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Luftgütedaten 1997 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 1997 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:

2. 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),
3. the density of distribution of the monitoring stations is different,
4. 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	-	-
	Graz	6	6	6	6	2	4
	Hallein	3	1	-	1	1	1
	Innsbruck	3	3	3	3	3	2
	Klagenfurt	2	2	2	2	2	2
	Leoben/Göß/Donawitz	3	3	3	3	-	1
	Linz	10	10	10	10	10	3
	Salzburg	3	3	-	3	2	3
	St. Pölten	1	1	1	1	1	1
	Vienna	18	17	18	18	7	5
	Villach	1	1	1	1	1	1
Belgium	Brussels	7	3	6	6	3	3
Croatia	Zagreb	9	4	-	6	-	3
Germany	Berlin	21	19	22	22	18	11
	Chemnitz	2	2	2	2	2	2
	Dresden	2	2	2	2	2	2
	Frankfurt	10	10	10	10	5	10
	Hamburg	11	11	11	11	7	5
	Karlsruhe	3	3	3	3	3	3
	Leipzig	3	3	3	3	3	3
	Mannheim	3	3	3	3	3	3
	Rhine Area Centre (Region Düsseldorf)	4	4	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	8	8	7	5
	Ruhr Area West (Region Duisburg, Oberhausen)	8	8	8	8	8	5
	Munich	8	7	8	8	8	3
	Wiesbaden	3	3	3	3	1	3
Hungary	Budapest	8	8	8	8	8	2
	Debrecen	11	2	2	11	1	2
Italy	Milan	7	3	10	10	6	3
Luxemburg	Luxemburg	2	1	2	2	1	2
Netherlands	Amsterdam	-	-	-	-	-	-
	Rotterdam	12	5	3	3	-	3

cont. -->

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

	Monitored Area	SO_2	partic-ulates	NO	NO_2	CO	O_3
Norway	Oslo-Zentrum	-	-	-	-	-	-
Poland	Warsaw	1	1	1	1	1	1
Spain	Barcelona	2	4	5	5	5	4
	Madrid	23	23	-	21	17	5
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**

Amsterdam	OMEGAM, H.J.E. Wenckebachweg 120, Postbus 94685, NL-1090 GR Amsterdam
Barcelona, Madrid	Ministerio de Medio Ambiente, Pedro de Pablo Ricote E-28071 Madrid
Berlin	Umweltbundesamt Fachbereich II, 1.7, Bismarckplatz 1, D-1000 Berlin 33
Bludenz, Dornbirn	Umweltinstitut des Landes Vorarlberg, Montfortstraße 4, A-6901 Bregenz
Brussels	Cellule Interregionale de L´Environnement Celine, 310, av. de la Couronne, B-1050 Bruxelles
Budapest	Institute of State Public Health and Medical Officer Service Municipal Institute of Budapest 1393. Budapest 62. Pf.: 412., Hungary
Chemnitz, Dresden,Leipzig	Sächsisches Landesamt für Umwelt und Geologie Postfach 80 D-01445 Radebeul
Debrecen	Debrecen Megyei Jogú Város Polgármesteri Hivatal Föépítészi Iroda Környezetvédelmi Csoport, Piac u. 20, H-4024 Debrecen
Frankfurt, Wiesbaden	Hessische Landesanstalt für Umwelt, Postfach 3209, D-65022 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, Abt. IIIf 3 Immissionsüberwachung A-6010 Innsbruck
Karlsruhe, Mannheim	LIS Baden-Württemberg, Abteilung 3, Postfach 210752, D-76157 Karlsruhe
Klagenfurt, Villach	Amt der Kärntner Landesregierung, Abt. 15 Umweltschutz und Technik, Flatschacher Straße 70, A-9020 Klagenfurt
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
Milan	Azienda U.S.S.L.-Ambito Territoriale N. 38, 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
Oslo	Norsk institutt for luftforskning, P.O. Box 100, Instituttveien 18, N-2007 Kjeller
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 12, 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
Warsaw	Institute of Environmental Protection Air Protection Division PL-00-992 Warsaw
Zagreb	State Directorate for Environmet Ulica grada Vukovara 78 HR-10000 Zagreb Croatia

Luftgütevergleich

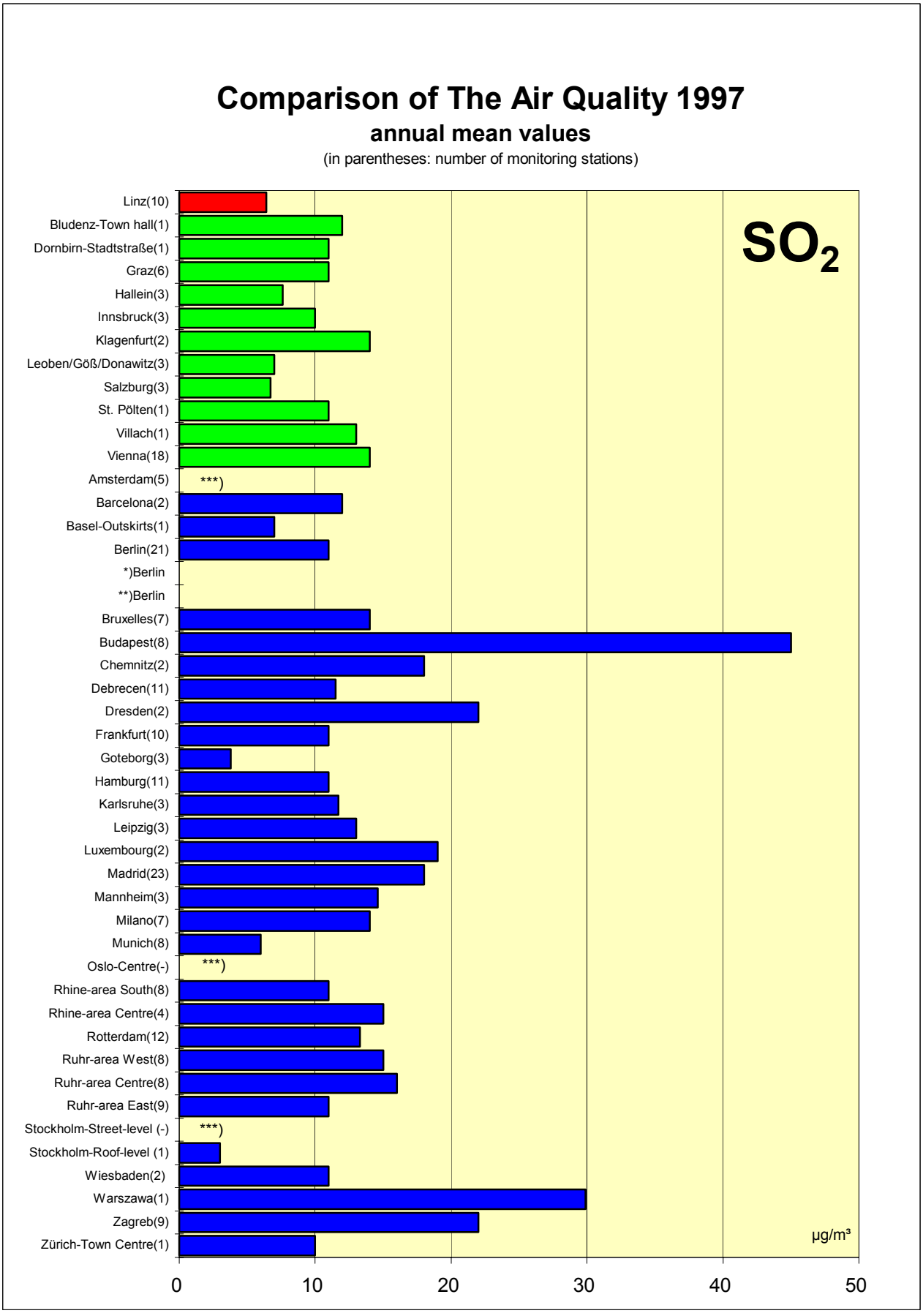
1997

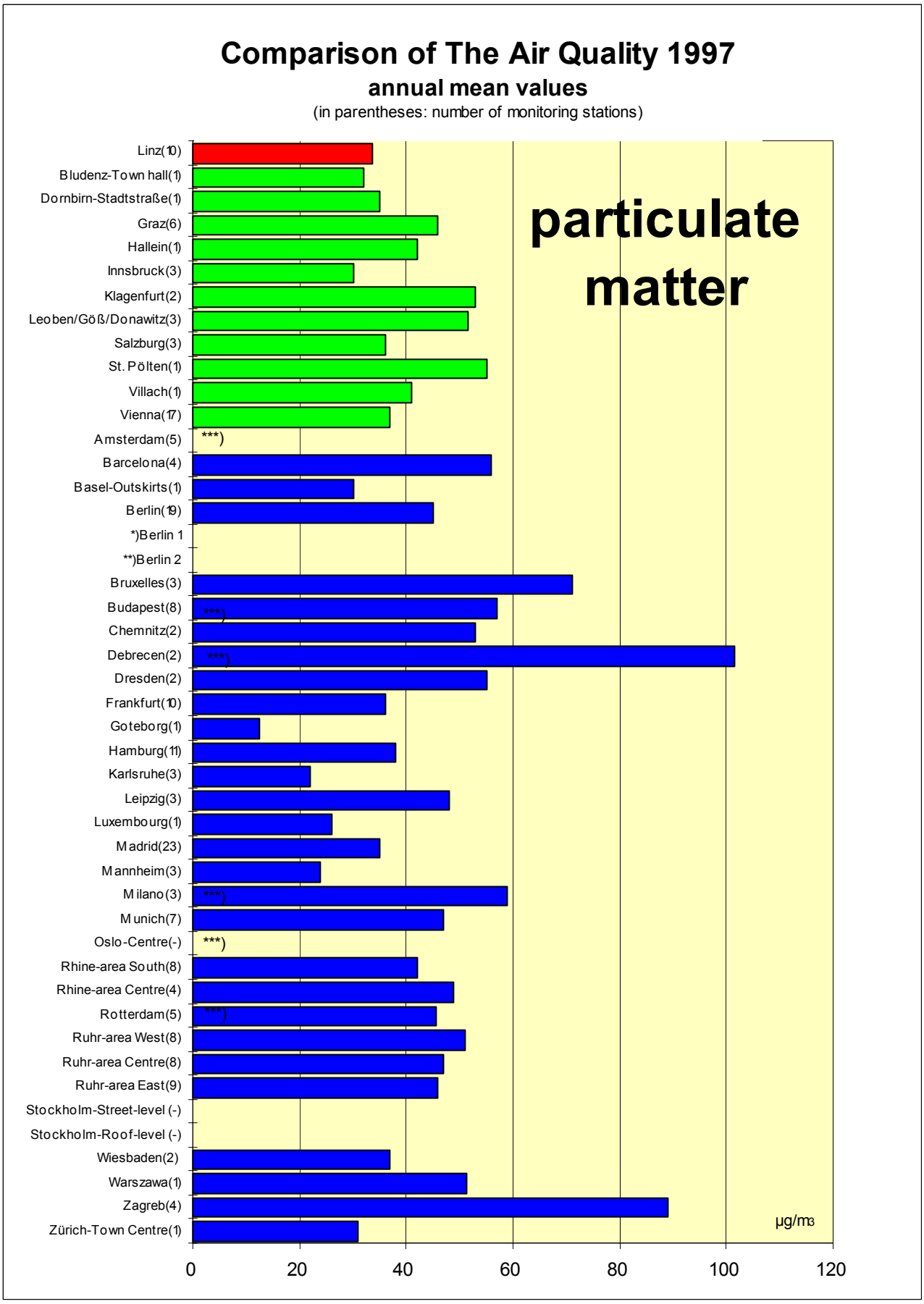
Jahresmittelwert (Gebietsmittel)

Comparison of The Air Quality

1997

Annual Mean Values


Comparison of The Air Quality 1997
annual mean values
(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(18)
Amsterdam(5)
***)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin
**)Berlin
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(23)
Mannheim(3)
Milano(7)
Munich(8)
Oslo-Centre(-)
***)
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(2)
Warszawa(1)
Zagreb(9)
Zürich-Town Centre(1)
µg/m³
0
10
20
30
40
50


Comparison of The Air Quality 1997
annual mean values
(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)
Amsterdam(5)
***)
Barcelona(4)
Basel-Outskirts(1)
Berlin(19)
*)Berlin 1
**)Berlin 2
Bruxelles(3)
Budapest(8)
***)
Chemnitz(2)
Debrecen(2)
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Dresden(2)
Frankfurt(10)
Goteborg(1)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(23)
Mannheim(3)
Milano(3)
***)
Munich(7)
Oslo-Centre(-)
***)
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(2)
Warszawa(1)
Zagreb(4)
Zürich-Town Centre(1)
µg/m3
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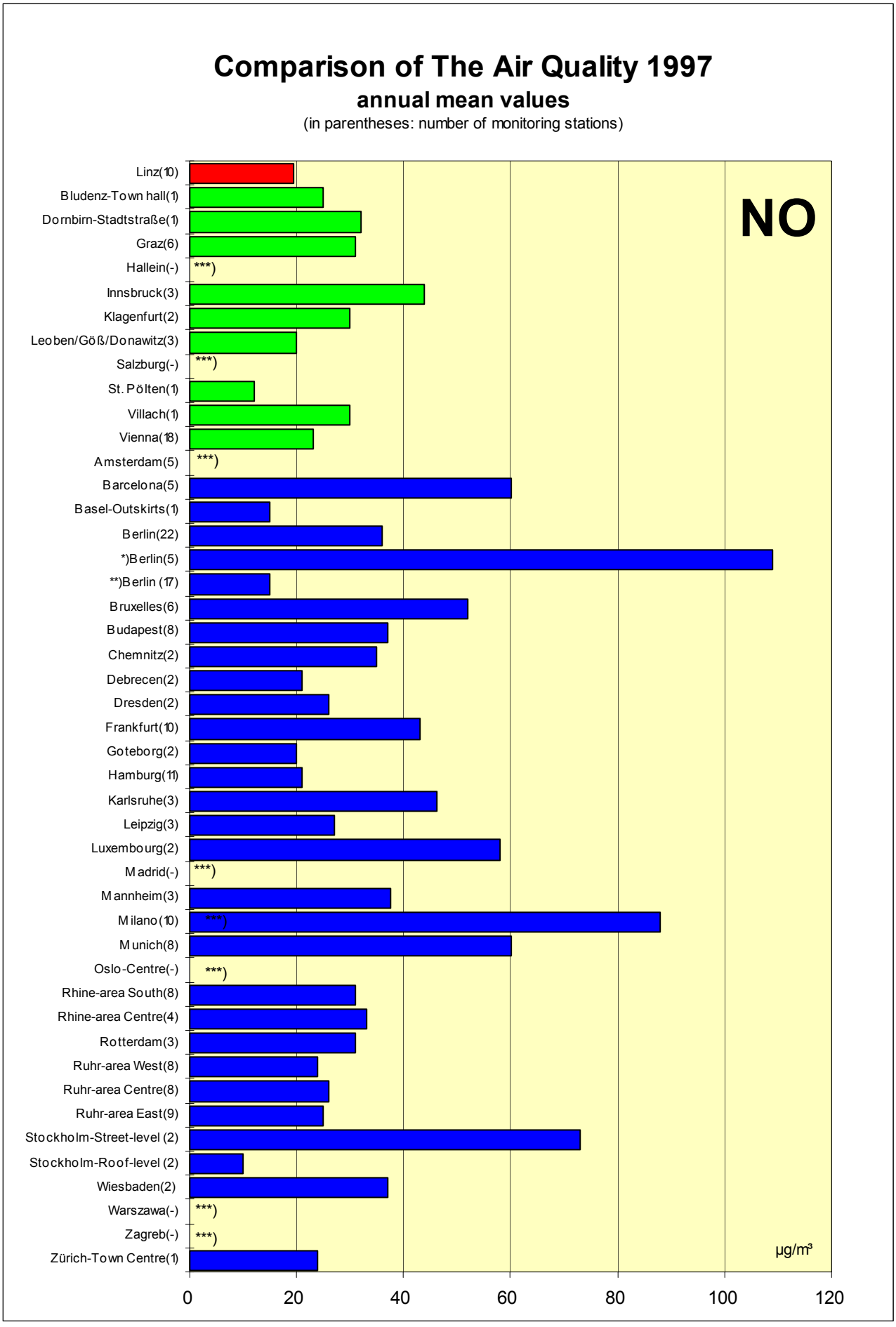
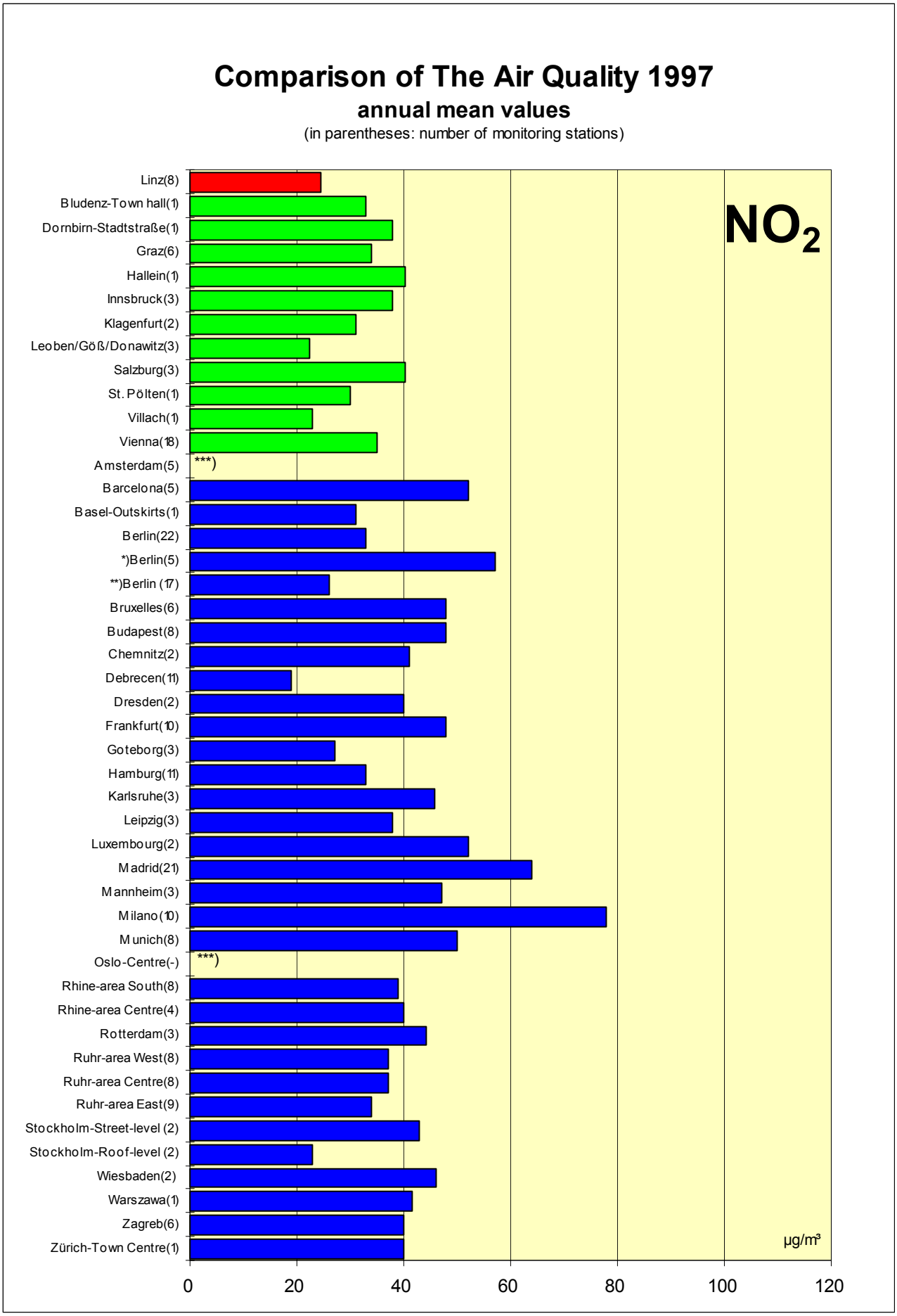
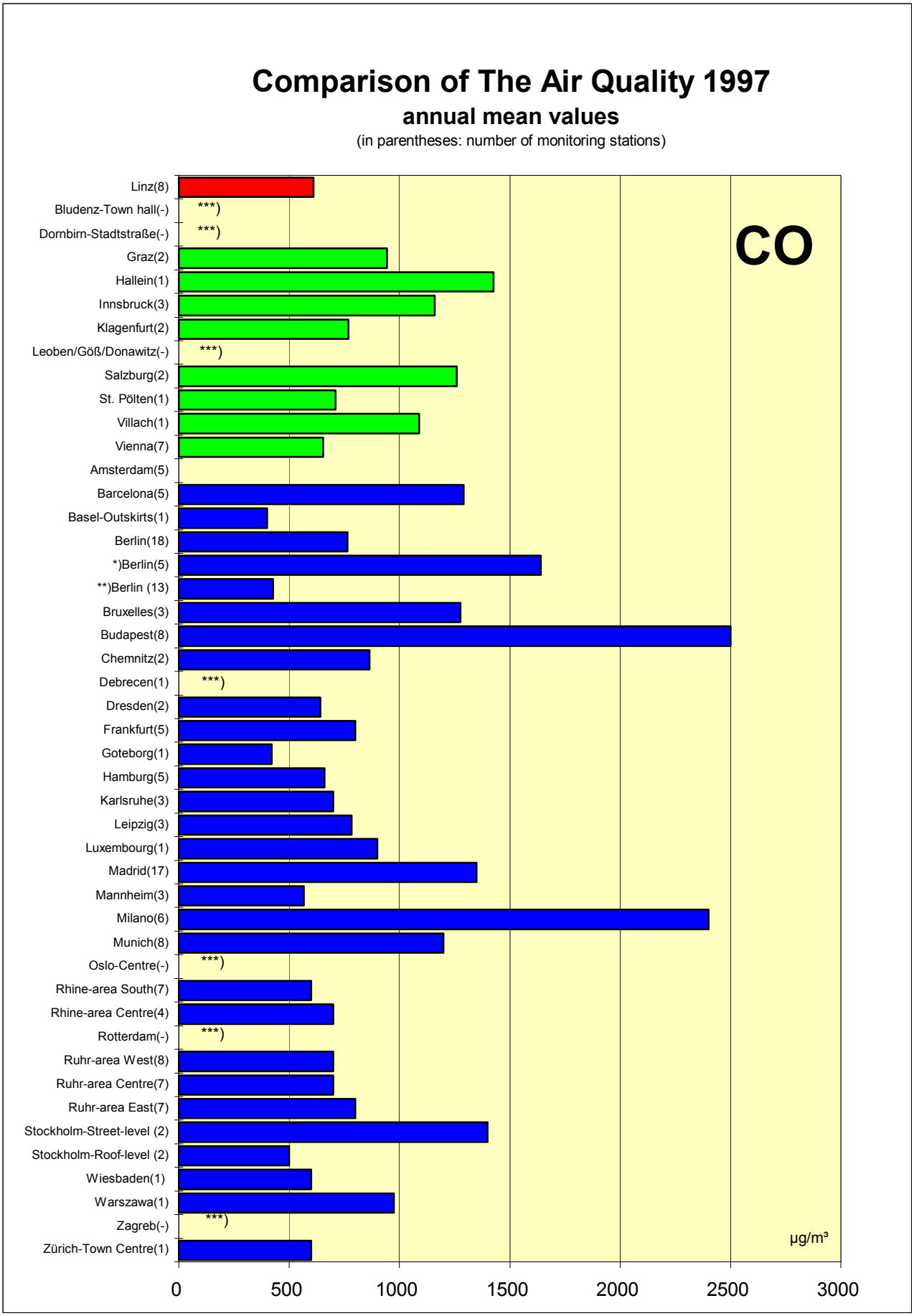
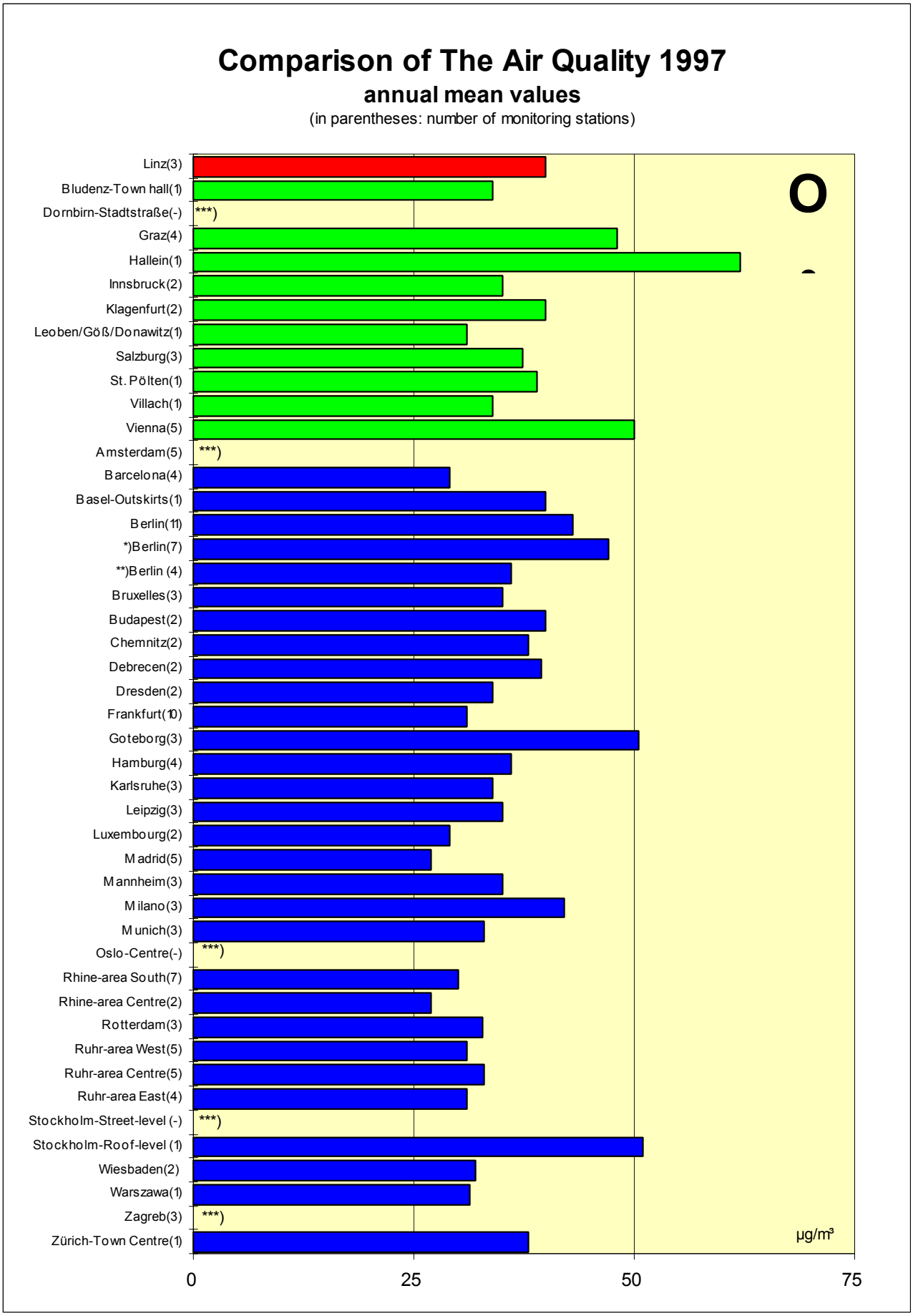
40
60
80
100
120


