

MUNICIPALITY OF LINZ
Environmental and Technical Center

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Air Quality Data in 2014
**The Comparison of Cities and
Regions in Europe**



Authors: Judith Kreindl
Wilfried Hager

Publisher:
MUNICIPALITY OF LINZ
Department "Planning, Technology and Environment"
Hauptstrasse 1 – 5
A-4041 Linz, Austria
e-mail: ptu@mag.linz.at
Tel.: +43 (732) 7070 – 3001
Fax.: +43 (732) 7070 – 543001

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Luftgütedaten 2014 Nationaler und europäischer Städtevergleich

Einführung

Die Bekämpfung der Luftverschmutzung ist nach wie vor eines der zentralen Themen, mit denen Umweltämter, Umweltbehörden bzw. sonstige für den Umweltschutz tätige Organisationen beschäftigt sind. In Form von regionalen oder nationalen Luftreinhalteplänen wird versucht, die Luftverschmutzung in den Griff zu bekommen und die Luftqualität sukzessive zu verbessern. In den letzten Jahren ist die Belastung an Feinstaub (PM₁₀) und Stickoxiden besonders in den Mittelpunkt des Interesses gerückt, da die Grenzwerte für diese Luftschadstoffe in den meisten Ballungsräumen überschritten werden.

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

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

Air Quality Data in 2014 The Comparison of Cities and Regions in Europe

Introduction

The fight against air-pollution is still one of the major topics organisations concerned with environmental affairs, such as national and local authorities are dealing with. Attempts are made to get air pollution under control and increase the air quality step by step establishing regional or national air-cleaning programmes. During the last years the pollutant stress of fine particulates (PM₁₀) and nitrogen oxides has become more important, since the European air quality standards of these pollutants are exceeded in most of the agglomerations.

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

It is absolutely necessary to determine the trends of pollution throughout a *longer period of time*, because various meteorological influences can cause an extreme alteration of the immission stress. 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 die Stadt Linz bereits seit vielen Jahren durchgeführt, genau genommen seit 1989. Anfänglich wurden nur österreichische Städte miteinander verglichen. In den folgenden Jahren wurde der Städtevergleich aufgrund des großen Interesses auf immer mehr europäische Städte und Regionen ausgedehnt. Im Jahr 2014 wurden Städte bzw. Regionen aus Österreich, Deutschland, Großbritannien, Frankreich, Belgien, Schweden, Italien, Schweiz, Spanien, Polen, Dänemark, Bulgarien, Tschechien, Ungarn, Lettland, Portugal, Slowakei und Kroatien mit einbezogen. Die Städte Athen, Thessaloniki, Luxemburg und Rotterdam lieferten für das Jahr 2014 keine Daten. Heuer wurde zum ersten Mal die Stadt Glasgow in die Auswertungen aufgenommen.

Die Stadt Bukarest liefert seit 14 Jahren keine Daten mehr. Sollten diese noch eintreffen, werden sie in künftigen Städtevergleichen in Form von Zeitreihen mit berücksichtigt.

Seit dem Jahr 2008 wurde der Luftgütevergleich mit dem lungengängigen Feinstaubanteil $PM_{2,5}$ ergänzt, da diese Partikel erhebliche negative Auswirkungen auf die menschliche Gesundheit besitzen.

Die Größe des Immissionsgebietes und die Bevölkerungszahl wurden ebenfalls seit 2008 in den Luftgütevergleich aufgenommen, um die Messstellendichte miteinander zu vergleichen.

Comparisons of the air quality have been carried out by the City of Linz already for a number of years, exactly since 1989. At first only Austrian Cities were compared. The comparison was extended to other European cities and regions during the last year as a result of growing interest in such studies. The comparison of the air quality of the year in 2014 comprised cities and regions of Austria, Germany, cities from Great Britain, France, Belgium, Sweden, Italy, Switzerland, Spain, Poland, Denmark, Bulgaria, Czech Republic, Hungary, Latvia, Portugal, Slovakia and Croatia. No data were sent to us by the city of Luxemburg, Athens, Thessaloniki and Rotterdam in 2014. This year the city of Glasgow has been added for the evaluations for the first time.

The city of Bucharest has not been delivering any data for 14 years. In case a delivery will follow, it will be taken into account for future reports in terms of time series.

Since 2008 the comparison of the air quality has been extended with fine particulate matter $PM_{2,5}$. These respirable particles are responsible for significant negative impacts on human health.

Since 2008 the comparison has been extended by the immission area and the population in order to compare the closeness of the measurement points.

Kritische Anmerkungen

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

1. die Zahl der Messstellen sehr verschieden ist (die Anzahl der Messstellen pro Messgebiet ist in der Tabelle auf Seite 16 und den nachfolgenden Grafiken angeführt),
2. die Messstellendichte unterschiedlich ist,
3. die Situierung der Messstellen nicht immer vergleichbar ist (In manchen Städten wurde deswegen bei den Schadstoffkomponenten zwischen verkehrsbelasteten Messstationen und anderen Messstationen unterschieden).

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

1. Die Luftschadstoffmessungen werden im Allgemeinen technisch in der gleichen oder in ähnlicher Weise durchgeführt. Das bedeutet, dass die Luftüberwachung an bestimmten *Punkten* einer Stadt oder einer Region mit Hilfe automatisch registrierender Immissionsmessstationen durchgeführt wird. Die gemessenen Konzentrationen repräsentieren die Belastung eines mehr oder weniger weiten Bereiches um die Messstation. Die *Art der Probenahme* müsste also *vergleichbar* sein.
2. Die Luftgütestationen sollten an Punkten errichtet werden, die einen größeren Bereich um die Messstation abdecken und nicht nur die Schadstoffbelastung an einem bestimmten Punkt widerspiegeln. Ausgenommen sind besondere verkehrsbelastete Probenahmepunkte. Die Messnetzbetreiber wurden eingeladen, diese Messpunkte getrennt anzugeben, um die wirkliche Situation des überwachten Gebietes wiederzugeben. Wie bereits erwähnt, unterscheiden einige Städte zwischen verkehrsbelasteten und nicht vom Verkehr beeinflussten Messstationen.

Critical remarks

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

1. The number of monitoring stations differs very much (the number of monitoring stations of each monitoring network is mentioned in the table on page 16 and the subsequent charts),
2. the density of distribution of the monitoring stations is different,
3. the location of the monitoring stations are not always comparable (for that reason some cities the network services distinguish between traffic-stressed and non-traffic-influenced monitoring stations).

The authors of the comparative study are thoroughly conscious of these facts, but despite the raised objections there are also some arguments of the activities:

1. The way of measurement of air pollutants is carried out by the same or similar technical methods. This means, the results of air monitoring activities are obtained by sampling at special sampling *points* in a city or region by means of automatically recording monitoring stations. The registered concentrations represent the stress of a more or less wide area around the monitoring station. Due to this reason the *method of sampling* itself should be *comparable*.
2. The monitoring stations should be located at points representing a wider portion of the monitored area, not only the pollution stress representative for a focal point. Exceptions are designated traffic stressed sampling points. The runners of monitoring station network services were invited to separate such monitoring points in order to represent the real situation of the monitored area. As already mentioned, some cities distinguish between traffic-stressed and non-traffic-influenced monitoring stations.

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

3. In the end the evaluations are put to a more objectified basis, when long term developments are observed and thereof the trends of the pollutant immission can be seen. Since the city of Linz has been carrying out comparisons of the air quality for many years, this report also contains the *trend developments* for the annual mean values since 1993 for all immission regions. The data of cities or regions which only have been participating the comparison for a couple of years have been updated as far back as possible.

Immissionskenngrößen

In der vorliegenden Studie wurden verschiedene Immissionskenngrößen erhoben:

- Jahresmittelwert (Mittel aus allen Stationen einer Stadt/Region)
- Max. Monatsmittelwerte (höchstbelastete Station einer Stadt/Region)
- Max. Tagesmittelwert (höchstbelastete Station einer Stadt/Region)
- Max. 3-Stunden-Mittelwert (höchstbelastete Station einer Stadt/Region)
- Max. Einstunden-Mittelwert (höchstbelastete Station einer Stadt/Region)
- Max. Halbstunden-Mittelwert (höchstbelastete Station einer Stadt/Region)
- Max. 98-Perzentil/Jahr (höchstbelastete Station einer Stadt/Region)
- Anzahl der Überschreitungen des PM₁₀-Tagesgrenzwertes an der höchstbelasteten Messstation
- Anzahl der Überschreitungen des NO₂-Grenzwertes für den 1h-Mittelwert an der höchstbelasteten Messstation

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

Wie schon in den letzten Berichten, ist der vorliegende Bericht bei den grafischen Auswertungen kürzer gefasst als vor dem Jahr 2006. Seit damals wurden die grafischen Darstellungen für die Perzentile, die max. 3-Stunden-Mittelwerte, die max. Halbstundenmittelwerte und die max. Monatsmittelwerte, da sie im Allgemeinen von nicht so starkem öffentlichem Interesse sind, herausgenommen. Aufgenommen wurden hingegen die grafischen Auswertungen über 1-Stunden-Mittelwerte, die nunmehr fast überall die Norm für die Bewertung von Kurzzeitbelastungen darstellen.

Immission reference values

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

- annual mean value (mean of all monitoring stations of a city/region)
- Max. monthly mean value (max. stressed monitoring station of a city/region)
- Max. daily mean value (max. stressed monitoring station of a city/region)
- Max. 3-hours mean value (max. stressed monitoring station of a city/region)
- Max. 1-hours mean value (max. stressed monitoring station of a city/region)
- Max. 1/2-hours mean value (max. stressed monitoring station of a city/region)
- Max. 98-Percentile/year (max. stressed monitoring station of a city/region)
- Number of violations of the PM₁₀ daily mean standard at the highest stressed monitoring station
- Number of violations of the NO₂ 1h mean standard at the highest stressed monitoring station

The runners of air pollution monitoring networks support us with immission data of very different completeness, especially referring to the evaluation of the percentiles or sometimes the evaluations of the max. 1/2-hours mean-value or the max. 3-hours mean-value. Often the 98-Percentile is not available but the value for the 95-Percentile is given. In most of the monitoring networks the percentiles are calculated based on the *1/2-hours mean* values of a calendar year, sometimes they were based on the *daily mean* values.

Regarding the graphical evaluations of immission reference data the present report has been shortened as already done in the latest reports. Since 2006 the graphical presentation of percentiles, max. 3h mean values, max. monthly mean values, 1/2h mean values have not been carried out any more, as a result of minor public interest. On the other hand the max. 1h mean values are graphically presented now, since they are the evaluation standard for short term stress nearly everywhere.

Es wurde also nur ein Teil der zur Verfügung gestellten Luftgütekennzahlen für die Grafiken verwendet. Die kompletten Datensätze können aus den Übersichtstabellen im Anhang entnommen werden.

Verglichene Luftschadstoffe

Folgende Luftschadstoffe wurden miteinander verglichen:

SO₂, CO, NO, NO₂, O₃, Feinstaub (PM₁₀ und PM_{2,5})

Anmerkung:

Schwebestaub (TSP) wurde nicht mehr ausgewertet, da die Messungen in den einzelnen Messgebieten mittlerweile durch PM₁₀-Messungen ersetzt worden sind.

Mehrjahresvergleich

Ein gutes Bild über die Entwicklung der Luftbelastung geben die Grafiken wieder. Dabei wurde von den am Luftgütevergleich teilnehmenden Städten die Entwicklung der Immissionsbelastung von 1993 bis 2014 aufgetragen.

Nach Analyse der Daten, können folgende Aussagen getroffen werden:

1. Einige Städte und Regionen haben ein dichtes Messstellennetz bezogen auf die Größe des Immissionsgebietes. Beispiele: Berlin, Linz, Wien. Andererseits werden manchmal sehr große Gebiete durch eine geringe Zahl von Messstationen überwacht.
2. Aufgrund dieser Tatsache ist die Vergleichbarkeit einzelner Regionen begrenzt.
3. Die Belastung (Jahresmittelwerte) einzelner Regionen und Städte ist noch immer sehr unterschiedlich.

Bei einigen Städten kann man erkennen, dass in jenen Situationen, bei denen 1993 relativ hohe Immissionsbelastungen registriert wurden, seitdem oftmals eine deutlich sichtbare Besserung der Immissionsituation eingetreten ist, während in Städten mit niedriger Immissionsbelastung im Vergleich dazu kaum eine Änderung der Luftbelastung eingetreten ist.

Only a part of the provided air quality values has been used for graphical evaluation. The whole data set can be obtained from the overview tables of the annex.

Pollutants compared

The following air pollutants have been compared:

SO₂, CO, NO, NO₂, O₃, fine particulates (PM₁₀ and PM_{2,5})

Remark:

TSP has not been evaluated any more due to the fact that in most monitoring networks the TSP measurements are already replaced by monitoring of PM₁₀.

Comparison over a period of years

A good impression of the development of air pollutant stress can be received by the graphical evaluations. Therefor the immission stress for the area of each participating city and region from 1993 through 2014 are plotted.

The following statements can be given when analysing the data:

1. Some cities and regions have - according to the area - a high monitoring network density. Examples: Berlin, Linz, Vienna. On the other hand very large areas are monitored only by a little number of stations.
2. Due to this fact the comparability between regions is limited.
3. The range of the annual mean immission stress still differs between the viewed cities and regions.

In some cities it can be seen that in regions where pollution stress was relatively high in 1993, a significant decrease could be observed, while in cities with low immission stress compared to other cities and regions there was hardly any change of air pollution.

<p>4. Es zeigt sich, dass in den Städten und Regionen die Schwebstaub-(TSP)-Messungen abgeschaltet wurden. Diese Messungen wurden von Feinstaub (PM₁₀-Messungen) abgelöst. TSP-Messungen werden daher seit einigen Jahren nicht mehr in die Auswertungen mit einbezogen.</p>	<p>4. It can be seen that cities and regions do not monitor TSP anymore. These measurements were replaced by monitoring the pollutant PM₁₀ which is the reason TSP measurements have not been included in the present report any more for a couple of years.</p>
<p>5. Entwicklung der Langzeitbelastung - Jahresmittelwerte SO₂, Schwebstaub (TSP) (nur bis 2004!), NO, NO₂, CO, und O₃ gegenüber 1993; PM₁₀: gegenüber 2001; PM_{2,5}: gegenüber 2008:</p>	<p>5. Long term development of the air pollution stress - annual mean values of SO₂, TSP (only until 2004!), NO, NO₂, CO, O₃ in comparison with 1993; for PM₁₀: comparison with 2001; for PM_{2,5}: comparison with 2008:</p>
<p>SO₂: Alle Regionen <i>geringer</i> belastet</p>	<p>SO₂: All regions <i>less</i> stressed</p>
<p>Staub: TSP-Messung in nahezu allen Regionen eingestellt. Wenn vorhanden, ist die Tendenz zu <i>geringeren</i> Belastungen (Vergleich nur bis 2004).</p>	<p>TSP: Nearly no TSP-measurements any more. If there is still monitoring, regions are <i>less</i> stressed in tendency (Comparison only up to 2004).</p>
<p>PM₁₀: uneinheitlich, tendenziell <i>gleich bleibend</i> oder <i>geringer belastet</i></p>	<p>PM₁₀: non-uniform, trend is constant or <i>lower</i> stressed</p>
<p>PM_{2,5}: uneinheitlich, tendenziell <i>gleich bleibend</i></p>	<p>PM_{2,5}: non-uniform, trend constant</p>
<p>NO: uneinheitlich, tendenziell <i>geringer</i> belastet</p>	<p>NO: non-uniform, trend of lower stress</p>
<p>NO₂: uneinheitlich, tendenziell <i>geringer</i> belastet oder <i>gleich bleibend</i></p>	<p>NO₂: non-uniform, trend is <i>lower</i> stressed or constant</p>
<p>CO: alle Regionen <i>geringer</i> belastet</p>	<p>CO: all regions trend of <i>lower</i> stress</p>
<p>O₃: Belastung tendenziell <i>gleich bleibend</i> oder <i>leicht erhöht</i></p>	<p>O₃: trend is constant or <i>slightly higher</i> stressed</p>

Quellen für die Immissionsdaten Sources for the immission data

Austria Bludenz, Dornbirn	Umweltinstitut des Landes Vorarlberg Montfortstrasse 4 A-6901 Bregenz Austria e-mail: umweltinstitut@vorarlberg.at Homepage: http://www.vorarlberg.at/umweltinstitut
Austria Graz, Leoben, Donawitz	Amt der Steiermärkischen Landesregierung Fachabt.15 Energie, Wohnbau, Technik (Ref. für Luftreinhaltung) Landhausgasse 7 A-8010 Graz Austria e-mail: abteilung15@stmk.gv.at Homepage: http://www.umwelt.steiermark.at/
Austria Innsbruck	Amt der Tiroler Landesregierung Abt. Waldschutz-Luftgüte Bürgerstrasse 36 A-6020 Innsbruck Austria e-mail: andreas.weber@tirol.gv.at Homepage: http://www.tirol.gv.at/luft
Austria Linz	Amt der öö. Landesregierung Direktion Umwelt und Wasserwirtschaft, Abt. Umweltschutz Goethestrasse 86 A-4020 Linz Austria e-mail: elisabeth.danninger@ooe.gv.at Homepage: http://www.land-oberoesterreich.gv.at/125879.htm
Austria Salzburg, Hallein	Amt der Salzburger Landesregierung, Umweltschutz Postfach 527 A-5010 Salzburg e-mail: alexander.kranabetter@salzburg.gv.at Homepage: http://www.salzburg.gv.at/
Austria St. Pölten	Magistrat der Landeshauptstadt St. Pölten Abteilung Umweltschutz Roßmarkt 6 A-3100 St. Pölten Austria e-mail: umweltschutz@st-poelten.gv.at Homepage: http://www.no.e.gv.at/Umwelt/Luft.html

Austria Vienna	Magistrat der Stadt Wien, Wiener Umweltschutzabteilung, MA 22 Bereich Luftmessnetz Dresdner Strasse 45 A-1200 Wien Austria e-mail: roman.augustyn@wien.gv.at Homepage: https://www.wien.gv.at/ma22-lgb/luftgi.htm
Austria Klagenfurt, Villach	Amt der Kärntner Landesregierung Abt. 8 Umwelt, Wasser und Naturschutz Flatschacher Strasse 70 A-9020 Klagenfurt e-mail: abt8.post@ktn.gv.at Homepage: http://www.umwelt.ktn.gv.at/198196_DE-Oekologie_und_Monitoring-Themenstartseite_Luftreinhaltung
Belgium Brussels	Bruxelles-Environnement Avenue du Port 86C/3000 B-1000 – Bruxelles Belgium e-mail: mforton@environnement.irisnet.be Homepage: http://www.environnement.brussels/
Bulgaria Sofia	<i>Executive Environmental Agency</i> <i>136 Tzar Boris III Blvd.</i> <i>BG-1618 Sofia</i> <i>Bulgaria</i> e-mail: fonmon@eea.government.bg Homepage: -
Croatia Zagreb	Institute of Medical Research and Occupational Health Ksaverska cesta 2 HR-10000 Zagreb Croatia e-mail: gpehnec@imi.hr Homepage: www.imi.hr
Czech Republic Prague	Czech Hydrometeorological Institute Na Sabatce 17 14306 Praha 4 Czech Republic e-mail: vaclav.novak@chmi.cz Homepage: http://www.chmi.cz
Denmark Copenhagen	National Environmental Research Institute Atmospheric Environment Frederiksborgej 399 DK-4000 Copenhagen Denmark Homepage: http://www.dmu.dk/en/air/

France Lyon	COPARLY 3 Allée des Sorbiers F-69500 Bron France e-mail: demandes@air-rhonealpes.fr Homepage: www.air-rhonealpes.fr
Germany Berlin	Senatsverwaltung für Stadtentwicklung und Umwelt Abteilung IX – Umweltpolitik, Abfallwirtschaft, Immissionsschutz, Fachgebiet Luftreinhaltung Brückenstrasse 6 D-10179 Berlin Germany e-mail: efthalia.nulis@SenStadtUm.Berlin.de Homepage: http://www.berlin.de/sen/umwelt/luftqualitaet/index.shtml
Germany Chemnitz, Dresden, Leipzig	Sächsisches Landesamt für Umwelt, Landwirtschaft und Geologie Söbrigener Str. 3a D-01326 Dresden e-mail: Kornelia.Oelke@smul.sachsen.de Homepage: http://www.umwelt.sachsen.de/umwelt/luft/5693.htm
Germany Frankfurt, Wiesbaden	Hessisches Landesamt für Umwelt und Geologie Rheingaustraße 186 D-65203 Wiesbaden Germany e-mail: baerbel.oehme@hlug.hessen.de Homepage: http://www.hlug.de
Germany Hamburg	Freie Hansestadt Hamburg, Behörde für Soziales, Familie, Gesundheit und Verbraucherschutz, Institut für Hygiene und Umwelt, Abteilung f. Luftuntersuchungen Marckmannstrasse 129b D-20539 Hamburg Germany e-mail: dagmar.goemer@hu.hamburg.de Homepage: http://www.luft.hamburg.de
Germany Karlsruhe, Mannheim Stuttgart	Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg, LUBW Großoberfeld 3 D-76135 Karlsruhe Germany e-mail: wilfried.weiss@lubw.bwl.de Homepage: http://www.lubw.baden-wuerttemberg.de/
Germany Munich	Bayerisches Landesamt für Umwelt Bürgermeister-Ulrich-Straße 160 D-86179 Augsburg Germany e-mail: Andreas.Falb@lfu.bayern.de Homepage: www.lfu.bayern.de

Germany Rhine Area, Ruhr Area	Landesamt für Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen Wallneyer Strasse 6 D-45133 Essen Germany Homepage: http://www.lanuv.nrw.de/umwelt/luft/immissionen/berichte-und-trends/
Greece Athens, Thessaloniki	Hellenic Republic Ministry for the environment Directorate of air and noise pollution control Patission 147 GR-11251 Athens Greece e-mail: air_quality@prv.ypeka.gr Homepage: www.ypeka.gr
Hungary Budapest	OMSZ (Hungarian Meteorological Service) Air Quality Reference Centre Kitaibel Pál u. 1 H-1024 Budapest Hungary e-mail: puskas.monika@met.hu Homepage: www.met.hu www.levegominoseg.hu
Italy Milan	ARPA Lombardia - Agenzia Regionale per la Protezione dell'Ambiente della Lombardia Dipartimento di Milano Via Juvara 22 I-20149 Milano Italy e-mail: m.lazzarini@arpalombardia.it Homepage: http://www2.arpalombardia.it/sites/QAria/layouts/15/QAria/Approfondimenti.aspx
Latvia Riga	Ministry of Environmental Protection and Regional Development of the Republic of Latvia State limited Liability Company "Latvian Environment, Geology and Meteorology Centre" Air and Climate Division 165 Maskavas str. LV-1019 Riga Latvia e-mail: Tamara.vasiljeva@lvgmc.lv Homepage: http://www.lvgmc.lv
Luxemburg Luxemburg	Administration de l'Environnement, Département Air/Bruit 16, rue Eugène RUPPERT L-2453 Luxemburg e-mail: Serge.solagna@aev.etat.lu Homepage: http://www.environnement.public.lu/index.html
The Netherlands Rotterdam	DCMR- Environmental Protection Agency 's-Gravelandseweg 565, Postbox 843 NL- 3100 AV Schiedam The Netherlands e-mail: Andre.snijder@dcmr.nl Homepage: http://www.dcmr.nl

Poland Warsaw	WIOS Warszawa ul. Bartycka 110A PL-00-716 Warszawa Poland e-mail: t.klech@wios.warszawa.pl Homepage: http://www.wios.warszawa.pl
Portugal Lisbon	Comissão de Coordenação e Desenvolvimento Regional de Lisboa e Vale do Tejo Rua Braamcamp 7 PT-1250-048 Lisboa Portugal e-mail : ambiente@ccdr-lvt.pt Homepage: http://qualar.apambiente.pt/
Slovakia Bratislava	Slovak Hydrometeorological Institute, Department of Emission Monitoring & Air Quality Jeséniova 17 SK-833 15 Bratislava e-mail: viliam.patoprsty@shmu.sk Homepage: http://www.shmu.sk
Spain Barcelona, Madrid	Ministerio de Agricultura, Alimentación y Medio Ambiente Plaza San Juan de la Cruz s/N. 6 ^a planta. A-602.1 E-28071 Madrid e-mail: mpallares@magrama.es Homepage: -
Sweden Gothenburg	Environmental Department Gothenburg Karl Johansgatan 23 S-414 59 Göteborg Sweden e-mail: Hung.nguyen@miljo.goteborg.se Homepage: http://www.goteborg.se/luften
Sweden Stockholm	Environment and Health Protection Administration, Slb—analys Box 8136 S-10420 Stockholm Sweden e-mail: boel@slb.nu Homepage: http://www.slb.nu
Switzerland Basel, Zurich	Bundesamt für Umwelt, Abteilung Luftreinhaltung und NIS CH-3003 Bern Switzerland e-mail: rudolf.weber@bafu.admin.ch Homepage: http://www.bafu.admin.ch/luft/index.html
U.K. Belfast, Birmingham, Bristol, Edinburgh, Glasgow Leeds, Liverpool, London	The Department of the Environment, Food and Rural Affairs Environmental protection Ashdown House, 123 Victoria St London SW 1E 6DE Homepage: http://www.airquality.co.uk

Anzahl der Messstellen**Number of monitoring stations**

Country	Monitored Area	SO ₂	PM ₁₀	PM _{2,5}	NO	NO ₂	CO	O ₃
Austria	Bludenz	-	1	-	1	1	-	1
	Dornbirn	-	1	1	1	1	-	1
	Graz	4	3	2	6	6	3	4
	Hallein	2	1	-	2	2	1	1
	Innsbruck	1	2	1	3	3	1	3
	Klagenfurt	1	2	2	2	2	1	2
	Region Leoben	2	1	-	3	3	1	1
	Linz	5	6	4	7	7	5	2
	Salzburg	2	3	2	3	3	2	2
	St. Pölten	2	2	2	2	2	2	2
	Vienna	7	12	6	17	17	4	5
Villach	-	1	-	1	1	-	-	
Belgium	Brussels	7	6	5	10	10	7	7
Bulgaria	Sofia	6	7	2	6	6	4	5
Croatia	Zagreb	6	6	3	-	5	1	5
Czech Republic	Prague	3	17	6	12	15	3	6
Denmark	Copenhagen	1	3	3	3	3	2	2
France	Lyon	1	5	2	6	6	-	3
Germany	Berlin	2	11	5	16	16	2	7
	Chemnitz	-	2	1	2	2	-	1
	Dresden	1	4	3	4	4	-	3
	Frankfurt	1	3	2	3	3	1	2
	Hamburg	5	11	4	17	17	4	6
	Karlsruhe	1	2	2	2	2	1	1
	Leipzig	1	3	2	3	3	-	1
	Mannheim	1	2	2	2	2	1	2
	Munich	1	4	4	5	5	3	3
	Rhine/Ruhr Area	7	22	12	21	21	-	16
	Stuttgart	1	2	2	2	2	1	2
Wiesbaden	1	3	2	3	3	1	1	
Greece	Athens (2012)	5	7	2	14	14	7	13
	Thessaloniki (2012)	2	5	-	6	6	4	5
Hungary	Budapest	10	12	1	12	12	12	10
Italy	Milan	1	3	2	8	8	4	3
Latvia	Riga	2	3	1	1	3	1	2
Luxemburg	Luxemburg (2010)	2	1	1	2	2	2	2
The Netherlands	Rotterdam (2013)	6	3	3	3	3	3	3
Poland	Warsaw	2	5	4	3	3	2	3
Portugal	Lisbon	2	3	2	5	5	3	3
Slovakia	Bratislava	1	4	-	3	3	1	2

Country	Monitored Area	SO ₂	PM ₁₀	PM _{2,5}	NO	NO ₂	CO	O ₃
Spain	Barcelona	4	10	7	7	7	4	5
	Madrid	10	12	6	24	24	10	14
Switzerland	Basel	1	1	1	1	1	-	1
	Zurich	1	1	1	1	1	1	1
Sweden	Gothenburg	3	6	3	8	7	1	1
	Stockholm	1	4	3	-	4	2	1
U.K.	Belfast	1	2	1	2	2	-	1
	Birmingham	1	2	3	3	3	-	3
	Bristol	-	1	1	1	1	-	1
	Edinburgh	1	1	1	1	1	-	1
	Leeds	1	2	2	2	2	1	1
	Liverpool	1	1	1	2	2	-	1
	London	4	5	1	11	11	2	8

- no monitoring station

Immissionsgebiete und Bevölkerung

Immission area and population

Country	Monitored Area	Immission area [km ²]	Population
Austria	Bludenz	30	14 000
	Dornbirn	121	47 000
	Graz	128	273 838
	Hallein	27	21 000
	Innsbruck	105	127 000
	Klagenfurt	120	96 000
	Region Leoben	108	24 680
	Linz	96	198 000
	Salzburg	66	148 000
	St. Pölten	108	52 000
	Vienna	415	1 767 000
Villach	135	60 000	
Belgium	Brussels	161	1.168.000
Bulgaria	Sofia	1 311	1.257 000
Croatia	Zagreb	641	790 000
Czech Republic	Prague	496	1 260 000
Denmark	Copenhagen	86	580.000
France	Lyon	48	496.000
Germany	Berlin	892	3 422 000
	Chemnitz	221	242 000
	Dresden	328	531 000
	Frankfurt	248	709 000
	Hamburg	755	1 760 000
	Karlsruhe	173	299 000
	Leipzig	298	532 000
	Mannheim	145	297 000
	Munich	310	1 410 000
	Rhine/Ruhr Area	5 770	8 214 000
	Stuttgart	207	604 000
Wiesbaden	204	282 000	
Greece	Athens	1 948	3 753 000
	Thessaloniki	129	794 330
Hungary	Budapest	525	1 745 000
Italy	Milan	182	1 337 000
Latvia	Riga	307	659 000
Luxemburg	Luxemburg	51	111 000
The Netherlands	Rotterdam	803	1 200 000
Poland	Warsaw	517	1 724 000
Portugal	Lisbon	85	548 000

Country	Monitored Area	Immission area [km ²]	Population
Slovakia	Bratislava	368	420 000
Spain	Barcelona	101	1 602 000
	Madrid	604	3 238 000
Switzerland	Basel	557	501 000
	Zurich	1 086	1 185 000
Sweden	Gothenburg	1 031	543 000
	Stockholm (inner city)	48	309 000
U.K.	Belfast	115	337 000
	Birmingham	268	1 101 000
	Bristol	110	432 000
	Edinburgh	262	493 000
	Glasgow	176	600 000
	Leeds	552	475 000
	Liverpool	112	473 000
	London	1 572	8 539 000

Übersicht über die Entwicklung der Schadstoffbelastungen 1993 - 2014 ¹⁾

Beurteilungsbasis: Jahresmittelwerte über alle Stationen einer Region

Overview over the development of the stress of air pollutants from 1993 through 2014 ¹⁾

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

Austrian Towns, Cities and Regions

	SO ₂			NO			NO ₂			CO			O ₃		
	Stress in 1993 ²⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ²⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ²⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ²⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ²⁾	Trend last 5 years	Stress in 2014
Linz		==			==			↘			↘			==	
Bludenz		n.d.	n.d.	1994	==			↘		-	n.d.	n.d.	1994	==	
Dornbirn		n.d.	n.d.	1994	==			==		1998	n.d.	n.d.	2014	n.d.	
Graz		==		1994	↘			↘			↘			↗	
Hallein		==		2003	↘			↘			↘			==	
Innsbruck		==			==			==			==			↗	
Klagenfurt		==			↘			↘			↘			==	
Region Leoben		==			↘			==			↘			==	
Salzburg		==		2003	↘			↘			==			↘	
St. Pölten	1994	==		1994	↘		1994	↘		1994	↘		1994	==	
Vienna		↗		1994	==			↘			↘			==	
Villach		n.d.	n.d.		==			↘			n.d.	n.d.		n.d.	n.d.

¹⁾ TSP measurements are mostly replaced by PM₁₀ monitoring (see page 13). So no comparison of TSP has been carried out since 2004. If you are interested in TSP-values until 2005 please refer to the report of 2005 (available via internet, URL <http://www.linz.at/umwelt/4109.asp>)

²⁾ Or year, when data were primarily available

European Cities and Regions

	SO ₂			NO			NO ₂			CO			O ₃		
	Stress in 1993 ³⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ³⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ³⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ³⁾	Trend last 5 years	Stress in 2014	Stress in 1993 ³⁾	Trend last 5 years	Stress in 2014
Athens	2007	n.d.	n.d.	2007	n.d.	n.d.	2007	n.d.	n.d.	2007	n.d.	n.d.	2007	n.d.	n.d.
Barcelona	1994	==		1994	==		1994	↘			↗		1994	==	
Basel		==			==			==			n.d.	n.d.		==	
Belfast		↗			↗			↗			n.d.	n.d.		==	
Berlin		==			==			==			==			==	
Birmingham		==			↗			↗			n.d.	n.d.		↗	
Bratislava	2013	n.d.		2013	n.d.			n.d.			n.d.	n.d.		n.d.	
Bristol		==			↘			↘			n.d.	n.d.		==	
Brussels	1995	==		1995	==		1995	==			==		1995	==	
Budapest	1996	↗		2003	==		2003	↗			↗		2003	↗	
Chemnitz		n.d.			↗			==			n.d.	n.d.		==	
Copenhagen		↗		1994	n.d.		1995	==		1998	↗	n.d.	1994	↗	
Dresden		↗			==			↗			n.d.	n.d.		==	
Edinburgh		↗			↗			↗			n.d.	n.d.		↗	
Frankfurt		↗			↖			==			==			==	
Glasgow	n.d.	n.d.		2014	n.d.		2014	n.d.		n.d.	n.d.	n.d.	2014	n.d.	
Gothenburg		==			↗			==			n.d.			==	
Hamburg		==			↗			==			==			==	
Karlsruhe		↗			==			==			==			↗	
Leeds		==			↗			==			==			↗	
Leipzig		==			==			↗			n.d.	n.d.	1997	==	
Lisbon	1997	==		2001	n.d.		1997	↗			==			==	
Liverpool		==			==			==			n.d.	n.d.		↗	
London		==			==			↗			==			↗	

³⁾ ... or year when data were primarily available

	SO ₂			NO			NO ₂			CO			O ₃		
	Stress in 1993-4)	Trend last 5 years	Stress in 2014	Stress in 1993-4)	Trend last 5 years	Stress in 2014	Stress in 1993-4)	Trend last 5 years	Stress in 2014	Stress in 1993-4)	Trend last 5 years	Stress in 2014	Stress in 1993-4)	Trend last 5 years	Stress in 2014
Luxembourg	1996	n.d.	n.d.	1996	n.d.	n.d.	1996	n.d.	n.d.	1996	n.d.	n.d.	1996	n.d.	n.d.
Lyon		↘			↗			↗		1994	n.d.	n.d.	1994	===	
Madrid	1994	↘		1999	===		1994	↗		1994	===		1994	===	
Mannheim		↘			↗			===			===			===	
Milan	1994	↗		1994	↗		1994	↗		1994	↗		1994	↗	
Munich		===			===			↗			↗			===	
Prague	2007	↘		2007	===		2007	↗		2007	↗		2007	===	
Riga	1999	===		2007	↗		1999	===		2002	===		1999	↗	
Rhine/Ruhr Area		↘			===			↗			n.d.	n.d.		===	
Rotterdam	1995	n.d.	n.d.	1995	n.d.	n.d.	1995	n.d.	n.d.	2003	n.d.	n.d.	1995	n.d.	n.d.
Sofia	1999	↘		2003	↗		1999	↗		1999	↗		1999	↗	
Stockholm		===		1994	n.d.	n.d.	1994	↗		1994	↗		1994	===	
Stuttgart	2007	↘		2008	↗		2007	===		2007	===		2007	===	
Thessaloniki	2007	n.d.	n.d.	2007	n.d.	n.d.	2007	n.d.	n.d.	2007	n.d.	n.d.	2007	n.d.	n.d.
Warsaw	1995	===		2001	n.d.		1995	===		1995	===		1995	===	
Wiesbaden		===			↗			===			↗			===	
Zagreb		↘		n.d.	n.d.	n.d.	1994	===		2005	n.d.		1999	===	
Zurich		↘			===			===			===			===	

n.d. no data

Slightly stressed (SO₂ < 15, TSP < 30, NO < 30, NO₂ < 30, CO < 1000, O₃ < 30 µg/m³)
 Medium stressed (SO₂ < 30, TSP < 60, NO < 60, NO₂ < 60, CO < 2000, O₃ < 60 µg/m³)
 Highly stressed (SO₂ > 30, TSP > 60, NO > 60, NO₂ > 60, CO > 2000, O₃ > 60 µg/m³)




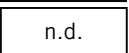
↘ Slight stress decrease == Constant stress
 ↗ Slight stress increase ↗ Slight stress increase
 ↘ Strong stress decrease ↗ Strong stress increase
 ↗ Strong stress decrease ↘ Strong stress increase

4 ... or year when data were primarily available

	PM ₁₀		
	Stress in 2002 ⁵⁾	Stress in 2014	Trend 2010-2014
Linz			==
Bludenz	2005	n.d.	n.d.
Dornbirn			↘
Graz			↘
Hallein			==
Innsbruck			↘
Klagenfurt			↘
Region Leoben	2003		↘
Salzburg			==
St. Pölten			↘
Vienna			↘
Villach			↘
Athens	2007	n.d.	n.d.
Barcelona			↘
Basel			==
Belfast			==
Berlin			==
Birmingham			↘
Bratislava	2013		n.d.
Bristol			==
Brussels			==
Budapest	2004		==
Chemnitz			==
Copenhagen			==
Dresden			==
Edinburgh			==
Frankfurt			==

	PM ₁₀		
	Stress in 2002 ⁵⁾	Stress in 2014	Trend 2010-2014
Glasgow	2014		n.d.
Göteborg			↗
Hamburg			==
Karlsruhe			==
Leeds			↘
Leipzig			↘
Lisbon			↘
Liverpool			↘
London			==
Luxemburg		n.d.	n.d.
Lyon			==
Madrid			↘
Mannheim			==
Milan			↘
Munich			↘
Prague	2007		==
Riga			==
Rhine/Ruhr Area			==
Rotterdam		n.d.	n.d.
Sofia			==
Stockholm			==
Stuttgart	2007		==
Thessaloniki	2007	n.d.	n.d.
Warsaw			==
Wiesbaden			==
Zagreb			==
Zurich			↘

Legend:




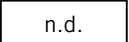
	Slightly stressed	(PM ₁₀ < 20 µg/m ³)
	Medium stressed	(PM ₁₀ < 40 µg/m ³)
	Highly stressed	(PM ₁₀ > 40 µg/m ³)
	n.d.	No data

⁵⁾ If values of 2002 are not available, data of the year mentioned are compared.

	PM _{2,5}		
	Stress in 2008 ⁶⁾	Stress in 2014	Trend 2010-2014
Linz			==
Bludenz	n.d.	n.d.	n.d.
Dornbirn	2013		n.d.
Graz			↘
Hallein	2014		n.d.
Innsbruck			↘
Klagenfurt			↘
Region Leoben	n.d.	n.d.	n.d.
Salzburg			==
St. Pölten			↘
Vienna	2010		↘
Villach		n.d.	n.d.
Athens		n.d.	n.d.
Barcelona			↘
Basel			==
Belfast	2009		==
Berlin			==
Birmingham	2009		↘
Bratislava	n.d.	n.d.	n.d.
Bristol	2009		==
Brussels			==
Budapest	2009		==
Chemnitz			↘
Copenhagen			==
Dresden			==
Edinburgh	2009		==
Frankfurt	2010		↘

	PM _{2,5}		
	Stress in 2008 ⁵⁾	Stress in 2014	Trend 2010-2014
Glasgow	2014		n.d.
Göteborg			==
Hamburg			==
Karlsruhe	2011		n.d.
Leeds	2009		↘
Leipzig			↘
Lisbon			==
Liverpool	2009		==
London			==
Luxemburg	n.d.	n.d.	n.d.
Lyon			↘
Madrid			==
Mannheim	2011		n.d.
Milan			==
Munich	2009		↘
Prague			==
Riga			↓
Rhine/Ruhr Area			↘
Rotterdam		n.d.	n.d.
Sofia			==
Stockholm			==
Stuttgart	2011		n.d.
Thessaloniki	n.d.	n.d.	n.d.
Warsaw			==
Wiesbaden			==
Zagreb			==
Zurich			↘

Legend:

	Slightly stressed	(PM _{2,5} < 10 µg/m ³)
	Medium stressed	(PM _{2,5} < 20 µg/m ³)
	Highly stressed	(PM _{2,5} > 20 µg/m ³)
	No data	

⁶⁾ If values of 2002 are not available, data of the year mentioned are compared.

Anzahl der Tage mit Überschreitungen des PM_{10} -Tagesmittelwertes von $50 \mu\text{g}/\text{m}^3$ in den Jahren 2001 bis 2014 ⁷⁾

Beurteilungsbasis: Anzahl der Überschreitungen an der höchstbelasteten Station eines Messgebietes (einschließlich verkehrsbelasteter Stationen) ⁸⁾

Number of days with exceedances of the PM_{10} daily mean of $50 \mu\text{g}/\text{m}^3$ 2001 through 2014 ⁹⁾
based on the number of exceedances at the peak stressed monitoring station of a region (including traffic stressed stations) ¹⁰⁾

	PM_{10}													
	number of days >50 $\mu\text{g}/\text{m}^3$													
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Linz	62	66	80	46	68	71	41	47	30	45	45	25	33	27
Bludenz	-	-	-	-	13	45	16	13	12	17	14	11	12	2
Dornbirn	-	-	38	21	22	40	18	20	14	21	13	10	11	3
Graz	159	131	131	117	127	113	76	73	57	69	78	49	44	27
Hallein	-	28	49	26	27	50	20	13	20	29	19	18	27	6
Innsbruck	-	50	61	52	55	83	46	28	26	29	46	23	25	8
Klagenfurt	36	58	74	80	82	79	42	33	34	43	46	27	21	0
Region Leoben	26	7	42	29	36	49	36	25	19	20	31	3	4	0
Salzburg	-	34	62	34	39	56	25	34	37	41	31	17	24	10
St. Pölten	-	-	58	79	87	57	23	20	23	38	39	22	21	13
Vienna	-	57	95	54	92	108	48	39	40	87	62	35	35	27
Villach	-	24	35	25	29	45	10	9	17	7	18	2	0	0

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

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

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

¹⁰⁾ For details in order to distinguish between traffic stressed stations and other urban monitoring stations see tables at the end of the report and the graphical evaluations.

PM ₁₀ number of days >50 µg/m ³														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Athens	-	-	-	-	-	-	178	163	122	99	101	40	-	-
Barcelona	-	86	-	47	74	100	97	72	94	23	43	42	7	19
Basel	11	22	23	16	15	24	12	6	10	11	8	4	5	2
Belfast	16	7	33	8	5	7	5	7	3	10	10	7	5	5
Berlin	60	91	117	62	74	71	30	24	39	46	54	31	55	48
Birmingham	2	1	5	4	5	9	18	10	7	8	18	17	9	8
Bratislava	-	-	-	-	-	-	-	-	-	-	-	-	60	41
Bristol	7	1	9	12	4	6	15	15	7	4	12	8	2	4
Brussels	52	153	163	127	67	56	56	66	66	45	87	55	-	33
Budapest	-	-	-	178	160	162	117	96	71	84	86	60	64	60
Chemnitz	41	20	35	12	59	65	27	19	32	34	39	28	32	36
Copenhagen	-	59	91	-	-	68	60	59	59	18	46	29	14	26
Dresden	53	36	53	27	78	49	27	35	42	40	46	22	34	36
Edinburgh	3	8	2	0	3	2	6	0	3	0	0	2	3	0
Frankfurt	42	44	51	19	48	24	33	22	36	26	42	19	21	17
Glasgow	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Gothenburg	1	10	12	2	7	13	3	4	0	0	21	11	17	12
Hamburg	33	43	62	20	45	31	26	18	15	26	46	12	11	26
Karlsruhe	6	33	33	25	22	34	16	10	20	23	18	8	13	12
Leeds	3	3	9	4	15	10	11	8	16	11	26	18	4	15
Leipzig	109	63	92	49	82	74	40	40	51	49	69	39	41	43
London	28	29	61	107	121	157	124	157	47	22	57	23	28	14
Lisbon	230	222	183	147	180	145	154	82	92	90	113	-	38	31

- No Data

PM ₁₀ number of days >50 µg/m ³														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Liverpool	4	2	1	14	5	8	11	12	6	2	8	4	6	6
Lyon	-	83	124	71	153	-	142	79	39	81	93	69	29	24
Madrid	-	98	-	121	159	181	123	65	35	18	41	22	8	12
Mannheim	25	44	36	41	43	20	26	12	23	24	27	23	17	17
Milan	148	177	137	139	152	149	132	115	106	85	132	107	81	68
Munich	64	75	123	59	107	92	53	60	52	65	48	27	39	16
Prague	-	-	-	-	-	-	132	84	48	71	68	73	55	59
Riga	57	74	105	160	88	244	148	126	46	31	11	25	48	39
Rhine/Ruhr Area	40	48	58	38	21	-	71	68	70	54	62	41	-	24
Rotterdam	98	103	123	54	30	31	26	12	12	12	-	16	5	-
Sofia	-	-	225	178	162	-	195	199	106	134	134	-	110	105
Stockholm	101	113	80	80	80	74	75	77	65	46	58	39	52	36
Stuttgart	-	-	-	-	-	-	110	14	19	40	42	15	27	19
Thessaloniki	-	-	-	-	-	-	152	155	80	96	87	92	-	-
Warsaw	-	-	89	184	162	192	136	133	148	151	129	90	75	84
Wiesbaden	15	35	19	11	18	32	20	8	13	5	25	8	11	8
Zagreb	-	-	-	75	89	134	108	116	61	73	101	87	-	92
Zurich	18	23	38	23	15	39	17	11	11	12	11	7	11	3

- No Data

Anzahl der Überschreitungen des 1h-Grenzwertes für NO₂ von 200 µg/m³ in den Jahren 2004 bis 2014

Beurteilungsbasis: Anzahl der Überschreitungen an der höchstbelasteten Station eines Messgebietes

Number exceedances of the NO₂ 1h mean value of 200 µg/m³ in 2004 through 2014 based on the number of exceedances at the peak stressed monitoring station of a region

	NO ₂ number of 1 h mean values >200 µg/m ³										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Linz	0	1	4	4	1	5	3	6	7	15	1
Bludenz	0	0	0	0	0	0	0	0	0	0	0
Dornbirn	-	0	0	0	0	0	0	0	0	0	0
Graz	0	0	4	0	0	0	1	0	0	0	0
Hallein	0	0	1	3	0	0	0	0	0	0	0
Innsbruck	0	0	4	0	0	1	0	0	3	0	0
Klagenfurt	-	1	1	1	0	0	1	1	1	0	0
Region Leoben	0	0	0	0	0	0	0	0	0	0	0
Salzburg	0	0	2	1	2	4	3	0	0	0	0
St. Pölten	0	0	0	0	1	0	0	0	0	0	-
Vienna	8	24	26	11	17	4	7	5	0	0	0
Villach	0	0	0	0	0	0	0	0	0	0	0
Athens	-	-	-	192	56	35	8	1	0	-	-
Barcelona	13	-	18	22	13	9	0	12	5	3	1
Basel	0	0	0	0	0	0	0	0	0	0	0
Belfast	0	4	5	0	3	0	0	0	0	2	5
Berlin	-	-	-	6	0	8	6	3	5	8	3
Birmingham	0	2	0	0	3	0	7	4	0	1	5
Bratislava	-	-	-	-	-	-	-	-	-	2	0
Bristol	0	22	13	8	5	11	3	0	0	0	0
Brussels	24	90	2	2	6	1	1	3	2	-	3
Budapest	1	25	19	9	1	0	1	3	4	5	1
Chemnitz	1	0	0	1	0	2	0	2	0	0	0
Copenhagen	-	-	-	-	-	-	-	-	0	-	-
Dresden	0	0	0	0	0	0	0	0	0	0	9
Edinburgh	0	0	0	0	6	0	0	0	0	0	0
Frankfurt	0	10	3	6	2	16	5	8	5	0	2
Glasgow	-	-	-	-	-	-	-	-	-	-	14

- No Data

	NO₂ number of 1 h mean values >200 µg/m ³										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Gothenburg	2	0	7	1	1	0	3	8	1	17	2
Hamburg	0	0	26	19	30	29	24	10	2	5	11
Karlsruhe	5	0	0	0	3	3	4	2	8	0	2
Leeds	0	0	0	0	8	0	1	0	0	0	0
Leipzig	1	39	0	0	0	0	0	0	0	1	0
Liverpool	0	458	0	0	0	0	0	0	0	0	0
Lisbon	52	-	80	39	20	69	21	37	-	15	20
London	542	139	686	458	822	486	539	229	143	60	60
Luxemburg	-	267	-	-	-	-	0	-	-	-	-
Lyon	35	0	-	139	66	28	181	150	66	33	32
Madrid	83	-	208	267	119	150	76	103	52	37	45
Mannheim	0	69	0	0	0	0	1	1	0	0	0
Milan	47	1	123	-	241	101	25	132	99	35	31
Munich	11	0	103	69	56	95	192	50	27	50	24
Prague	-	0	-	1	106	98	56	51	4	6	5
Riga	0	0	0	0	0	0	0	0	0	0	0
Rhine/Ruhr Area	0	24	-	0	0	0	1	0	0	-	0
Rotterdam	10	3	2	0	0	0	0	-	0	0	-
Sofia	7	450	-	24	155	95	30	55	-	1	1
Stockholm	0	3	1	3	1	0	3	1	0	2	0
Stuttgart	-	-	-	5	9	22	6	6	3	4	0
Thessaloniki	-	3	-	3	1	0	0	0	0	-	-
Warsaw	0	0	5	17	0	0	1	5	1	8	1
Wiesbaden	0	0	2	3	1	7	1	3	2	1	0
Zagreb	0	0	0	0	0	0	0	0	0	-	2
Zurich	0	0	0	0	0	0	0	0	0	0	0

- No Data

Luftgütevergleich

2014

Jahresmittelwerte (Gebietsmittel)

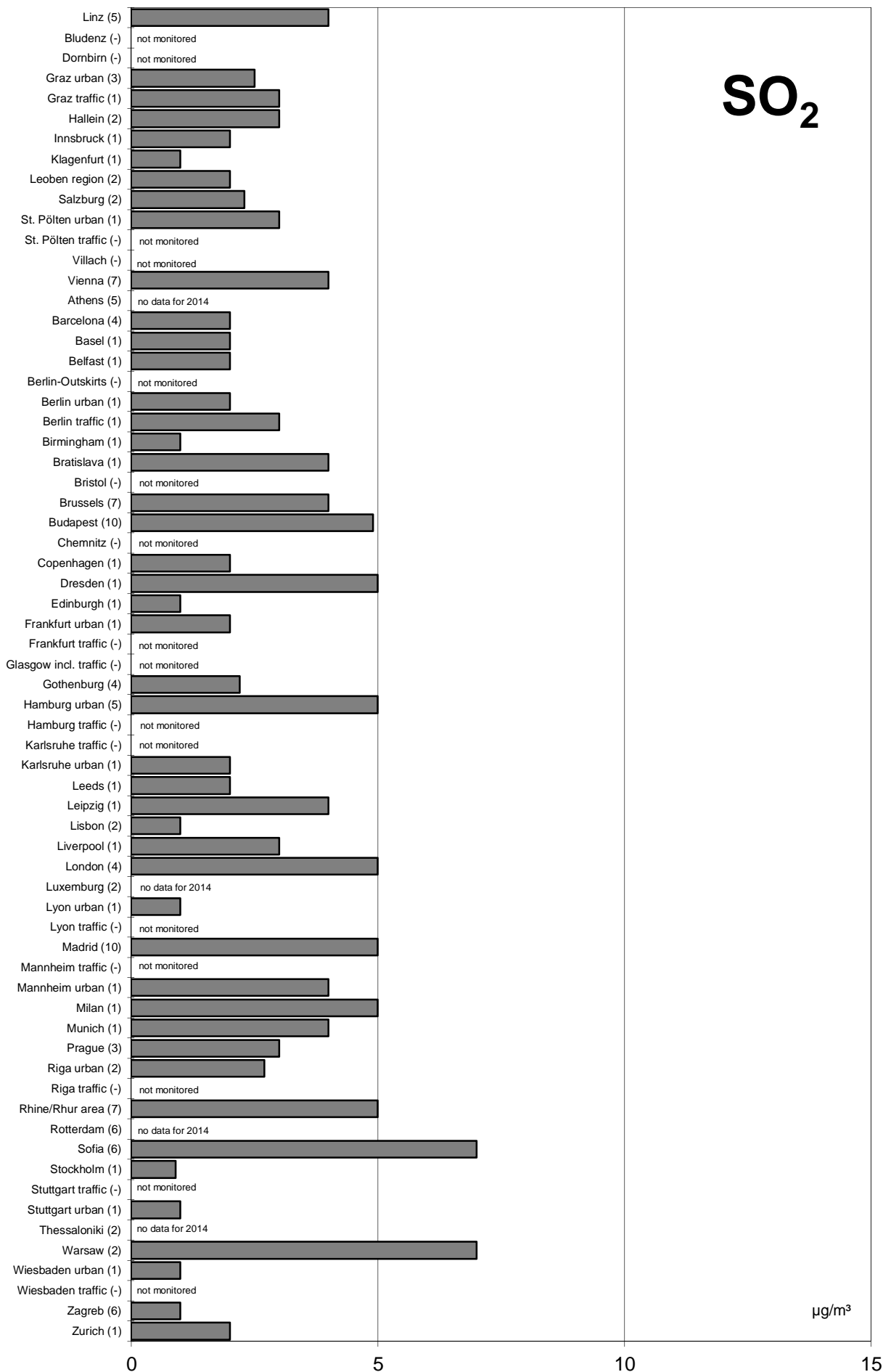
Comparison of The Air Quality

2014

Annual Mean Values

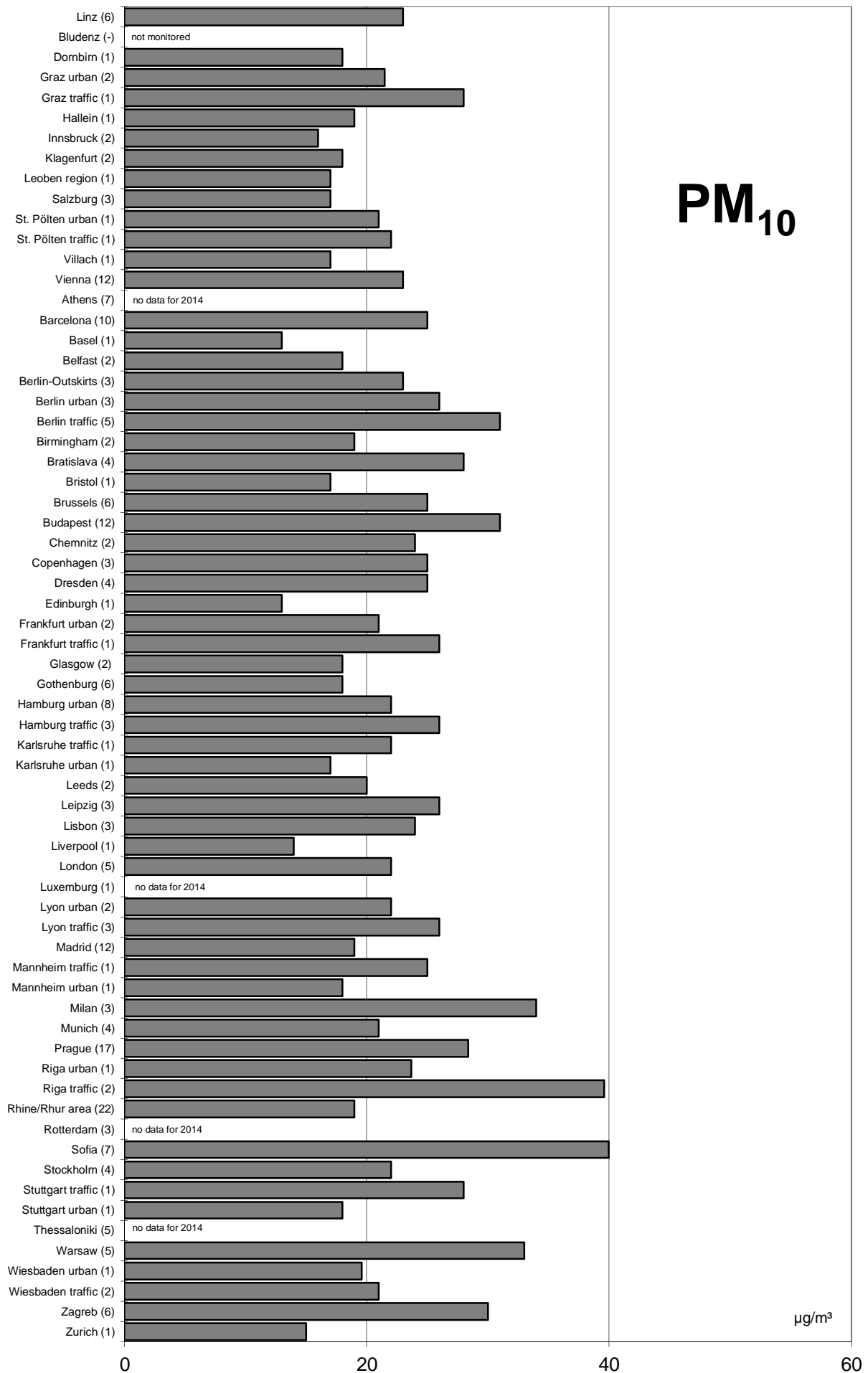
Comparison of The Air Quality in 2014

annual mean values (mean of all monitoring stations of the city/region)
(in parentheses: number of monitoring stations)



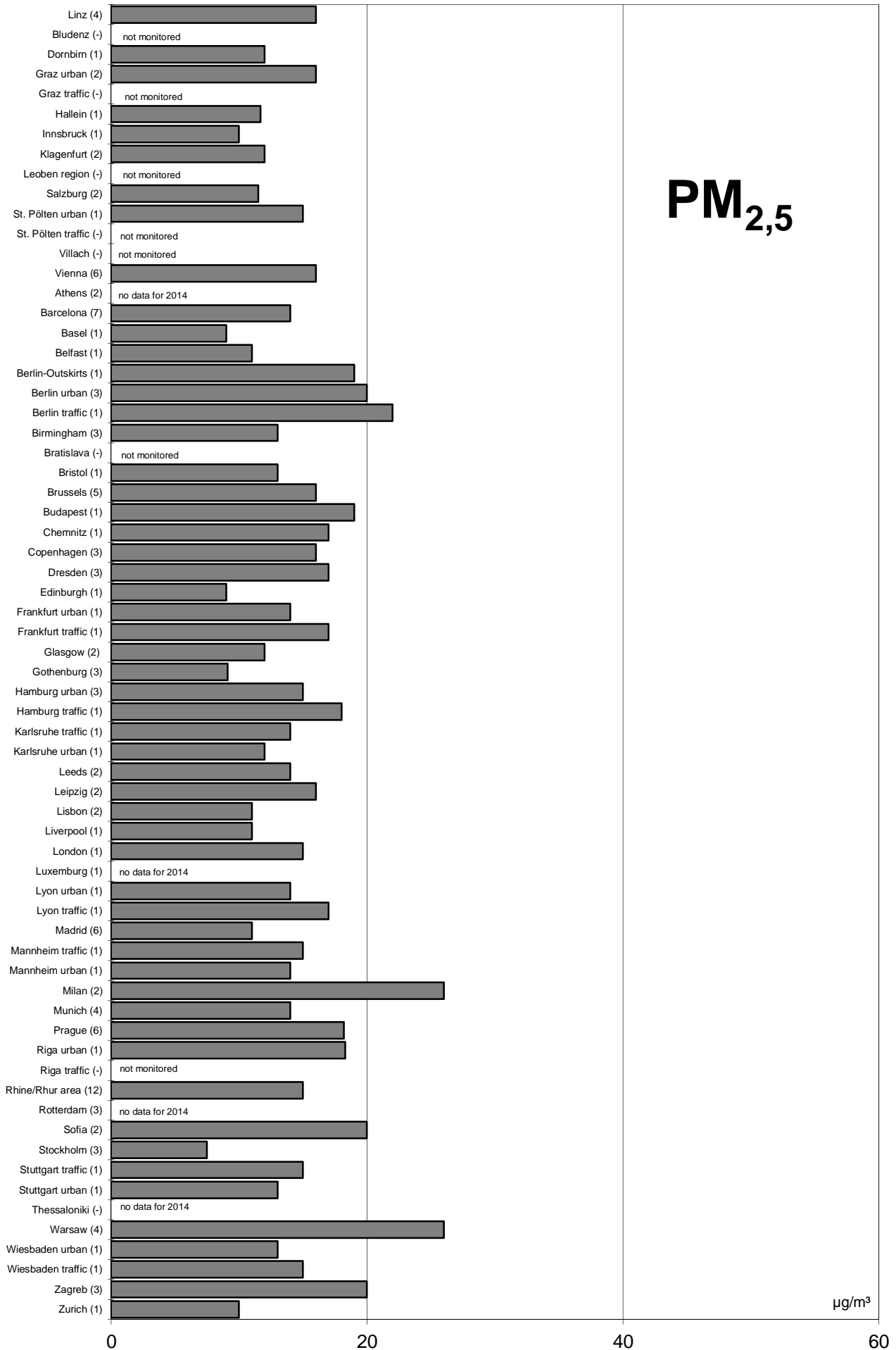
Comparison of The Air Quality in 2014

annual mean values (mean of all monitoring stations of the city/region)
(in parentheses: number of monitoring stations)



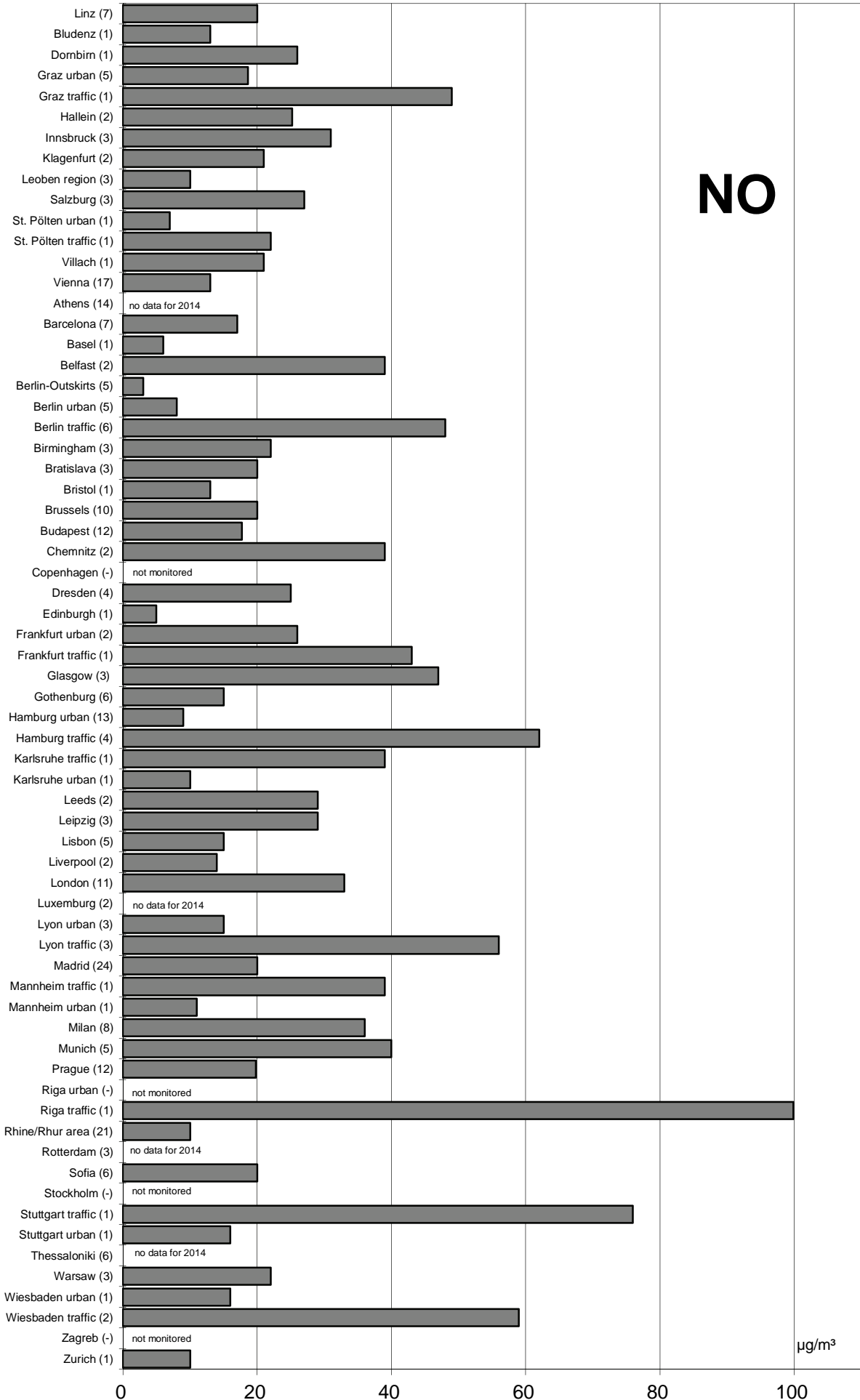
Comparison of The Air Quality in 2014

annual mean values (mean of all monitoring stations of the city/region)
(in parentheses: number of monitoring stations)



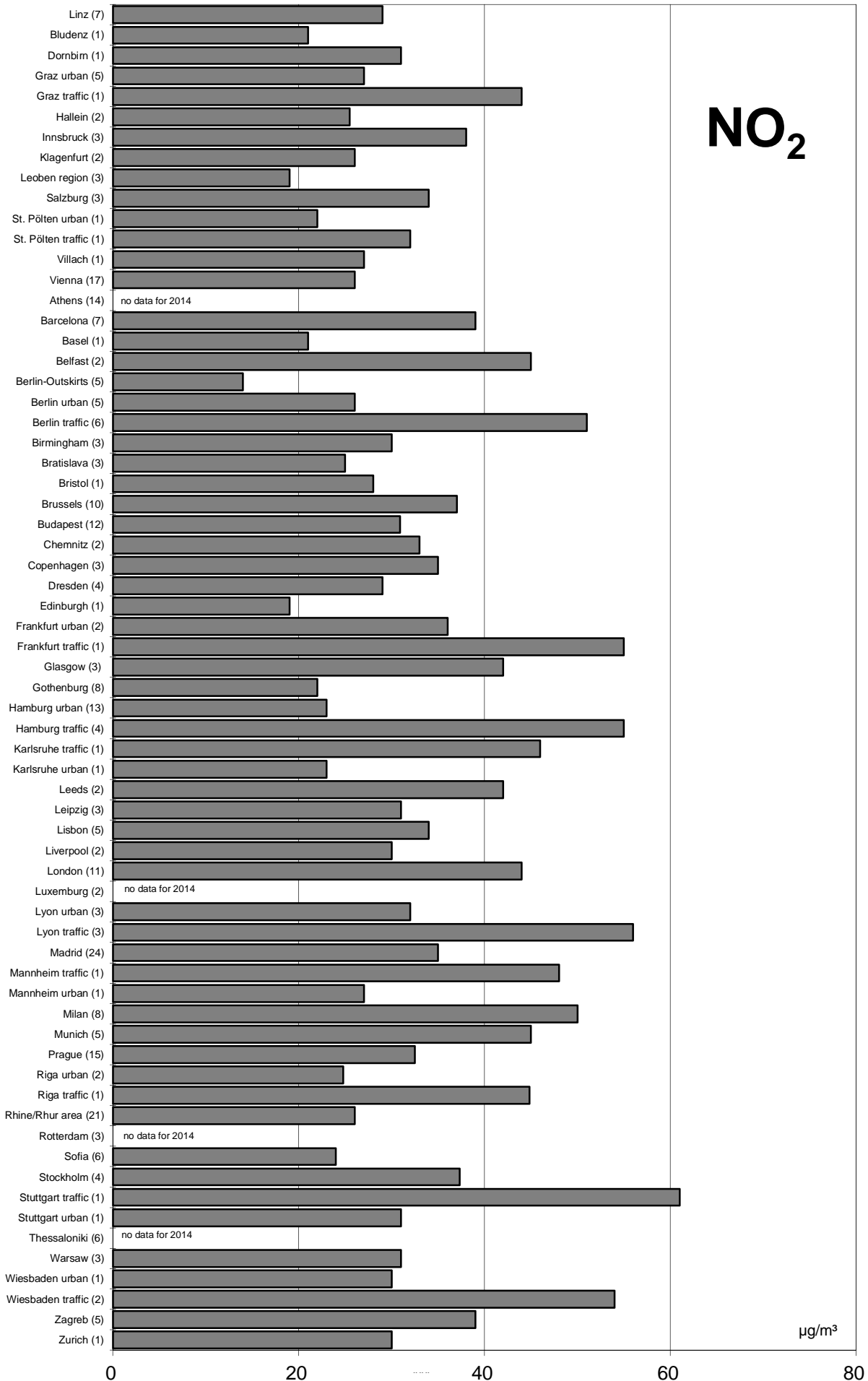
Comparison of The Air Quality in 2014

annual mean values (mean of all monitoring stations of the city/region)
(in parentheses: number of monitoring stations)



