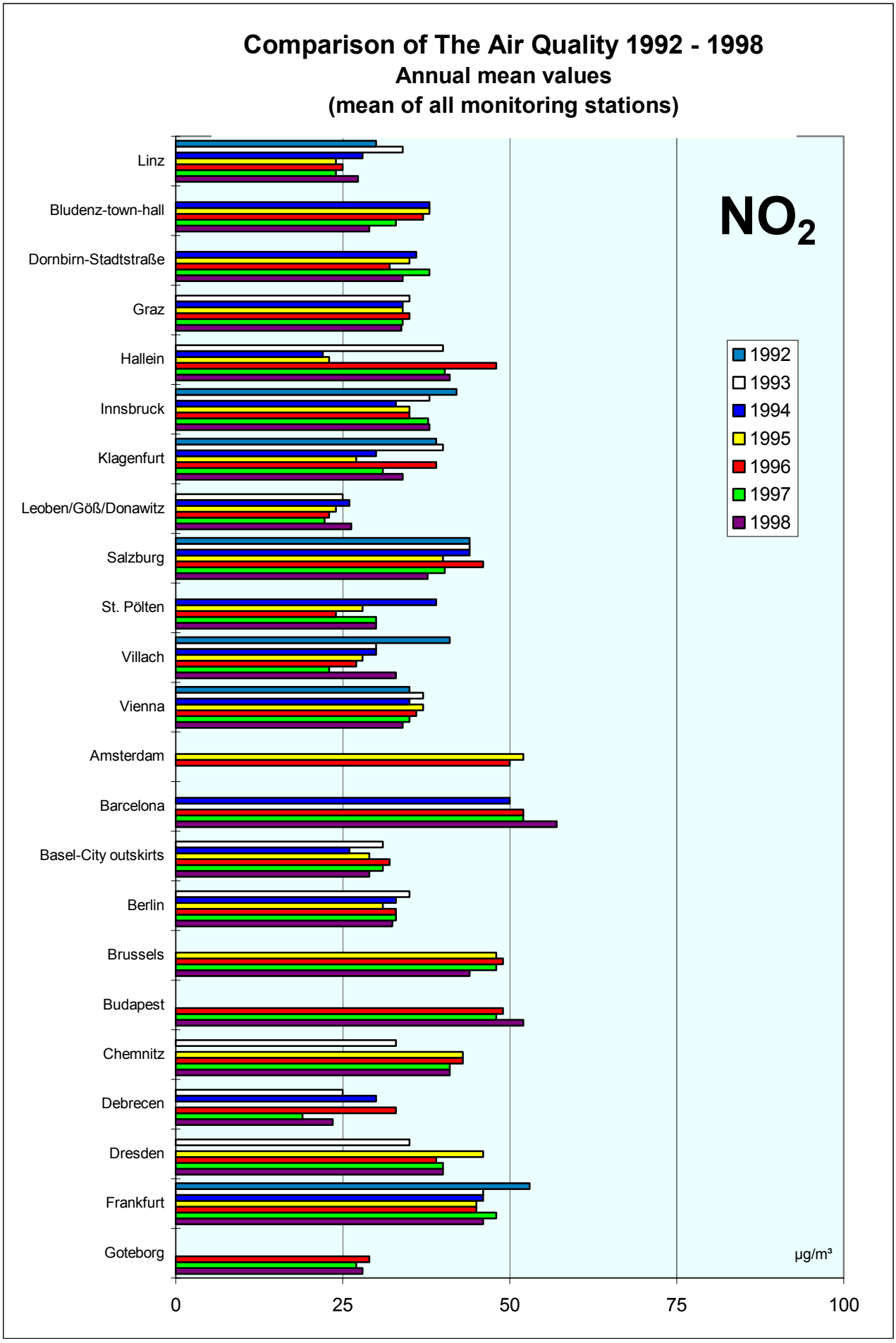

Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
Particulate matter
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
µg/m³
0
40
80
120
160

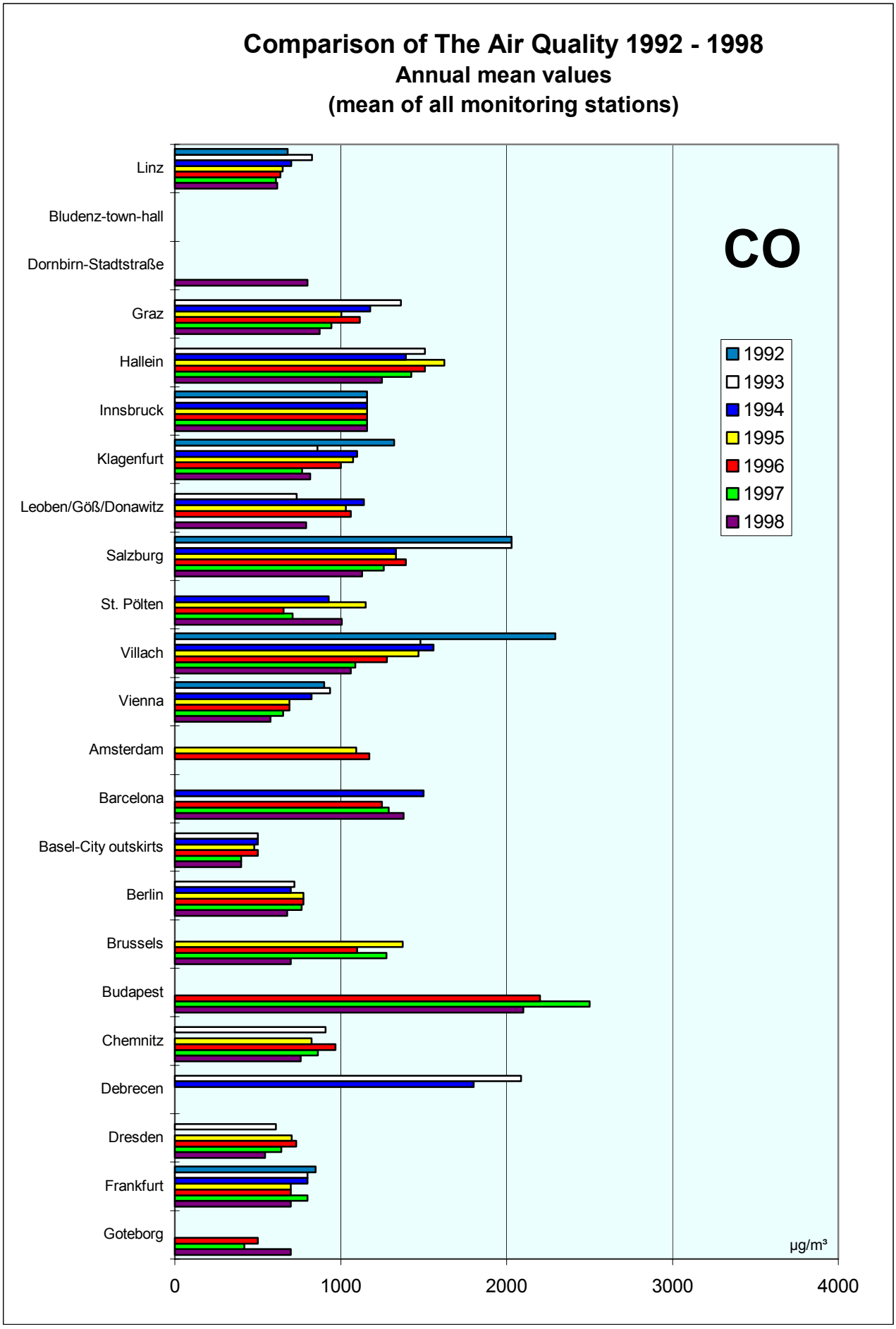

Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
Particulate matter
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszaw a
Wiesbaden
Zagreb
Zurich-Tow n Centre
µg/m³
0
40
80
120
160

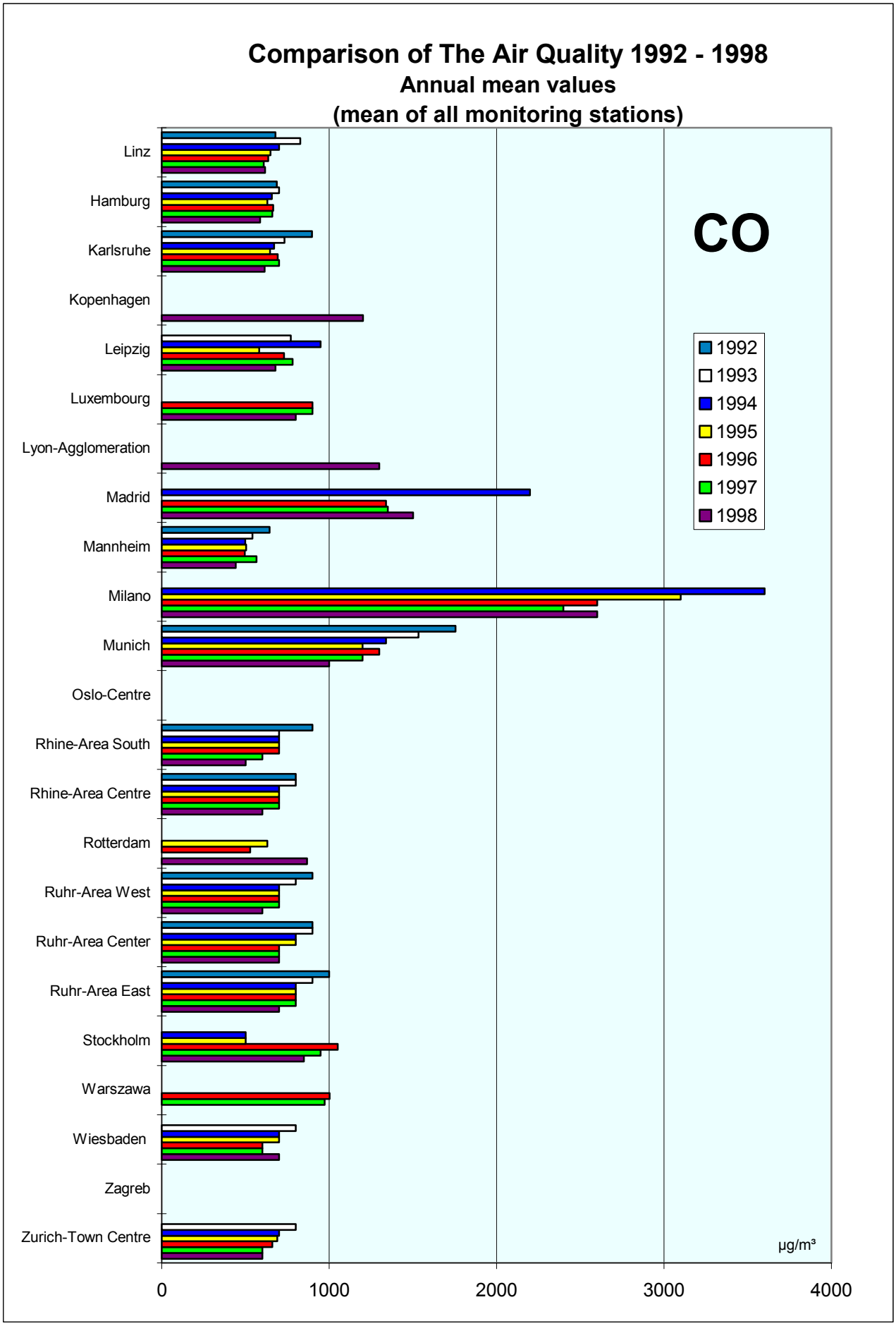

Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
NO
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszaw a
Wiesbaden
Zagreb
Zurich-Tow n Centre
µg/m³
0
30
60
90
120
150

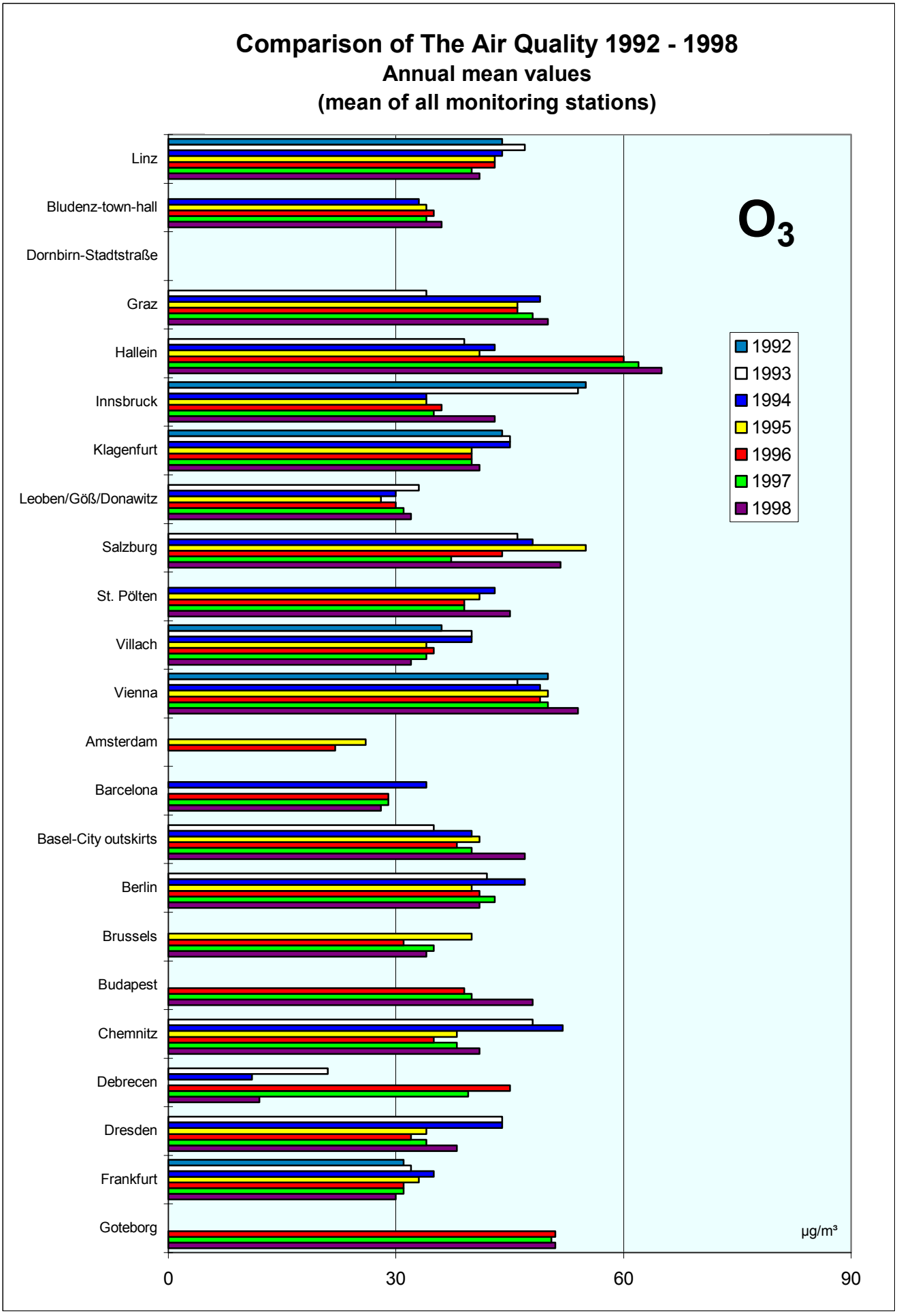

Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
NO
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
30
60
90
120
150