Comparison of The Air Quality 1997
annual mean values
(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(18)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin (17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(2)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(-)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(-)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
20
40
60
80
100
120


Comparison of The Air Quality 1997
annual mean values
(in parentheses: number of monitoring stations)
NO2
Linz(8)
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(18)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin (17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(21)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(6)
Zürich-Town Centre(1)
µg/m³
0
20
40
60
80
100
120


Comparison of The Air Quality 1997
annual mean values
(in parentheses: number of monitoring stations)
CO
Linz(8)
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)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin (13)
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(17)
Mannheim(3)
Milano(6)
Munich(8)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(-)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Warszawa(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
500
1000
1500
2000
2500
3000


Comparison of The Air Quality 1997
annual mean values
(in parentheses: number of monitoring stations)
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)
Amsterdam(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(4)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(5)
Mannheim(3)
Milano(3)
Munich(3)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(3)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
Stockholm-Roof-level (1)
Wiesbaden(2)
Warszawa(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
25
50
75

Luftgütevergleich

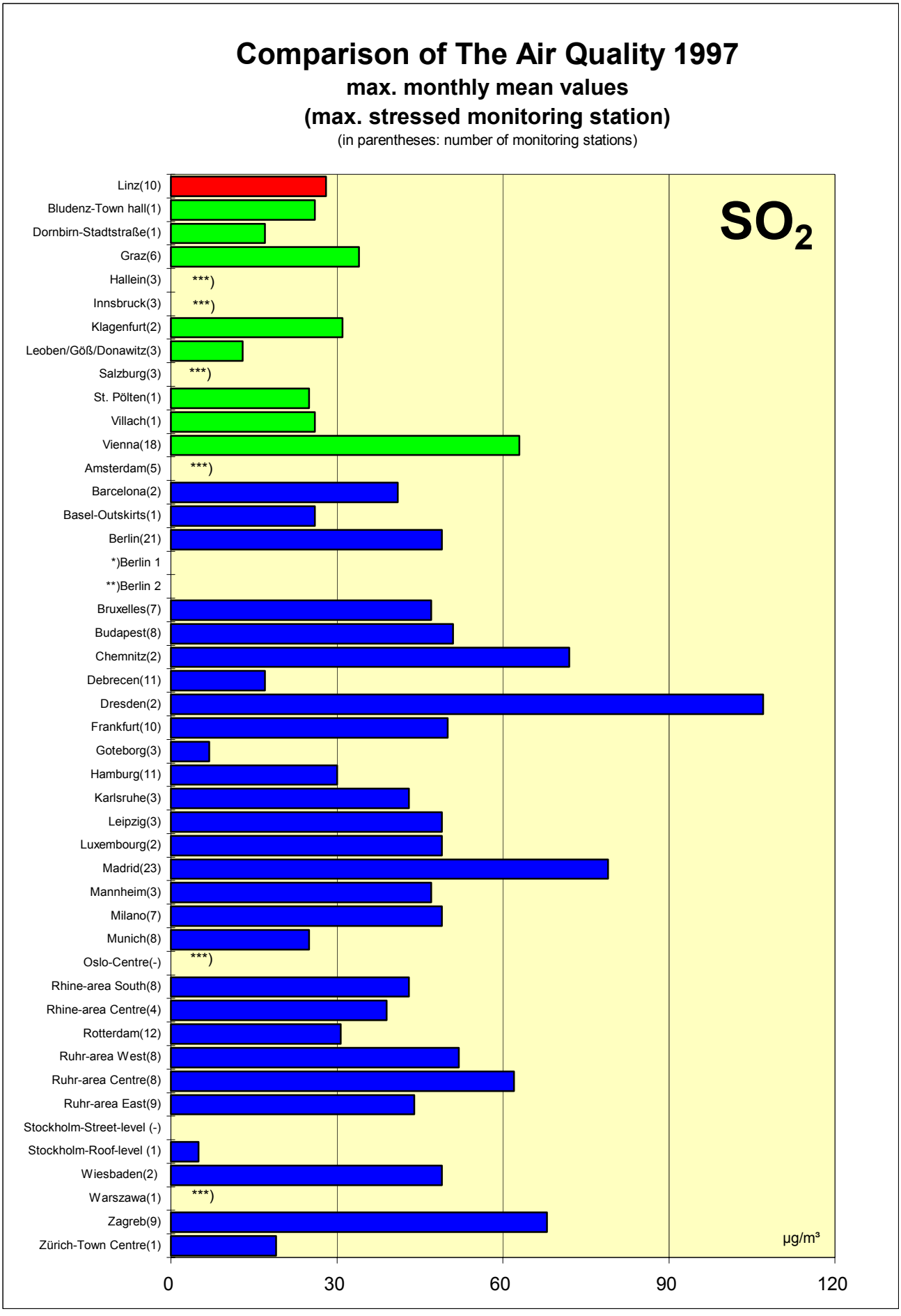
1997

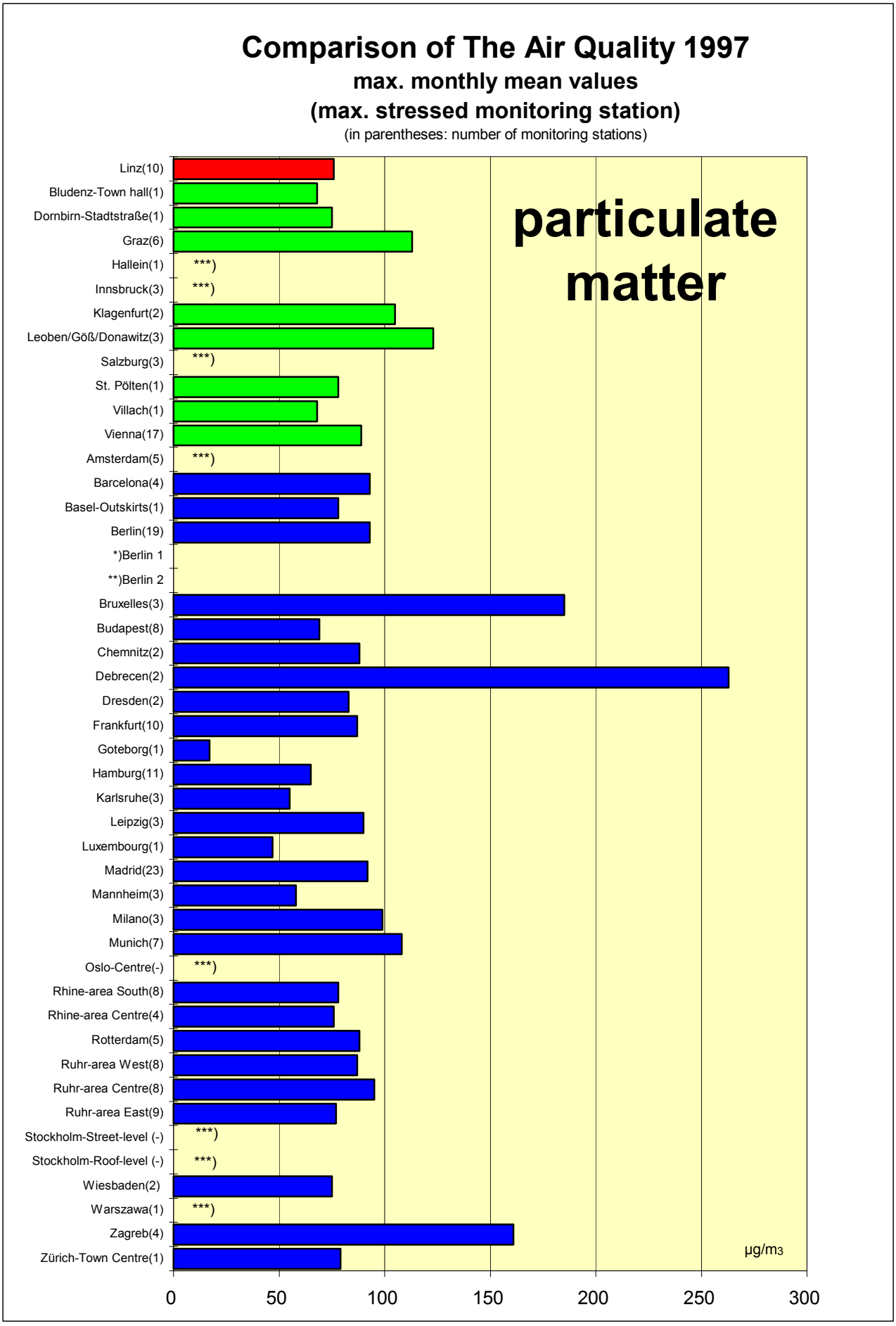
max. Monatsmittelwert

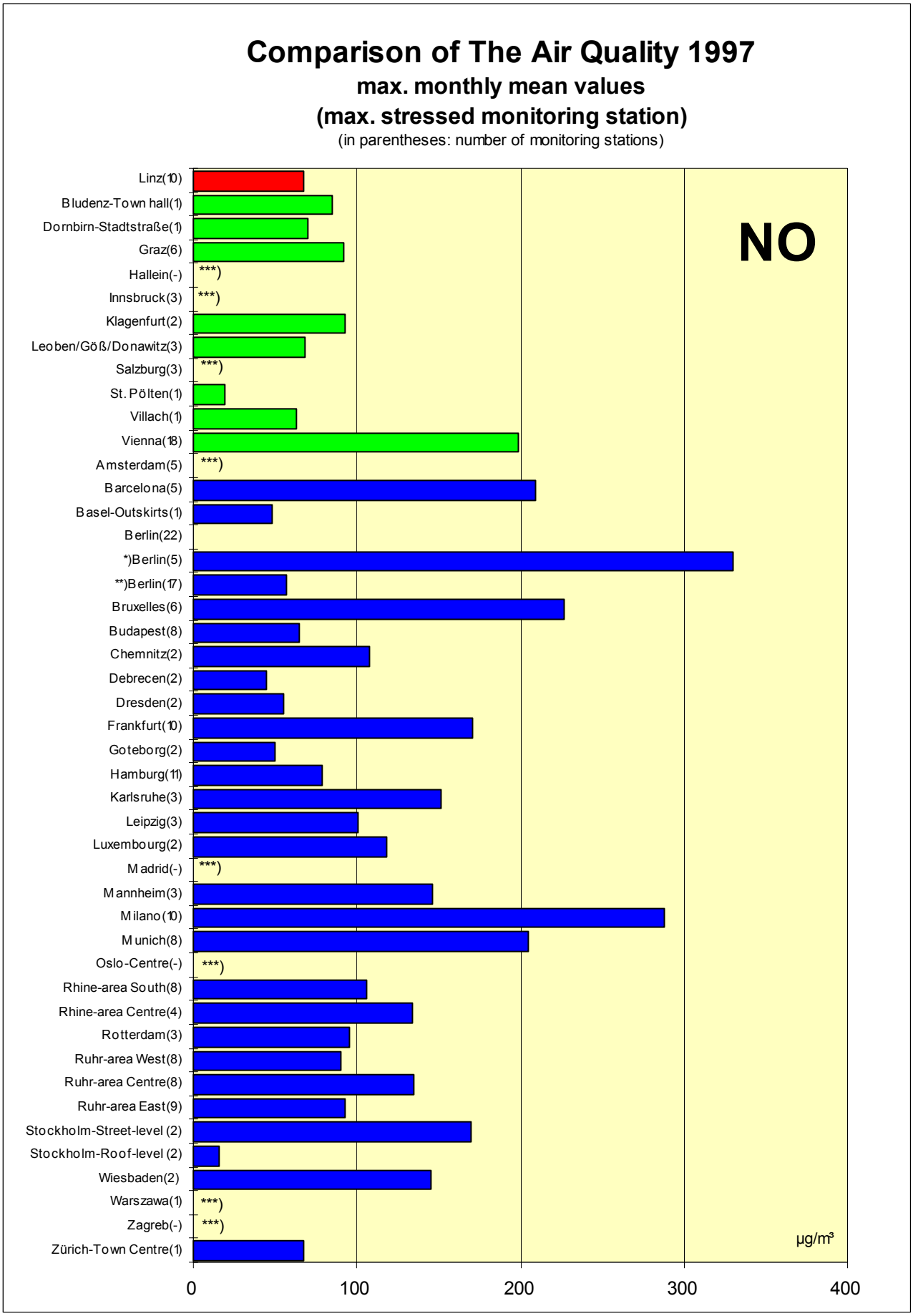
Comparison of The Air Quality

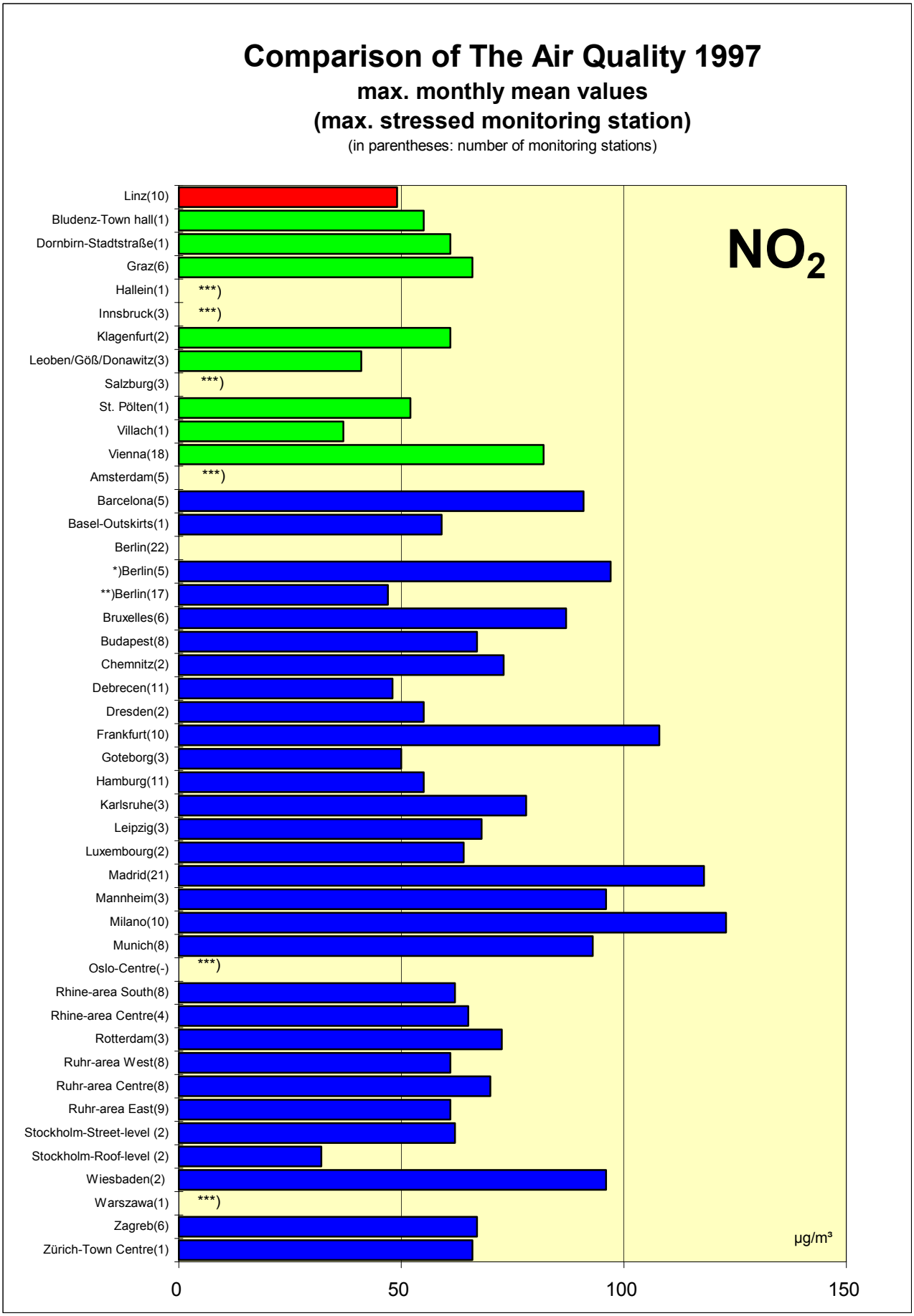
1997

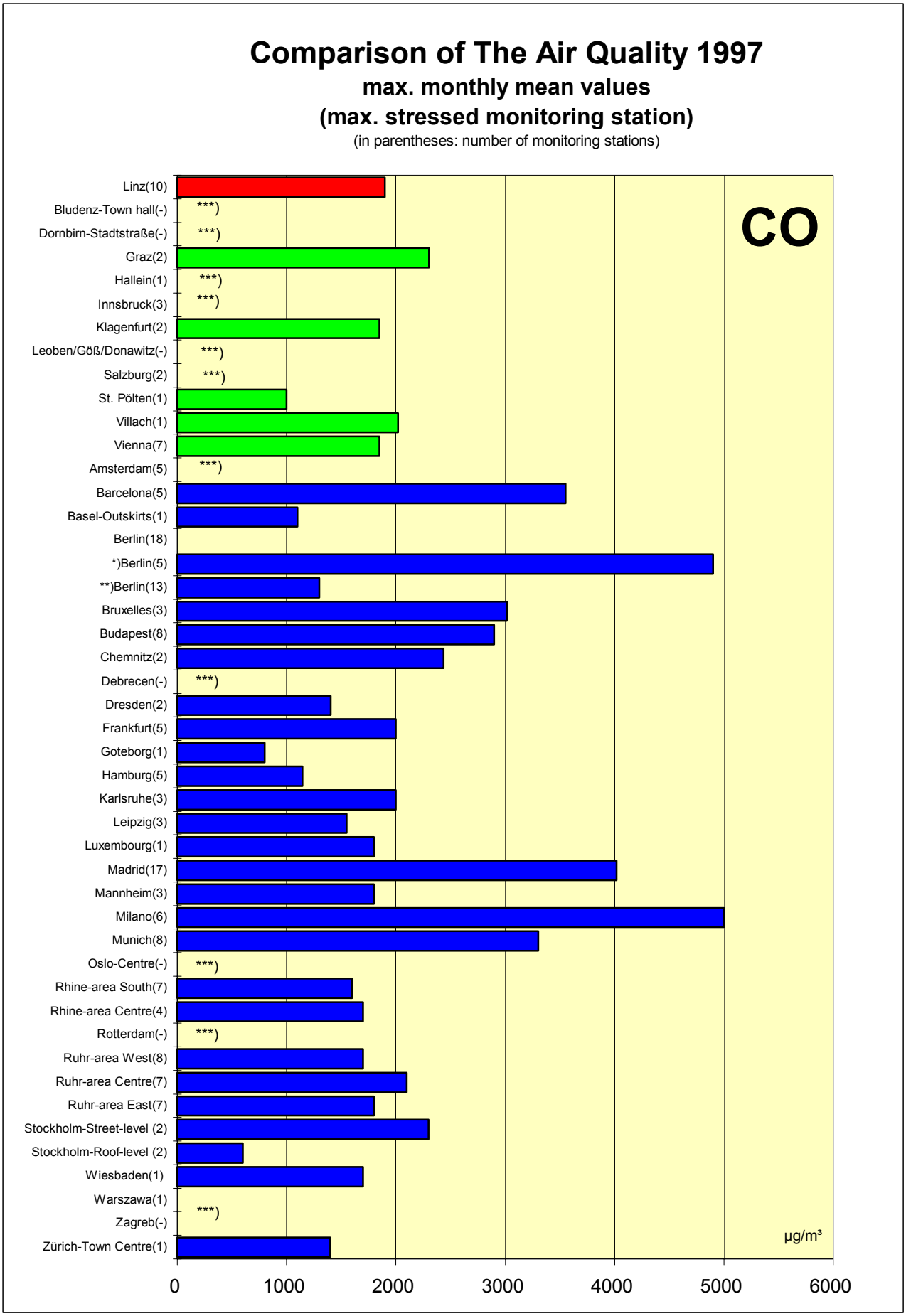
Max. Monthly Mean Values

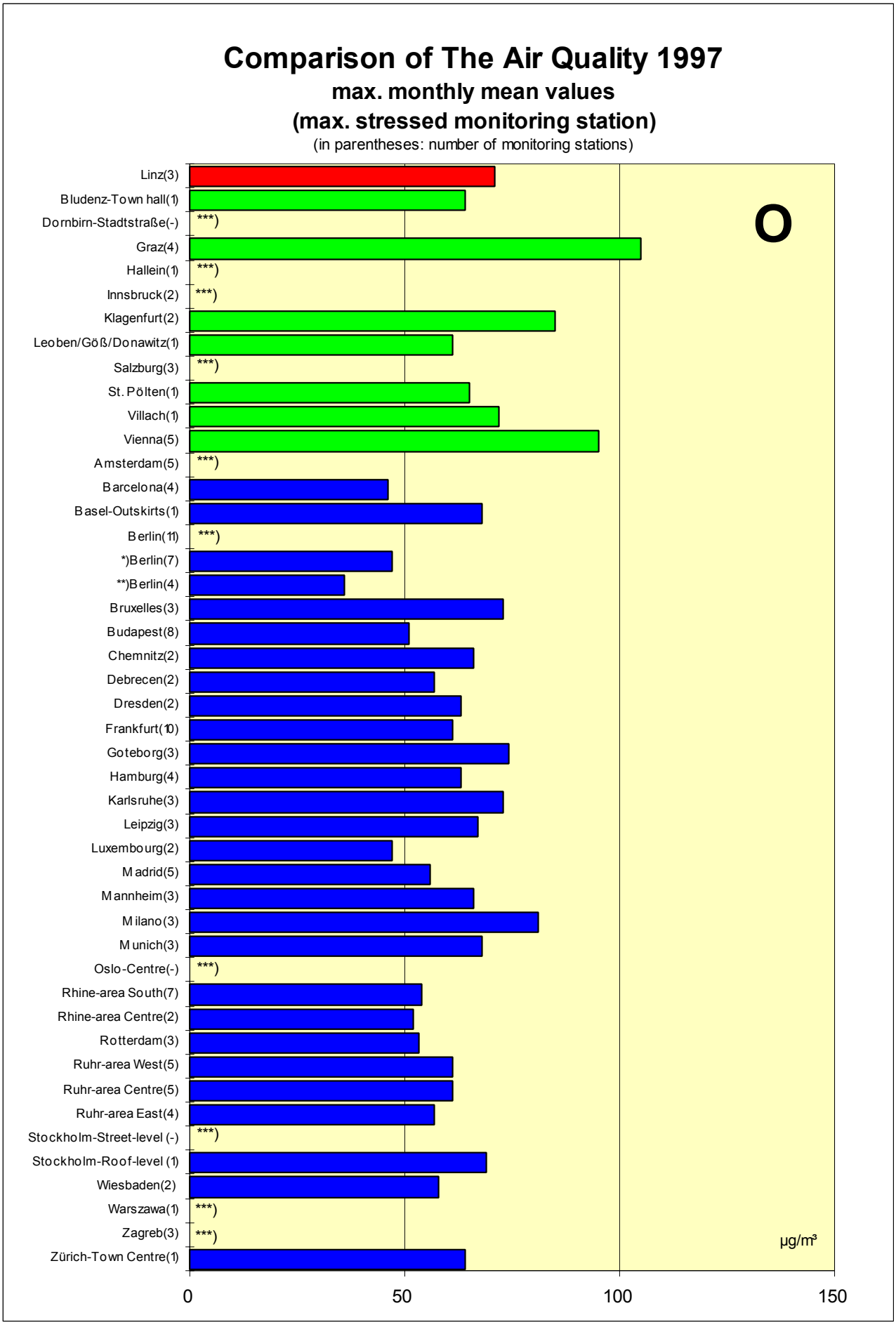

Comparison of The Air Quality 1997
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
***)
Innsbruck(3)
***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
***)
St. Pölten(1)
Villach(1)
Vienna(18)
Amsterdam(5)
***)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin 1
**)Berlin 2
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(23)
Mannheim(3)
Milano(7)
Munich(8)
Oslo-Centre(-)
***)
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(2)
Warszawa(1)
***)
Zagreb(9)
Zürich-Town Centre(1)
µg/m³
0
30
60
90
120