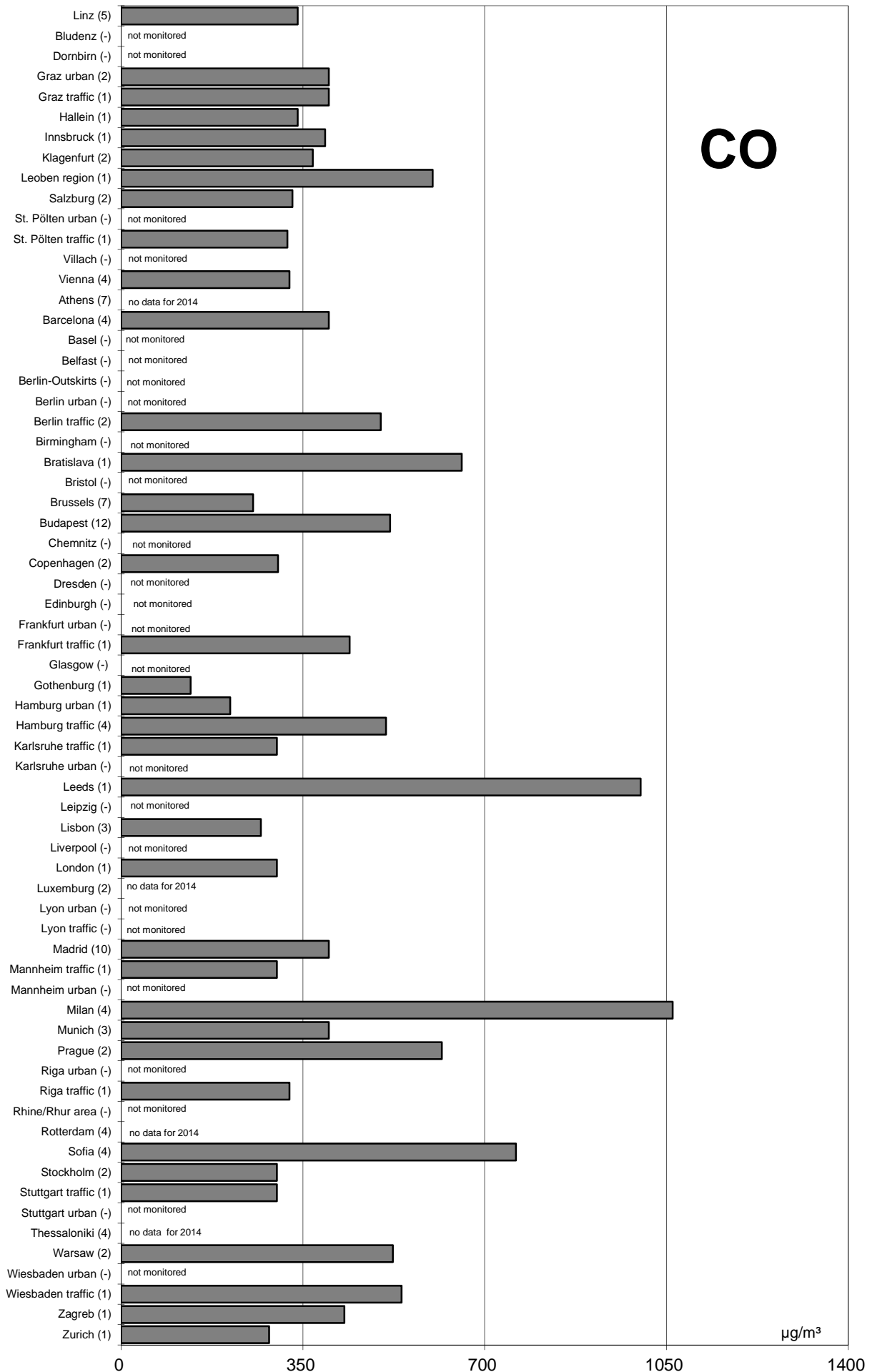
Comparison of The Air Quality in 2014

annual mean values (mean of all monitoring stations of the city/region)
(in parentheses: number of monitoring stations)



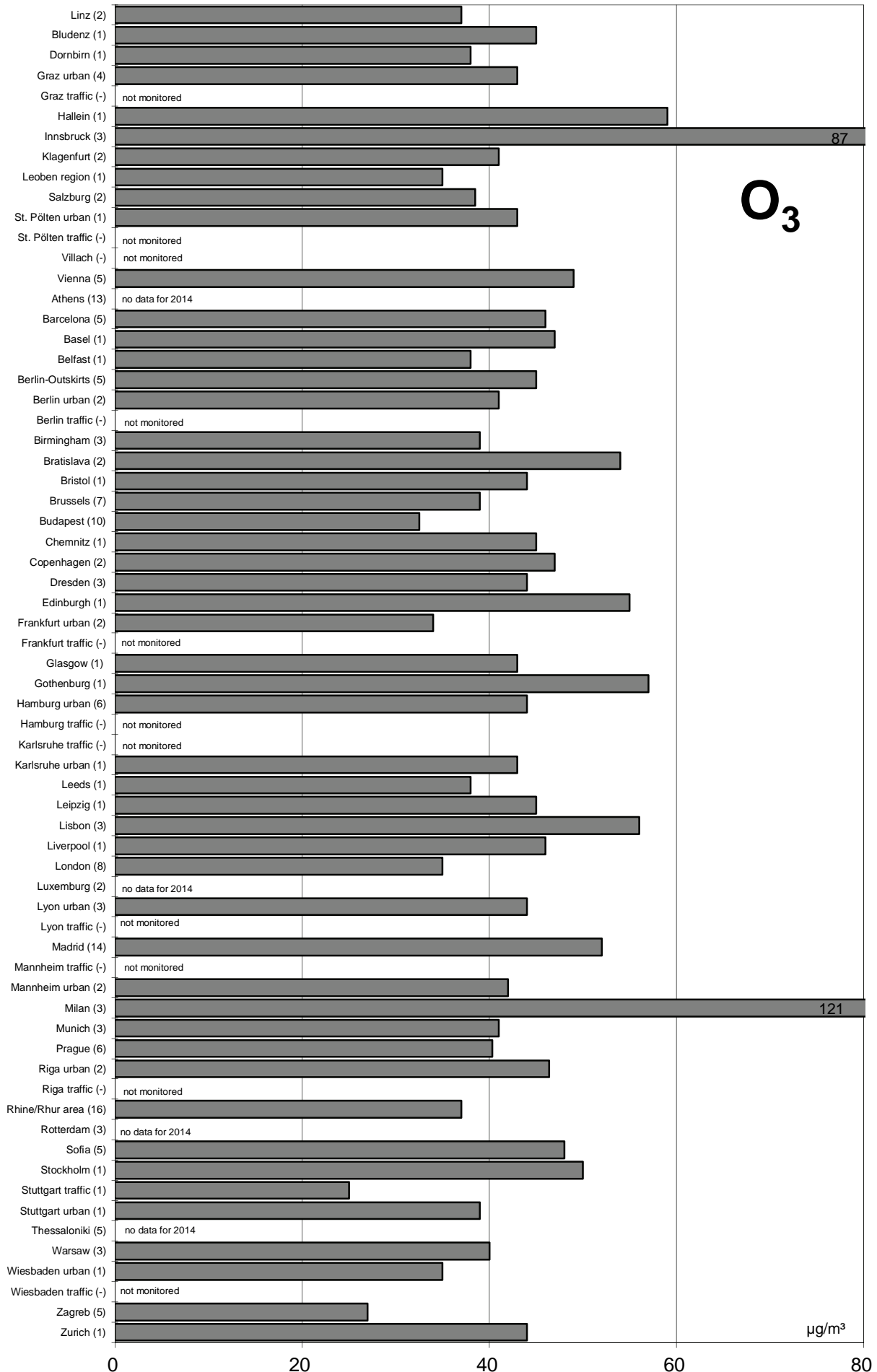
Comparison of The Air Quality in 2014

annual mean values (mean of all monitoring stations of the city/region)
(in parentheses: number of monitoring stations)



Comparison of The Air Quality in 2014

annual mean values (mean of all monitoring stations of the city/region)
(in parentheses: number of monitoring stations)



Luftgütevergleich

2014

max. Tagesmittelwerte

Comparison of The Air Quality

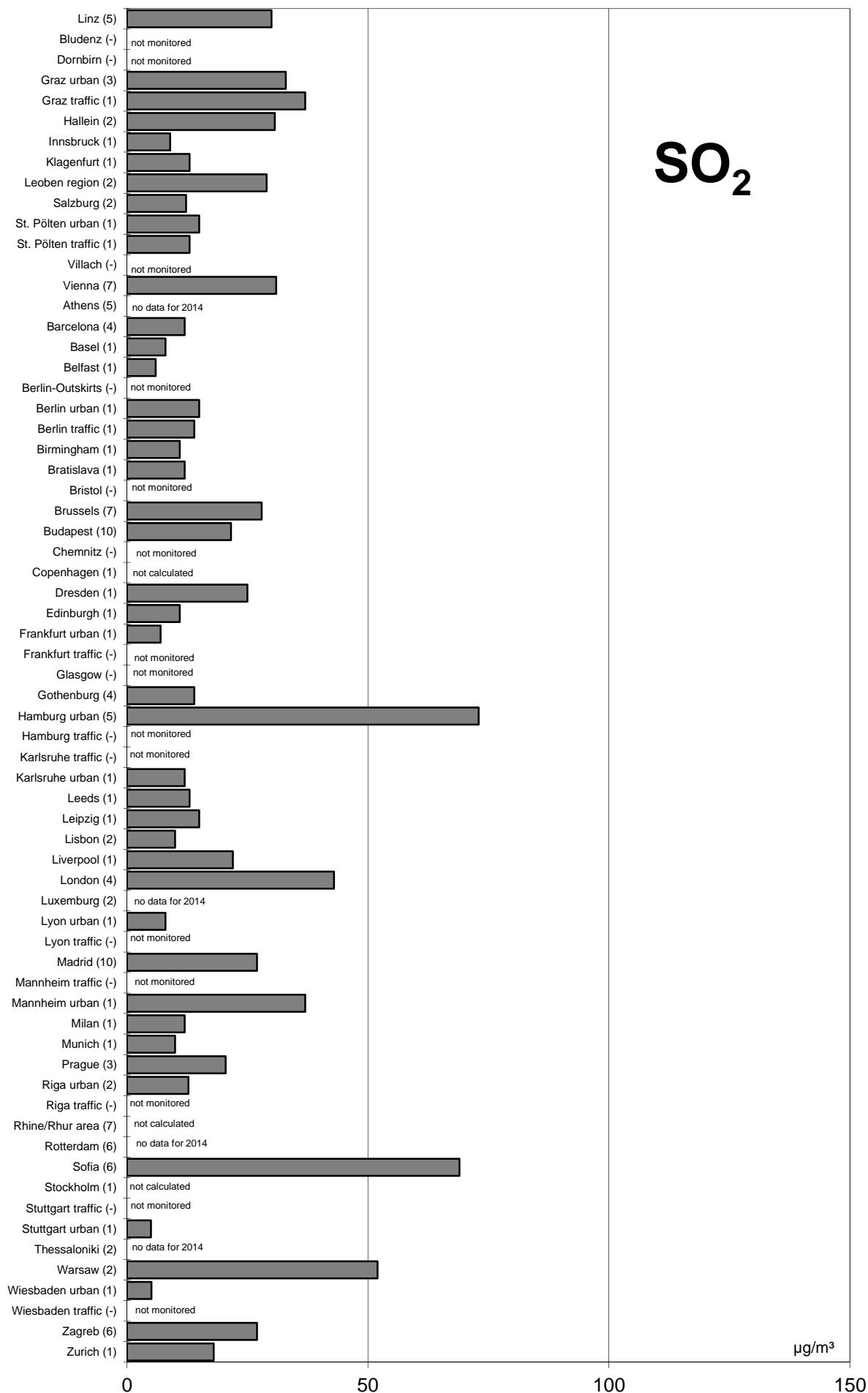
2014

Max. Daily Mean Values

Comparison of The Air Quality in 2014

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

(in parentheses: number of monitoring stations)

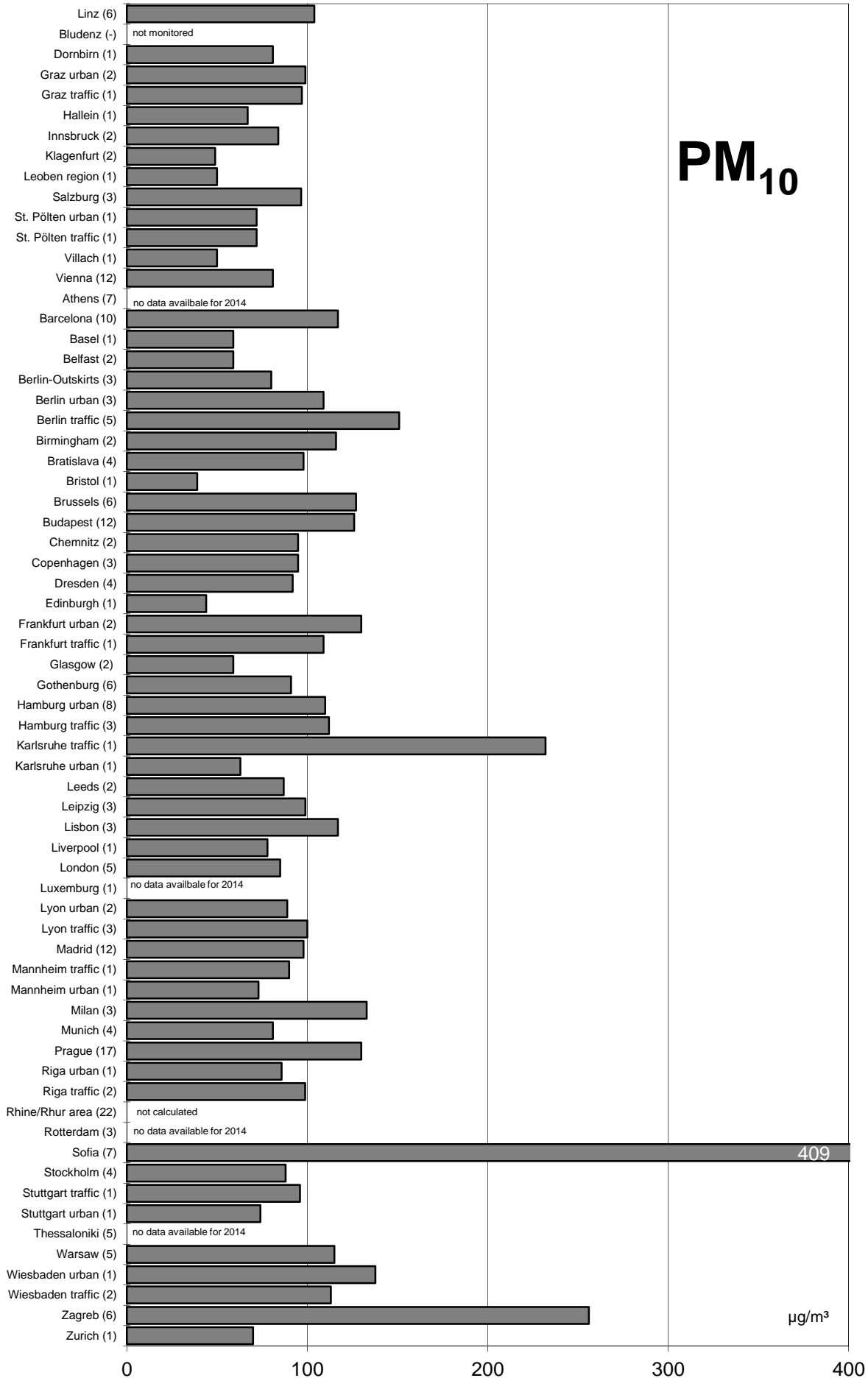


SO₂

µg/m³

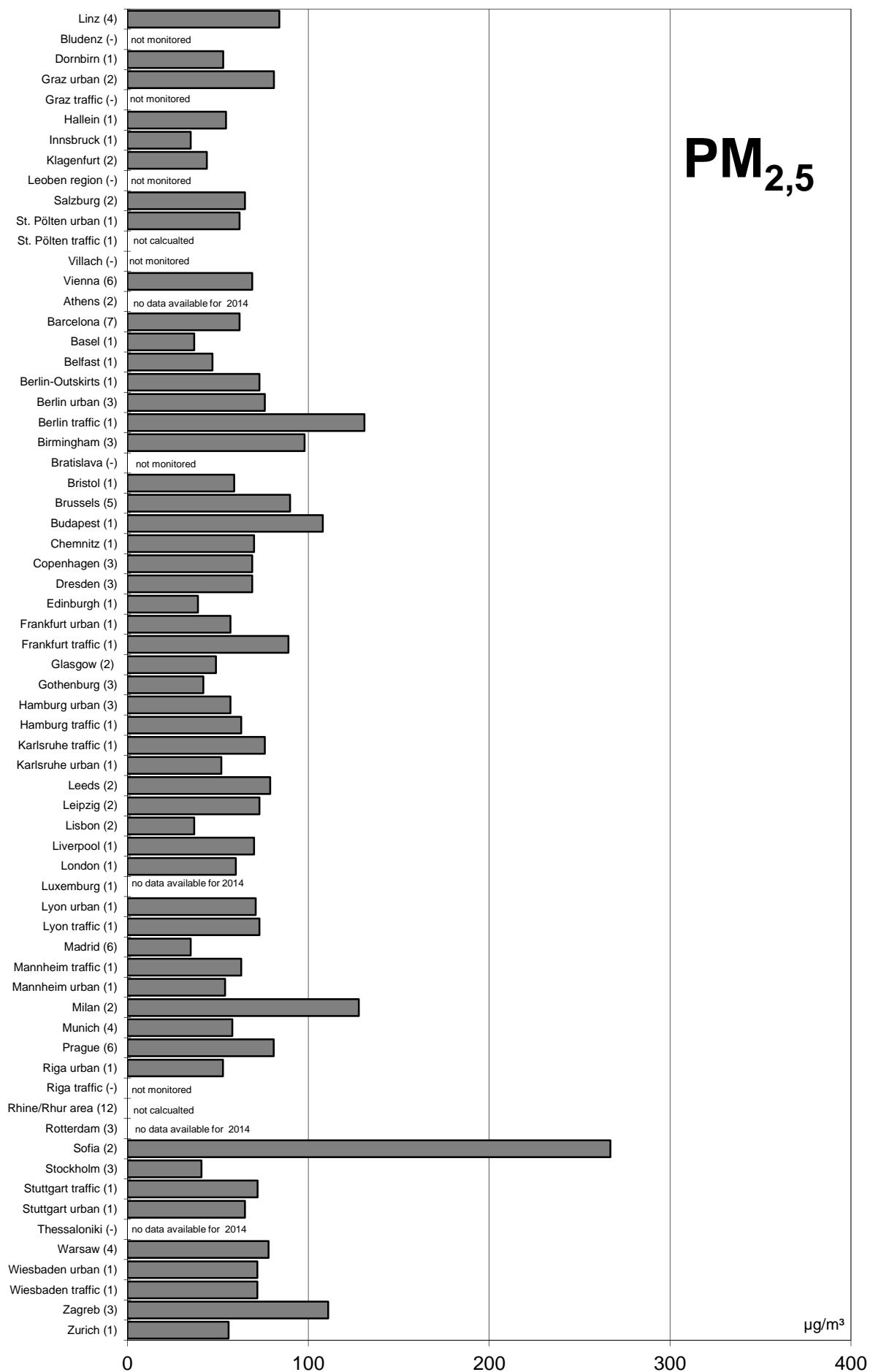
Comparison of The Air Quality in 2014

max. daily mean values (max. stressed monitoring station)
(in parentheses: number of monitoring stations)



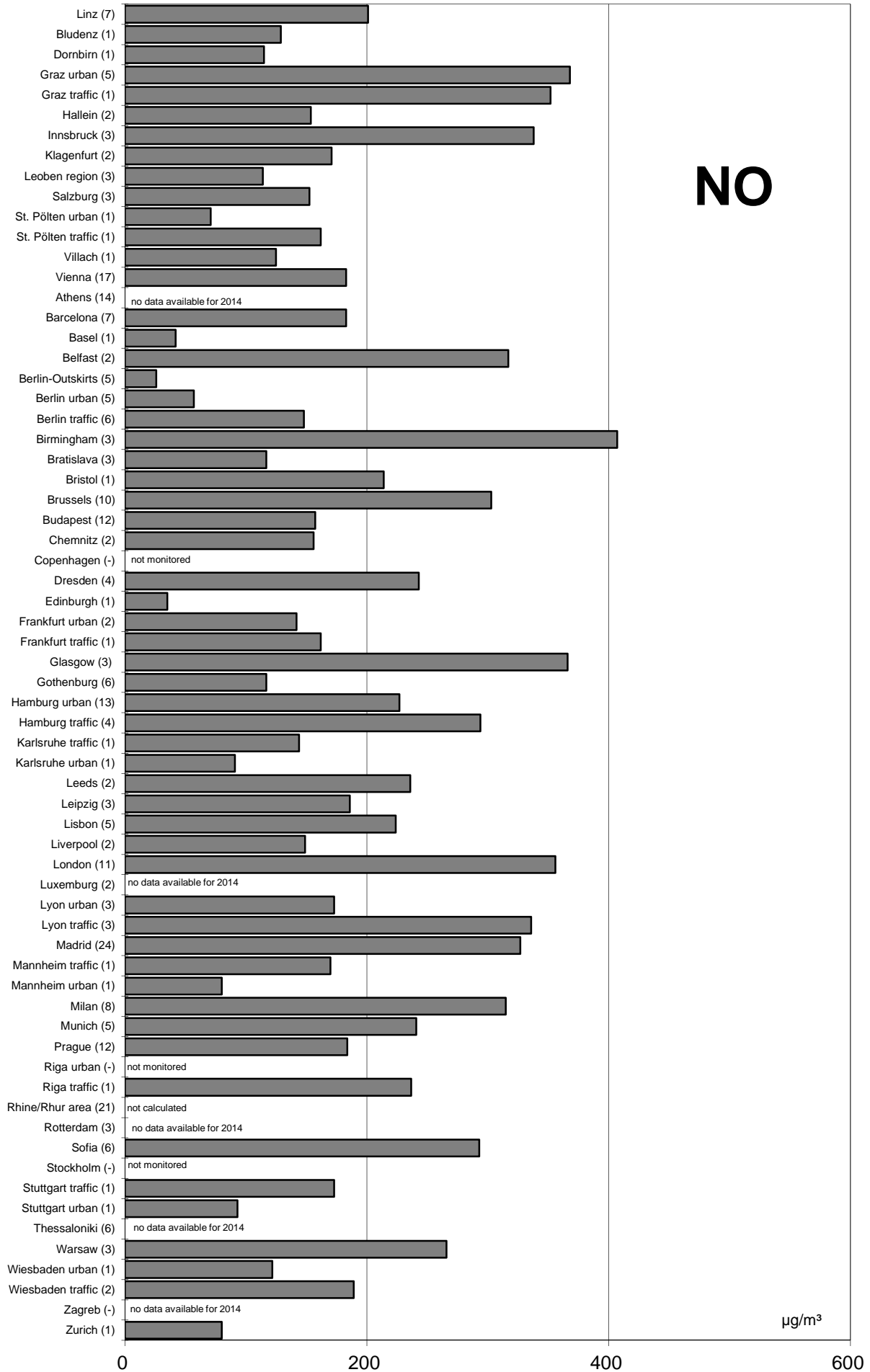
Comparison of The Air Quality in 2014

max. daily mean values (max. stressed monitoring station)
(in parentheses: number of monitoring stations)



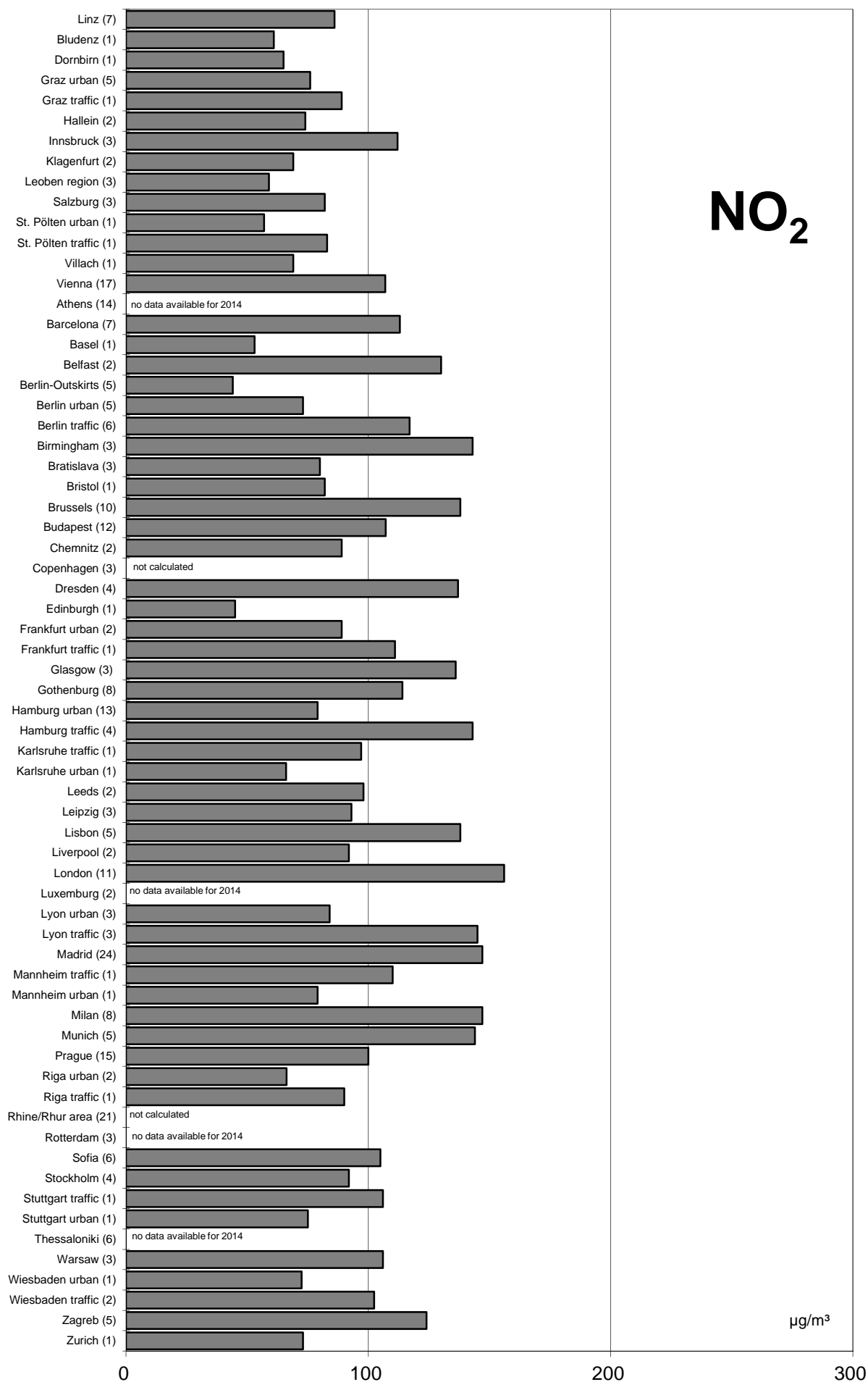
Comparison of The Air Quality in 2014

max. daily mean values (max. stressed monitoring station)
(in parentheses: number of monitoring stations)



Comparison of The Air Quality in 2014

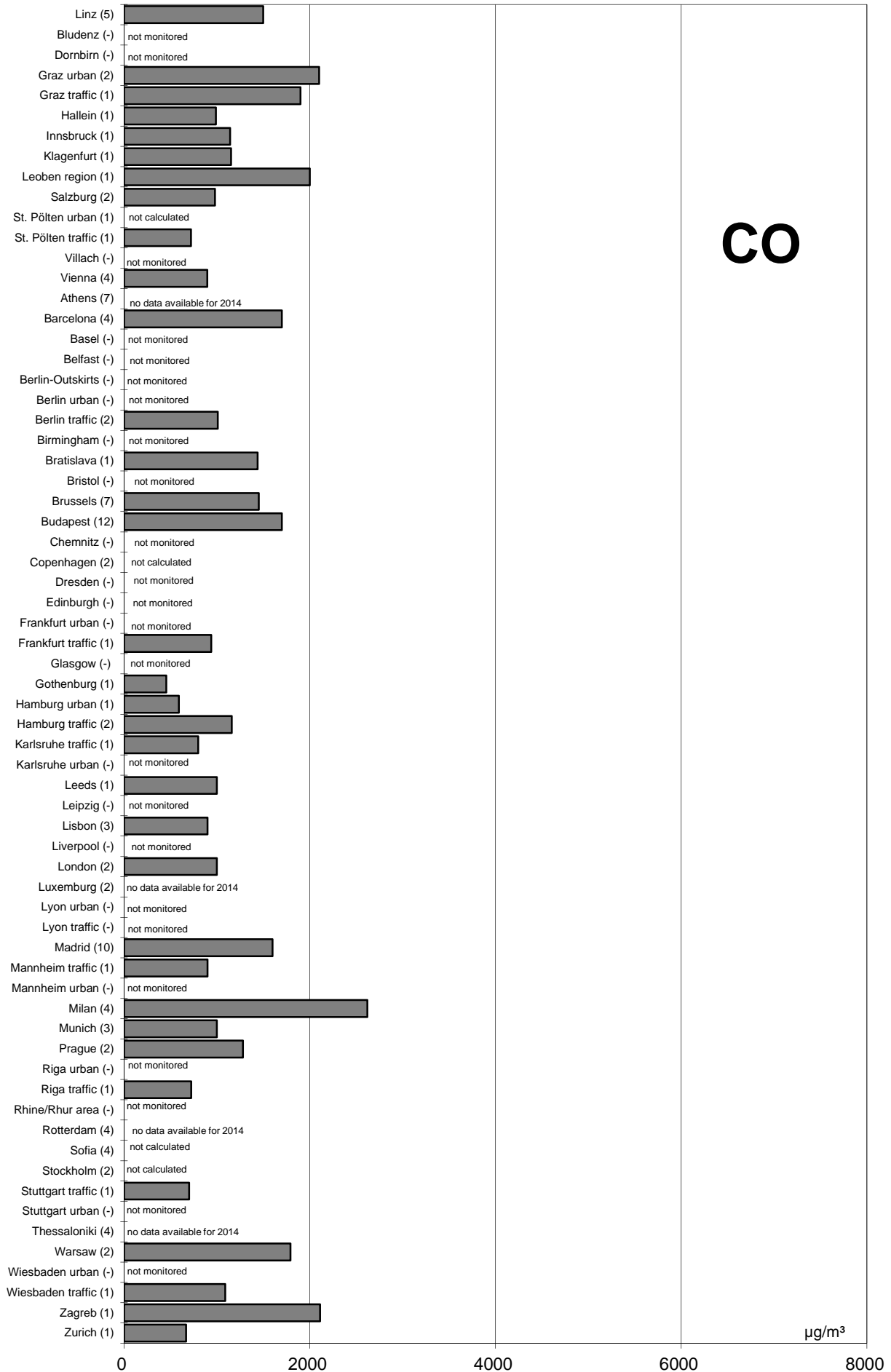
max. daily mean values (max. stressed monitoring station)
(in parentheses: number of monitoring stations)



Comparison of The Air Quality in 2014

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

(in parentheses: number of monitoring stations)



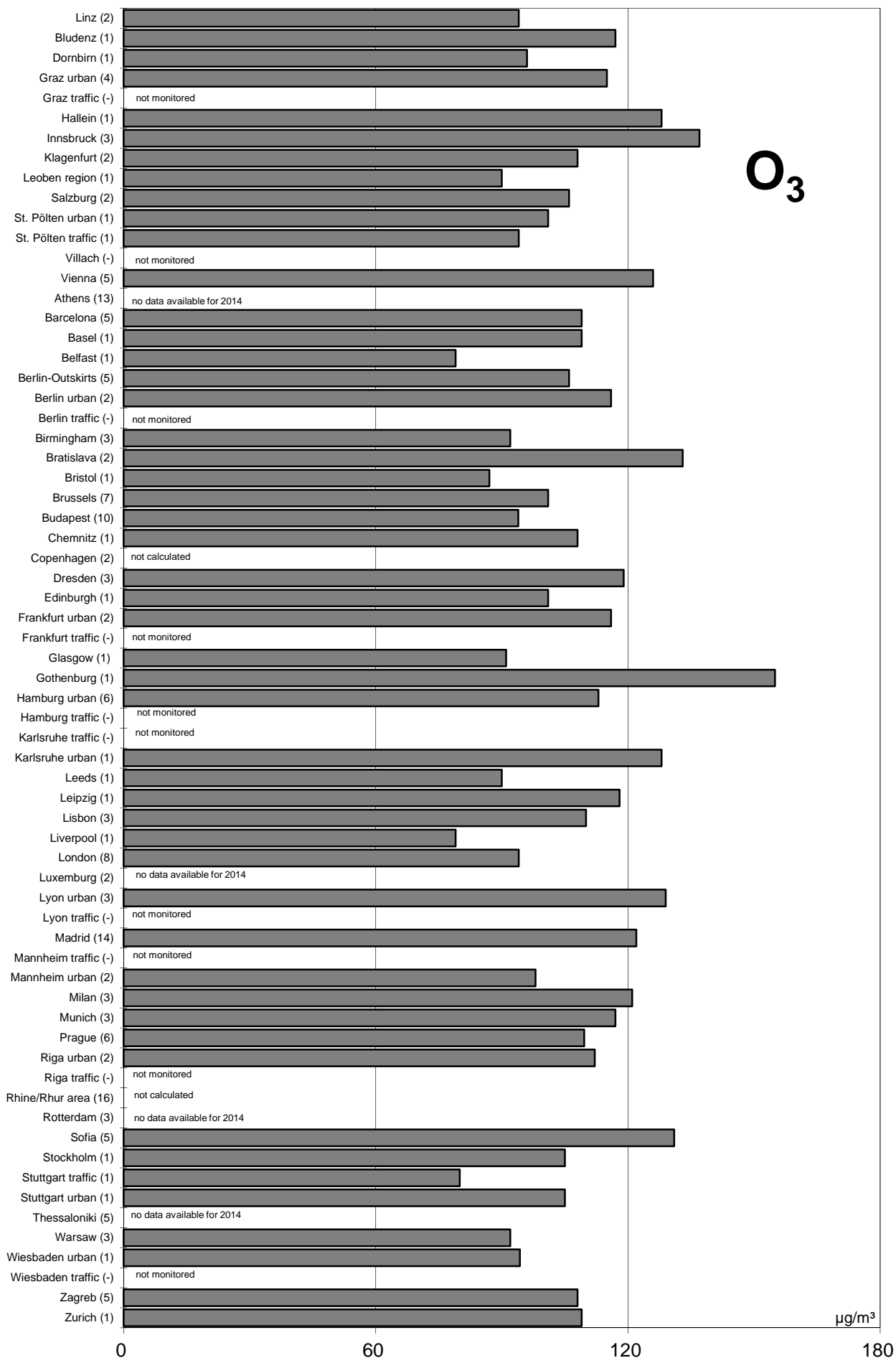
CO

µg/m³

Comparison of The Air Quality in 2014

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

(in parentheses: number of monitoring stations)



Luftgütevergleich

2014

max. 1h-Mittelwerte

Comparison of The Air Quality

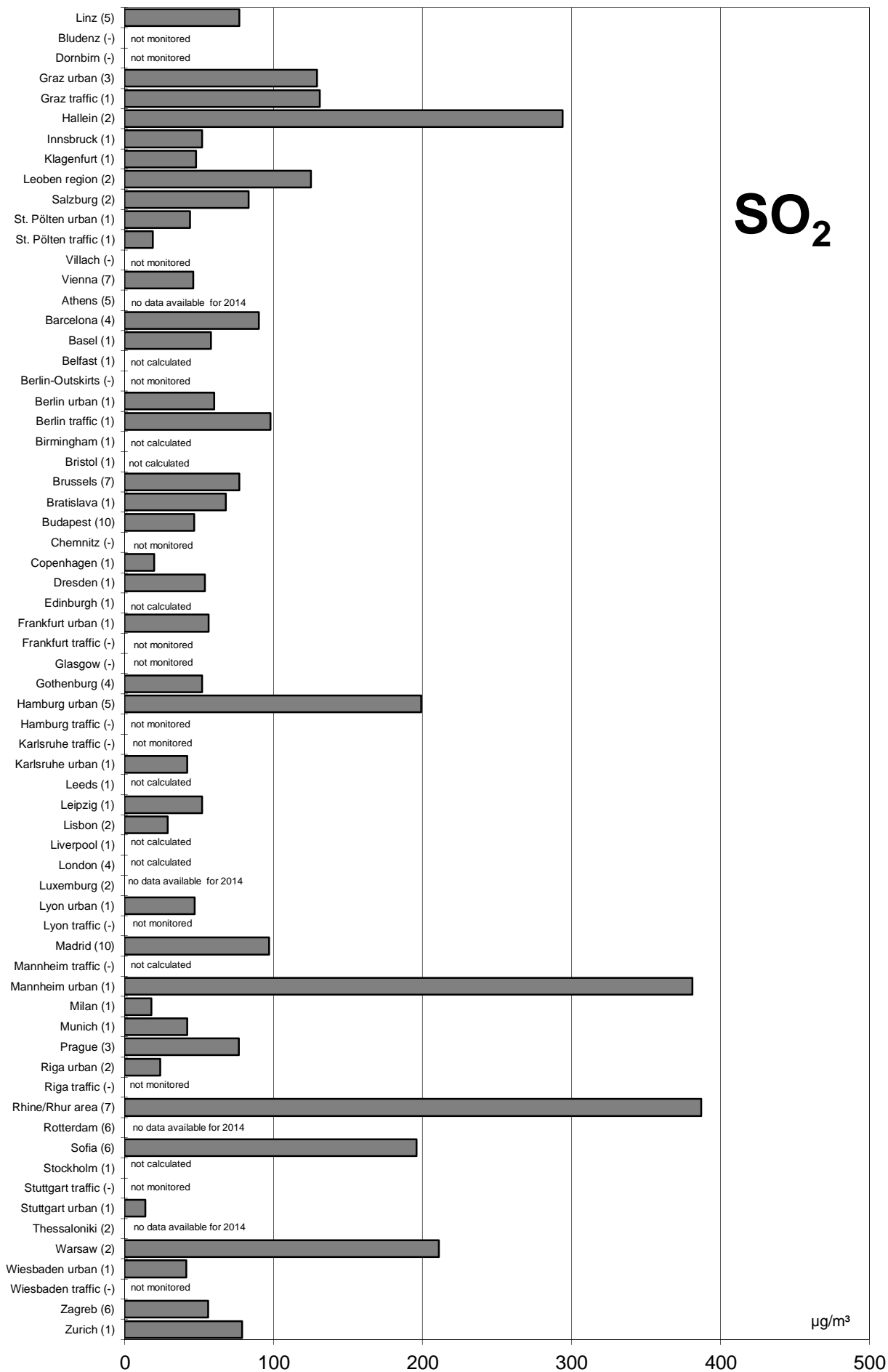
2014

Max. 1h-Mean Values

Comparison of The Air Quality in 2014

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

(in parentheses: number of monitoring stations)



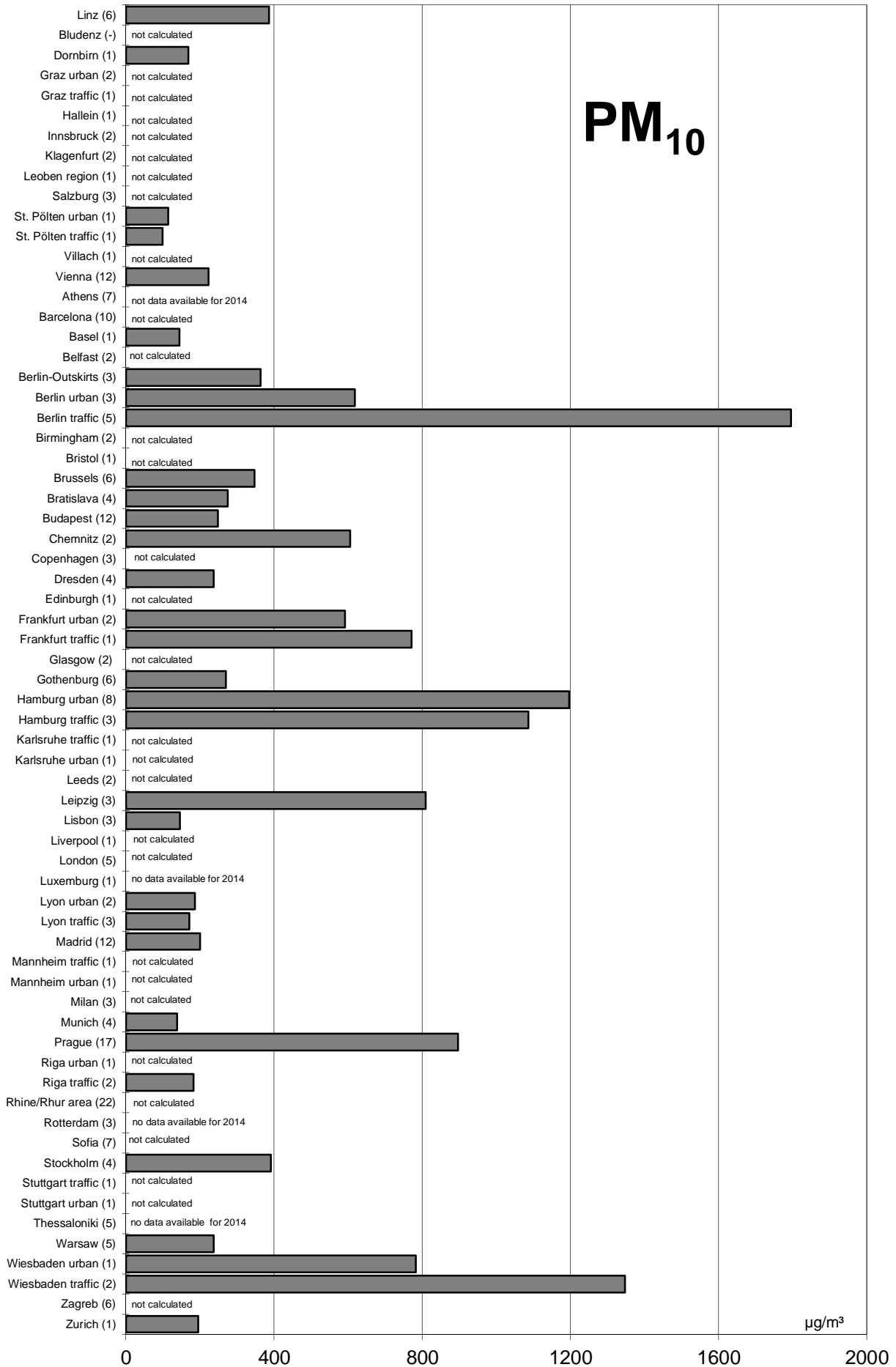
SO₂

µg/m³

Comparison of The Air Quality in 2014

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

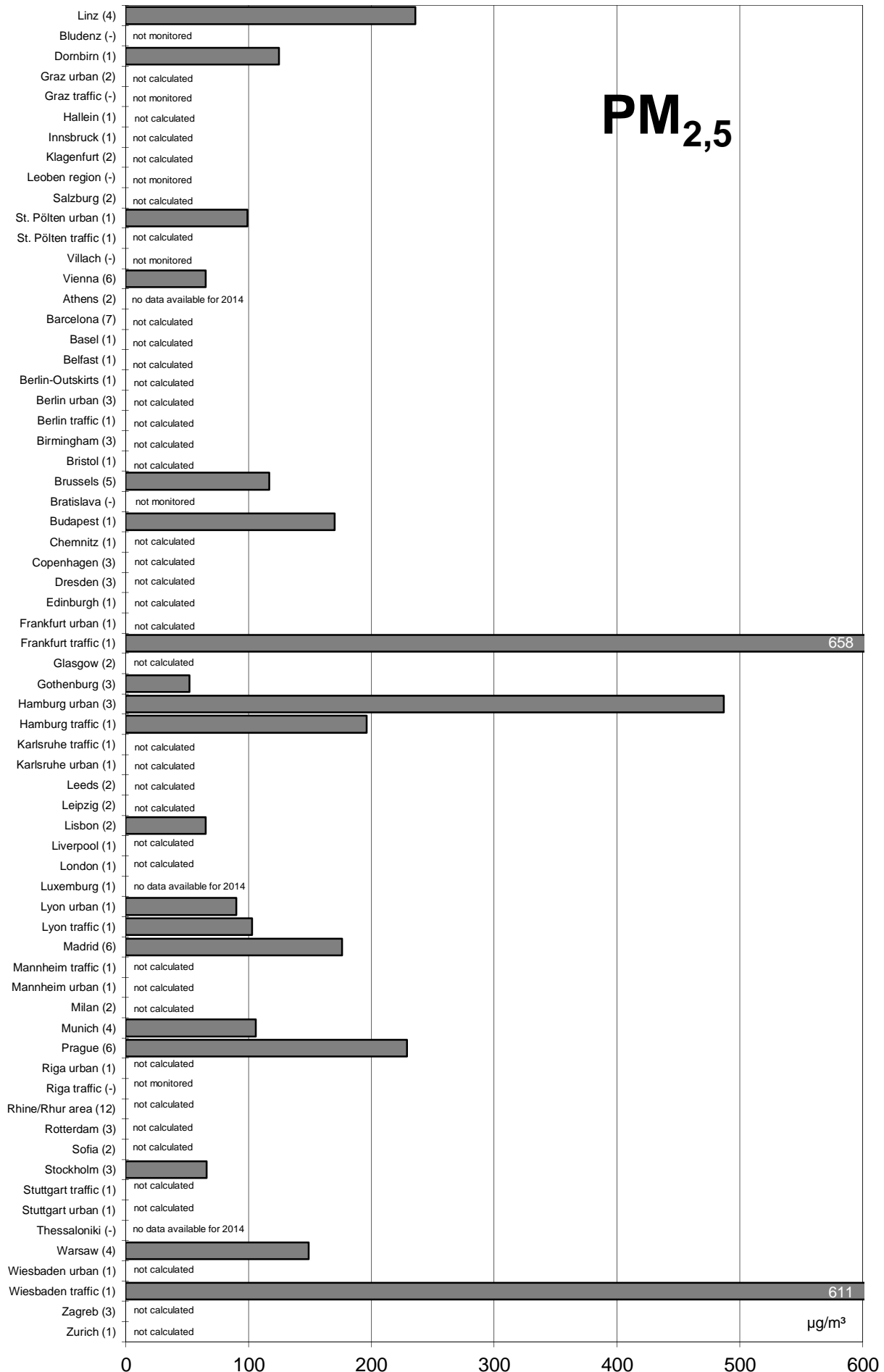
(in parentheses: number of monitoring stations)



Comparison of The Air Quality in 2014

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

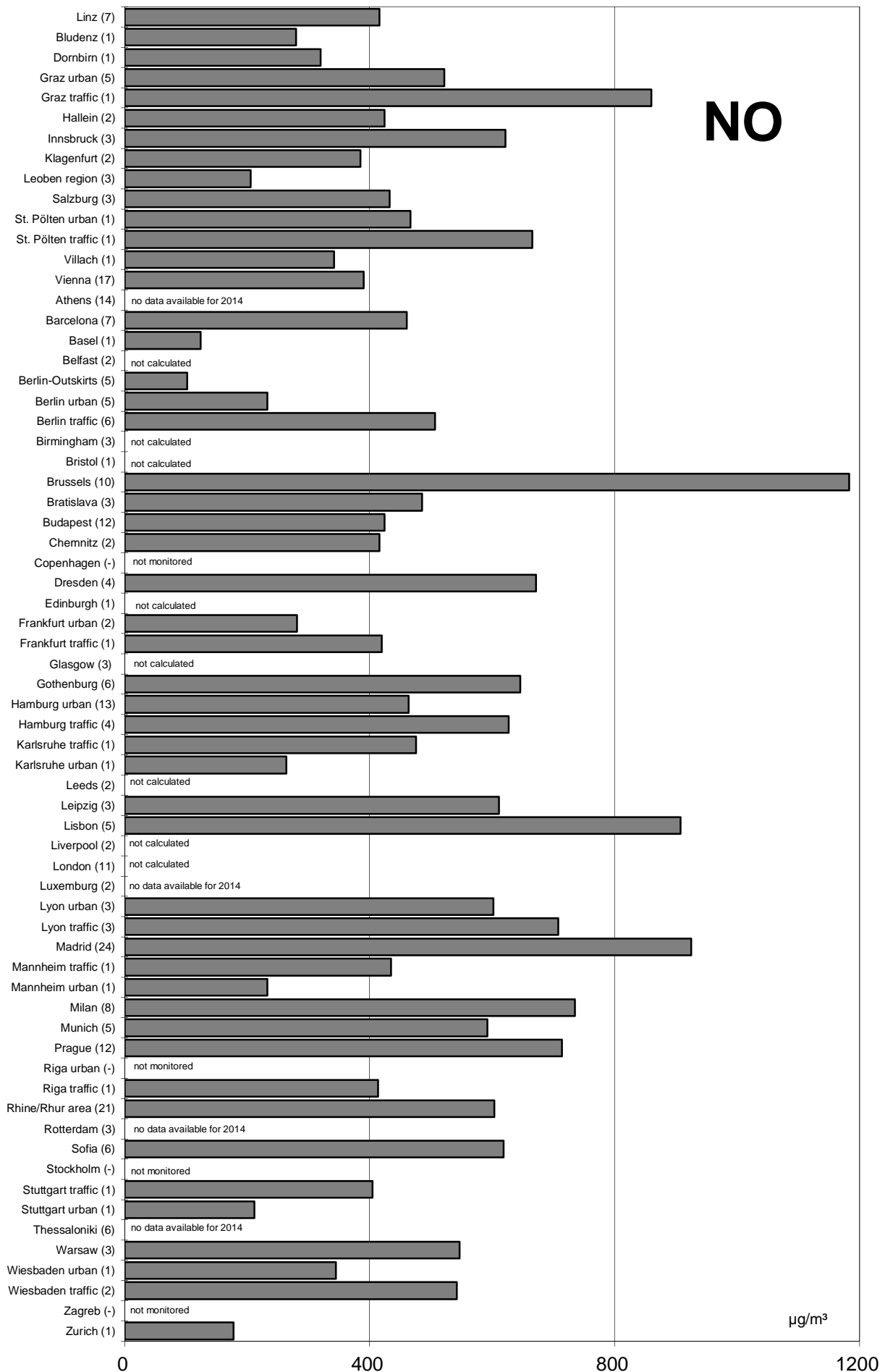
(in parentheses: number of monitoring stations)



Comparison of The Air Quality in 2014

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

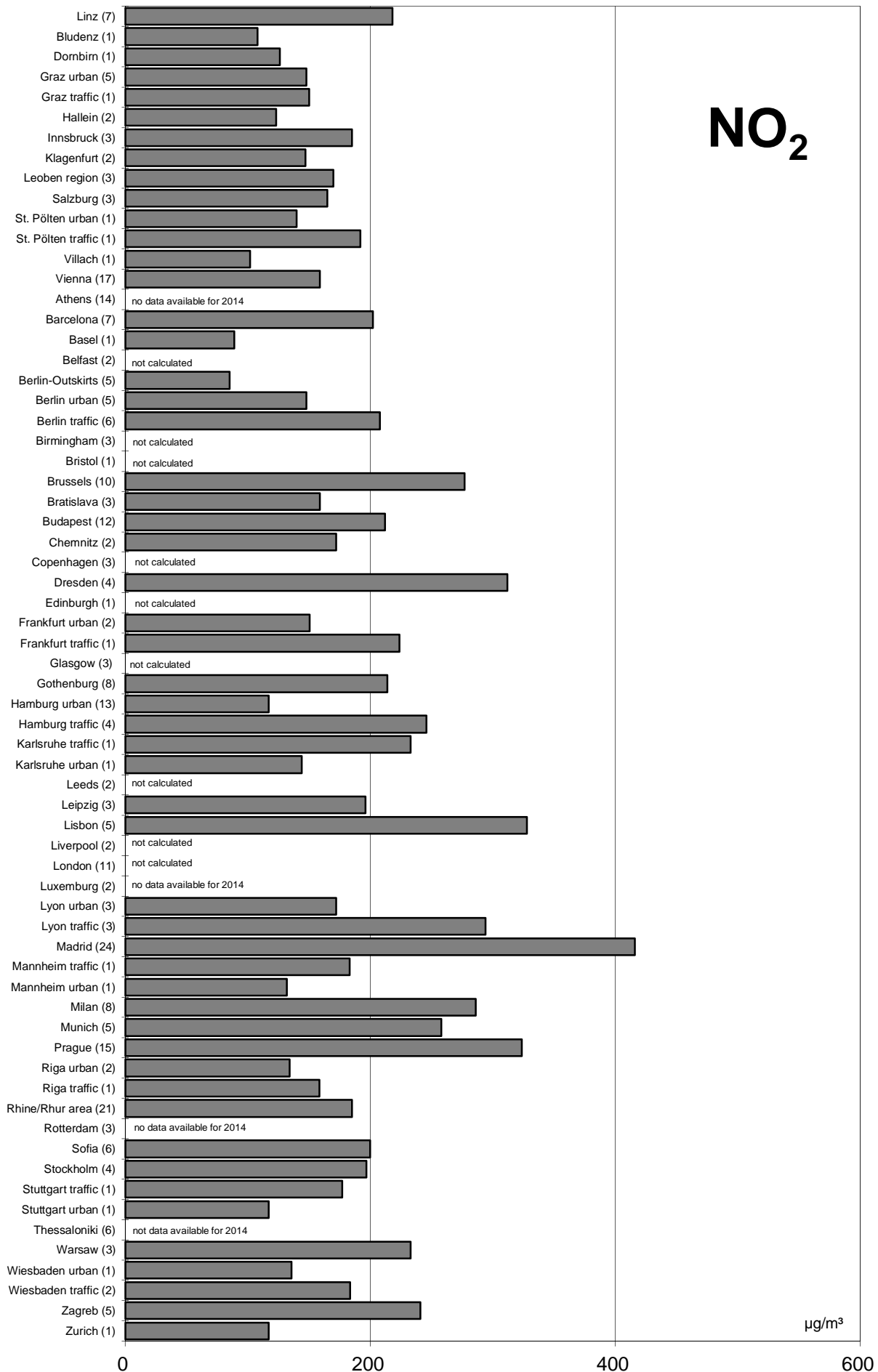
(in parentheses: number of monitoring stations)



Comparison of The Air Quality in 2014

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

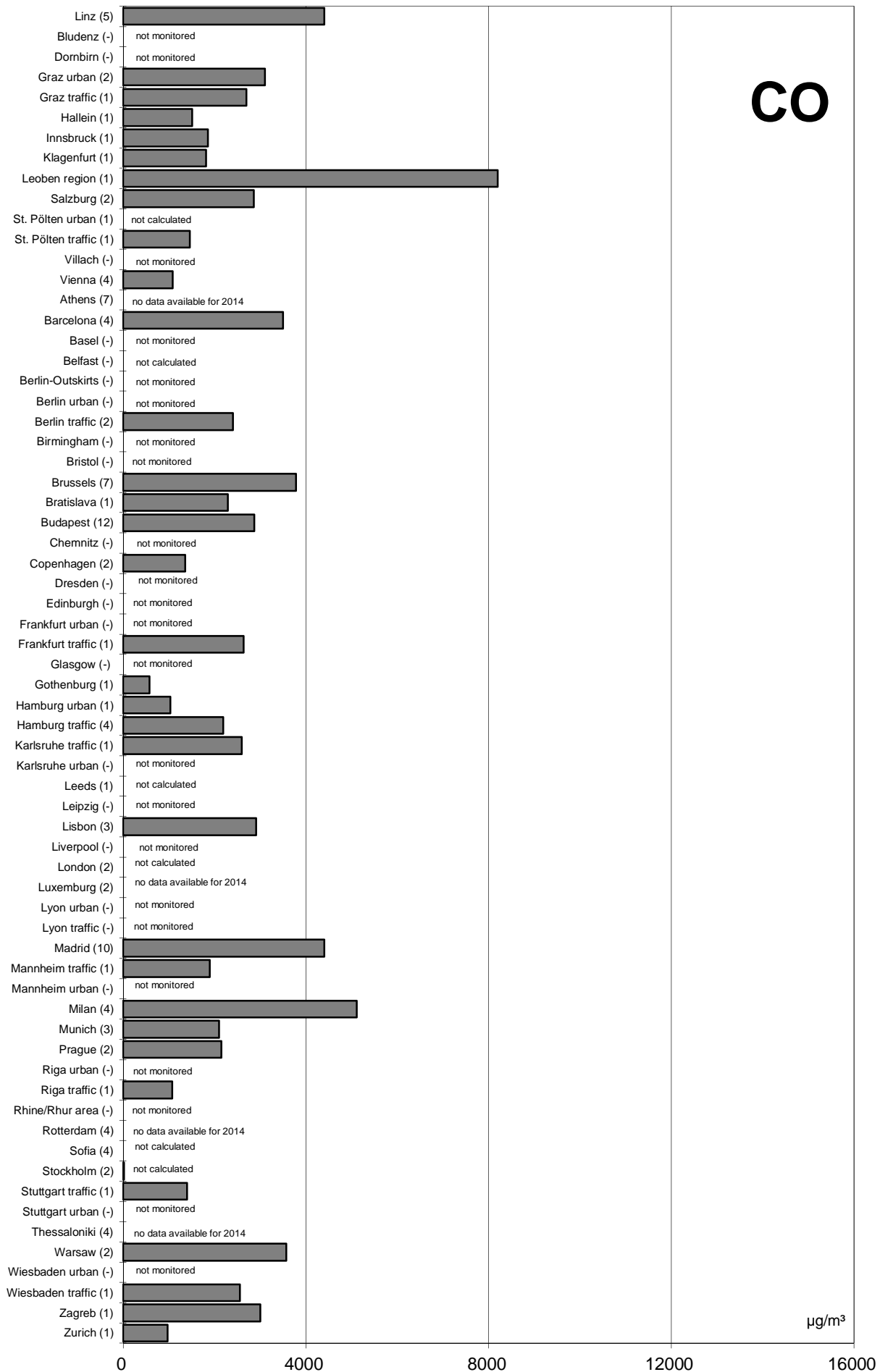
(in parentheses: number of monitoring stations)



Comparison of The Air Quality in 2014

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

(in parentheses: number of monitoring stations)



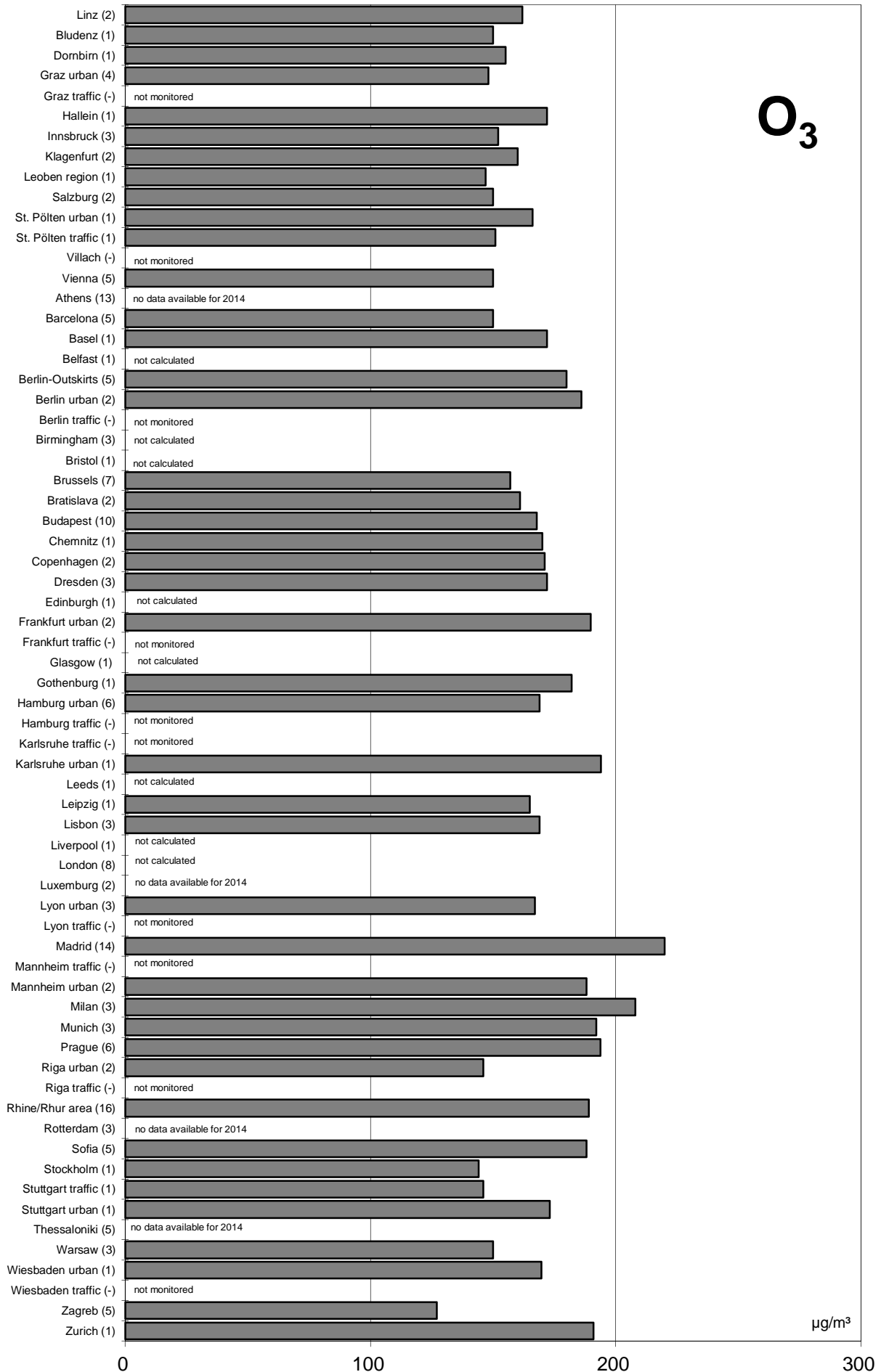
CO

µg/m³

Comparison of The Air Quality in 2014

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

(in parentheses: number of monitoring stations)



O₃

µg/m³

Jahresvergleich

1992 - 2014

Jahresmittelwerte

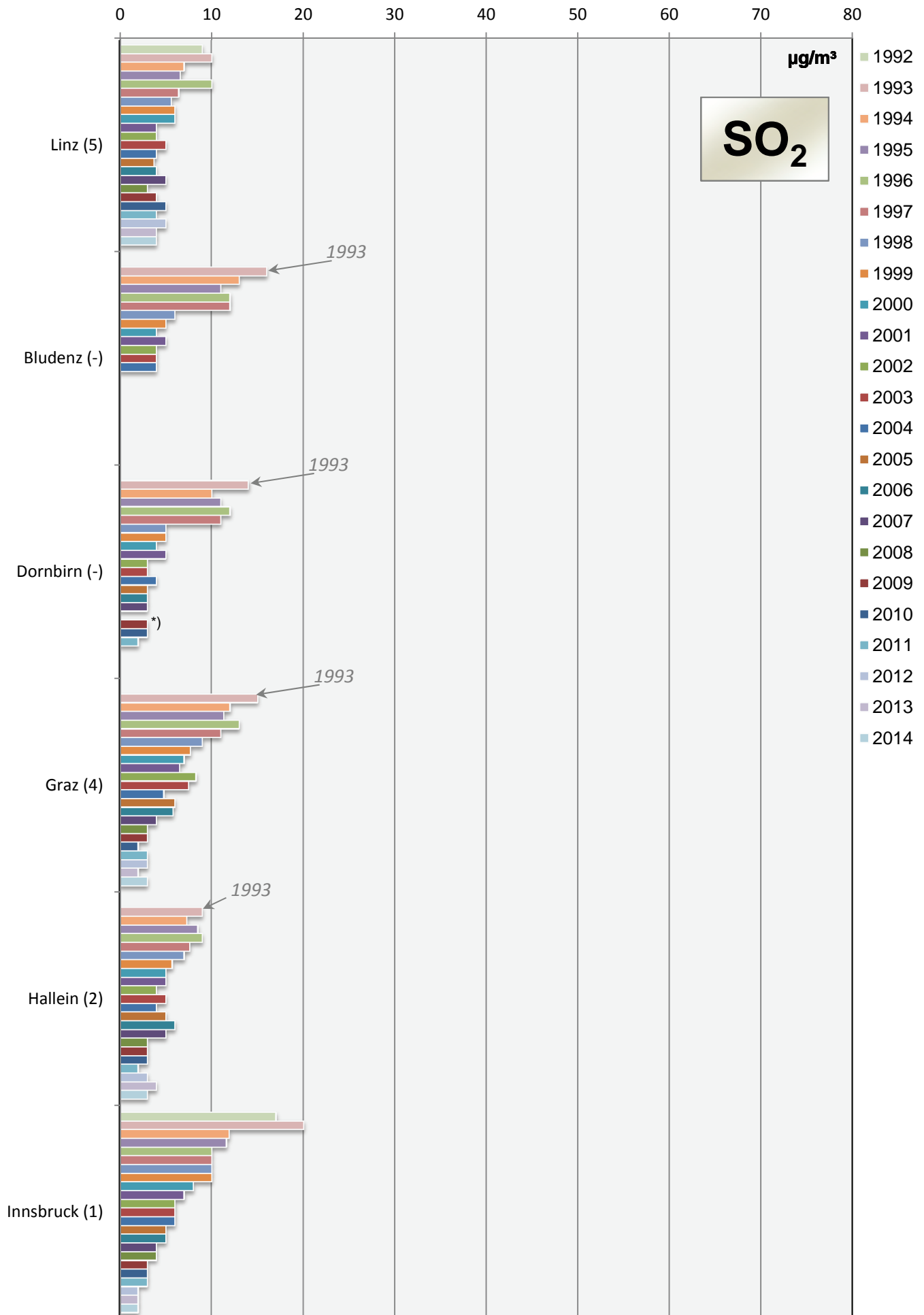
Comparison of The Air Quality Over The Years