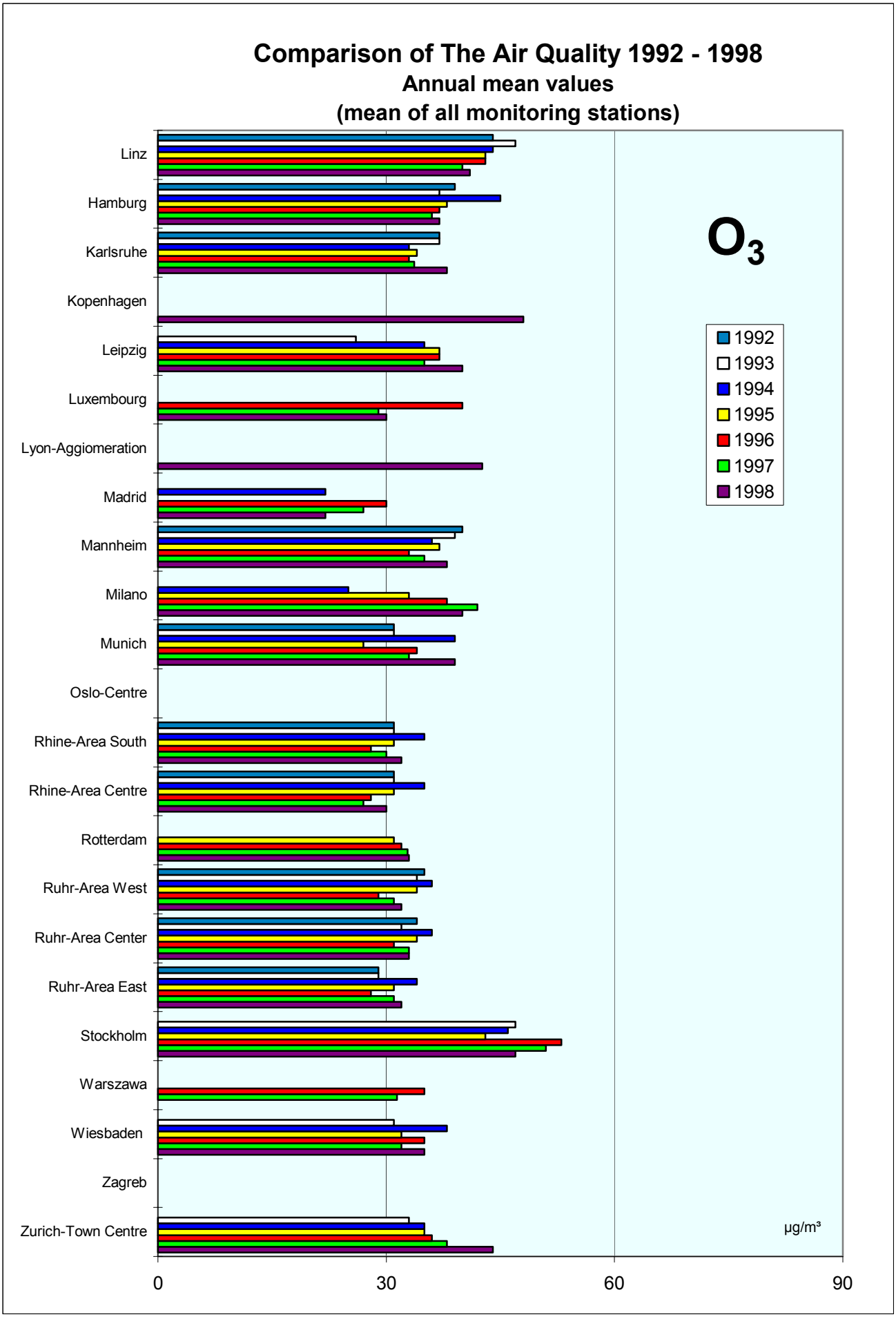

Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
NO2
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
25
50
75
100


Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
NO2
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
25
50
75
100


Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
CO
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
1000
2000
3000
4000


Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
CO
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
1000
2000
3000
4000


Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
O3
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
30
60
90


Comparison of The Air Quality 1992 - 1998
Annual mean values
(mean of all monitoring stations)
O3
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Aggiomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
30
60
90

Jahresvergleich

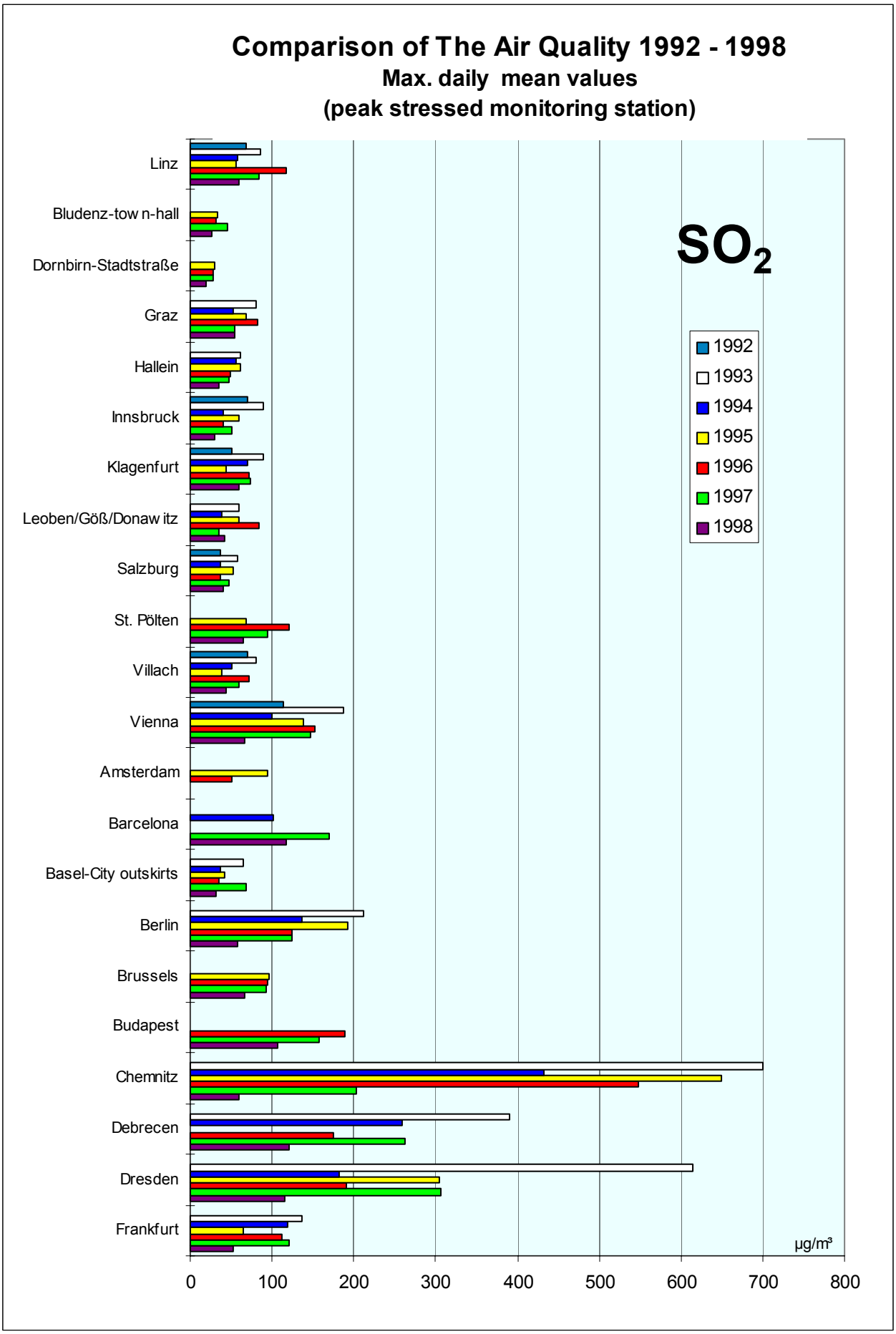
1992 - 1998

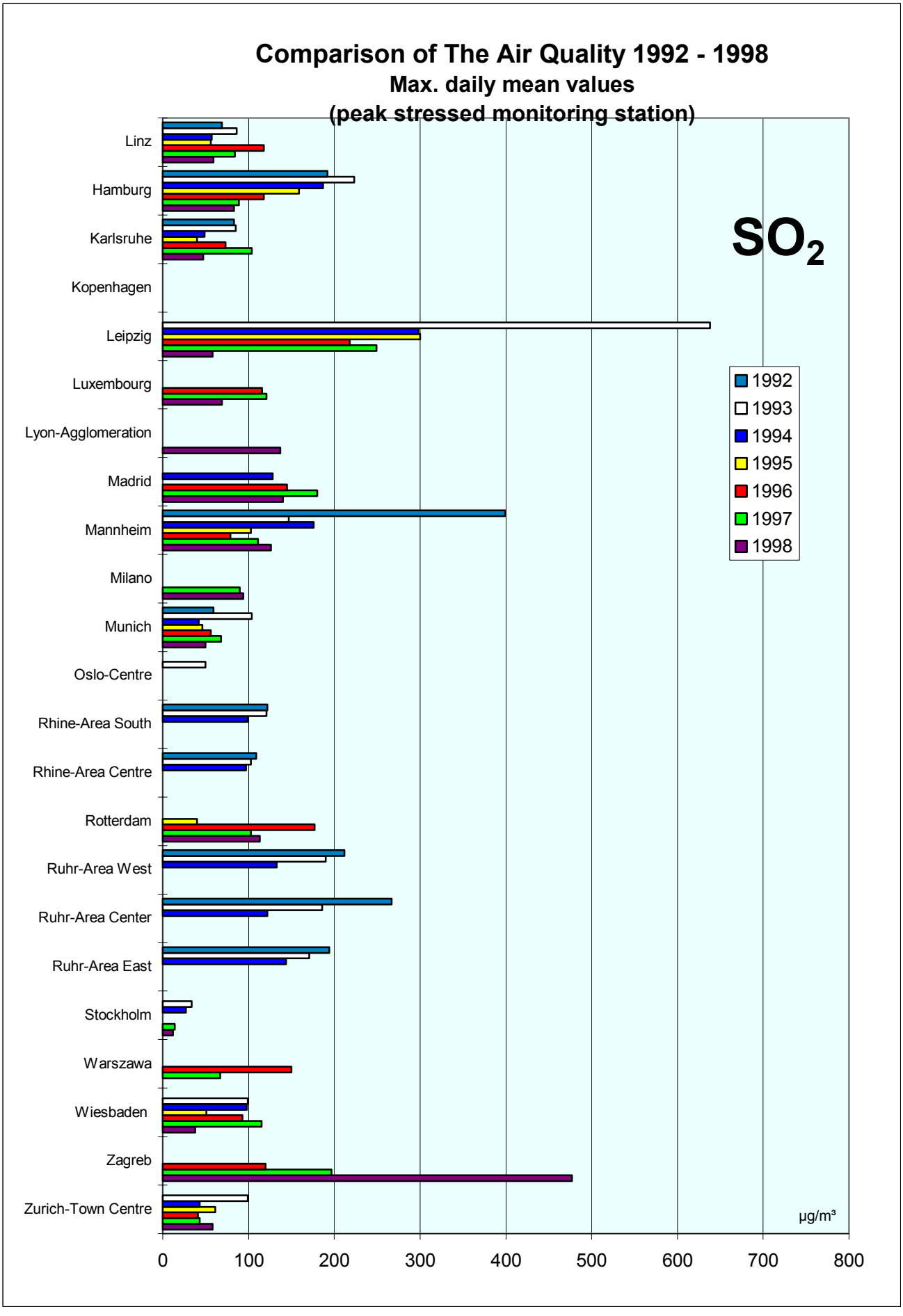
max. Tagesmittelwerte

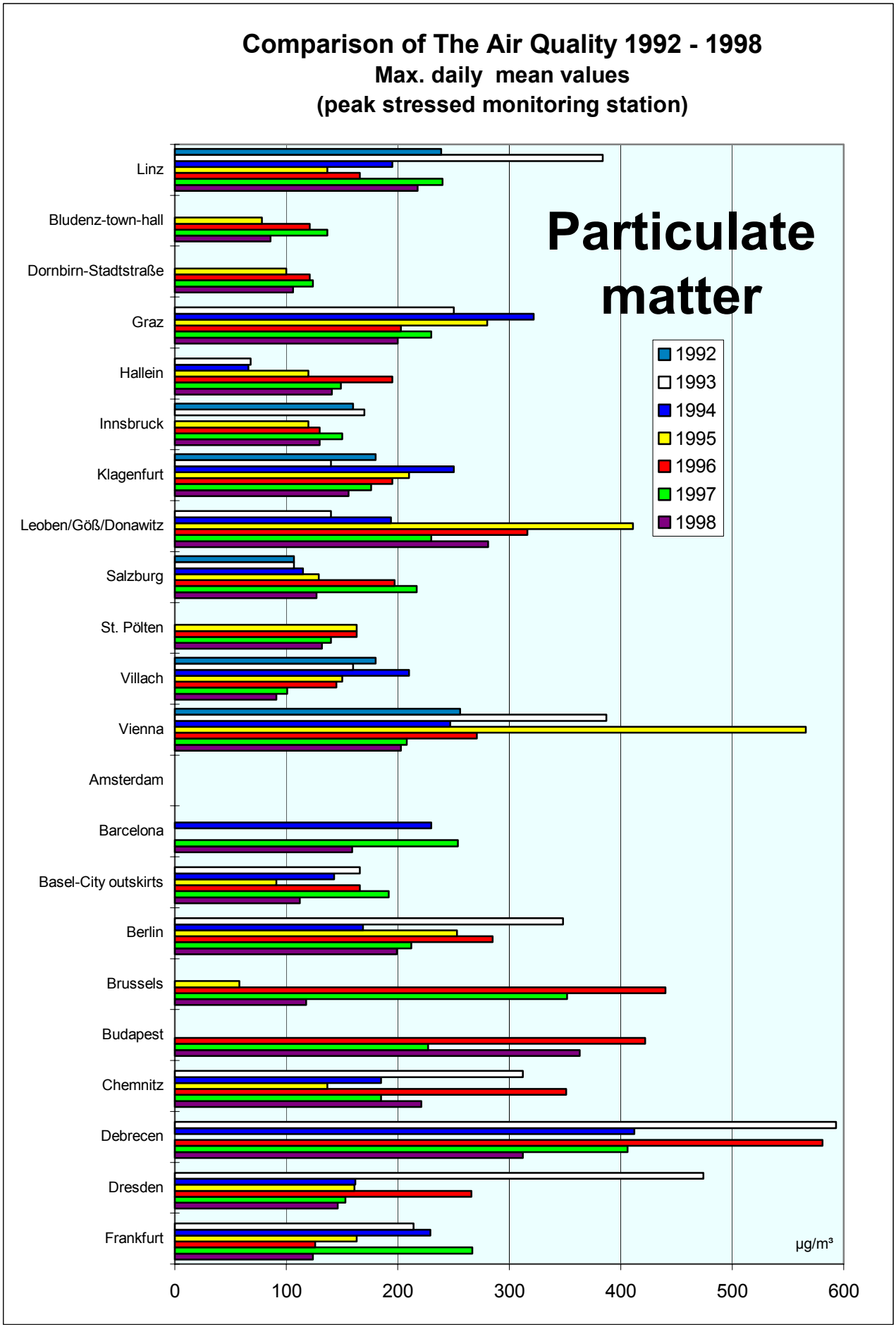
Comparison of The Air Quality Over The Years