Comparison of The Air Quality 1997
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)
Amsterdam(5)
Barcelona(4)
Basel-Outskirts(1)
Berlin(19)
*)Berlin 1
**)Berlin 2
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(1)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(23)
Mannheim(3)
Milano(3)
Munich(7)
Oslo-Centre(-)
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(2)
Warszawa(1)
Zagreb(4)
Zürich-Town Centre(1)
***)
µg/m3
0
50
100
150
200
250
300


Comparison of The Air Quality 1997
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(3)
St. Pölten(1)
Villach(1)
Vienna(18)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(2)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(-)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
100
200
300
400


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(21)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
***)
Zagreb(6)
Zürich-Town Centre(1)
µg/m³
0
50
100
150


Comparison of The Air Quality 1997
max. monthly 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)
Amsterdam(5)
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)
Leipzig(3)
Luxembourg(1)
Madrid(17)
Mannheim(3)
Milano(6)
Munich(8)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(-)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Warszawa(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
1000
2000
3000
4000
5000
6000


Comparison of The Air Quality 1997
max. monthly mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O
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)
Amsterdam(5)
Barcelona(4)
Basel-Outskirts(1)
Berlin(11)
*)Berlin(7)
**)Berlin(4)
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(4)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(5)
Mannheim(3)
Milano(3)
Munich(3)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(3)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
Stockholm-Roof-level (1)
Wiesbaden(2)
Warszawa(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
50
100
150