1992 - 2014

Annual Mean Values

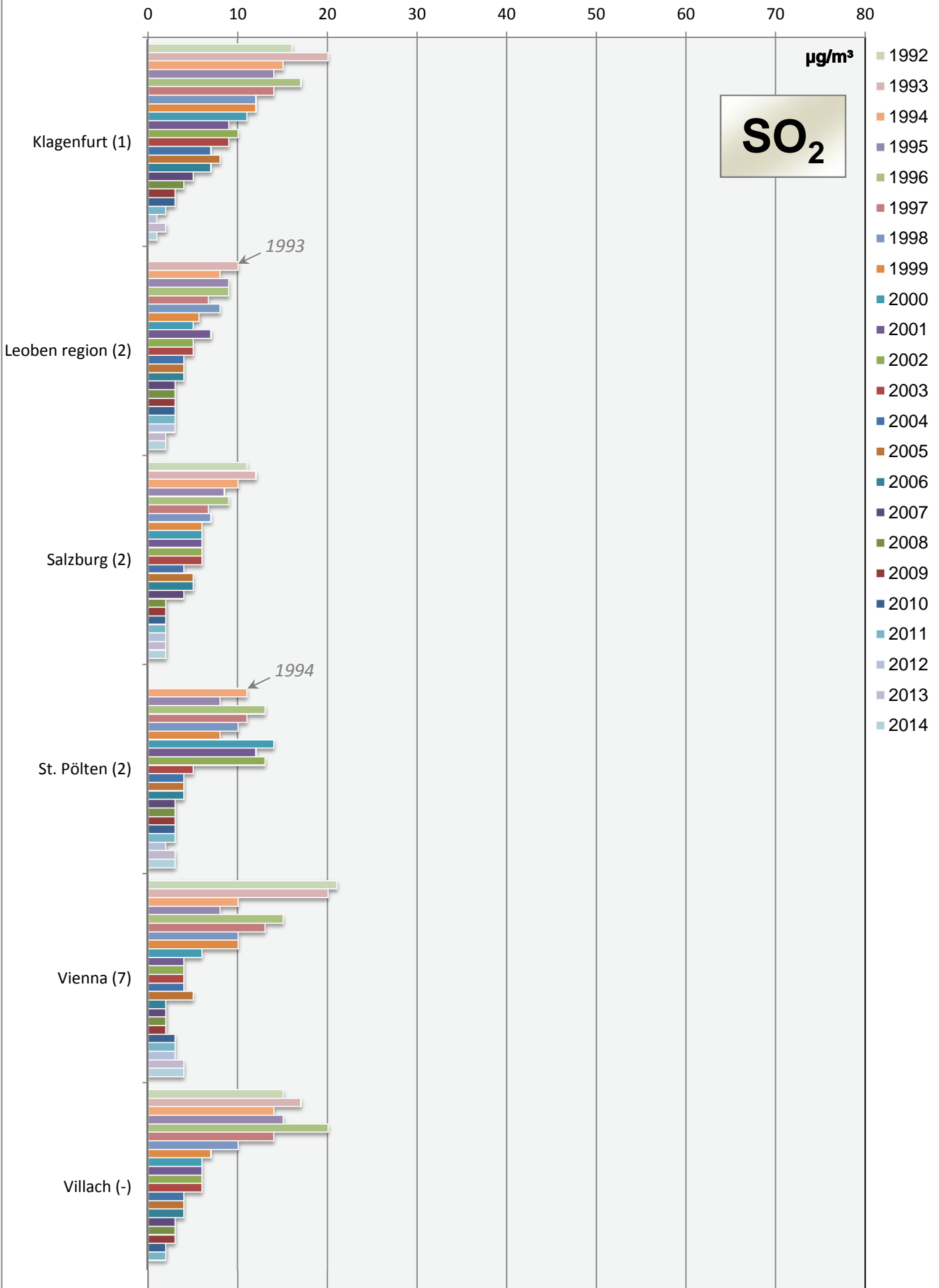
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



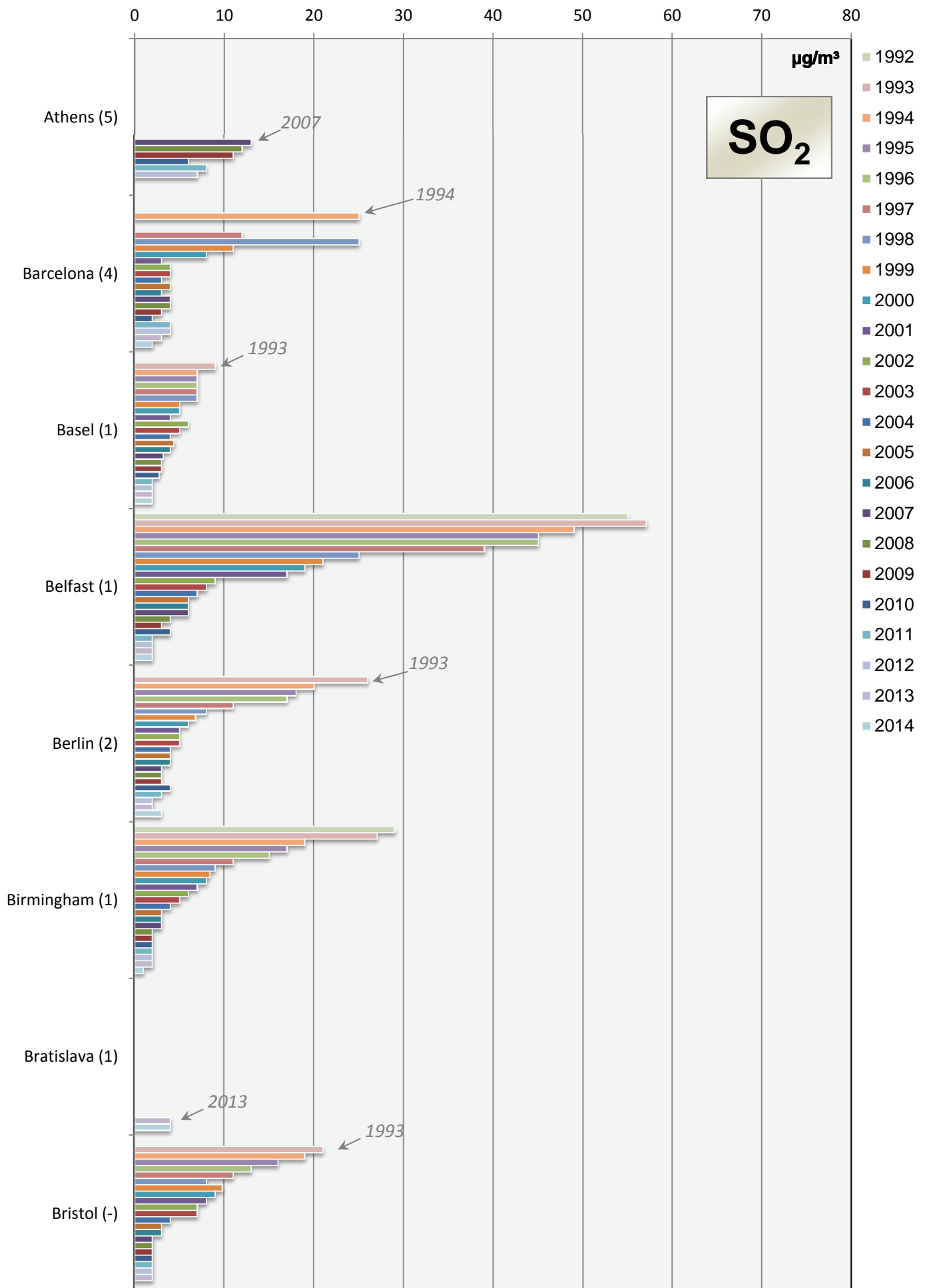
*) data of the year 2008 are not used for the comparison, because the street near the measurement point was closed for 11 months

Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

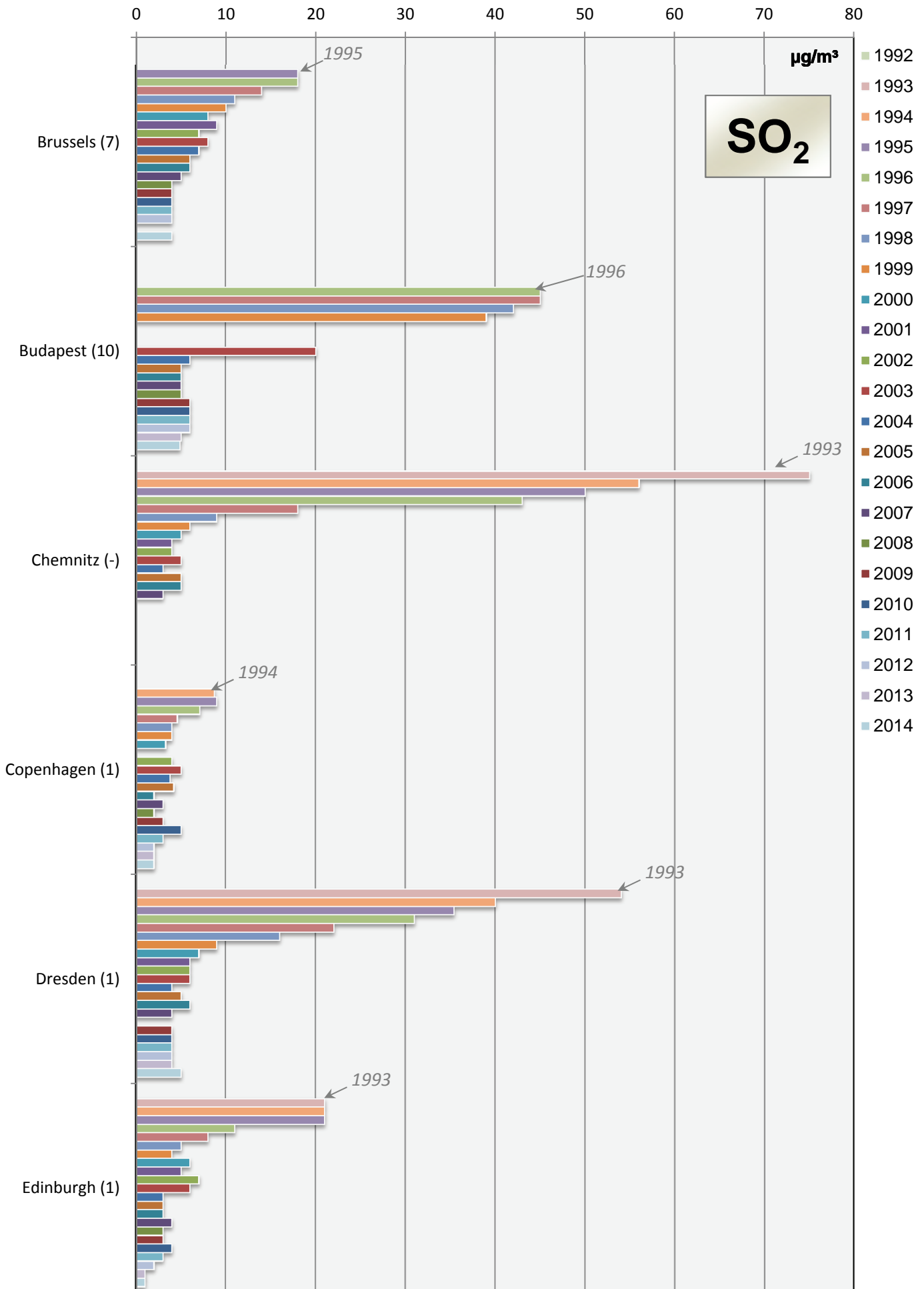


Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

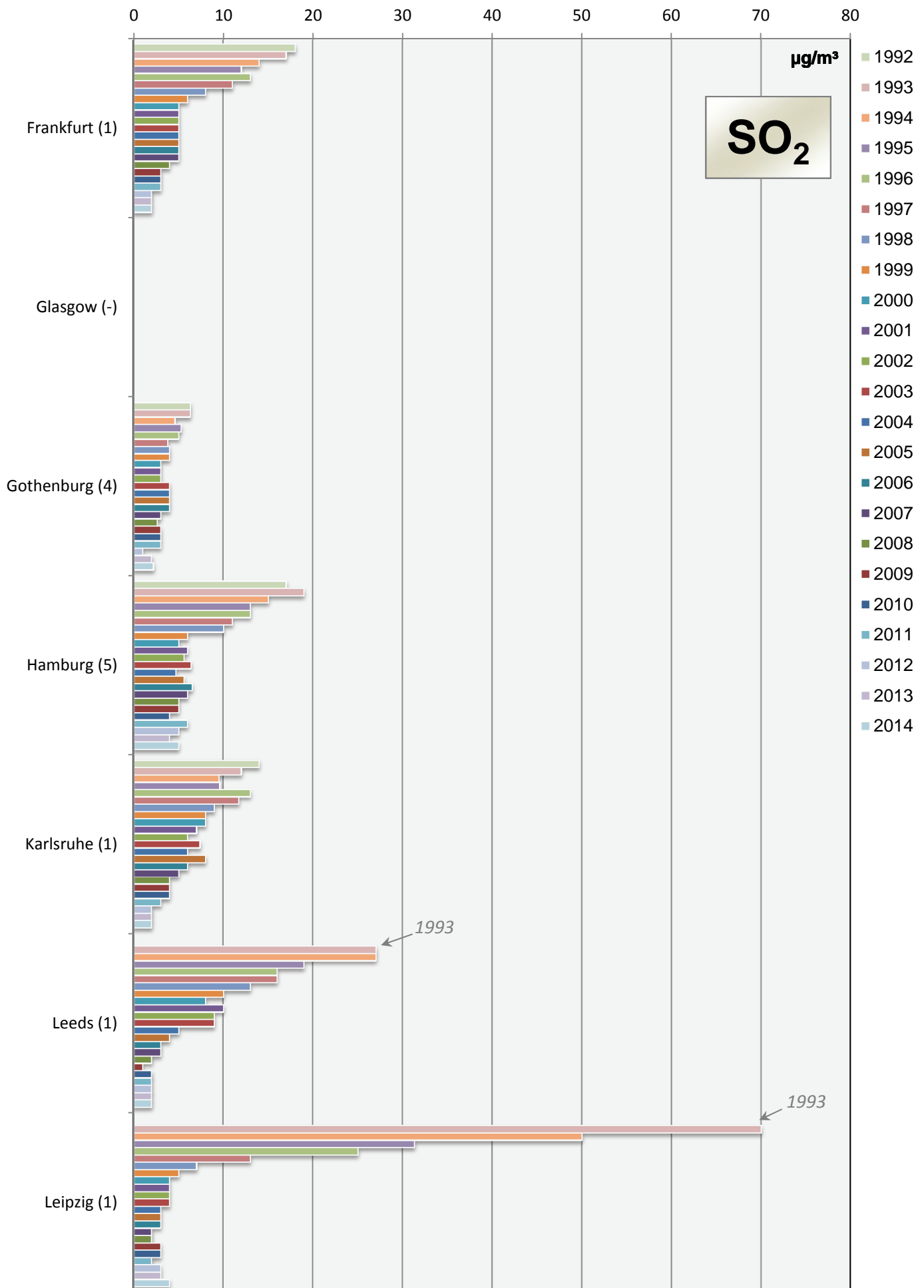


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

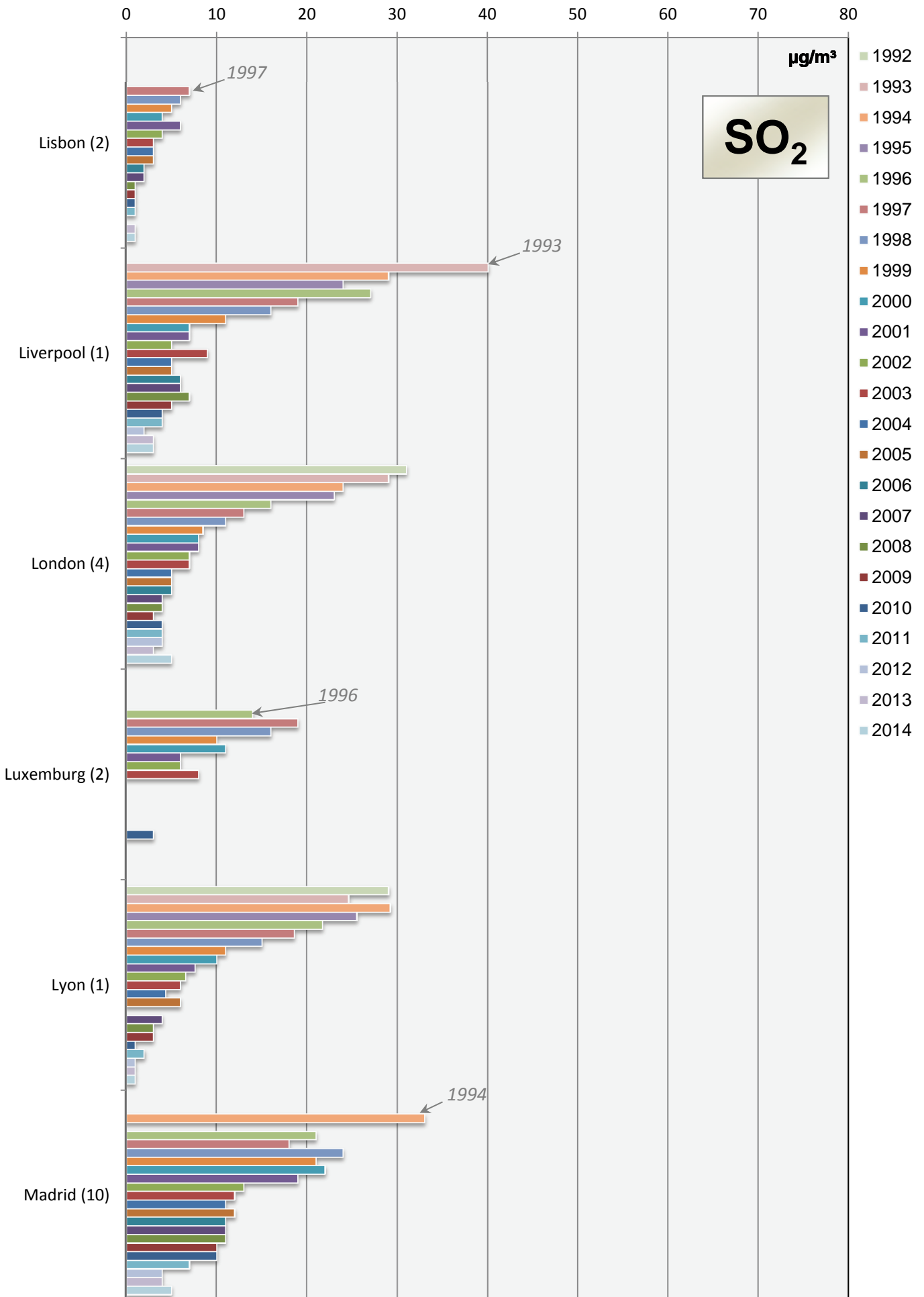


Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

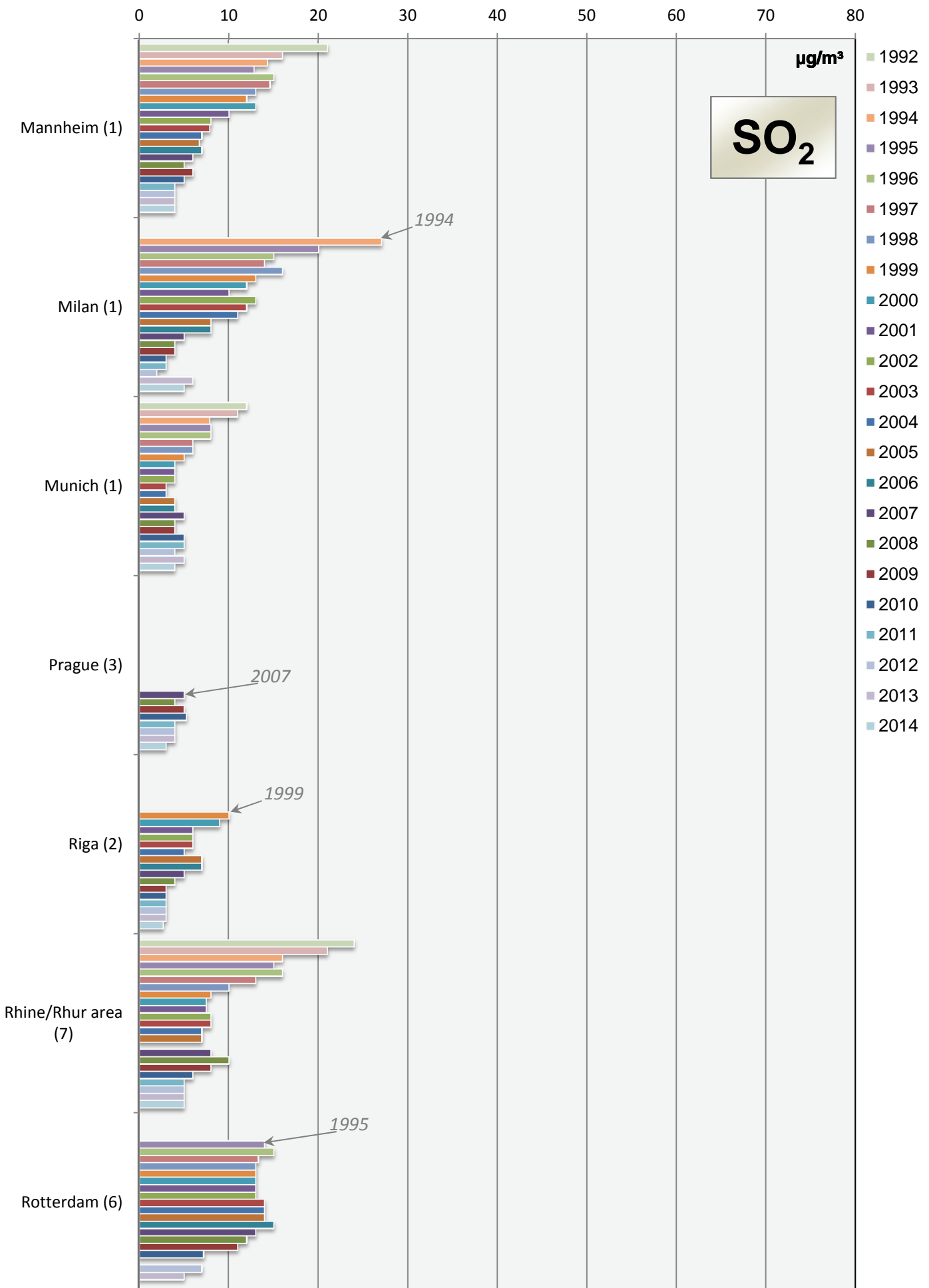


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

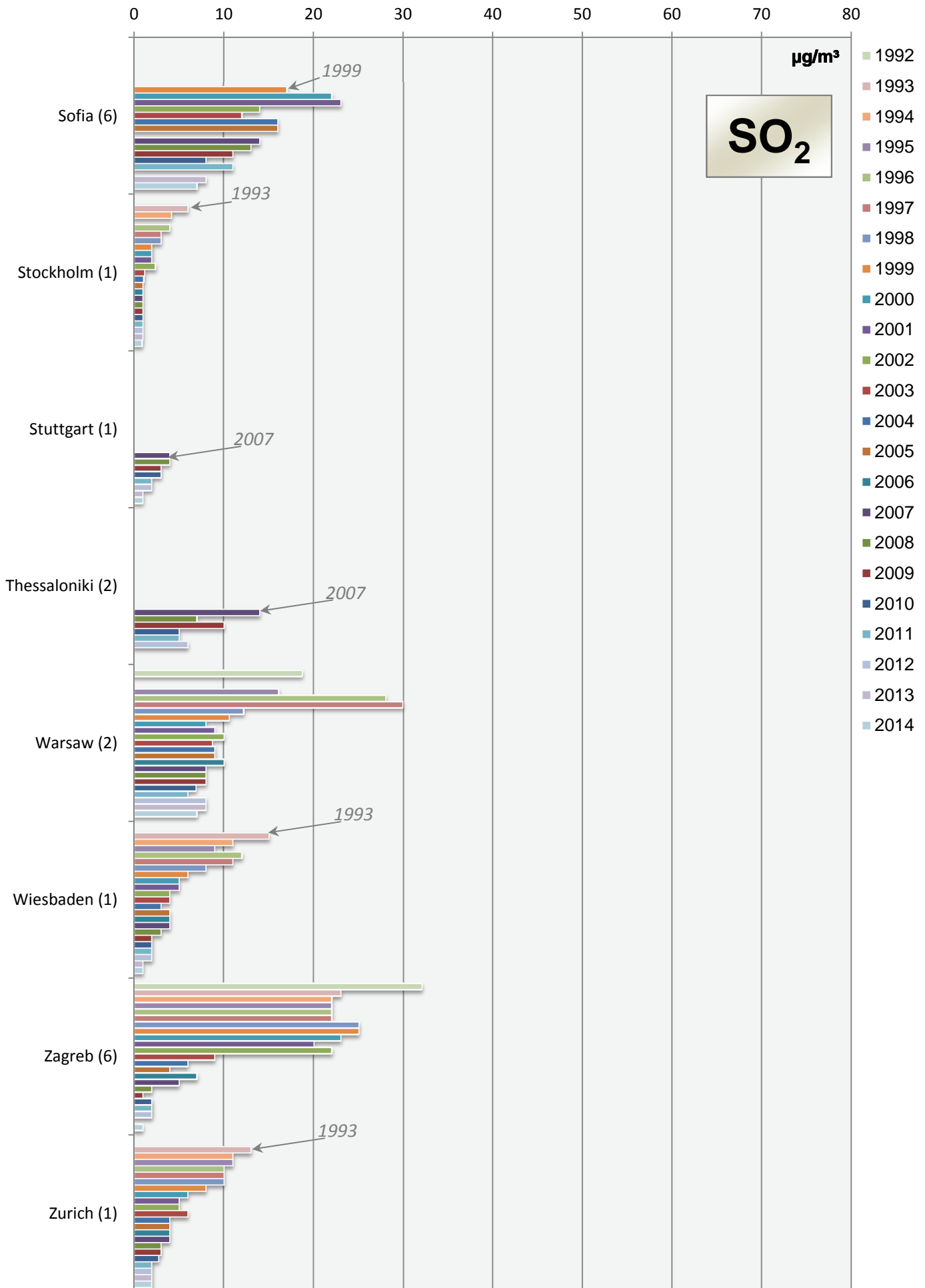


Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

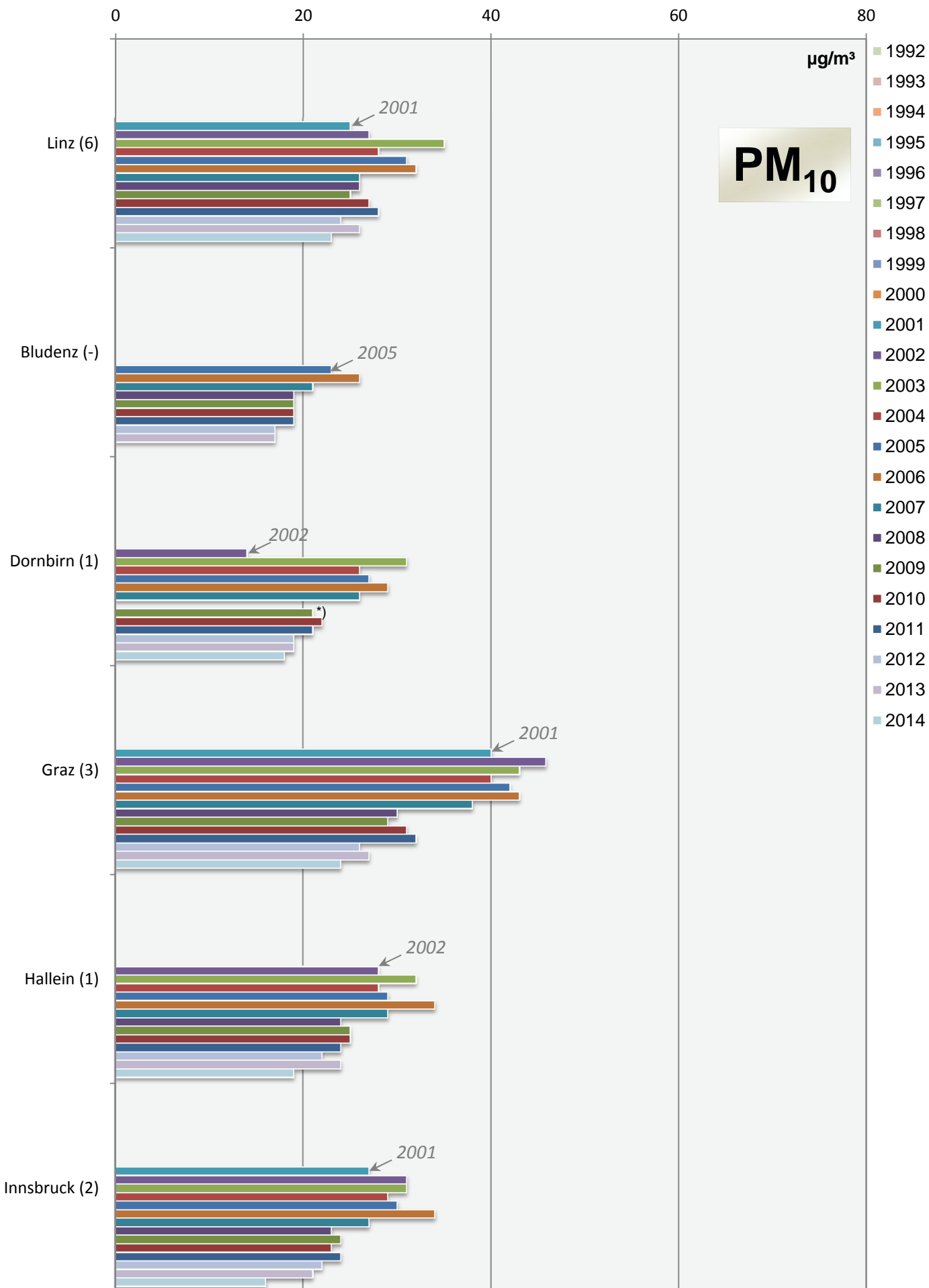


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



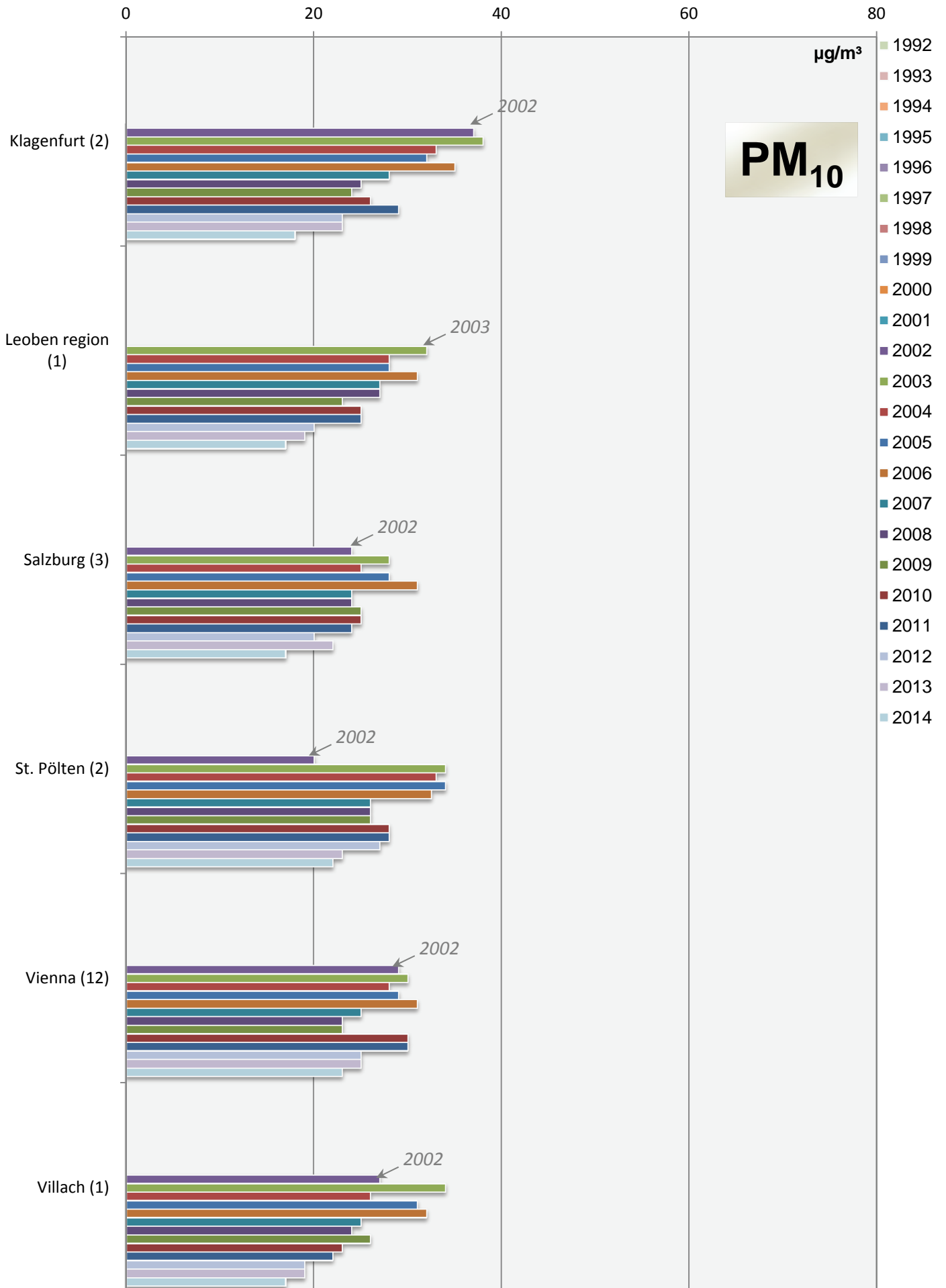
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

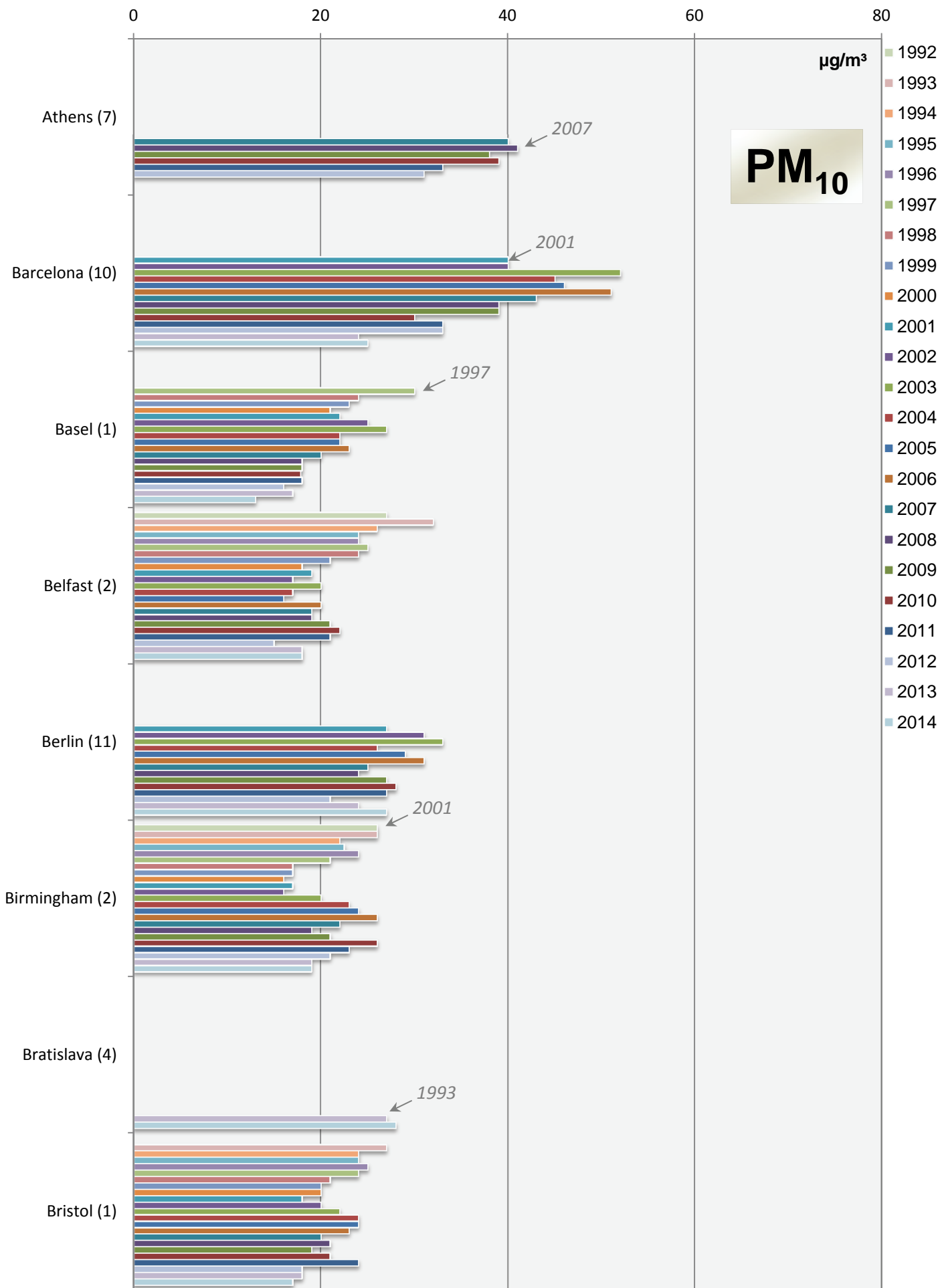


*) data of the year 2008 are not used for the comparison, because the street near the measurement point was closed for 11 months

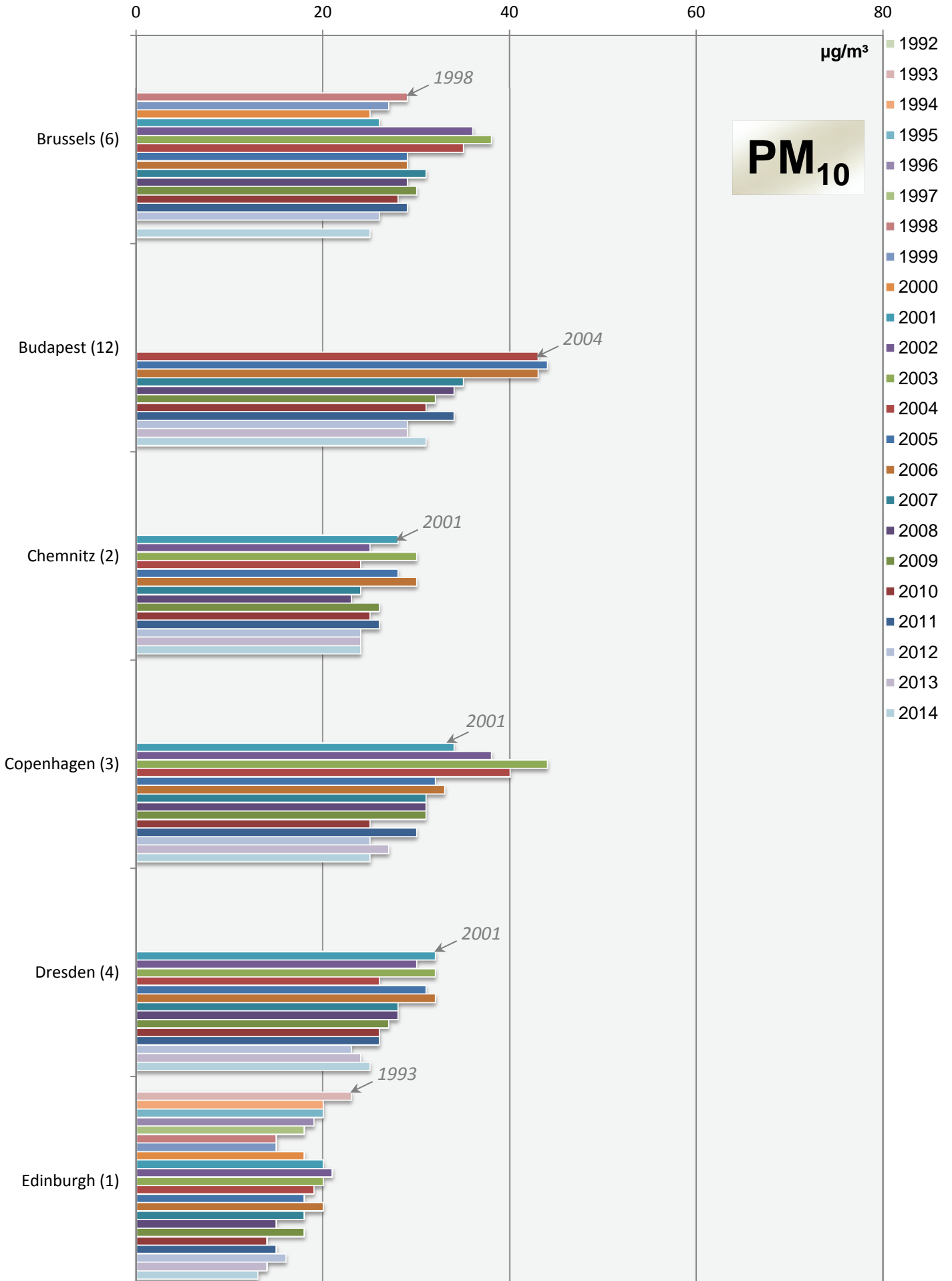
Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



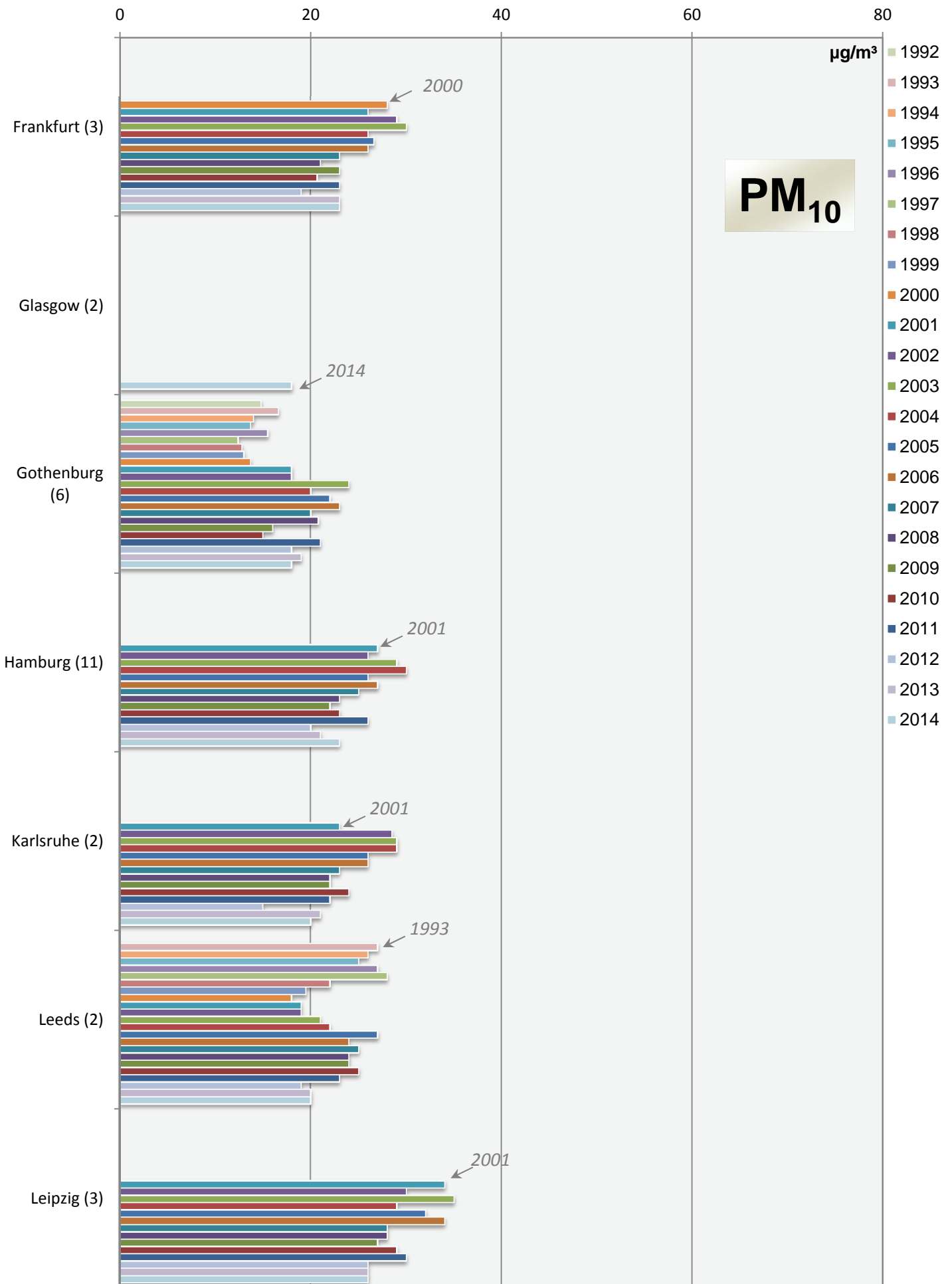
Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



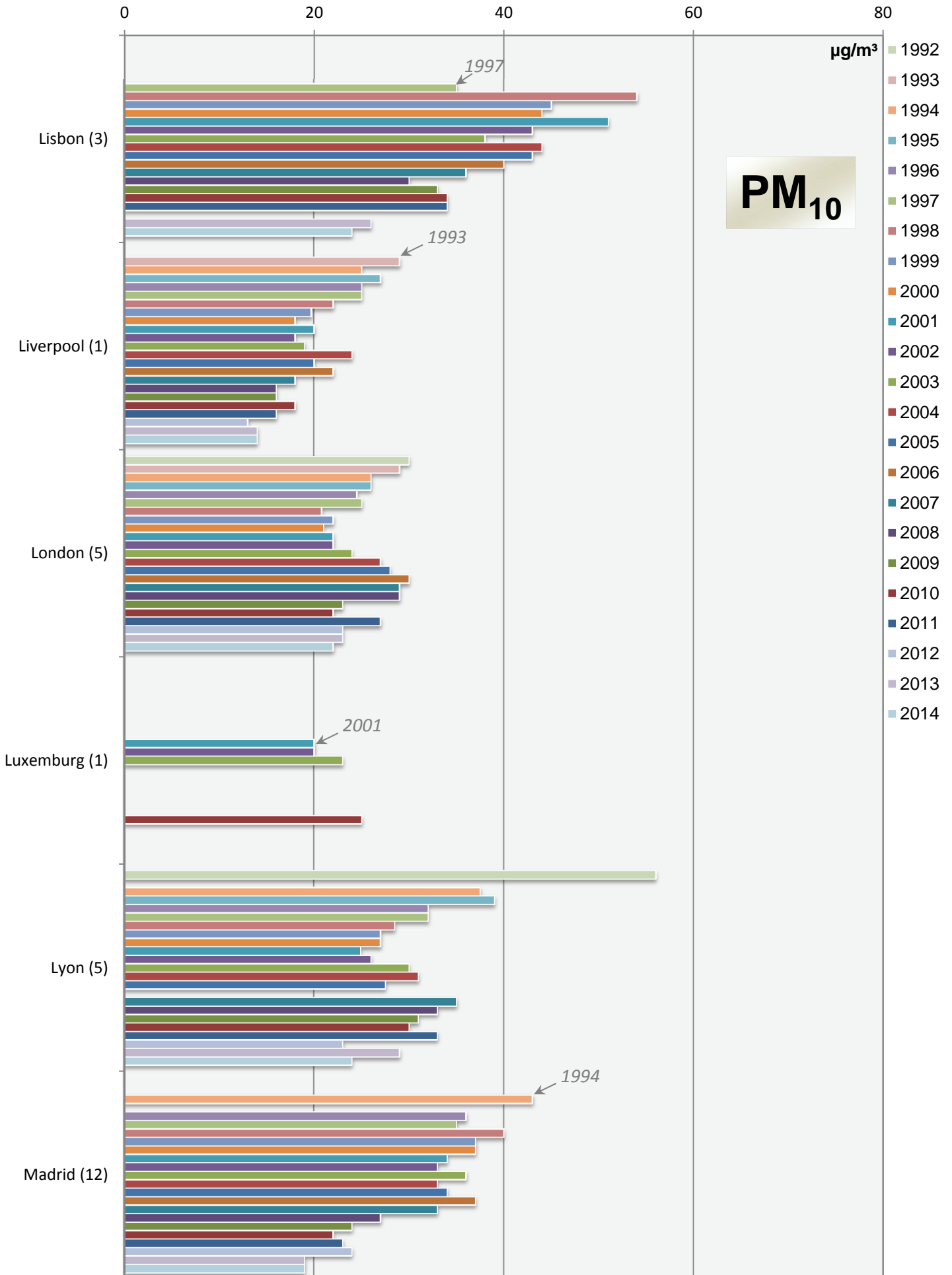
Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



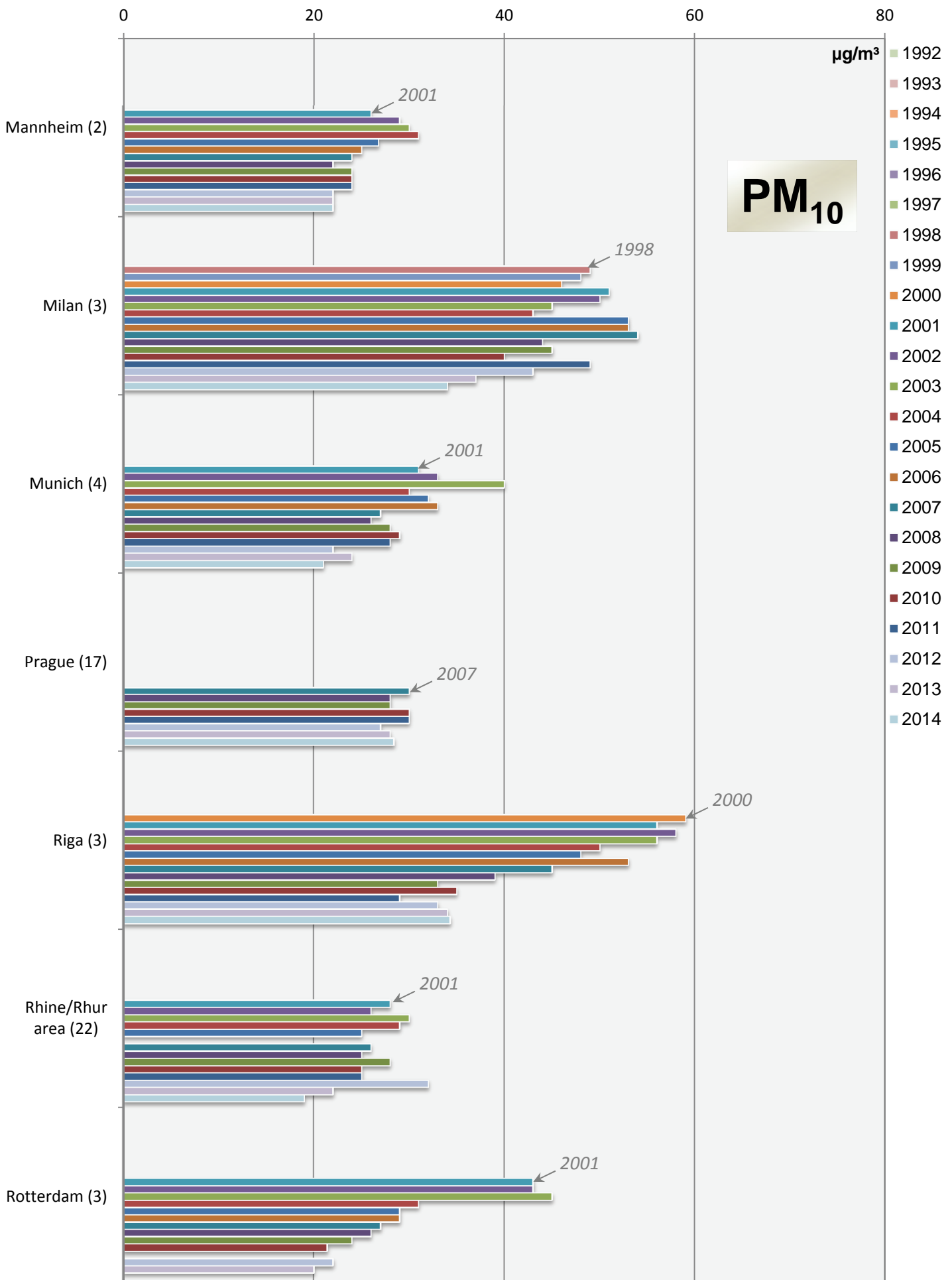
Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

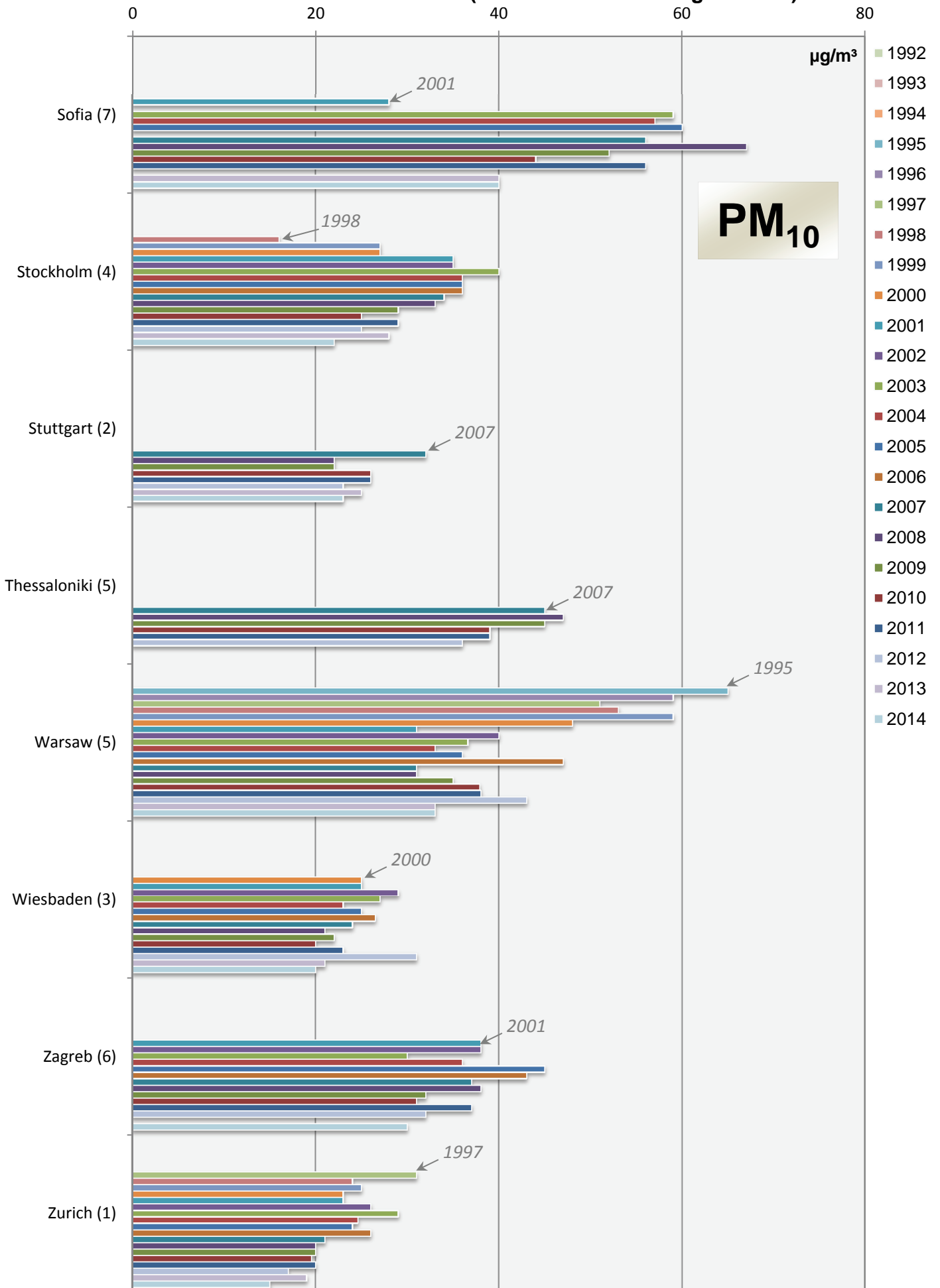


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

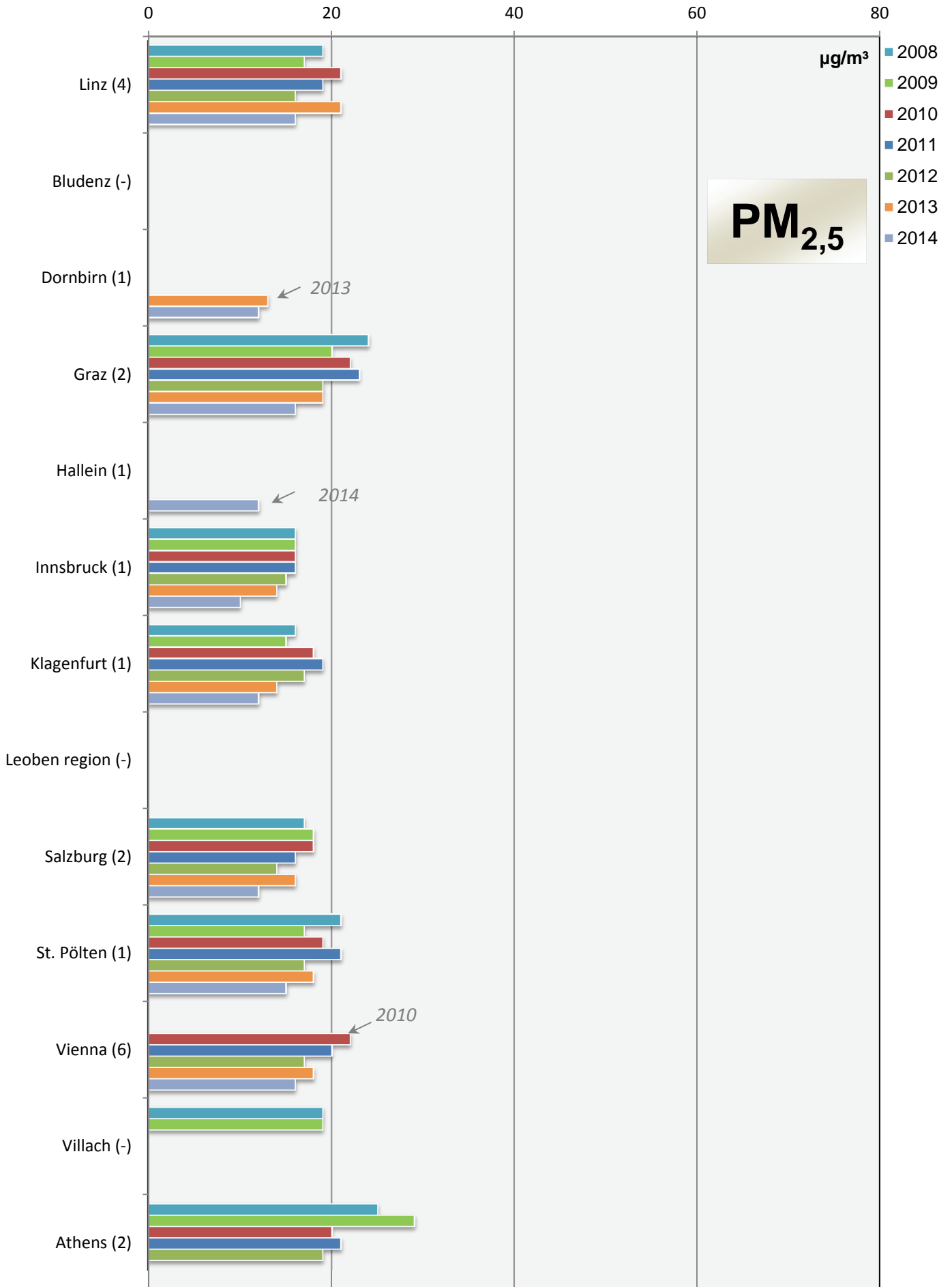


Comparison of The Air Quality 1992 - 2014

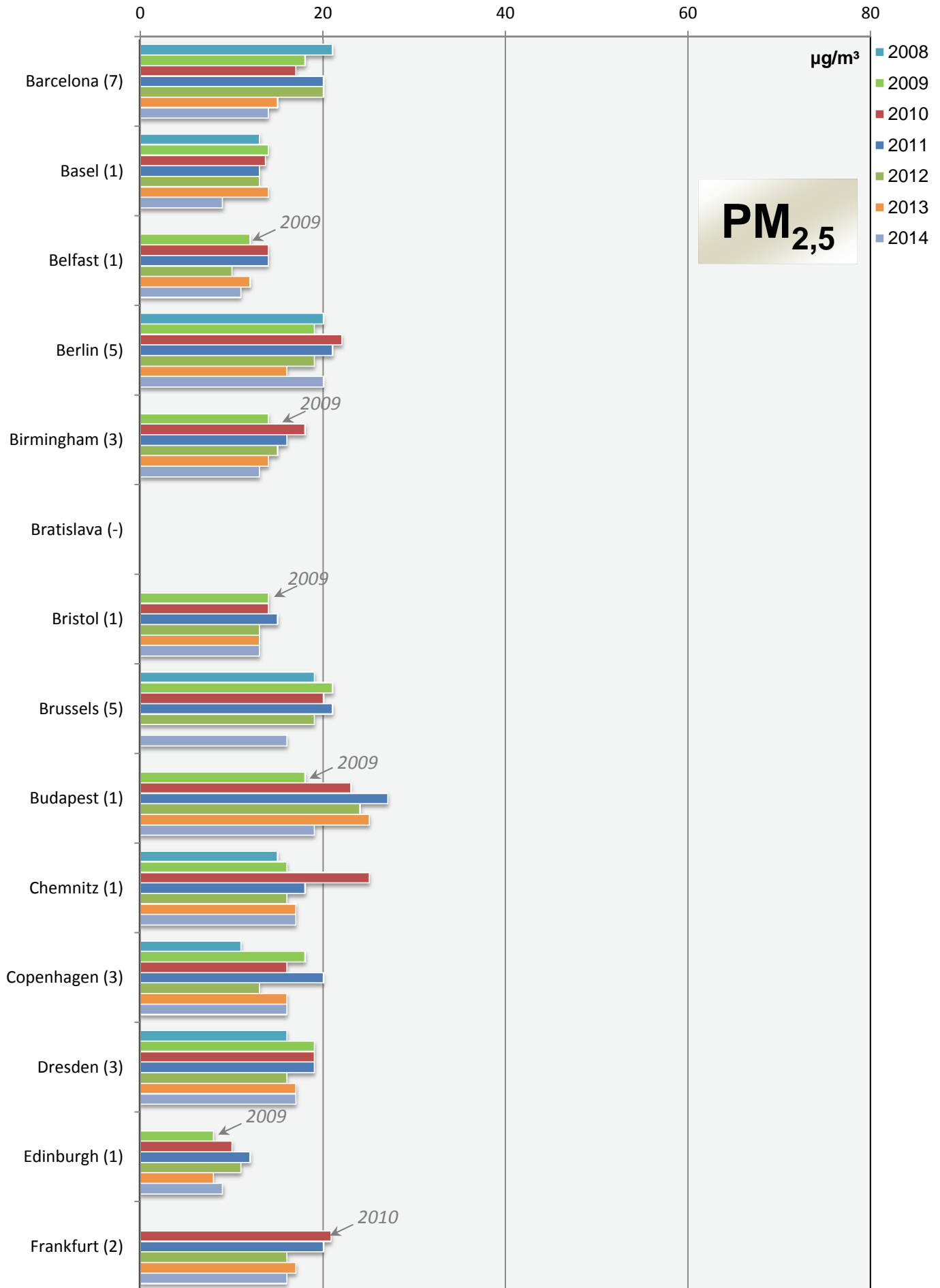
Annual mean values (mean of all monitoring stations)



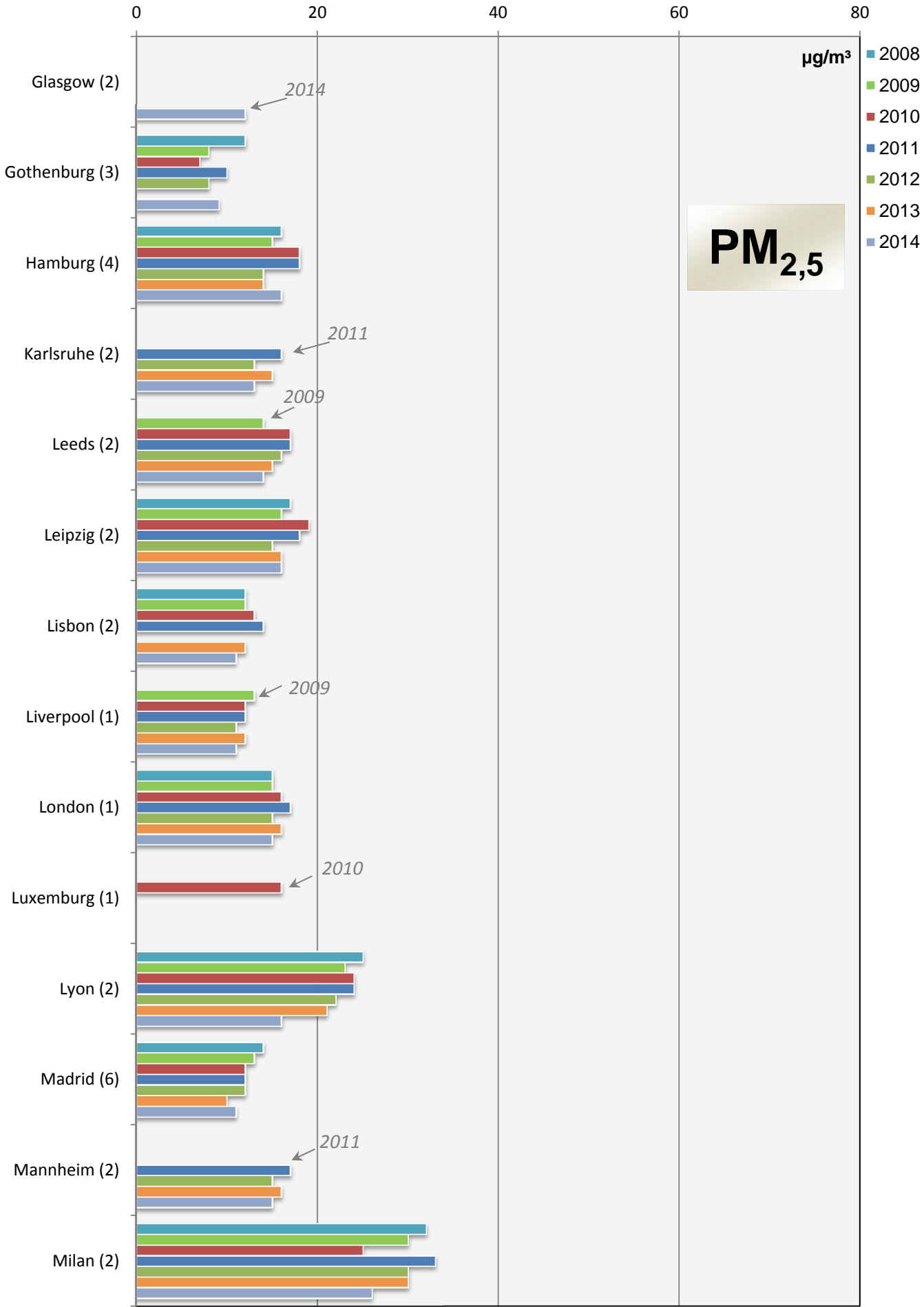
Comparison of The Air Quality 2008 - 2014 Annual mean values (mean of all monitoring stations)