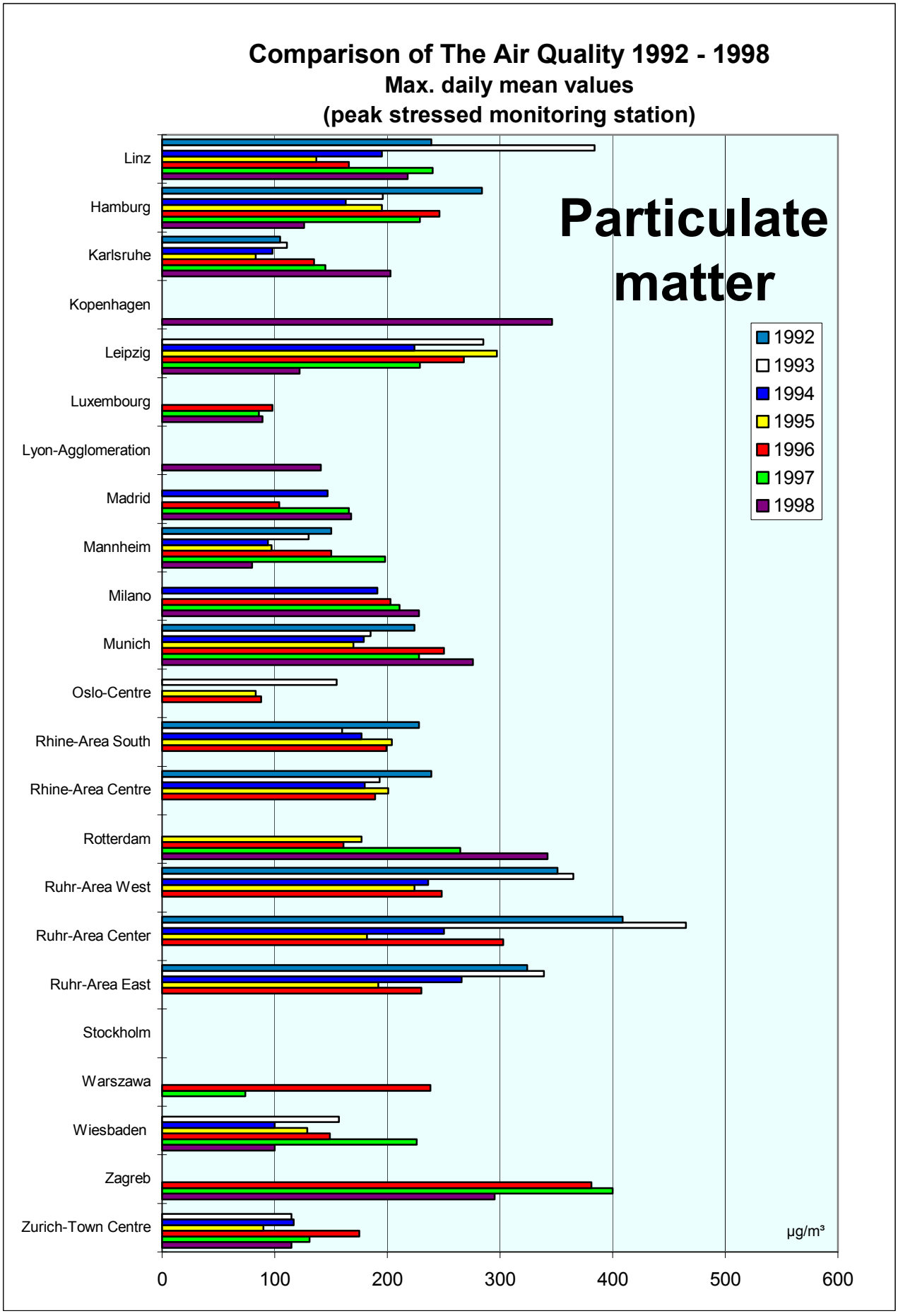
1992 - 1998

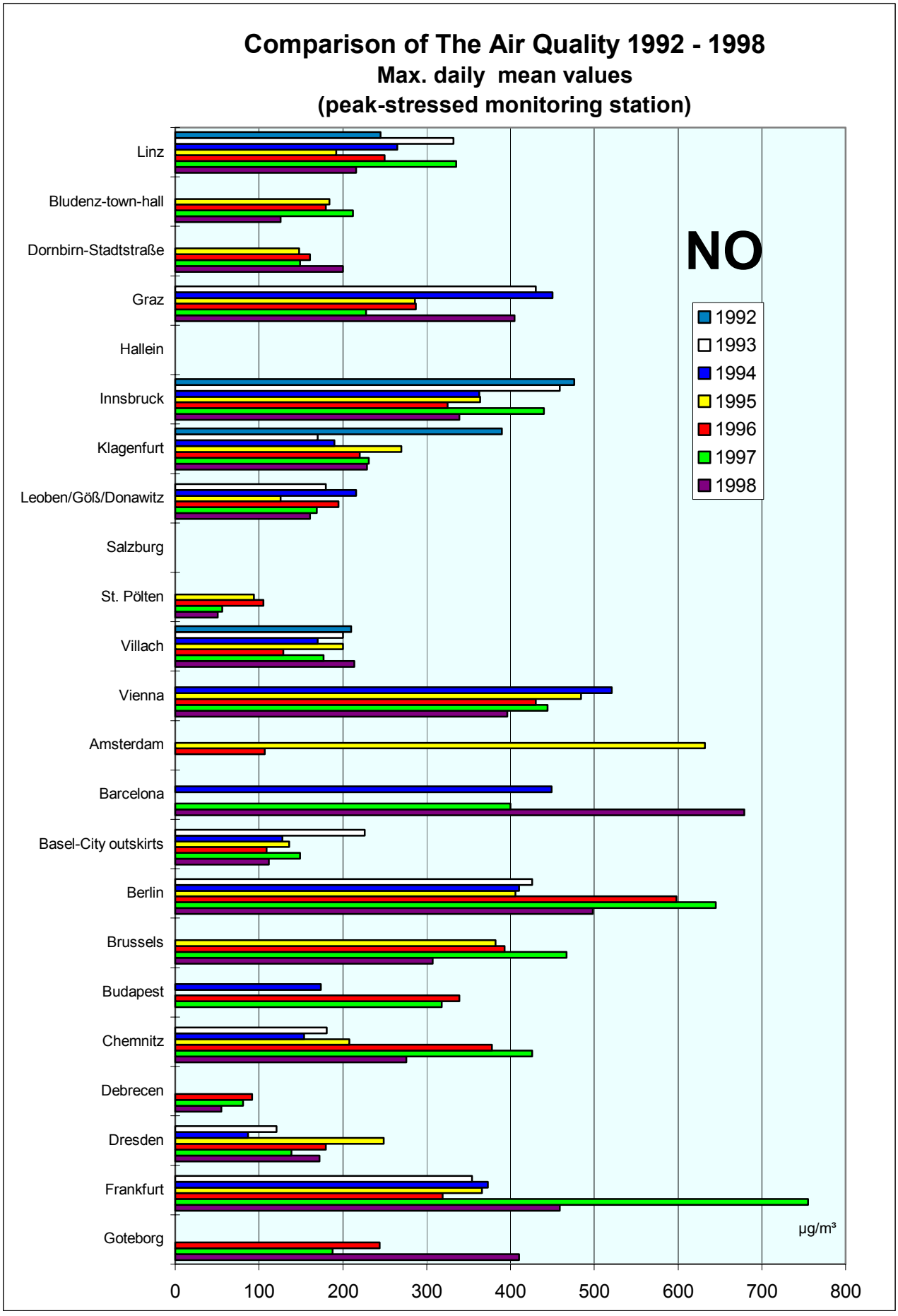
Max. Daily Mean Values

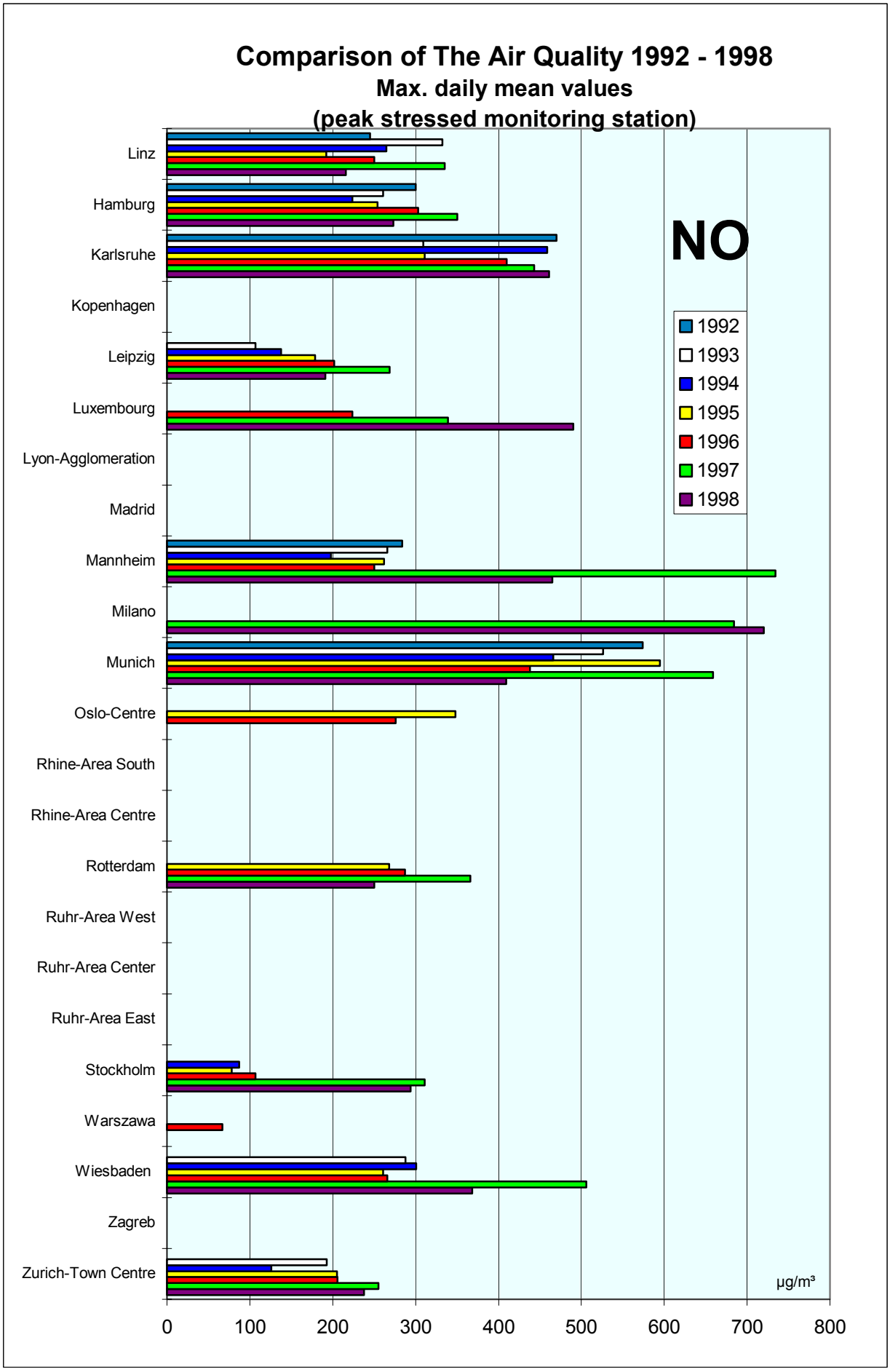

Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
SO2
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-tow n-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donaw itz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
µg/m³
0
100
200
300
400
500
600
700
800

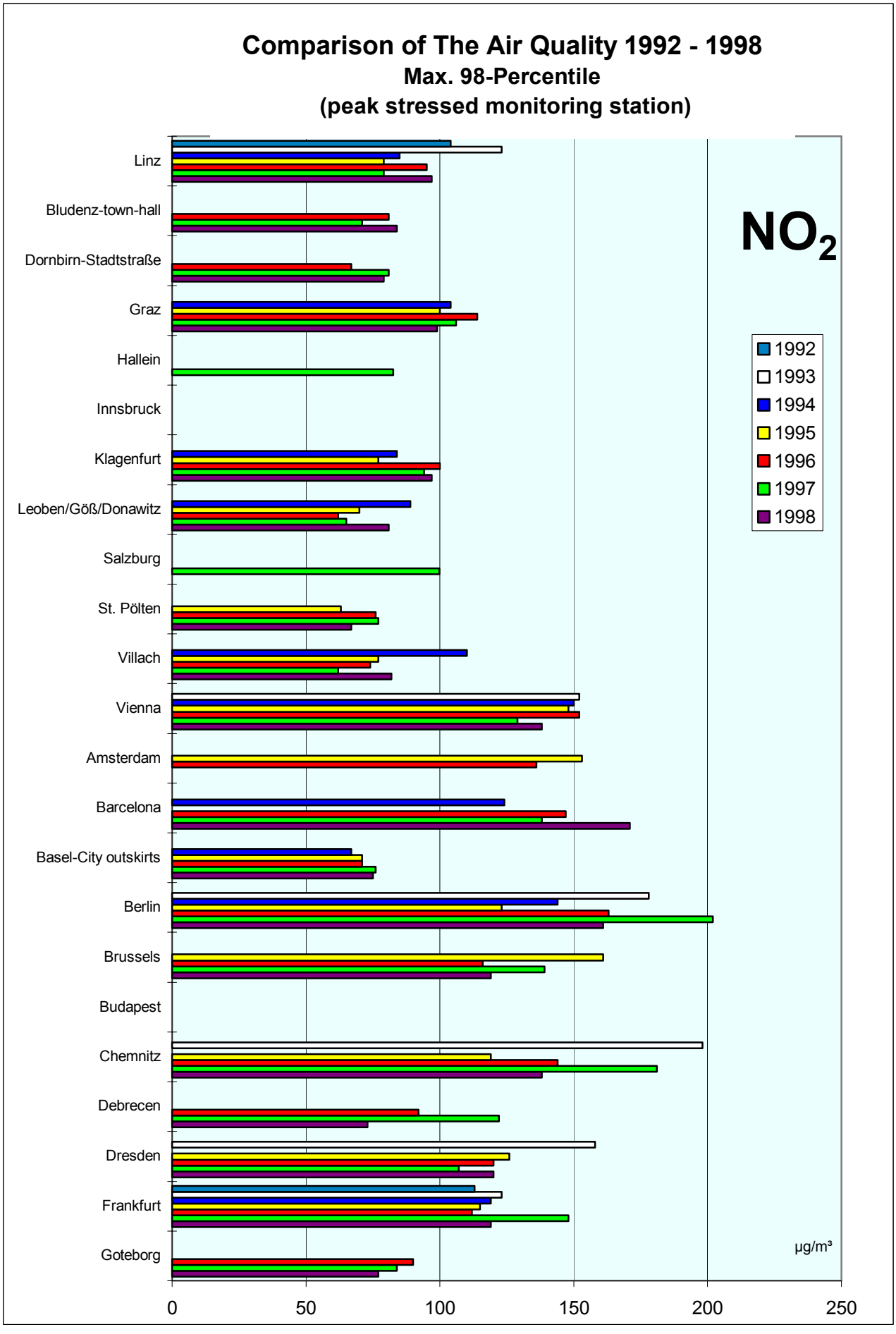

Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
SO2
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
1992
1993
1994
1995
1996
1997
1998
µg/m³
0
100
200
300
400
500
600
700
800

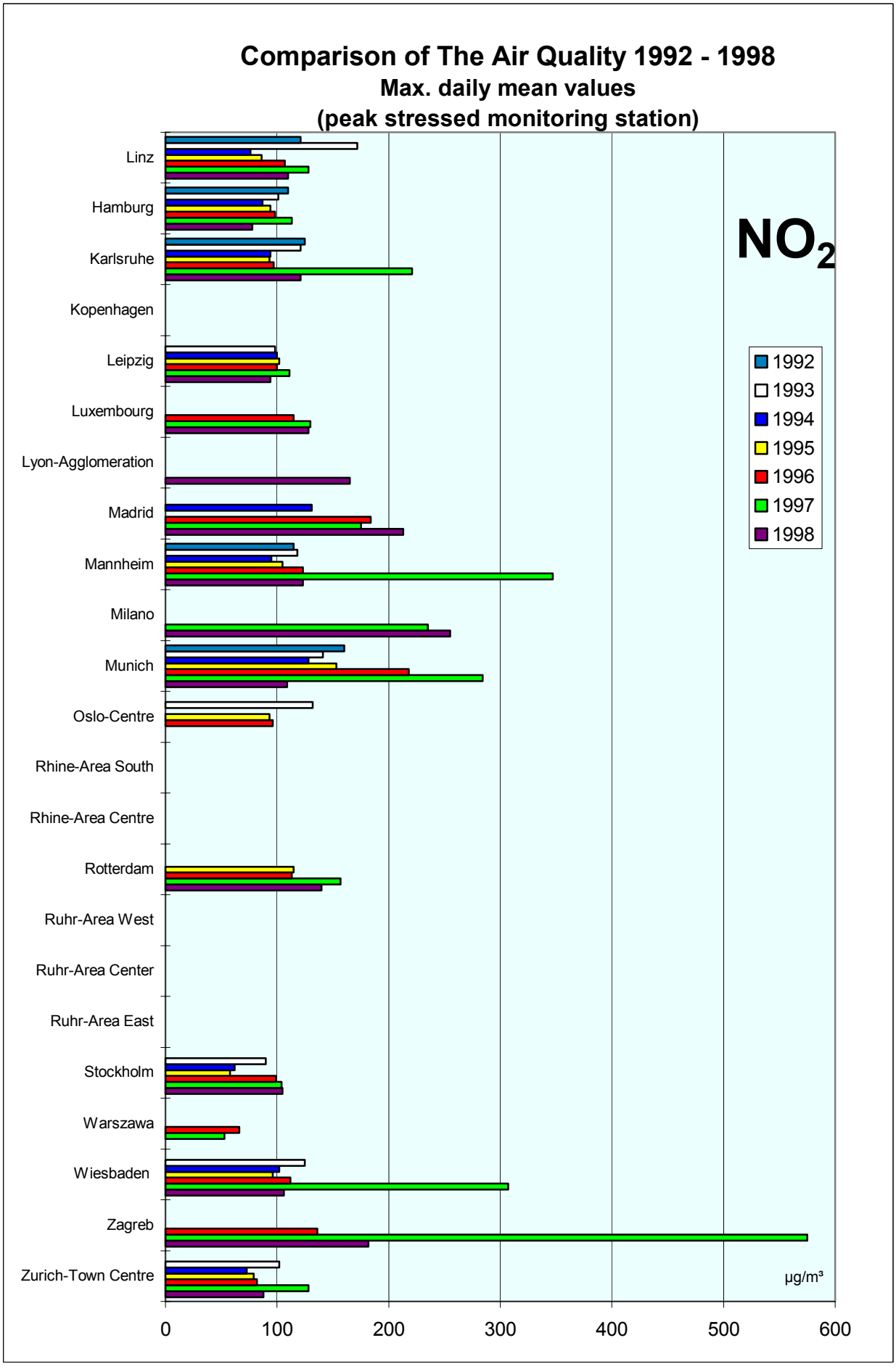

Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
Particulate matter
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
µg/m³
0
100
200
300
400
500
600