Luftgütevergleich

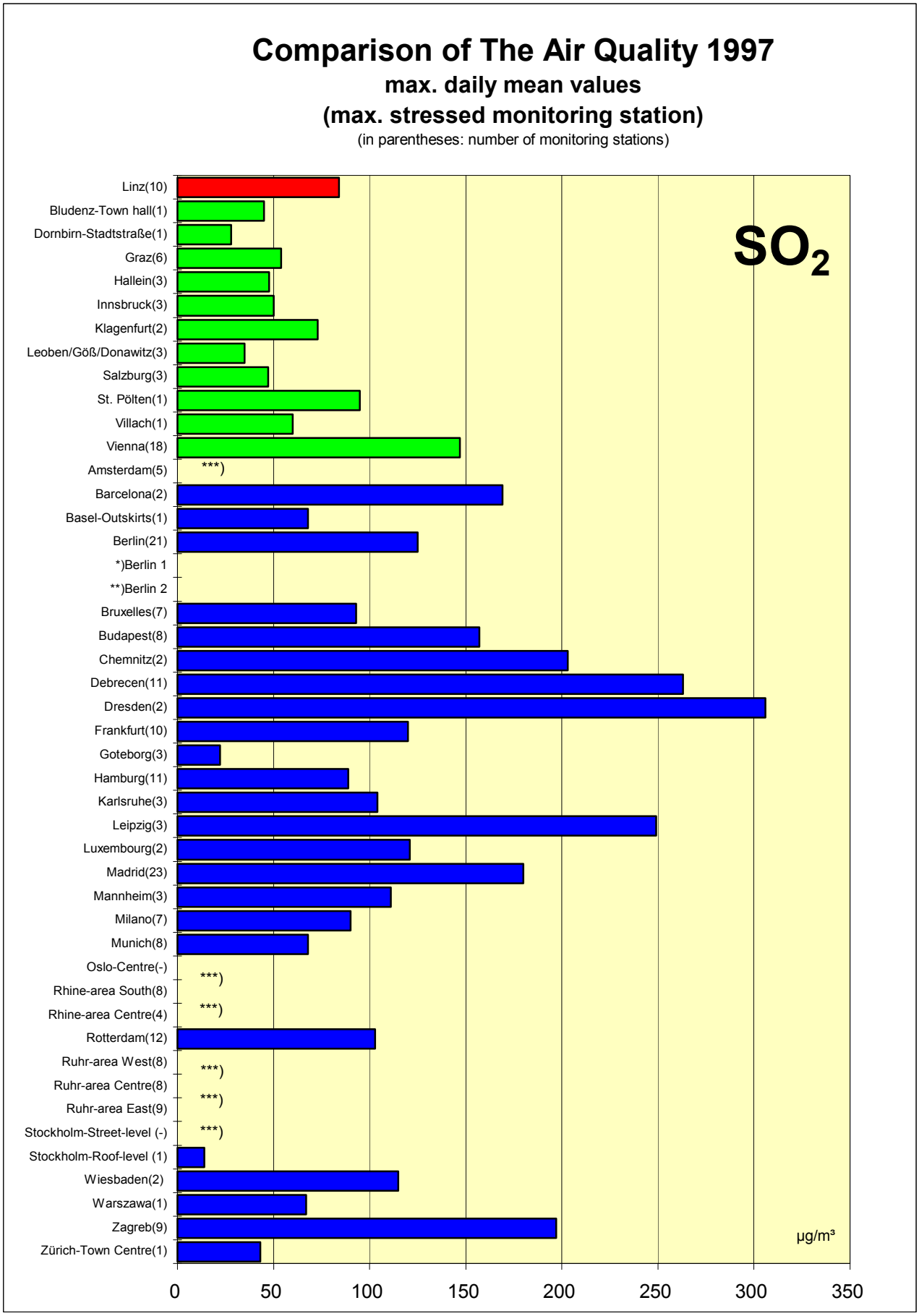
1997

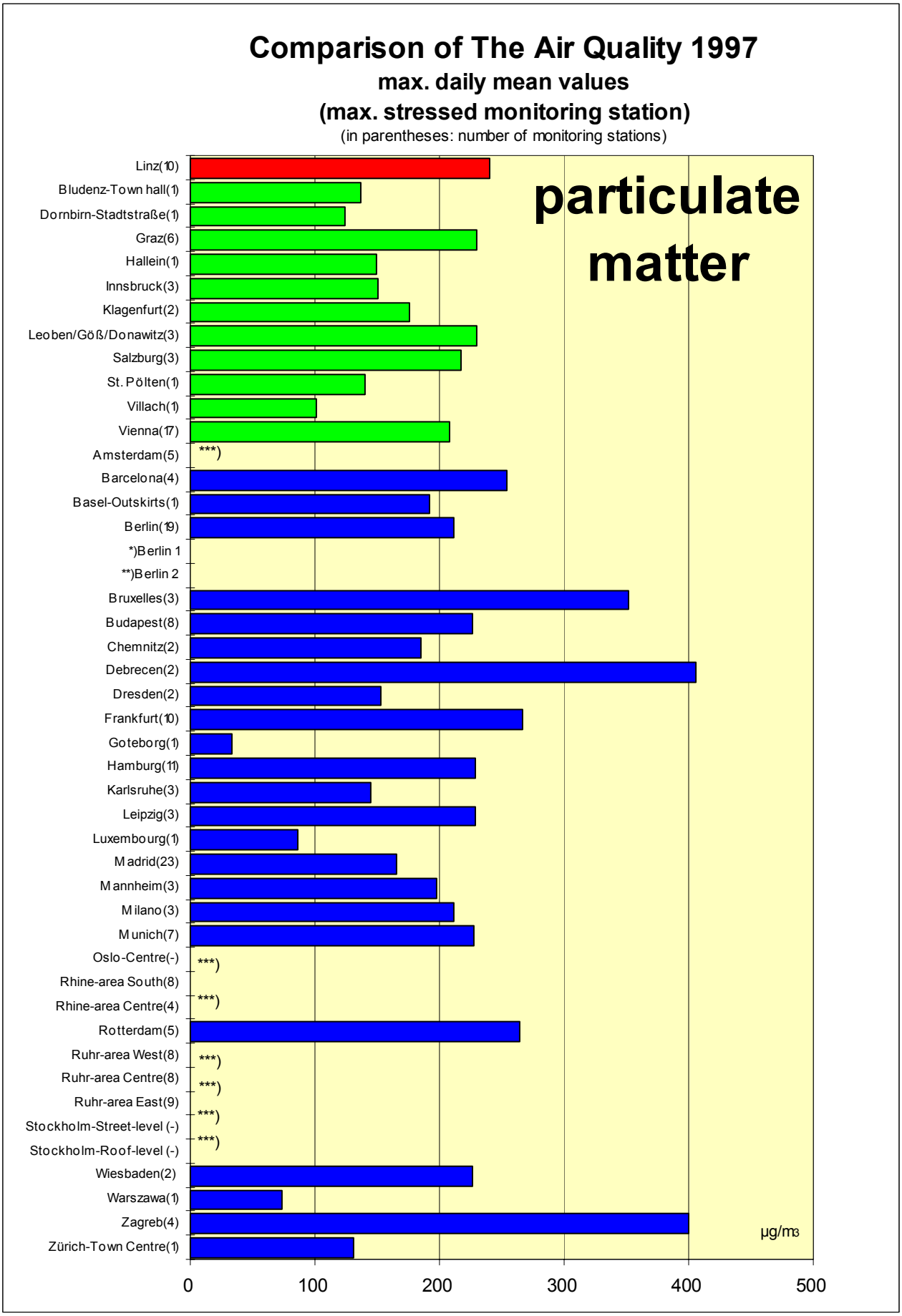
max. Tagesmittelwert

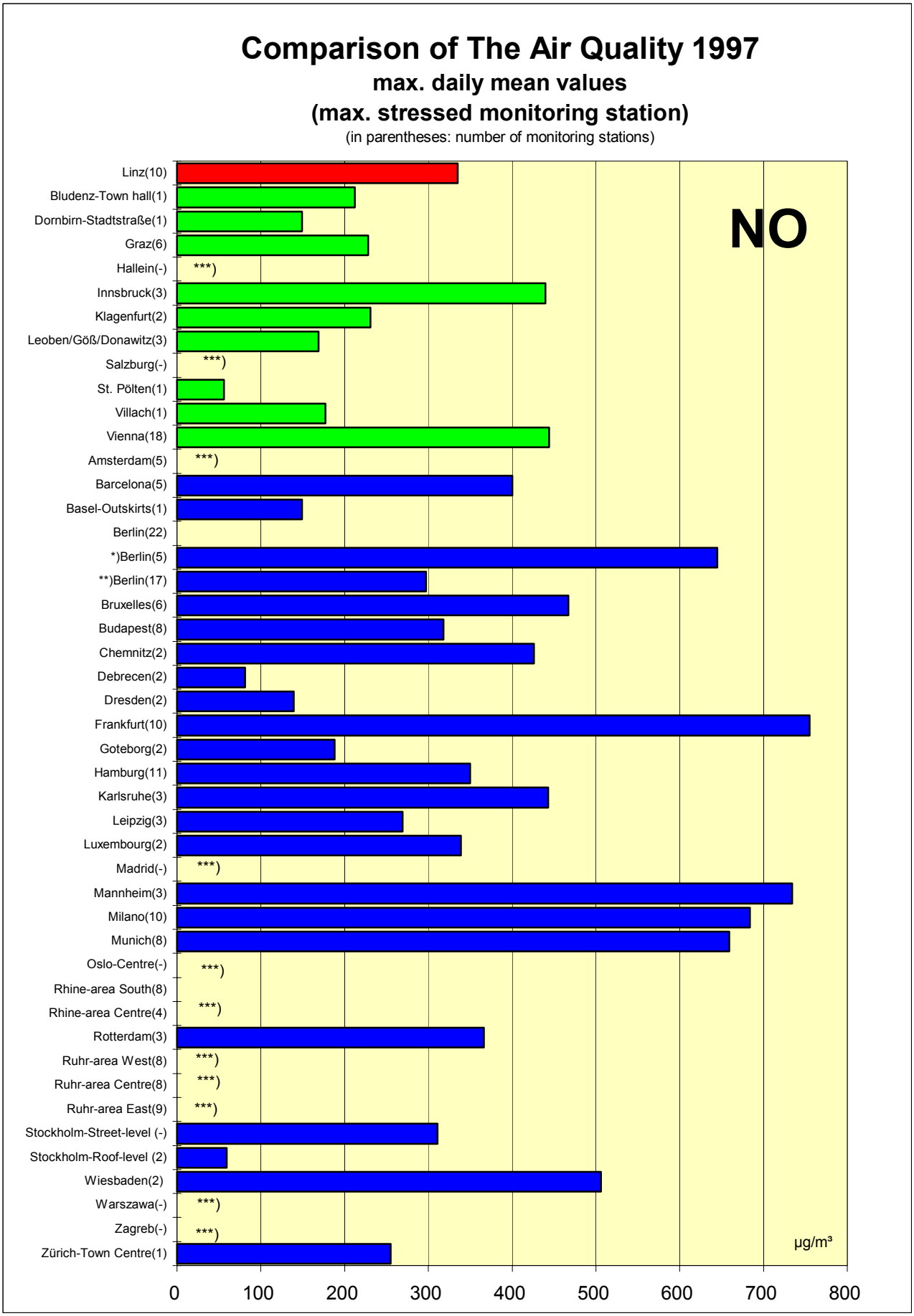
Comparison of The Air Quality

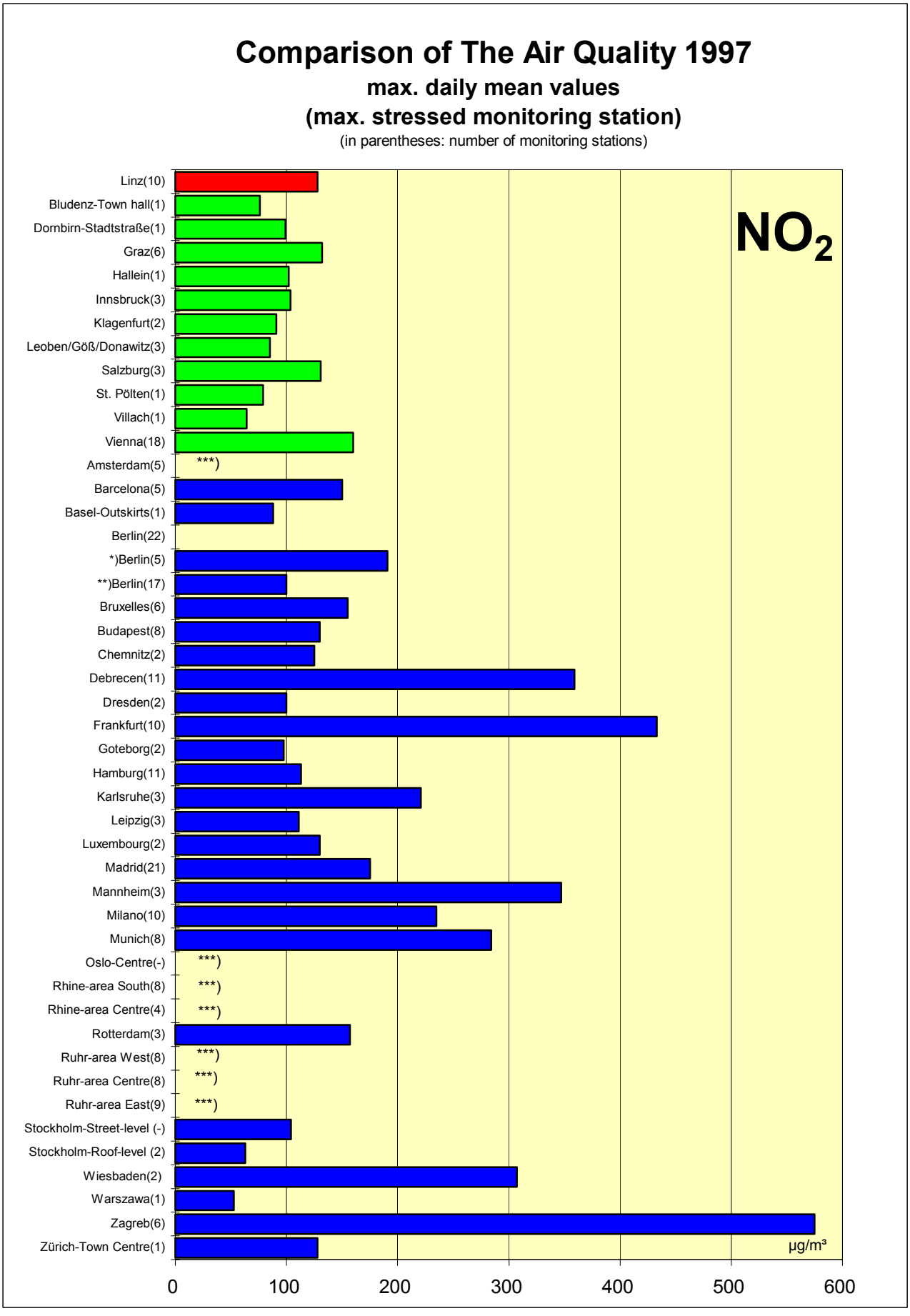
1997

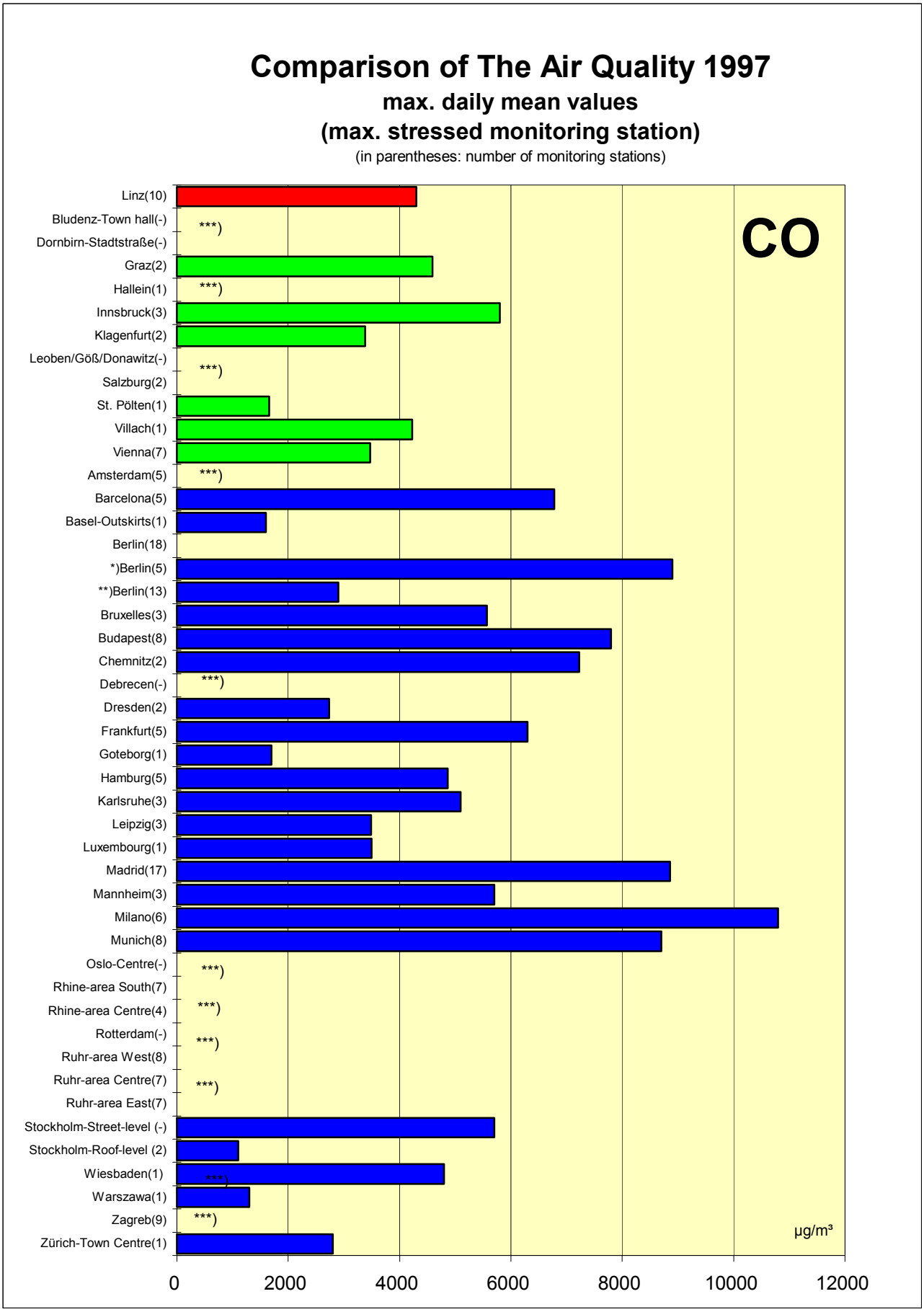
Max. Daily Mean Values

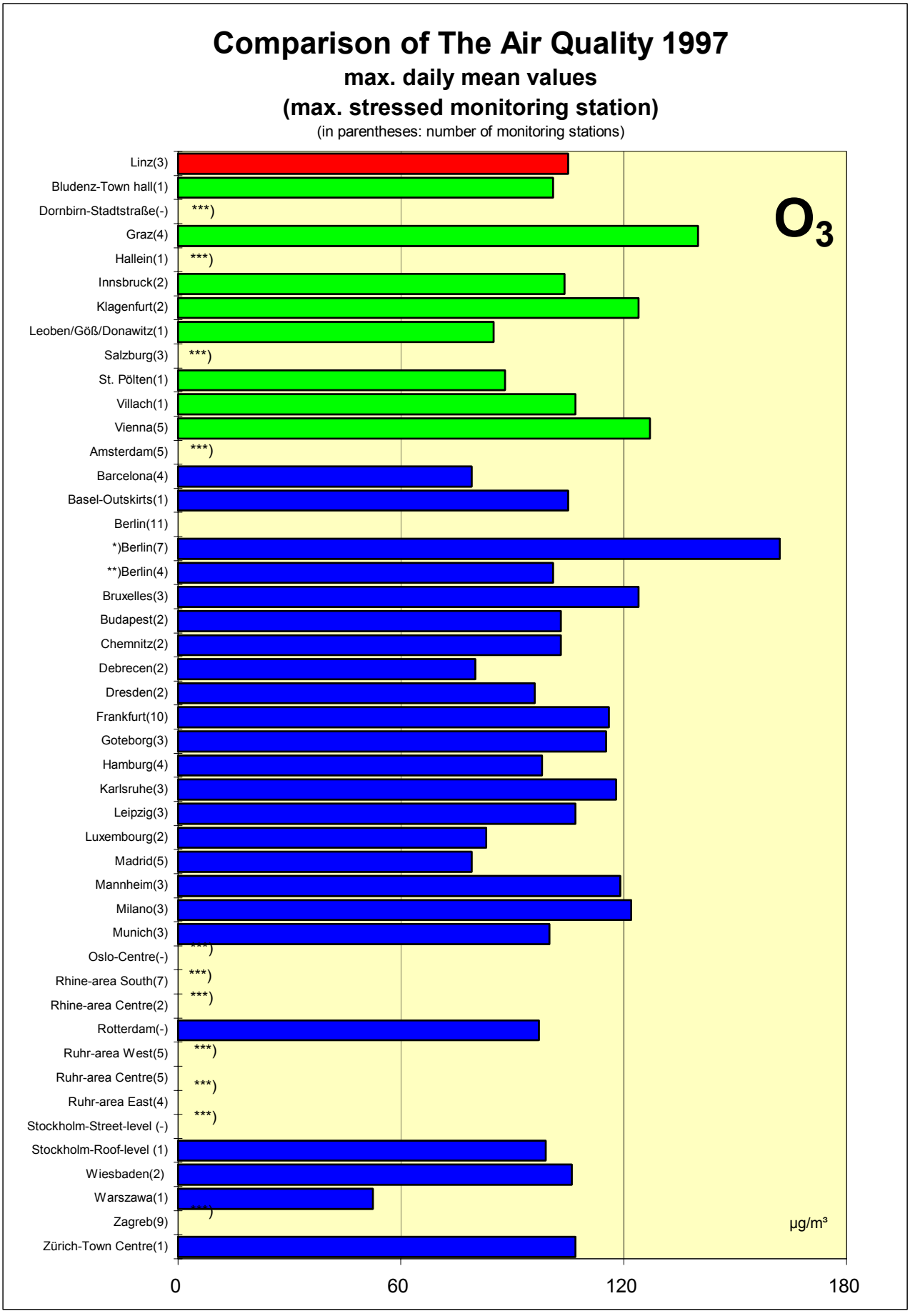

Comparison of The Air Quality 1997
max. daily mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(18)
Amsterdam(5)
***)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin 1
**)Berlin 2
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(23)
Mannheim(3)
Milano(7)
Munich(8)
Oslo-Centre(-)
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(2)
Warszawa(1)
Zagreb(9)
Zürich-Town Centre(1)
µg/m³
0
50
100
150
200
250
300
350


Comparison of The Air Quality 1997
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)
Amsterdam(5)
***)
Barcelona(4)
Basel-Outskirts(1)
Berlin(19)
*)Berlin 1
**)Berlin 2
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(1)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(23)
Mannheim(3)
Milano(3)
Munich(7)
Oslo-Centre(-)
***)
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(2)
Warszawa(1)
Zagreb(4)
Zürich-Town Centre(1)
µg/m3
0
100
200
300
400
500


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(2)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(-)
***)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
Rhine-area Centre(4)
***)
Rotterdam(3)
Ruhr-area West(8)
***)
Ruhr-area Centre(8)
***)
Ruhr-area East(9)
***)
Stockholm-Street-level (-)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(-)
***)
Zagreb(-)
***)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400
500
600
700
800


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(2)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(21)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
***)
Rhine-area Centre(4)
***)
Rotterdam(3)
Ruhr-area West(8)
***)
Ruhr-area Centre(8)
***)
Ruhr-area East(9)
***)
Stockholm-Street-level (-)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(6)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400
500
600


Comparison of The Air Quality 1997
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)
Amsterdam(5)
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)
Leipzig(3)
Luxembourg(1)
Madrid(17)
Mannheim(3)
Milano(6)
Munich(8)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(-)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
Stockholm-Street-level (-)
Stockholm-Roof-level (2)
Wiesbaden(1)
Warszawa(1)
Zagreb(9)
Zürich-Town Centre(1)
***)
µg/m³
0
2000
4000
6000
8000
10000
12000


Comparison of The Air Quality 1997
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)
Amsterdam(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(4)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(5)
Mannheim(3)
Milano(3)
Munich(3)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(-)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
Stockholm-Roof-level (1)
Wiesbaden(2)
Warszawa(1)
Zagreb(9)
Zürich-Town Centre(1)
***)
µg/m³
0
60
120
180