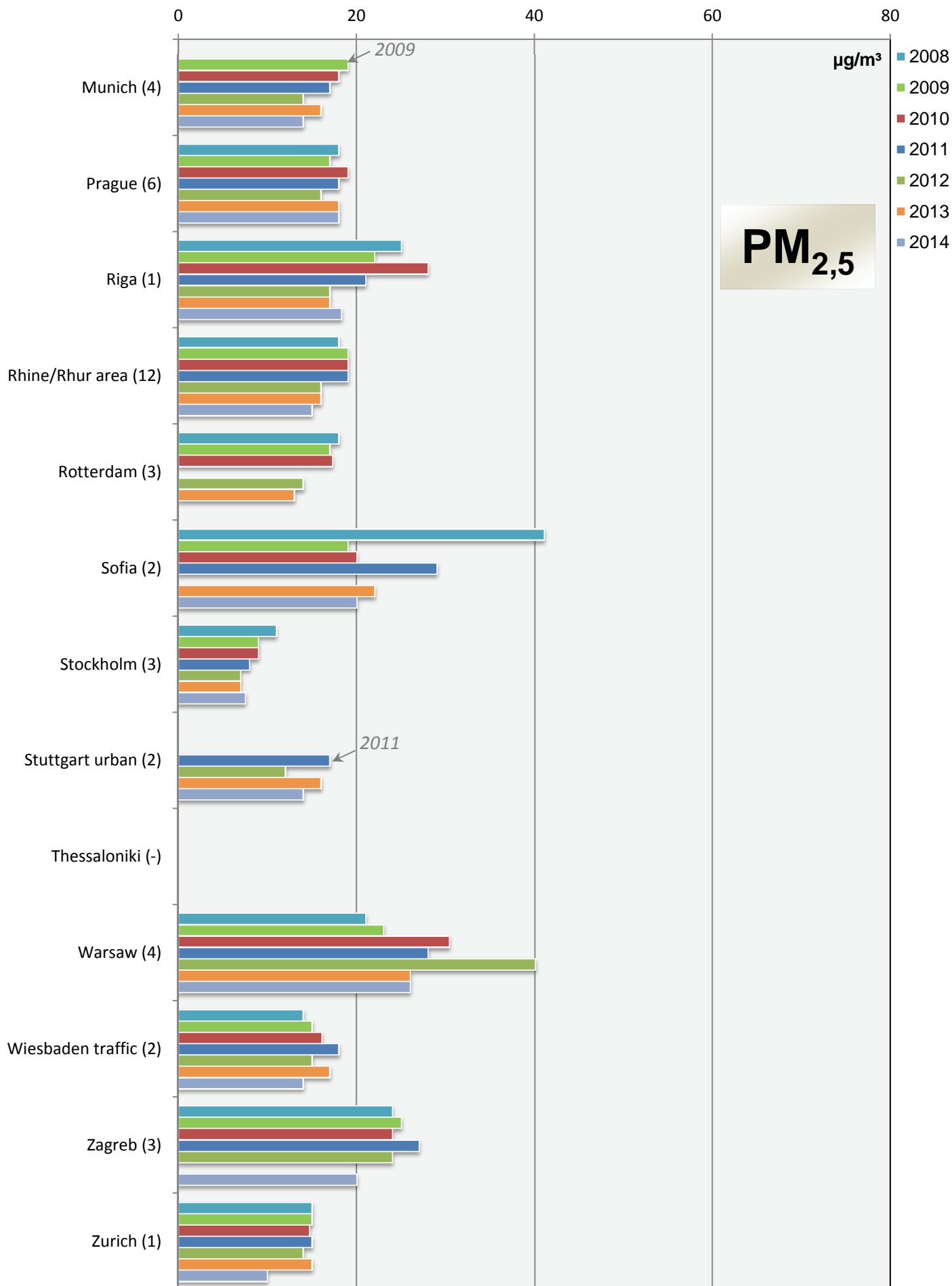
Comparison of The Air Quality 2008 - 2014 Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 2008 - 2014 Annual mean values (mean of all monitoring stations)

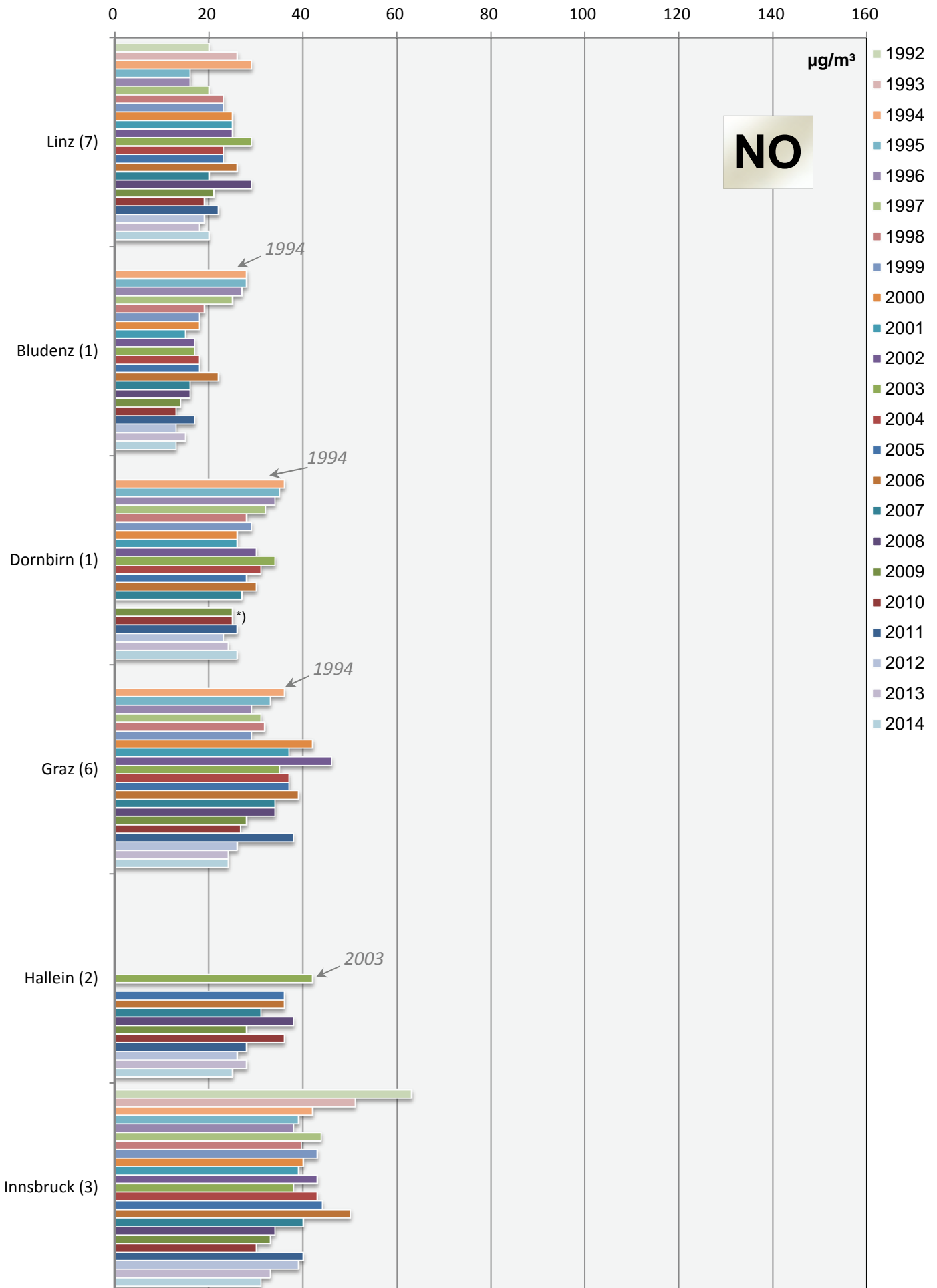


Comparison of The Air Quality 2008 - 2014 Annual mean values (mean of all monitoring stations)



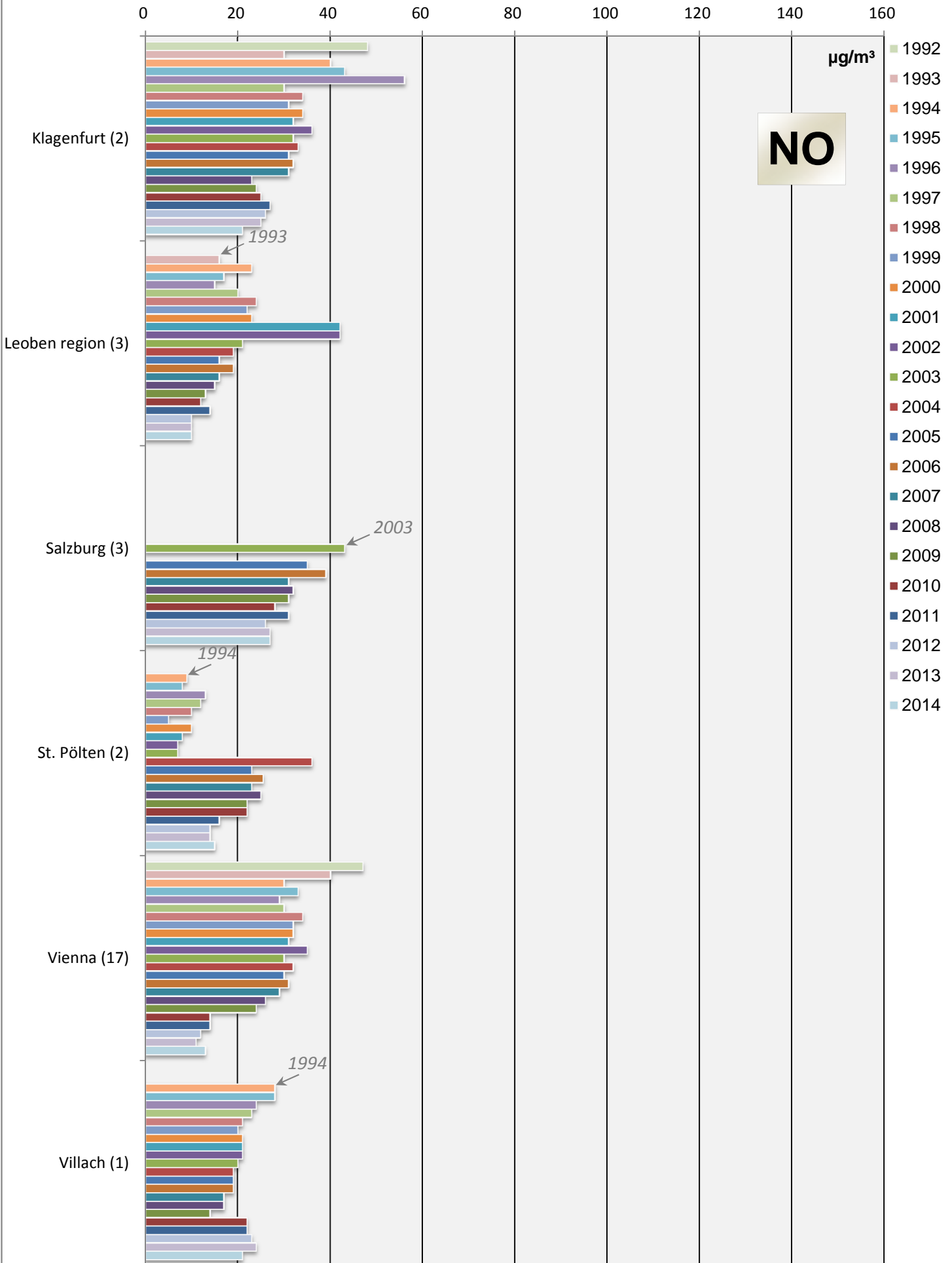
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



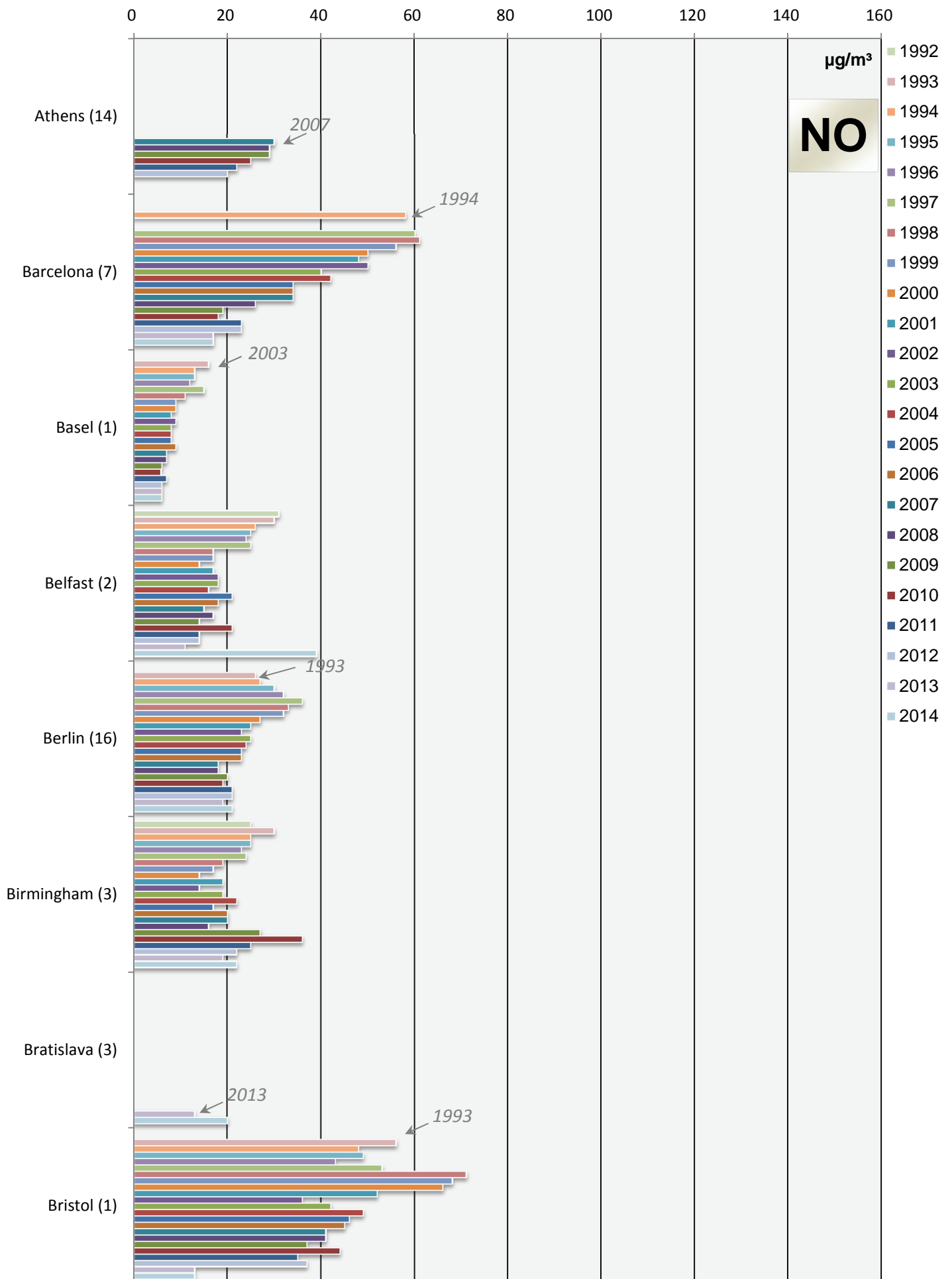
*) data of the year 2008 are not used for the comparison, because the street near the measurement point was closed for 11 months

Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

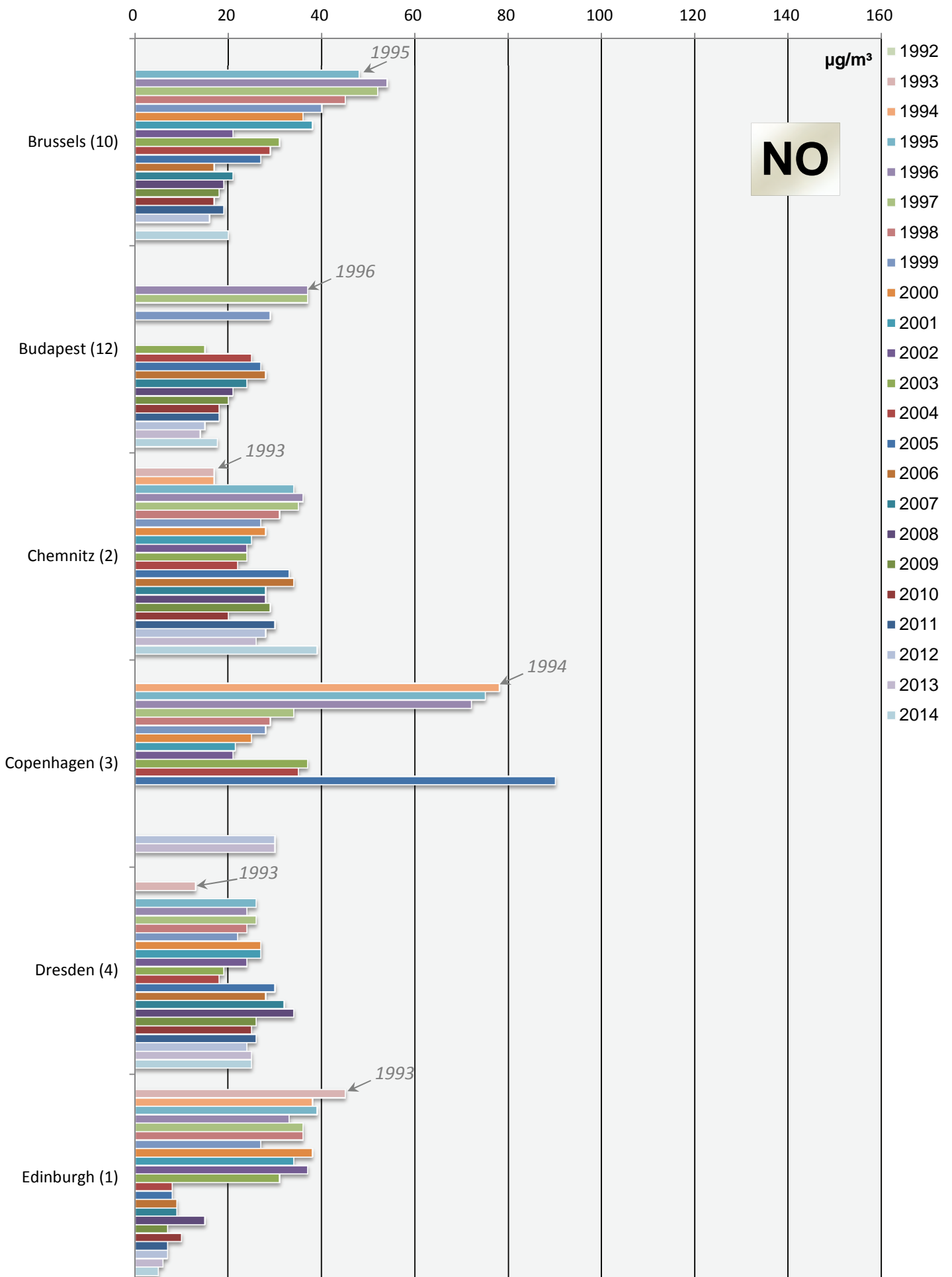


Comparison of The Air Quality 1992 - 2014

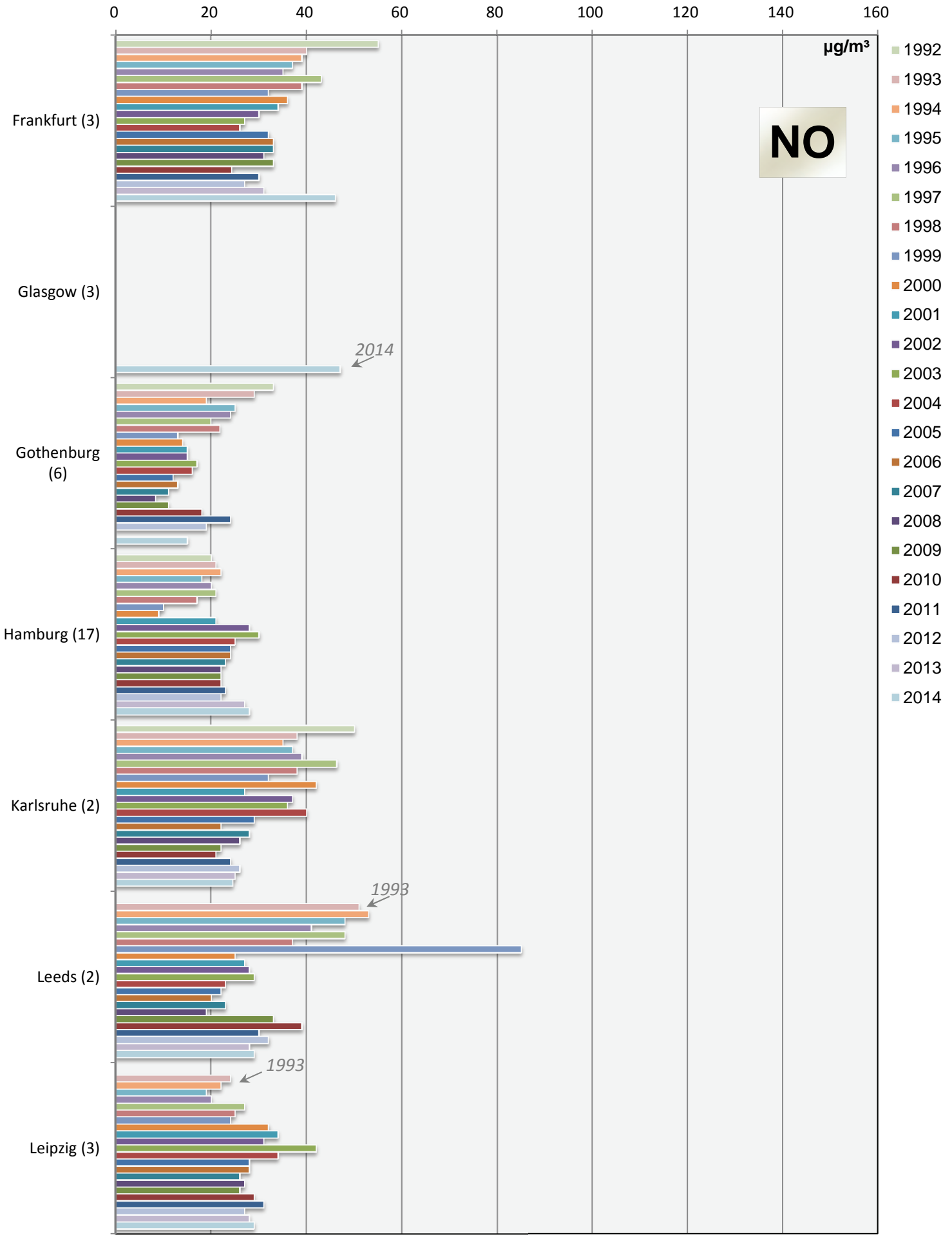
Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

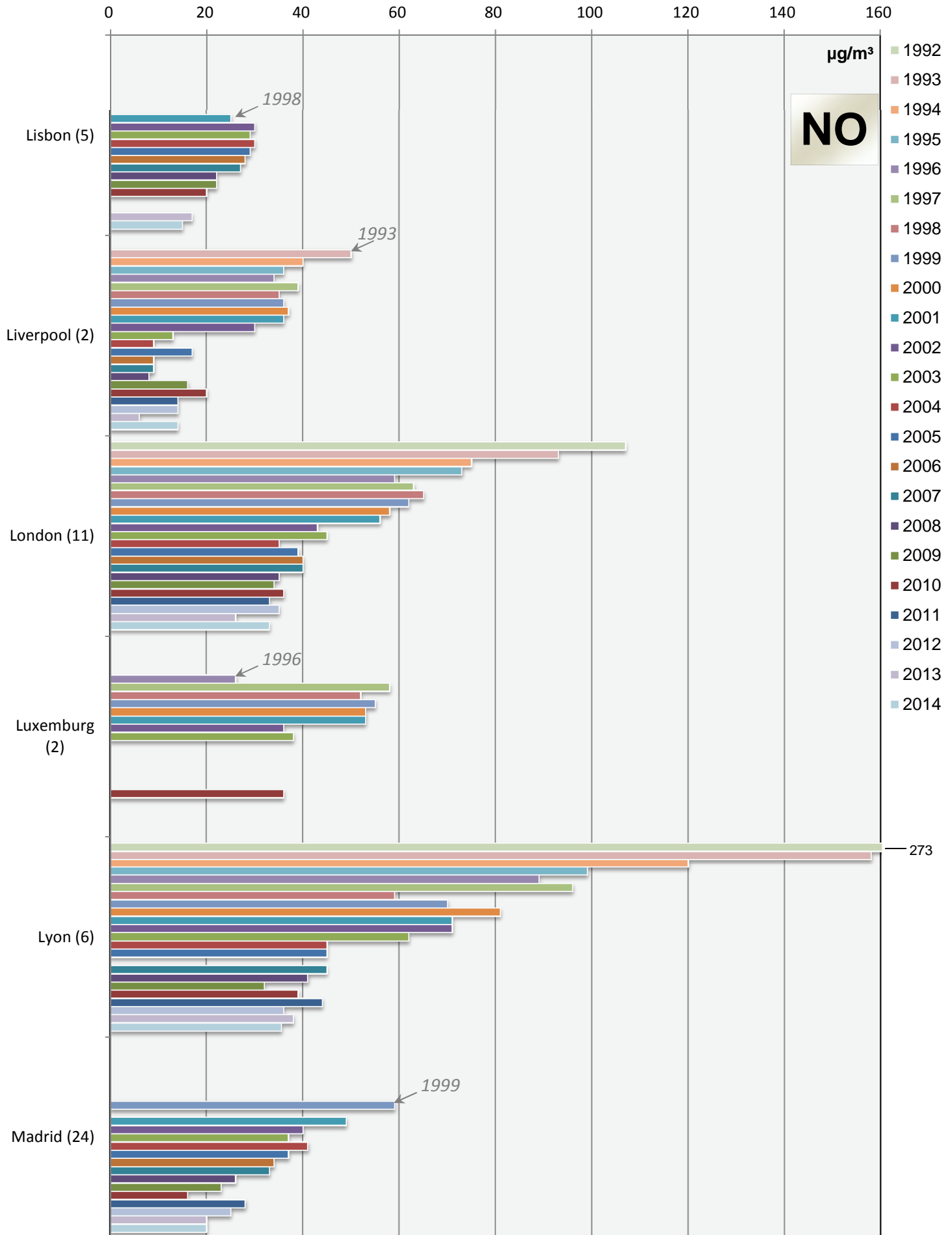


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



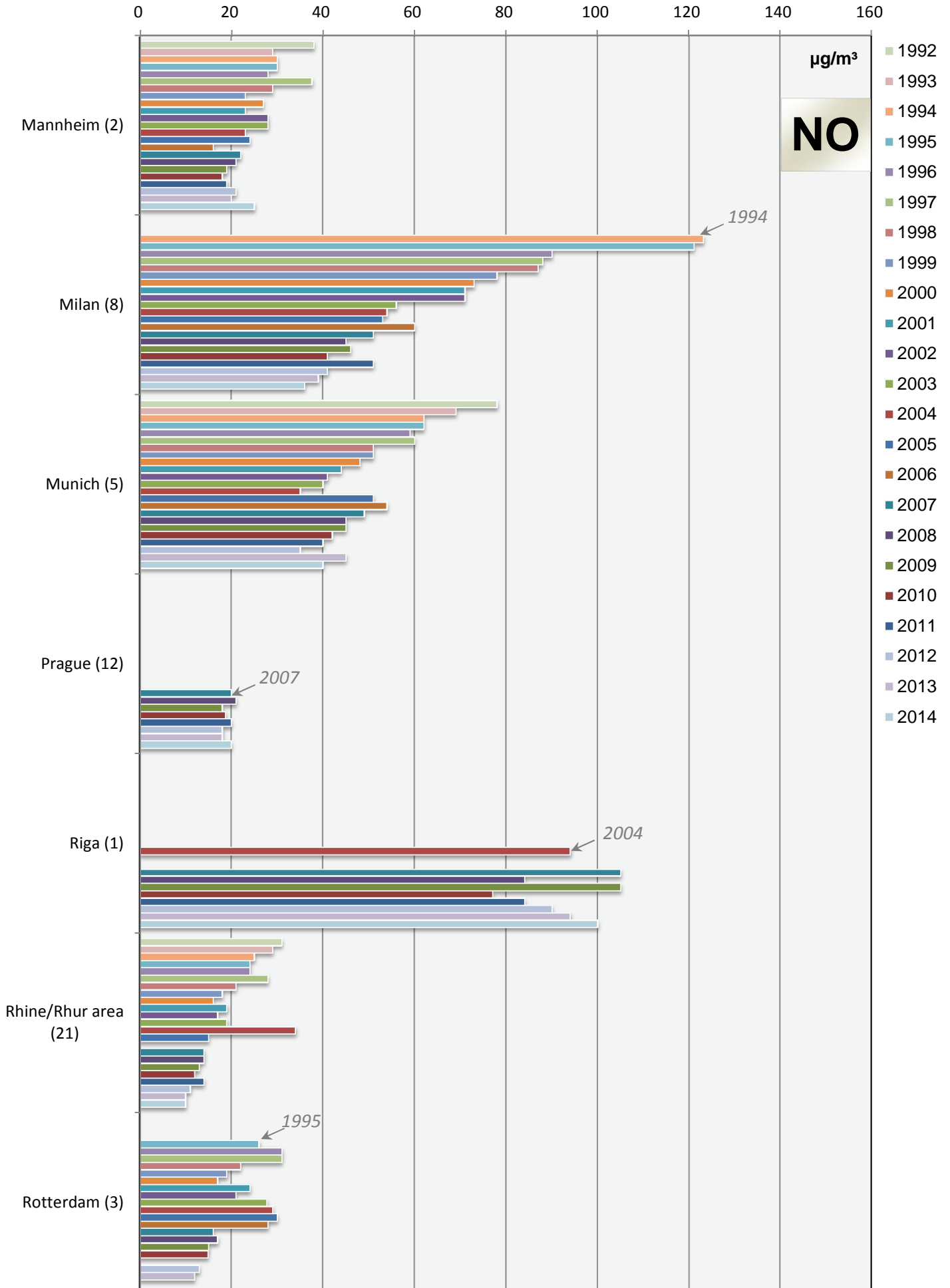
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



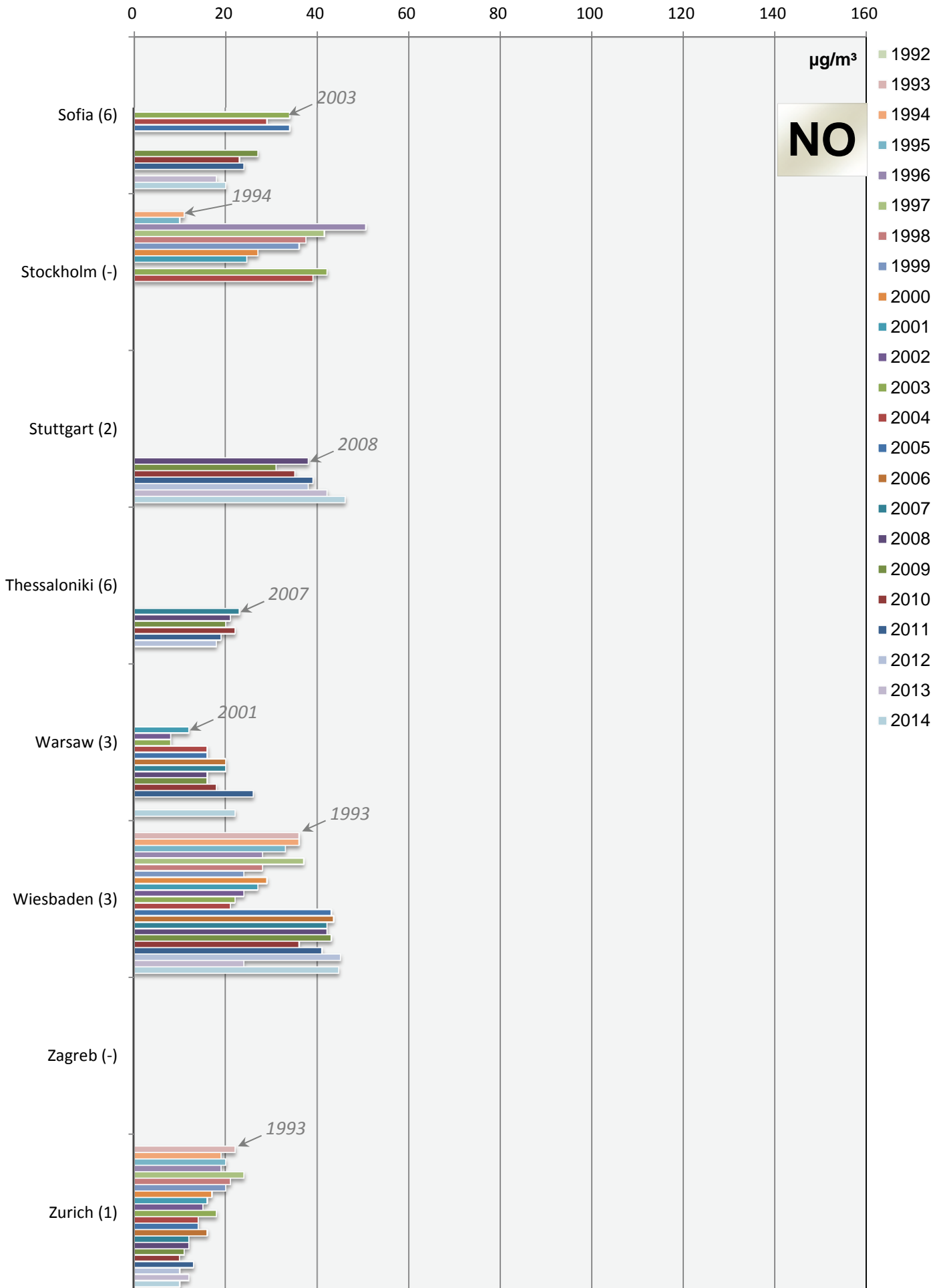
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



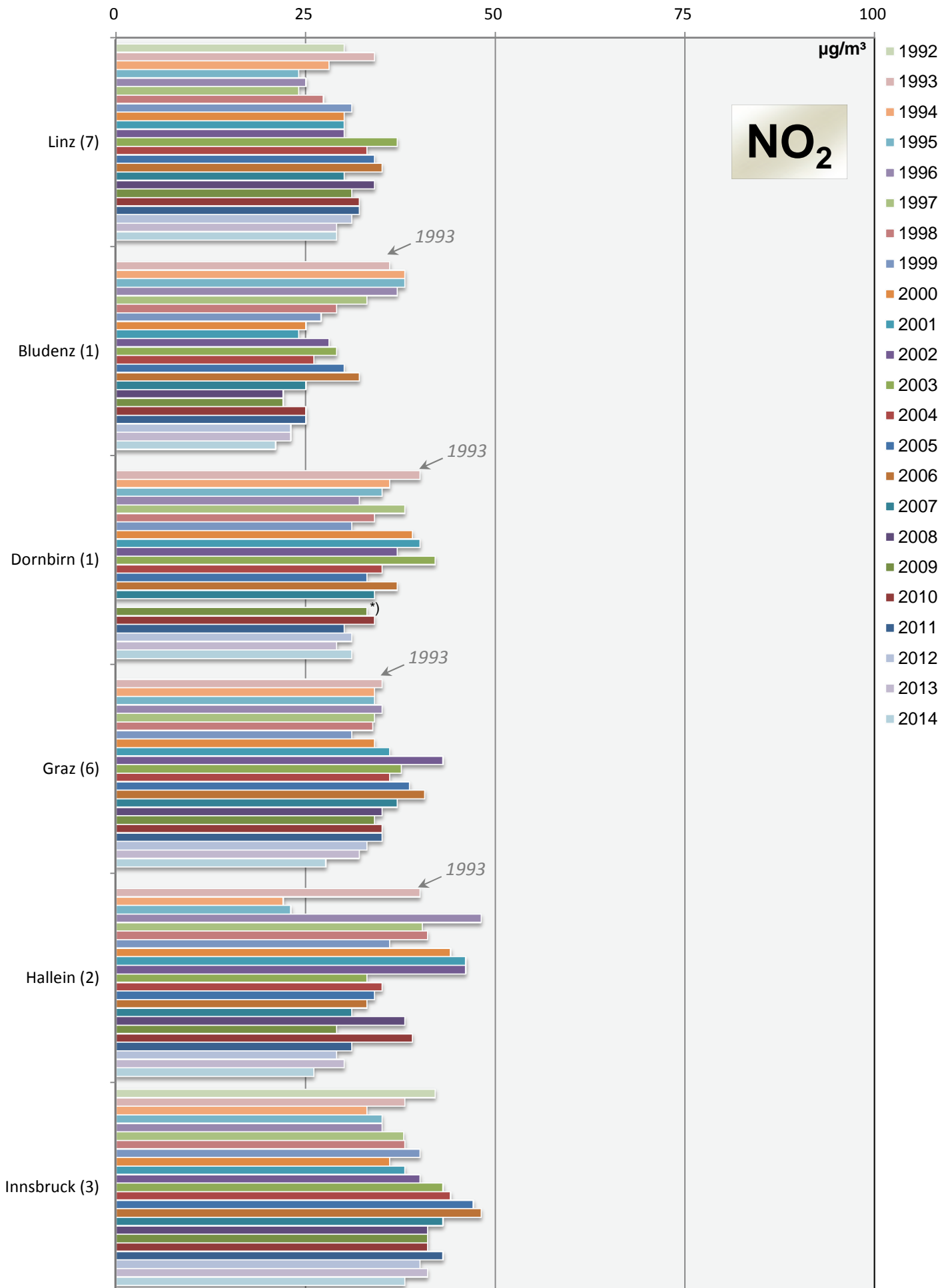
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



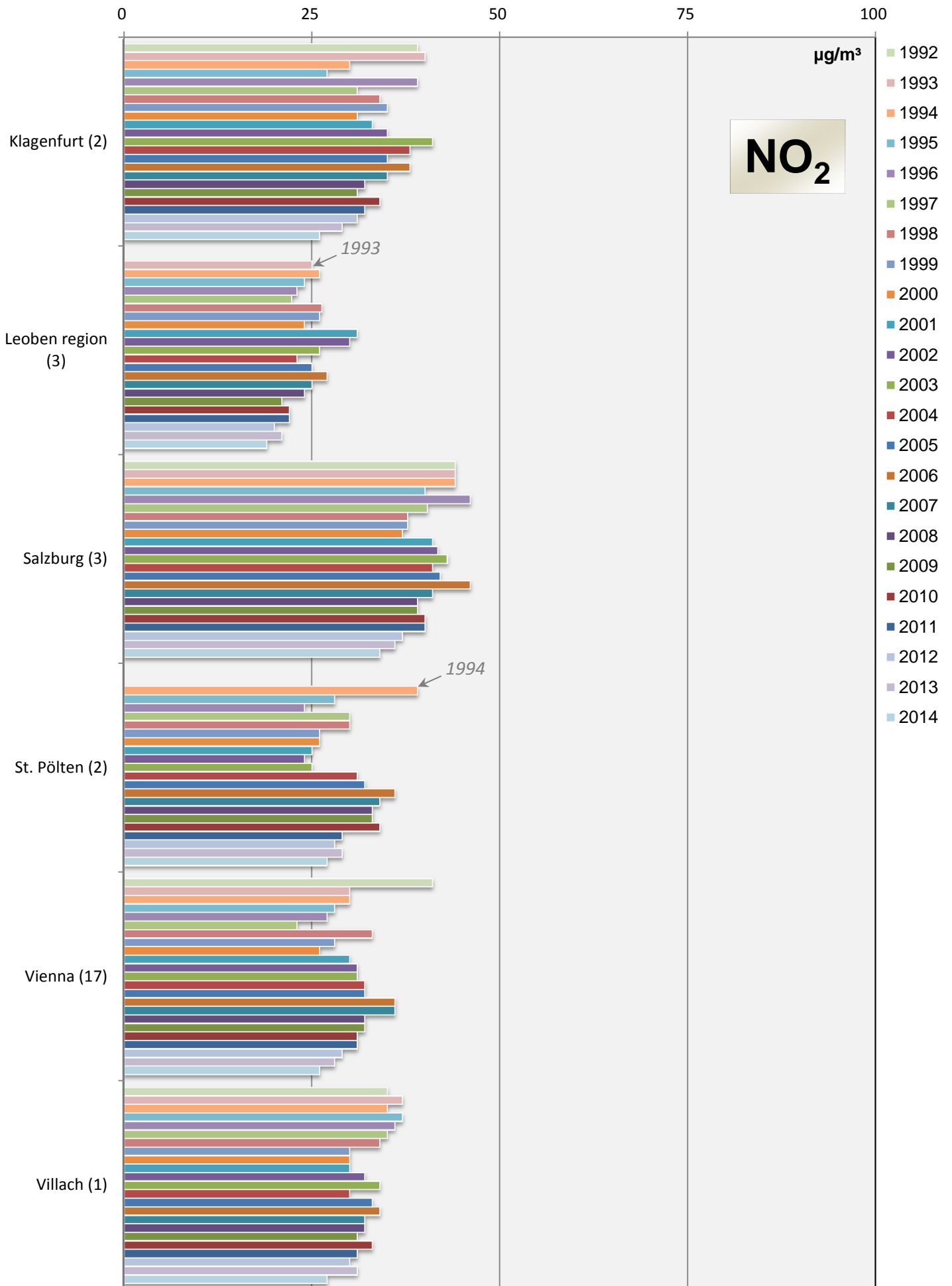
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



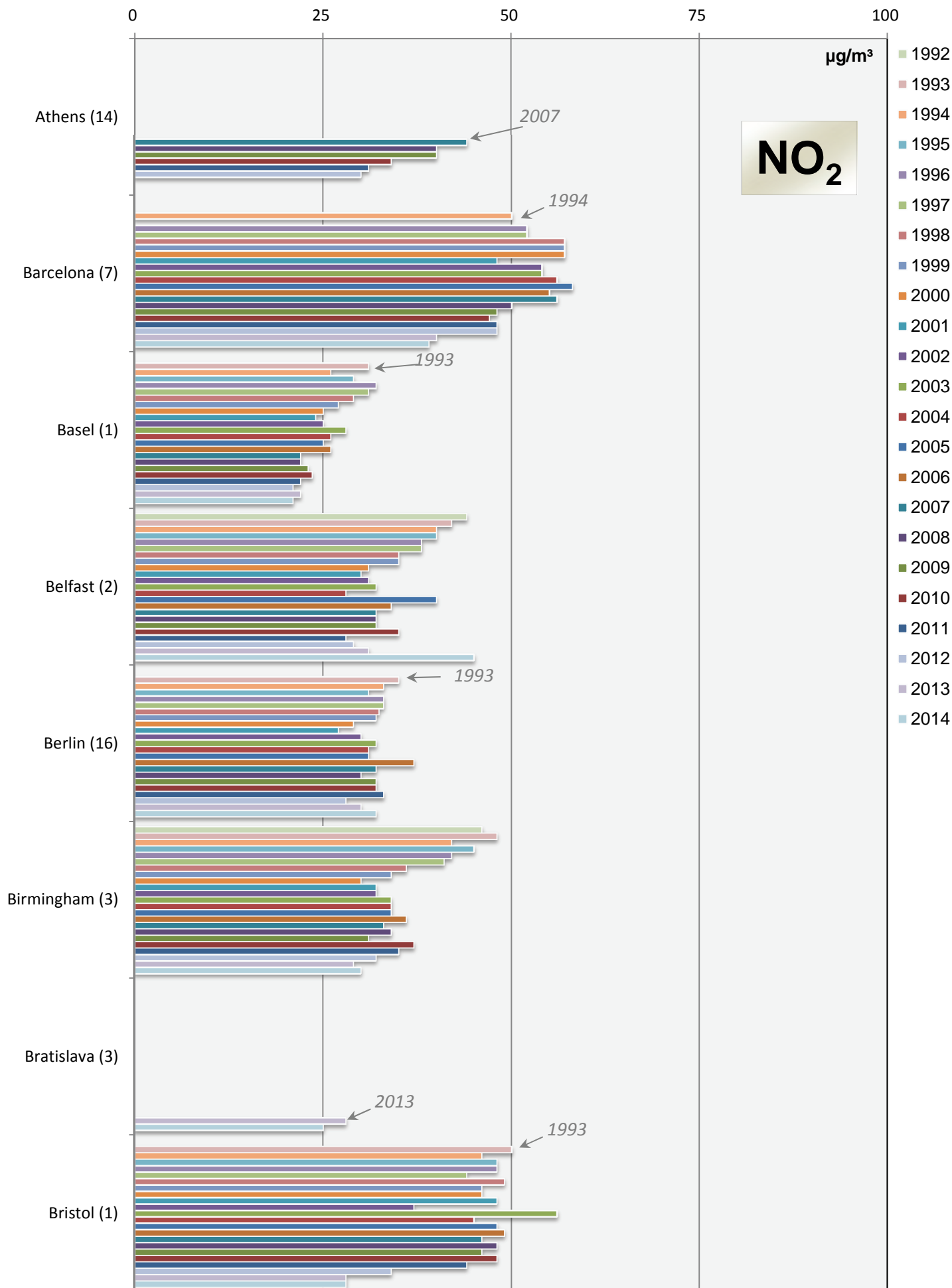
*) data of the year 2008 are not used for the comparison, because the street near the measurement point was closed for 11 months

Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

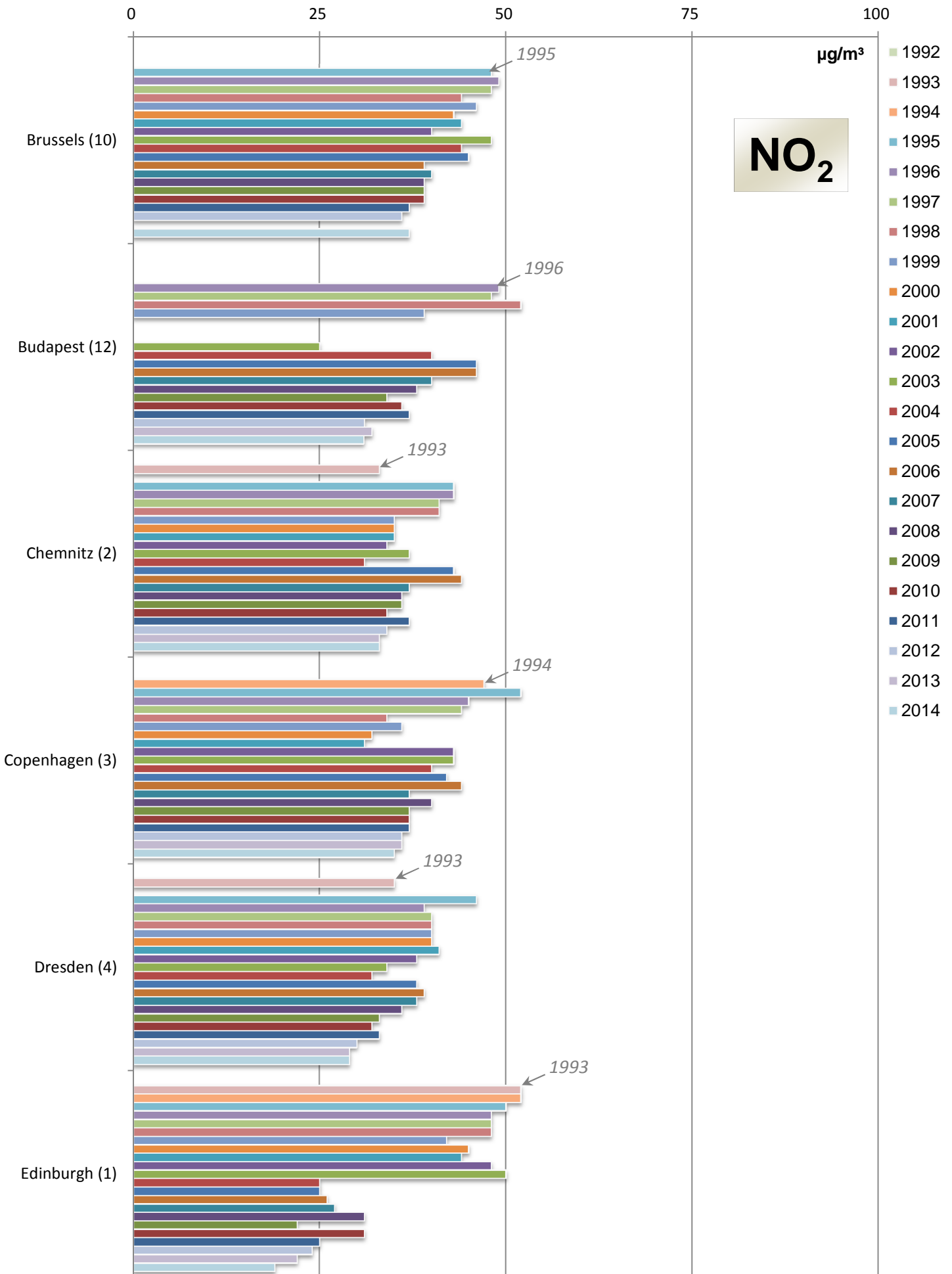


Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

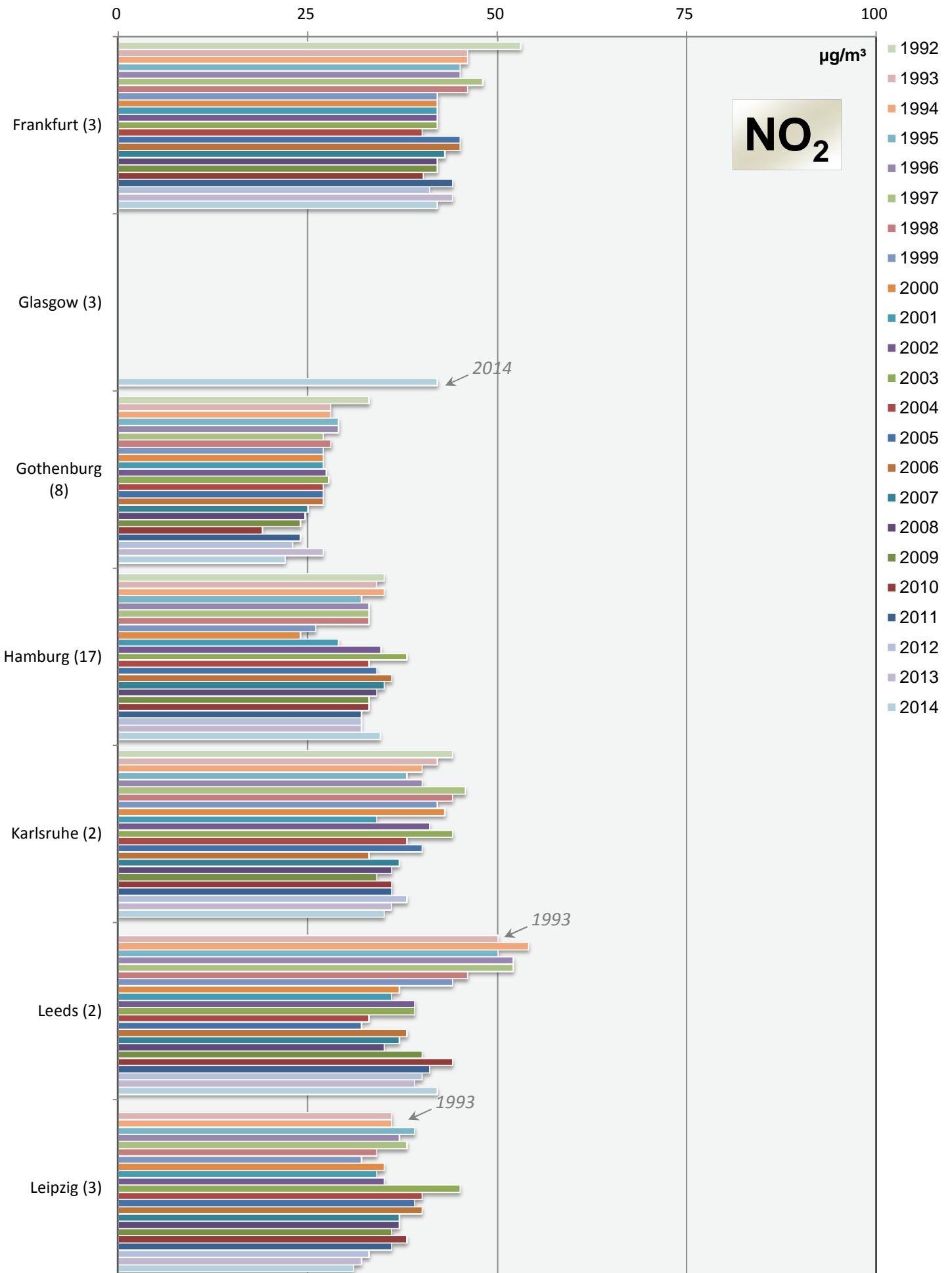


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



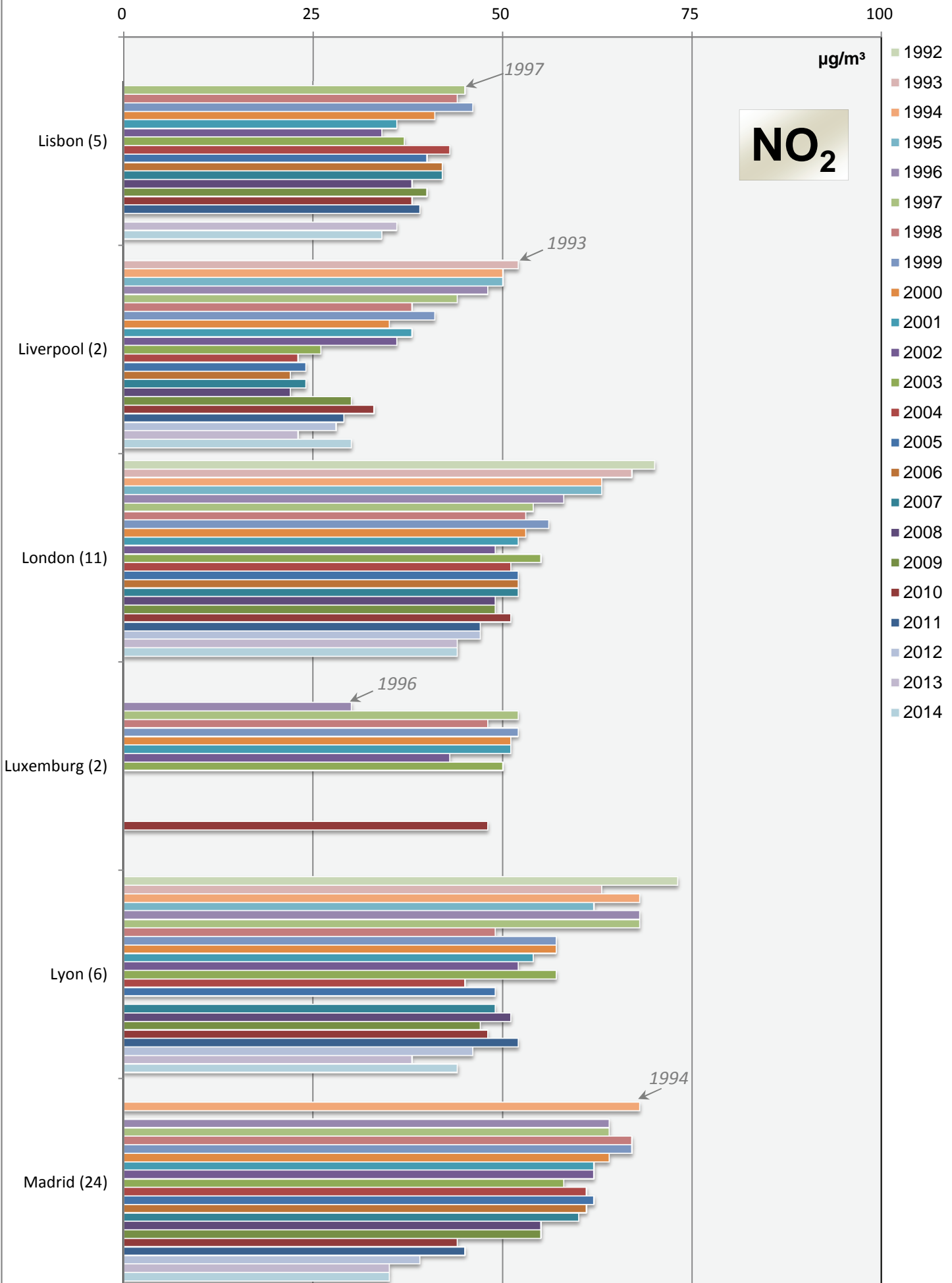
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



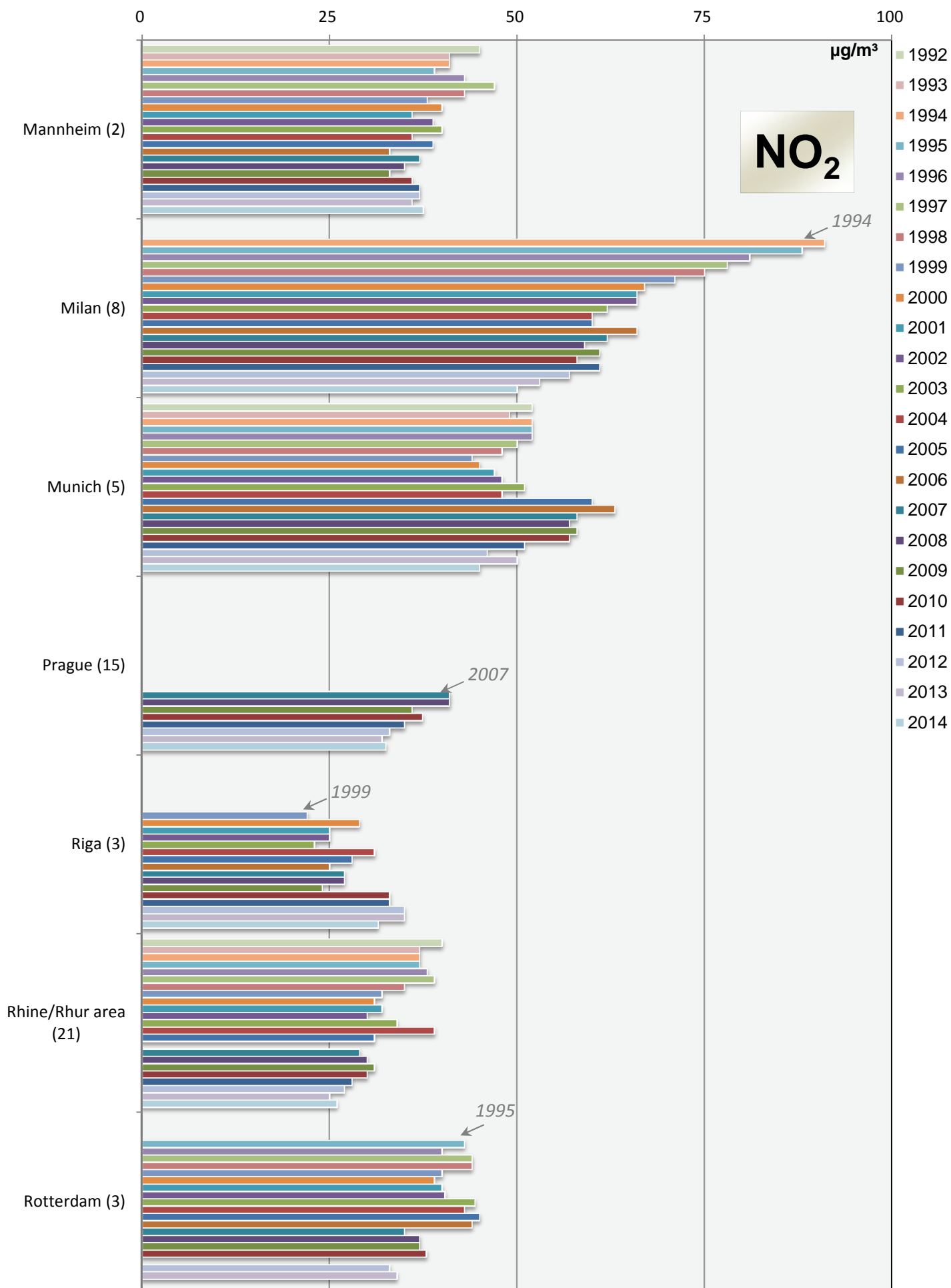
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

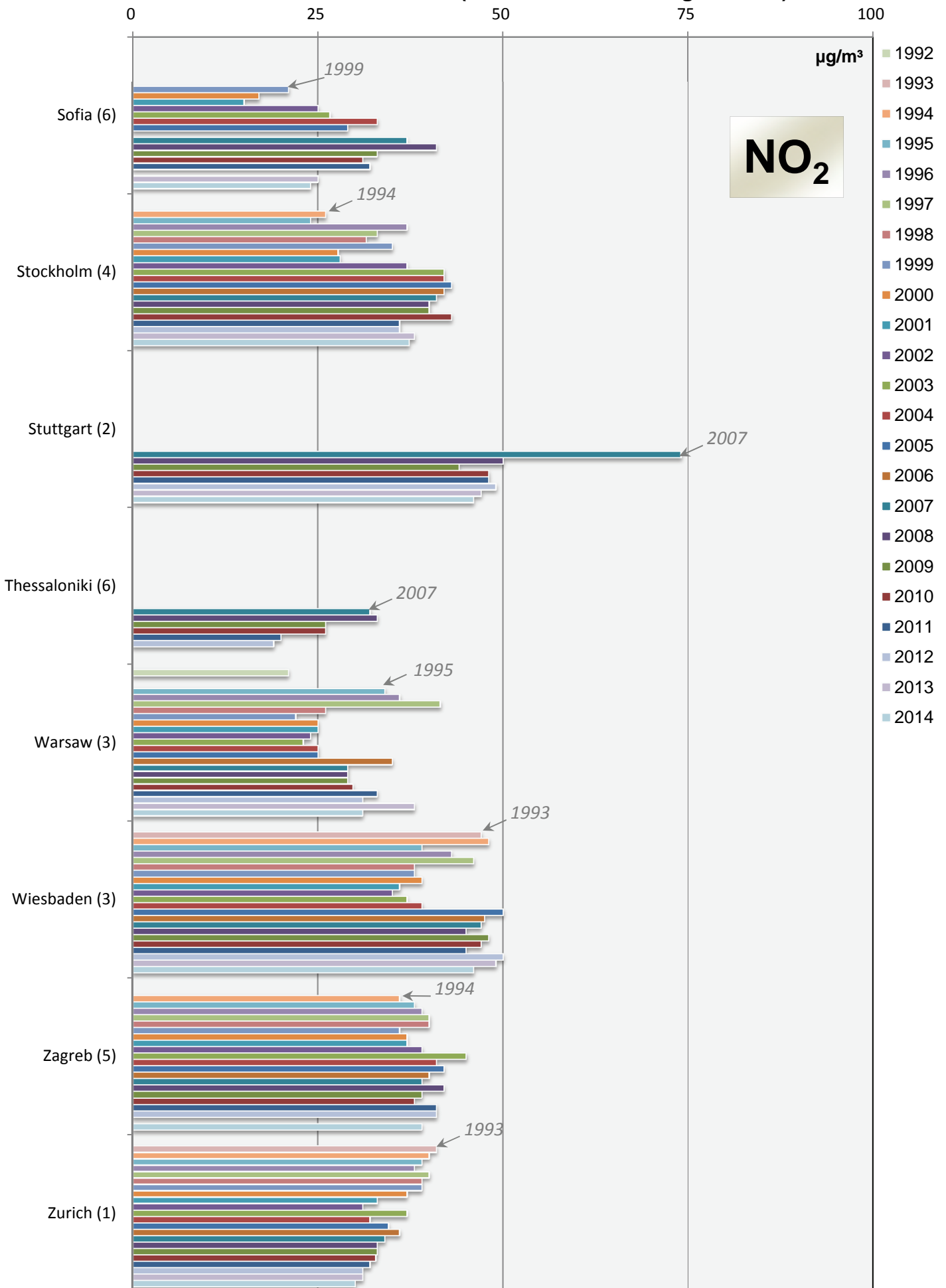


Comparison of The Air Quality 1992 - 2014

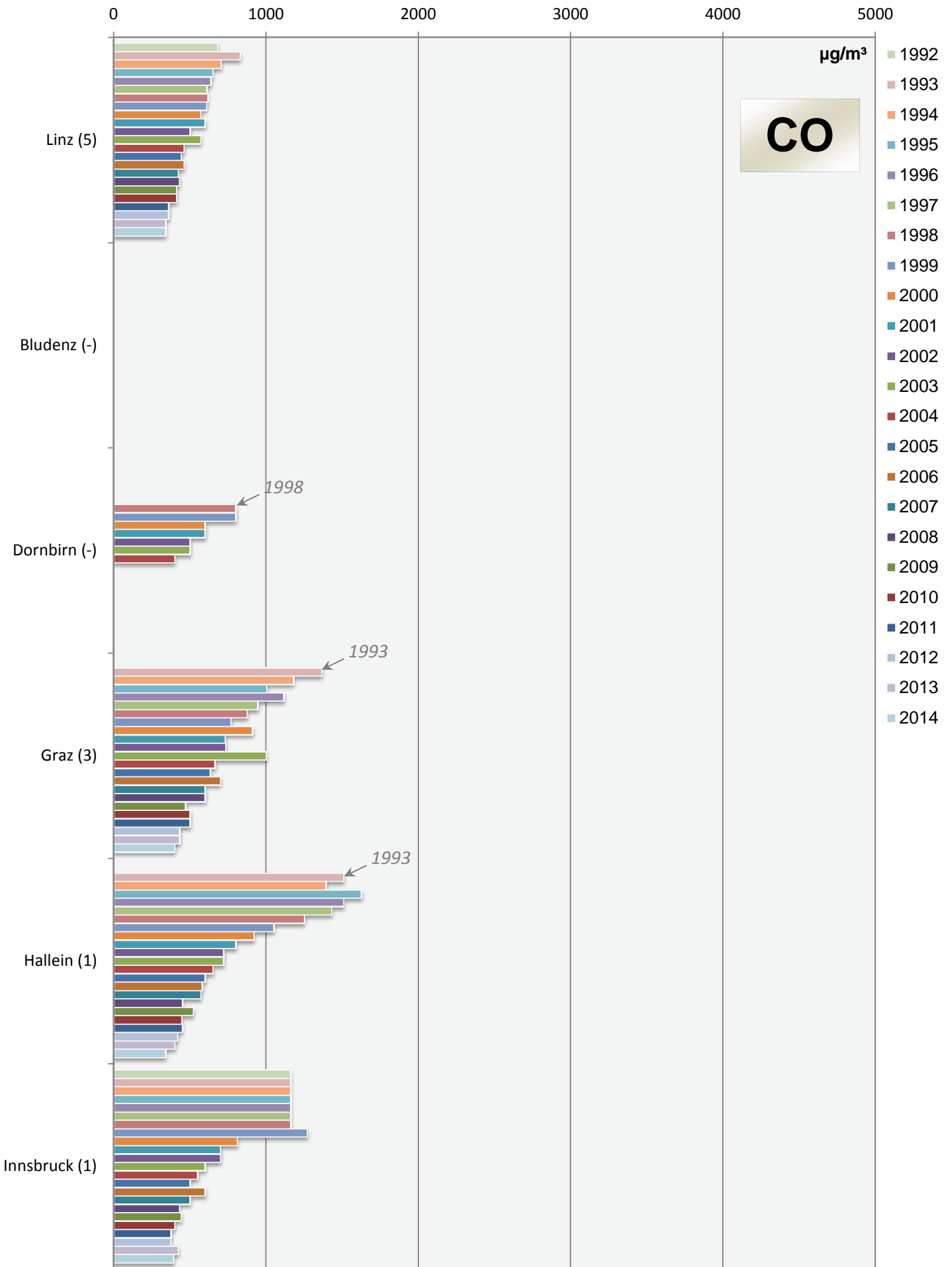
Annual mean values (mean of all monitoring stations)