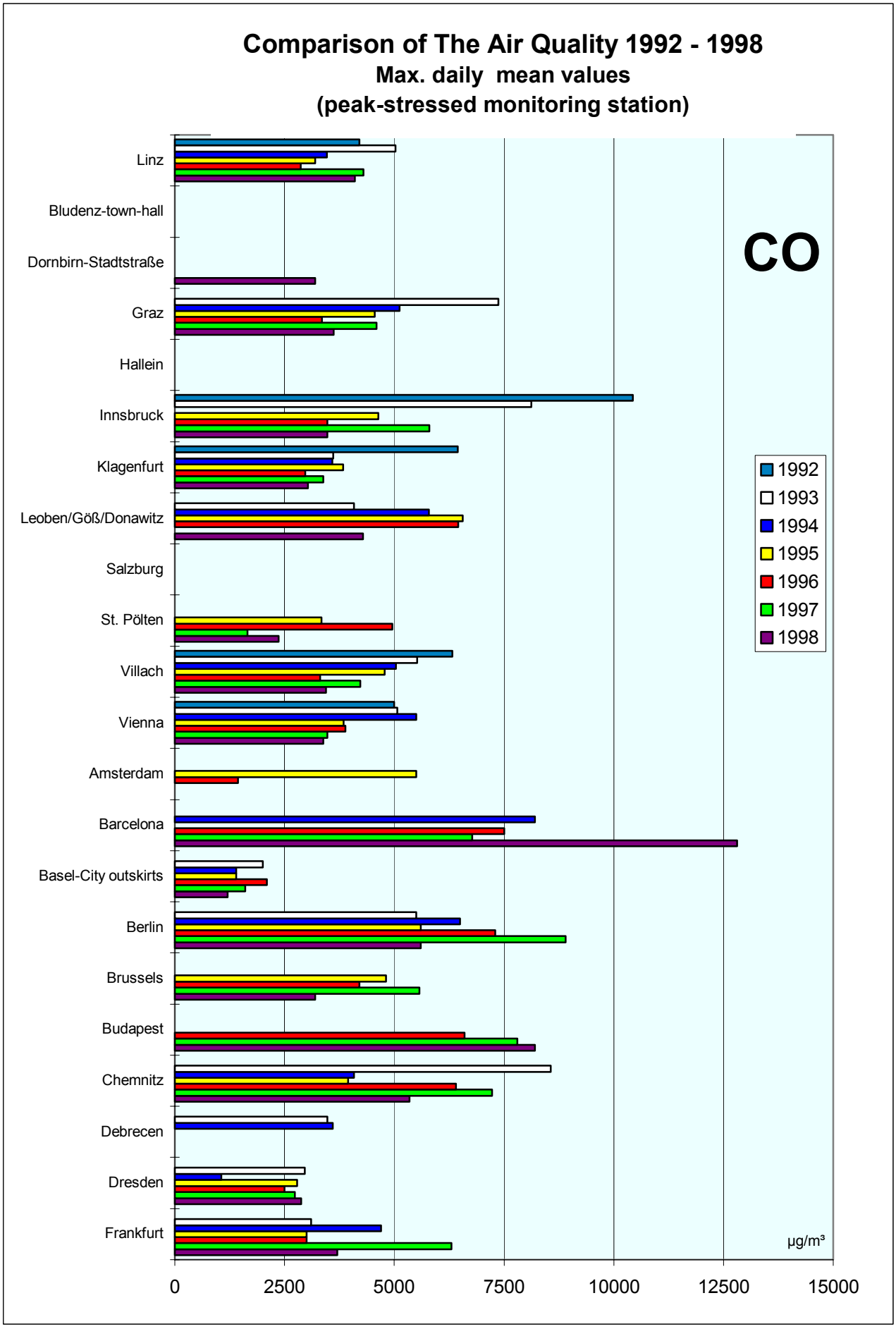

Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
Particulate matter
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
100
200
300
400
500
600

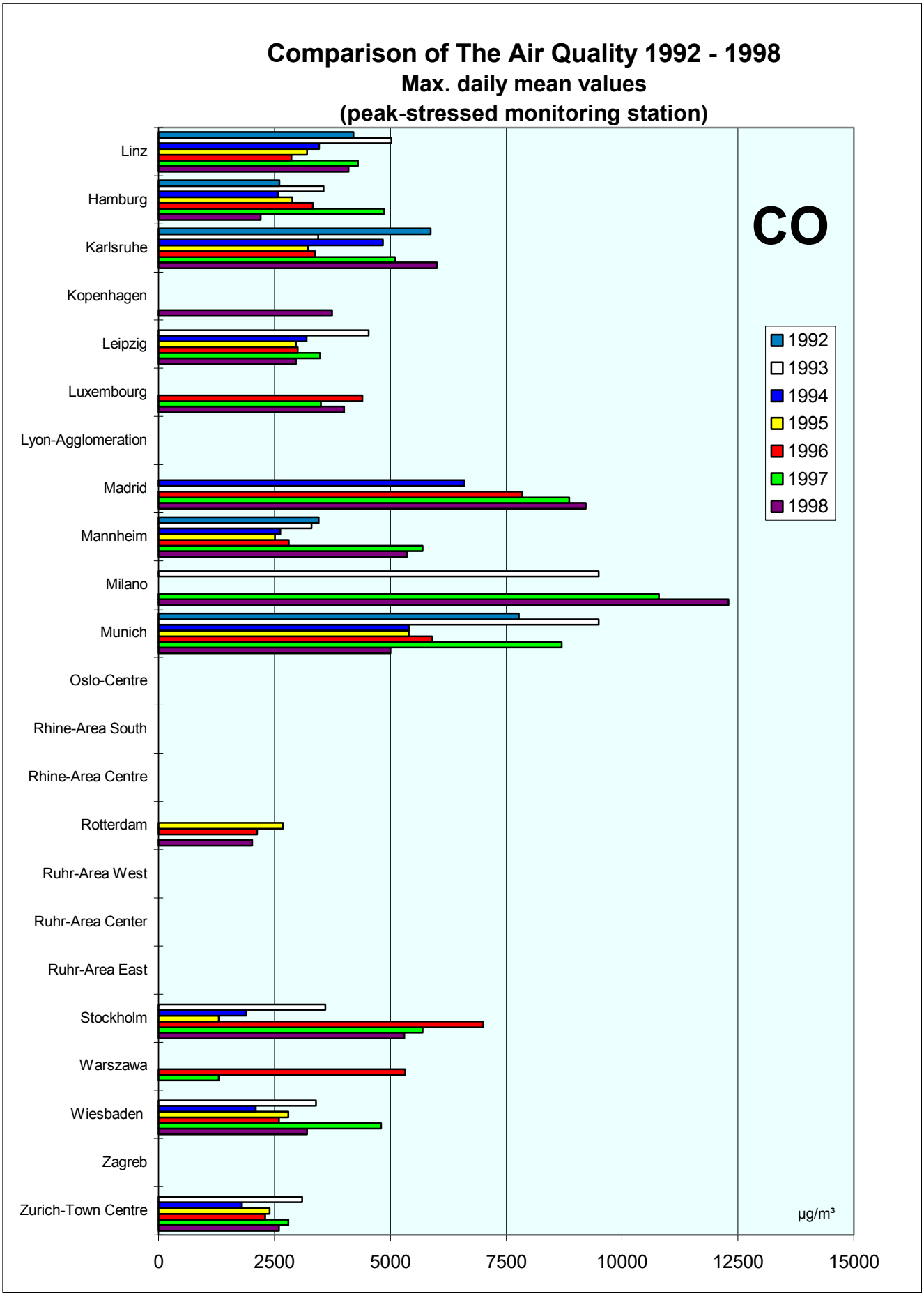

Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak-stressed monitoring station)
NO
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
100
200
300
400
500
600
700
800

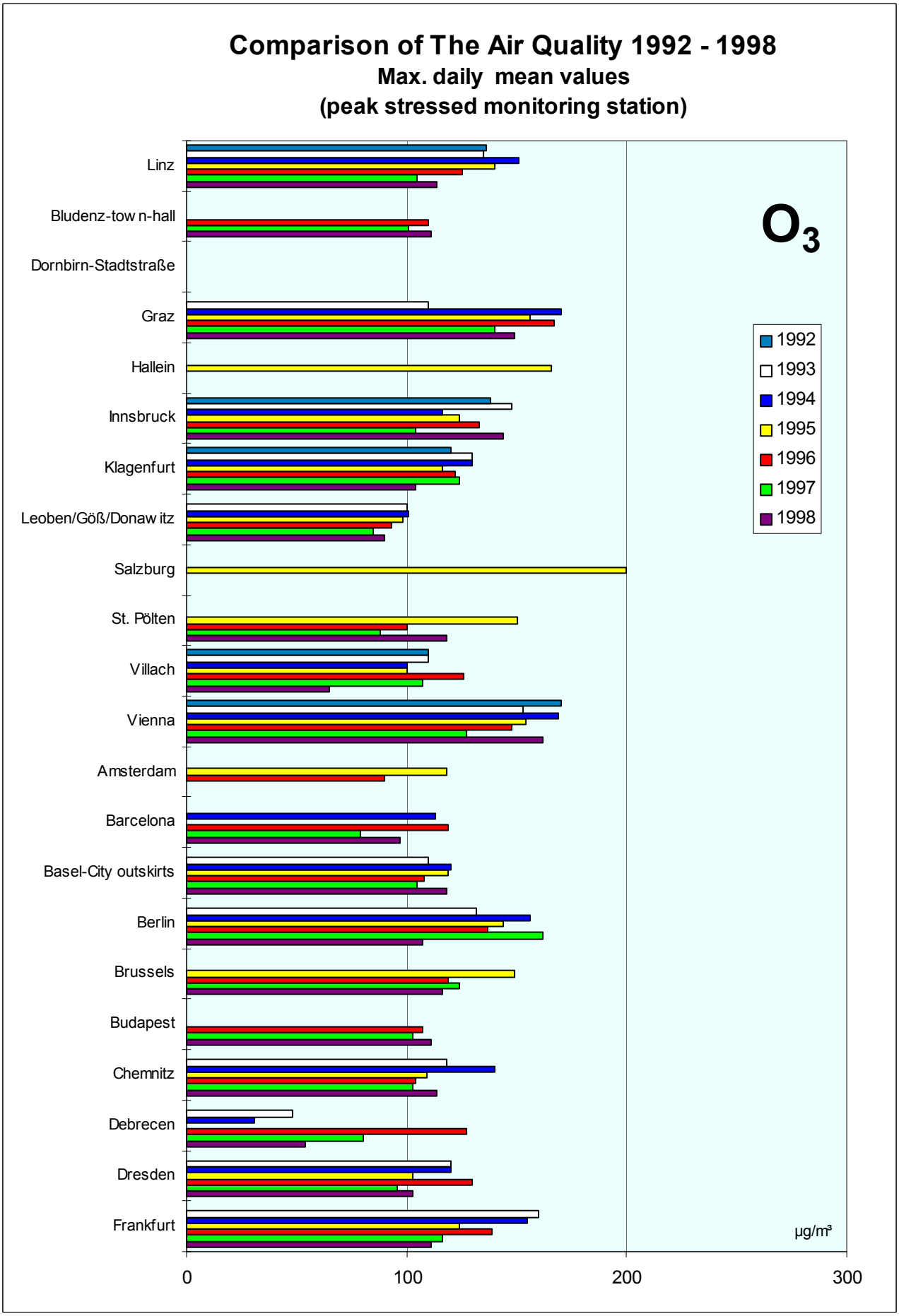

Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
NO
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
100
200
300
400
500
600
700
800

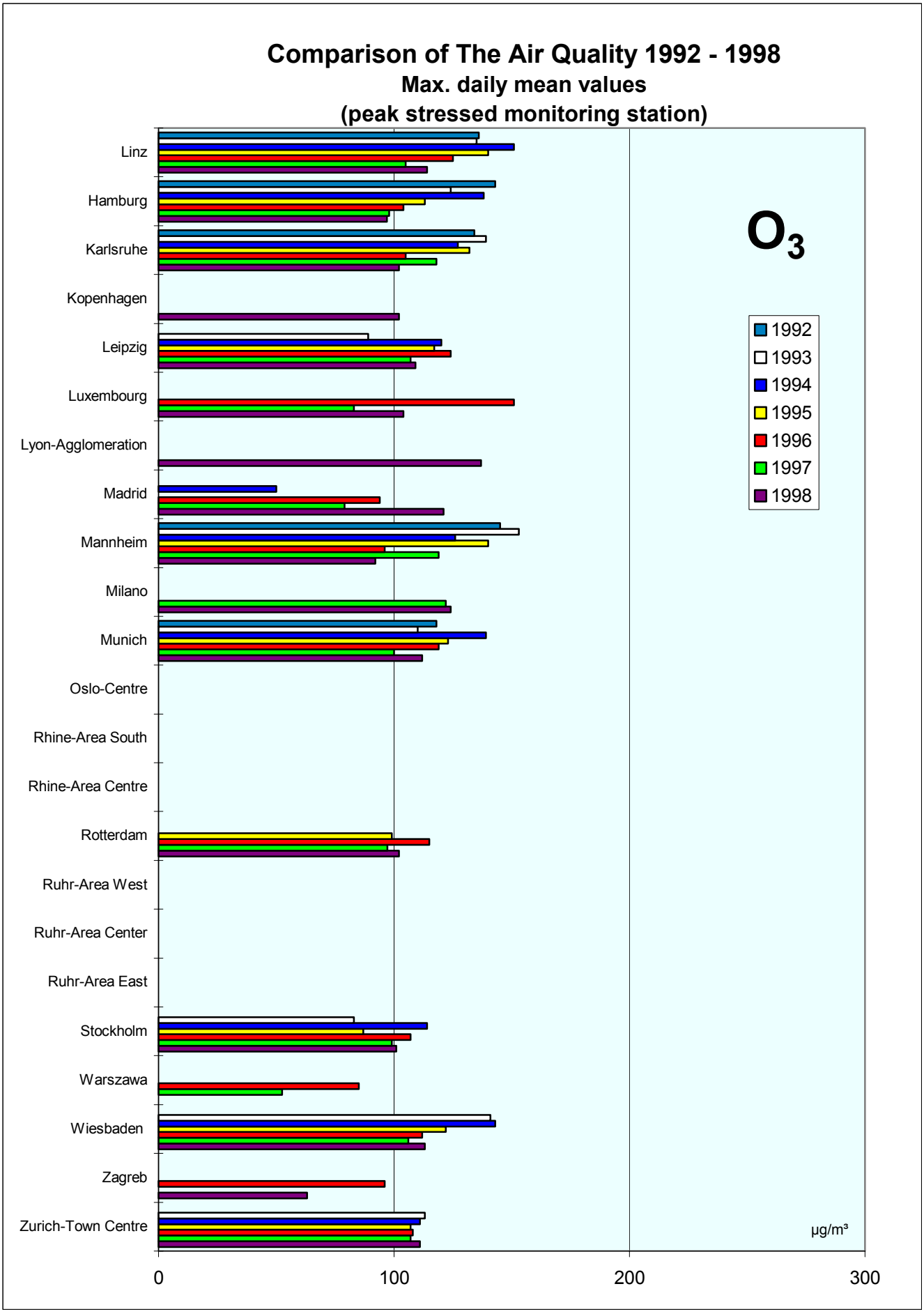

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
NO2
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
50
100
150
200
250


Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
NO2
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
1992
1993
1994
1995
1996
1997
1998
µg/m³
0
100
200
300
400
500
600


Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak-stressed monitoring station)
CO
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
1992
1993
1994
1995
1996
1997
1998
µg/m³
0
2500
5000
7500
10000
12500
15000


Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak-stressed monitoring station)
CO
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
2500
5000
7500
10000
12500
15000


Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
O3
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
µg/m³
0
100
200
300


Comparison of The Air Quality 1992 - 1998
Max. daily mean values
(peak stressed monitoring station)
O3
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
100
200
300