Luftgütevergleich

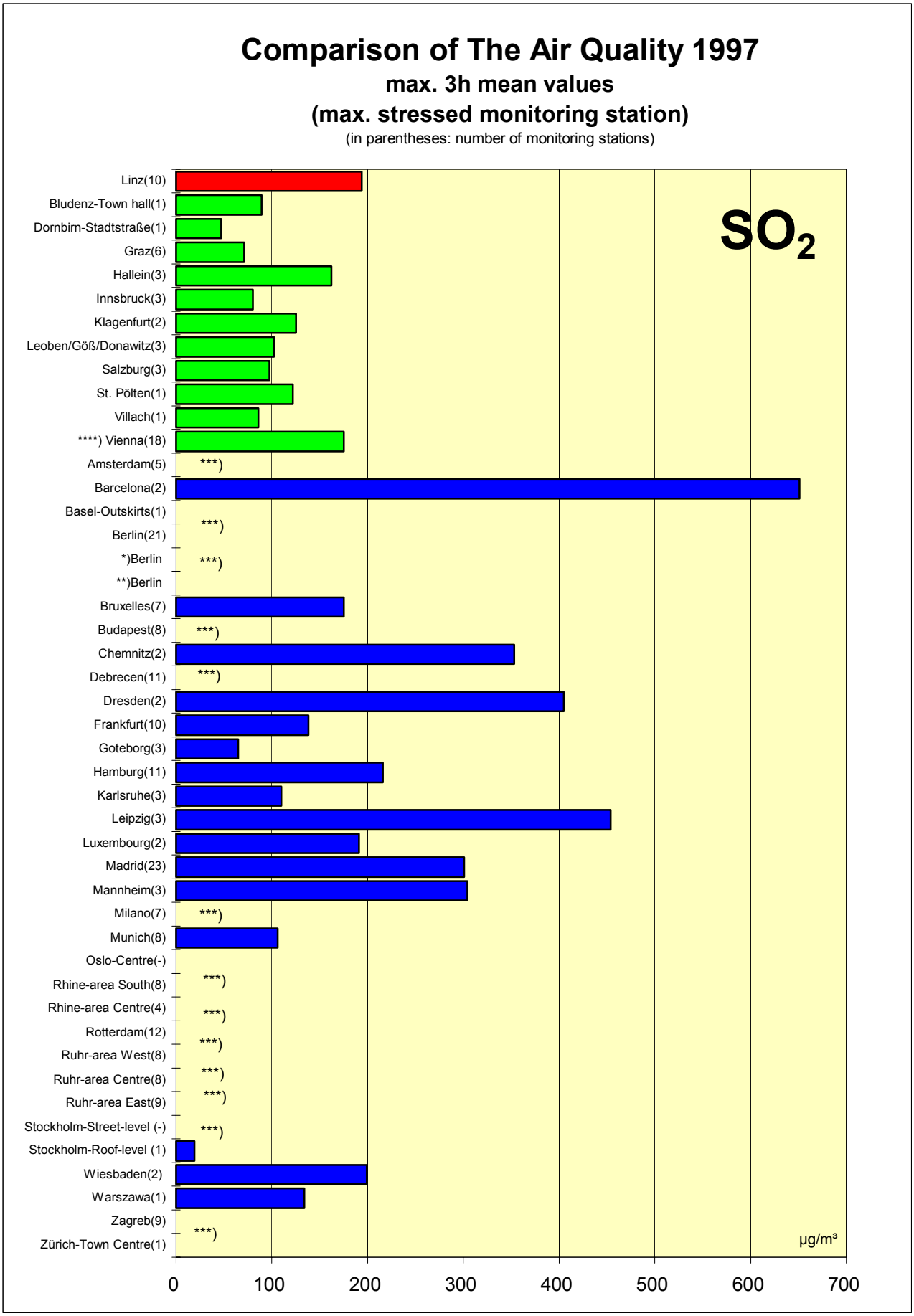
1997

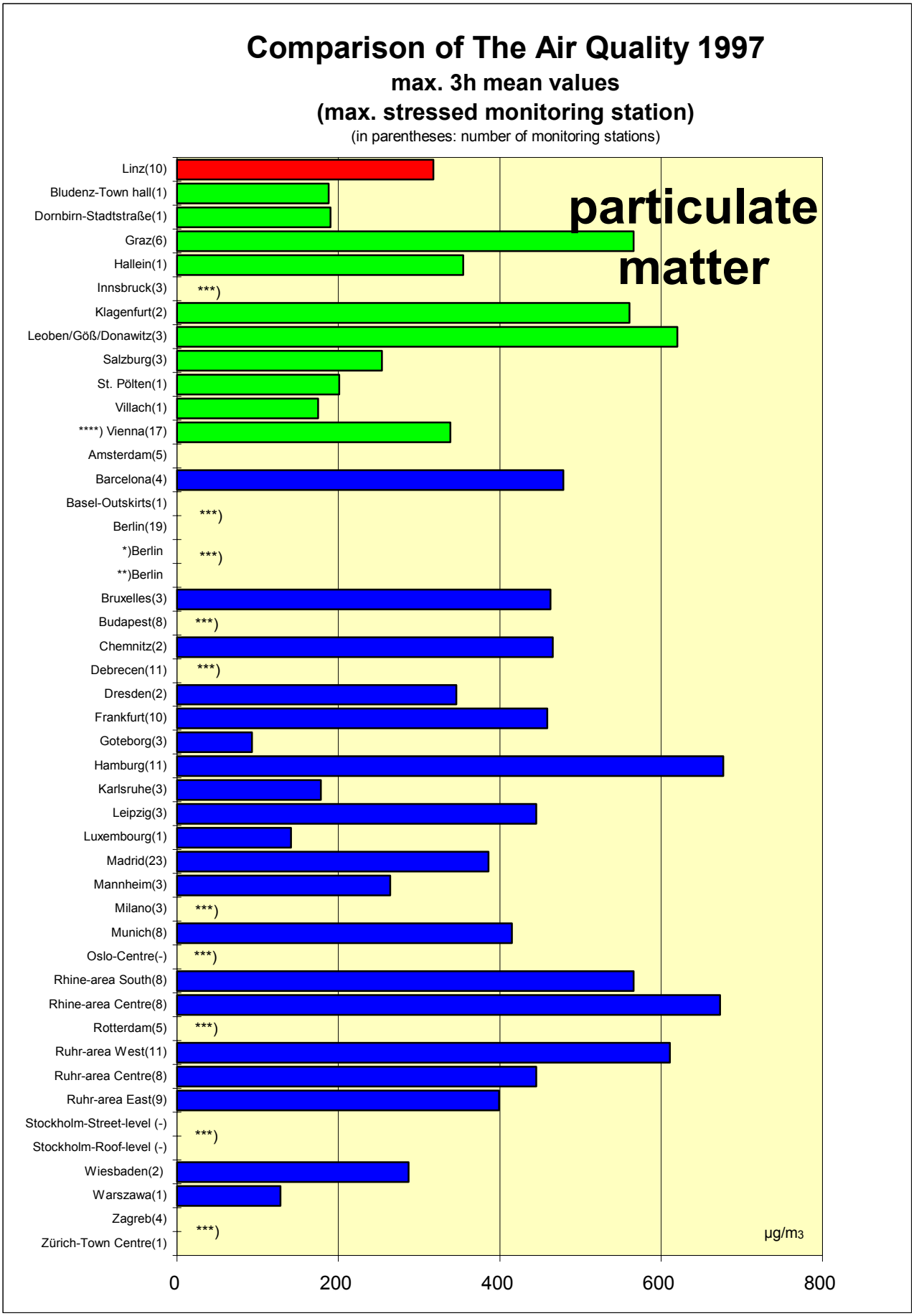
max. 3h-Mittelwerte

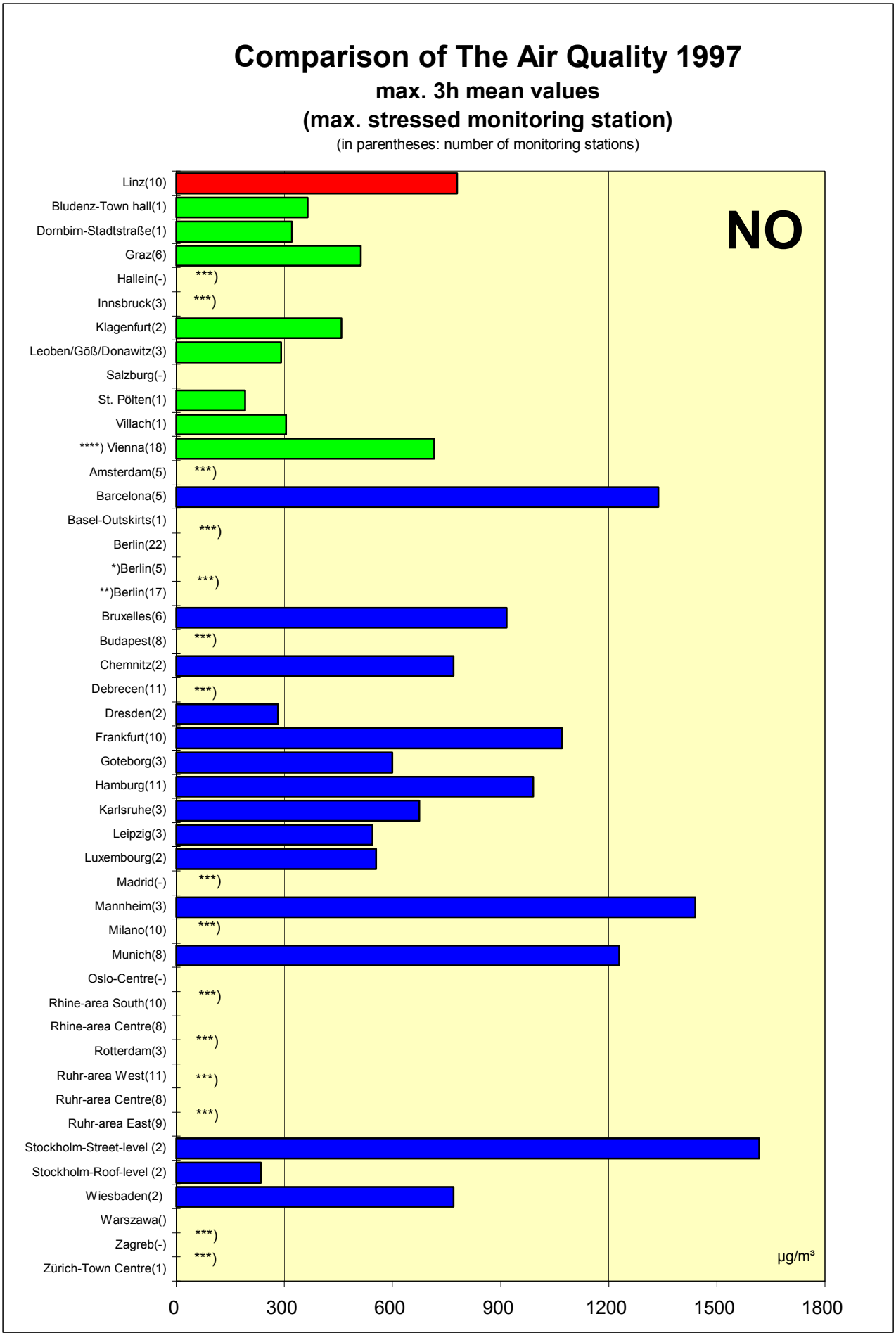
Comparison of The Air Quality

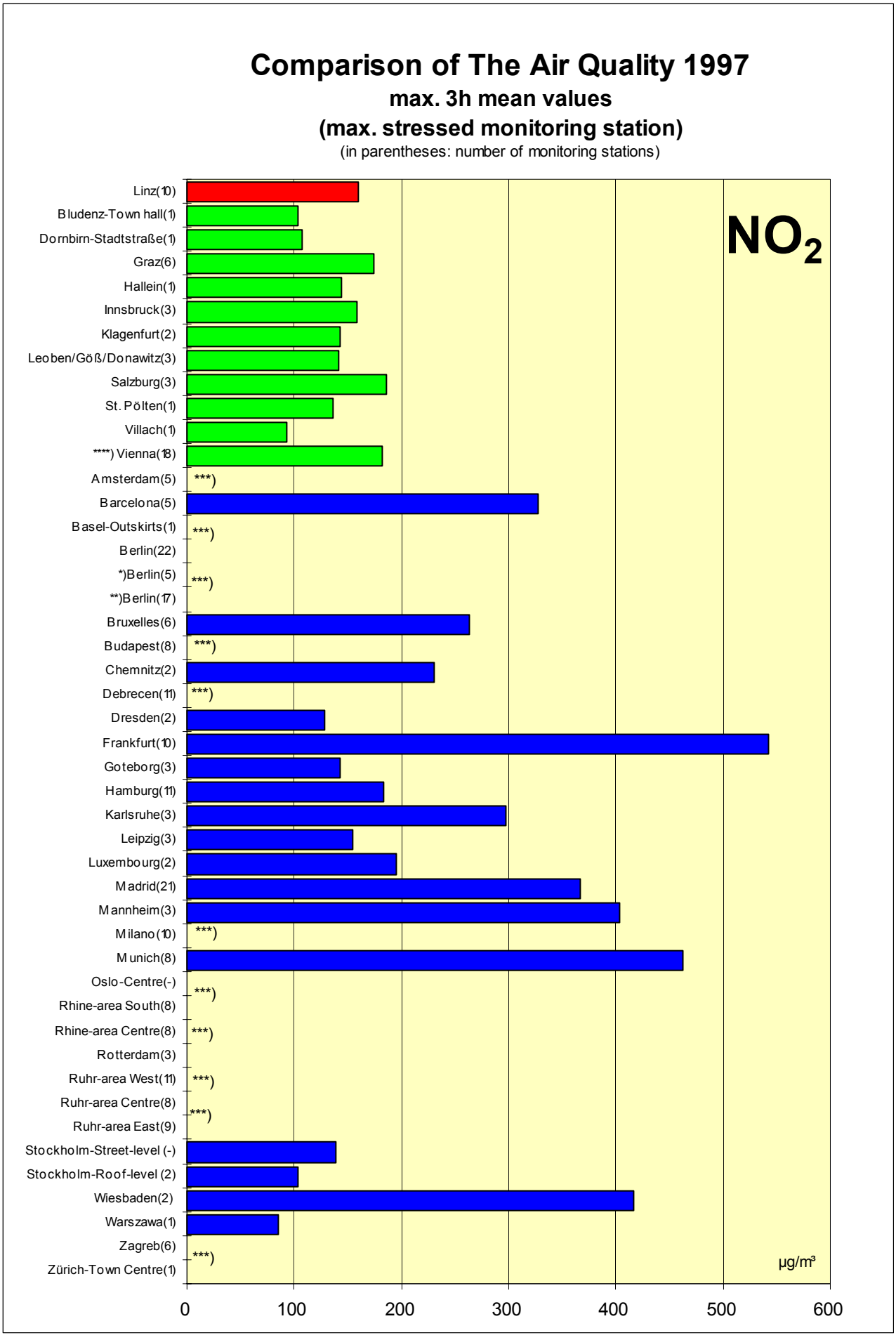
1997

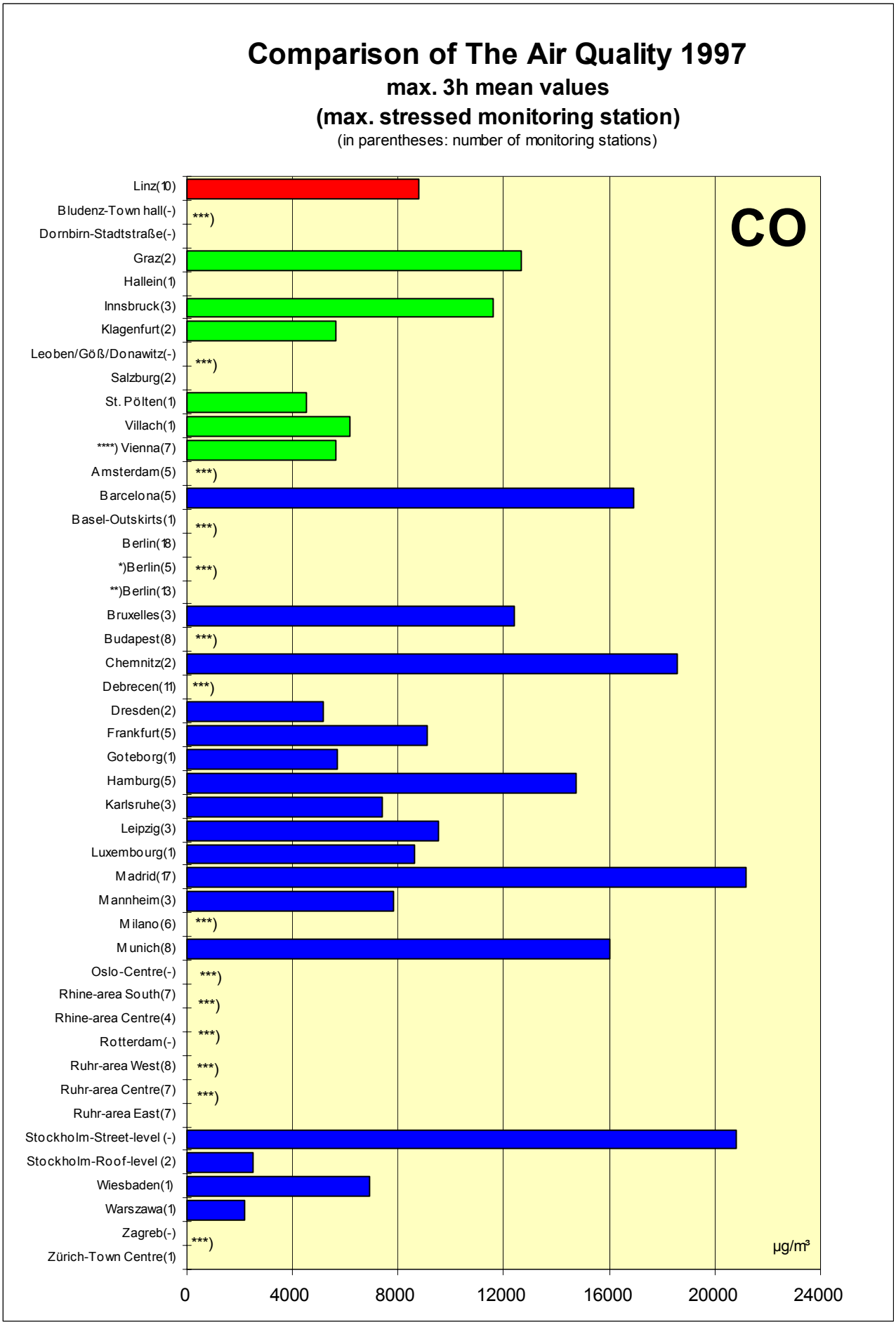
Max. 3h- Mean Values

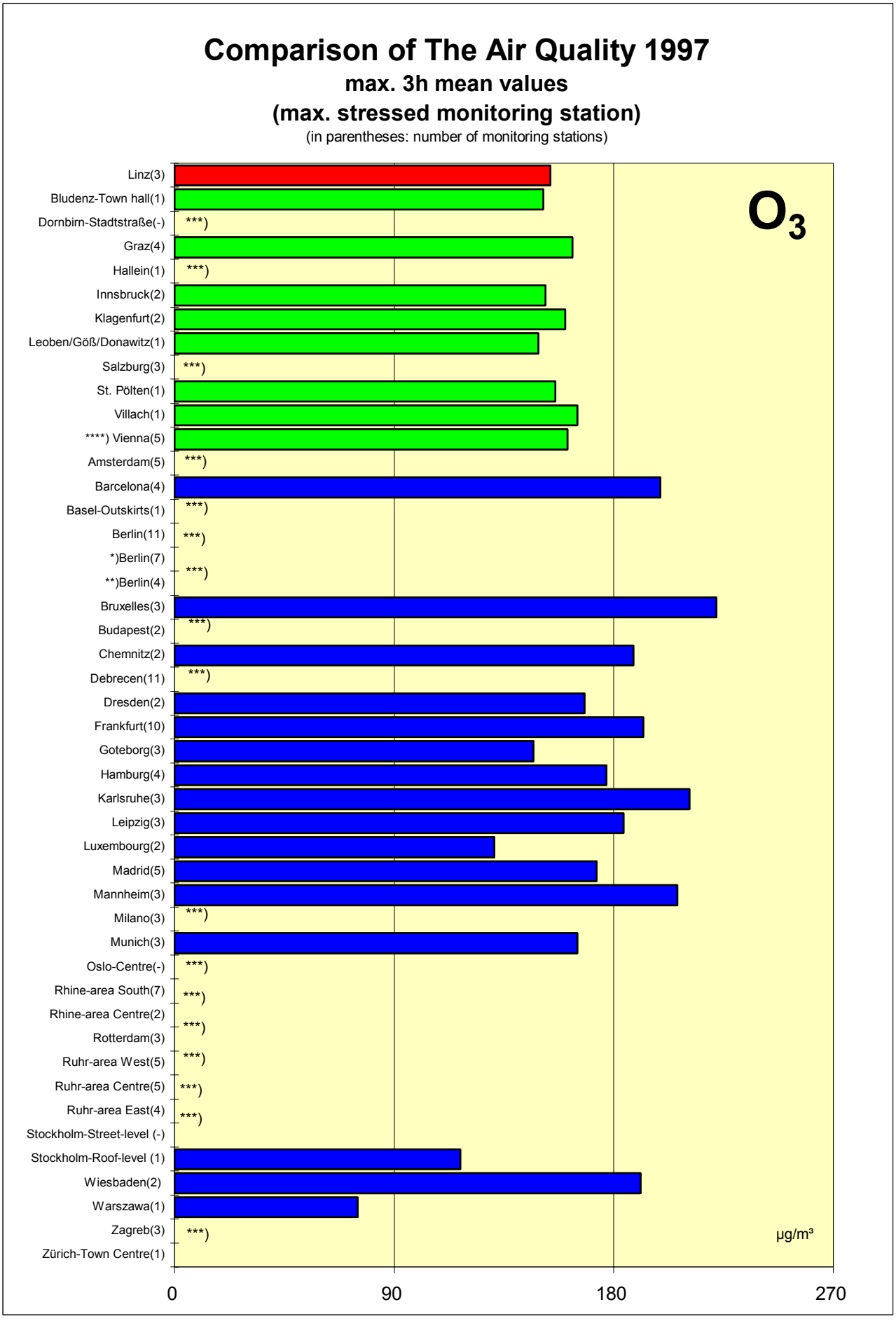

Comparison of The Air Quality 1997
max. 3h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(18)
Amsterdam(5)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin
**)Berlin
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(23)
Mannheim(3)
Milano(7)
Munich(8)
Oslo-Centre(-)
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(2)
Warszawa(1)
Zagreb(9)
Zürich-Town Centre(1)
***)
µg/m³
0
100
200
300
400
500
600
700


Comparison of The Air Quality 1997
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)
Amsterdam(5)
Barcelona(4)
Basel-Outskirts(1)
***)
Berlin(19)
*)Berlin
***)
**)Berlin
Bruxelles(3)
Budapest(8)
***)
Chemnitz(2)
Debrecen(11)
***)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(23)
Mannheim(3)
Milano(3)
***)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
Rhine-area Centre(8)
Rotterdam(5)
***)
Ruhr-area West(11)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (-)
***)
Stockholm-Roof-level (-)
Wiesbaden(2)
Warszawa(1)
Zagreb(4)
***)
Zürich-Town Centre(1)
µg/m3
0
200
400
600
800


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(-)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
Rhine-area South(10)
Rhine-area Centre(8)
Rotterdam(3)
Ruhr-area West(11)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa()
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
300
600
900
1200
1500
1800


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
***)
Berlin(22)
*)Berlin(5)
***)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
***)
Chemnitz(2)
Debrecen(11)
***)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(21)
Mannheim(3)
Milano(10)
***)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
Rhine-area Centre(8)
***)
Rotterdam(3)
Ruhr-area West(11)
***)
Ruhr-area Centre(8)
***)
Ruhr-area East(9)
Stockholm-Street-level (-)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(6)
***)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400
500
600


Comparison of The Air Quality 1997
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(-)
Salzburg(2)
St. Pölten(1)
Villach(1)
****) Vienna(7)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin(13)
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(17)
Mannheim(3)
Milano(6)
Munich(8)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(-)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
Stockholm-Street-level (-)
Stockholm-Roof-level (2)
Wiesbaden(1)
Warszawa(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
4000
8000
12000
16000
20000
24000


Comparison of The Air Quality 1997
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)
Amsterdam(5)
Barcelona(4)
Basel-Outskirts(1)
Berlin(11)
*)Berlin(7)
**)Berlin(4)
Bruxelles(3)
Budapest(2)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(4)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(5)
Mannheim(3)
Milano(3)
Munich(3)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(3)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
Stockholm-Roof-level (1)
Wiesbaden(2)
Warszawa(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
90
180
270