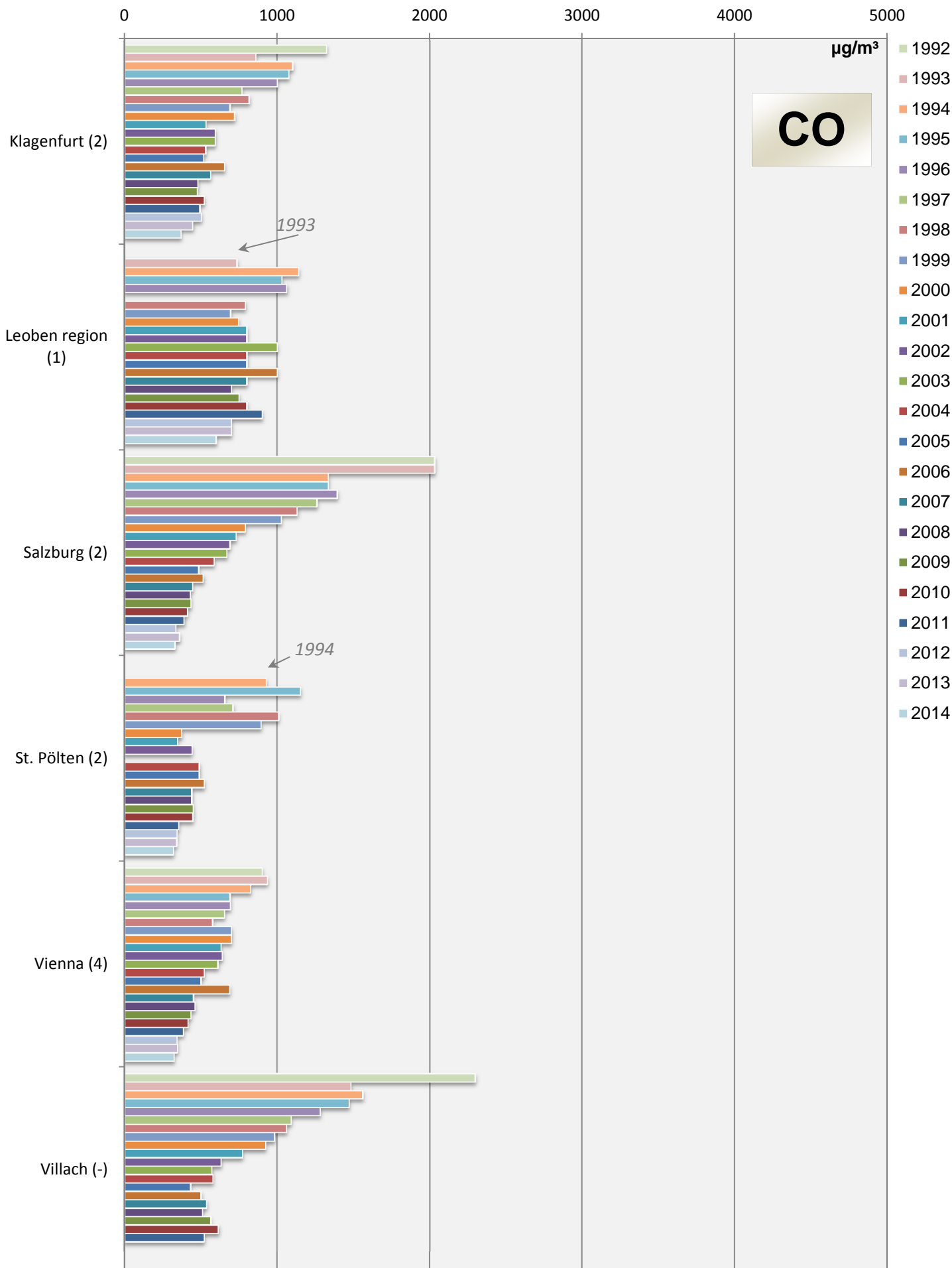
Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

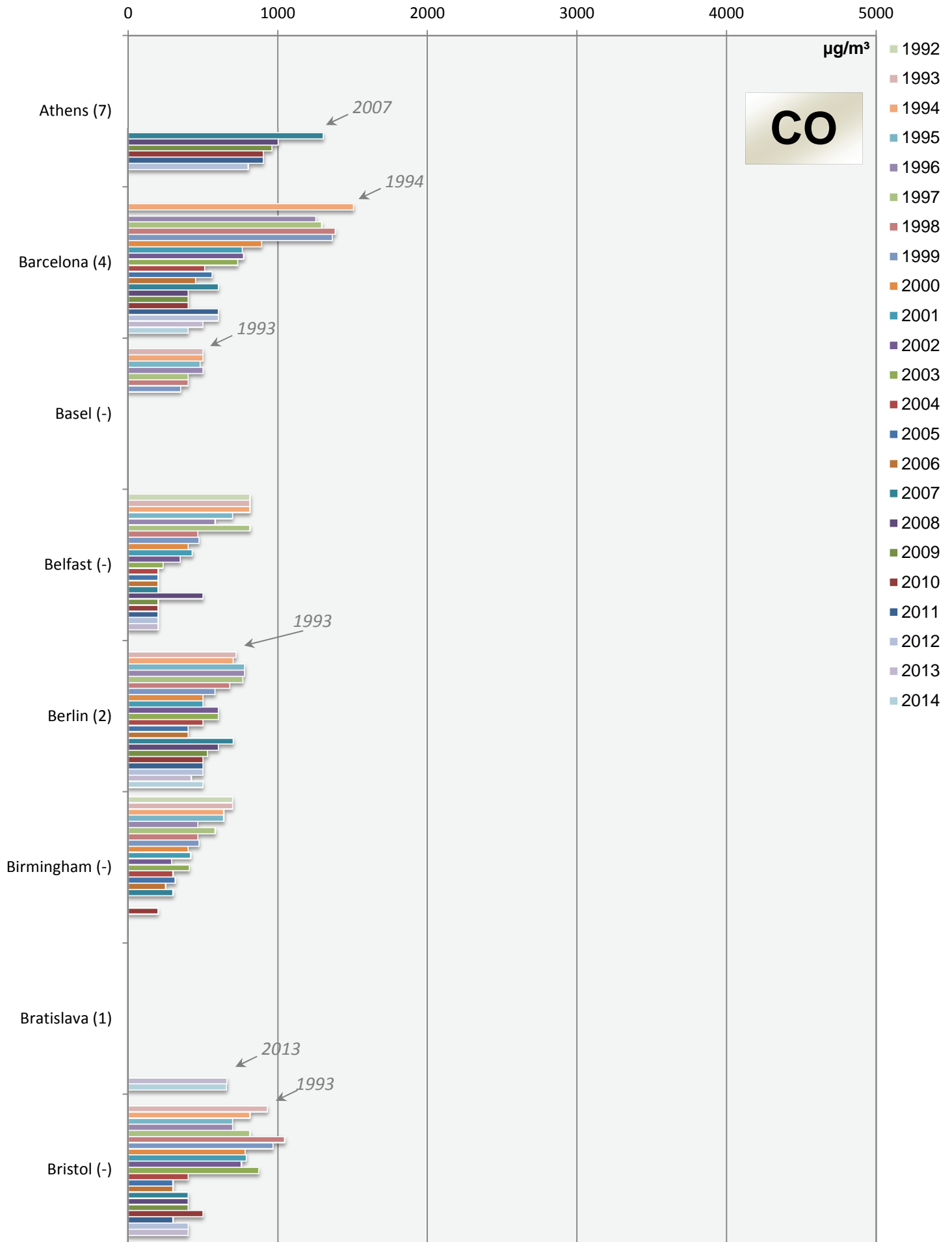


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

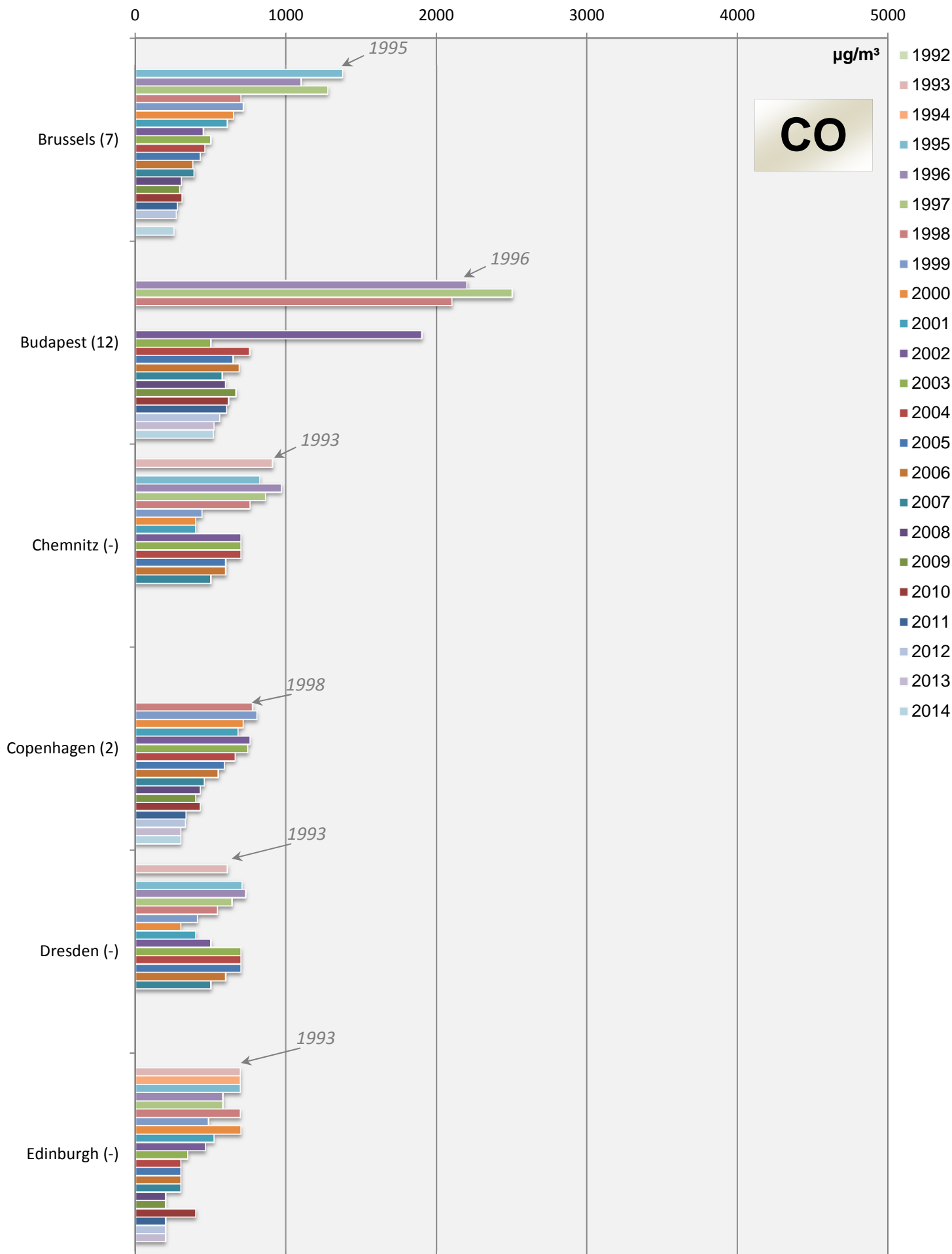


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Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

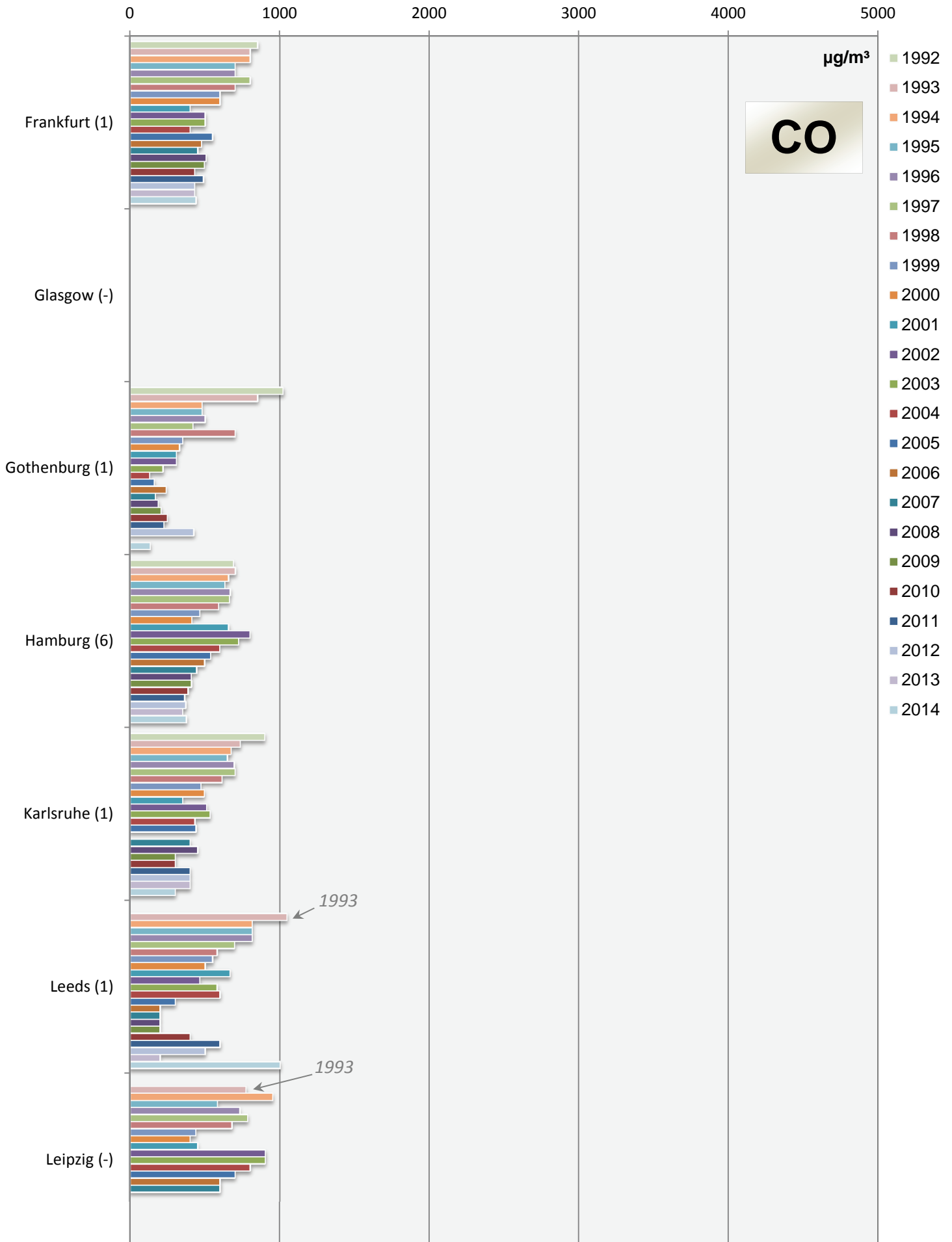


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

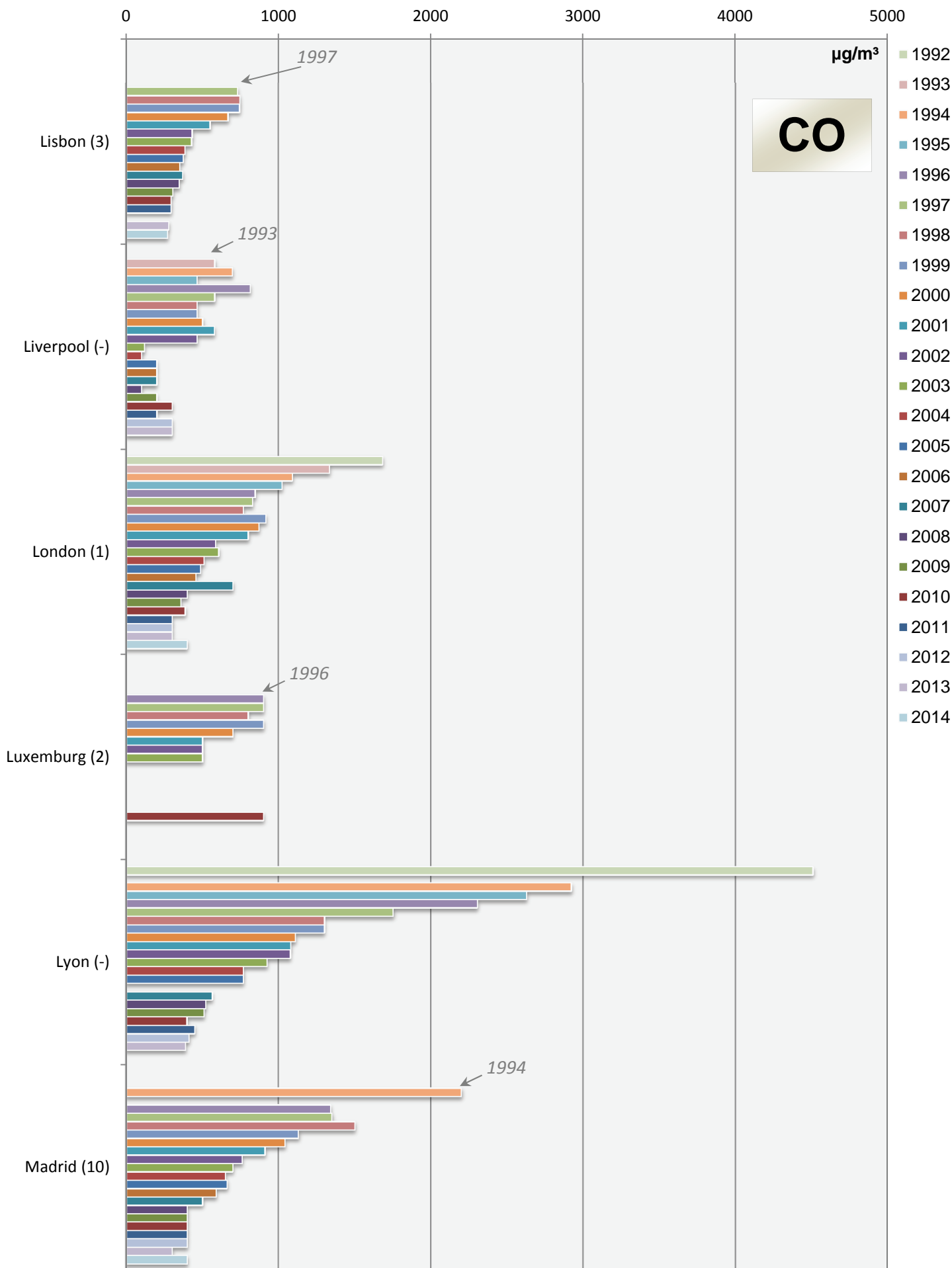


Comparison of The Air Quality 1992 - 2014

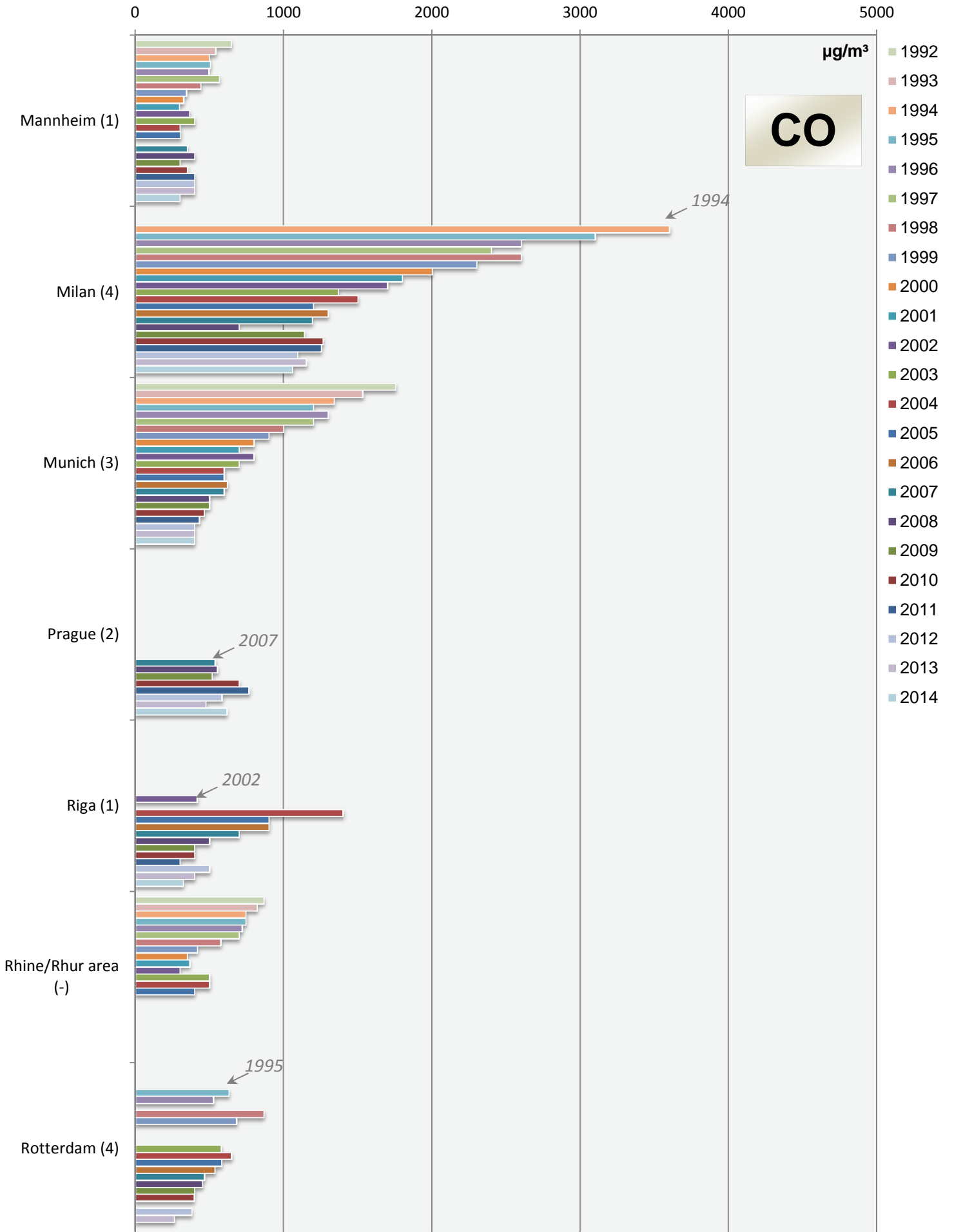
Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)

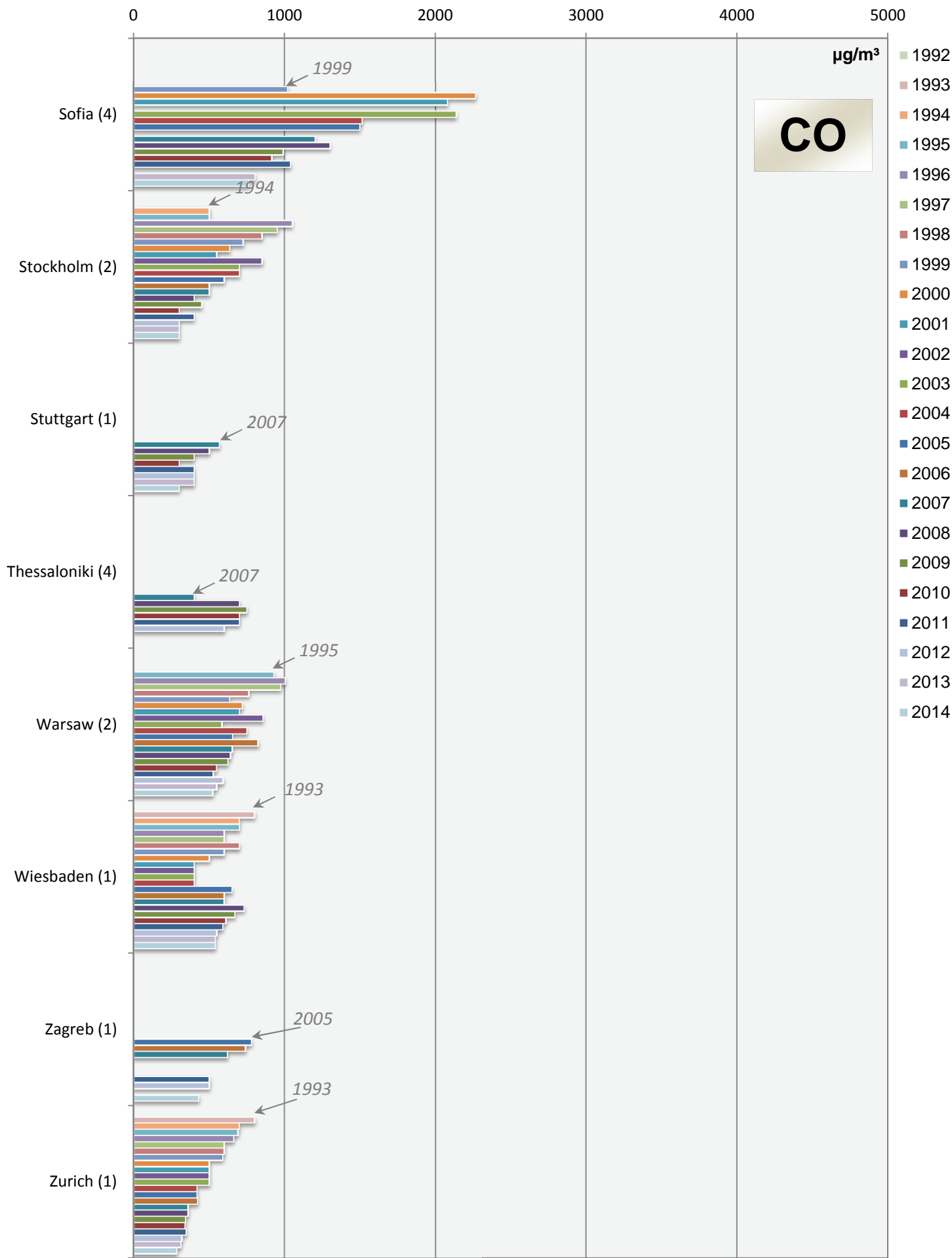


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



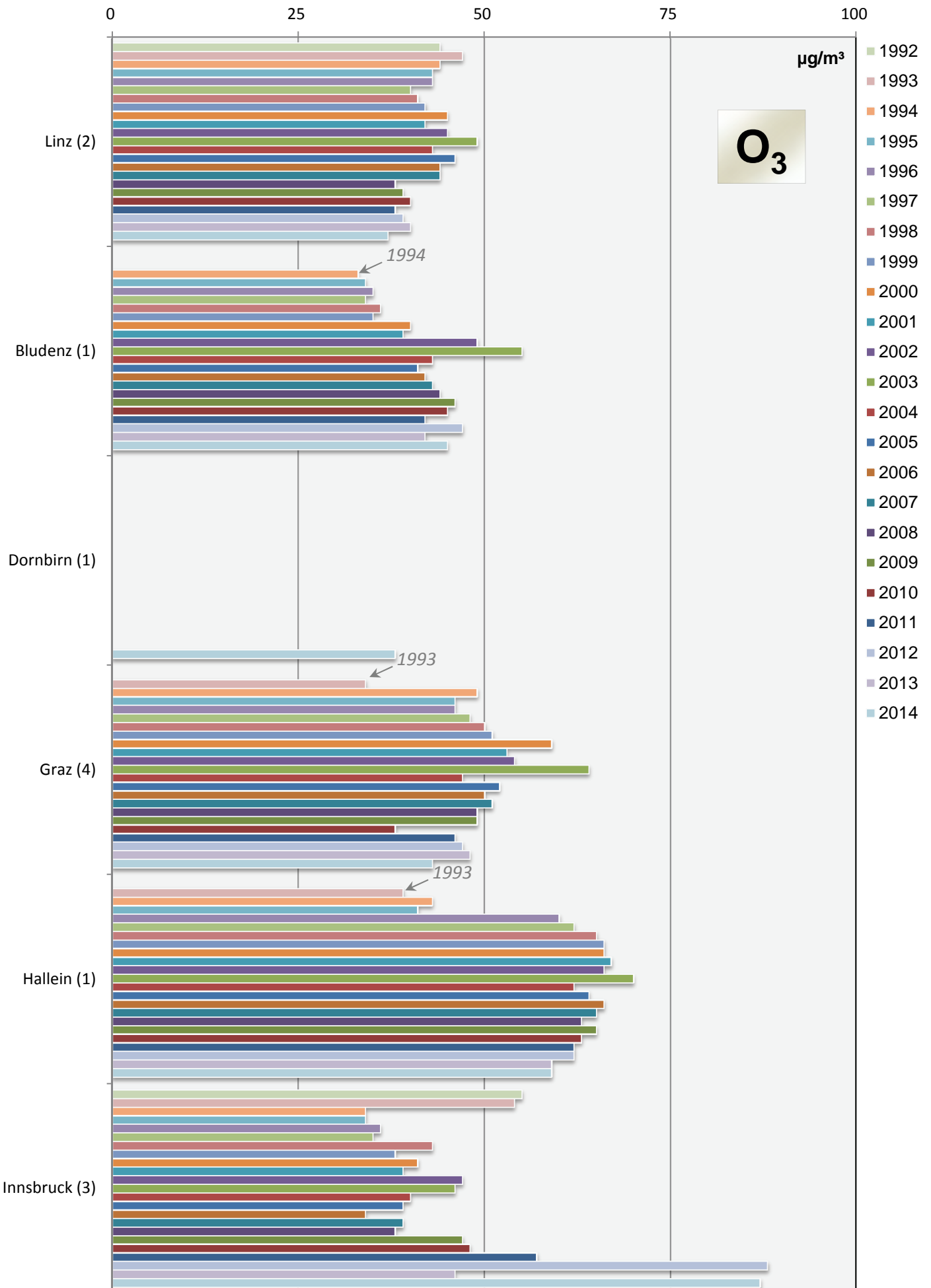
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014

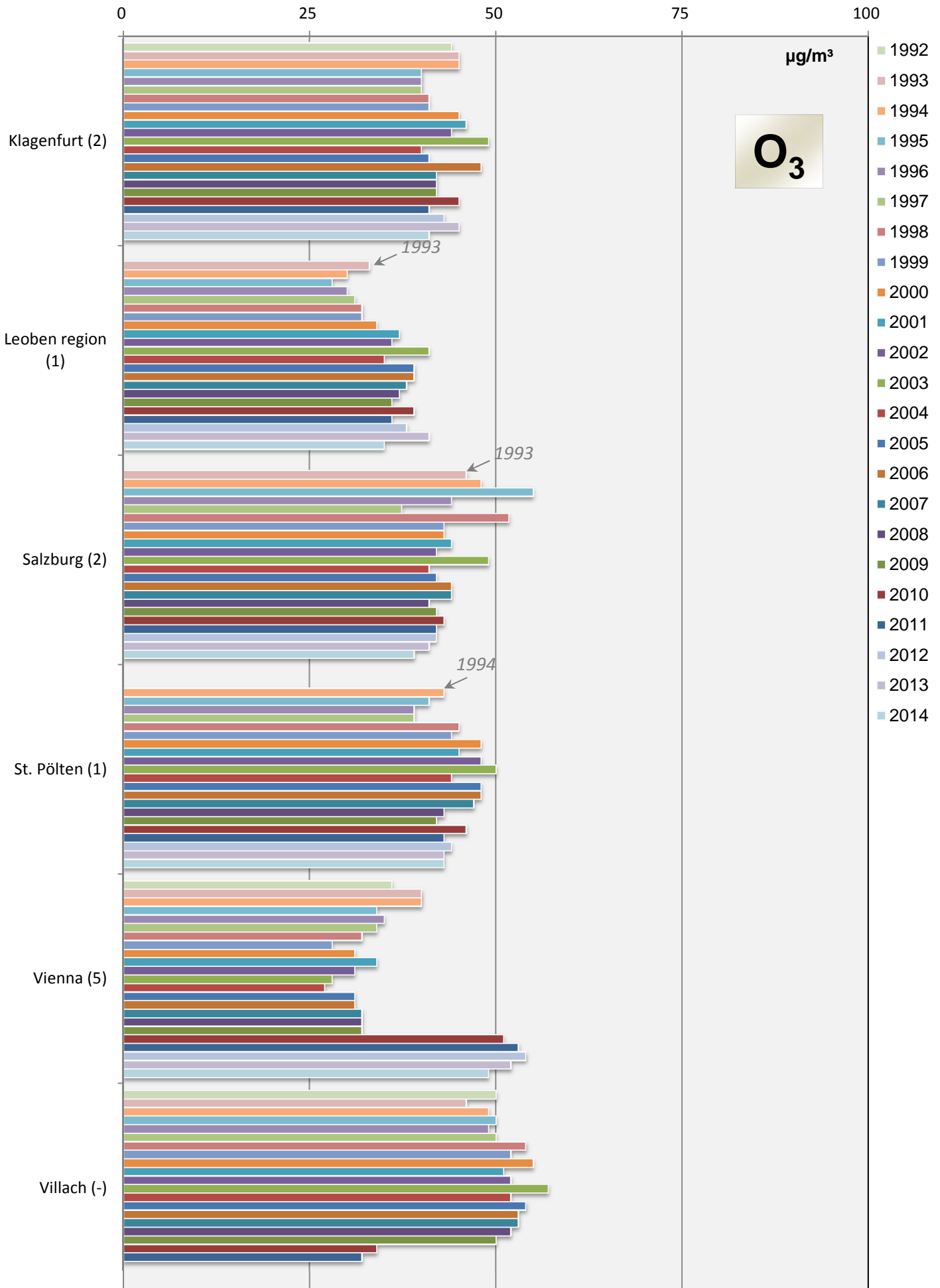
Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014

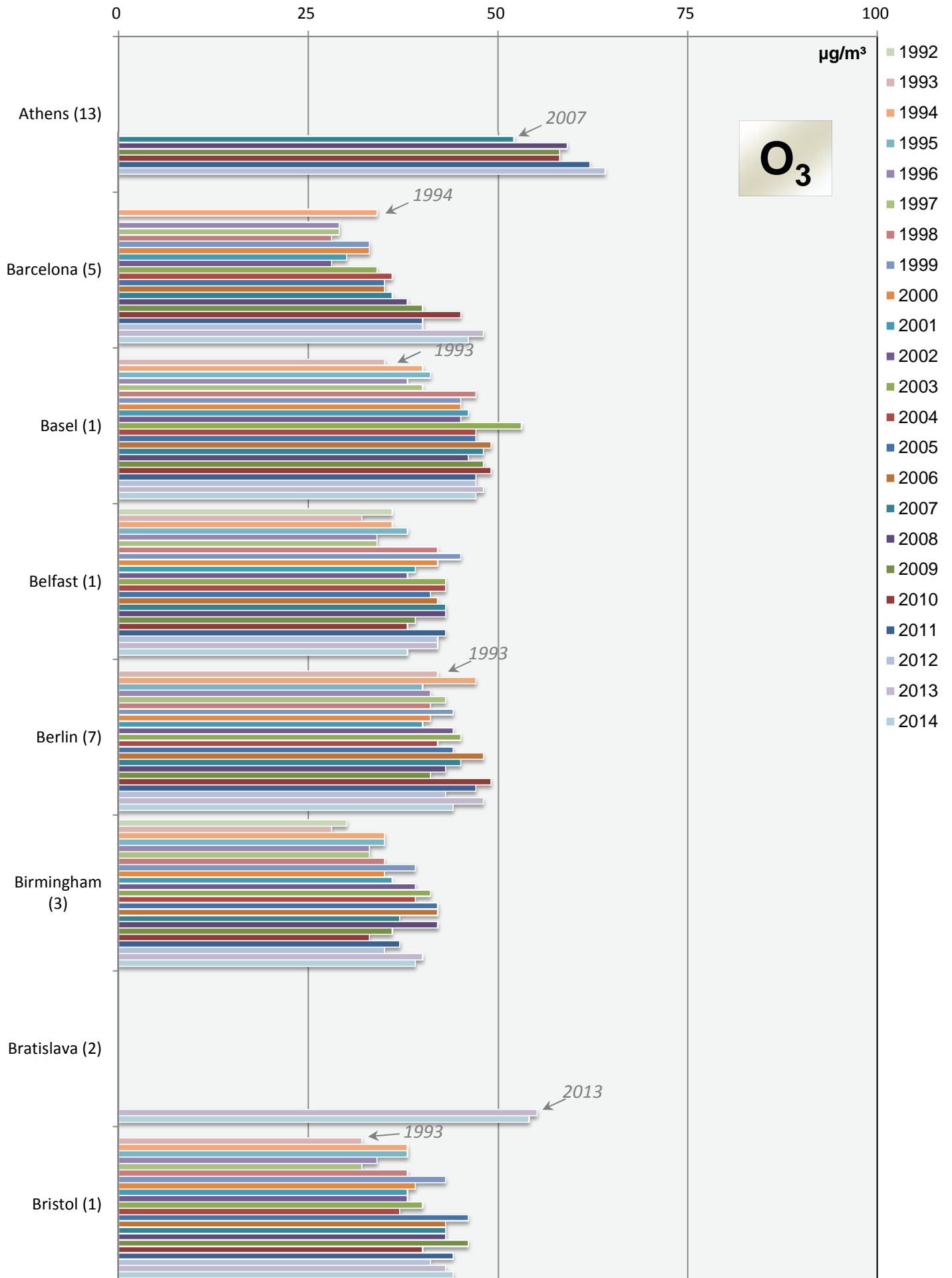
Annual mean values (mean of all monitoring stations)

108

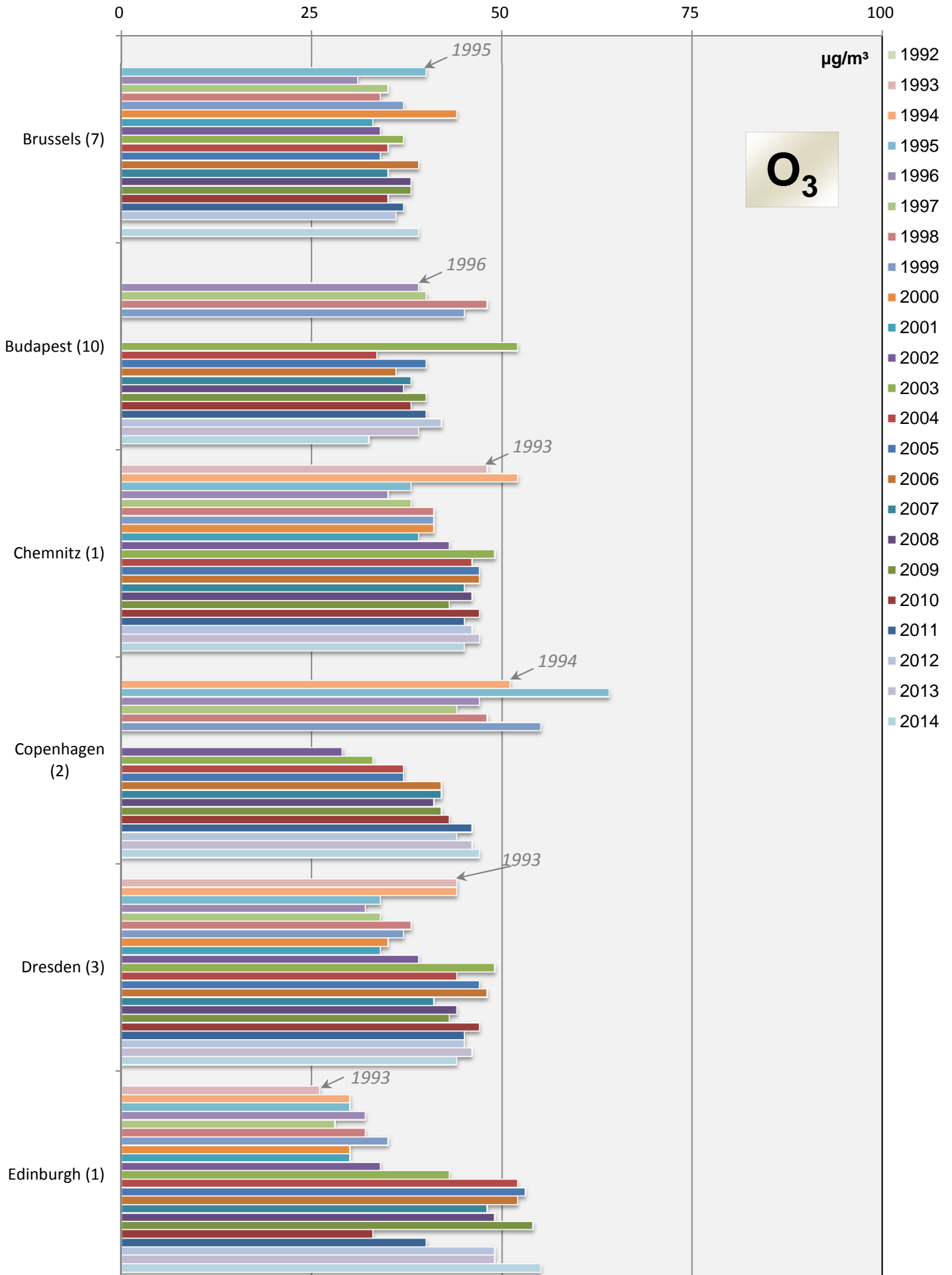


Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

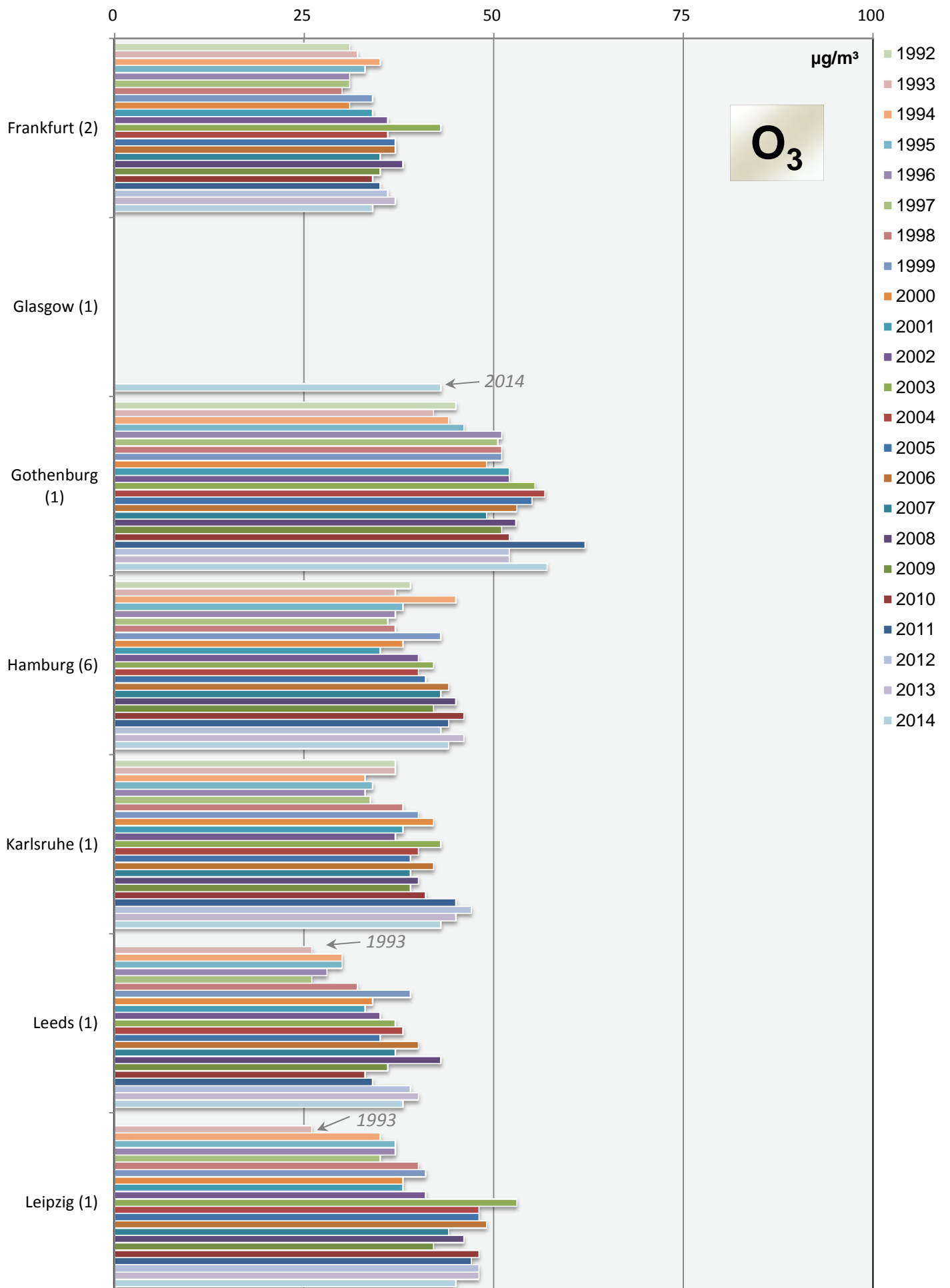


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014

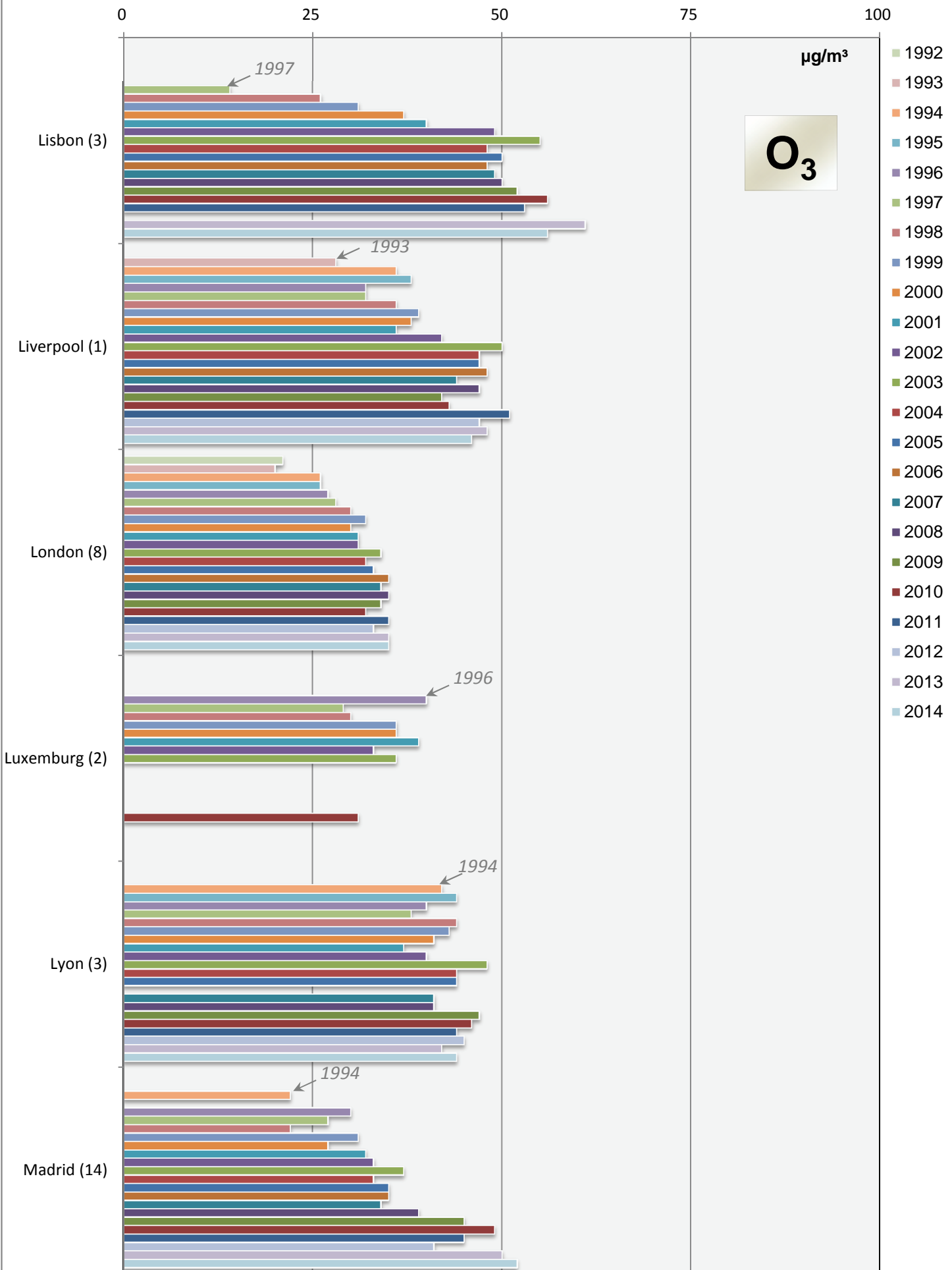
Annual mean values (mean of all monitoring stations)



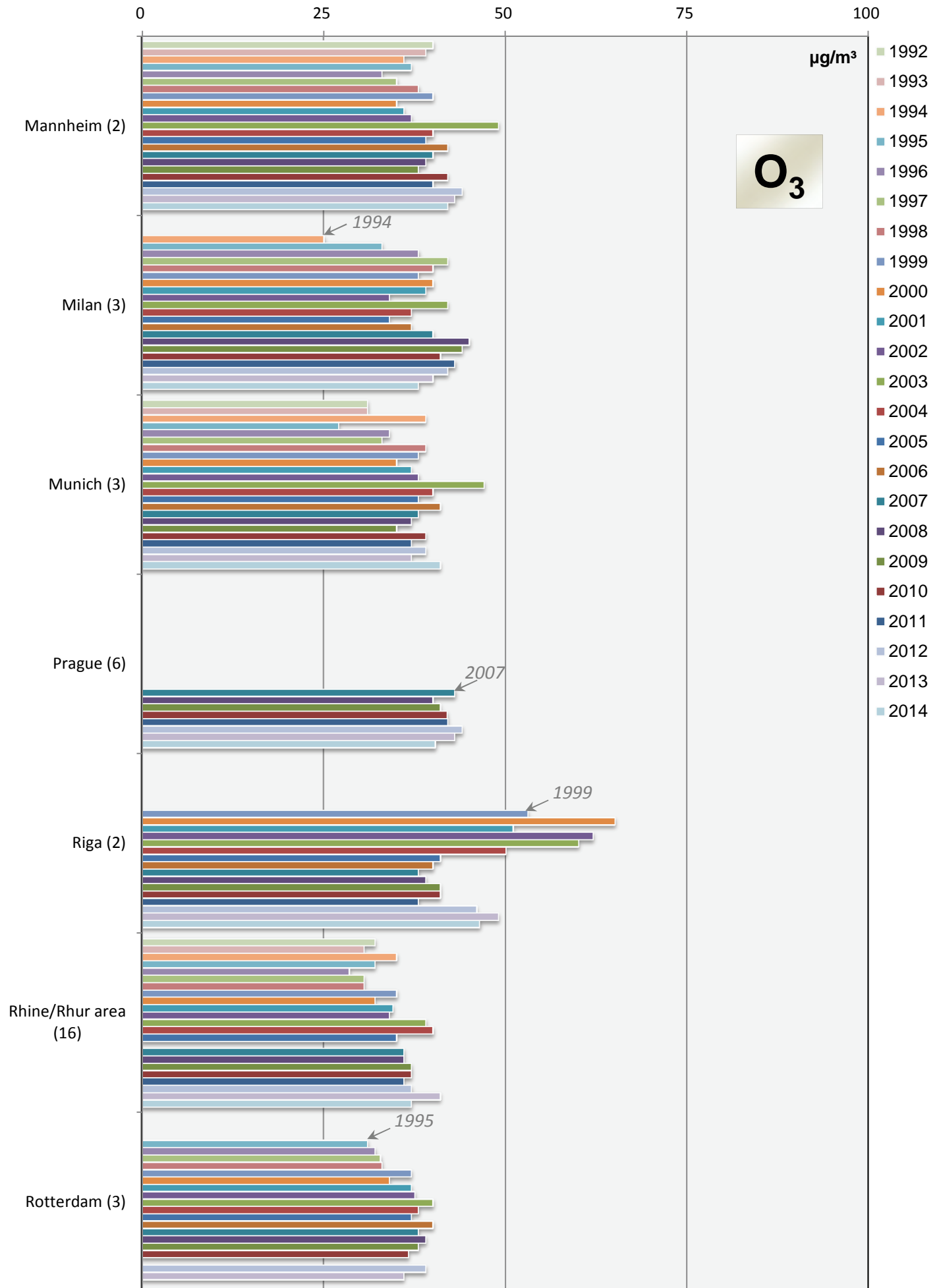
Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)

111

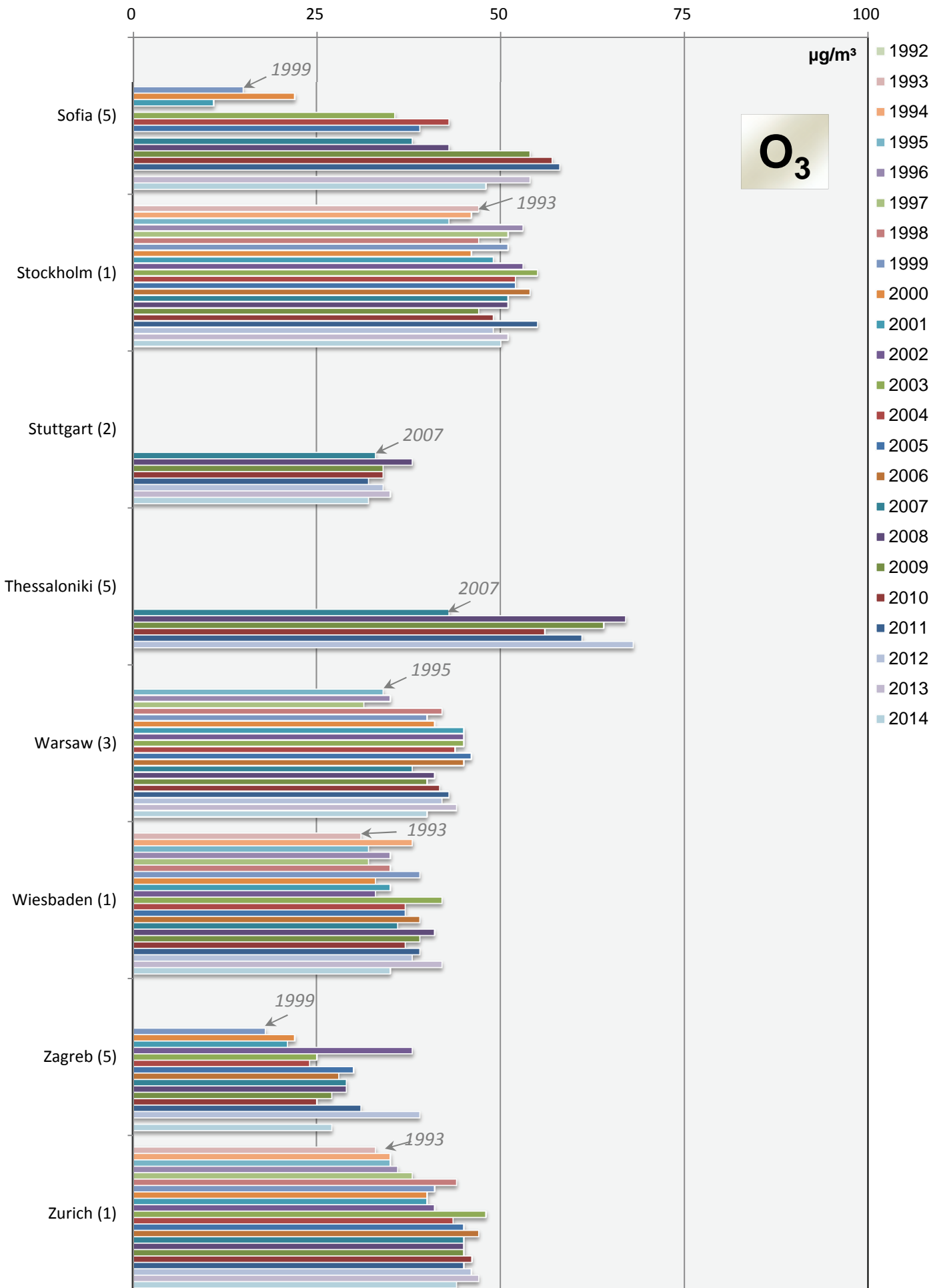


Comparison of The Air Quality 1992 - 2014 Annual mean values (mean of all monitoring stations)



Comparison of The Air Quality 1992 - 2014

Annual mean values (mean of all monitoring stations)



Jahresvergleich

1992 - 2014

max. Tagesmittelwerte

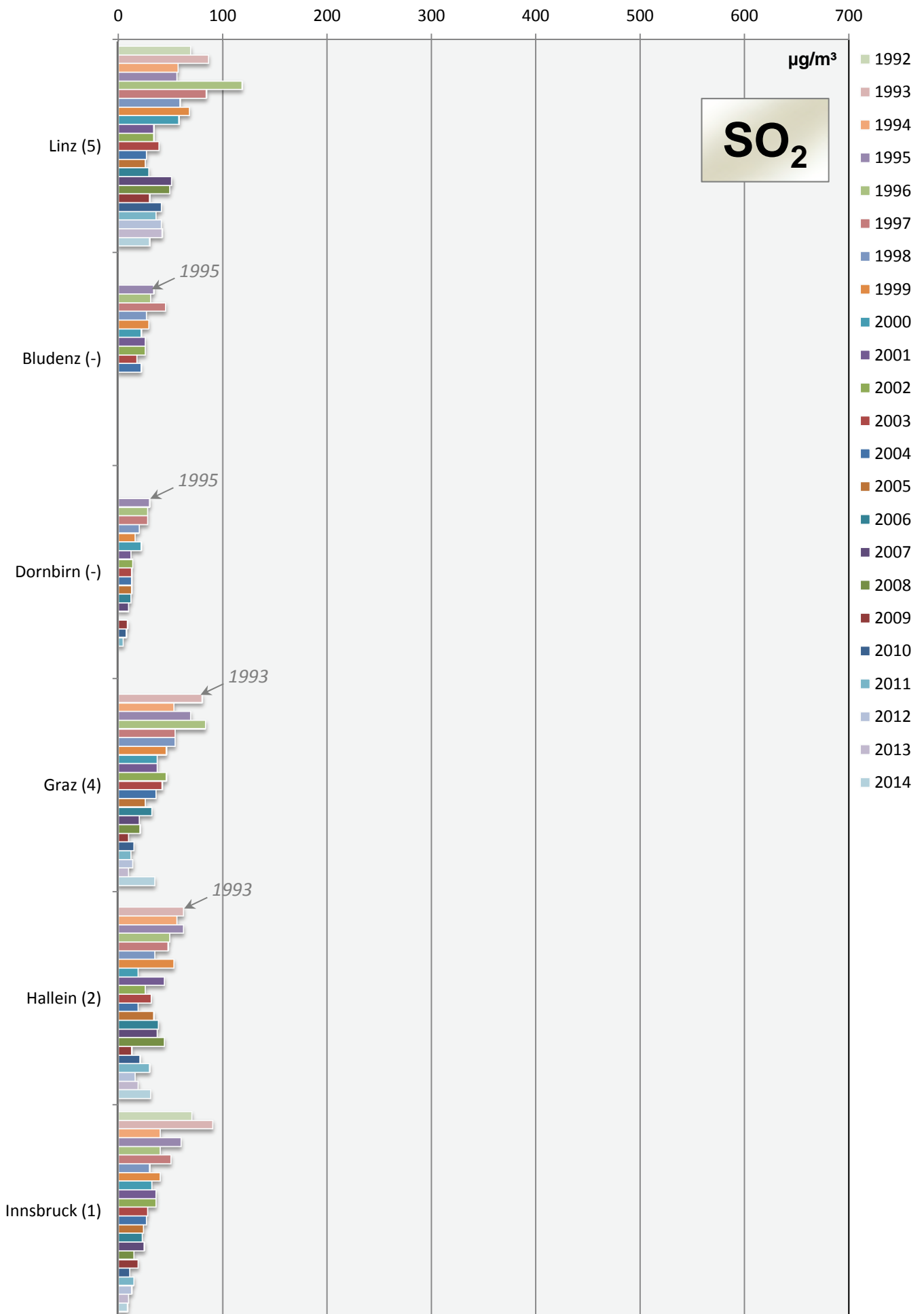
Comparison of The Air Quality Over The Years