Jahresvergleich

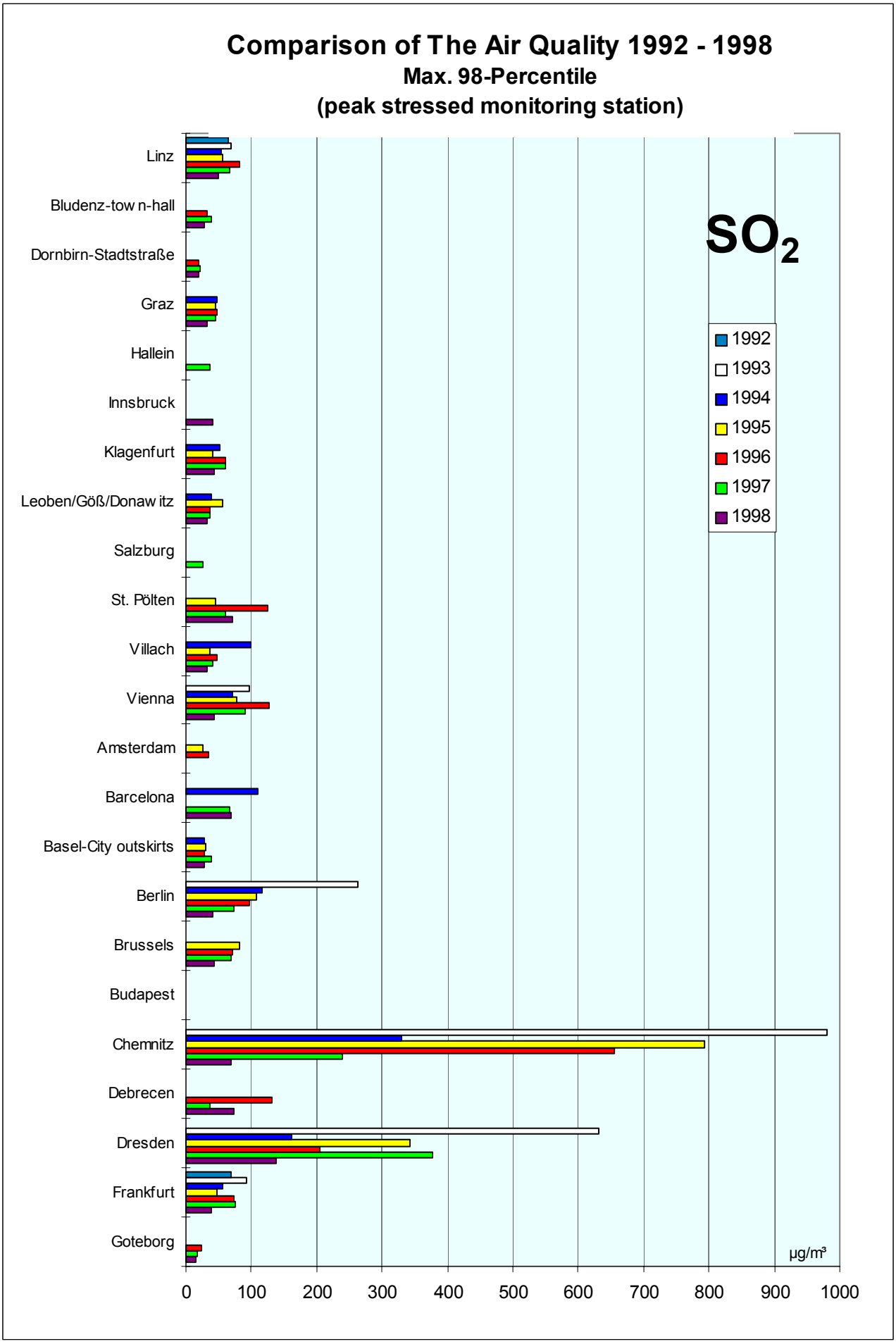
1992 - 1998

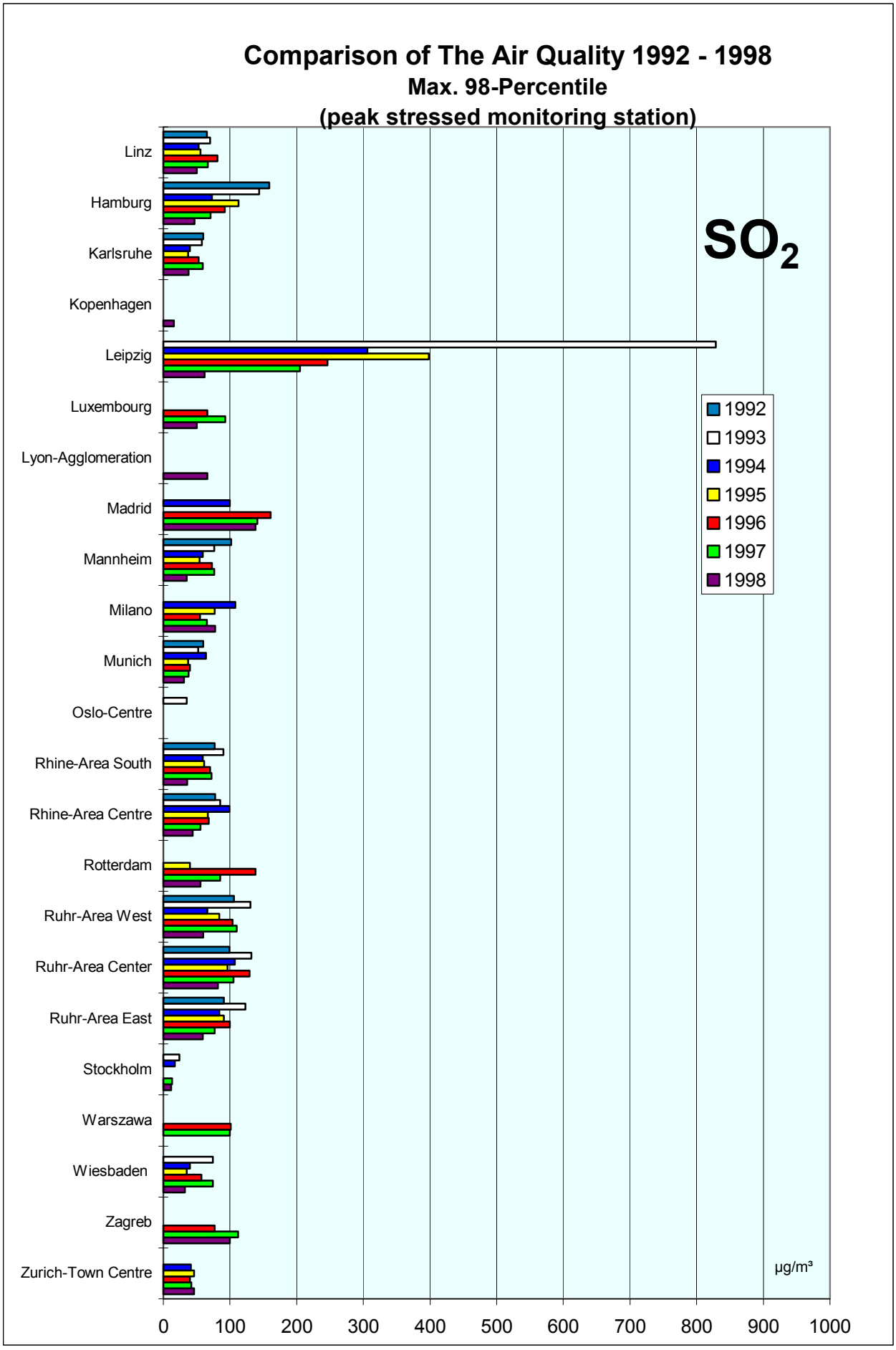
max. 98-Percentile

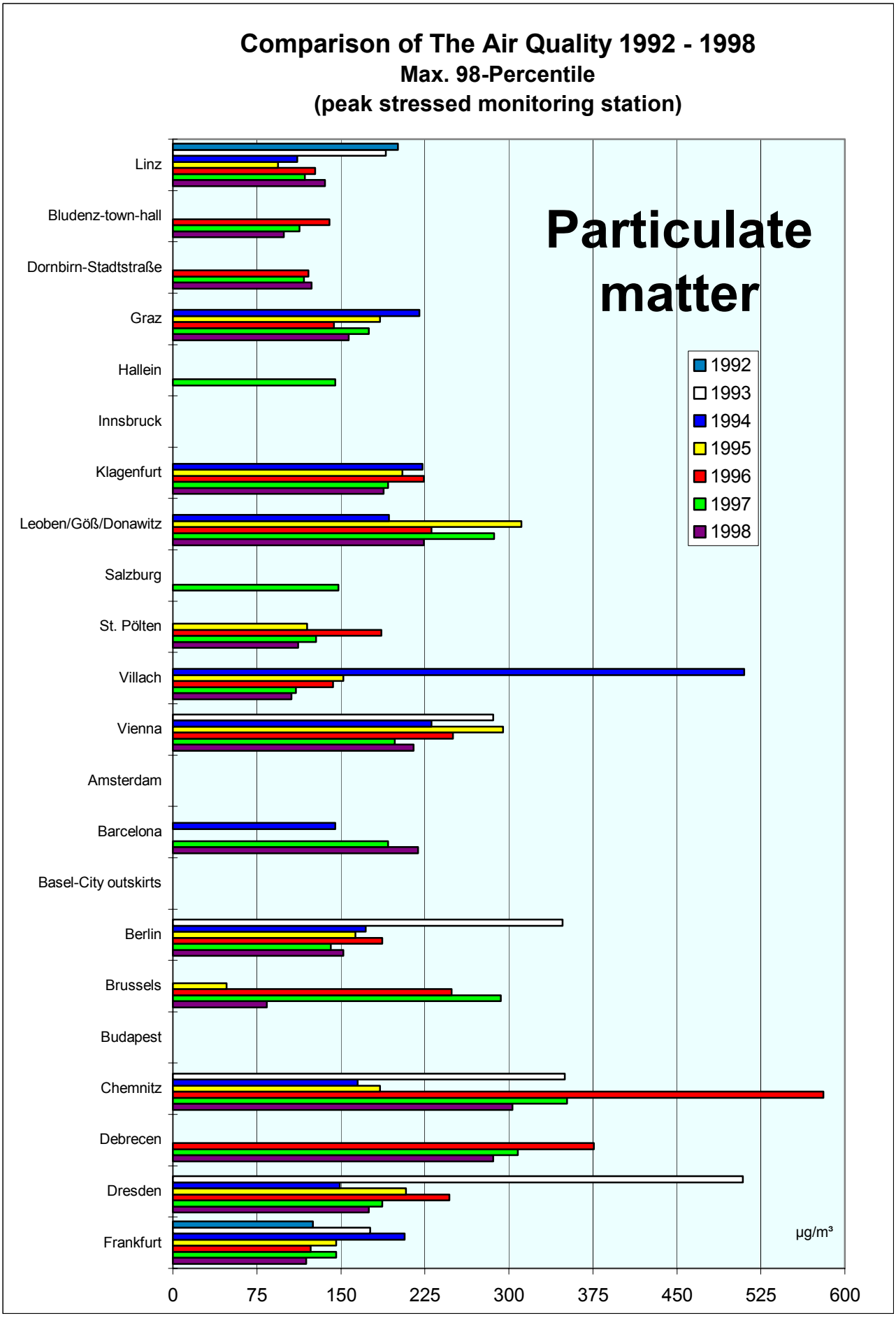
Comparison of The Air Quality Over The Years