Luftgütevergleich

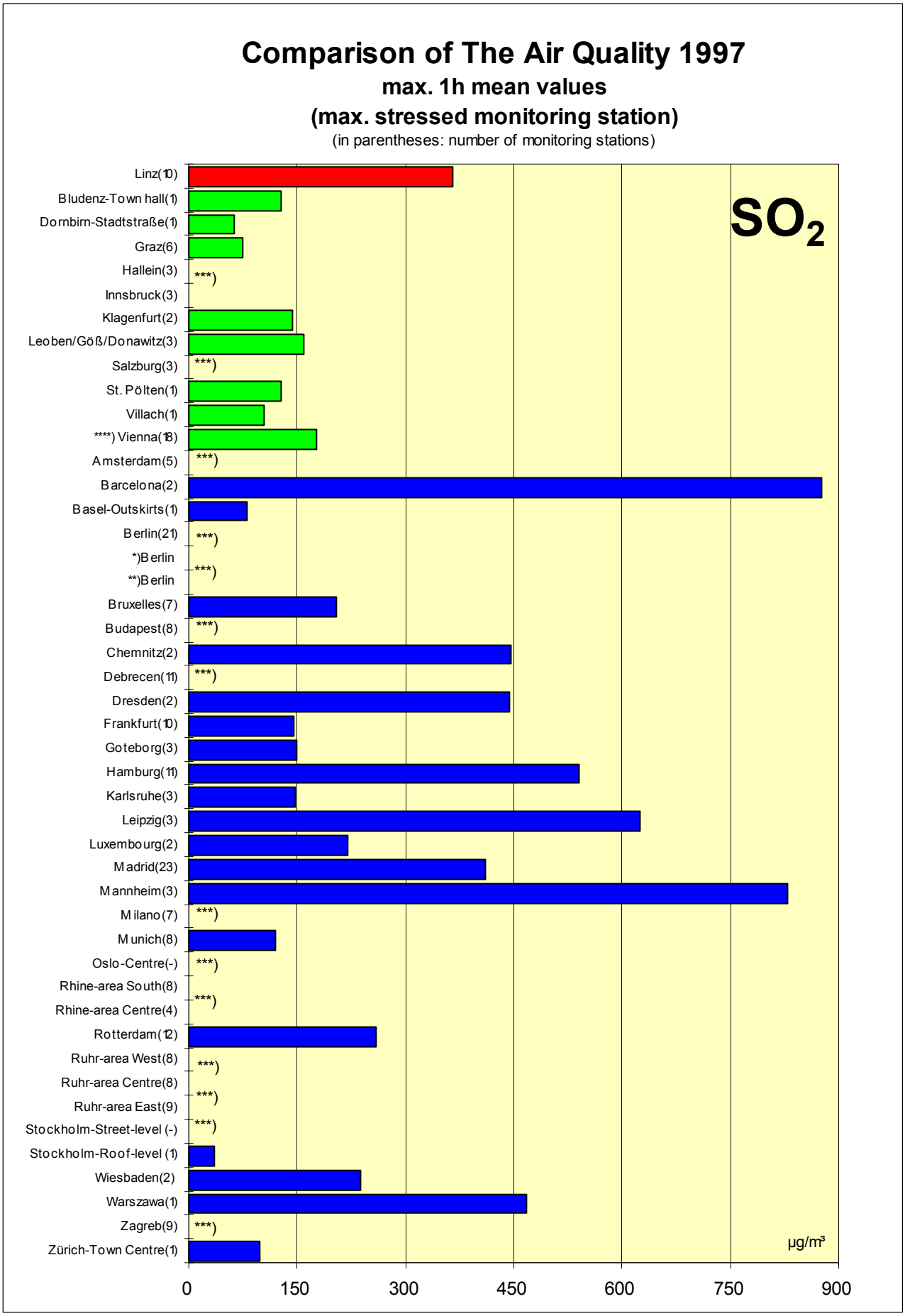
1997

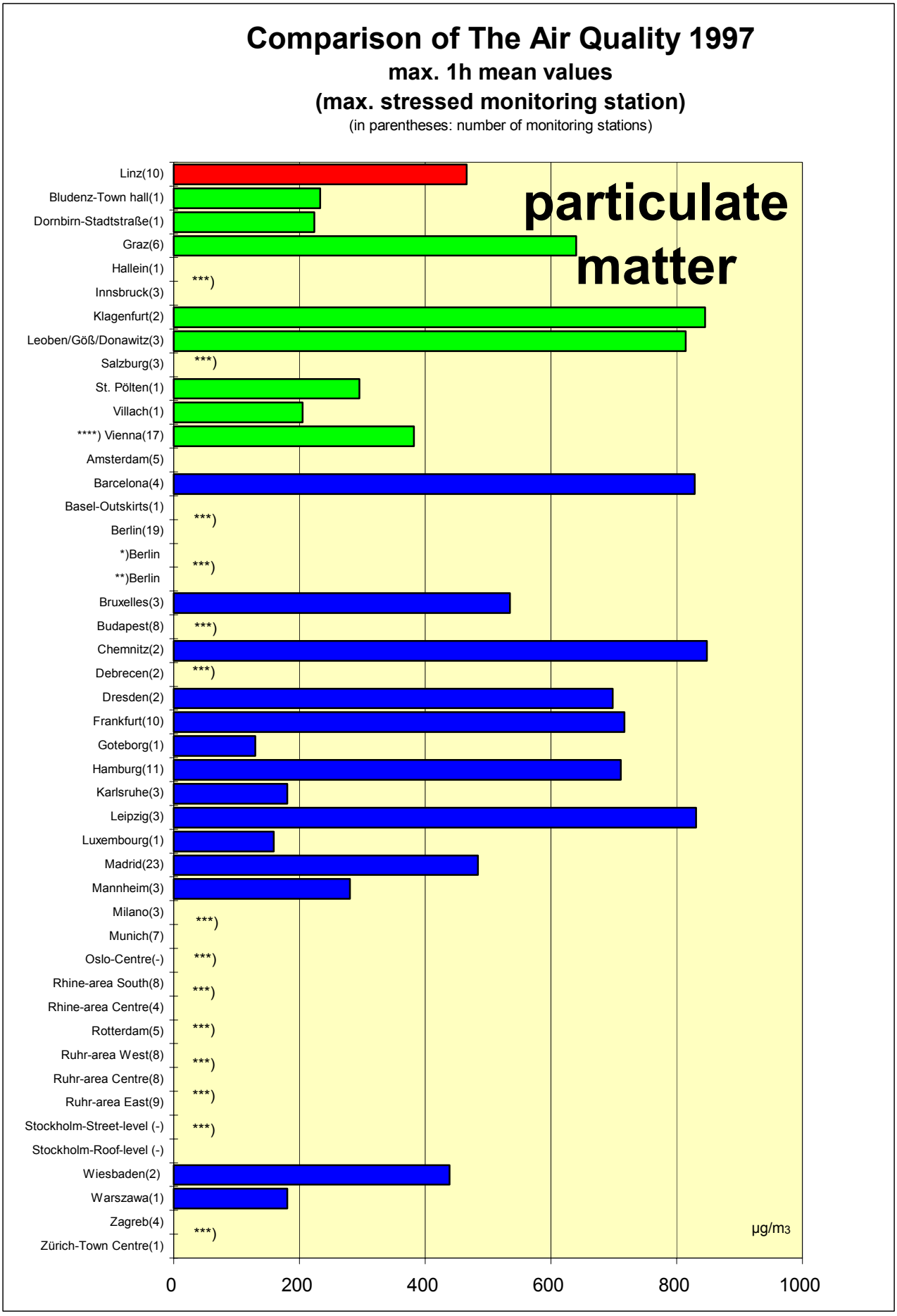
max. 1h-Mittelwerte

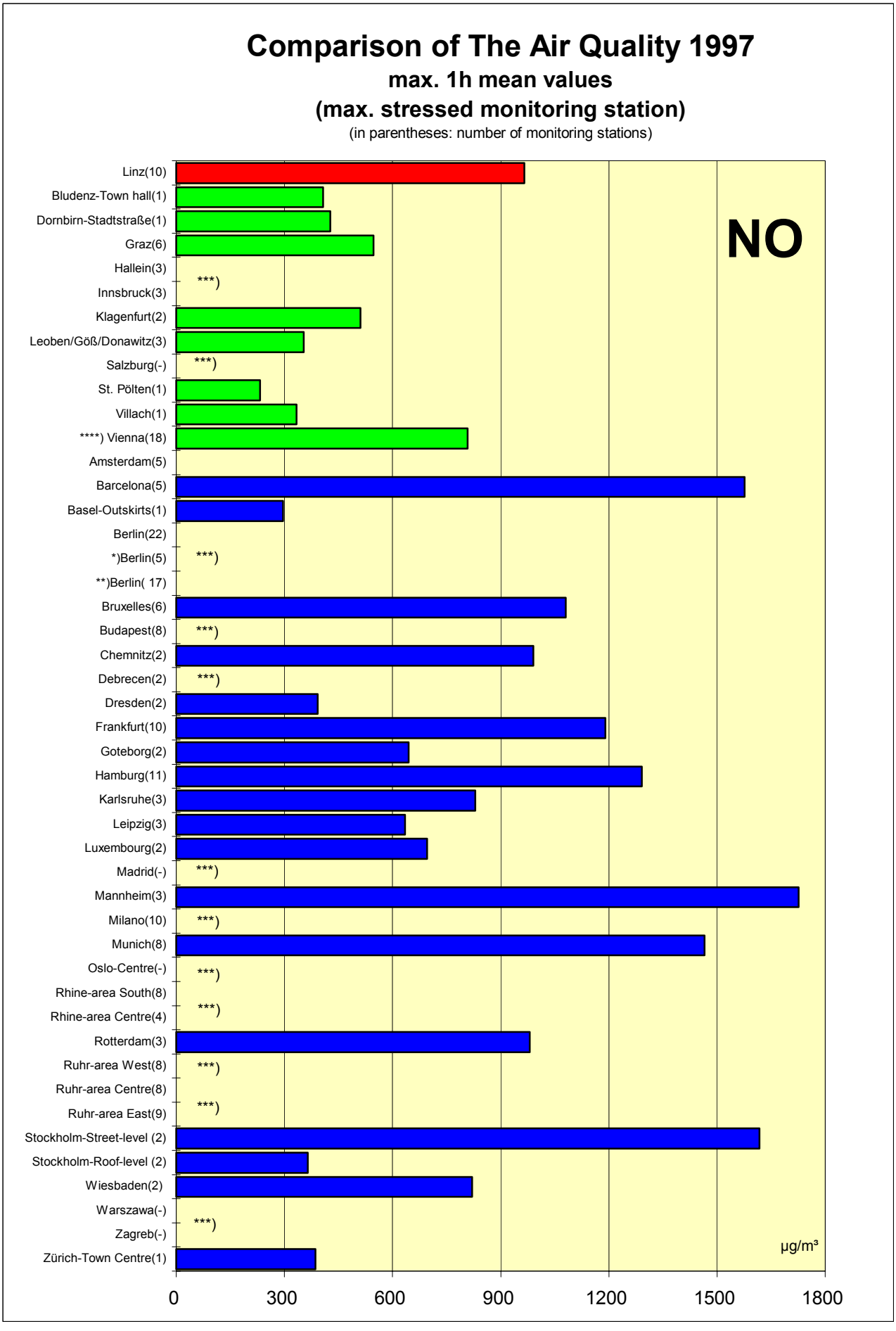
Comparison of The Air Quality

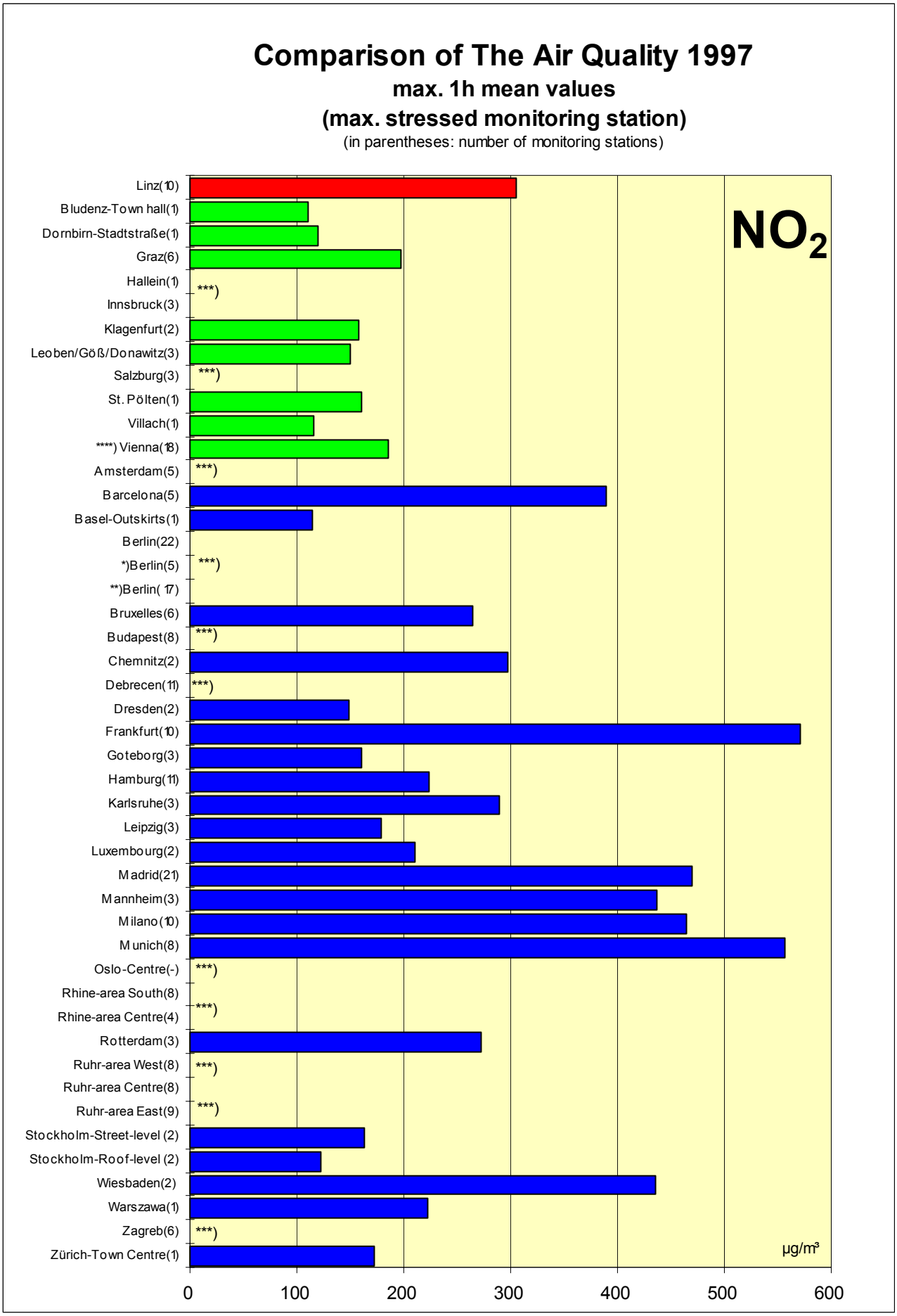
1997

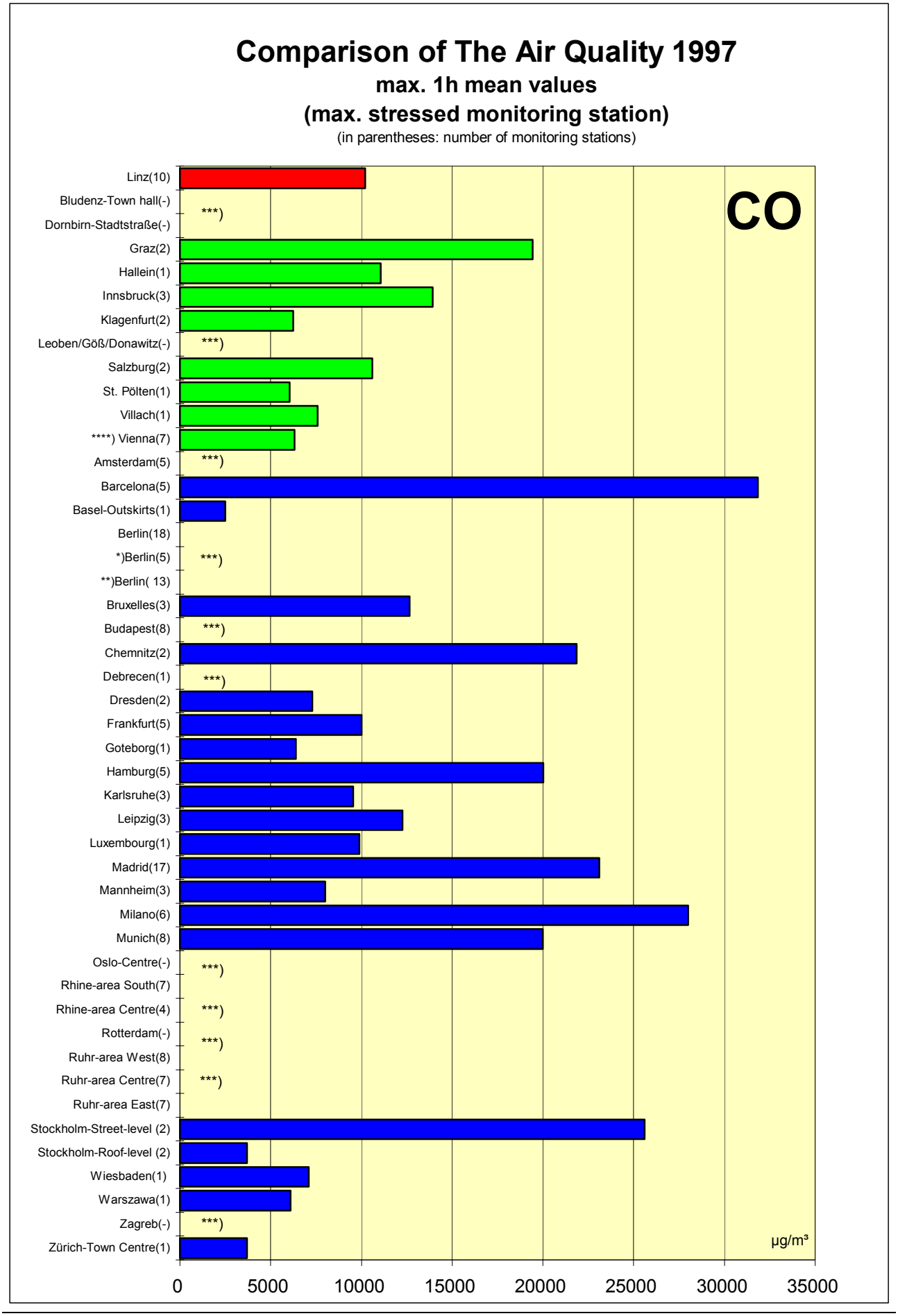
Max. 1h-Mean Values

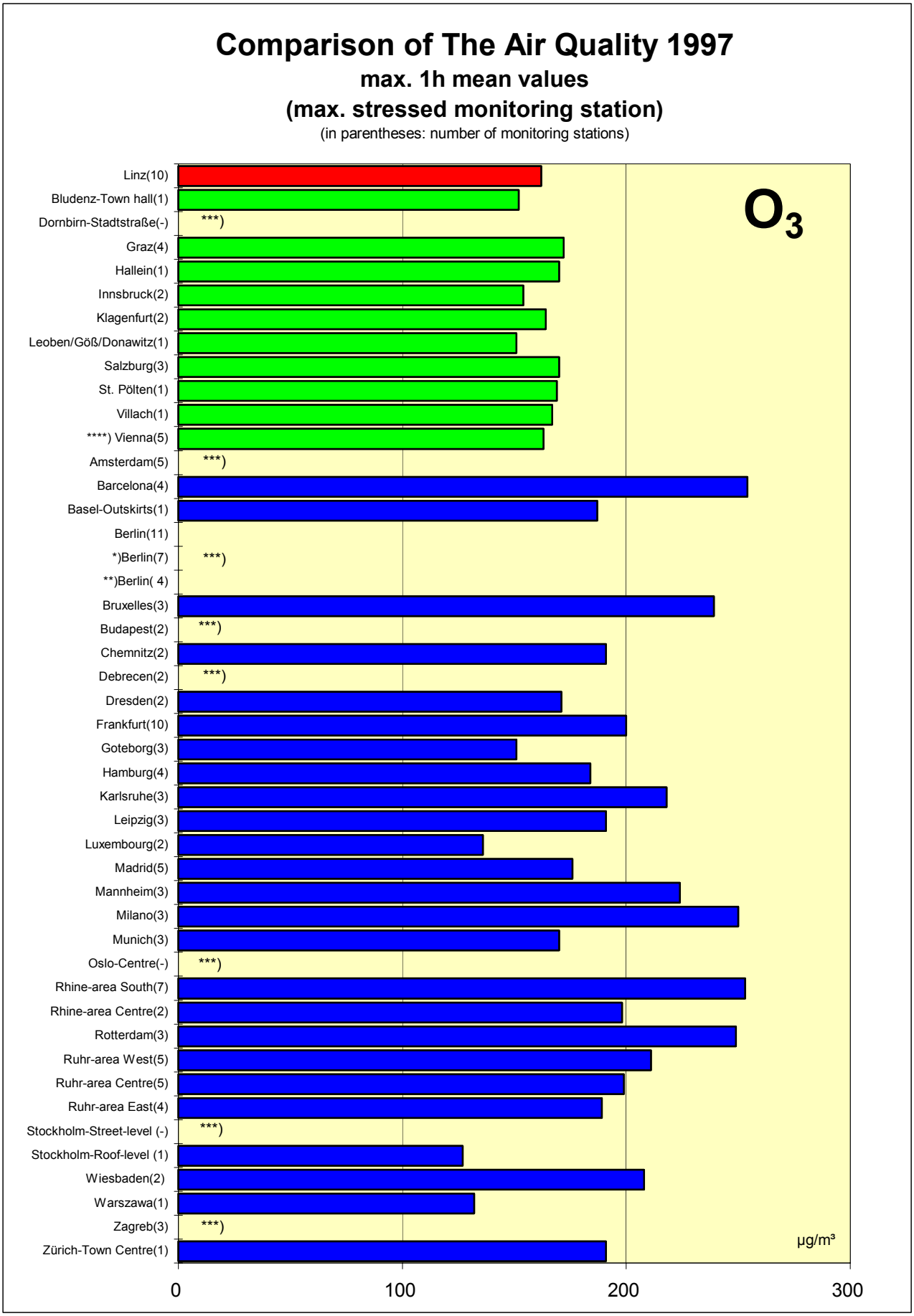

Comparison of The Air Quality 1997
max. 1h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
***)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
***)
St. Pölten(1)
Villach(1)
****) Vienna(18)
Amsterdam(5)
***)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
***)
*)Berlin
**)Berlin
***)
Bruxelles(7)
Budapest(8)
***)
Chemnitz(2)
Debrecen(11)
***)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(23)
Mannheim(3)
Milano(7)
***)
Munich(8)
Oslo-Centre(-)
***)
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(2)
Warszawa(1)
Zagreb(9)
***)
Zürich-Town Centre(1)
µg/m³
0
150
300
450
600
750
900


Comparison of The Air Quality 1997
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)
Amsterdam(5)
Barcelona(4)
Basel-Outskirts(1)
Berlin(19)
*)Berlin
**)Berlin
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(1)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(23)
Mannheim(3)
Milano(3)
Munich(7)
Oslo-Centre(-)
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(2)
Warszawa(1)
Zagreb(4)
Zürich-Town Centre(1)
***)
µg/m3
0
200
400
600
800
1000


Comparison of The Air Quality 1997
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(3)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(-)
St. Pölten(1)
Villach(1)
****) Vienna(18)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(2)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(-)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(-)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
300
600
900
1200
1500
1800


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
***)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
***)
Chemnitz(2)
Debrecen(11)
***)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(21)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
Rhine-area Centre(4)
***)
Rotterdam(3)
Ruhr-area West(8)
***)
Ruhr-area Centre(8)
Ruhr-area East(9)
***)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(6)
***)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400
500
600


Comparison of The Air Quality 1997
max. 1h 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)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
***)
**)Berlin(13)
Bruxelles(3)
Budapest(8)
***)
Chemnitz(2)
Debrecen(1)
***)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(17)
Mannheim(3)
Milano(6)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(7)
Rhine-area Centre(4)
***)
Rotterdam(-)
***)
Ruhr-area West(8)
Ruhr-area Centre(7)
***)
Ruhr-area East(7)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Warszawa(1)
Zagreb(-)
***)
Zürich-Town Centre(1)
µg/m³
0
5000
10000
15000
20000
25000
30000
35000


Comparison of The Air Quality 1997
max. 1h 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(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(5)
Amsterdam(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(4)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(5)
Mannheim(3)
Milano(3)
Munich(3)
Oslo-Centre(-)
***)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(3)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
***)
Stockholm-Roof-level (1)
Wiesbaden(2)
Warszawa(1)
Zagreb(3)
***)
Zürich-Town Centre(1)
µg/m³
0
100
200
300