1992 - 2014

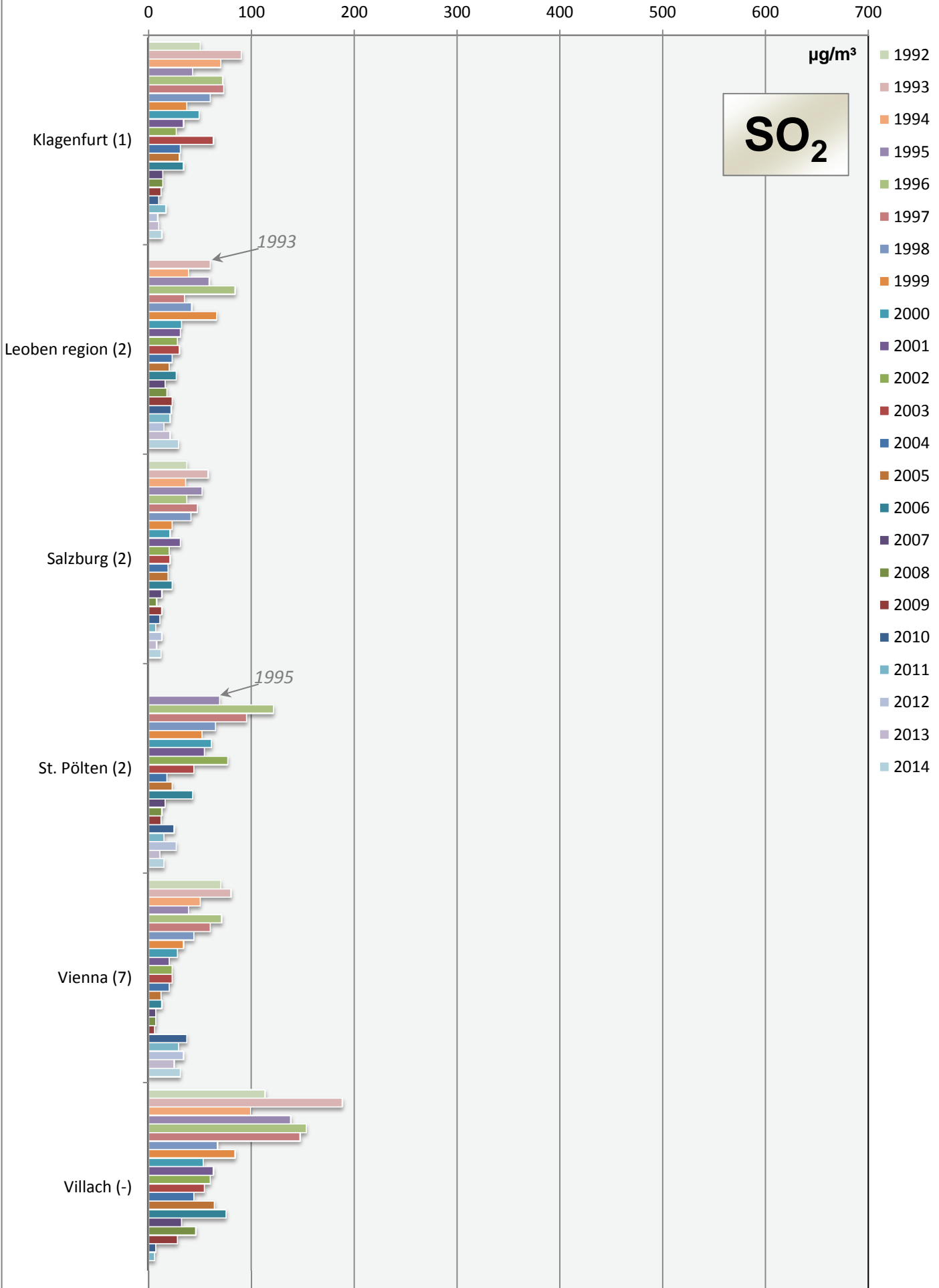
Max. Daily Mean Values

Comparison of The Air Quality 1992 - 2014

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

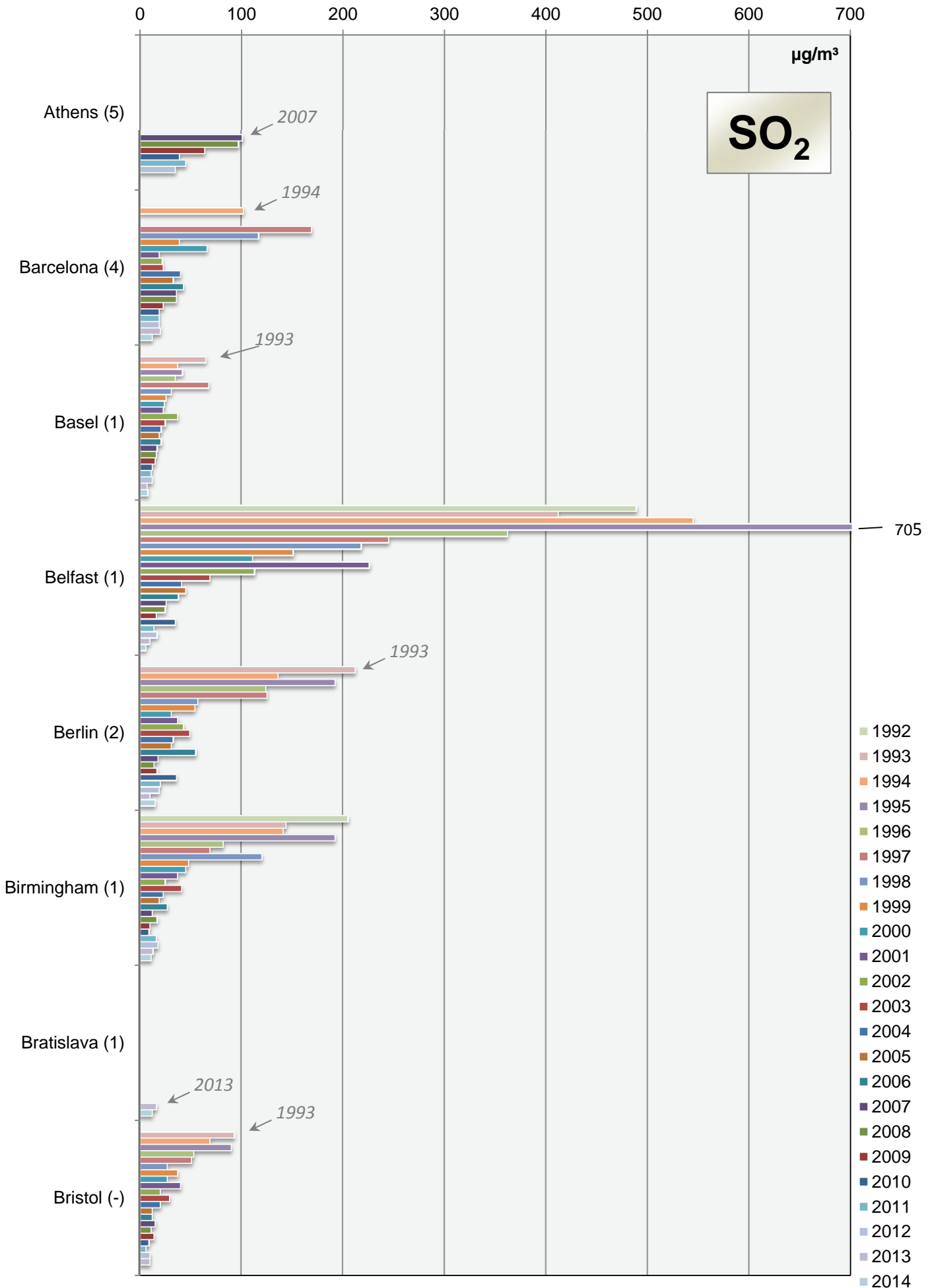


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

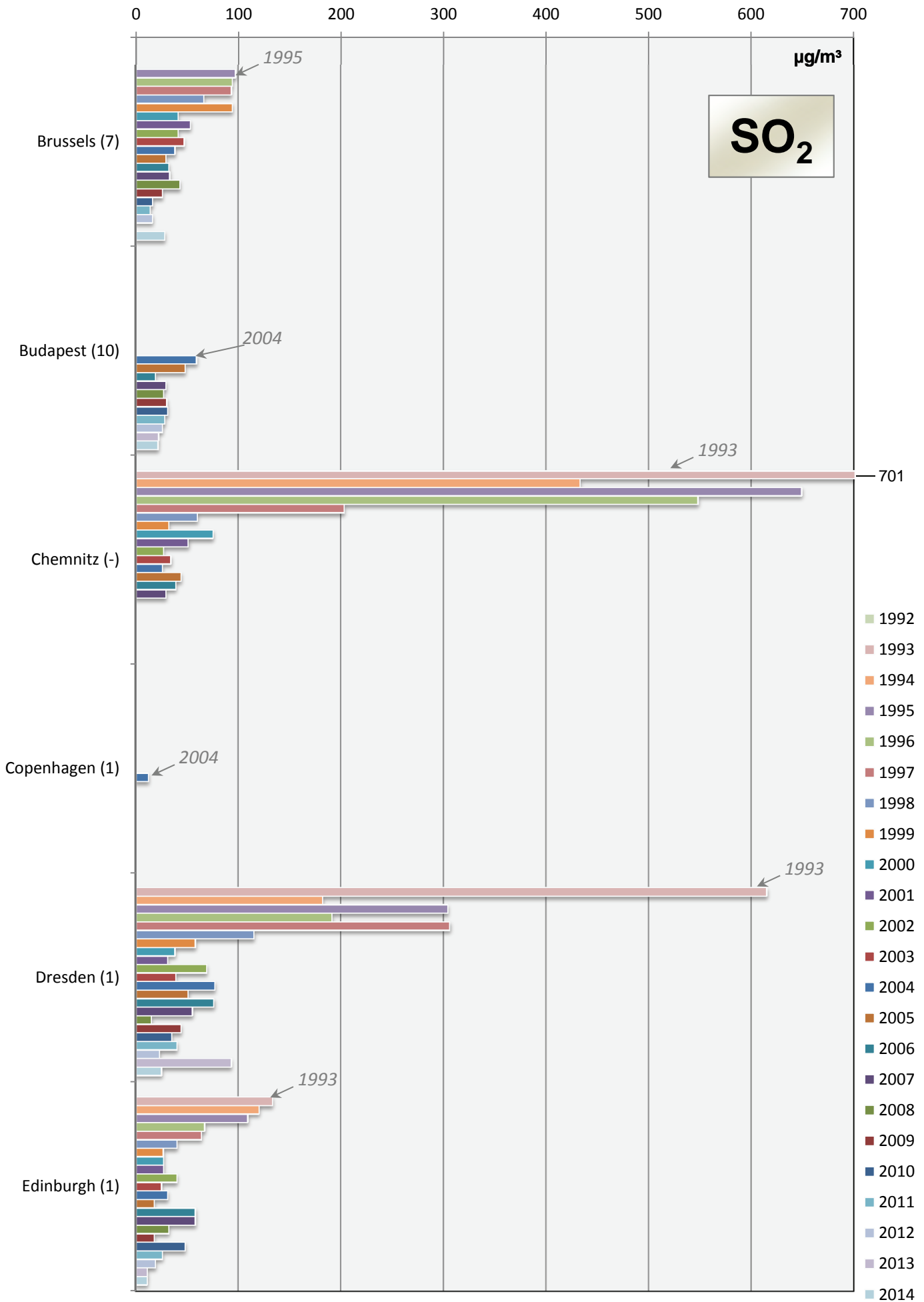


Comparison of The Air Quality 1992 - 2014

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

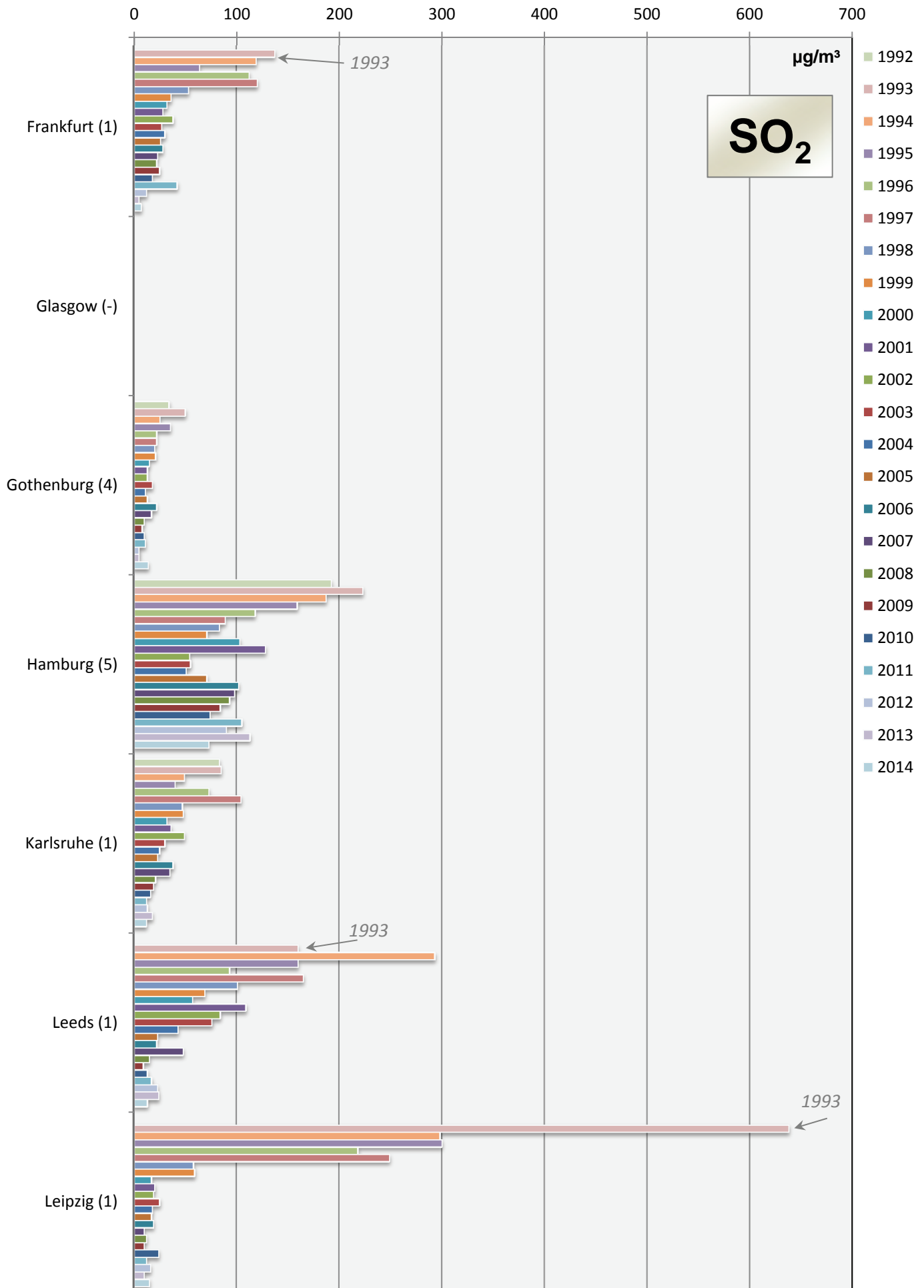


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

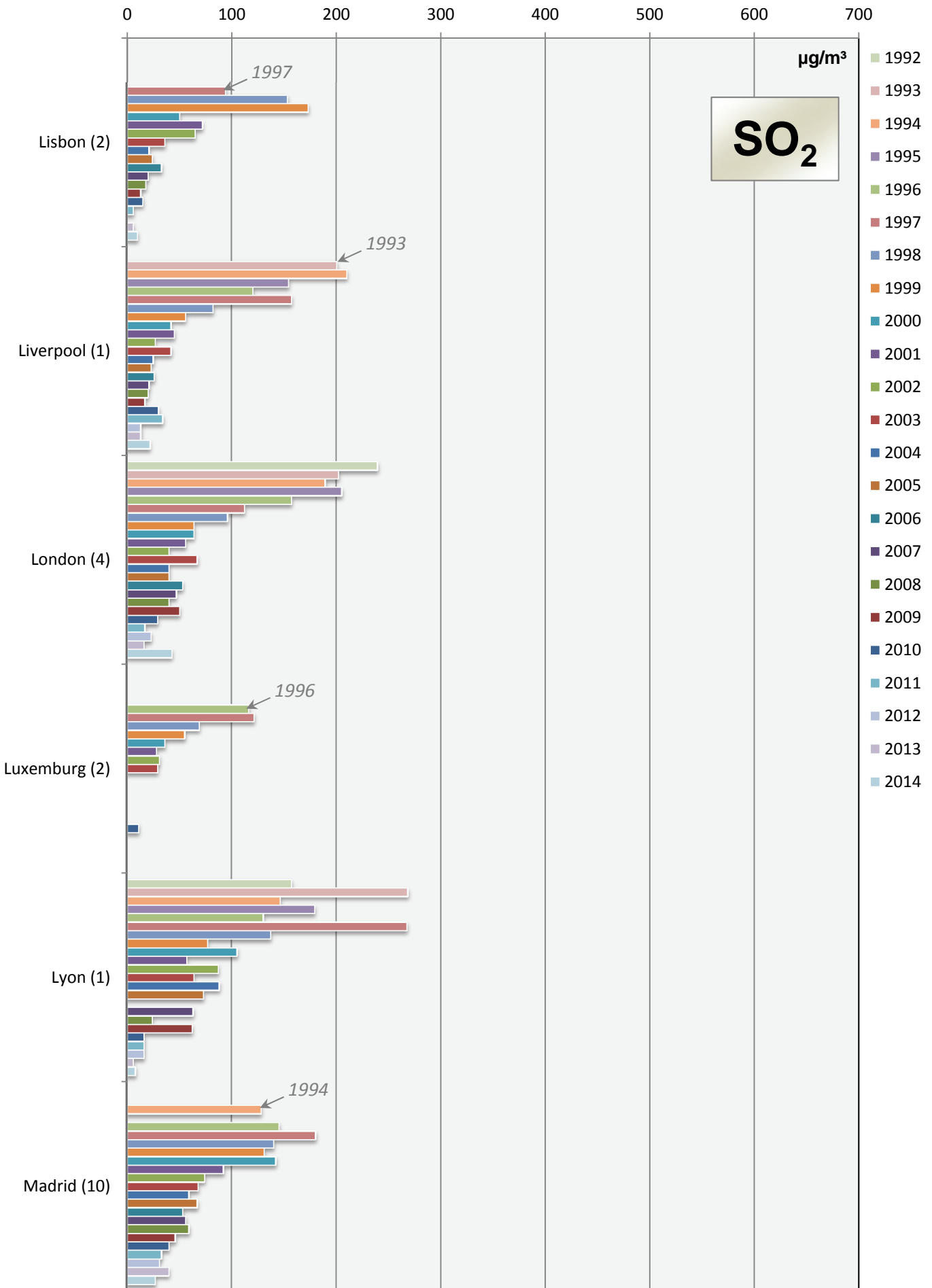


Comparison of The Air Quality 1992 - 2014

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

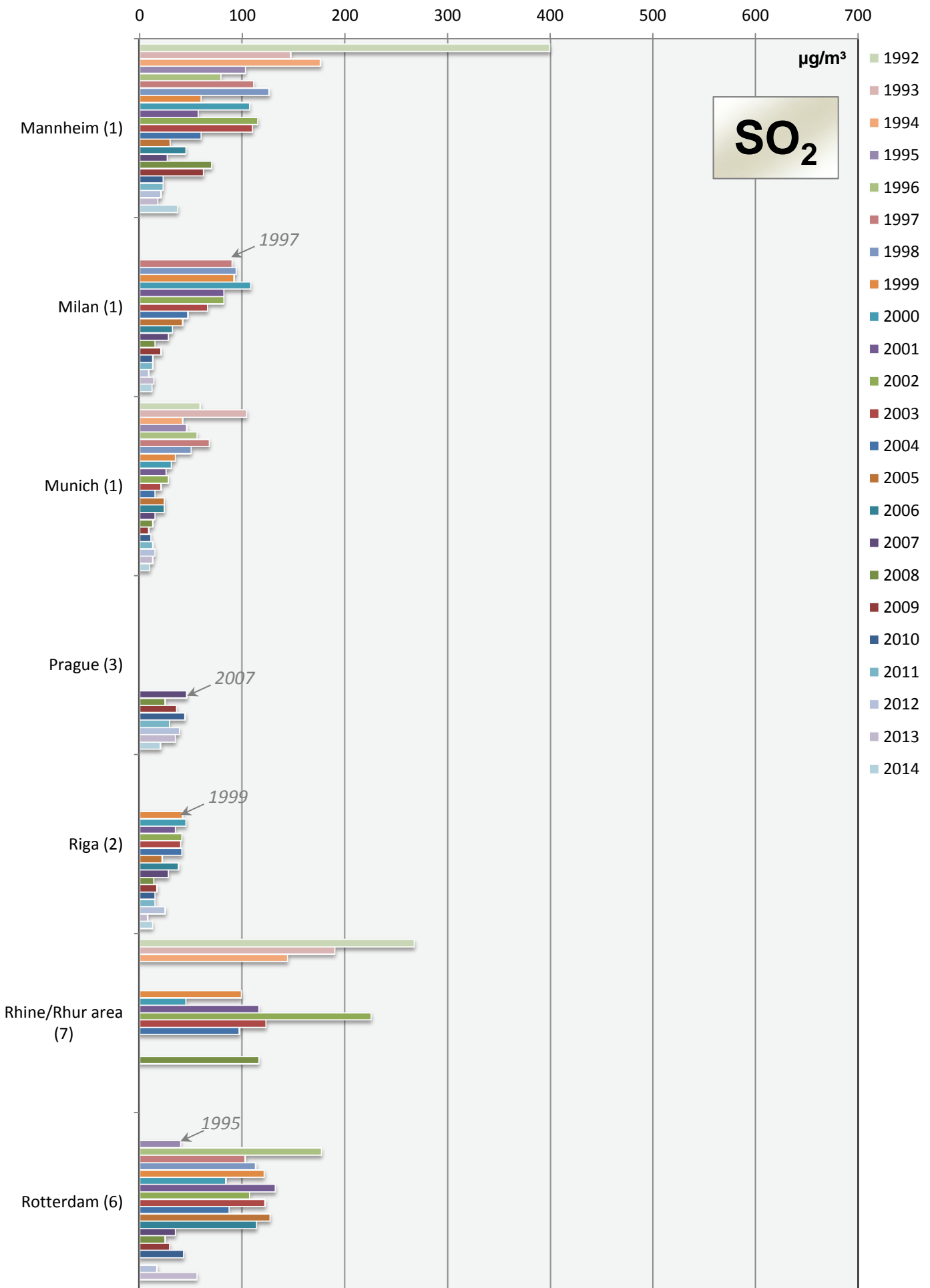


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

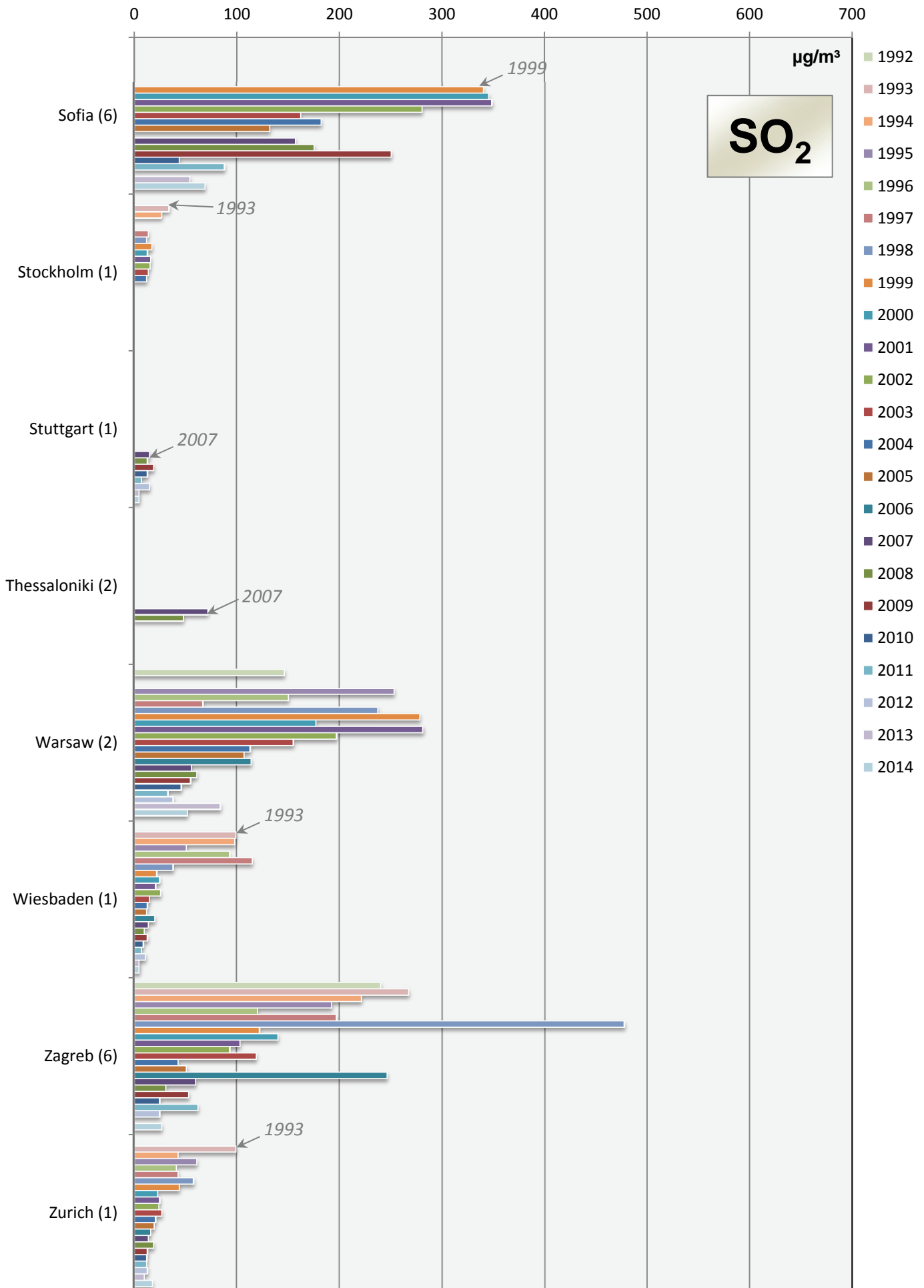


Comparison of The Air Quality 1992 - 2014

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

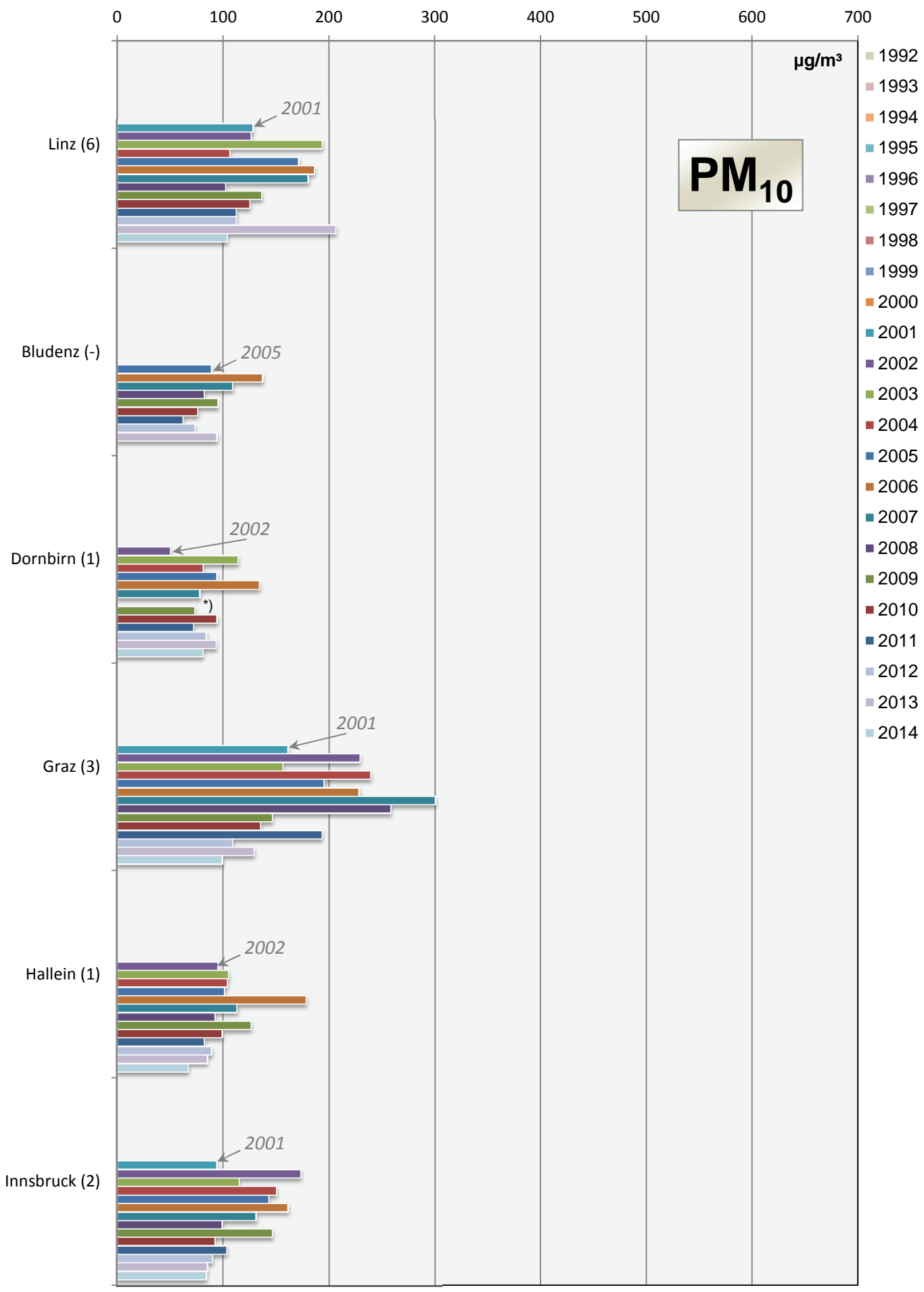


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



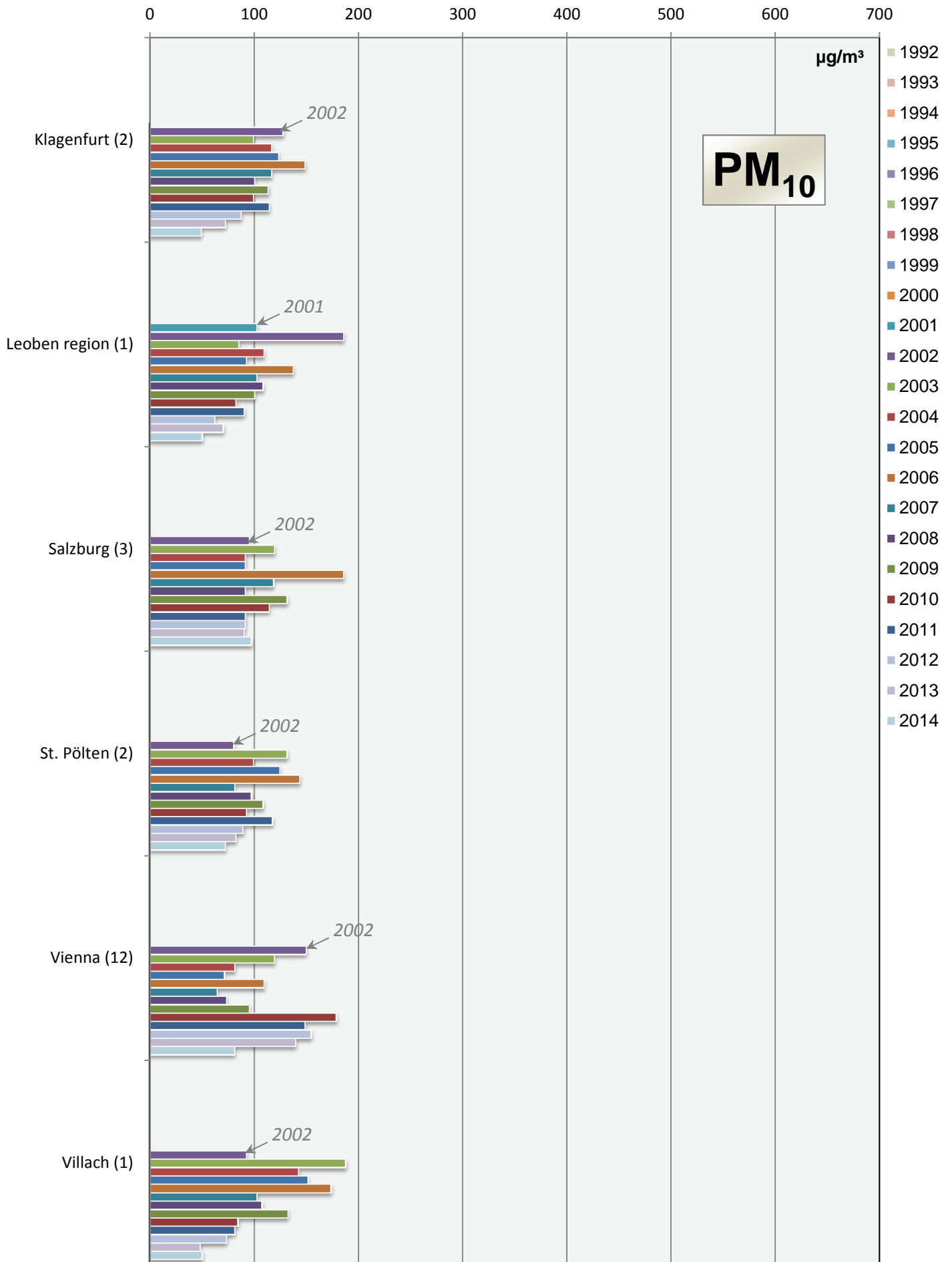
Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

PM₁₀



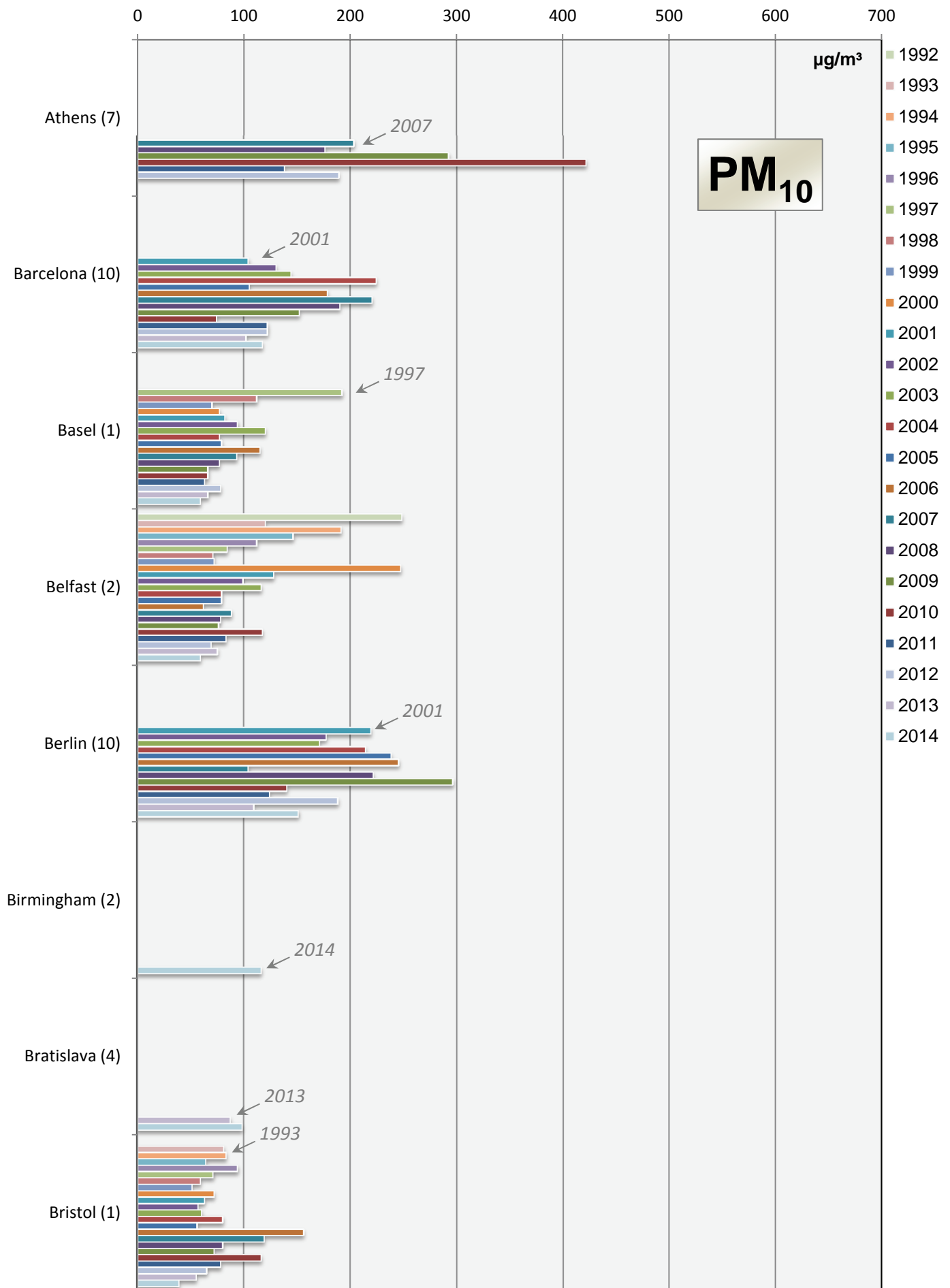
*) data of the year 2008 are not used for the comparison, because the street near the measurement point was closed for 11 months

Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

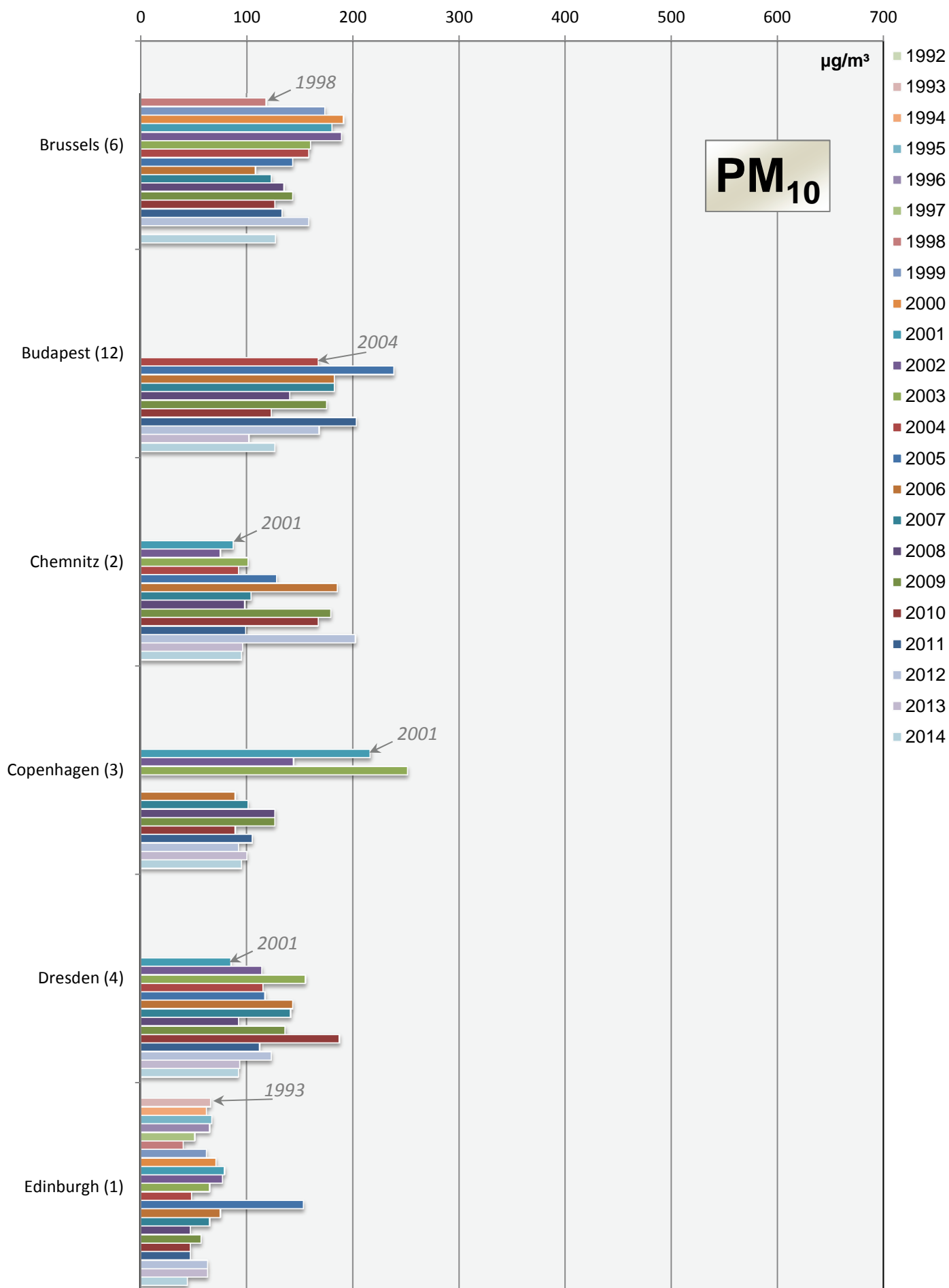


Comparison of The Air Quality 1992 - 2014

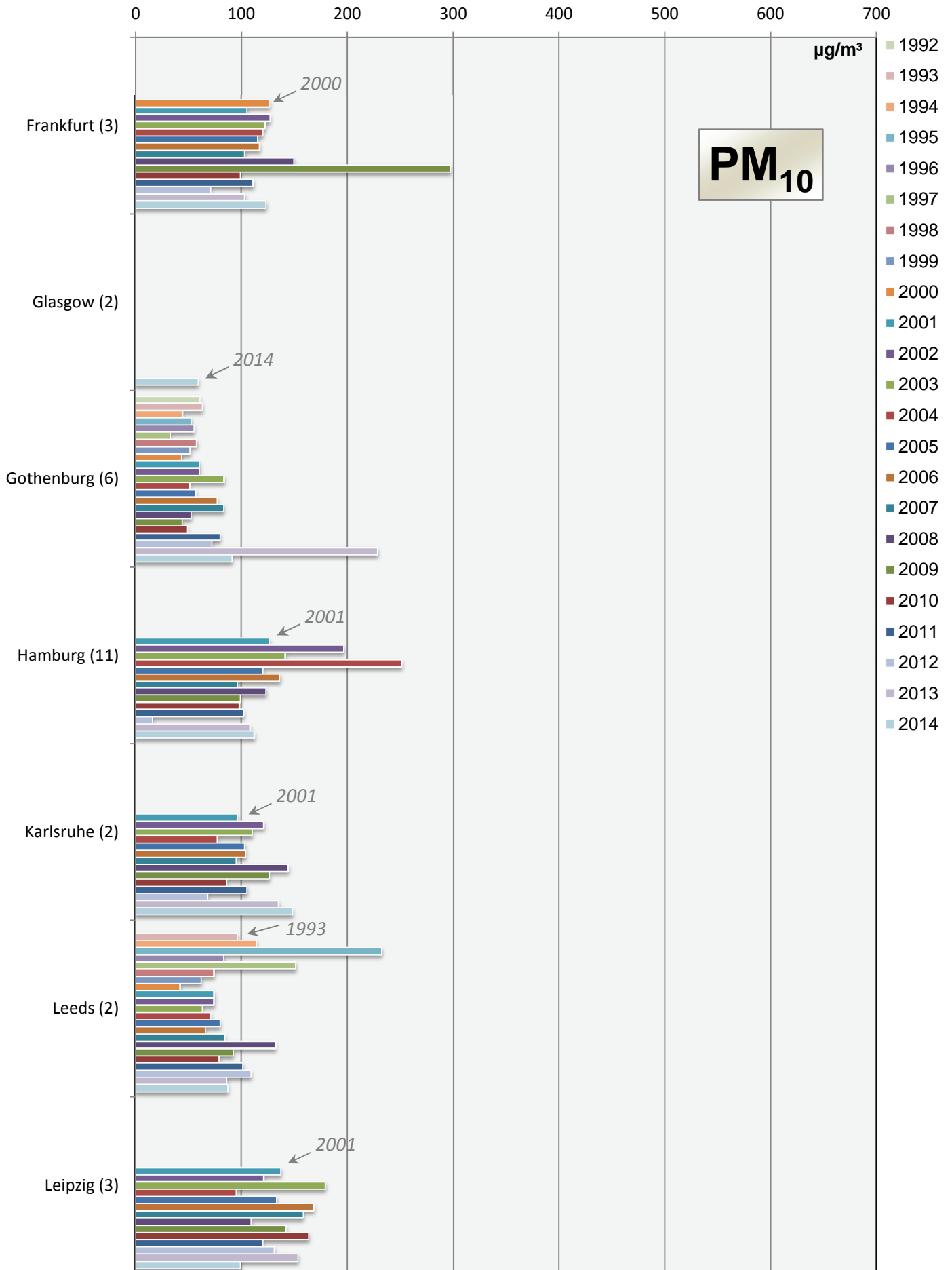
max. daily mean values (peak-stressed monitoring station)



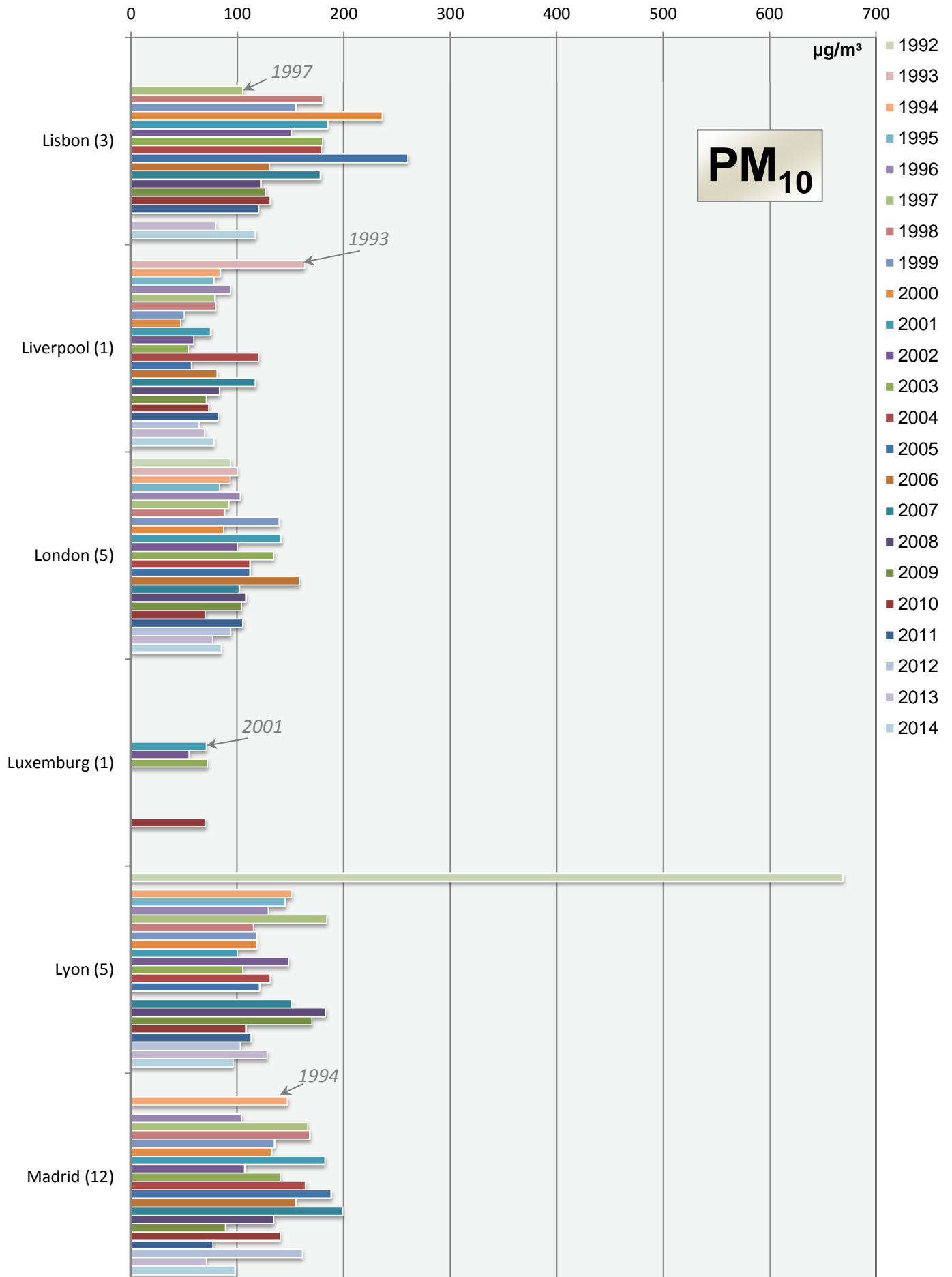
Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

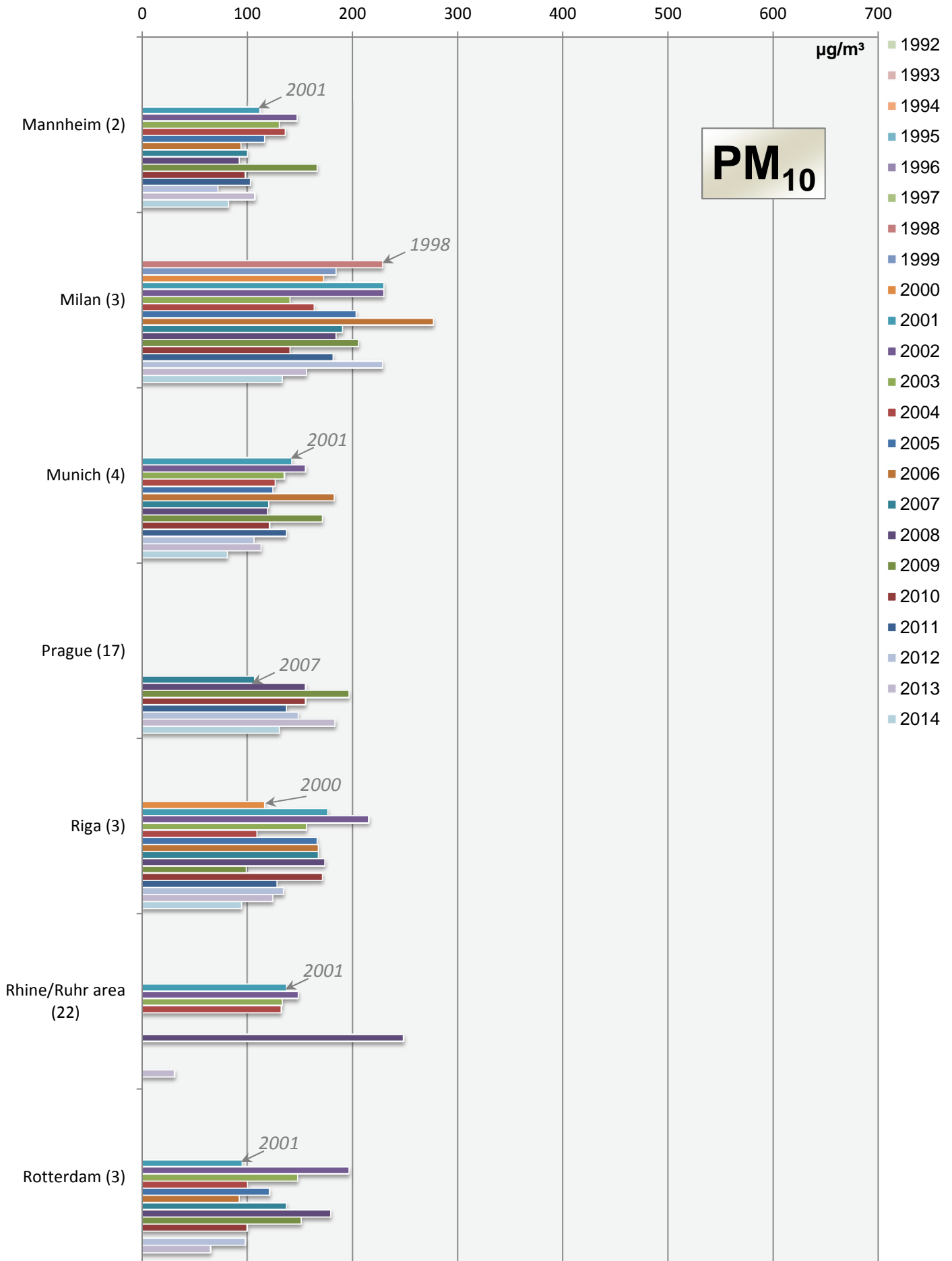


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

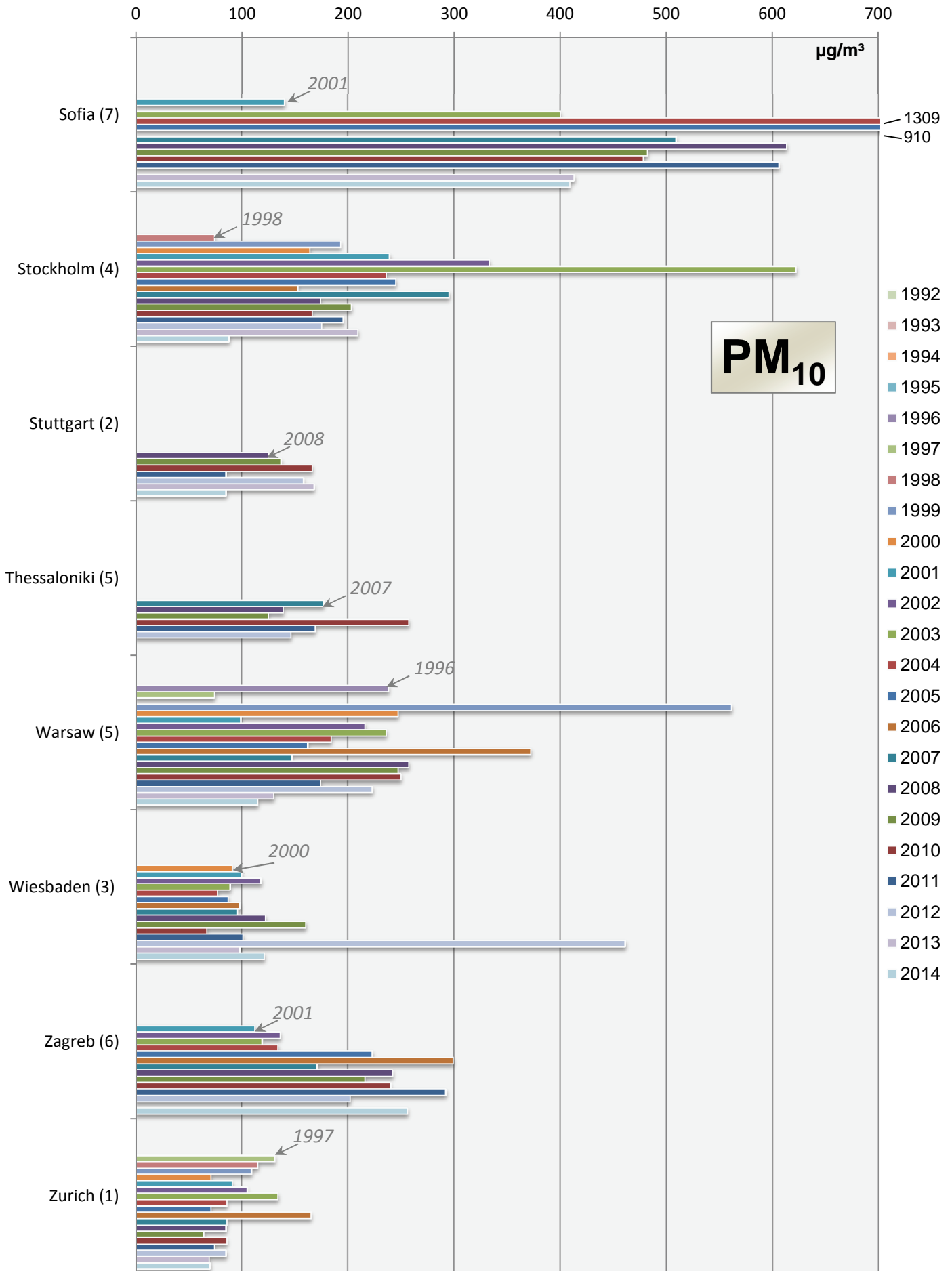


Comparison of The Air Quality 1992 - 2014

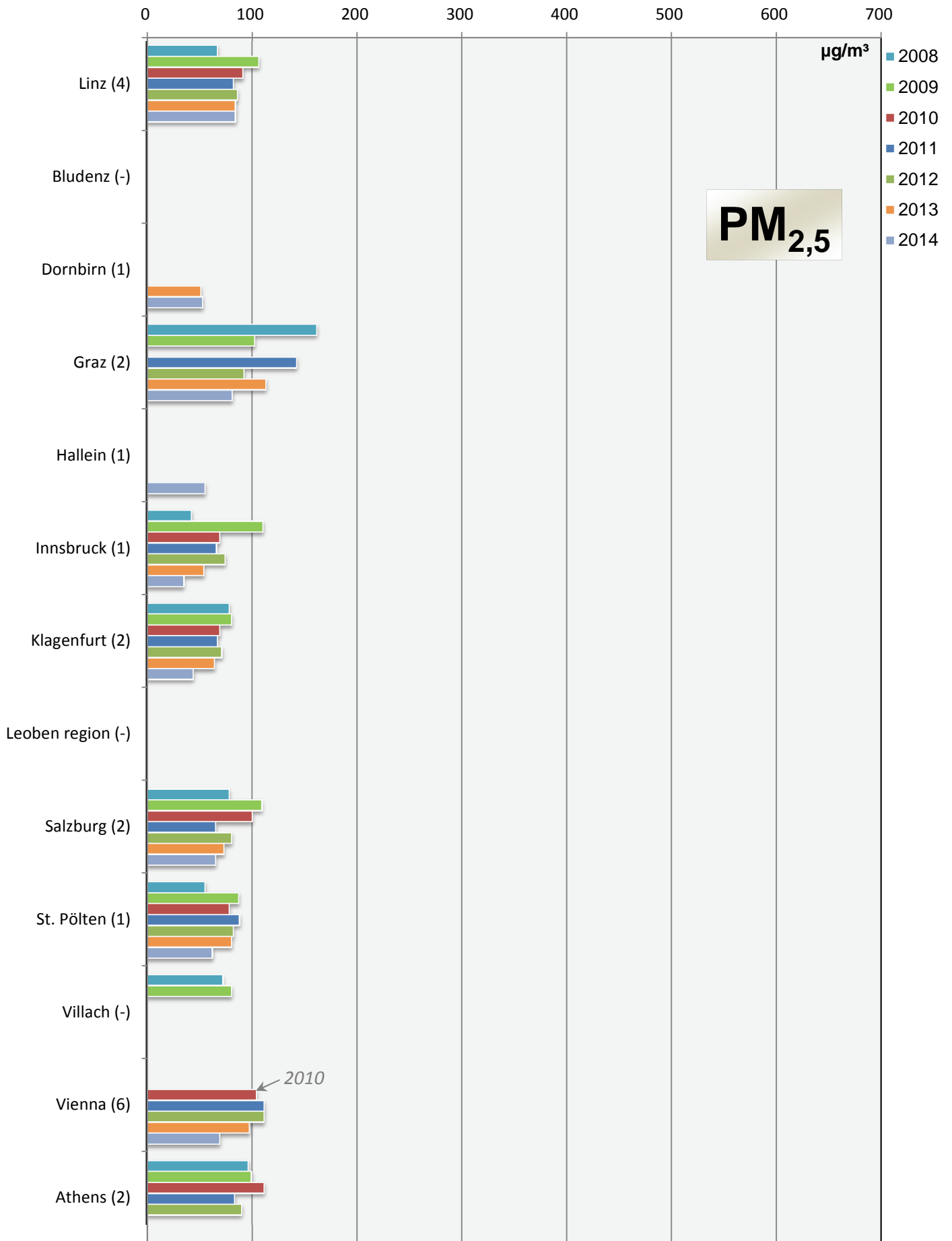
max. daily mean values (peak-stressed monitoring station)



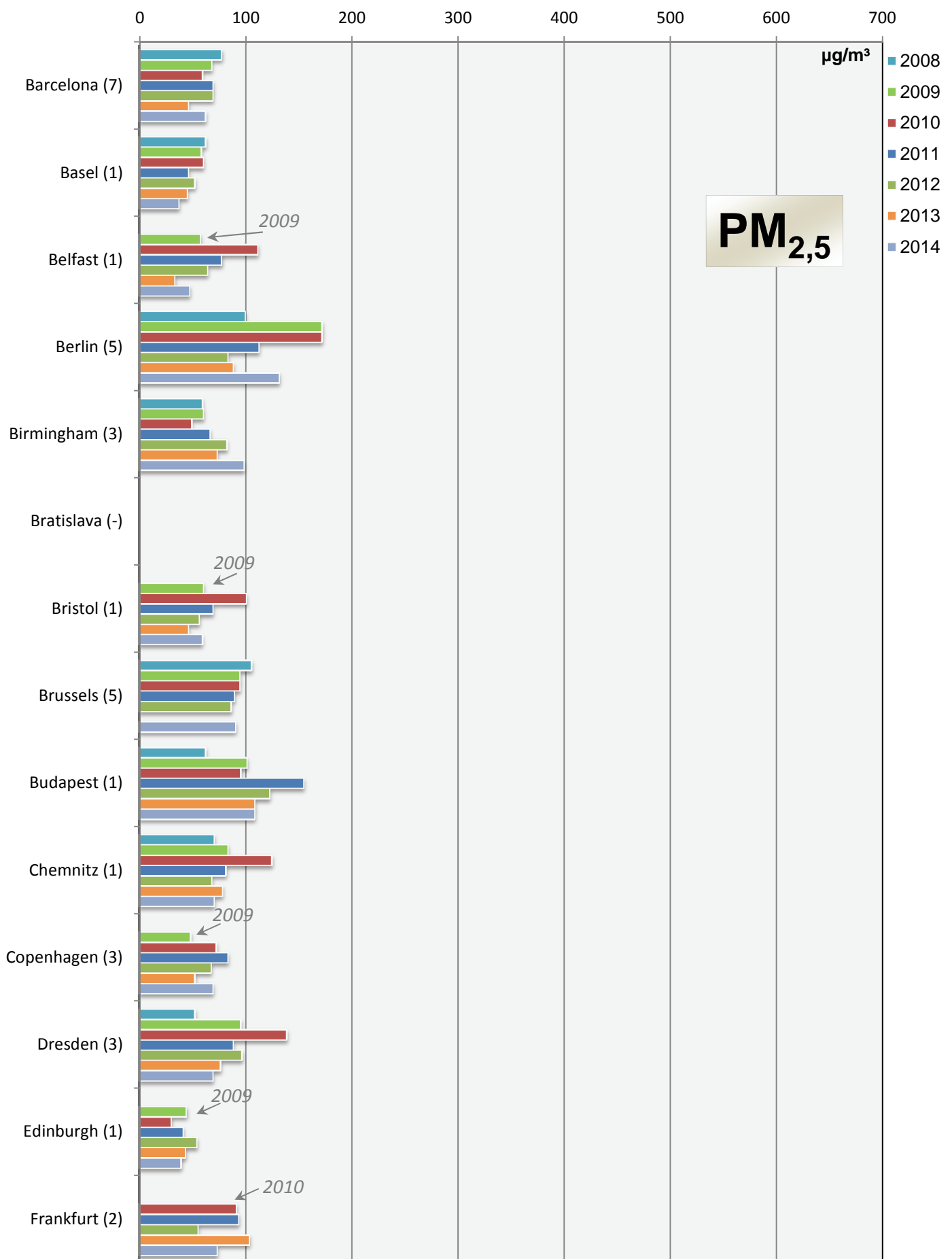
Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



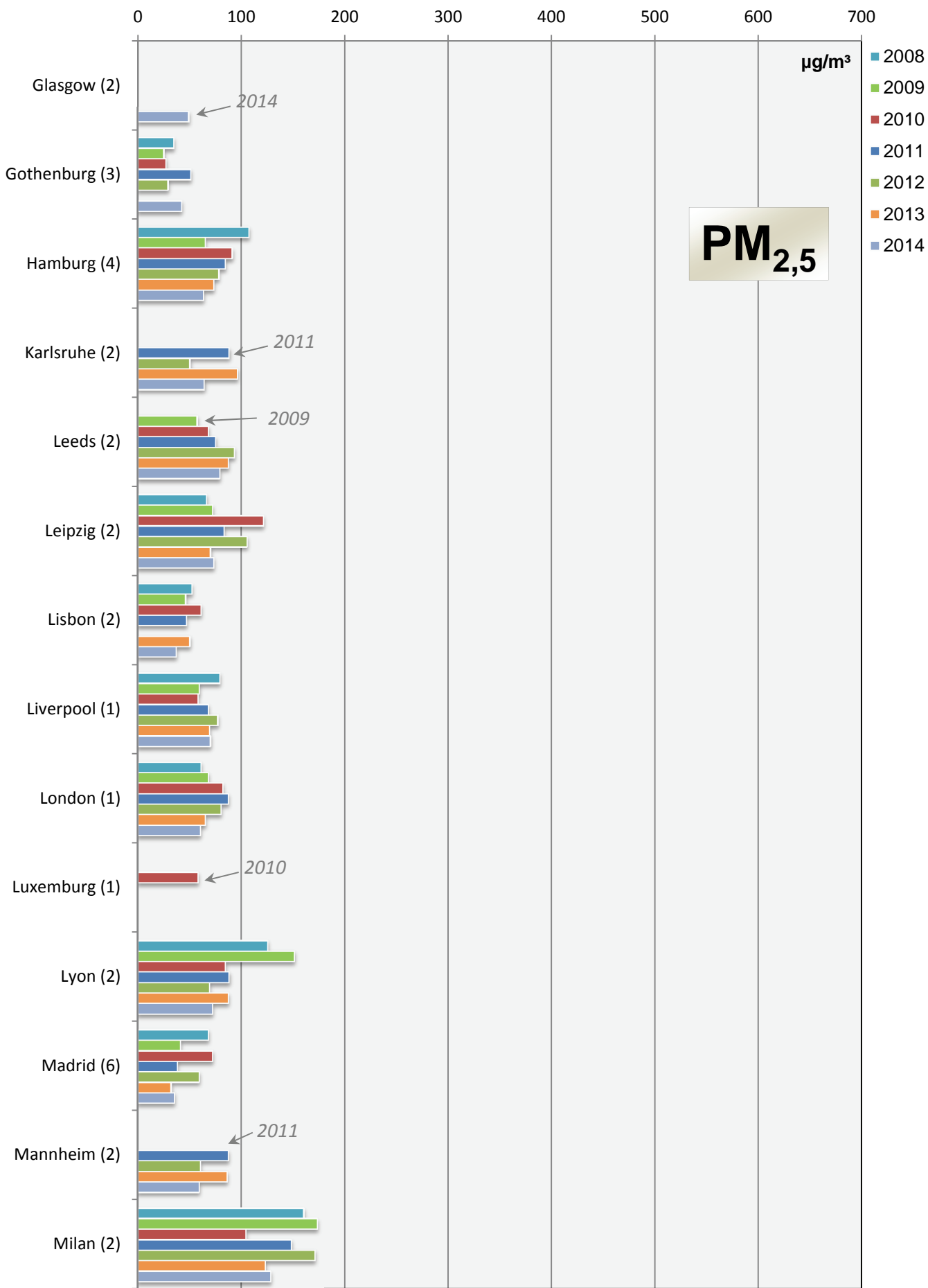
Comparison of The Air Quality 2008 - 2014 max. daily mean values (peak-stressed monitoring station)



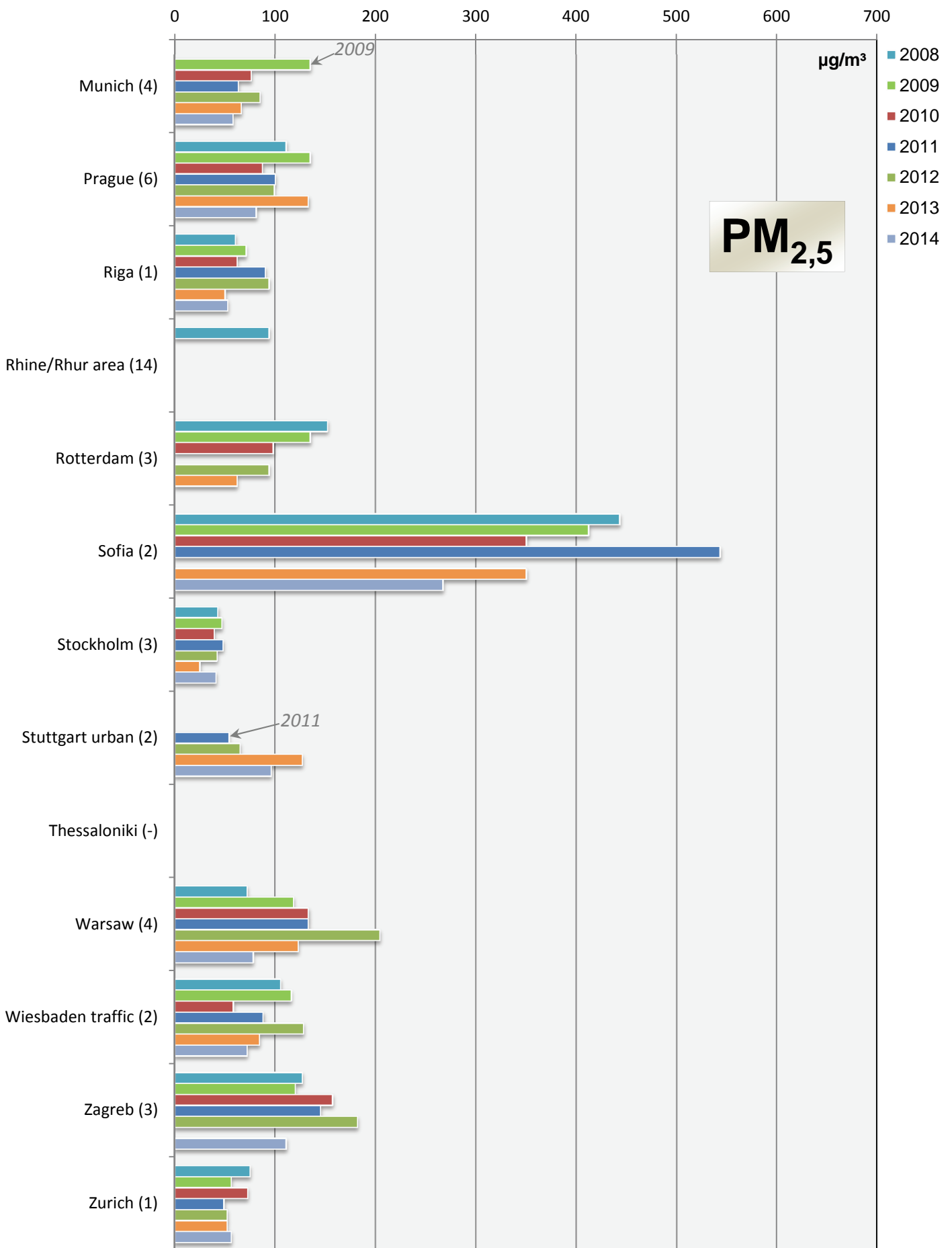
Comparison of The Air Quality 2008 - 2014 max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 2008 - 2014 max. daily mean values (peak-stressed monitoring station)