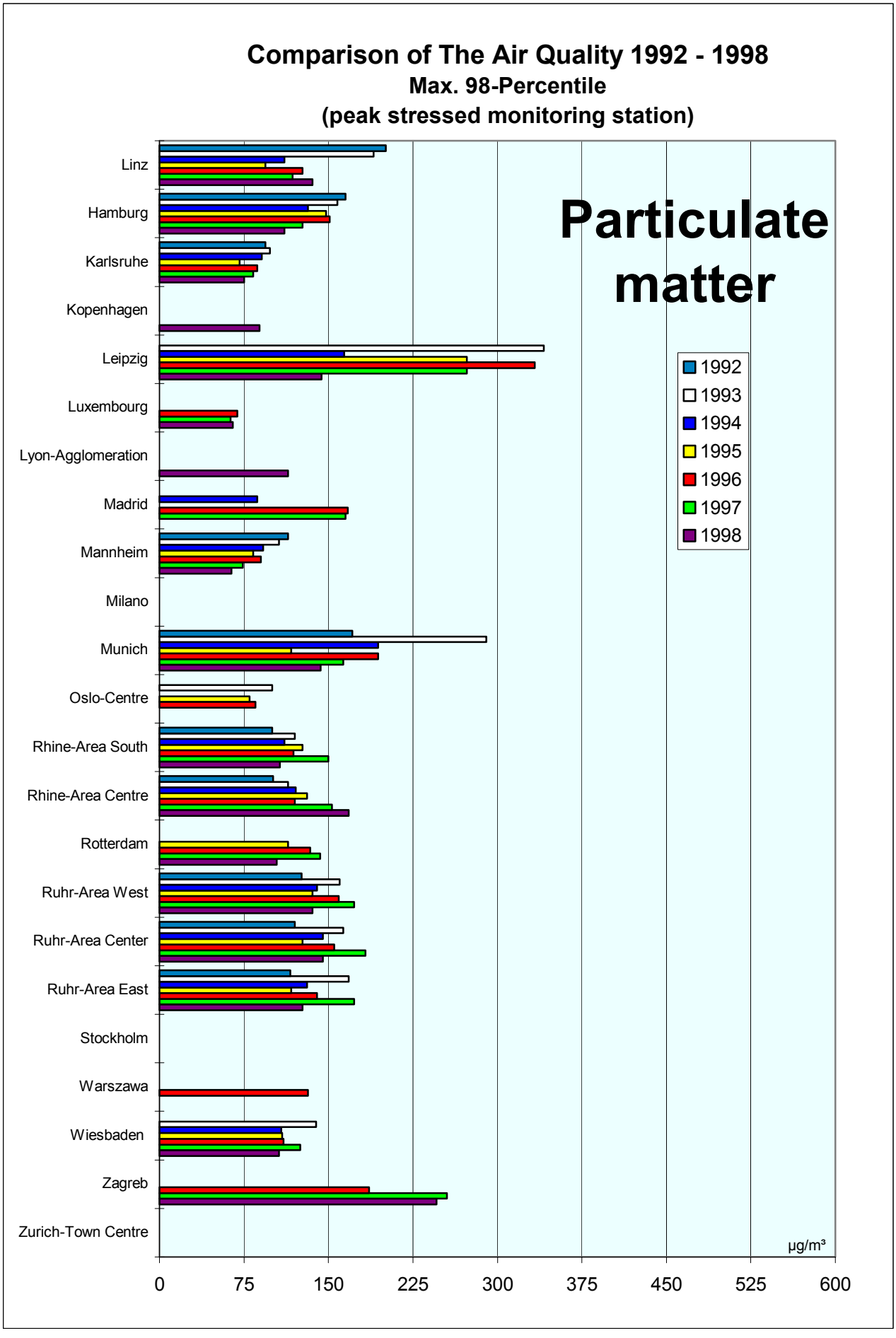
1992 - 1998

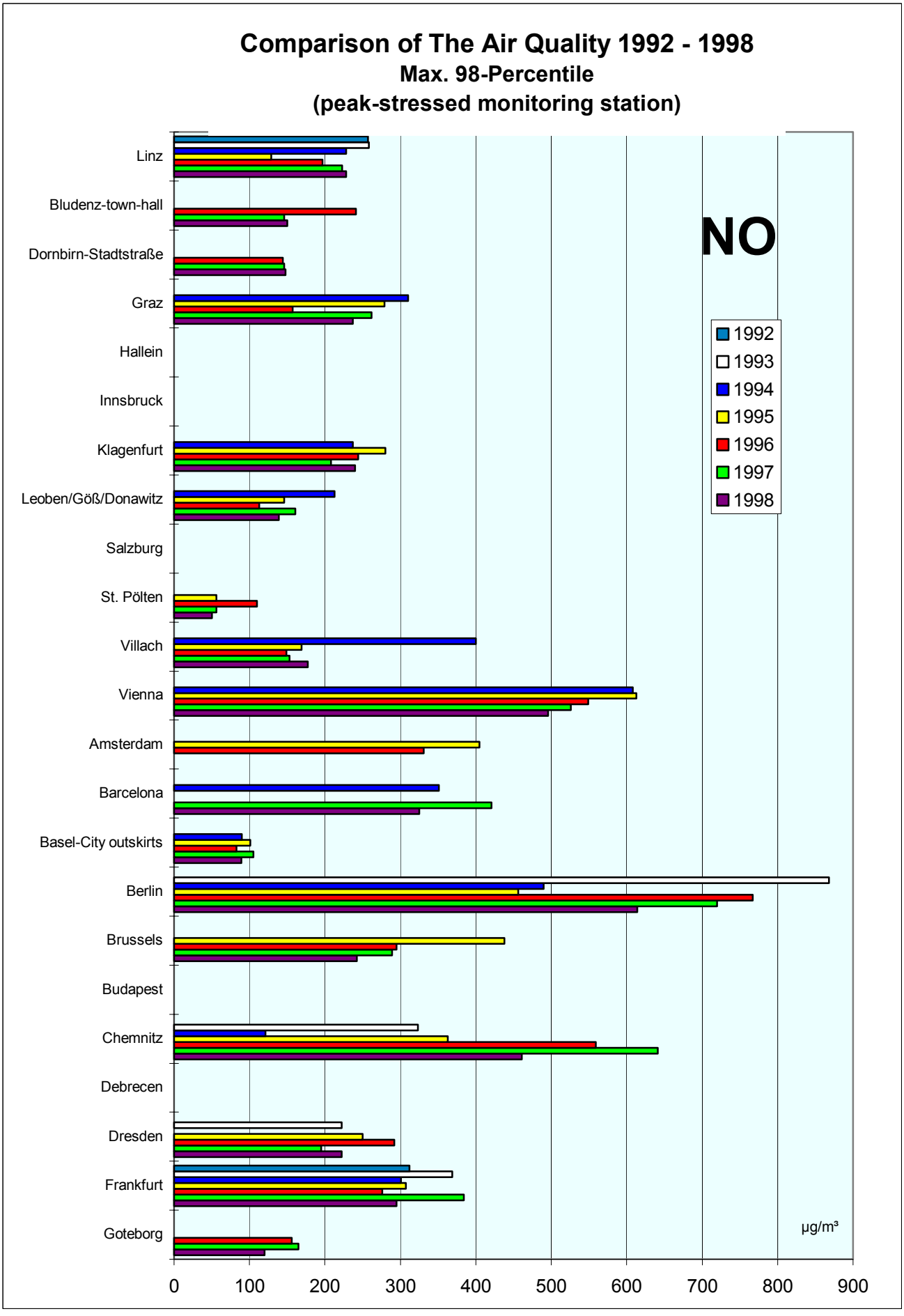
Max. 98-Percentiles

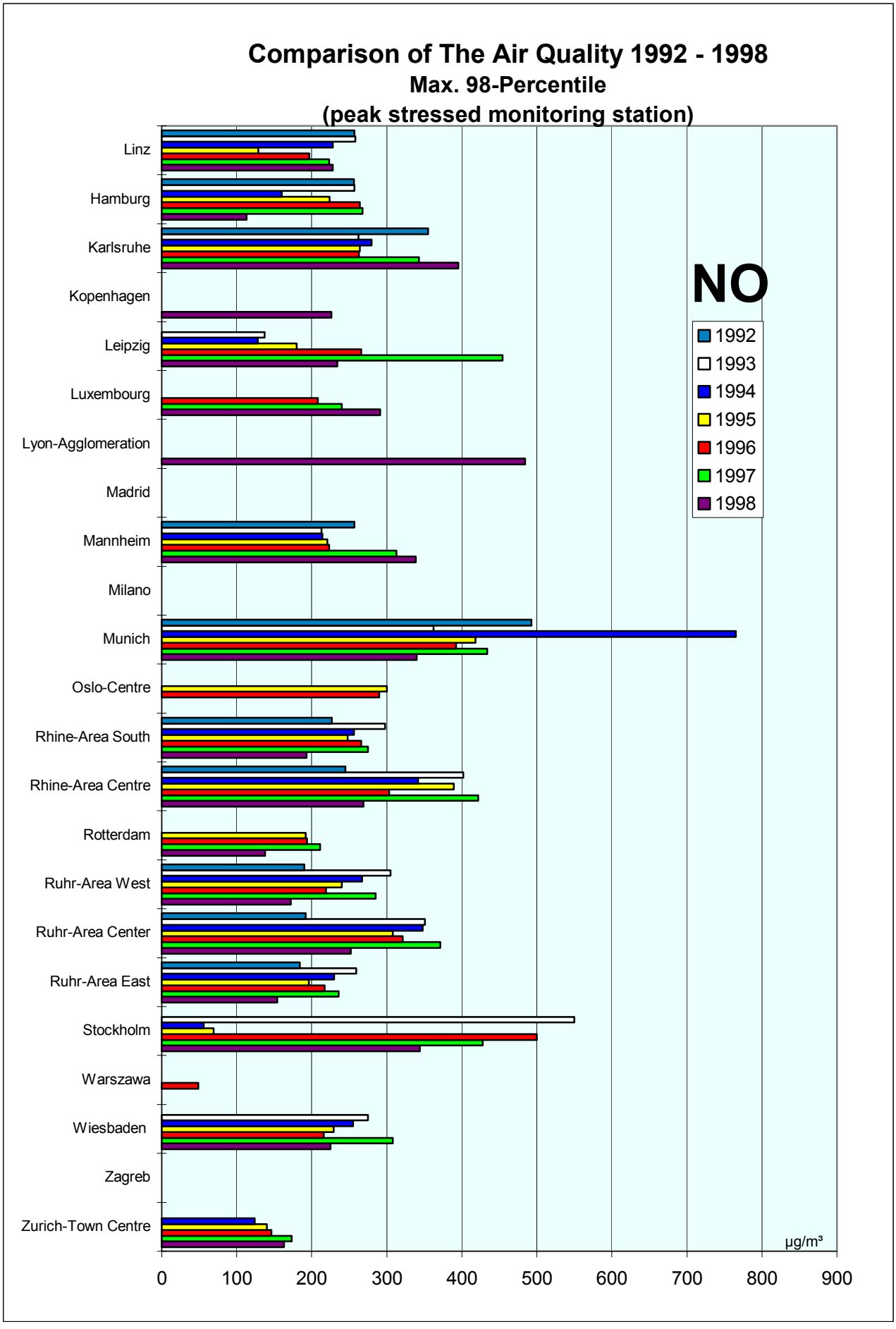

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
SO2
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-tow n-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donaw itz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
100
200
300
400
500
600
700
800
900
1000

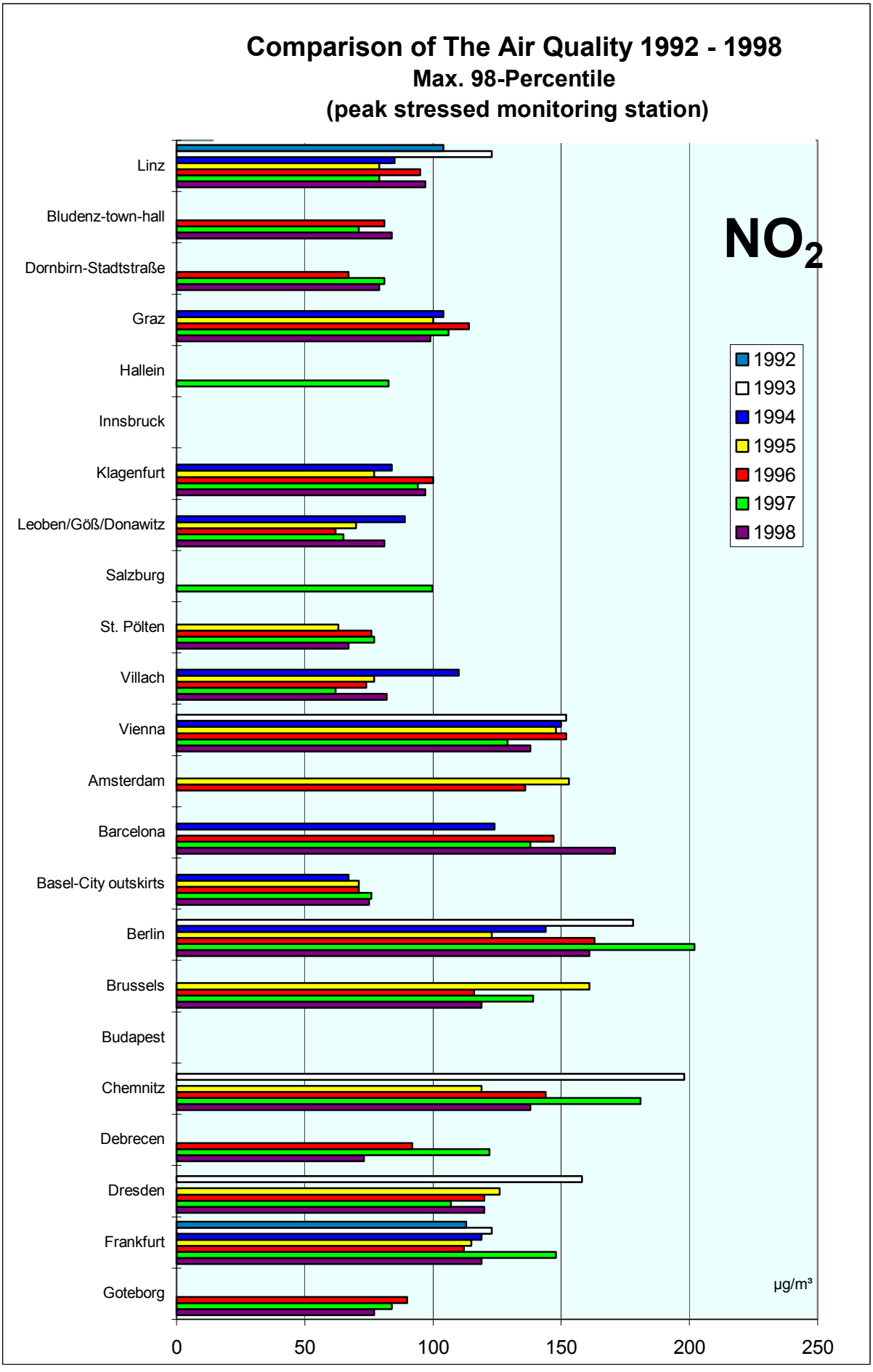

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
SO2
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
1992
1993
1994
1995
1996
1997
1998
µg/m³
0
100
200
300
400
500
600
700
800
900
1000

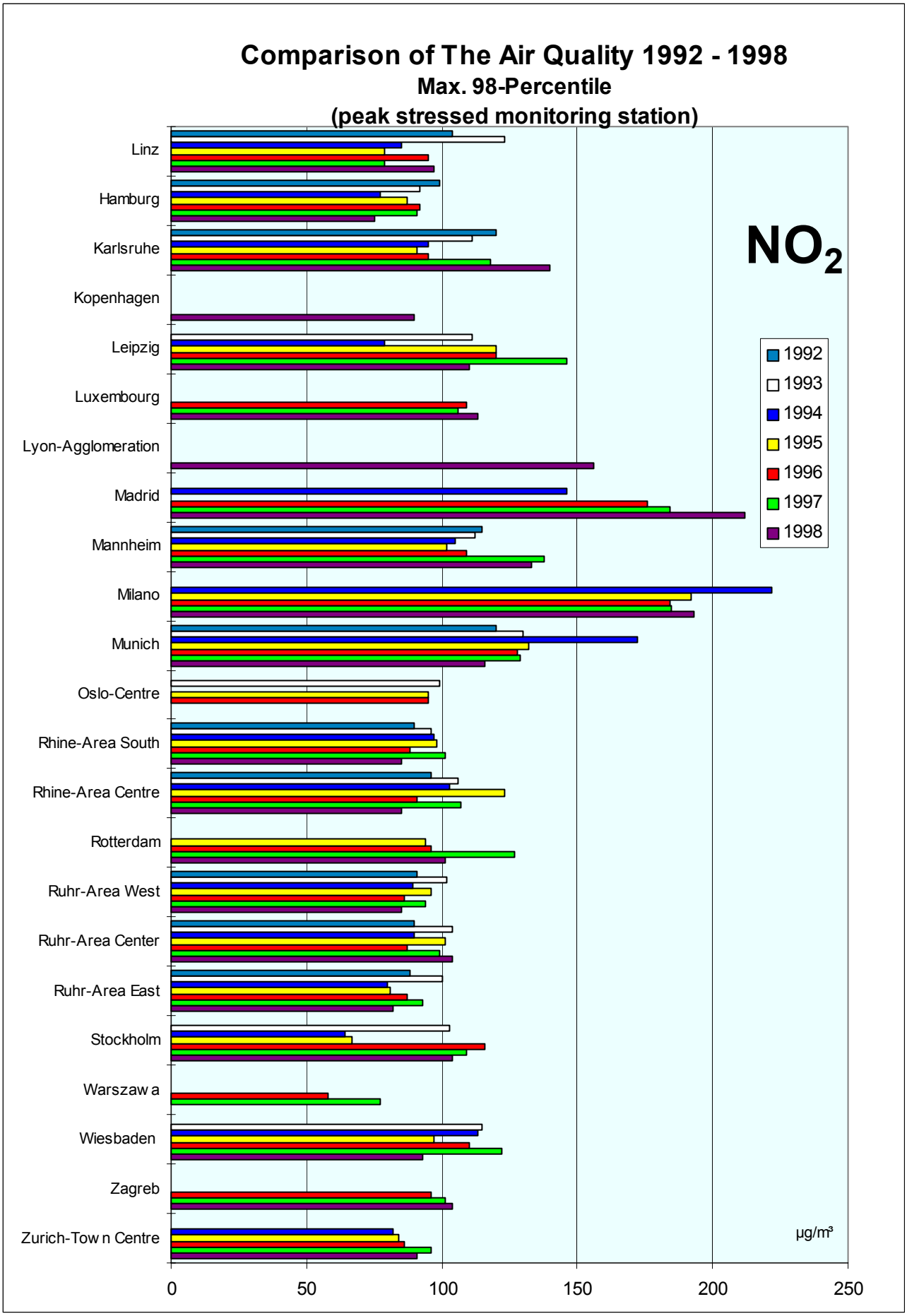

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
Particulate matter
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
µg/m³
0
75
150
225
300
375
450
525
600

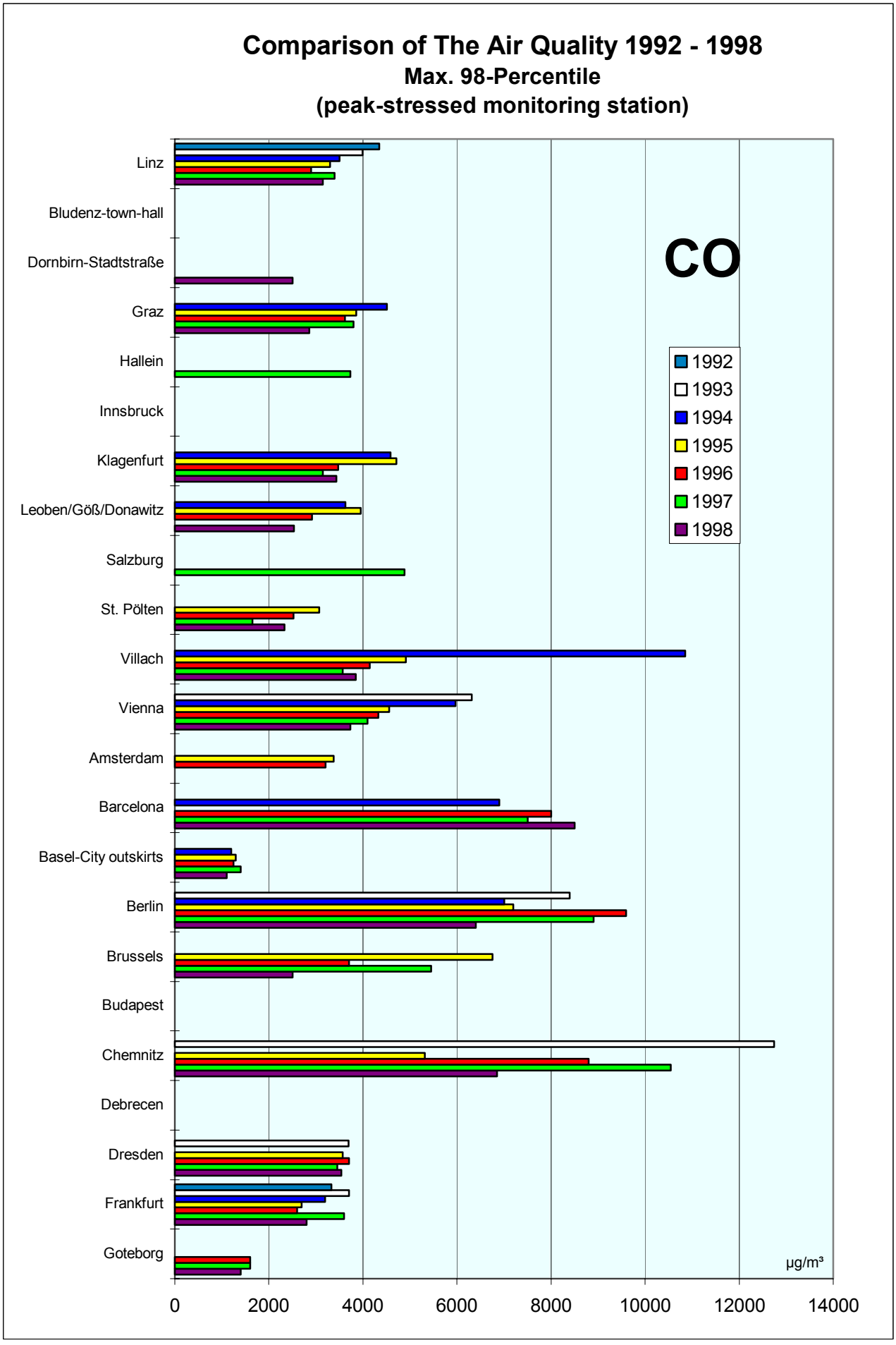

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
Particulate matter
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
75
150
225
300
375
450
525
600