Luftgütevergleich

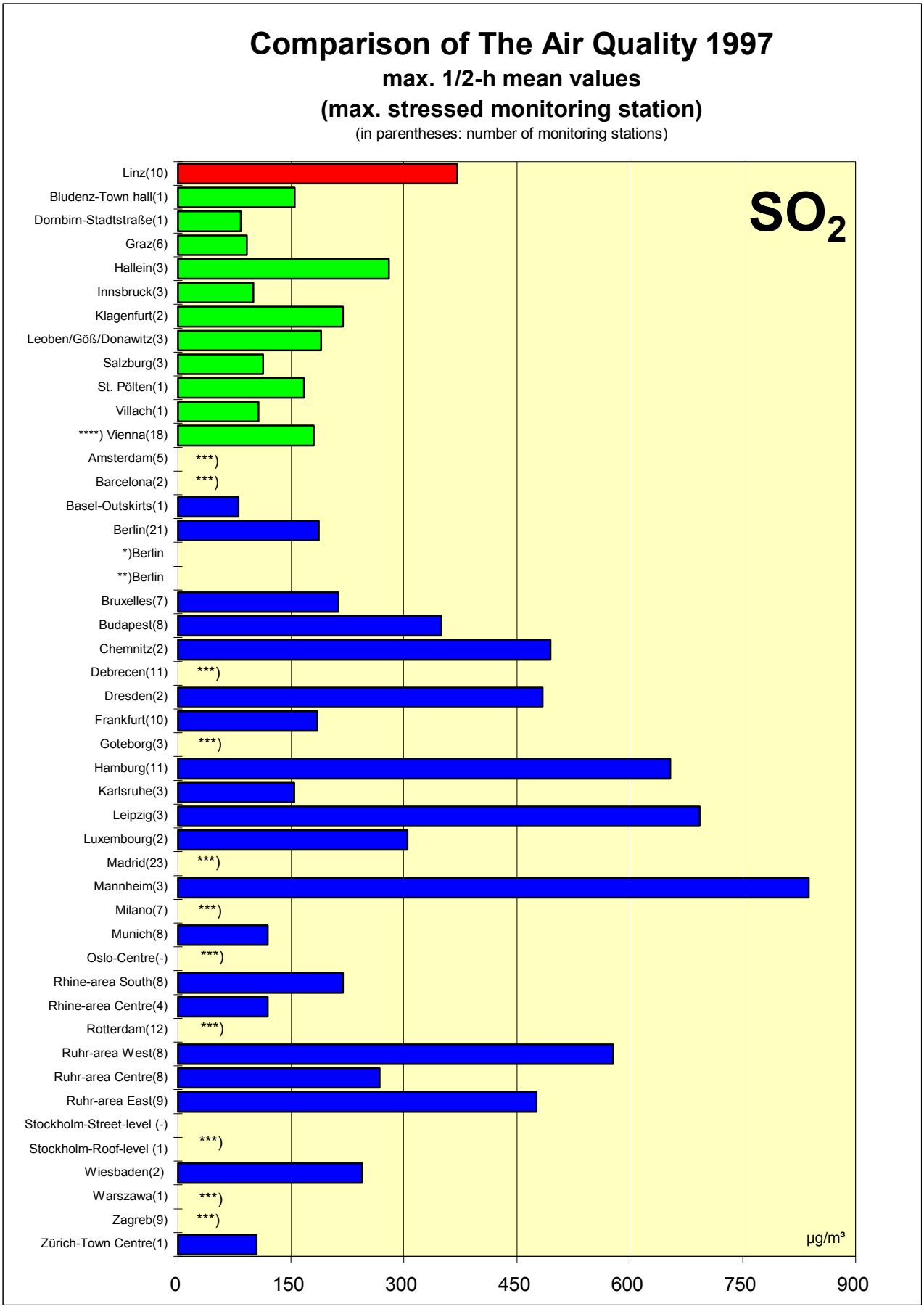
1997

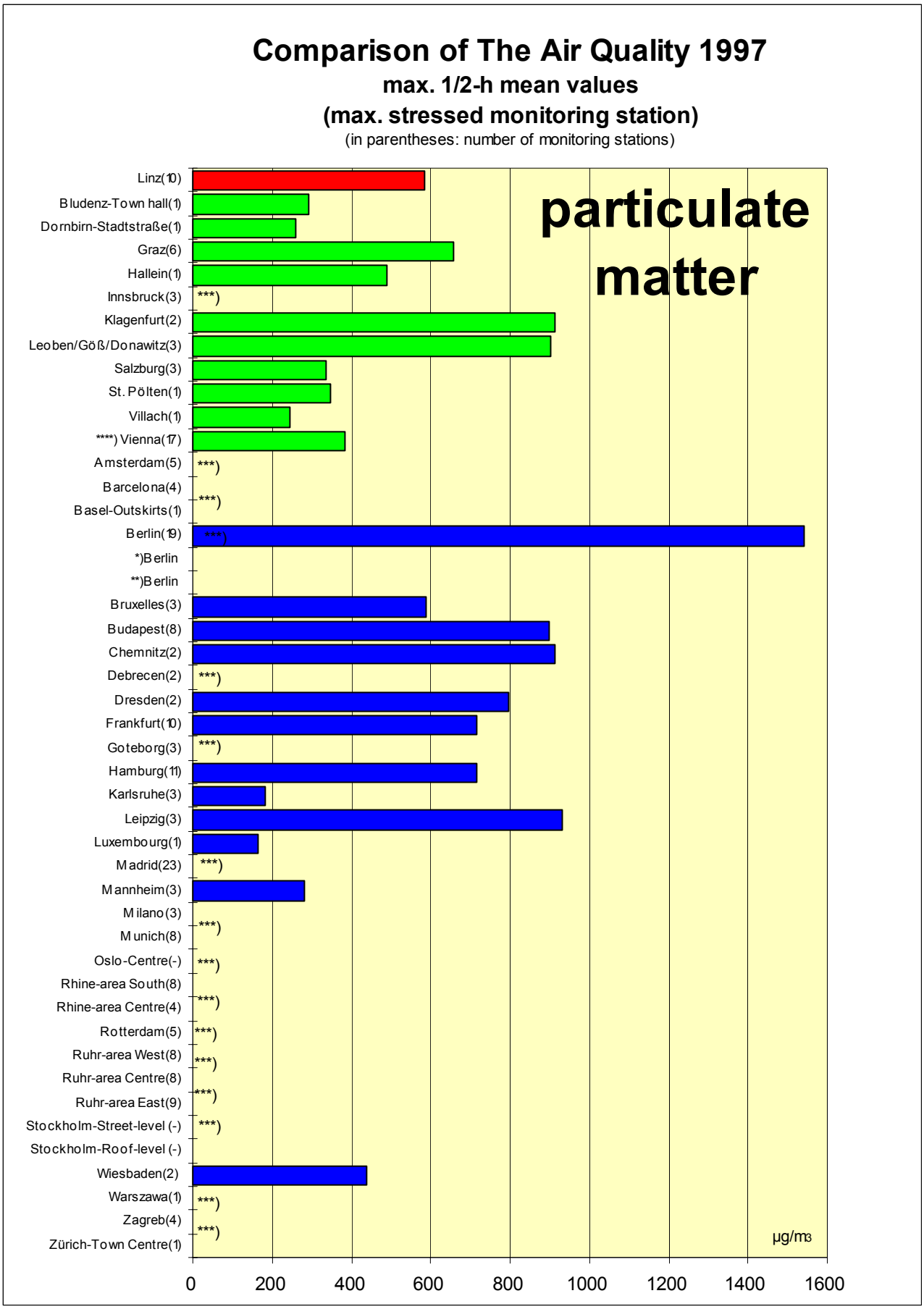
max. Halbstunden-Mittelwerte

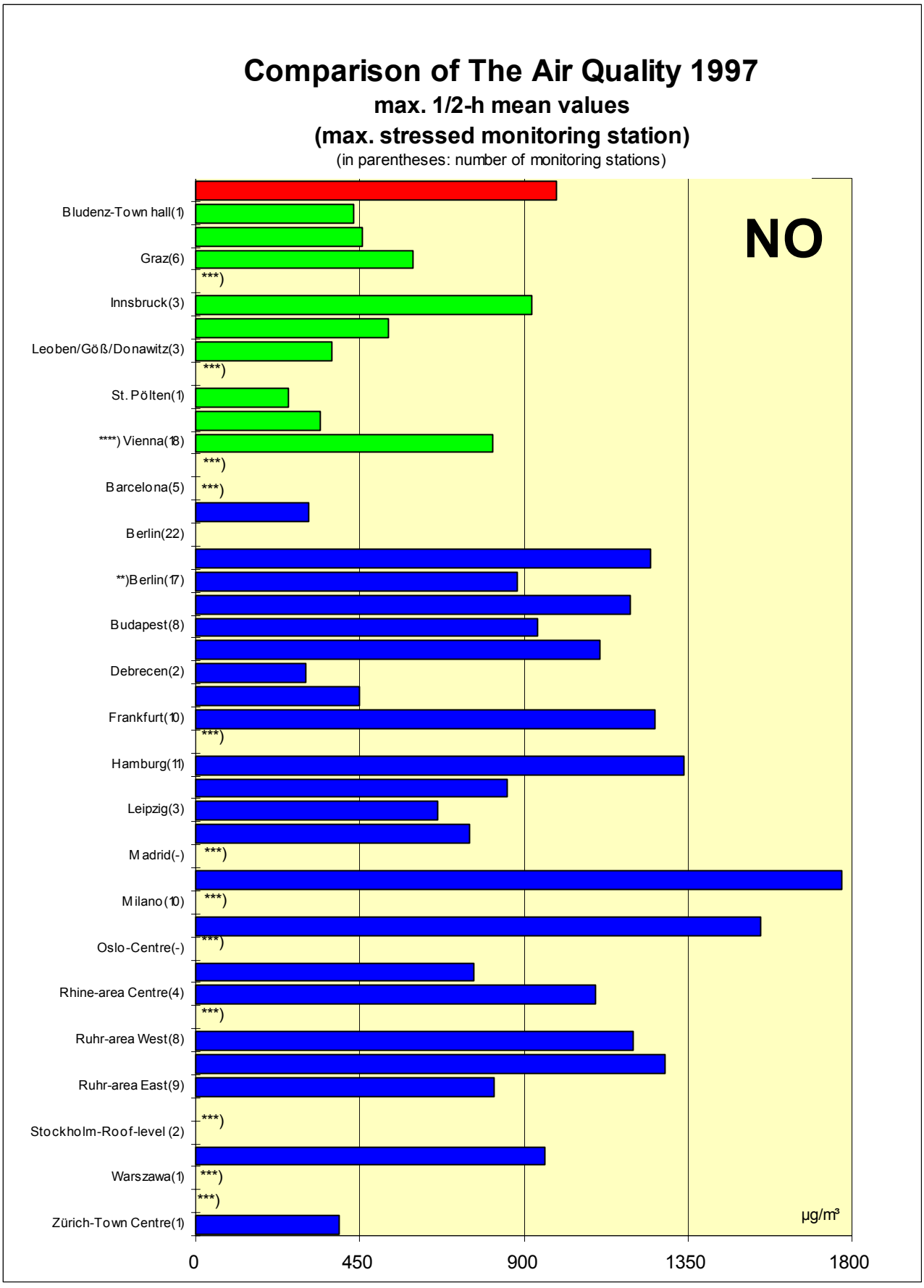
Comparison of The Air Quality

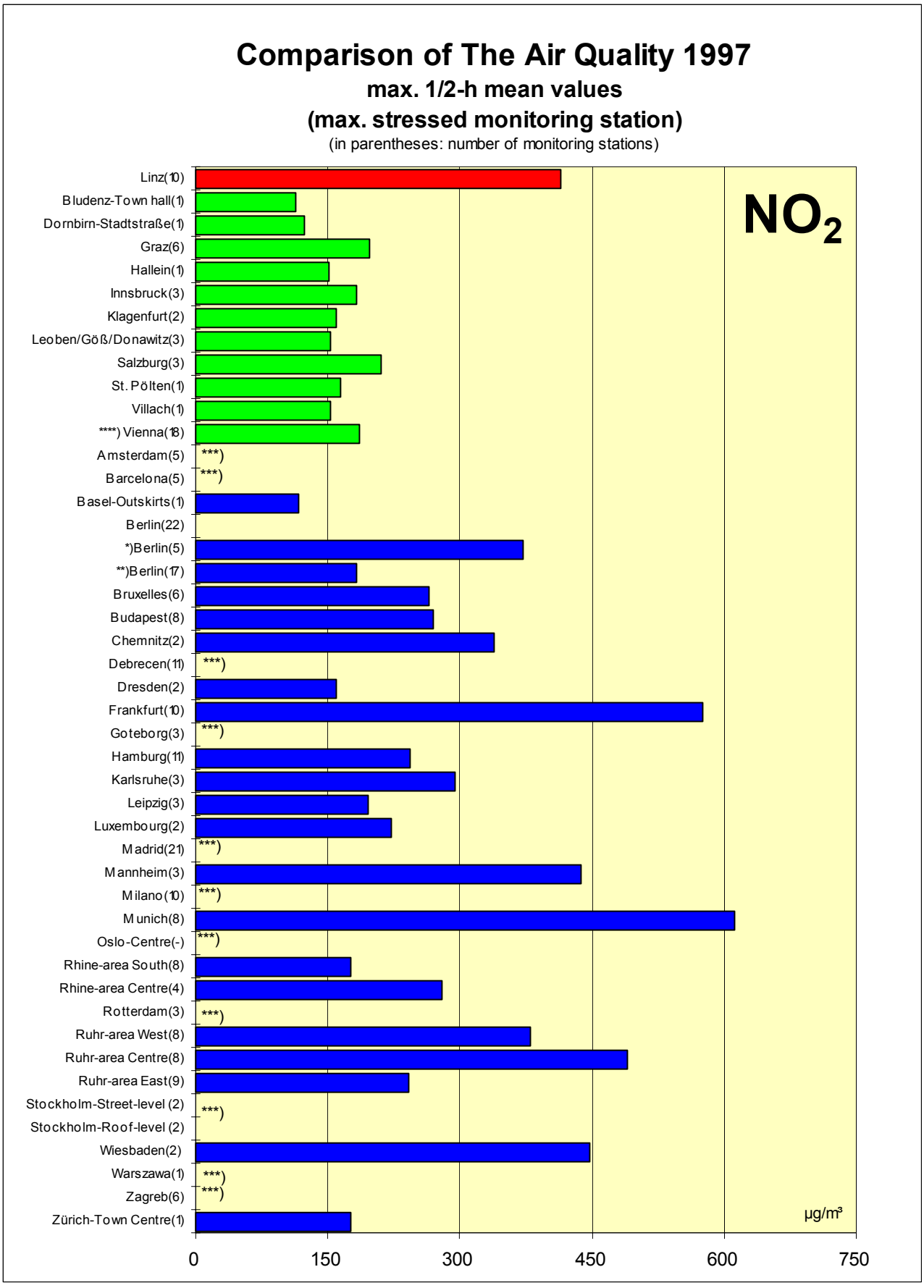
1997

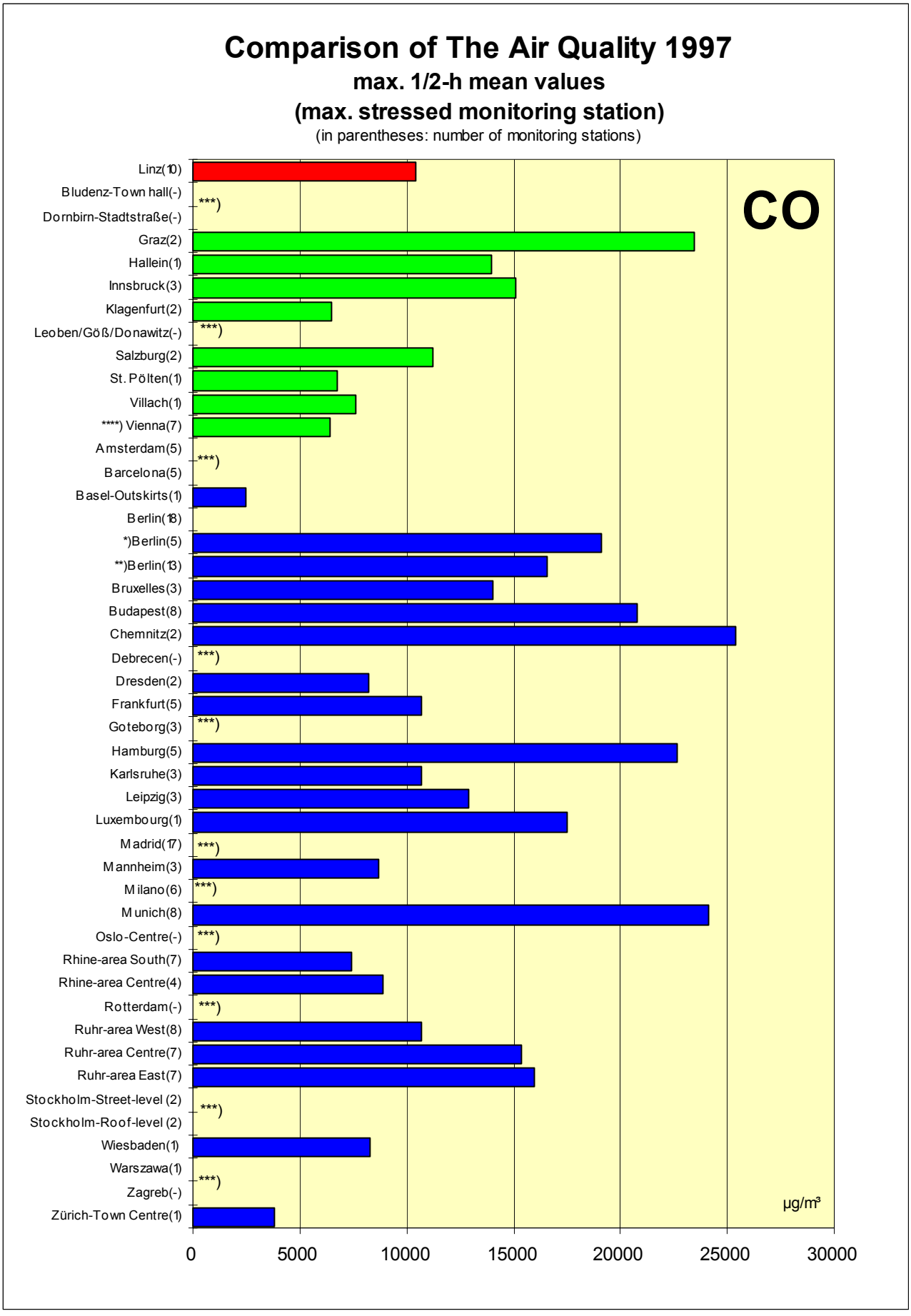
Max. 1/2h-Mean Values

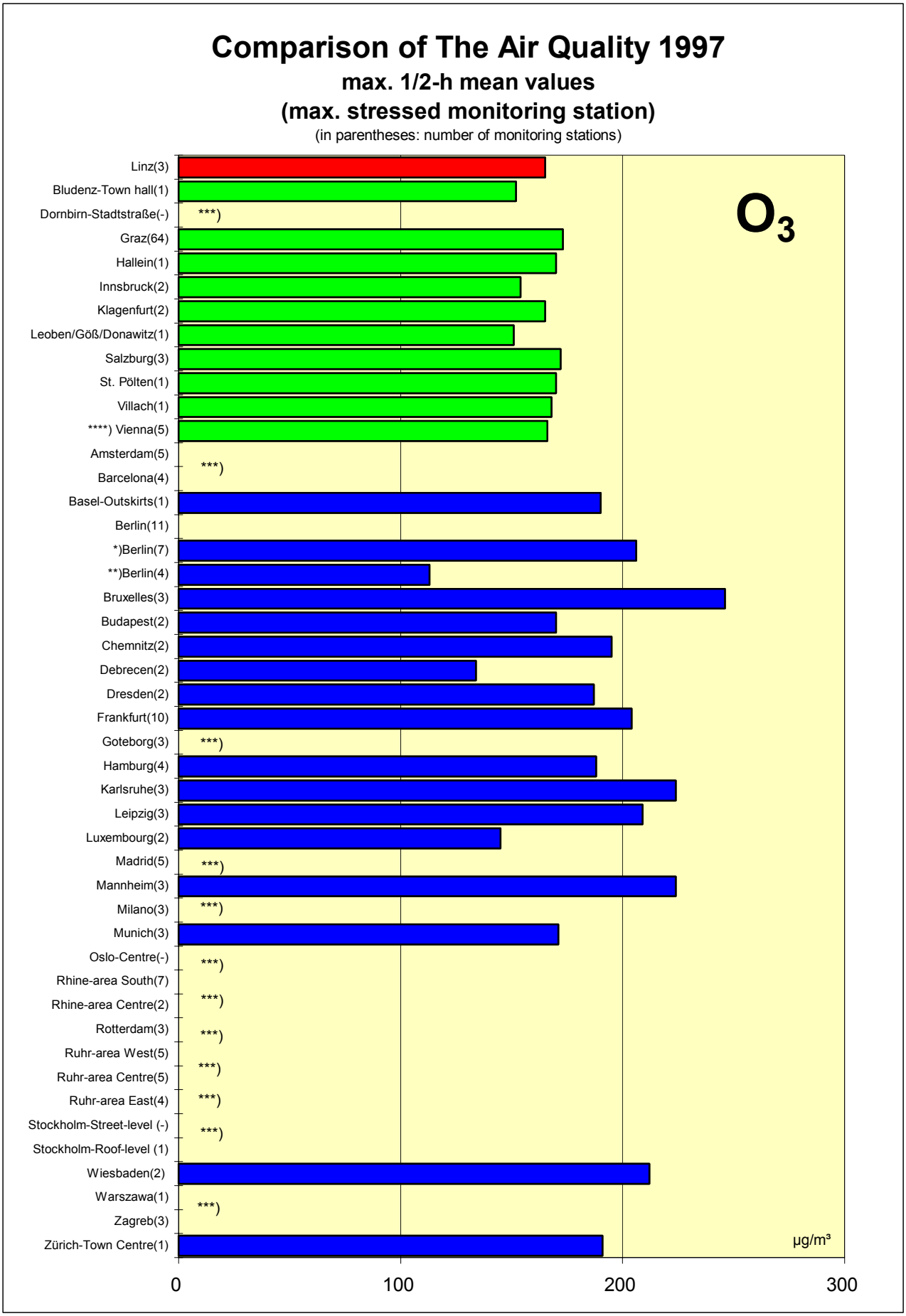

Comparison of The Air Quality 1997
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
Innsbruck(3)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(18)
Amsterdam(5)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin
**)Berlin
Bruxelles(7)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(23)
Mannheim(3)
Milano(7)
Munich(8)
Oslo-Centre(-)
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(2)
Warszawa(1)
Zagreb(9)
Zürich-Town Centre(1)
***)
µg/m³
0
150
300
450
600
750
900


Comparison of The Air Quality 1997
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)
Amsterdam(5)
Barcelona(4)
Basel-Outskirts(1)
Berlin(19)
*)Berlin
**)Berlin
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(23)
Mannheim(3)
Milano(3)
Munich(8)
Oslo-Centre(-)
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(2)
Warszawa(1)
Zagreb(4)
Zürich-Town Centre(1)
***)
µg/m3
0
200
400
600
800
1000
1200
1400
1600


Comparison of The Air Quality 1997
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
NO
Bludenz-Town hall(1)
Graz(6)
***)
Innsbruck(3)
Leoben/Göß/Donawitz(3)
***)
St. Pölten(1)
****) Vienna(18)
***)
Barcelona(5)
***)
Berlin(22)
**)Berlin(17)
Budapest(8)
Debrecen(2)
Frankfurt(10)
***)
Hamburg(11)
Leipzig(3)
Madrid(-)
***)
Milano(10)
***)
Oslo-Centre(-)
***)
Rhine-area Centre(4)
***)
Ruhr-area West(8)
Ruhr-area East(9)
Stockholm-Roof-level (2)
***)
Warszawa(1)
***)
Zürich-Town Centre(1)
µg/m³
0
450
900
1350
1800


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(21)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(6)
Zürich-Town Centre(1)
***)
µg/m³
0
150
300
450
600
750


Comparison of The Air Quality 1997
max. 1/2-h 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)
Amsterdam(5)
Barcelona(5)
***)
Basel-Outskirts(1)
Berlin(18)
*)Berlin(5)
**)Berlin(13)
Bruxelles(3)
Budapest(8)
Chemnitz(2)
Debrecen(-)
***)
Dresden(2)
Frankfurt(5)
Goteborg(3)
***)
Hamburg(5)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(17)
***)
Mannheim(3)
Milano(6)
***)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(-)
***)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
***)
Wiesbaden(1)
Warszawa(1)
Zagreb(-)
***)
Zürich-Town Centre(1)
µg/m³
0
5000
10000
15000
20000
25000
30000


Comparison of The Air Quality 1997
max. 1/2-h mean values
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
O3
Linz(3)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(-)
Graz(64)
Hallein(1)
Innsbruck(2)
Klagenfurt(2)
Leoben/Göß/Donawitz(1)
Salzburg(3)
St. Pölten(1)
Villach(1)
****) Vienna(5)
Amsterdam(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(4)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(5)
Mannheim(3)
Milano(3)
Munich(3)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(3)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
Stockholm-Roof-level (1)
Wiesbaden(2)
Warszawa(1)
Zagreb(3)
Zürich-Town Centre(1)
***)
µg/m³
0
100
200
300