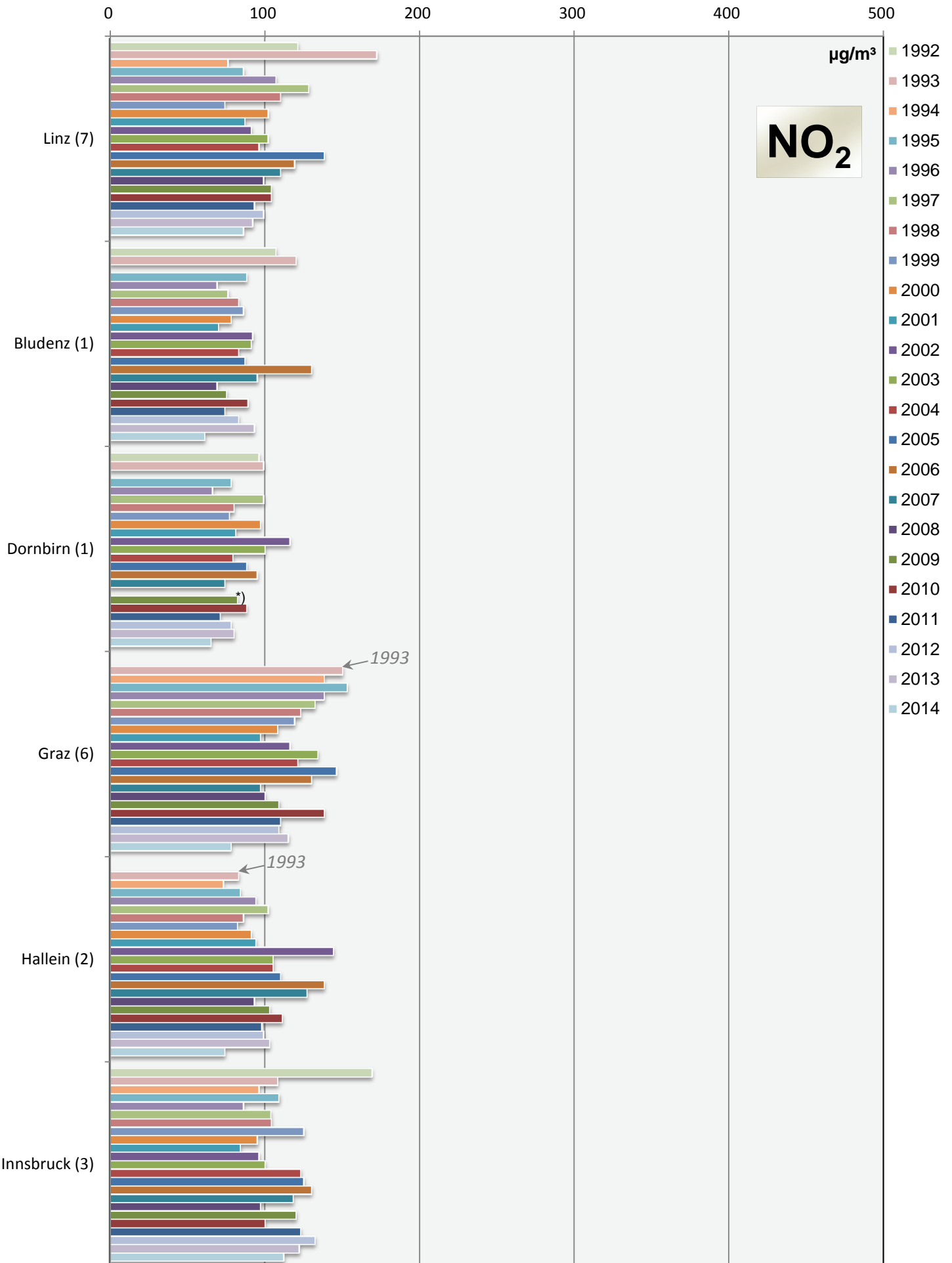


Comparison of The Air Quality 2008 - 2014 max. daily mean values (peak-stressed monitoring station)



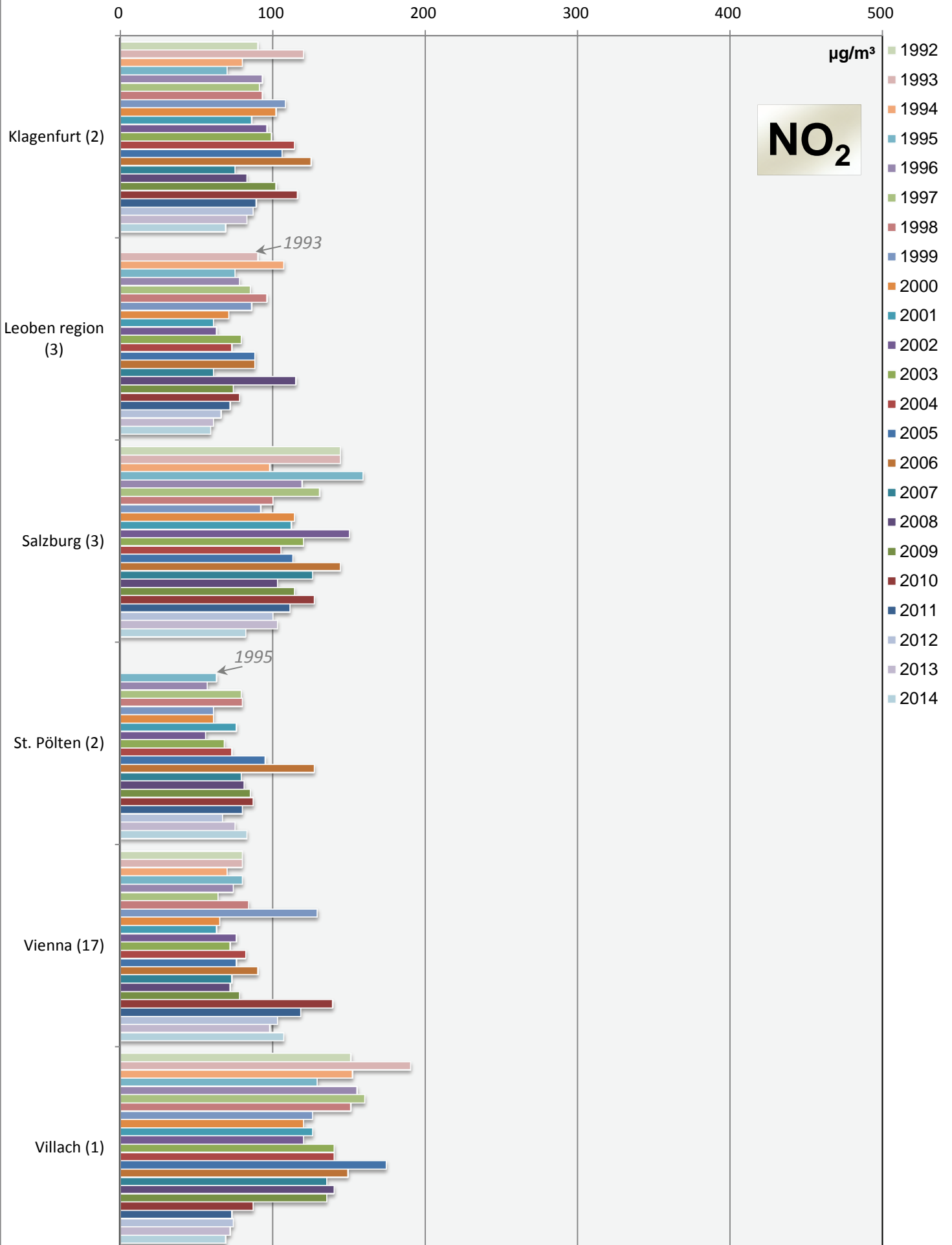
Comparison of The Air Quality 1992 - 2014

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



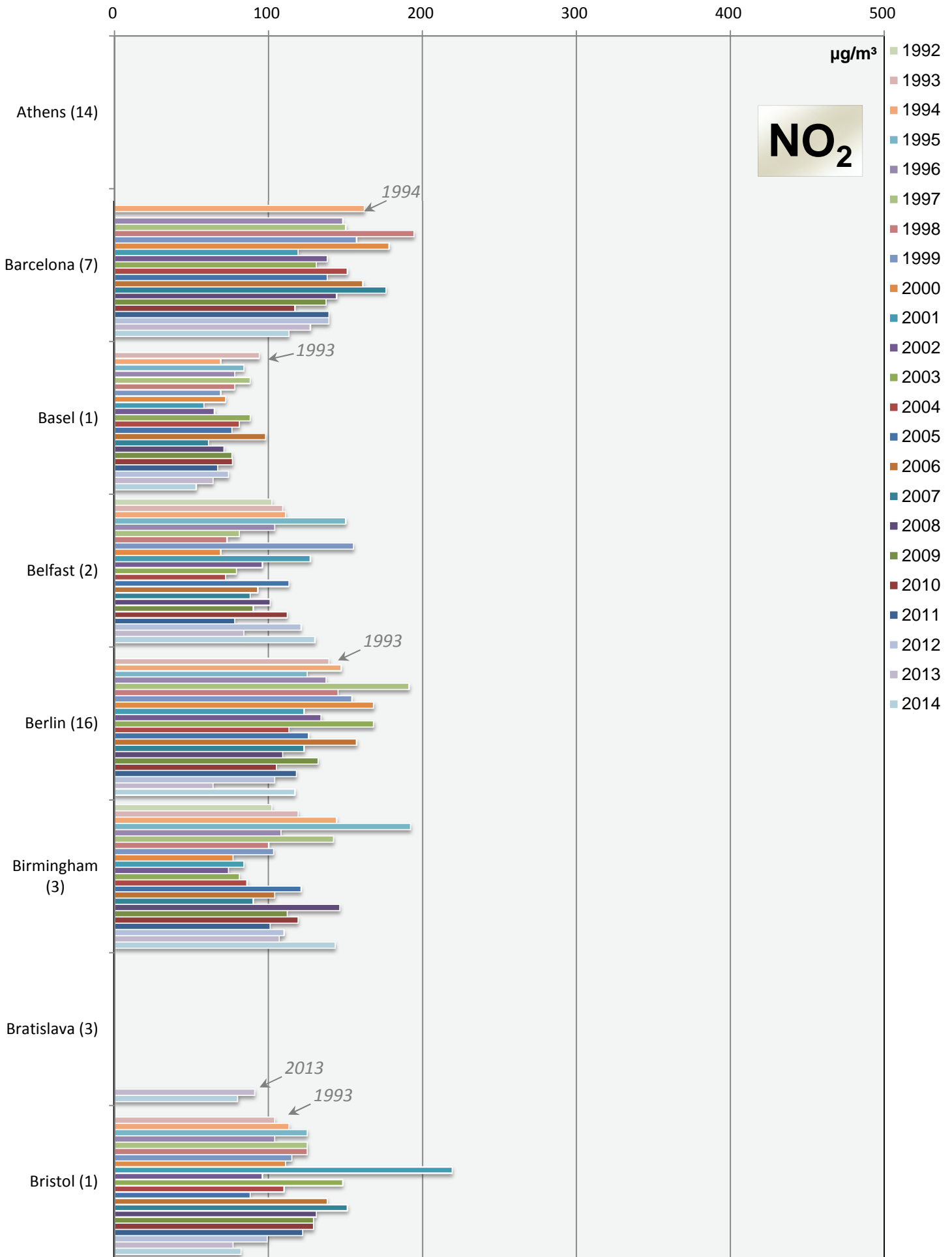
*) data of the year 2008 are not used for the comparison, because the street near the measurement point was closed for 11 months

Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



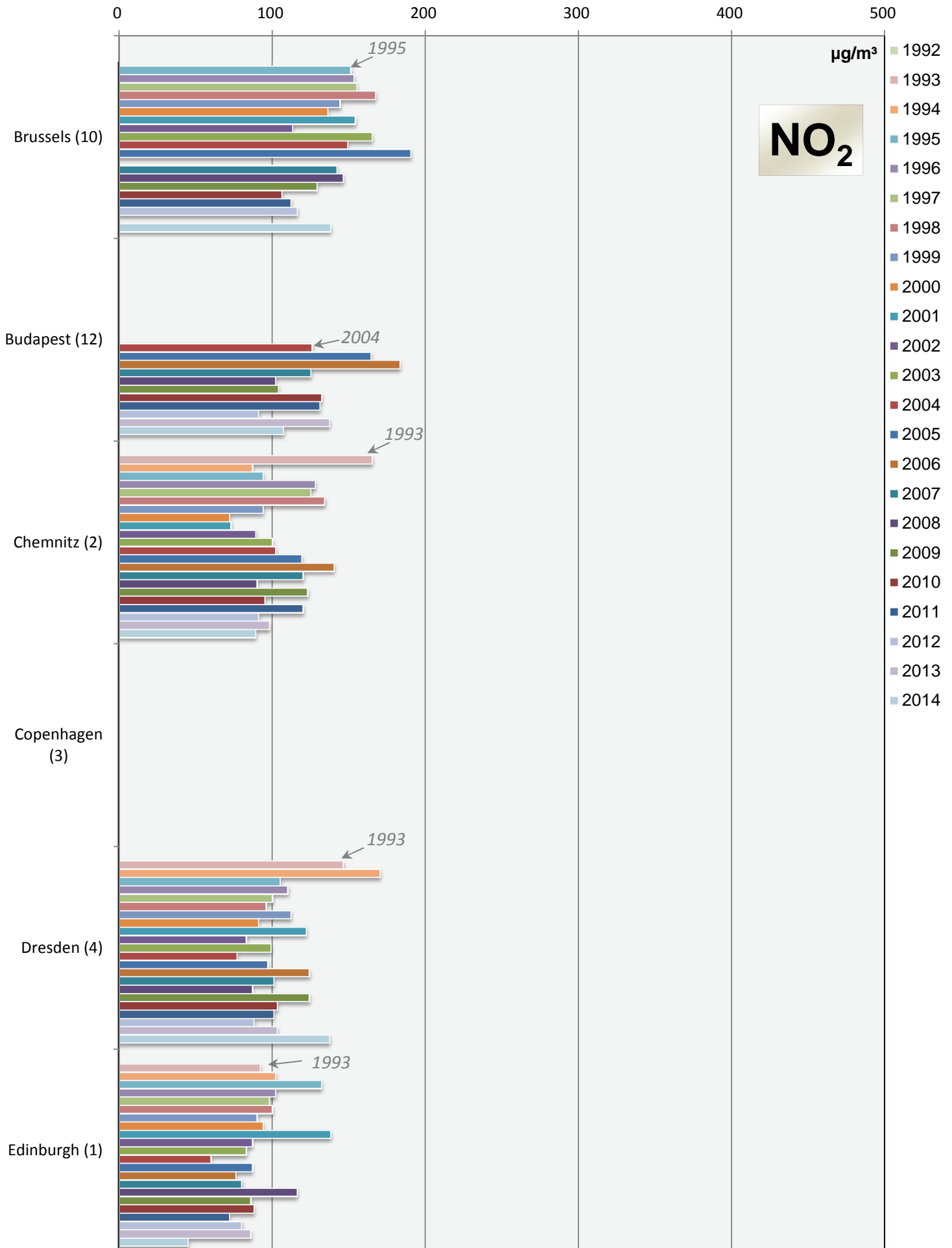
Comparison of The Air Quality 1992 - 2014

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



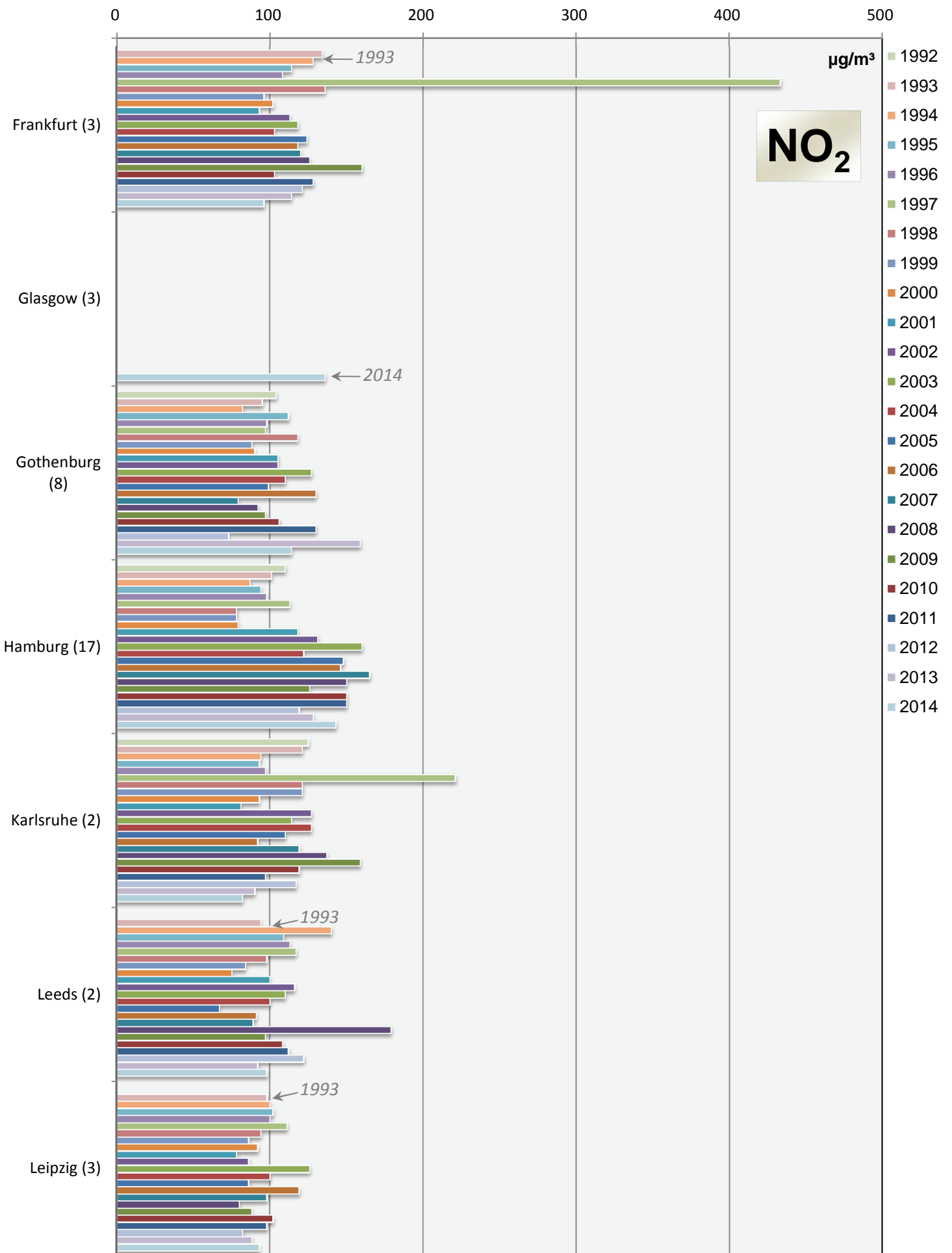
Comparison of The Air Quality 1992 - 2014

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



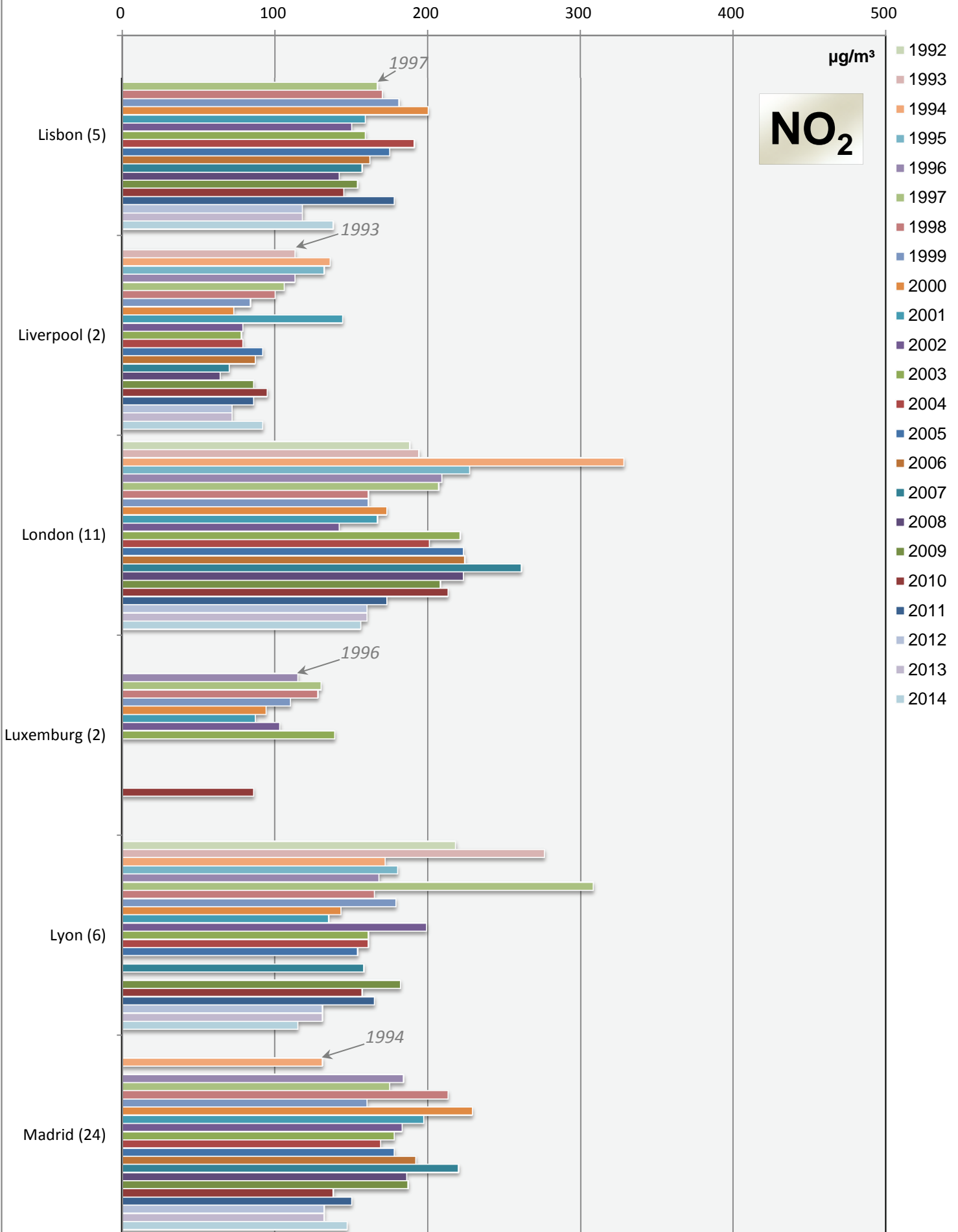
Comparison of The Air Quality 1992 - 2014

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



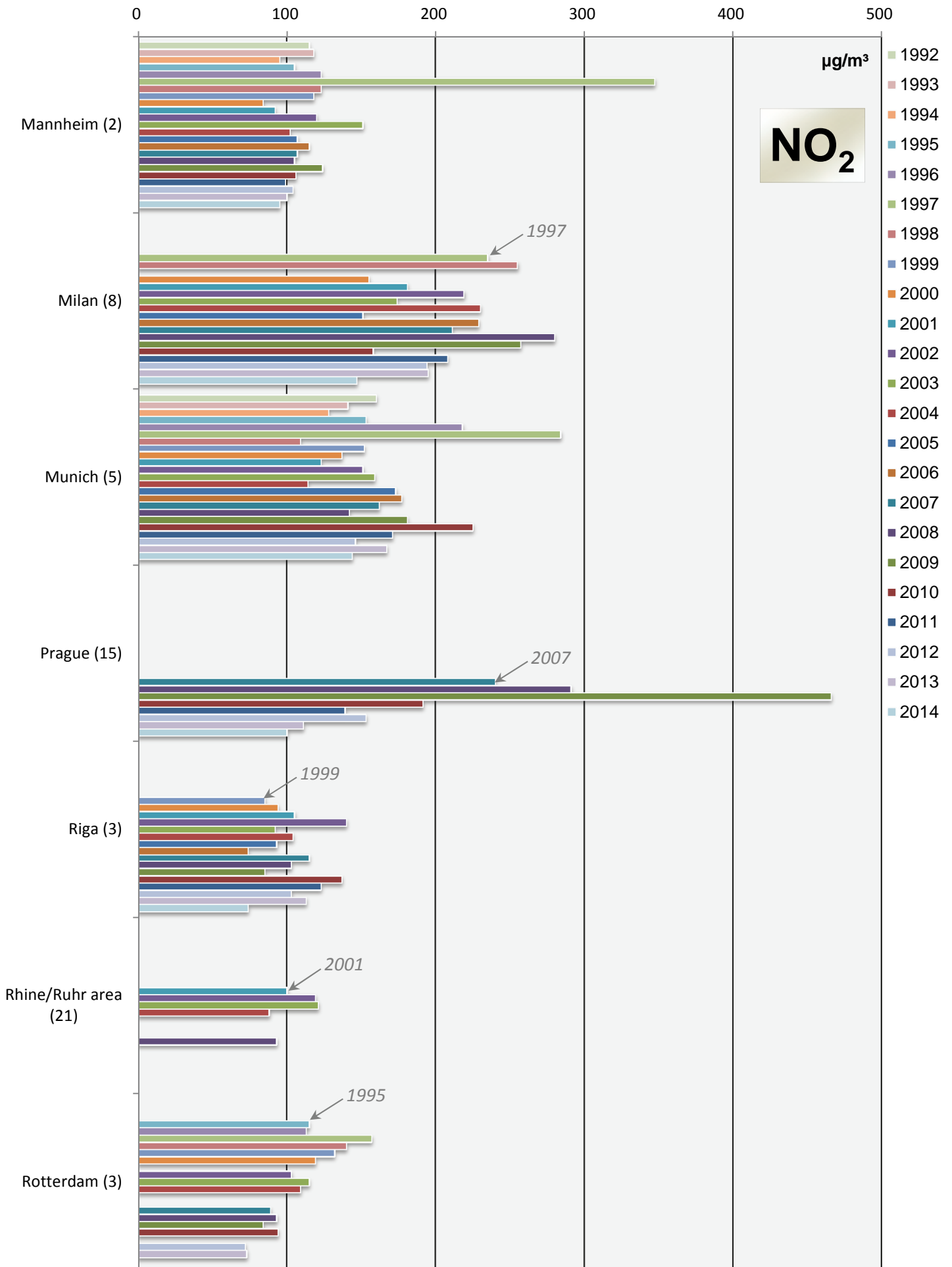
Comparison of The Air Quality 1992 - 2014

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

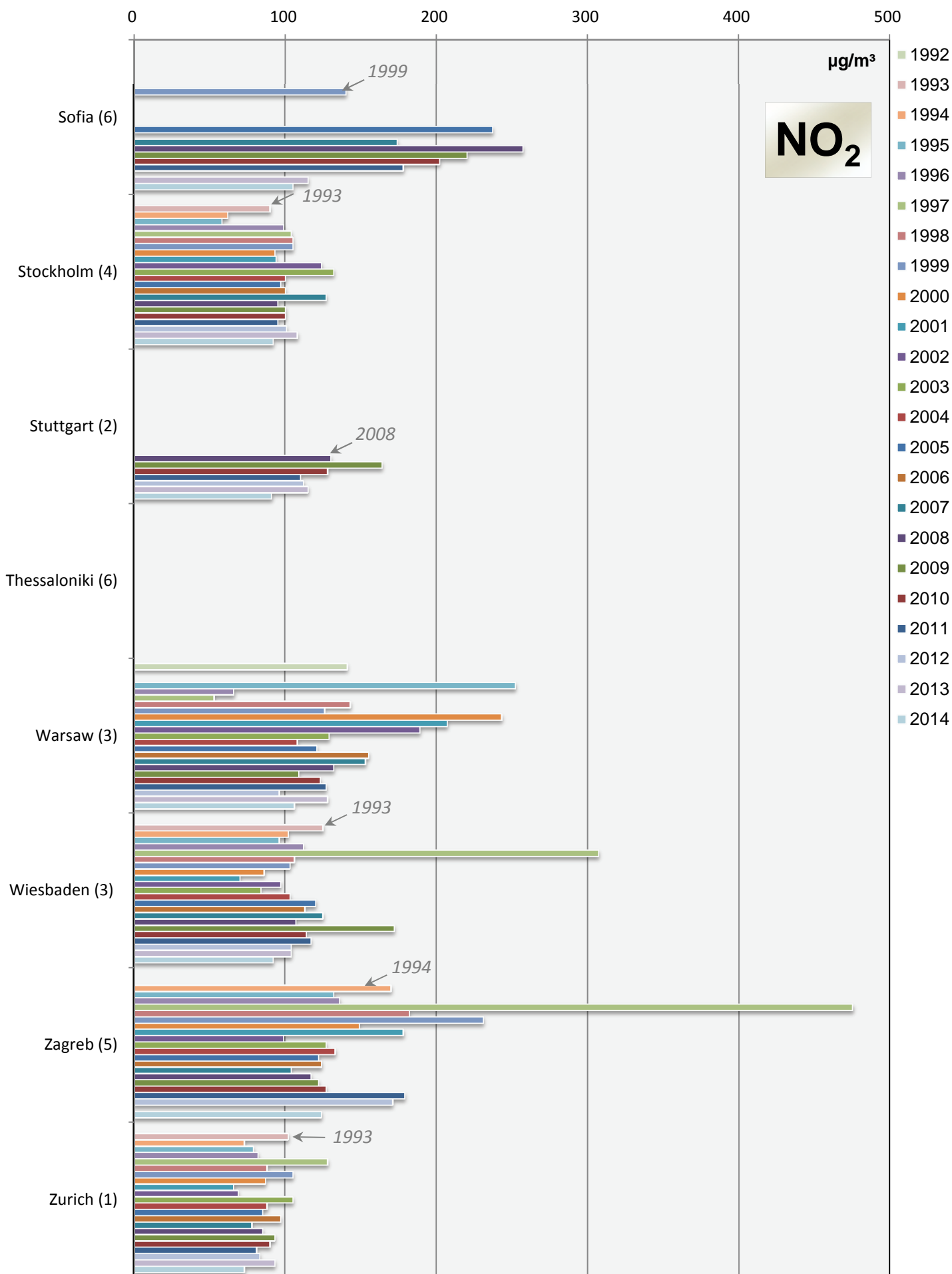


Comparison of The Air Quality 1992 - 2014

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

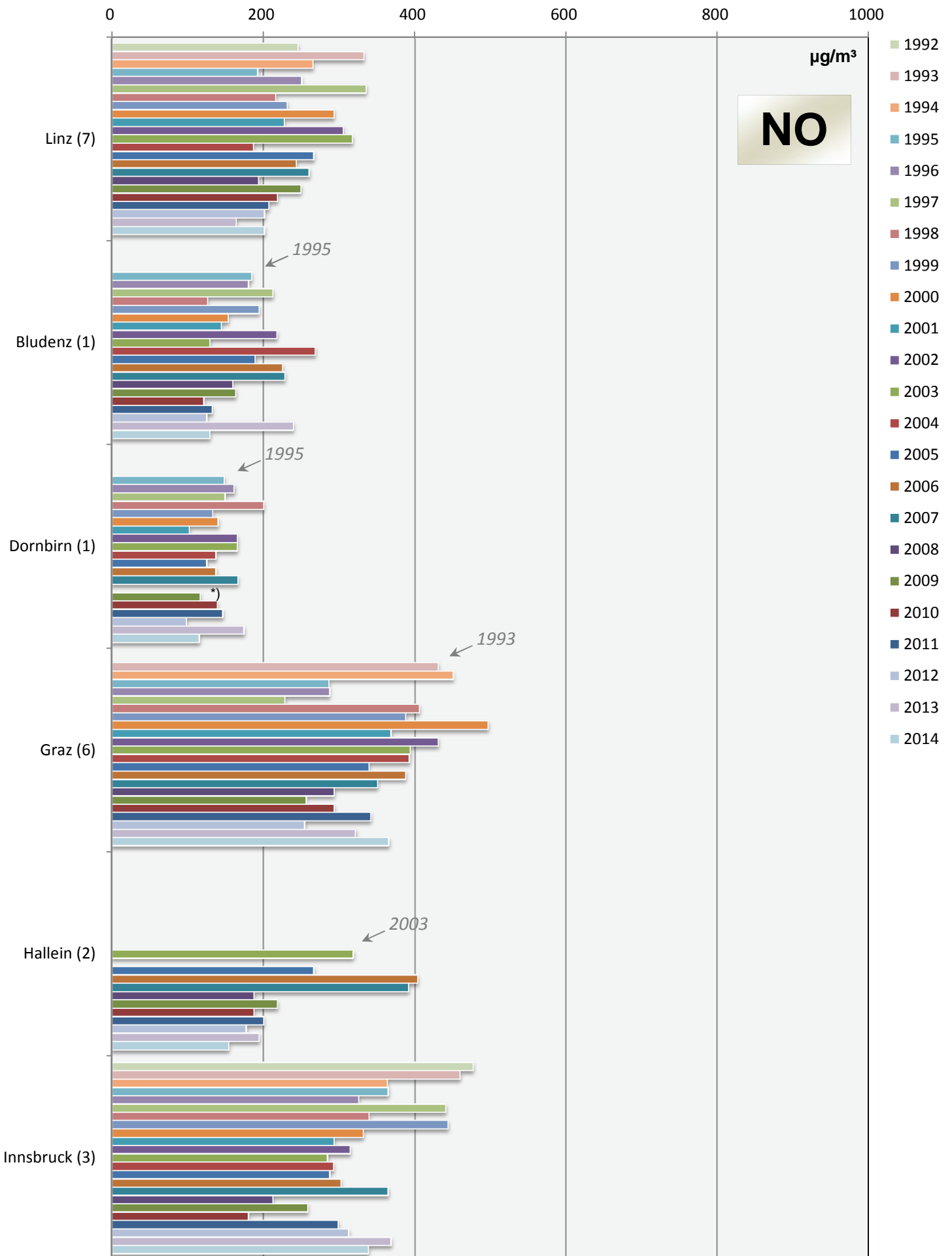


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2014

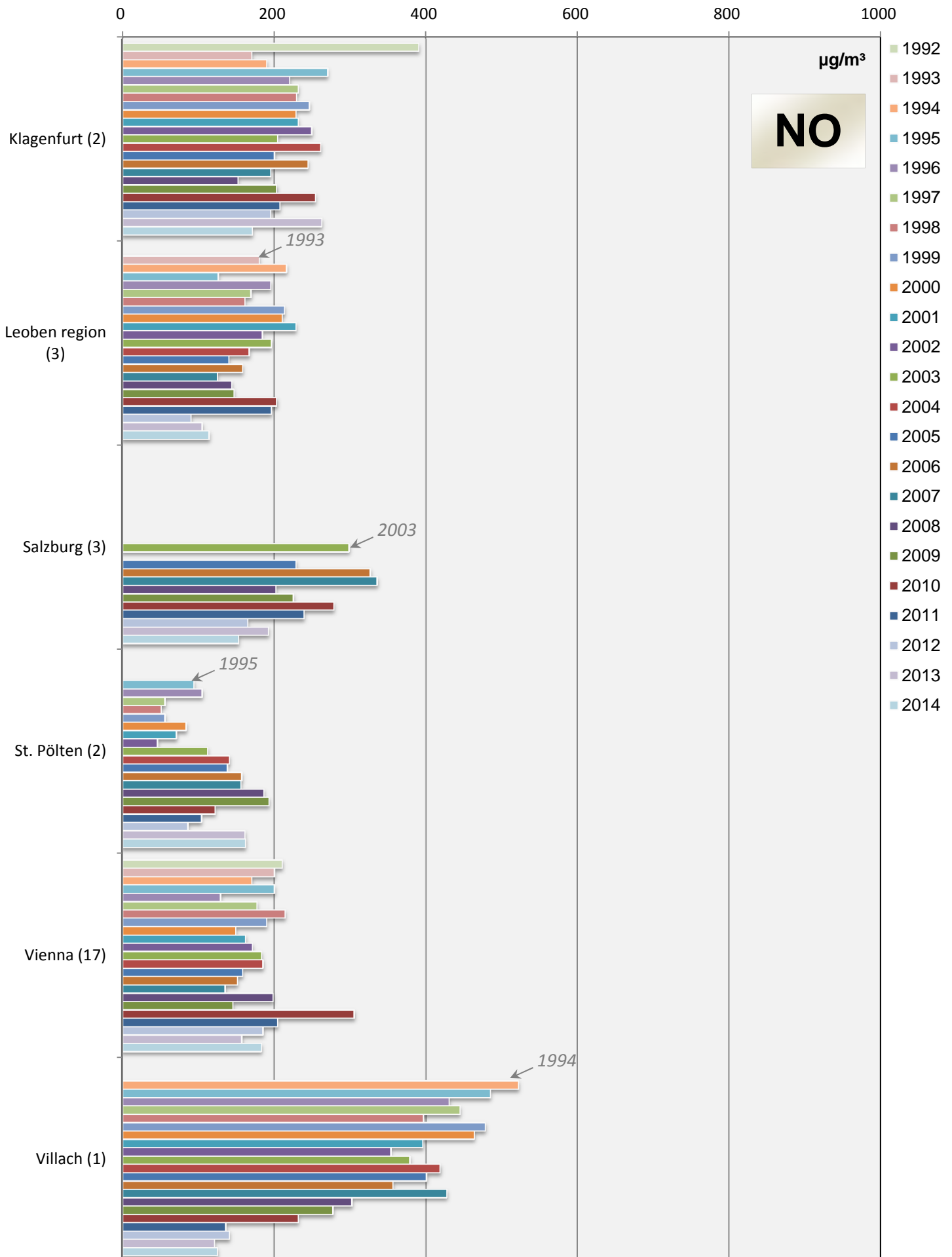
max. daily mean values (peak-stressed monitoring station)



*) data of the year 2008 are not used for the comparison, because the street near the measurement point was closed for 11 months

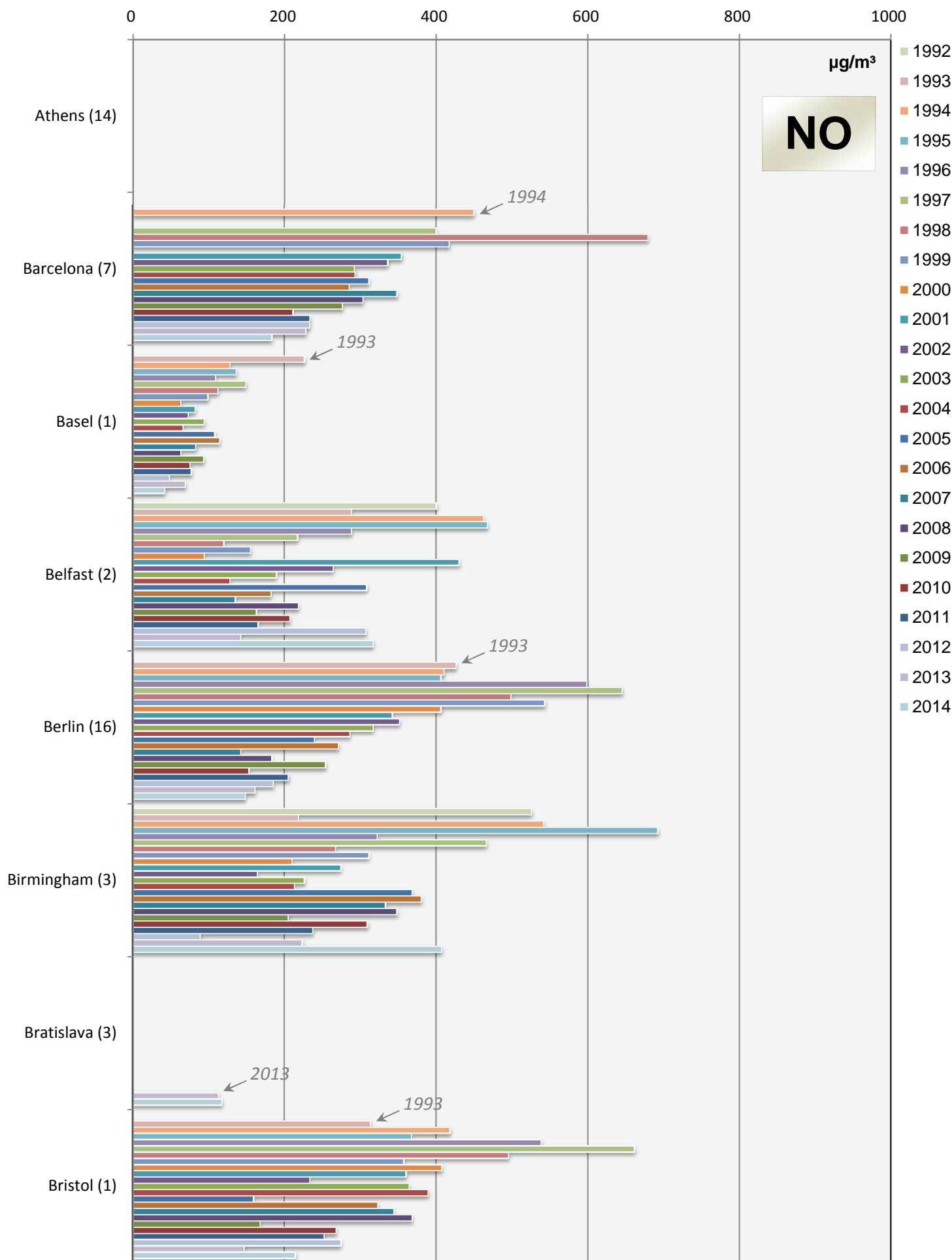
Comparison of The Air Quality 1992 - 2014

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

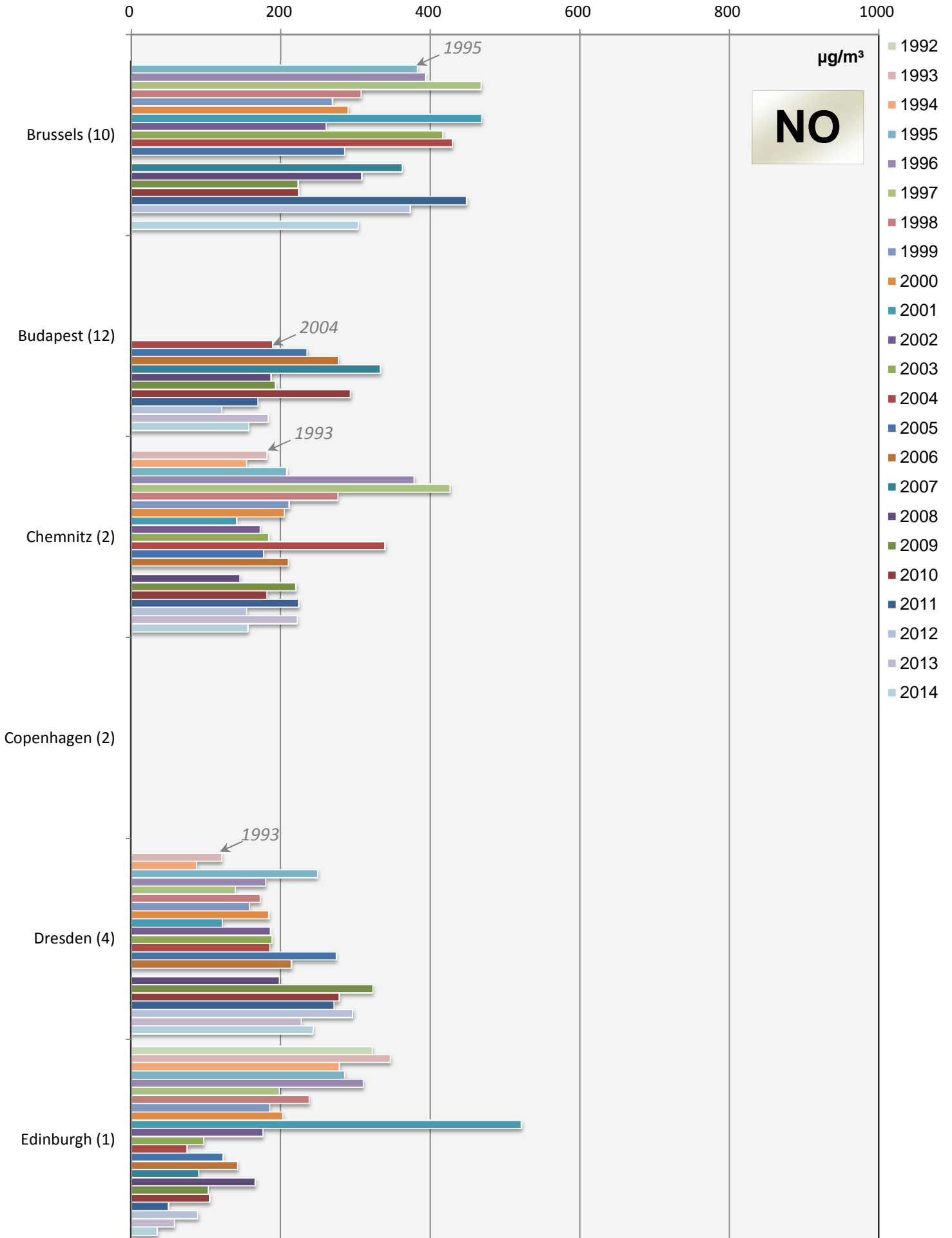


Comparison of The Air Quality 1992 - 2014

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

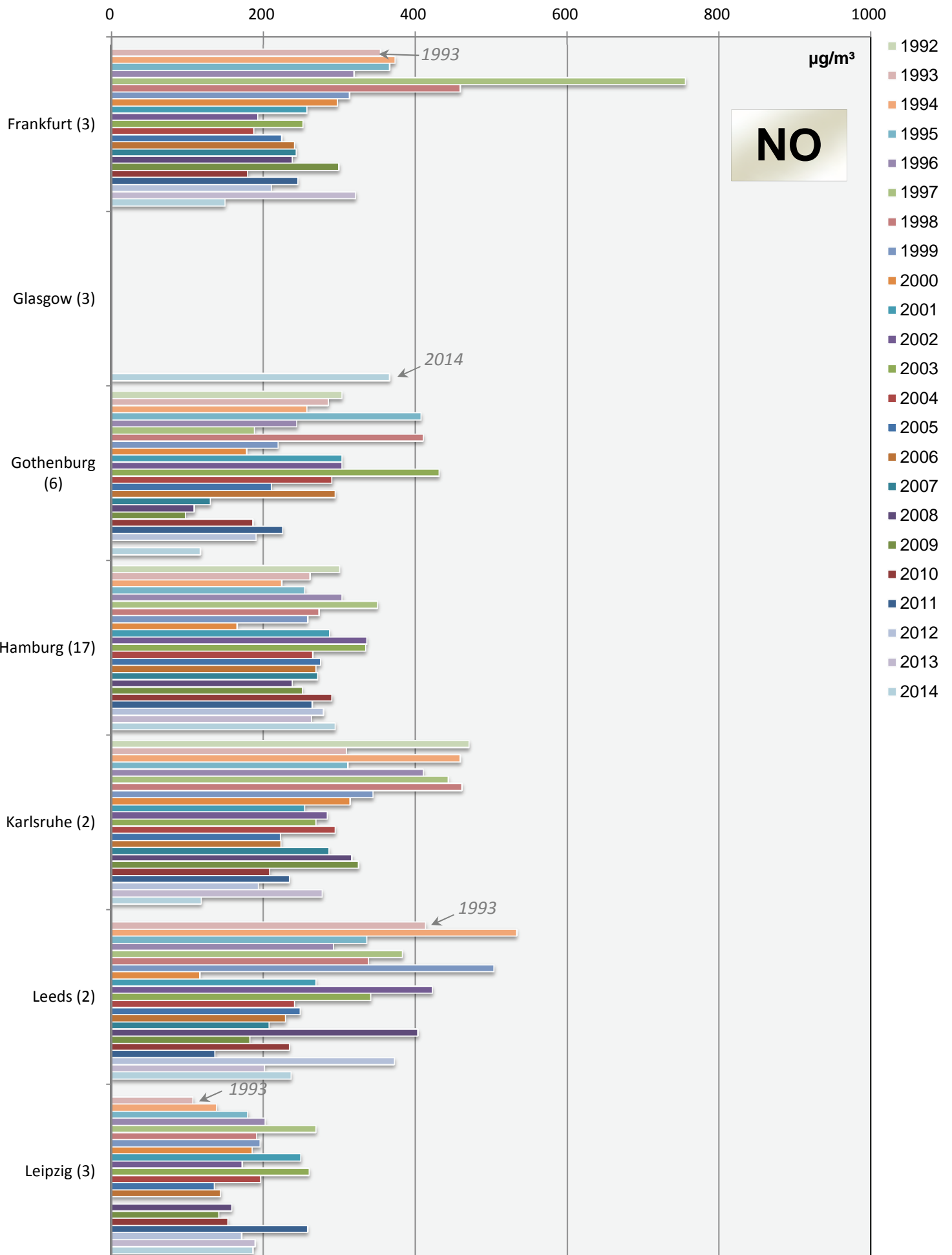


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



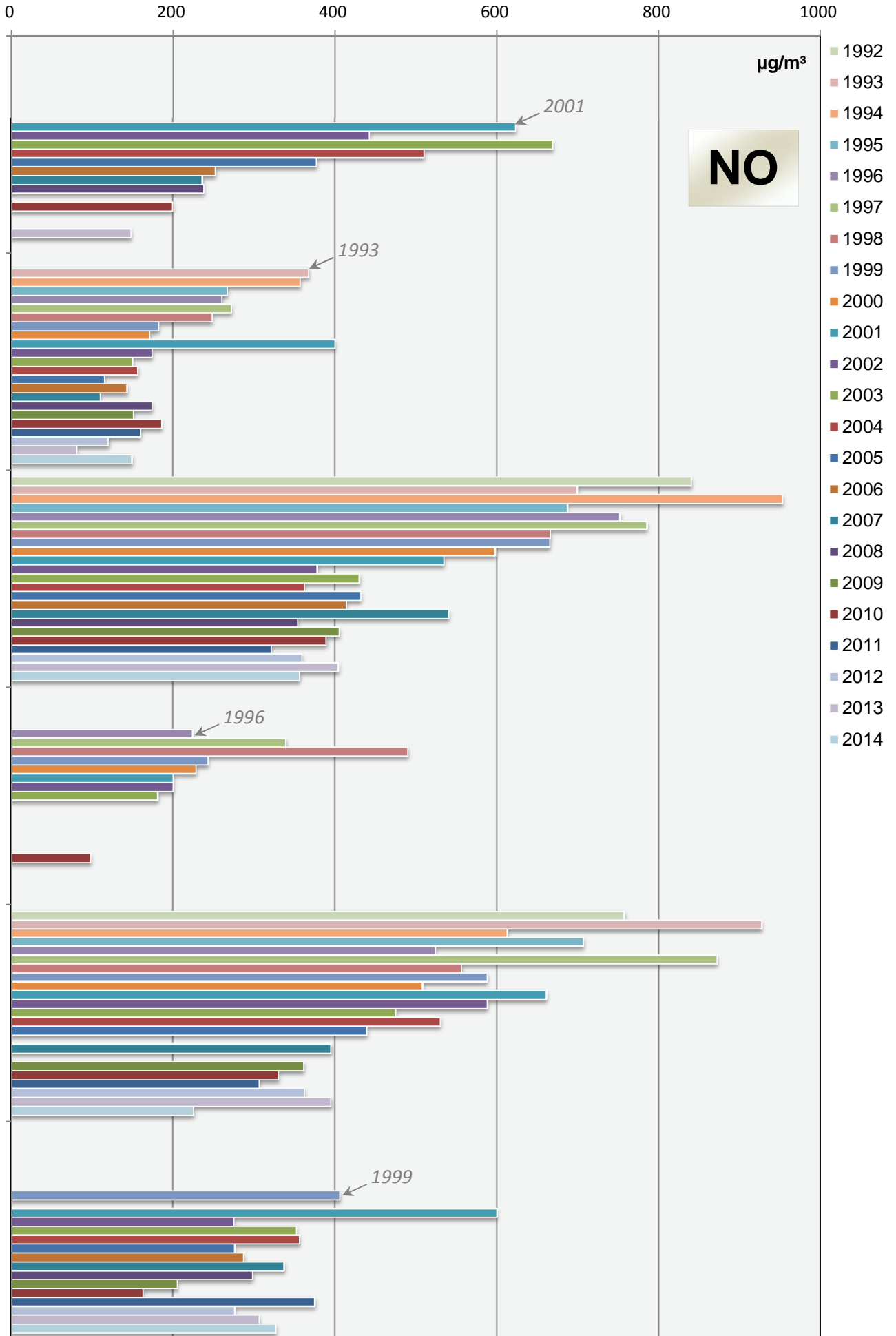
Comparison of The Air Quality 1992 - 2014

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



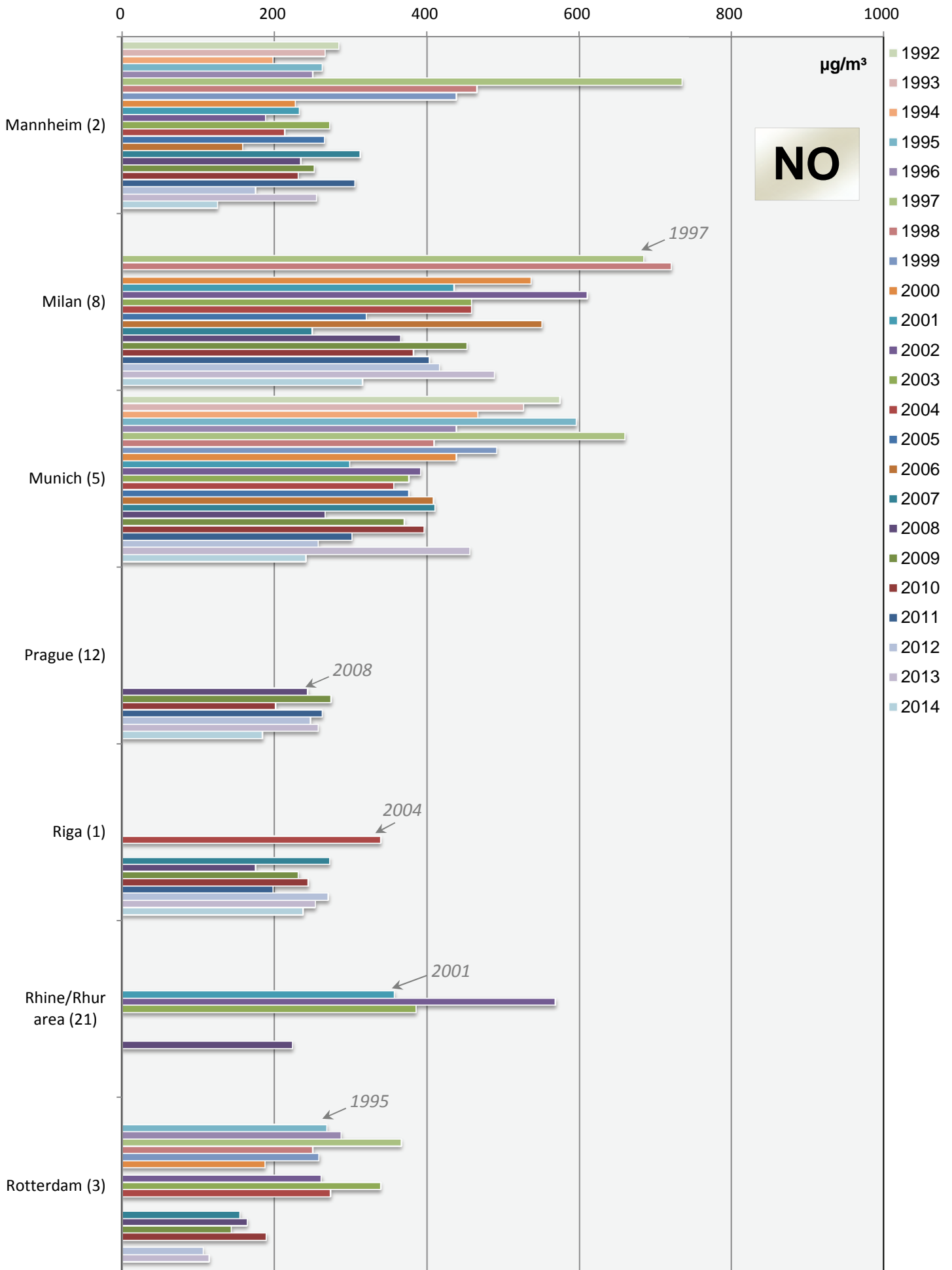
Comparison of The Air Quality 1992 - 2014

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

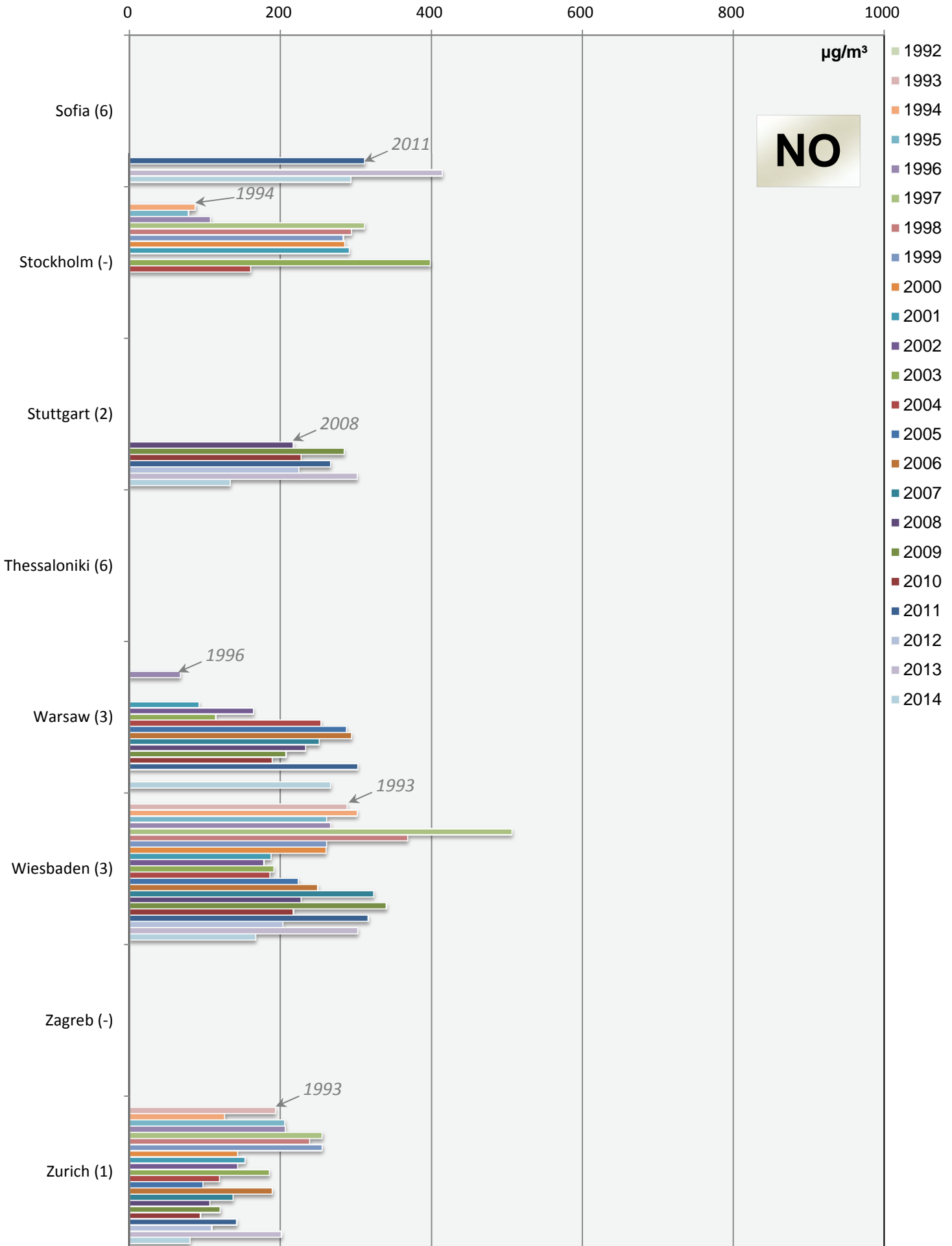


Comparison of The Air Quality 1992 - 2014

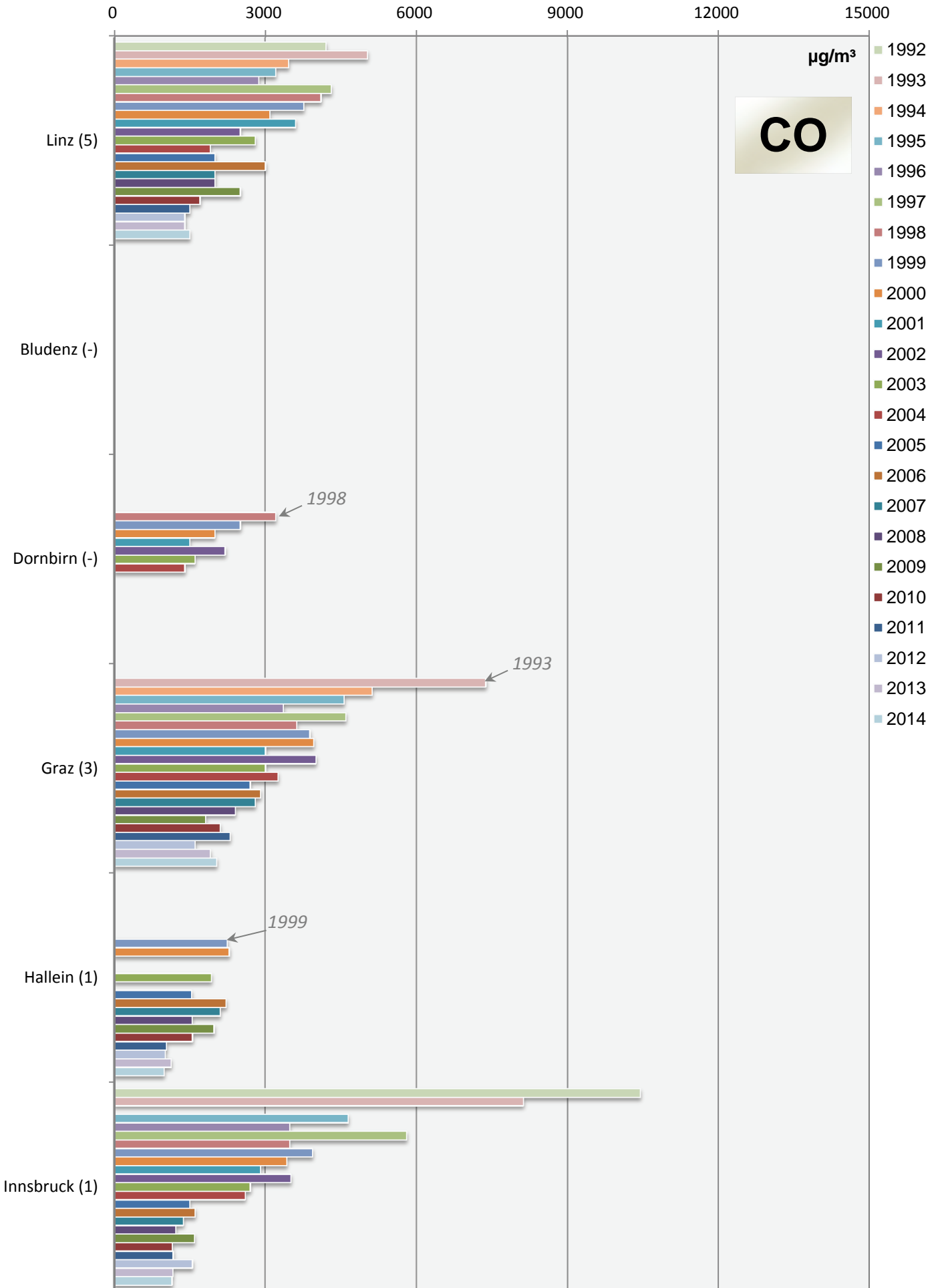
max. daily mean values (peak-stressed monitoring station)



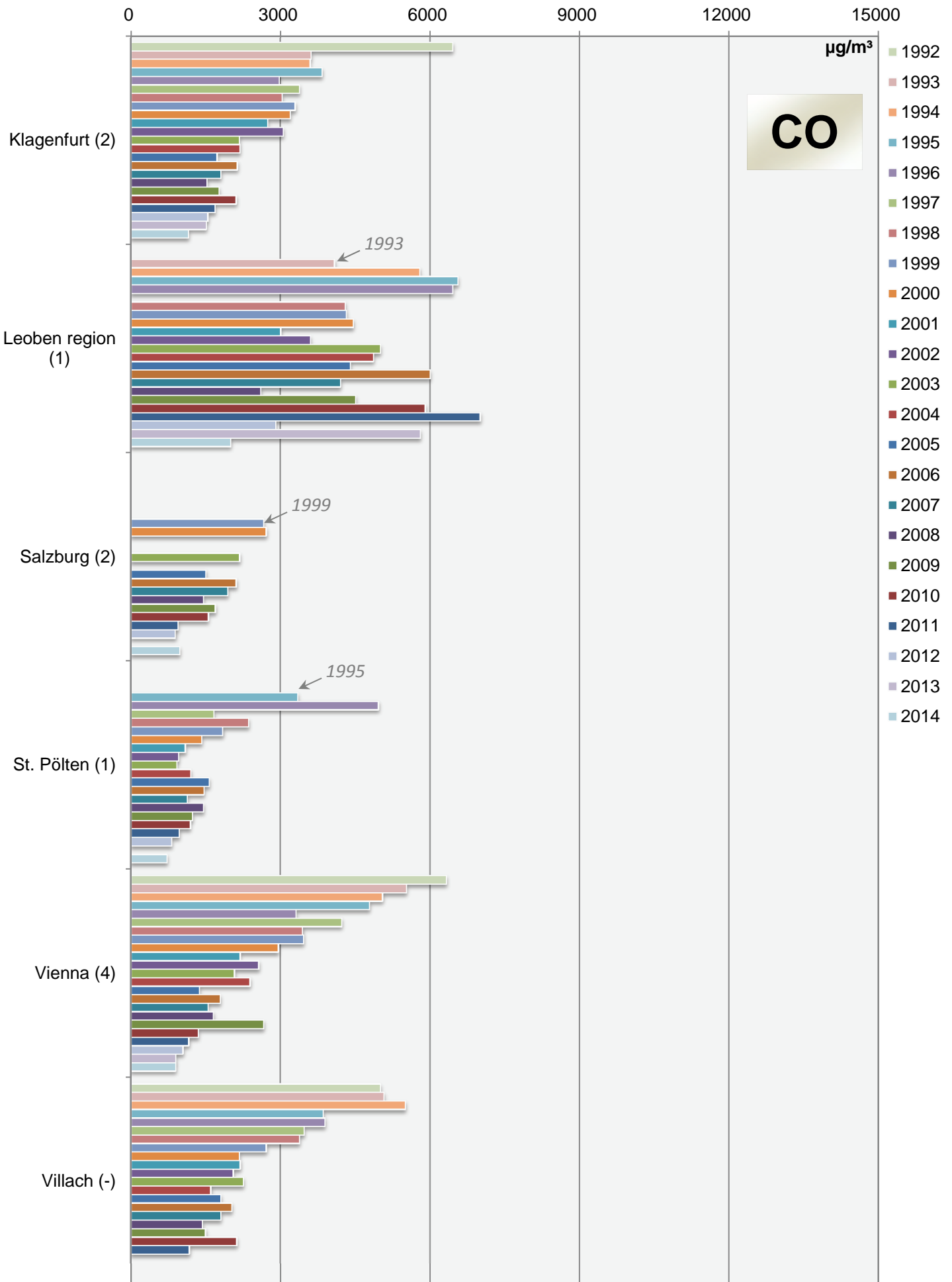
Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