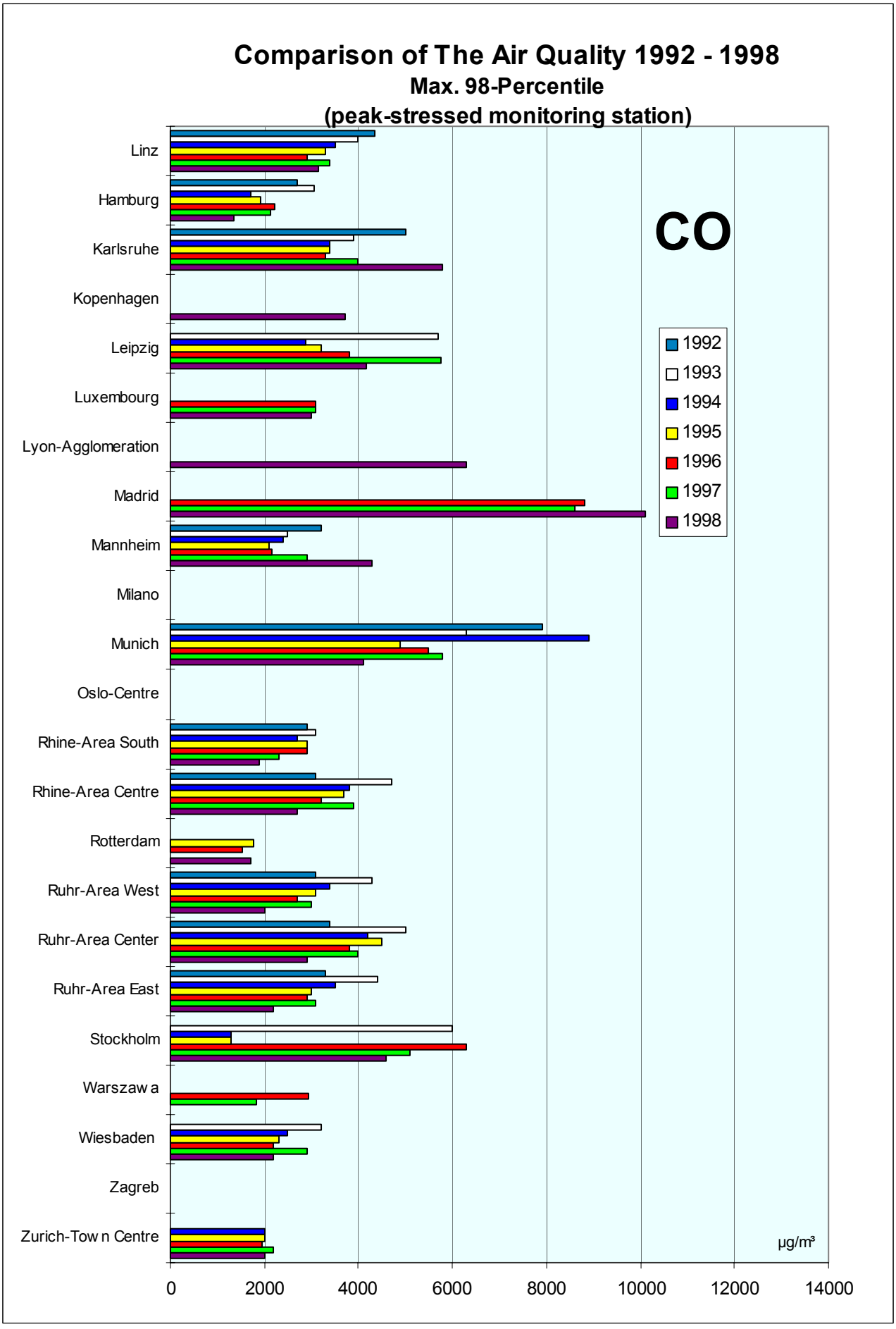

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak-stressed monitoring station)
NO
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
100
200
300
400
500
600
700
800
900

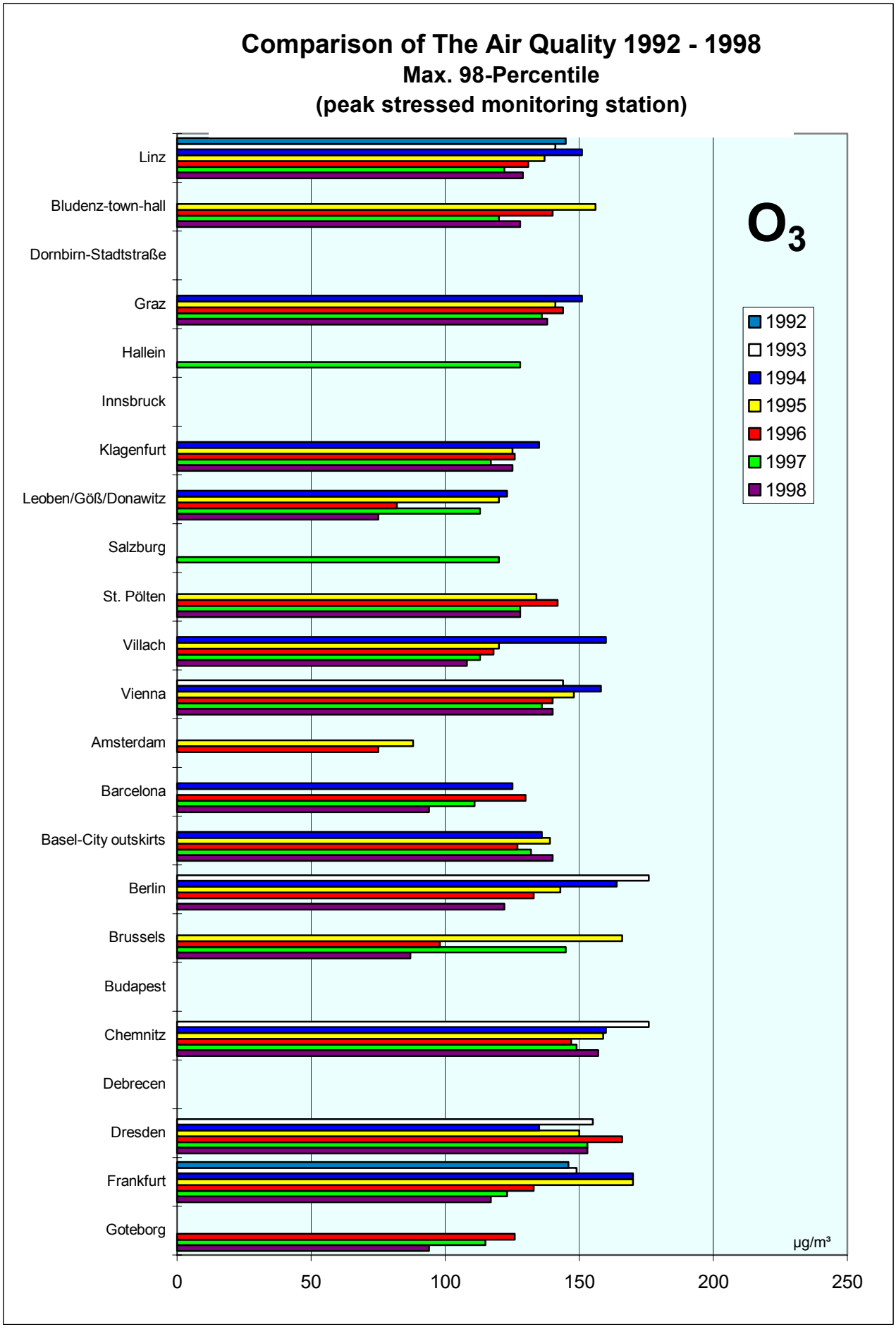

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
NO
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
100
200
300
400
500
600
700
800
900

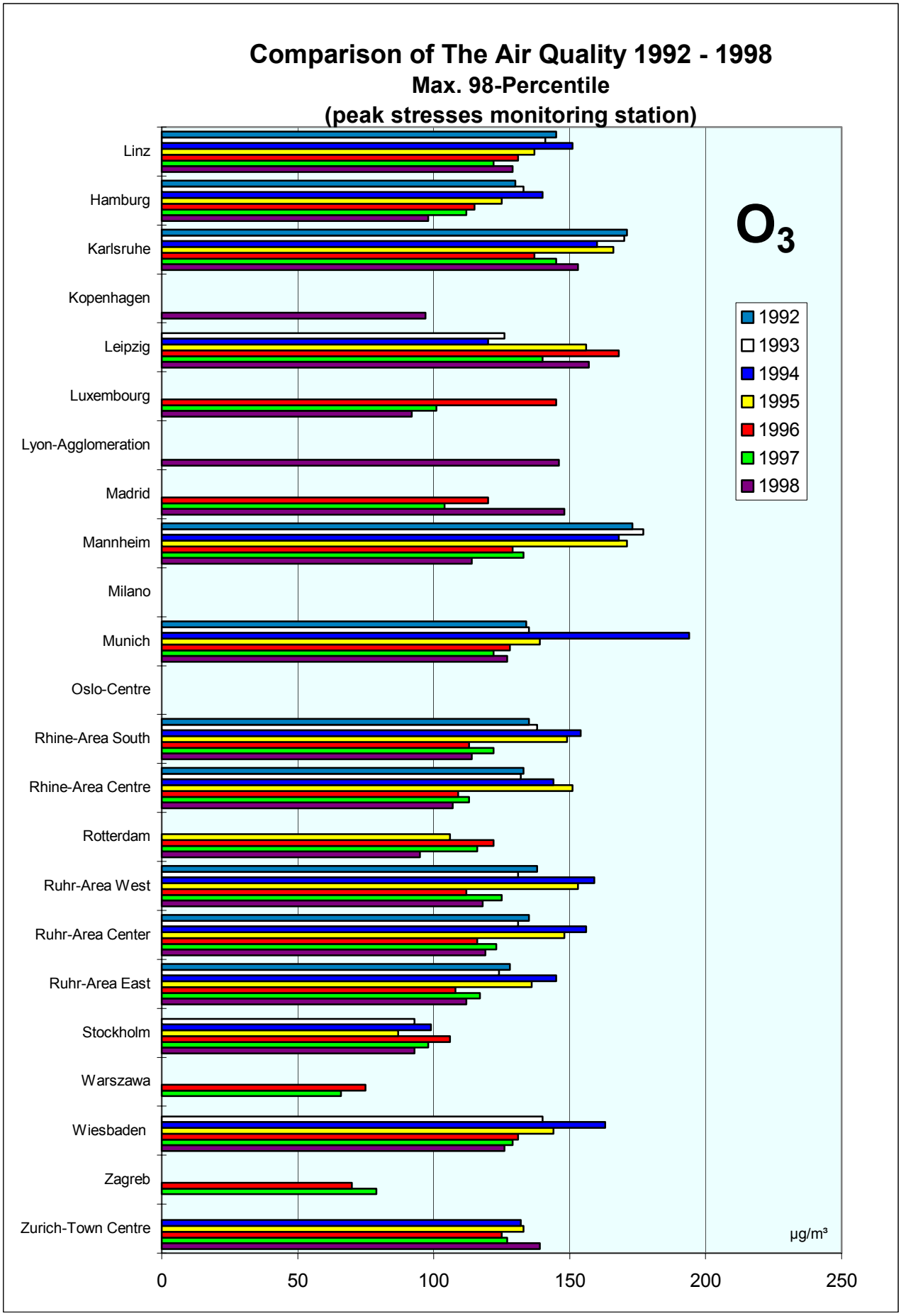

Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
NO2
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
50
100
150
200
250


Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
NO2
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszaw a
Wiesbaden
Zagreb
Zurich-Tow n Centre
1992
1993
1994
1995
1996
1997
1998
µg/m³
0
50
100
150
200
250


Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak-stressed monitoring station)
CO
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
2000
4000
6000
8000
10000
12000
14000


Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak-stressed monitoring station)
CO
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszaw a
Wiesbaden
Zagreb
Zurich-Tow n Centre
µg/m³
0
2000
4000
6000
8000
10000
12000
14000


Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stressed monitoring station)
O3
1992
1993
1994
1995
1996
1997
1998
Linz
Bludenz-town-hall
Dornbirn-Stadtstraße
Graz
Hallein
Innsbruck
Klagenfurt
Leoben/Göß/Donawitz
Salzburg
St. Pölten
Villach
Vienna
Amsterdam
Barcelona
Basel-City outskirts
Berlin
Brussels
Budapest
Chemnitz
Debrecen
Dresden
Frankfurt
Goteborg
µg/m³
0
50
100
150
200
250


Comparison of The Air Quality 1992 - 1998
Max. 98-Percentile
(peak stresses monitoring station)
O3
1992
1993
1994
1995
1996
1997
1998
Linz
Hamburg
Karlsruhe
Kopenhagen
Leipzig
Luxembourg
Lyon-Agglomeration
Madrid
Mannheim
Milano
Munich
Oslo-Centre
Rhine-Area South
Rhine-Area Centre
Rotterdam
Ruhr-Area West
Ruhr-Area Center
Ruhr-Area East
Stockholm
Warszawa
Wiesbaden
Zagreb
Zurich-Town Centre
µg/m³
0
50
100
150
200
250

Luftgütekennzahlen

der einzelnen

Vergleichsregionen

Immission Reference Values

Of All Compared Regions

Reference Numbers for Air Quality

1998

Immission-area: **Barcelona**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	2	25	81	117	283	439	-	68
Staub	4	57	90	159	573	1339	-	219
NO	5	61	211	679	1229	1255	-	325
NO2	5	57	146	194	319	372	-	171
CO	5	1380	4500	12810	18650	23200	-	8500
O3	5	28	58	97	188	207	-	94

Immission-area: **Basel - outskirts**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	7	15	31	-	48	55	28
Staub	1	24	46	112	-	-	-	-
NO	1	11	29	112	-	254	261	89
NO2	1	29	52	78	-	109	110	75
CO	1	400	700	1200	-	2100	2200	1100
O3	1	47	81	118	-	229	233	140

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Berlin**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h- mean (2) (µg/m³)	Max. 1 h- mean (2) (µg/m³)	Max. 1/2 h- mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	20	8	21	57	-	-	406	42
Staub	18	37	74	199	-	-	2062	152
NO	*) 5 \ **) 16	101 / 12	259 / 42	498 / 208	-	-	1244 / 672	614 / 140
NO2	*) 5 \ **) 16	53 / 26	85 / 40	145 / 79	-	-	255 / 175	161 / 73
CO	*) 5 \ **) 13	1400 / 400	3000 / 900	5600 / 2700	-	-	14700 / 12000	6400 / 2100
O3	***)7****)4	46 / 33	-	107 / 93	-	186 / 178	191 / 179	122/105(1-h value)

*) Straßenmeßstationen **) übrige Meßstationen ***) Stadtrandstationen ****) Stationeen im Stadtzentrum

Immission-area: **Bludenz - Town hall**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h- mean (2) (µg/m³)	Max. 1 h- mean (2) (µg/m³)	Max. 1/2 h- mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	6	16	27	71	98	121	27
Staub	1	28	46	86	181	265	360	99
NO	1	19	54	126	275	343	374	150
NO2	1	29	54	83	123	130	134	84
CO	-	-	-	-	-	-	-	-
O3	1	36	69	111	173	176	178	128

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Bruxelles**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	7	11	24	66	112	160	202	43
Staub	3	29	46	118	170	230	233	84
NO	7	45	168	307	736	1043	1071	242
NO2	7	44	85	167	208	260	277	119
CO	5	700	1600	3200	6200	7200	8100	2500
O3	5	34	65	116	213	227	237	87

Immission-area: **Budapest**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	8	42	67	106	-	-	379	-
Staub	8	49	90	363	-	-	996	-
NO	-	-	-	-	-	-	-	-
NO2	8	52	87	144	-	-	313	-
CO	8	2100	4500	8200	-	-	13700	-
O3	2	48	86	111	-	-	201	-

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: Cheminitz

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	2	9	14	60	166	-	248	68
Staub	2	44	64	221	766	-	1568	303
NO	2	31	66	276	618	-	875	461
NO2	2	41	54	134	159	-	190	138
CO	2	760	1347	5349	11878	-	14970	6849
O3	2	41	63	114	-	192	196	157

Immission-area: Debrecen

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	9	*14 / **6	*17 / **9	*121 / **45	-	-	-	*74 / **21
Staub	2	*76 / **97	*111 / **145	*181 / **312	-	-	-	*181 / **286
NO	1	*17 / **26	*33 / **27	*55 / **54	-	-	*252 / **83	-
NO2	9	*25 / **22	*30 / **28	*121 / **111	-	-	-	*73 / **70
CO	-	-	-	-	-	-	-	-
O3	2	*7 / **17	*18 / **35	*43 / **54	.	-	*112 / **140	-