Luftgütevergleich

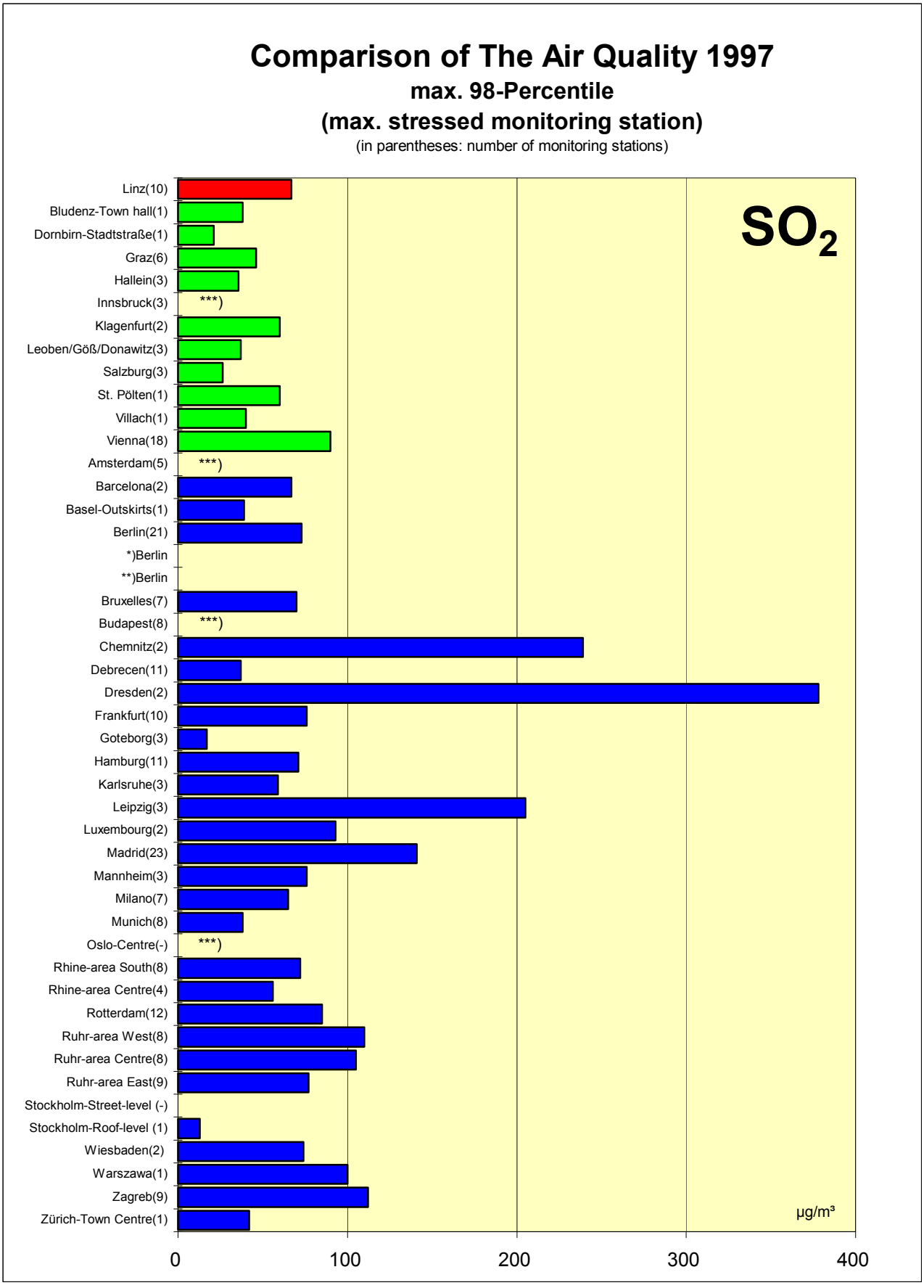
1997

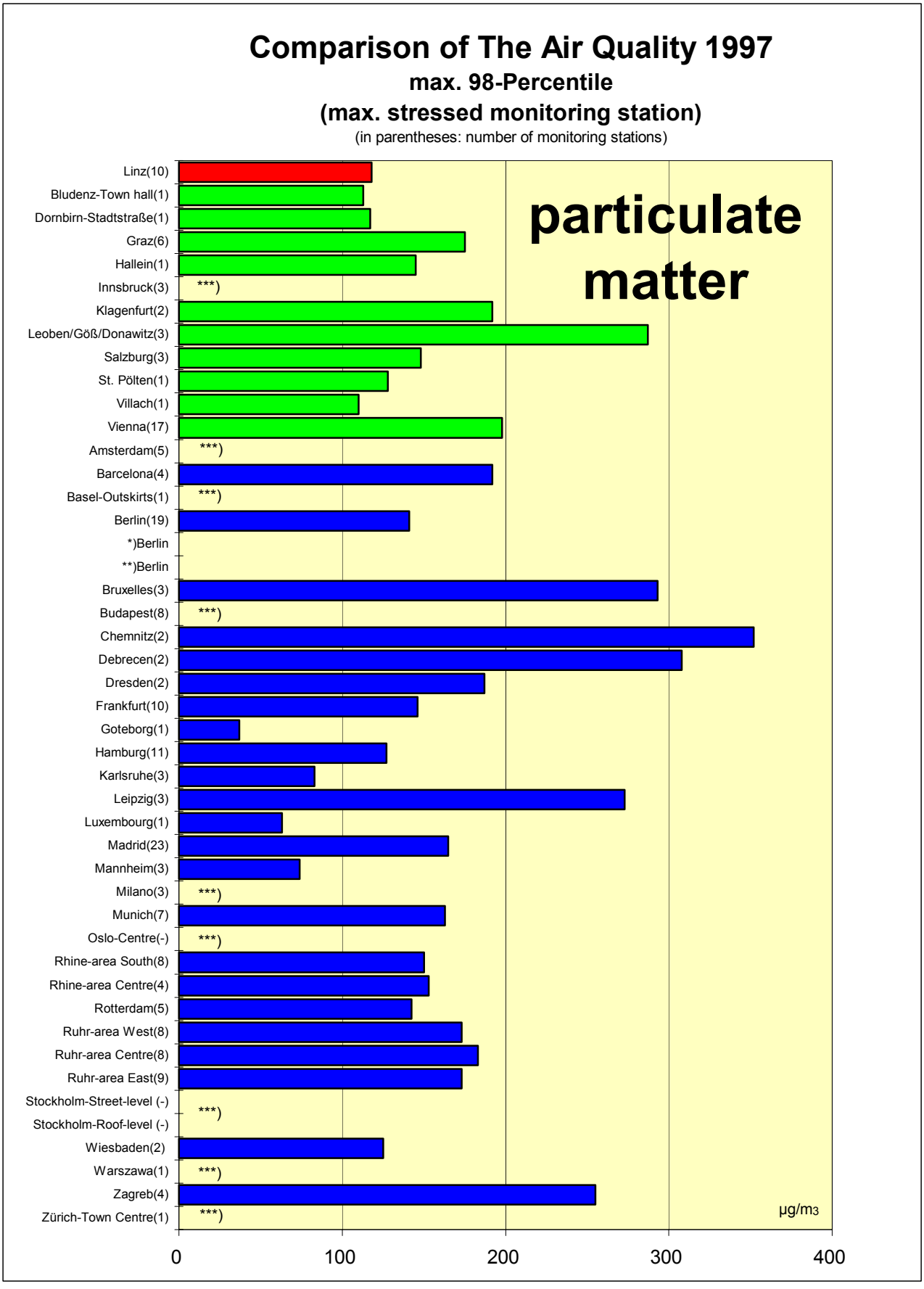
max. 98-Percentil/Jahr

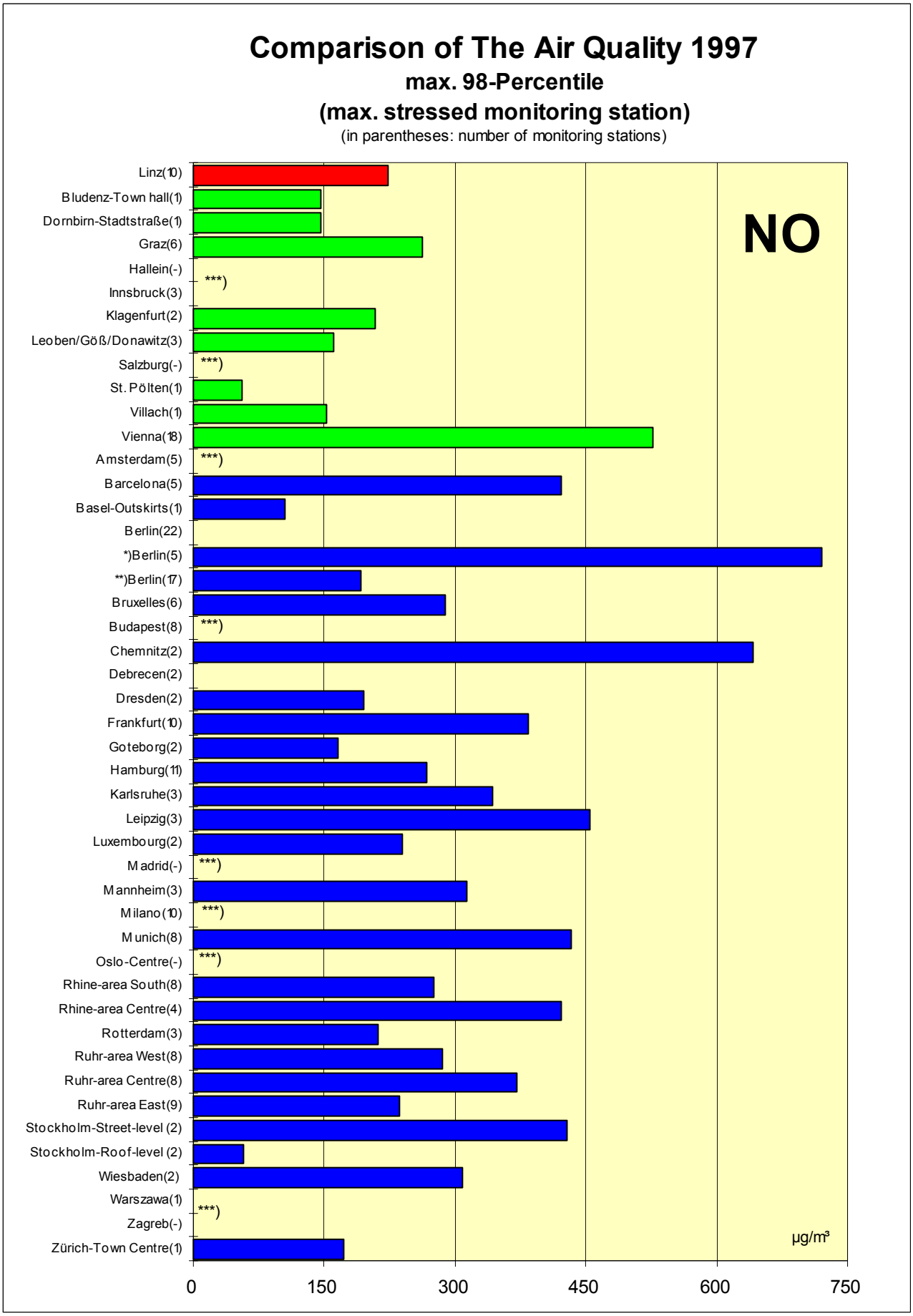
Comparison of The Air Quality

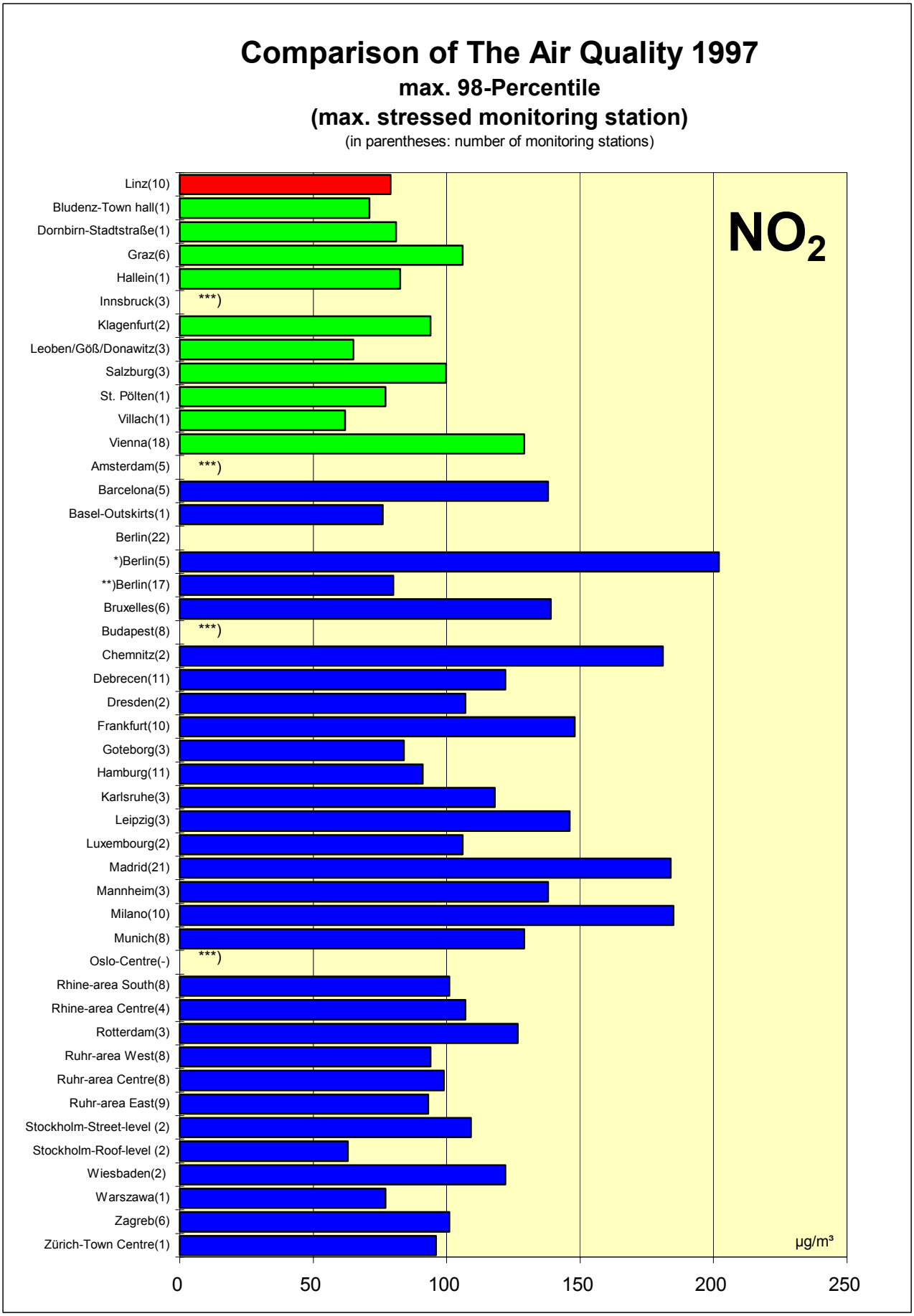
1997

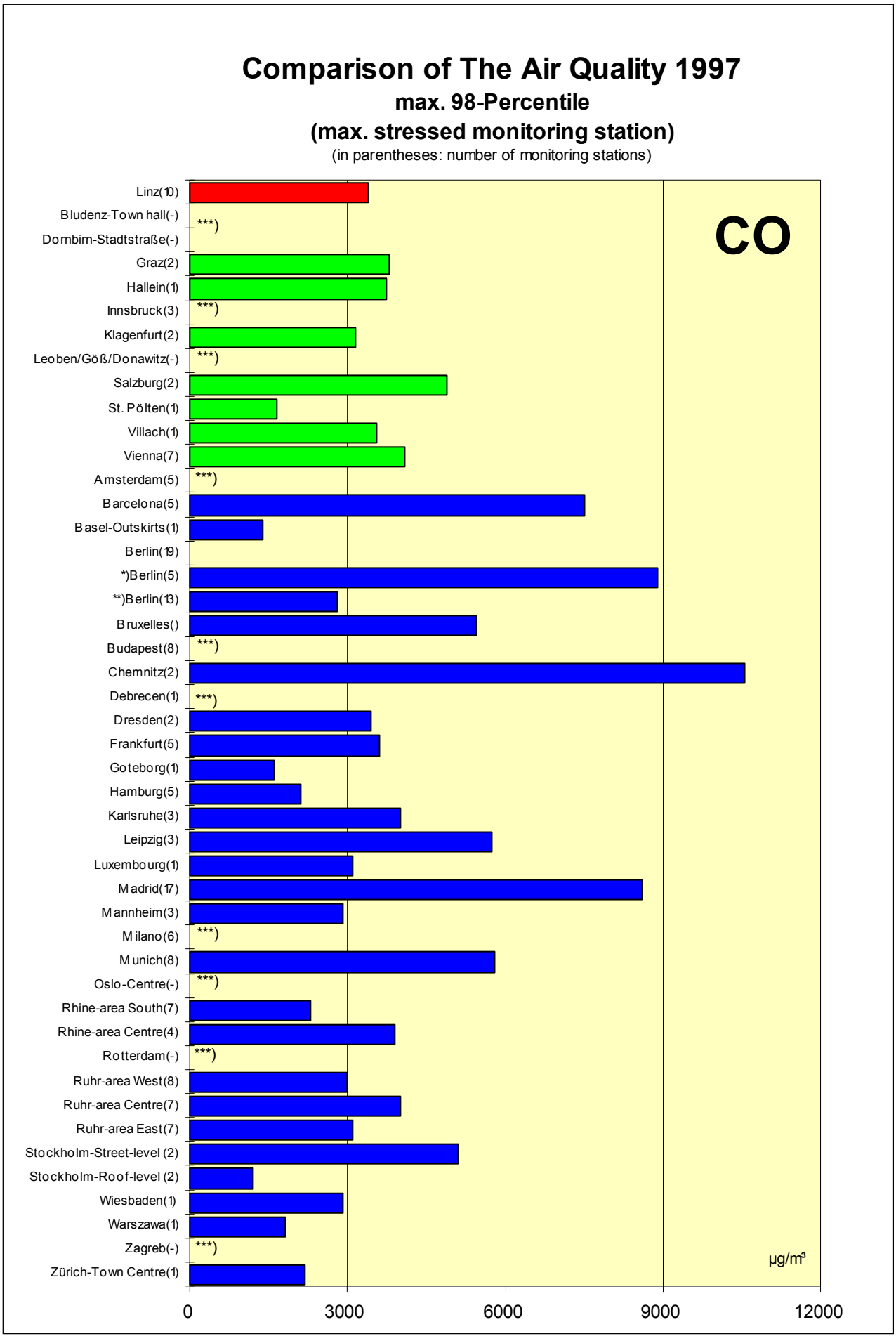
Max. 98-Percentile per Year

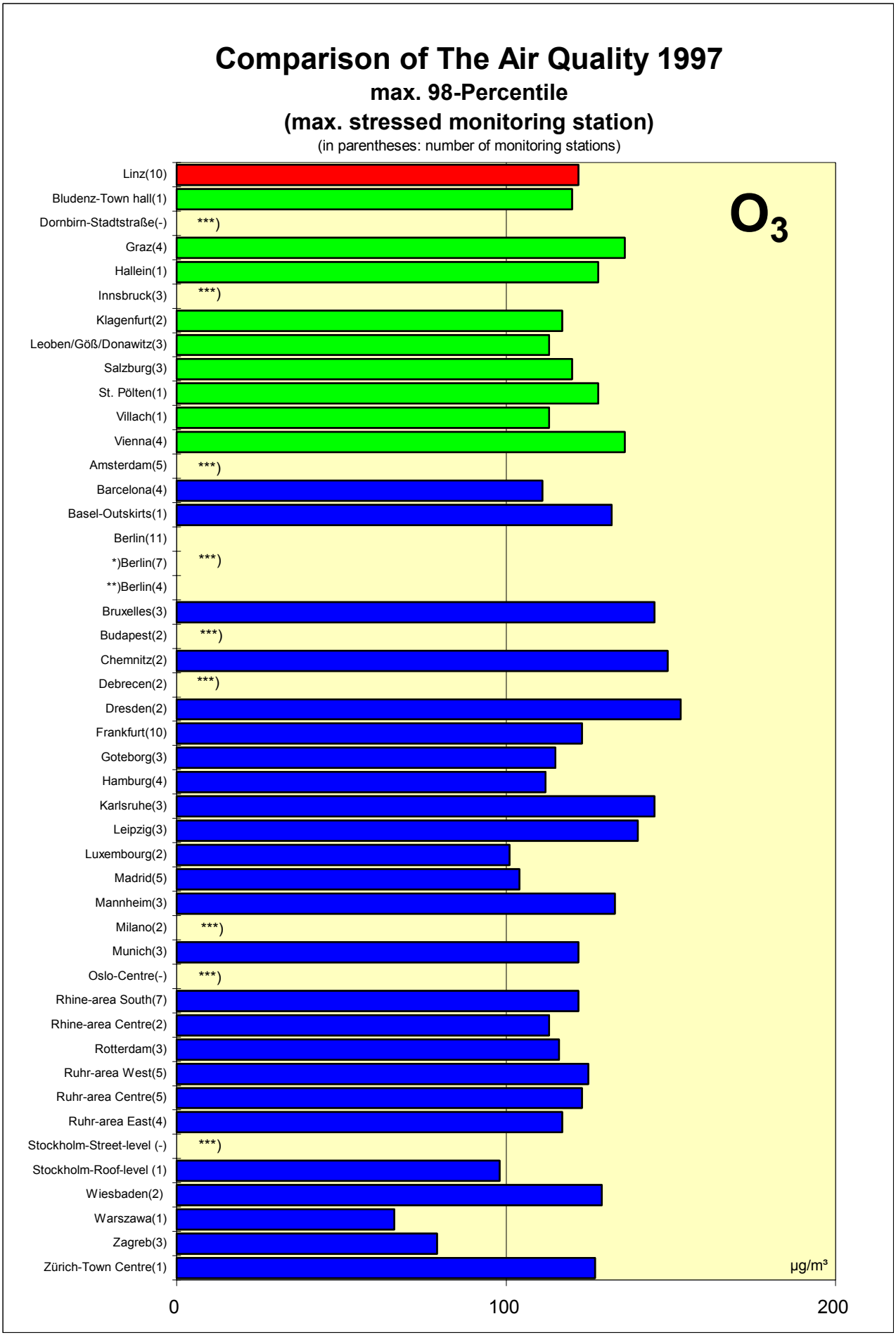

Comparison of The Air Quality 1997
max. 98-Percentile
(max. stressed monitoring station)
(in parentheses: number of monitoring stations)
SO2
Linz(10)
Bludenz-Town hall(1)
Dornbirn-Stadtstraße(1)
Graz(6)
Hallein(3)
Innsbruck(3)
***)
Klagenfurt(2)
Leoben/Göß/Donawitz(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(18)
Amsterdam(5)
***)
Barcelona(2)
Basel-Outskirts(1)
Berlin(21)
*)Berlin
**)Berlin
Bruxelles(7)
Budapest(8)
***)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(23)
Mannheim(3)
Milano(7)
Munich(8)
Oslo-Centre(-)
***)
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(2)
Warszawa(1)
Zagreb(9)
Zürich-Town Centre(1)
µg/m³
0
100
200
300
400


Comparison of The Air Quality 1997
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)
Amsterdam(5)
***)
Barcelona(4)
Basel-Outskirts(1)
***)
Berlin(19)
*)Berlin
**)Berlin
Bruxelles(3)
Budapest(8)
***)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(1)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(23)
Mannheim(3)
Milano(3)
***)
Munich(7)
Oslo-Centre(-)
***)
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(2)
Warszawa(1)
***)
Zagreb(4)
Zürich-Town Centre(1)
***)
µg/m3
0
100
200
300
400


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
Chemnitz(2)
Debrecen(2)
Dresden(2)
Frankfurt(10)
Goteborg(2)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(-)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
150
300
450
600
750


Comparison of The Air Quality 1997
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(18)
Amsterdam(5)
***)
Barcelona(5)
Basel-Outskirts(1)
Berlin(22)
*)Berlin(5)
**)Berlin(17)
Bruxelles(6)
Budapest(8)
***)
Chemnitz(2)
Debrecen(11)
Dresden(2)
Frankfurt(10)
Goteborg(3)
Hamburg(11)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(21)
Mannheim(3)
Milano(10)
Munich(8)
Oslo-Centre(-)
***)
Rhine-area South(8)
Rhine-area Centre(4)
Rotterdam(3)
Ruhr-area West(8)
Ruhr-area Centre(8)
Ruhr-area East(9)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(2)
Warszawa(1)
Zagreb(6)
Zürich-Town Centre(1)
µg/m³
0
50
100
150
200
250


Comparison of The Air Quality 1997
max. 98-Percentile
(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)
Amsterdam(5)
Barcelona(5)
Basel-Outskirts(1)
Berlin(19)
*)Berlin(5)
**)Berlin(13)
Bruxelles()
Budapest(8)
Chemnitz(2)
Debrecen(1)
Dresden(2)
Frankfurt(5)
Goteborg(1)
Hamburg(5)
Karlsruhe(3)
Leipzig(3)
Luxembourg(1)
Madrid(17)
Mannheim(3)
Milano(6)
Munich(8)
Oslo-Centre(-)
Rhine-area South(7)
Rhine-area Centre(4)
Rotterdam(-)
Ruhr-area West(8)
Ruhr-area Centre(7)
Ruhr-area East(7)
Stockholm-Street-level (2)
Stockholm-Roof-level (2)
Wiesbaden(1)
Warszawa(1)
Zagreb(-)
Zürich-Town Centre(1)
***)
µg/m³
0
3000
6000
9000
12000


Comparison of The Air Quality 1997
max. 98-Percentile
(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(3)
Salzburg(3)
St. Pölten(1)
Villach(1)
Vienna(4)
Amsterdam(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(4)
Karlsruhe(3)
Leipzig(3)
Luxembourg(2)
Madrid(5)
Mannheim(3)
Milano(2)
***)
Munich(3)
Oslo-Centre(-)
***)
Rhine-area South(7)
Rhine-area Centre(2)
Rotterdam(3)
Ruhr-area West(5)
Ruhr-area Centre(5)
Ruhr-area East(4)
Stockholm-Street-level (-)
***)
Stockholm-Roof-level (1)
Wiesbaden(2)
Warszawa(1)
Zagreb(3)
Zürich-Town Centre(1)
µg/m³
0
100
200

Luftgütekennzahlen

der einzelnen

Vergleichsregionen

Immission Reference Values

Of All Compared Regions

Reference Numbers for Air Quality

1997

Immission-area: Amsterdam

	# 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								
NO2								
CO								
O3								

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	12	41	169	651	877	-	67
Staub	4	56	93	254	479	829	-	192
NO	5	60	209	400	1338	1576	-	421
NO2	5	52	91	150	327	389	-	138
CO	5	1290	3550	6780	16900	318500	-	7500
O3	4	29	46	79	199	254	-	111

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	26	68	-	80	80	39
Staub	1	30	78	192	-	-	-	-
NO	1	15	48	149	-	296	309	105
NO2	1	31	59	88	-	114	117	76
CO	1	400	1100	1600	-	2500	2500	1400
O3	1	40	68	105	-	187	190	132

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	21	11	49	125	-	-	187	73
Staub	19	45	93	212	-	-	1543	141
NO	*) 5 \ **) 17	109 / 15	330 / 57	645 / 297	-	-	1248 / 884	720 / 192
NO2	*) 5 \ **) 17	57 / 26	97 / 47	191 / 100	-	-	371 / 182	202 / 80
CO	*) 5 \ **) 13	1640 / 427	4900 / 1300	8900 / 2900	-	-	19100 / 16600	8900 / 2800
O3	***)7 \ ****) 4	47 / 36	80 / 62	162 / 101	-	-	206 / 113	

*) Straßenmeßstationen **) Übrige Meßstationen ***) Stadtrandstationen ****) Stationen im Stadtzentrum

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

1997

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	12	26	45	89	128	155	38
Staub	1	32	68	137	188	233	292	113
NO	1	25	85	212	365	407	432	146
NO2	1	33	55	76	104	110	113	71
CO	-	-	-	-	-	-	-	-
O3	1	34	64	101	151	152	152	120

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	14	47	93	175	205	213	70
Staub	3	71	185	352	463	535	589	293
NO	6	52	227	467	917	1081	1191	289
NO2	6	48	87	155	263	264	265	139
CO	3	1276	3016	5568	12412	12644	14036	5452
O3	3	35	73	124	222	239	246	145

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	45	51	157	-	-	350	-
Staub	8	57	69	227	-	-	897	-
NO	8	37	65	318	-	-	936	-
NO2	8	48	67	130	-	-	269	-
CO	8	2500	2900	7800	-	-	20800	-
O3	2	40	51	103	.	-	170	-

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	18	72	203	353	446	495	239
Staub	2	53	88	185	466	848	914	352
NO	2	35	108	426	770	991	1108	641
NO2	2	41	73	125	231	297	338	181
CO	2	863	2437	7226	18567	21850	25400	10550
O3	2	38	66	103	188	191	195	149

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
1997

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	11	*12 / **11	*17 / **16	*82 / **263	-	-		*37 / **33
Staub	2	*69 / **134	*263 / **206	*406 / **399	-	-		*237 / **308
NO	2	*13 / **29	*16 / **45	*65 / **81	-	-	*302 / **216	-
NO2	11	*28 / **10	*30 / **48	*184 / **359	-	-		*102 / **122
CO	-	-	-	-	-	-	-	-
O3	2	*27 / **52	*37 / **57	*56 / **80	.	-	*98 / **134	-

*) heating term **) non Heating term

Immission-area: Dornbirn - Stadtstraße

	# 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	11	17	28	47	62	83	21
Staub	1	35	75	124	190	224	258	117
NO	1	32	70	149	321	427	457	146
NO2	1	38	61	99	108	120	123	81
CO	-	-	-	-	-	-	-	-
O3	-	-	-	-	-	-	-	-

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	22	107	306	405	445	484	378
Staub	2	55	83	153	346	698	796	187
NO	2	26	55	139	282	392	449	195
NO2	2	40	55	100	129	149	159	107
CO	2	641	1402	2738	5183	7300	8200	3450
O3	2	34	63	96	168	171	187	153

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	10	11	50	120	138	146	185	76
Staub	10	36	87	267	459	717	717	146
NO	10	43	171	755	1071	1190	1259	384
NO2	10	48	108	433	542	571	576	148
CO	5	800	2000	6300	9100	10000	10700	3600
O3	10	31	61	116	192	200	204	123

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	4	7	22	65	149	-	17
Staub	1	12	17	33	93	130	-	37
NO	2	20	50	188	599	645	-	165
NO2	3	27	50	97	143	161	-	84
CO	1	420	800	1700	5700	6400	-	1600
O3	3	51	74	115	147	151	-	115

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	11	34	54	71	74	91	46
Staub	6	46	113	230	566	640	658	175
NO	6	31	92	228	512	547	596	262
NO2	6	34	66	132	178	197	198	106
CO	2	944	2301	4593	12647	19423	23468	3804
O3	4	48	105	140	163	172	173	136

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

1997

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	8	-	48	162	-	280	36
Staub	1	42	-	149	355	-	489	145
NO	-	-	-	-	-	-	-	-
NO2	1	40	-	102	144	-	152	83
CO	1	1427	-	-	-	11066	13990	3735
O3	1	62	-	-	-	170	170	128

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	11	11	30	89	216	540	654	71
Staub	11	38	65	229	677	711	716	127
NO	11	21	79	350	990	1292	1338	268
NO2	11	33	55	113	183	224	244	91
CO	5	660	1147	4861	14747	20033	22634	2122
O3	4	36	63	98	177	184	188	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

1997

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	-	50	80	-	100	60
Staub	3	30	-	150	-	-	-	-
NO	3	44	-	440	-	-	920	-
NO2	3	38	-	104	159	-	182	-
CO	3	1160	-	5800	11600	13920	15080	-
O3	2	35	-	104	152	154	154	-

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	12	43	104	110	148	154	59
Staub	3	22	55	145	178	181	181	83
NO	3	46	151	443	675	830	856	343
NO2	3	46	78	221	297	289	295	118
CO	3	700	2000	5100	7400	9550	10700	4000
O3	3	34	73	118	211	218	224	145

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

1997

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	14	31	73	125	143	219	60
Staub	2	53	105	176	561	845	912	192
NO	2	30	93	231	459	511	529	208
NO2	2	31	61	91	143	158	160	94
CO	2	768	1849	3379	5620	6238	6469	3143
O3	2	40	85	124	160	164	165	117

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	13	49	249	454	625	693	205
Staub	3	48	90	229	445	831	932	273
NO	3	27	101	269	545	635	662	454
NO2	3	38	68	111	154	179	196	146
CO	3	783	1551	3486	9517	12250	12900	5750
O3	3	35	67	107	184	191	209	140

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality
1997

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	7	13	35	102	160	190	37
Staub	3	52	123	230	620	814	904	287
NO	3	20	68	169	291	353	372	161
NO2	3	22	41	85	142	150	153	65
CO	-	-	-	-	-	-	-	-
O3	1	31	61	85	149	151	151	113

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	6	28	84	194	365	371	67
Staub	10	34	76	240	318	466	587	118
NO	10	20	67	335	779	965	988	223
NO2	10	24	49	128	160	305	415	79
CO	10	610	1900	4300	8800	10200	10400	3400
O3	3	40	71	105	154	162	165	122

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

1997

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	19	49	121	191	221	305	93
Staub	1	26	47	86	141	159	166	63
NO	2	58	118	339	555	696	751	240
NO2	2	52	64	130	195	211	222	106
CO	1	900	1800	3500	8600	9900	17500	3100
O3	2	29	47	83	131	136	145	101

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	23	18	79	180	301	410	-	141
Staub	23	35	92	166	386	484	-	165
NO	-	-	-	-	-	-	-	-
NO2	21	64	118	175	367	470	-	184
CO	17	1350	4020	8860	21200	23100	-	8600
O3	5	27	56	79	173	176	-	104

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

1997

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	15	47	111	304	829,0	838	76
Staub	3	24	58	198	264	280,0	281	74
NO	3	38	146	734	1440	1726,0	1774	313
NO2	3	47	96	347	404	437,0	437	138
CO	3	567	1800	5700	7800	8000	8700	2900
O3	3	35	66	119	206	224	224	133

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	14	49	90	-	-	-	65 (24h value)
Staub *)	3	59	99	211	-	-	-	126(95%24h value)
NO	10	88	288	684	-	-	-	-
NO2	10	78	123	235	-	465	-	185 (1-h value)
CO	6	2400	5000	10800	-	28000	-	-
O3	3	42	81	122	-	250	-	-

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

1997

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 per year (2) (µg/m³)	Max. month (2) (µg/m³)
SO2	8	6	25	68	106	119	119	38	80
Staub	7	47	108	228	415	-	-	163	273
NO	8	60	205	659	1229	1465	1550	434	830
NO2	8	50	93	284	462	557	612	129	291
CO	8	1200	3300	8700	16000	20000	24100	5800	12100
O3	3	33	68	100	165	170	171	122	141

Immission-area: Oslo

	# 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								
NO2								
CO								
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
1997

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	15	39	-	-	-	119	56
Staub	4	49	76	-	673	-	-	153
NO	4	33	134	-	-	-	1097	422
NO2	4	40	65	-	-	-	280	107
CO	4	700	1700	-	-	-	8900	3900
O3	2	27	52	-	-	198	-	113

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	11	43	-	-	-	219	72
Staub	8	42	78	-	566	-	-	150
NO	8	31	106	-	-	-	763	275
NO2	8	39	62	-	-	-	176	101
CO	7	600	1600	-	-	-	7400	2300
O3	7	30	54	-	-	253	-	122

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

1997

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	13	31	103	-	260	-	85
Staub	5	46	88	265	-	-	-	143
NO	3	31	95	366	-	980	-	211
NO2	3	44	73	157	-	272	-	127
CO	-	-	-	-	-	-	-	-
O3	3	33	53	97	-	249	-	116

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	16	62	-	-	-	268	105
Staub	8	47	95	-	445	-	-	183
NO	8	26	135	-	-	-	1286	371
NO2	8	37	70	-	-	-	490	99
CO	7	700	2100	-	-	-	15400	4000
O3	5	33	61	-	-	199	-	123

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	15	52	-	-	-	578	110
Staub	8	51	87	-	611	-	-	173
NO	8	24	90	-	-	-	1201	285
NO2	8	37	61	-	-	-	380	94
CO	8	700	1700	-	-	-	10700	3000
O3	5	31	61	-	-	211	-	125

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	11	44	-	-	-	476	77
Staub	9	46	77	-	399	-	-	173
NO	9	25	93	-	-	-	819	236
NO2	9	34	61	-	-	-	242	93
CO	7	800	1800	-	-	-	16000	3100
O3	4	31	57	-	-	189	-	117

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	-	47	98	-	113	26
Staub	3	36	-	217	254	-	336	148
NO	-	-	-	-	-	-	-	-
NO2	3	40	-	131	186	-	211	100
CO	2	1259	-	-	-	10590	11240	4884
O3	3	37	-	-	-	170	172	120

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	11	25	95	122	128	167	60
Staub	1	55	78	140	261	295	347	128
NO	1	12	19	56	191	232	253	56
NO2	1	30	52	79	136	161	165	77
CO	1	710	1000	1660	4520	6040	6730	1650
O3	1	39	65	88	156	169	170	128

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	73	170	311	1618	1618	-	428
NO2	2	43	62	104	139	163	-	109
CO	2	1400	2300	5700	20800	25600	-	5100
O3	-	-	-	-	-	-	-	-

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	3	5	14	19	36	-	13
Staub	-	-	-	-	-	-	-	-
NO	2	10	16	59	235	365	-	58
NO2	2	23	32	63	103	123	-	63
CO	2	500	600	1100	2500	3700	-	1200
O3	1	51	69	99	117	127	-	98

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

1997

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	13	26	60	86	104	107	40
Staub	1	41	68	101	175	205	245	110
NO	1	30	63	177	305	334	341	153
NO2	1	23	37	64	93	116	153	62
CO	1	1089	2019	4226	6174	7585	7640	3565
O3	1	34	72	107	165	167	168	113

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) pro Jahr (2) (µg/m³)	Max.99,9-Percentil 1 h-mean (2) pro Jahr (2) (µg/m³)	Max.99,9-Percentil 1/2 h-mean (2) pro Jahr (2) (µg/m³)	Max. 98-Percentile pro Jahr (2) (µg/m³)
SO2	18	14	63	147	175	177	180	90
Staub	17	37	89	208	339	382	385	198
NO	18	23	199	444	716	808	815	526
NO2	18	35	82	160	182	185	186	129
CO	7	653	1850	3470	5640	6320	6440	4100
O3	5	50	95	127	161	163	166	136

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

2 highest monitored value of an immission-area

Reference Numbers for Air Quality

1997

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	22	68	197	-	-	-	112
Staub	4	89	161	400	-	-	-	255
NO	-	-	-	-	-	-	-	-
NO2	6	40	67	575	-	-	-	101
CO	-	-	-	-	-	-	-	-
O3	3	-	-	-	-	-		79

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	19	43	-	98	104	42
Staub	1	31	79	131	-	-	-	-
NO	1	24	67	255	-	386	394	173
NO2	1	40	66	128	-	173	176	96
CO	1	600	1400	2800	-	3700	3800	2200
O3	1	38	64	107	-	191	191	127

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

2 highest monitored value of an immission-area

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