*) heating term **) non Heating term

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Dornbirn - Rheintal**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	5	10	20	48	76	101	19
Staub	1	35	59	106	288	565	765	124
NO	1	28	60	200	315	396	411	148
NO2	1	34	47	80	120	160	165	79
CO	1	800	1500	3200	5400	5800	6400	2500
O3	-	-	-	-	-	-	-	-

Immission-area: **Dresden**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	2	16	34	115	193	-	224	139
Staub	2	47	63	146	276	-	724	175
NO	2	24	57	172	274	-	452	222
NO2	2	40	60	96	130	-	171	120
CO	2	545	1316	2876	4940	-	7997	3545
O3	2	38	63	103	-	181	187	153

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Untermain (Greater Frankfurt)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	5	8	22	53	79	106	113	39
Staub	5	33	64	124	639	1037	1067	119
NO	5	39	114	459	761	885	929	295
NO2	5	46	81	136	197	271	478	119
CO	4	700	1400	3700	8100	10700	11700	2800
O3	5	30	58	111	207	227	231	117

Immission-area: **Goteborg**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	3,5	6	20	40	68	-	16
Staub	1	12,8	18	58	88	139	-	41
NO	2	21,8	58	410	814	1354	-	120
NO2	3	28,3	37	118	200	211	-	77
CO	1	700	1000	3900	10200	11200	-	1400
O3	3	51,3	69	97	135	139	-	94

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: Graz

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	6	8,8	25	54	85	87	92	33
Staub	6	45,2	100	200	469	616	812	157
NO	6	31,8	111	405	689	700	776	237
NO2	6	33,8	75	123	207	215	261	99
CO	2	873	1871	3624	6991	8853	9050	2860
O3	4	50,3	110	149	177	184	185	138

Immission-area: Hallein

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	7	-	35	110	-	205	-
Staub	1	41	-	141	279	-	360	-
NO	-	-	-	-	-	-	-	-
NO2	1	41	-	86	110	-	122	-
CO	1	1250	-	-	5080	-	10310	-
O3	1	65	-	-	-	195	196	-

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: Cheminitz

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	2	9	14	60	166	-	248	68
Staub	2	44	64	221	766	-	1568	303
NO	2	31	66	276	618	-	875	461
NO2	2	41	54	134	159	-	190	138
CO	2	760	1347	5349	11878	-	14970	6849
O3	2	41	63	114	-	192	196	157

Immission-area: Debrecen

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	9	*14 / **6	*17 / **9	*121 / **45	-	-	-	*74 / **21
Staub	2	*76 / **97	*111 / **145	*181 / **312	-	-	-	*181 / **286
NO	1	*17 / **26	*33 / **27	*55 / **54	-	-	*252 / **83	-
NO2	9	*25 / **22	*30 / **28	*121 / **111	-	-	-	*73 / **70
CO	-	-	-	-	-	-	-	-
O3	2	*7 / **17	*18 / **35	*43 / **54	.	-	*112 / **140	-

*) heating term **) non Heating term

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Dornbirn - Rheintal**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	5	10	20	48	76	101	19
Staub	1	35	59	106	288	565	765	124
NO	1	28	60	200	315	396	411	148
NO2	1	34	47	80	120	160	165	79
CO	1	800	1500	3200	5400	5800	6400	2500
O3	-	-	-	-	-	-	-	-

Immission-area: **Dresden**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	2	16	34	115	193	-	224	139
Staub	2	47	63	146	276	-	724	175
NO	2	24	57	172	274	-	452	222
NO2	2	40	60	96	130	-	171	120
CO	2	545	1316	2876	4940	-	7997	3545
O3	2	38	63	103	-	181	187	153

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Untermain (Greater Frankfurt)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	5	8	22	53	79	106	113	39
Staub	5	33	64	124	639	1037	1067	119
NO	5	39	114	459	761	885	929	295
NO2	5	46	81	136	197	271	478	119
CO	4	700	1400	3700	8100	10700	11700	2800
O3	5	30	58	111	207	227	231	117

Immission-area: **Goteborg**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	3,5	6	20	40	68	-	16
Staub	1	12,8	18	58	88	139	-	41
NO	2	21,8	58	410	814	1354	-	120
NO2	3	28,3	37	118	200	211	-	77
CO	1	700	1000	3900	10200	11200	-	1400
O3	3	51,3	69	97	135	139	-	94

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: Graz

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	6	8,8	25	54	85	87	92	33
Staub	6	45,2	100	200	469	616	812	157
NO	6	31,8	111	405	689	700	776	237
NO2	6	33,8	75	123	207	215	261	99
CO	2	873	1871	3624	6991	8853	9050	2860
O3	4	50,3	110	149	177	184	185	138

Immission-area: Hallein

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	7	-	35	110	-	205	-
Staub	1	41	-	141	279	-	360	-
NO	-	-	-	-	-	-	-	-
NO2	1	41	-	86	110	-	122	-
CO	1	1250	-	-	5080	-	10310	-
O3	1	65	-	-	-	195	196	-

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Hamburg**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	8	10	23	83	234	362	533	47
Staub	8	36	66	126	372	537	552	111
NO	8	17	63	273	692	780	806	113
NO2	8	33	46	78	146	186	212	75
CO	5	588	960	2201	6056	11084	11479	1347
O3	2	37	60	97	168	182	184	98

Immission-area: **Innsbruck**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 97,5-Percentile per year (2) (µg/m³)
SO2	3	10,0	-	30	70	-	100	40
Staub	3	26,7	-	130	-	-	-	-
NO	3	39,6	-	339	-	-	713	-
NO2	3	38,4	-	104	136	-	163	-
CO	3	1160	-	3480	9280	10440	12760	-
O3	2	43,0	-	144	182	196	200	-

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Karlsruhe**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	9	20	47	112	302	536	38
Staub	3	21	38	203	479	874	965	75
NO	3	38	124	322	1109	1636	1763	300
NO2	3	44	73	99	240	286	301	116
CO	3	614	1699	4489	9550	13600	13900	3400
O3	3	38	74	102	219	222	227	153

Immission-area: **Karsruhe (monitoring station at street-level)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	-	-	-	-	-	-	-	-
Staub	-	-	-	-	-	-	-	-
NO	1	110	192	461	790	1087	1236	395
NO2	1	67	82	121	218	251	306	140
CO	1	2084	3232	6004	13200	16350	17600	5800
O3	-	-	-	-	-	-	-	-

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ
Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Klagenfurt**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	2	12	24	60	148	159	164	44
Staub	2	47	110	156	350	398	518	188
NO	2	34	100	229	470	588	633	240
NO2	2	34	63	93	137	156	161	97
CO	2	815	1670	3030	7080	7690	7890	3440
O3	2	41	78	104	152	157	157	125

Immission-area: **Kopenhagen (monitoring station at street-level)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	4,4	-	-	47	-	591	16
Staub	1	46	-	346	-	-	-	89
NO	1	83	-	-	457	481	538	226
NO2	1	43	-	-	124	187	250	90
CO	1	1201	-	3741	-	7009	8519	3704
O3	-	-	-	-	-	-	-	-

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Kopenhagen (monitoring stations at roof-level)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	-	-	-	-	-	-	-	-
Staub	-	-	-	-	-	-	-	-
NO	1	5	-	-	125	164	171	42
NO2	1	24	-	-	78	80	84	60
CO	1	352	-	1108	-	2044	2465	949
O3	1	48	70	102	-	125	145	97

Immission-area: **Leipzig**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	7	14	58	194	-	675	62
Staub	3	38	55	122	301	-	731	144
NO	3	25	83	191	474	-	612	234
NO2	3	34	53	94	131	-	151	110
CO	3	679	1569	2968	6549	-	7502	4163
O3	3	40	73	109	-	204	210	157

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Leoben/Göß/Donawitz**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	8,0	13	42	175	205	243	32
Staub	3	44,3	151	281	593	849	908	224
NO	3	24,0	75	161	343	428	454	139
NO2	3	26,3	56	96	143	152	156	81
CO	2	791	1902	4292	9371	12849	13127	2532
O3	1	32,0	62	90	157	160	161	75

Immission-area: **Linz**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	10	5,6	14	59	124	175	277	50
Staub	10	33,6	69	218	619	1075	1296	136
NO	10	23,0	72	216	585	636	672	228
NO2	10	27,3	51	110	144	177	188	97
CO	10	617	1400	4100	7500	9600	10700	3150
O3	3	41	85	114	216	219	220	129

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Luxembourg**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	2	16	34	69	113	127	132	50
Staub	1	25	40	89	173	223	261	65
NO	2	52	128	490	946	1135	1185	291
NO2	2	48	67	128	181	223	226	113
CO	1	800	1500	4000	7000	8100	9500	3000
O3	2	30	47	104	174	187	208	92

Immission-area: **Lyon-Agglomeration**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	17	15	46	137	-	341	-	66
Staub	5	31	56	141	-	504	-	114
NO	18	59	234	-	-	1434	-	484
NO2	18	49	100	165	-	312	-	156
CO	4	1300	2600	-	-	18100	-	6300
O3	8	42,6	101	137	-	310	-	146

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Madrid**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h- **) mean (2) (µg/m³)	Max. 1 h- mean (2) (µg/m³)	Max. 1/2 h- mean (2) (µg/m³)	Max. 98-Percentile ***) per year (2) (µg/m³)
SO2	27	24	82	140	323	396	-	138
Staub *)	25	40	85	168	335	423	-	-
NO	-	-	-	-	-	-	-	-
NO2	26	67	129	213	435	506	-	212
CO	26	1500	4130	9220	24320	26670	-	10100
O3	24	22	82	121	179	179	-	148

*) In Madrid particulates are < 10 µm **) Static average (not moving average)

***) max. 98 percentile of 1-h-values. Only stations having more than 75% of valid values are considered

Immission-area: **Mannheim**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h- mean (2) (µg/m³)	Max. 1 h- mean (2) (µg/m³)	Max. 1/2 h- mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	13	33	126	256	400	468	35
Staub	3	23	41	80	159	228	241	64
NO	3	29	69	166	576	736	1010	241
NO2	3	43	73	91	217	226	239	111
CO	3	441	996	2881	6050	7200	7400	1900
O3	3	38	69	92	235	273	275	144

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: Mannheim (monitoring station at street-level)

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	-	-	-	-	-	-	-	-
Staub	-	-	-	-	-	-	-	-
NO	1	83	179	465	722	819	844	339
NO2	1	68	90	123	266	338	358	133
CO	1	1520	2703	5360	10450	11600	12400	4300
O3	-	-	-	-	-	-	-	-

Immission-area: Milano

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2 *)	7	16	46	94	-	-	-	78 (24h value)
Staub	2	49	93	228	-	-	-	-
NO	10	87	324	720	-	-	-	-
NO2	10	75	129	255	-	421	-	193 (1-h value)
CO	6	2600	6100	12300	-	28500	-	-
O3	3	40	87	124	-	257	-	-

*) 1998/99

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: Munich

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile year (2) (µg/m³)	Max. month (2) (µg/m³)
SO2	8	6	14	50	158	239	333	31	55
Staub	7	43	82	276	1099	-	-	143	228
NO	8	51	146	409	775	1103	1332	340	548
NO2	8	48	69	109	172	210	275	116	142
CO	8	1000	1800	5000	11400	15600	16500	4100	7200
O3	3	39	70	112	180	189	193	127	160

Immission-area: St. Pölten

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	10	18	65	155	191	244	71
Staub	1	49	61	132	180	265	361	112
NO	1	10	15	51	162	208	223	50
NO2	1	30	48	80	99	109	125	67
CO	1	1008	1870	2360	4390	4660	5010	2330
O3	1	45	75	118	186	194	214	128

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality
1998

Immission-area: **Rhine Area Centre**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	4	11	29	-	-	-	118	44
Staub	5	44	92	-	464	-	-	168
NO	4	23	72	-	-	-	916	269
NO2	4	36	53	-	-	-	177	85
CO	4	600	1100	-	-	-	8400	2700
O3	2	30	57	-	-	208	-	107

Immission-area: **Rhine Area - South**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	8	8	16	-	-	-	164	36
Staub	8	36	60	-	402	-	-	111
NO	8	21	63	-	-	-	776	193
NO2	8	35	55	-	-	-	183	85
CO	7	500	900	-	-	-	6900	1900
O3	7	32	60	-	-	234		114

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ
Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Rotterdam**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	12	12,7	39	113	213	239	-	56
Staub	5	37,0	71	342	-	-	-	104
NO	4	22,4	84	250	733	826	-	138
NO2	4	44,1	82	140	295	304	-	101
CO	1	867	1098	2024	4780	5550	-	1710
O3	4	33,1	66	102	212	216	-	95

Immission-area: **Western Ruhr-area**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	8	11	24	-	-	-	294	60
Staub	8	42	73	-	459	-	-	136
NO	8	17	57	-	-	-	748	172
NO2	8	35	53	-	-	-	186	85
CO	8	600	1100	-	-	-	8800	2000
O3	5	32	66	-	-	235	-	118

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Central Ruhr-area**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	8	12	34	-	-	-	392	82
Staub	8	40	75	-	571	-	-	145
NO	9	23	82	-	-	-	911	252
NO2	9	37	65	-	-	-	234	104
CO	8	700	1200	-	-	-	8800	2900
O3	5	33	66	-	-	236	-	119

Immission-area: **Eastern Ruhr-area**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	9	10	27	-	-	-	1230	59
Staub	9	40	62	-	651	-	-	127
NO	9	17	51	-	-	-	798	154
NO2	9	33	55	-	-	-	177	82
CO	7	700	1200	-	-	-	8500	2200
O3	4	32	55	-	-	236	-	112

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Salzburg**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	3	7	-	41	79	-	132	-
Staub	3	34	-	127	235	-	283	-
NO	-	-	-	-	-	-	-	-
NO2	3	37,7	-	100	142	-	210	-
CO	2	1130	-	-	8310		10350	-
O3	3	51,7	-	-	-	200	202	-

Immission-area: **Stockholm (monitoring station at street-level)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	-	-	-	-	-	-	-	-
Staub	-	-	-	-	-	-	-	-
NO	2	67	118	294	703	1067	-	344
NO2	2	41	59	105	161	188	-	104
CO	2	1300	1700	5300	21300	24200	-	4600
O3	-	-	-	-	-	-	-	-

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Stockholm (monitoring stations at roof-level)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	2,8	6	12	19	42	-	12
Staub	-	-	-	-	-	-	-	-
NO	2	8	14	50	203	242	-	58
NO2	2	22	28	54	78	85	-	57
CO	2	400	600	1200	2400	3600	-	1000
O3	2	47	68	101	123	127	-	93

Immission-area: **Villach**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	10	21	44	68	71	72	32
Staub	1	41	66	91	186	269	337	106
NO	1	34	84	214	396	419	429	177
NO2	1	33	51	84	139	145	192	82
CO	1	1060	2000	3440	7120	8400	8660	3850
O3	1	32	54	85	140	145	147	108

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: Vienna

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max.99,9-Percentil 3-h-mean (2) (µg/m³)	Max.99,9-Percentil 1 h-mean (2) (µg/m³)	Max.99,9-Percentil 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	17	10	20	67	100	101	101	44
Staub	17	36	103	203	355	381	383	215
NO	17	21	184	396	661	712	716	496
NO2	17	34	77	151	198	199	199	138
CO	7	576	1580	3380	5670	5860	5940	3730
O3	5	54	101	162	197	202	204	140

Immission-area: Rhein-Main (Wiesbaden)

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	8	18	38	55	91	99	32
Staub	1	34	53	100	203	234	406	106
NO	1	28	94	368	620	740	740	225
NO2	1	38	61	106	133	145	158	93
CO	1	700	1200	3200	5600	6500	9100	2200
O3	1	35	62	113	201	218	220	126

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz

Reference Numbers for Air Quality

1998

Immission-area: **Zagreb**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	9	25	68	477	-	-	-	100
Staub	4	74	156	295	-	-	-	246
NO	-	-	-	-	-	-	-	-
NO2	5	40	62	182	-	-	-	104
CO	-	-	-	-	-	-	-	-
O3	3	-	-	63	-	94	-	-

Immission-area: **Zurich (Centre)**

	# of monitoring stations	annual mean (1) (µg/m³)	Max. monthly mean (2) (µg/m³)	Max. daily mean (2) (µg/m³)	Max. 3-h-mean (2) (µg/m³)	Max. 1 h-mean (2) (µg/m³)	Max. 1/2 h-mean (2) (µg/m³)	Max. 98-Percentile per year (2) (µg/m³)
SO2	1	10	26	58	-	109	118	46
Staub	1	24	44	115	-	-	-	-
NO	1	21	58	238	-	388	404	163
NO2	1	39	61	88	-	129	138	91
CO	1	600	1100	2600	-	4300	4500	2000
O3	1	44	82	111	-	204	207	139

1 arithmetic mean of all monitoring stations of an immission-area

2 highest monitored value of an immission-area

MAGISTRAT LINZ

Amt für Natur- und Umweltschutz