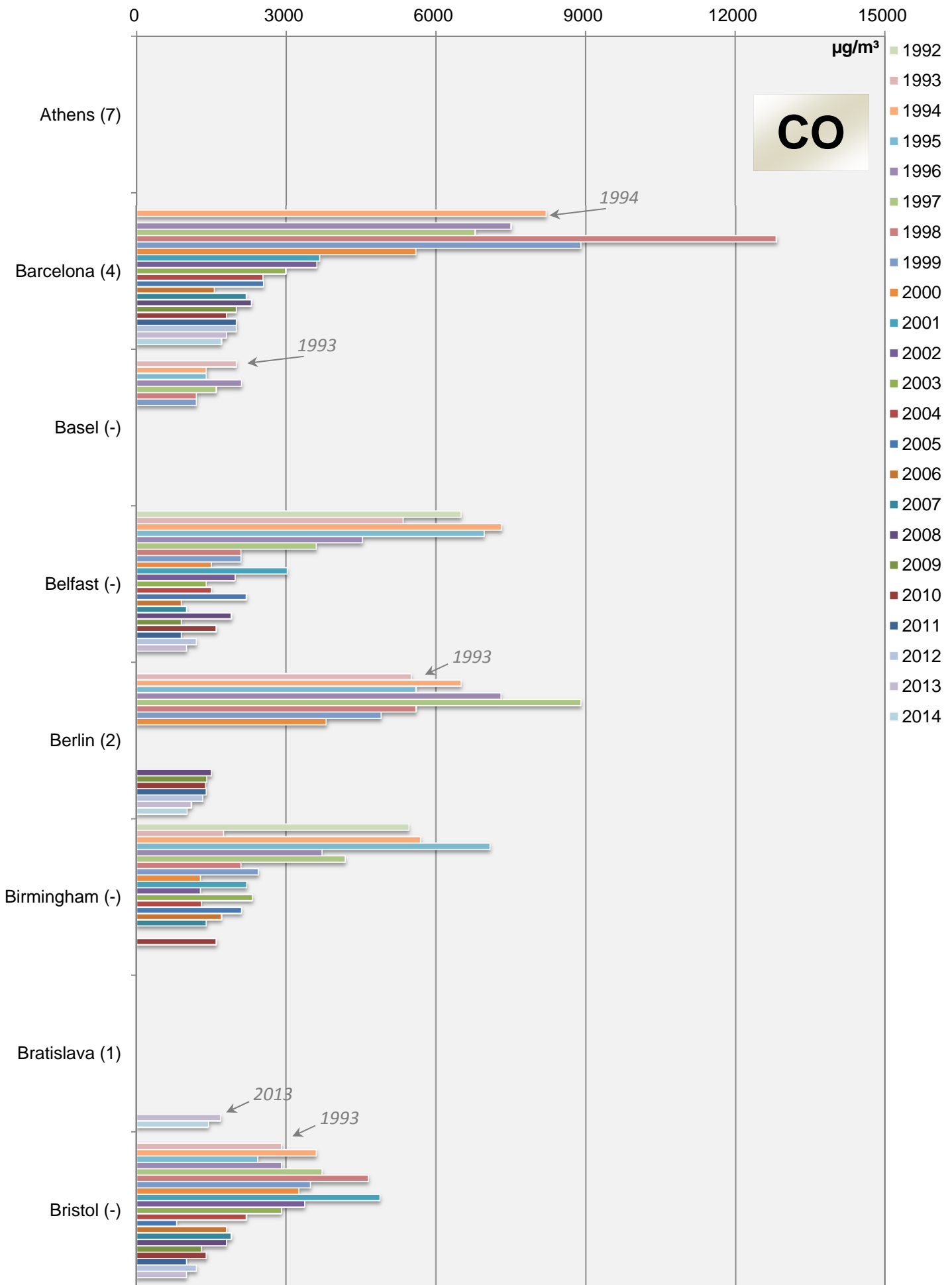
Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

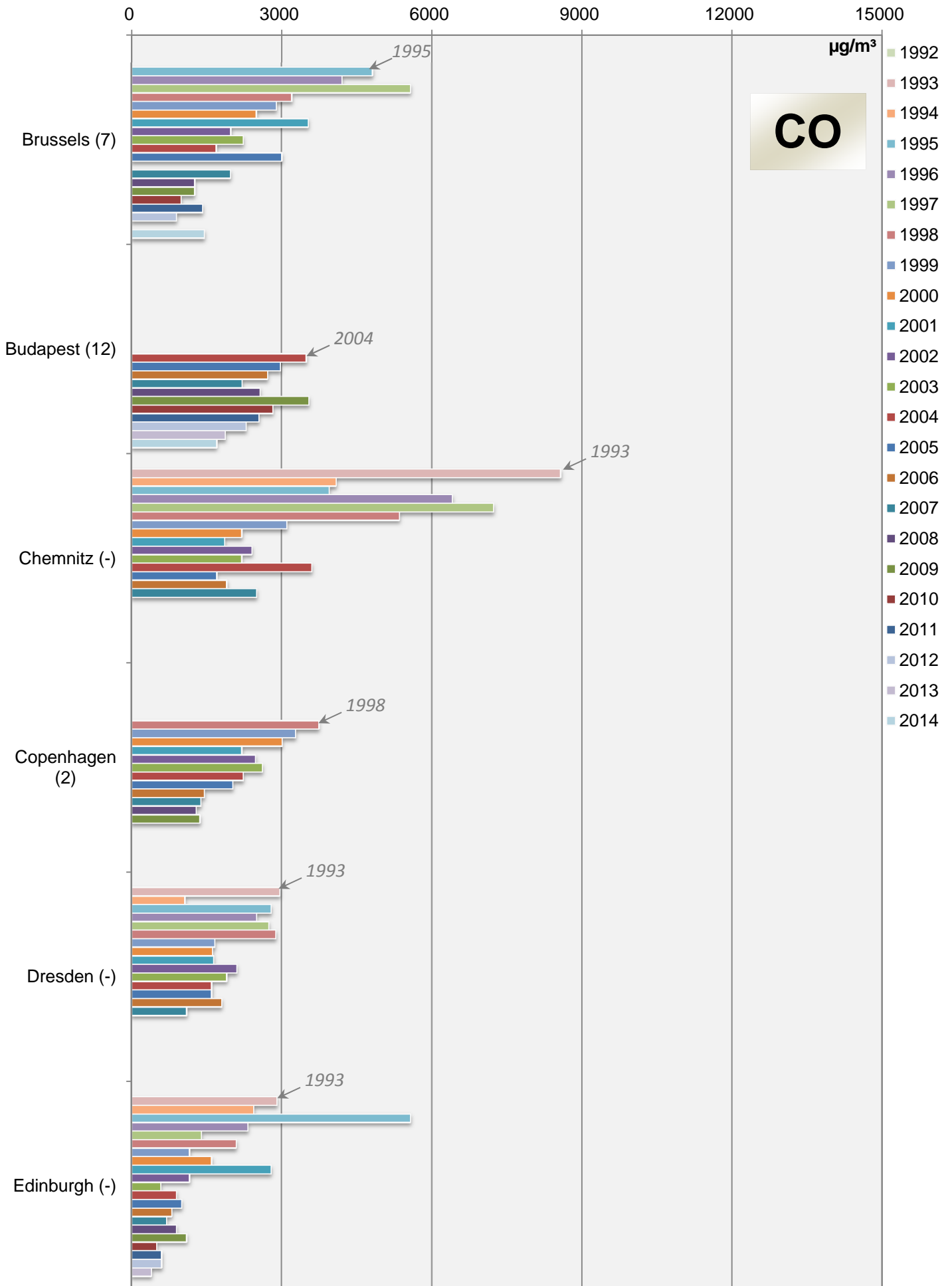


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

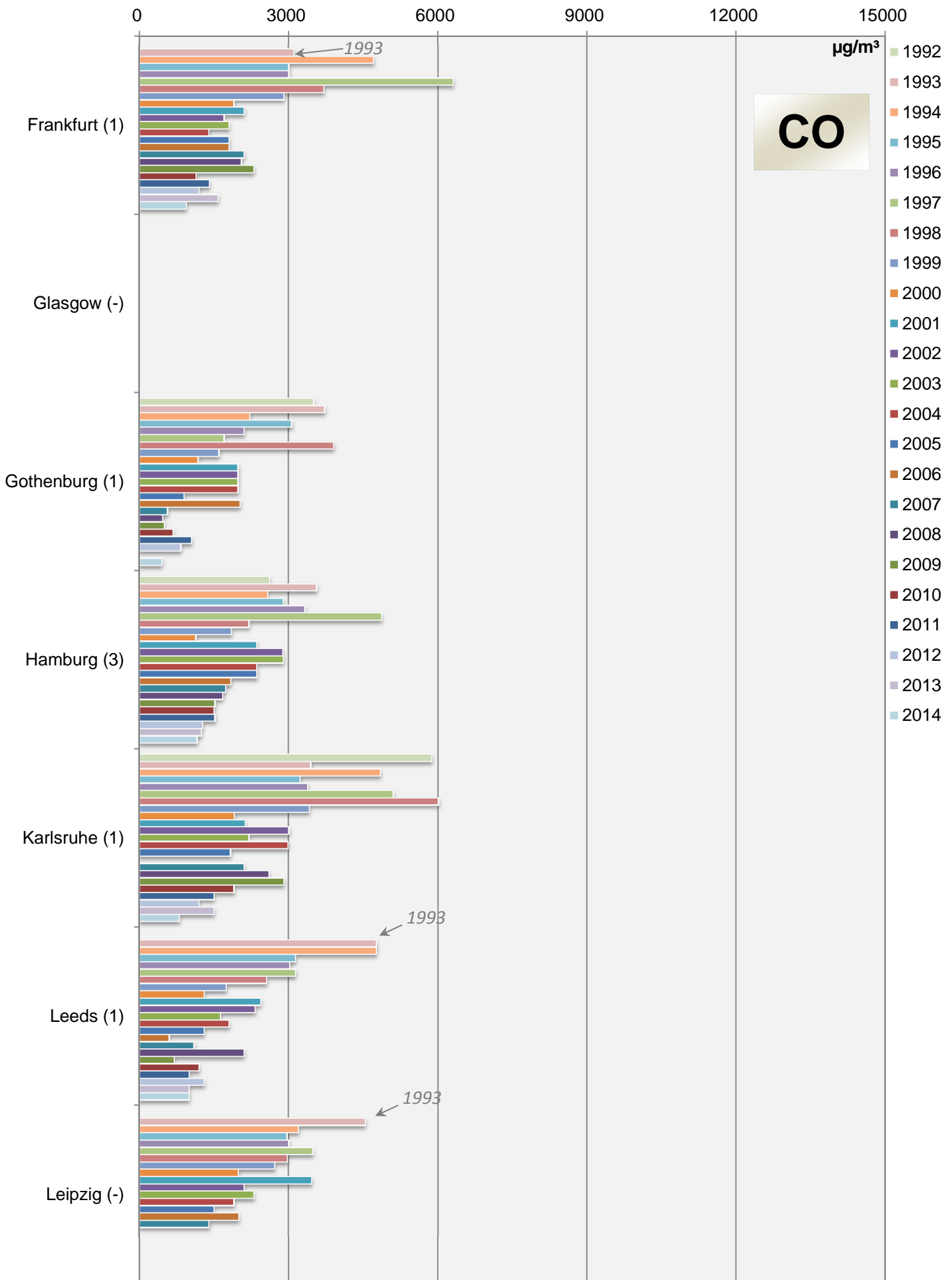


Comparison of The Air Quality 1992 - 2014

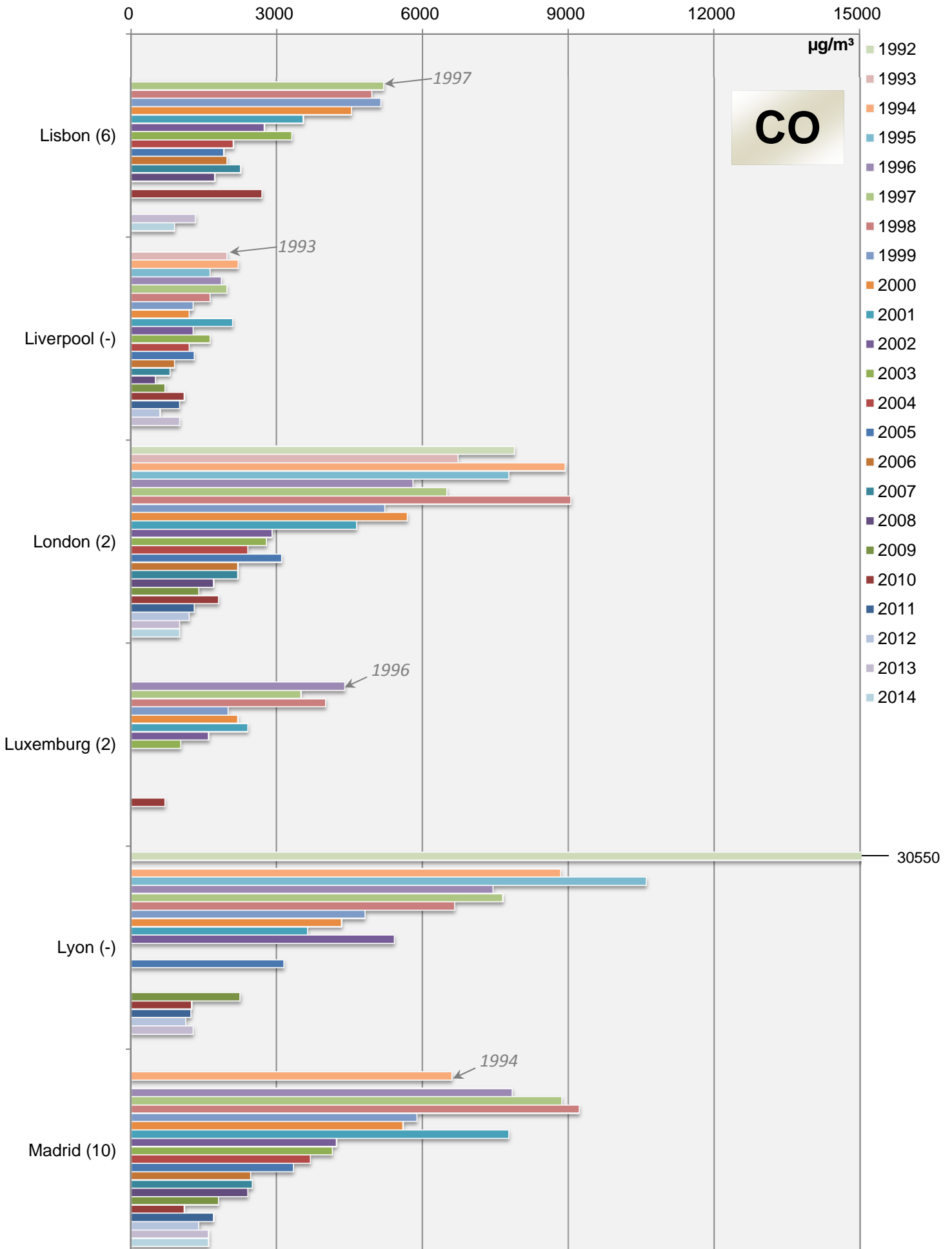
max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

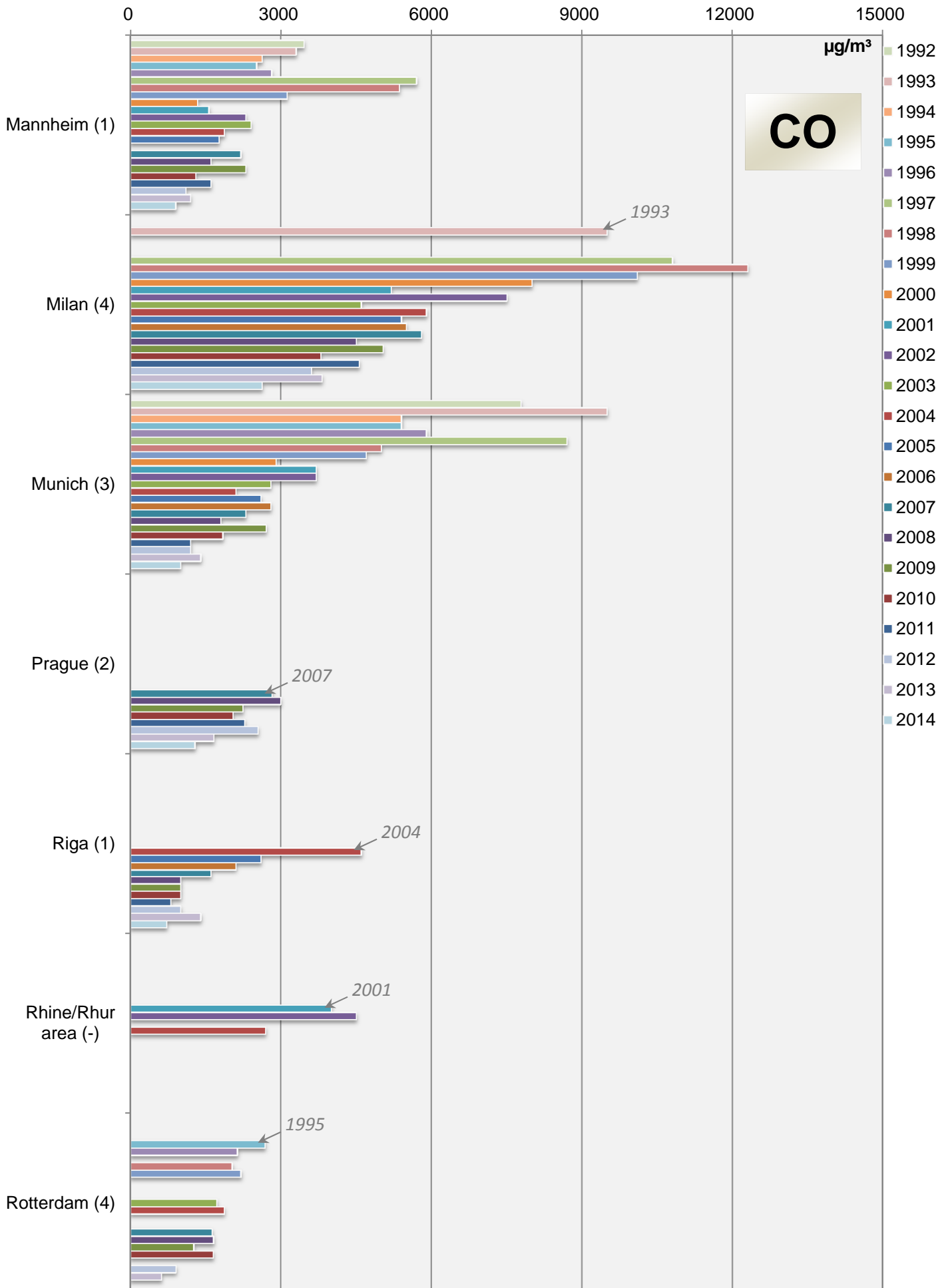


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)

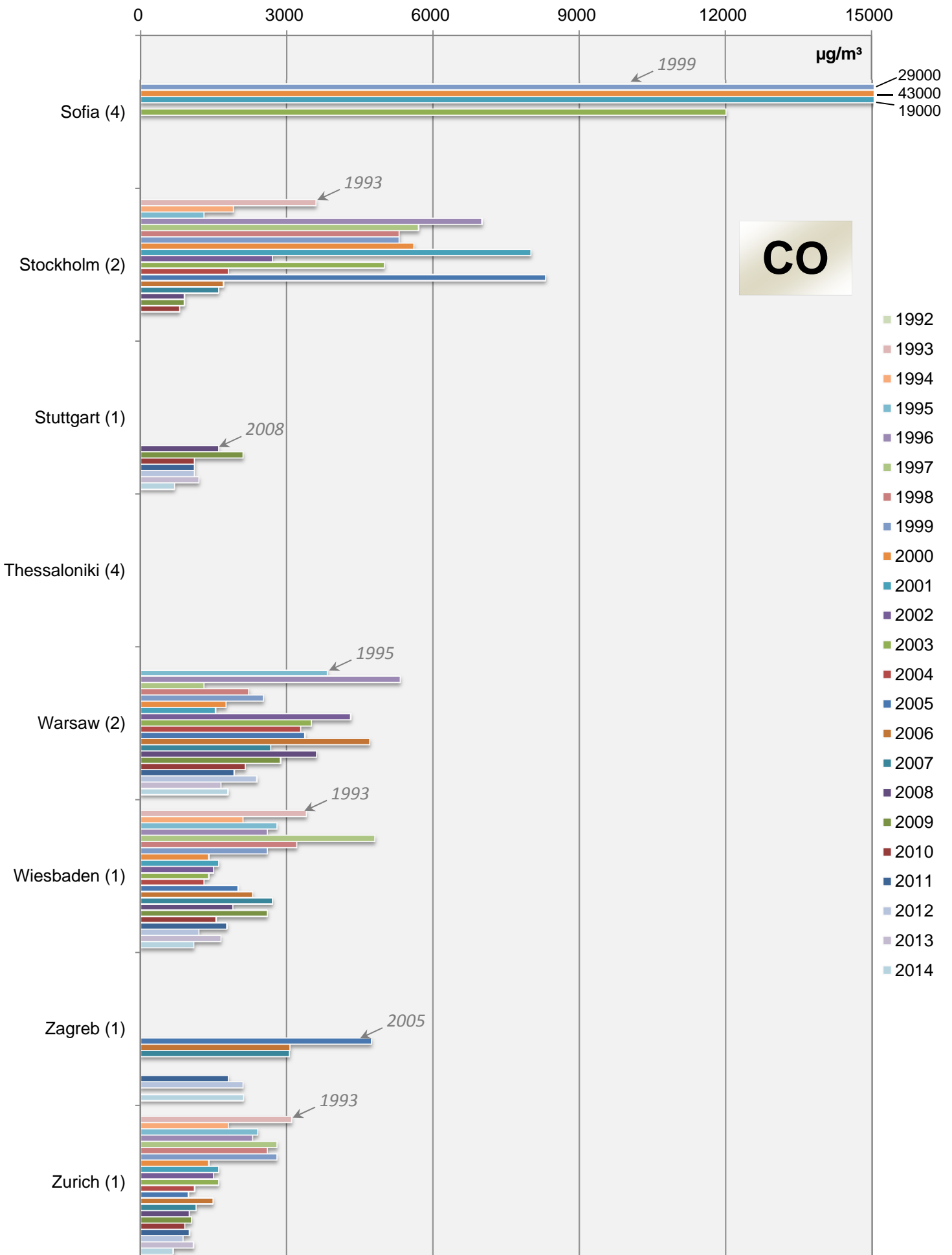


Comparison of The Air Quality 1992 - 2014

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

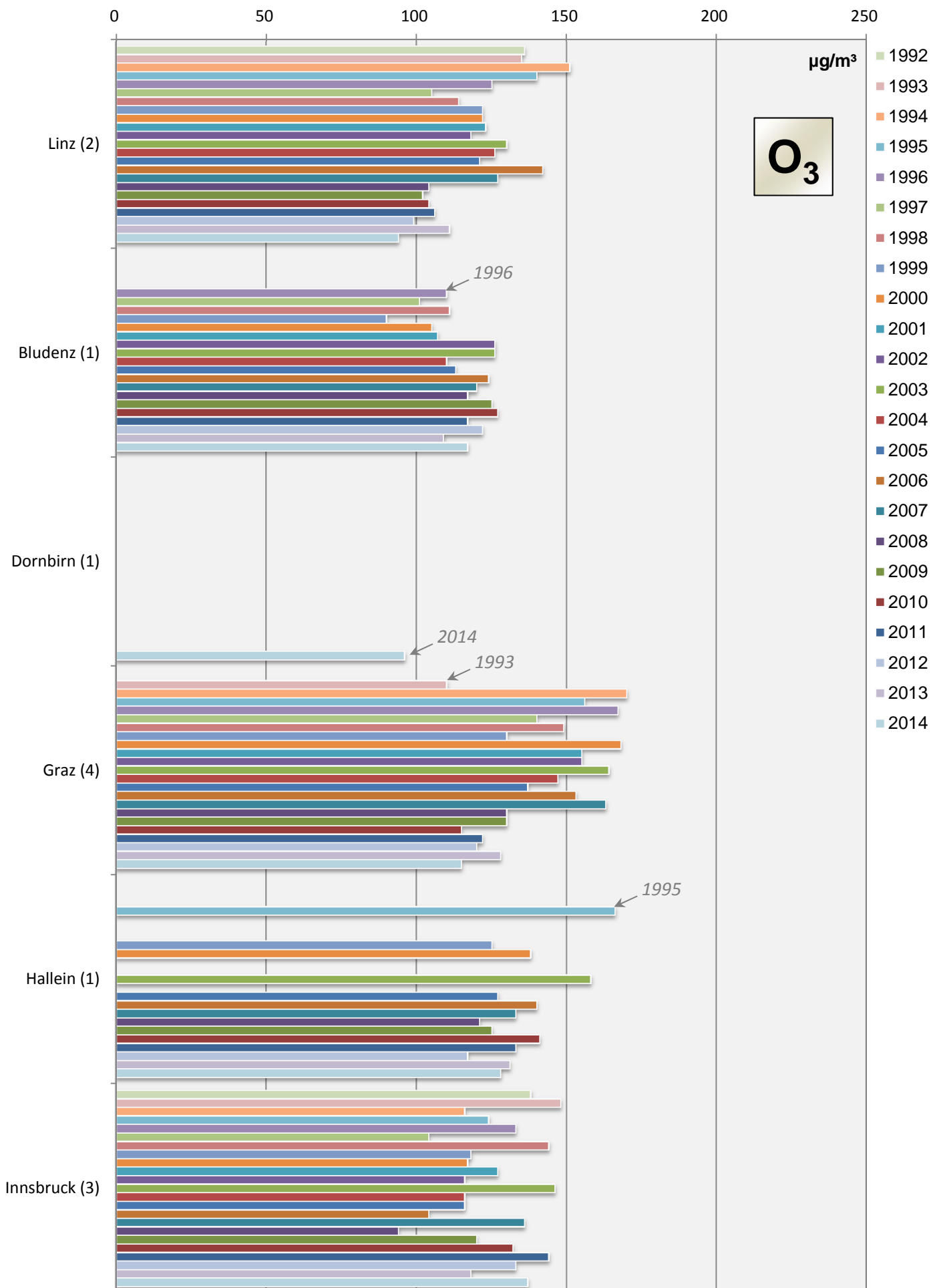


Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



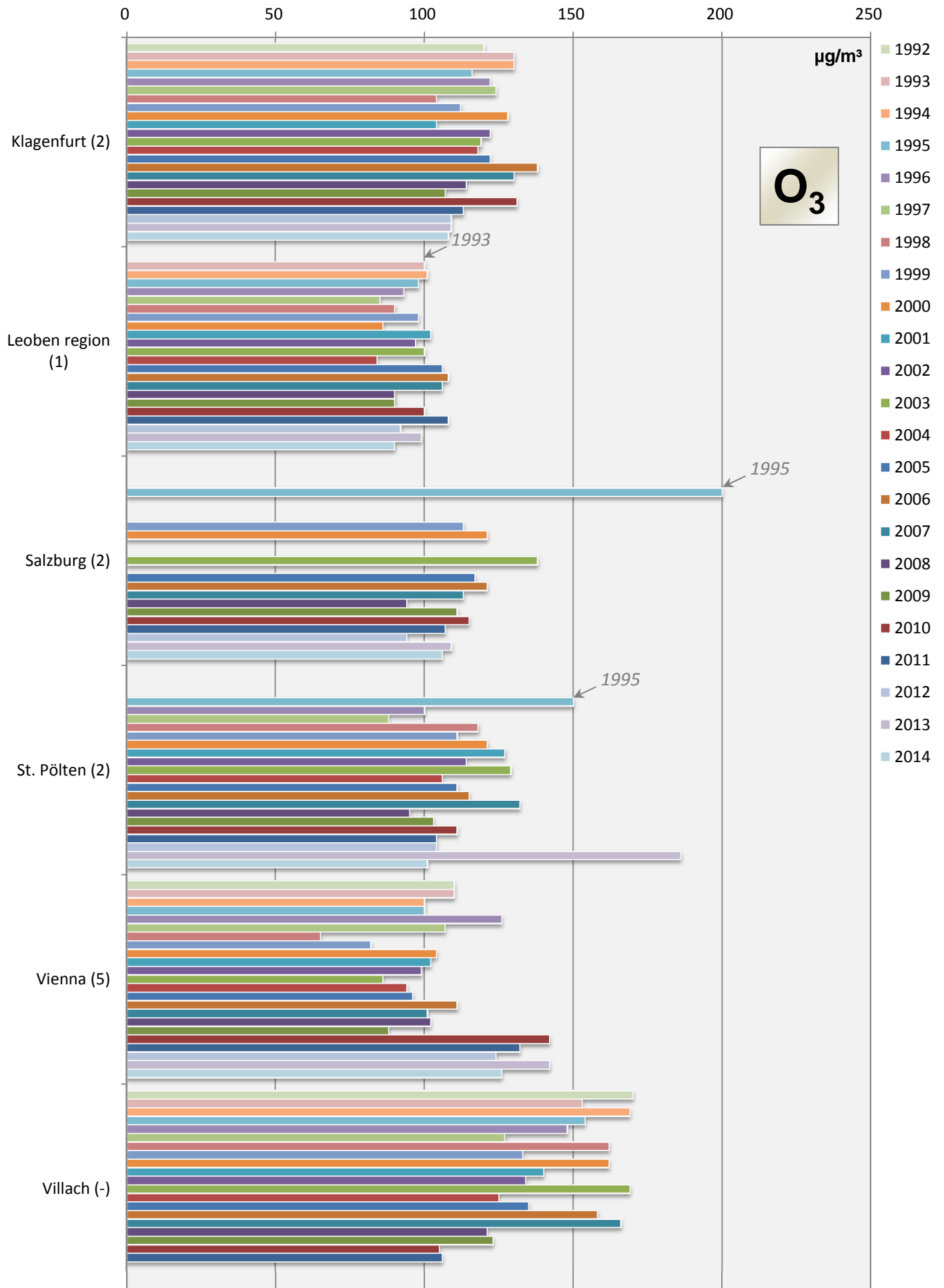
Comparison of The Air Quality 1992 - 2014

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



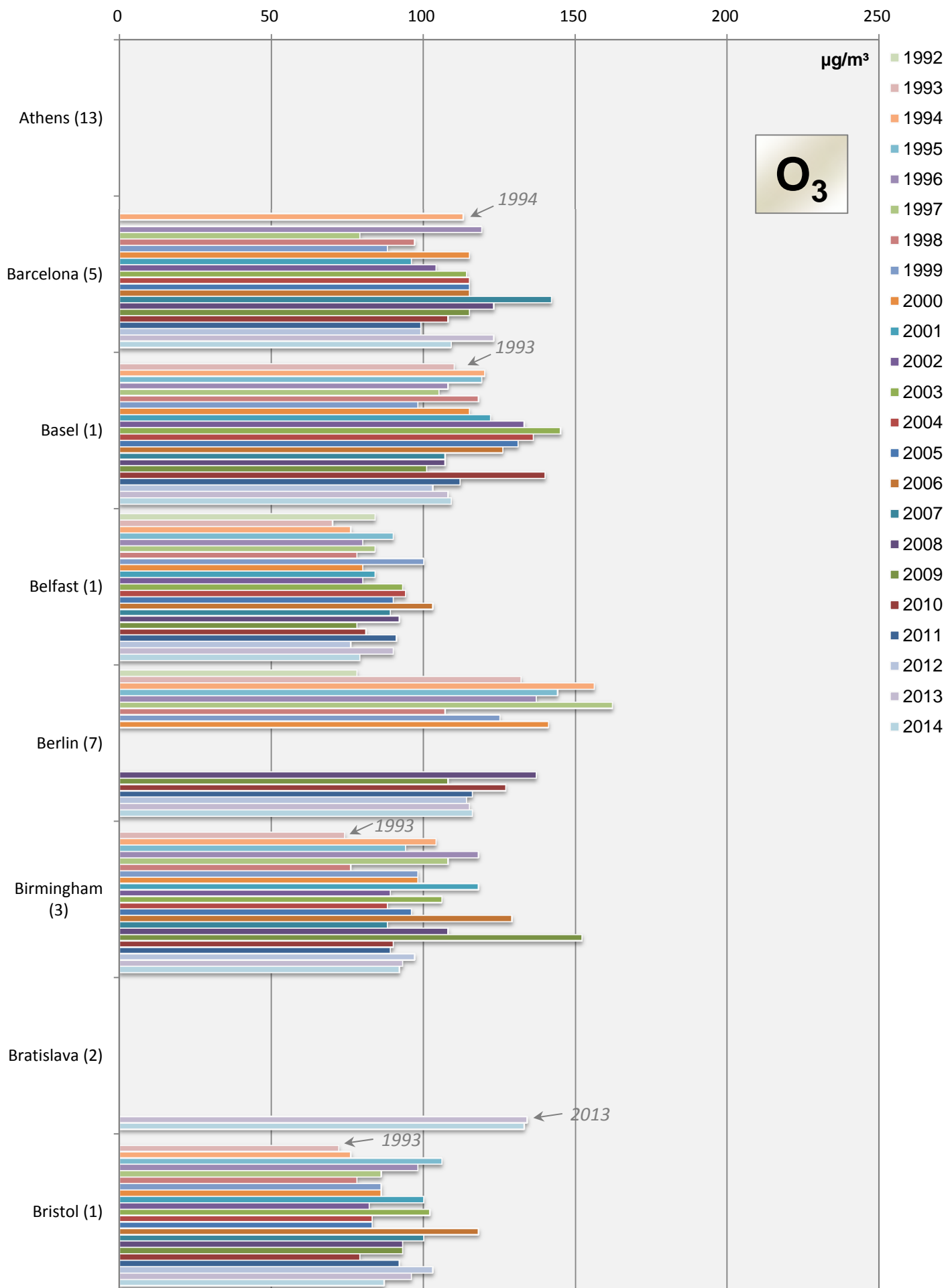
Comparison of The Air Quality 1992 - 2014

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



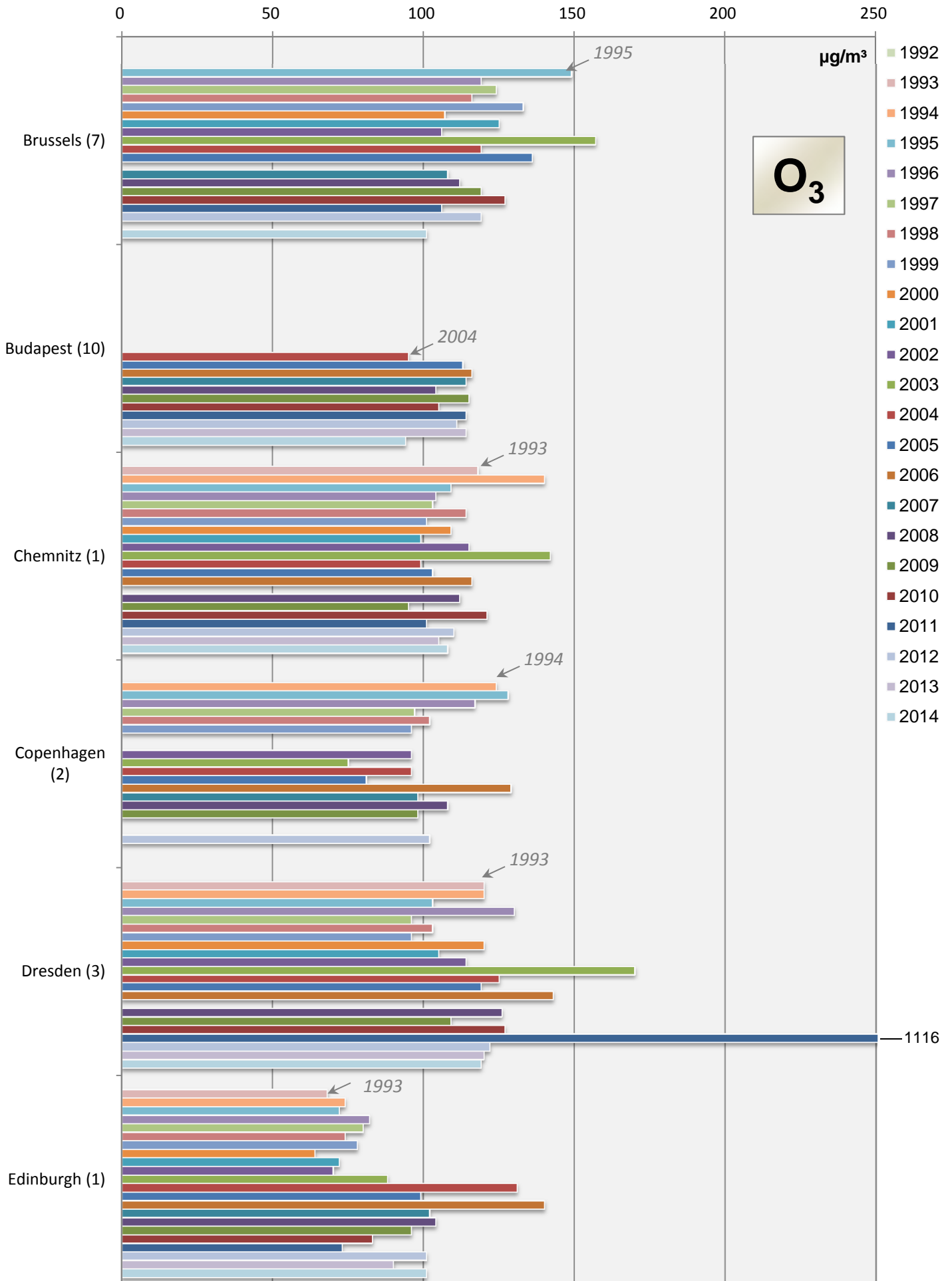
Comparison of The Air Quality 1992 - 2014

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

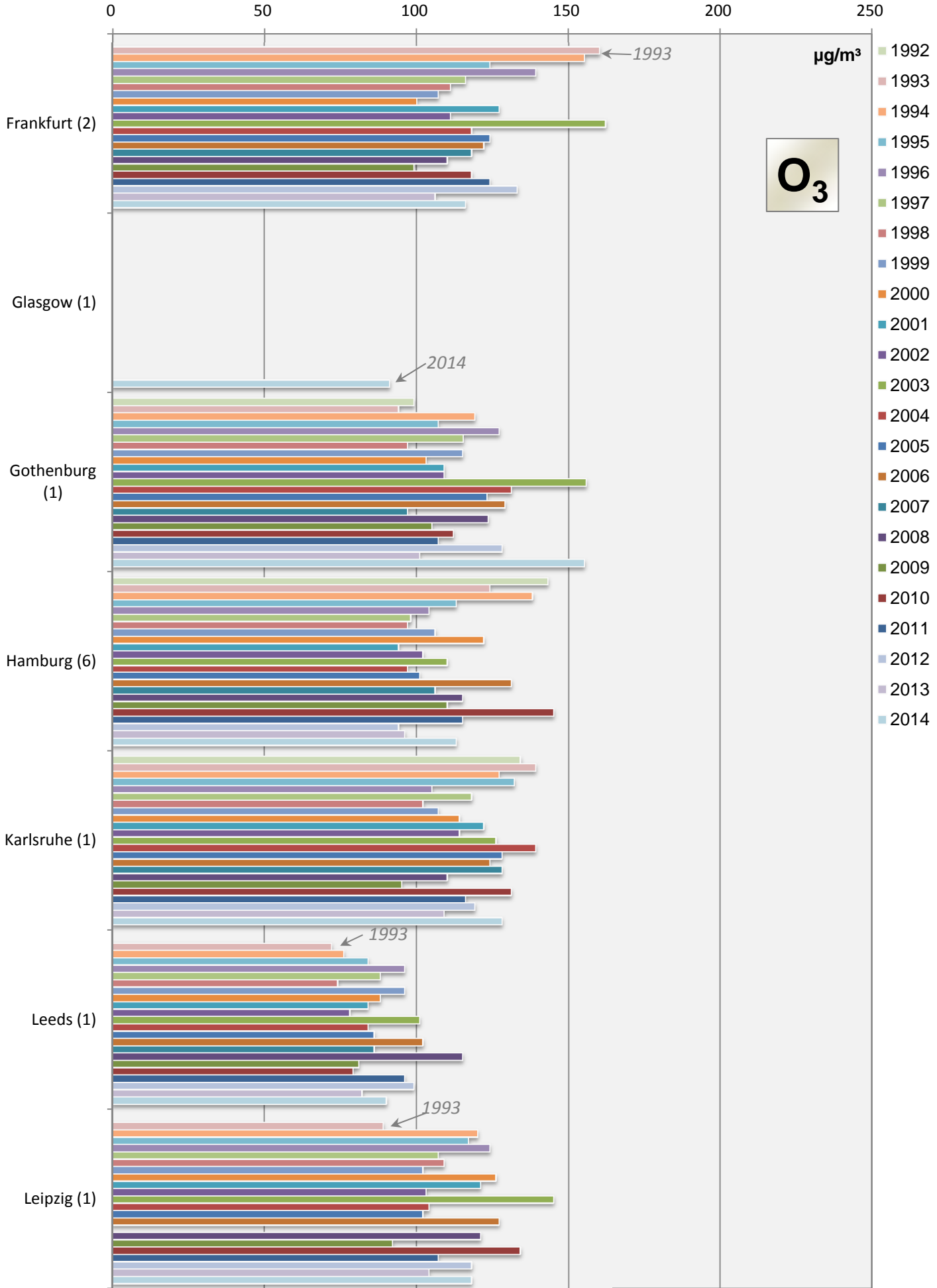


Comparison of The Air Quality 1992 - 2014

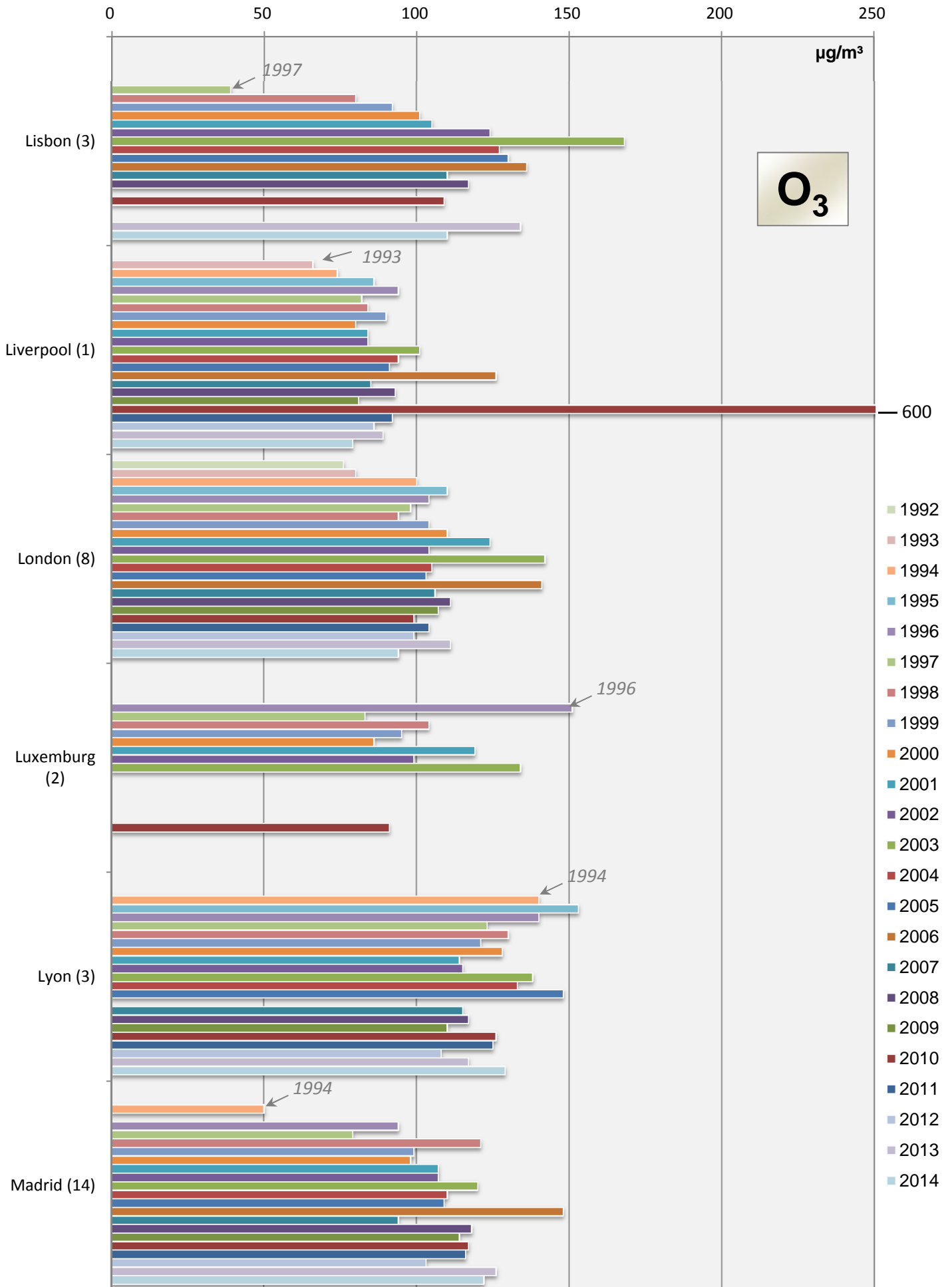
max. daily mean values (peak-stressed monitoring station)



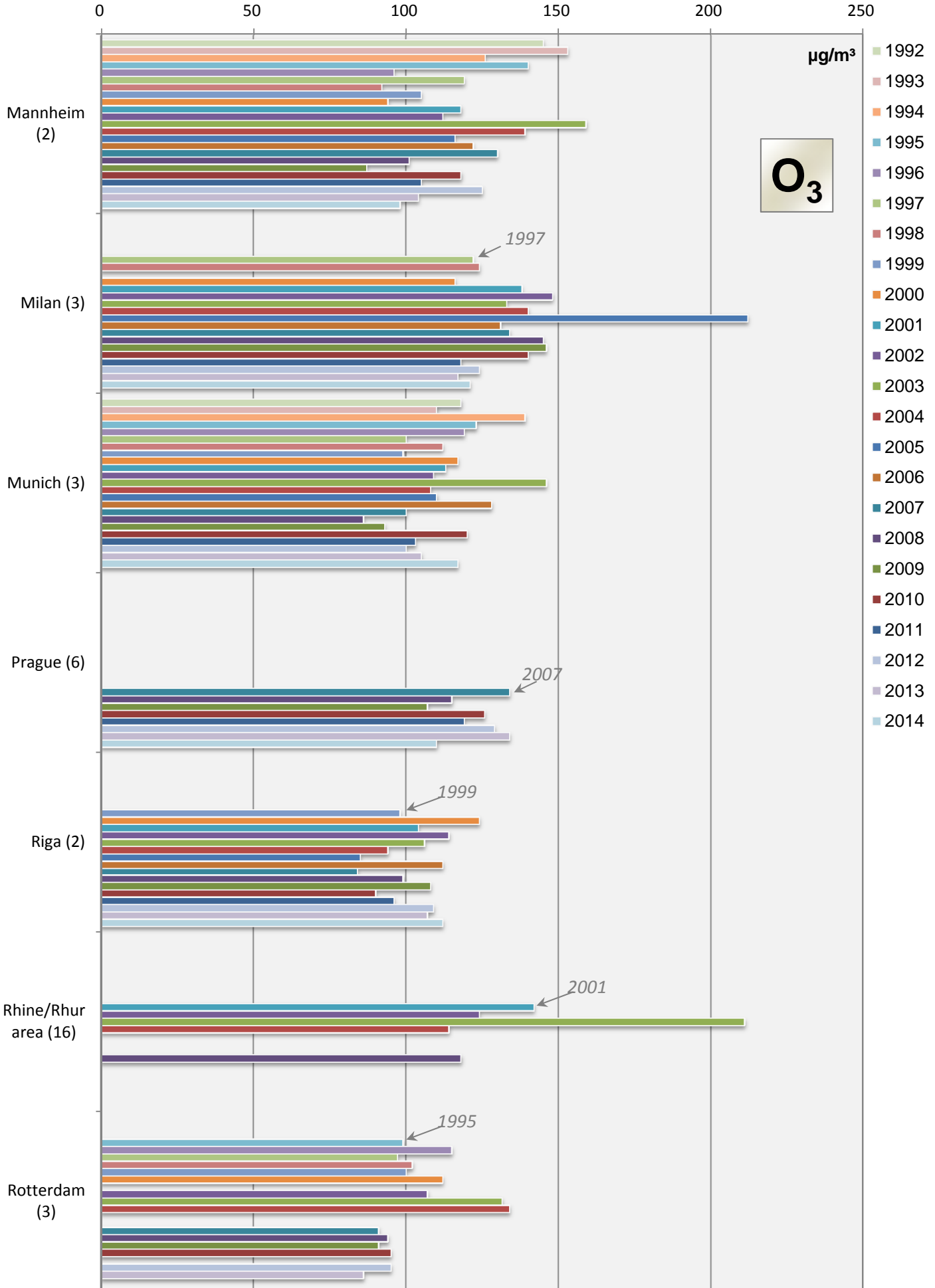
Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



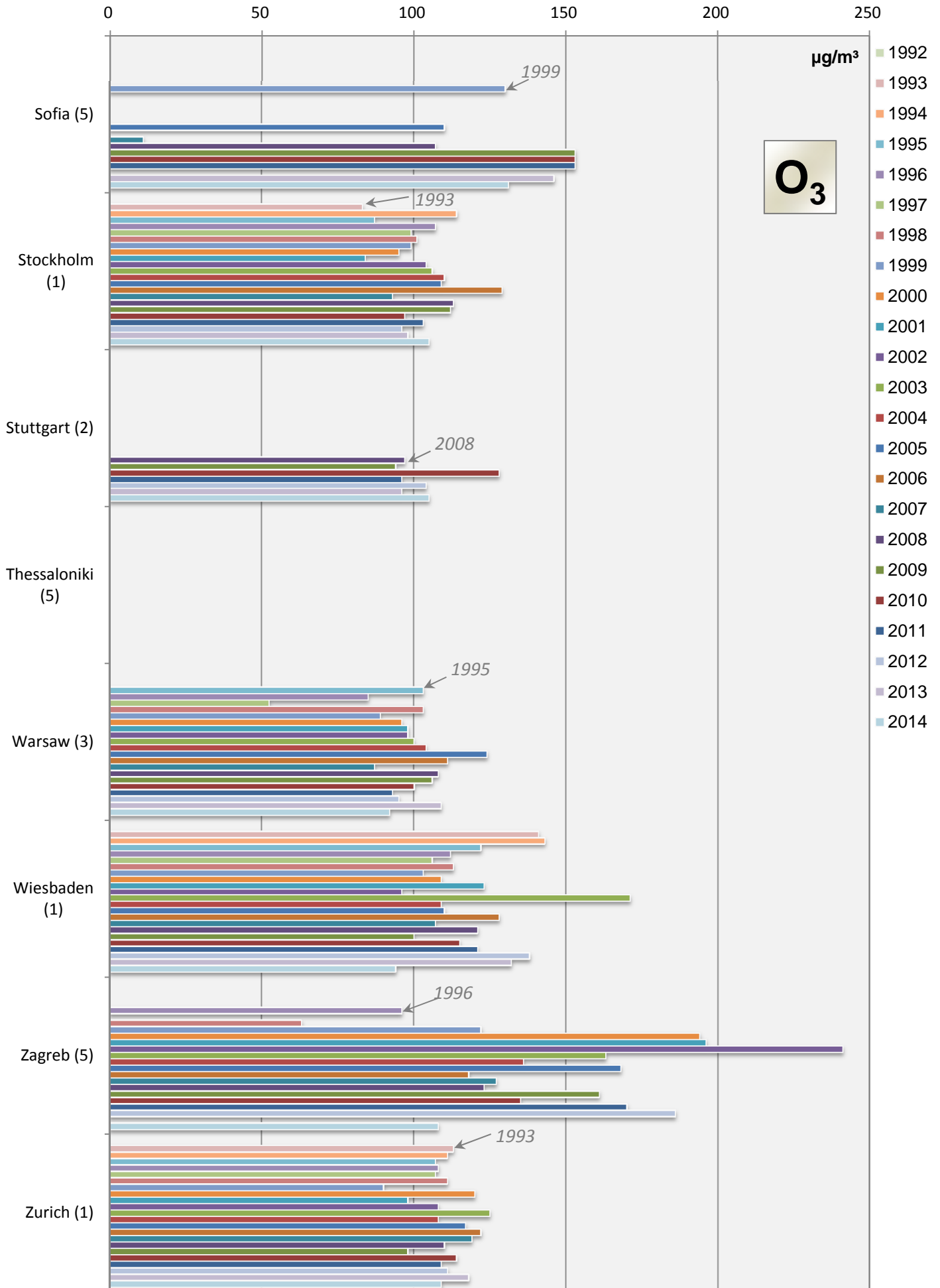
Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



Comparison of The Air Quality 1992 - 2014 max. daily mean values (peak-stressed monitoring station)



Jahresvergleich

1993 - 2014

Jahresmittelwerte, Σ SO₂, TSP/PM10, NO₂

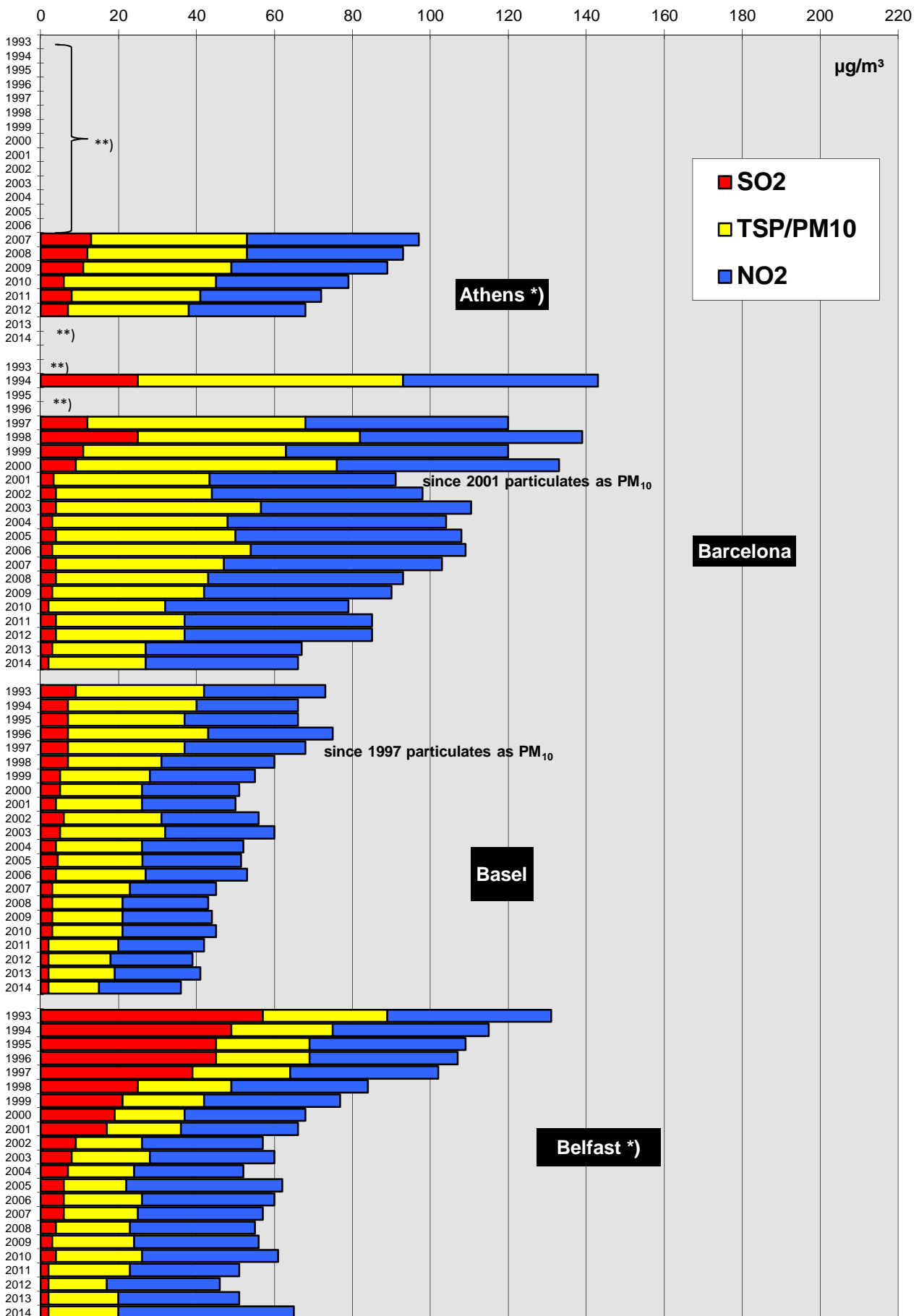
Comparison Of The Air Quality

1993 - 2014

Annual Mean Values, Σ SO₂, TSP/PM10, NO₂

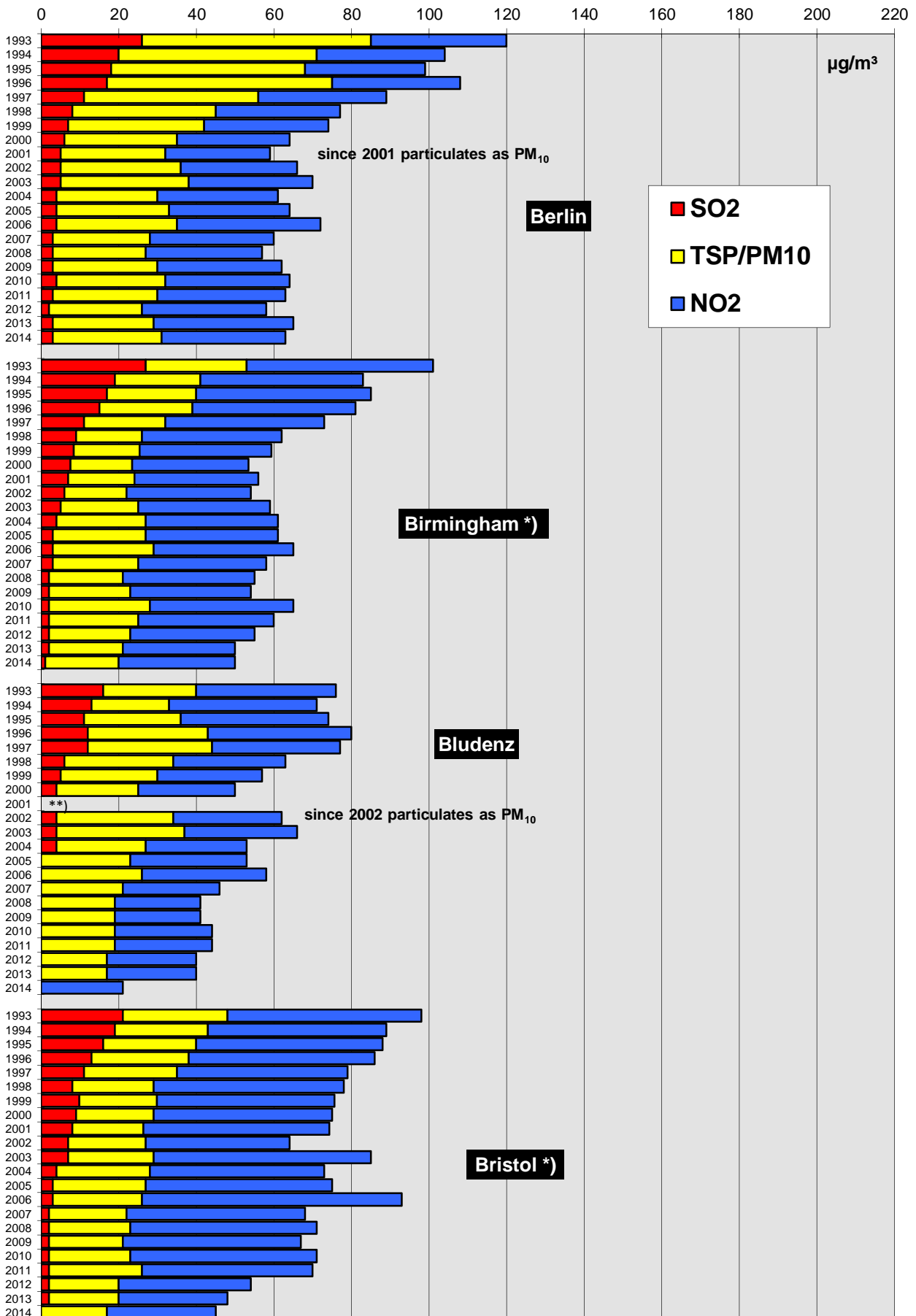
Comparison Of The Air Quality 1993-2014

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



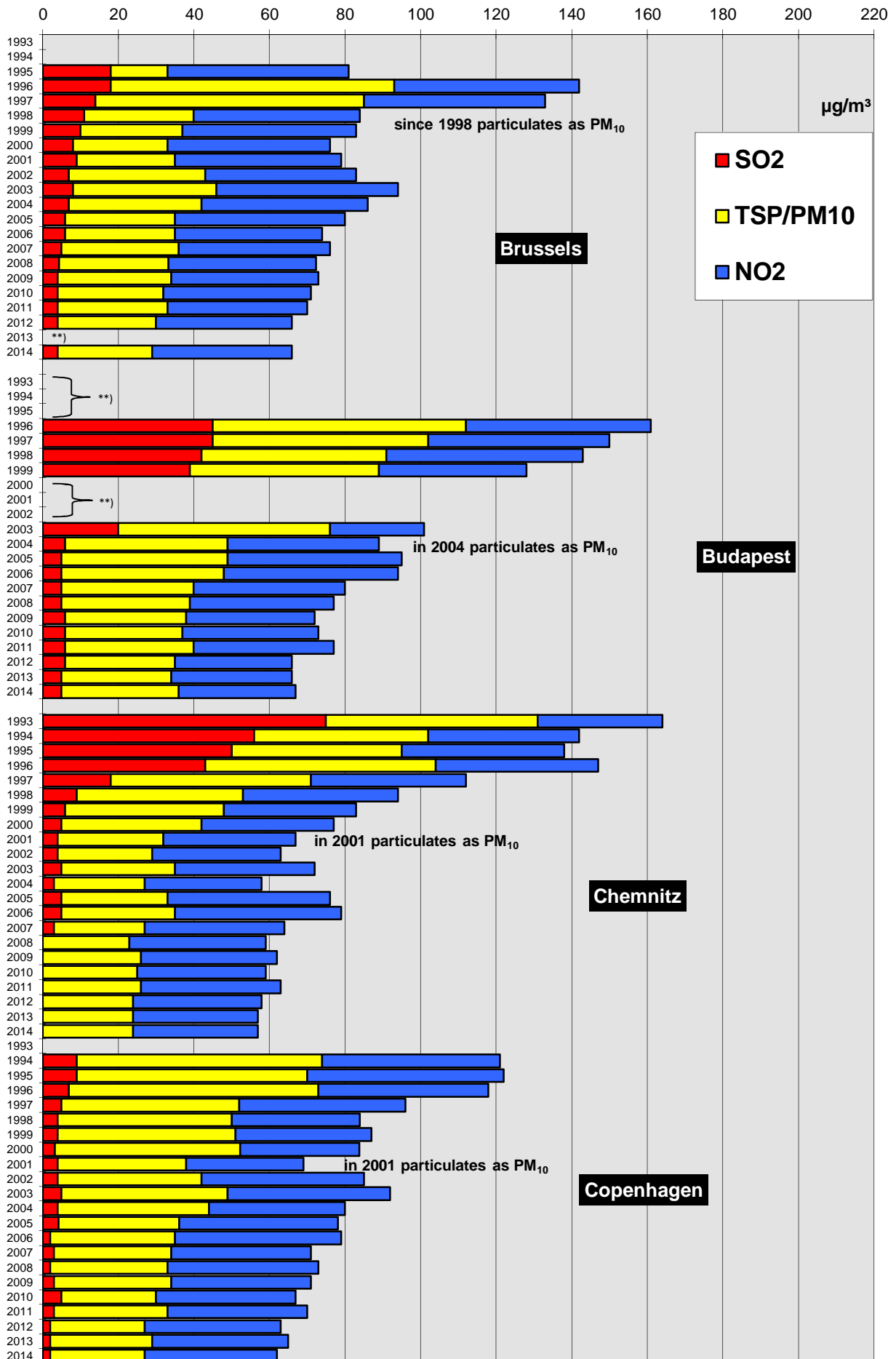
*) particulates calculated as PM₁₀ **) no data

Comparison Of The Air Quality 1993-2014 Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂ (mean of all monitoring stations)



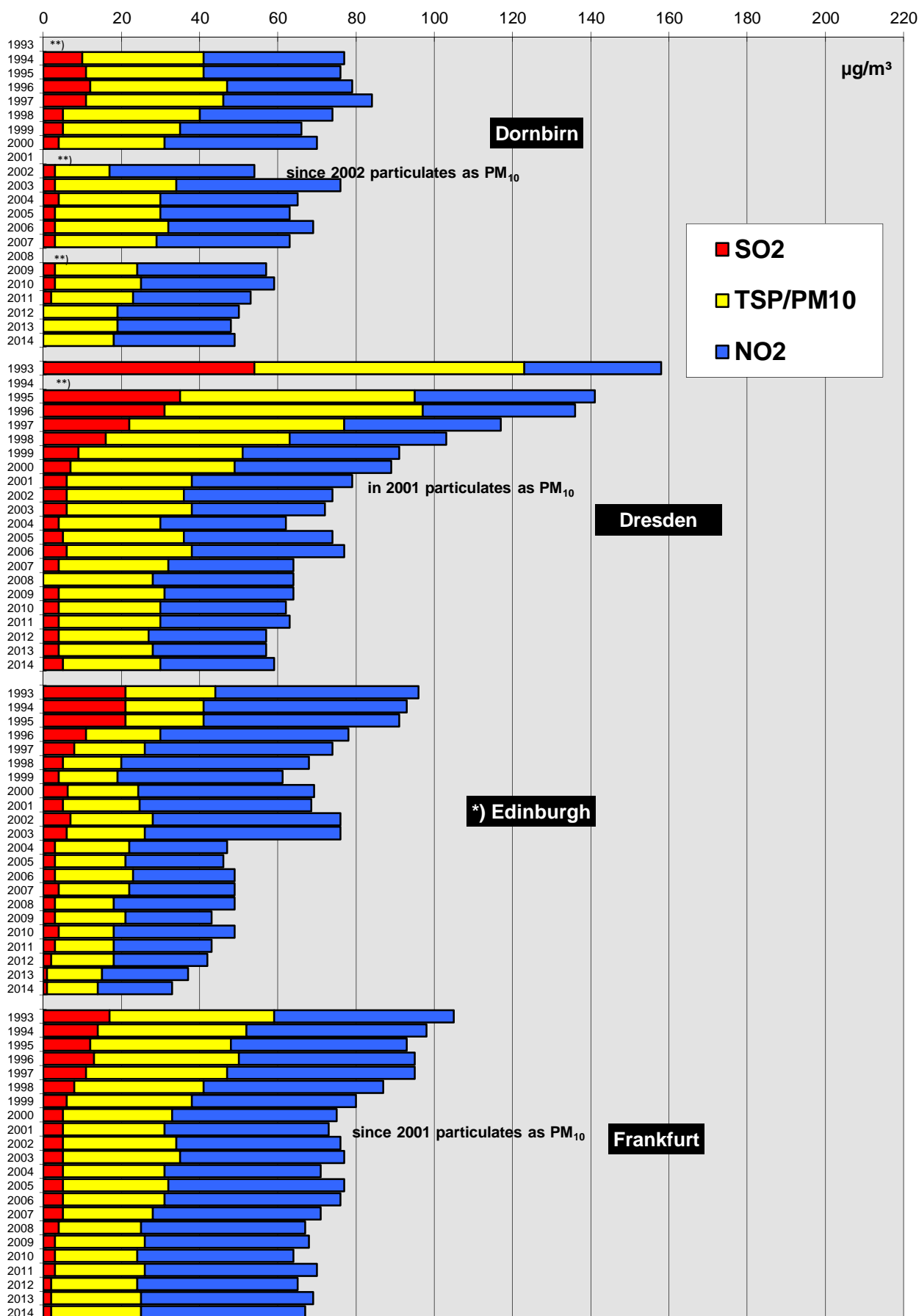
*) particulates calculated as PM₁₀ **) no data

Comparison Of The Air Quality 1993-2014 Development of the annual mean values Σ SO₂, TSP/PM₁₀, NO₂ (mean of all monitoring stations)



) particulates calculated as PM10 **) no data

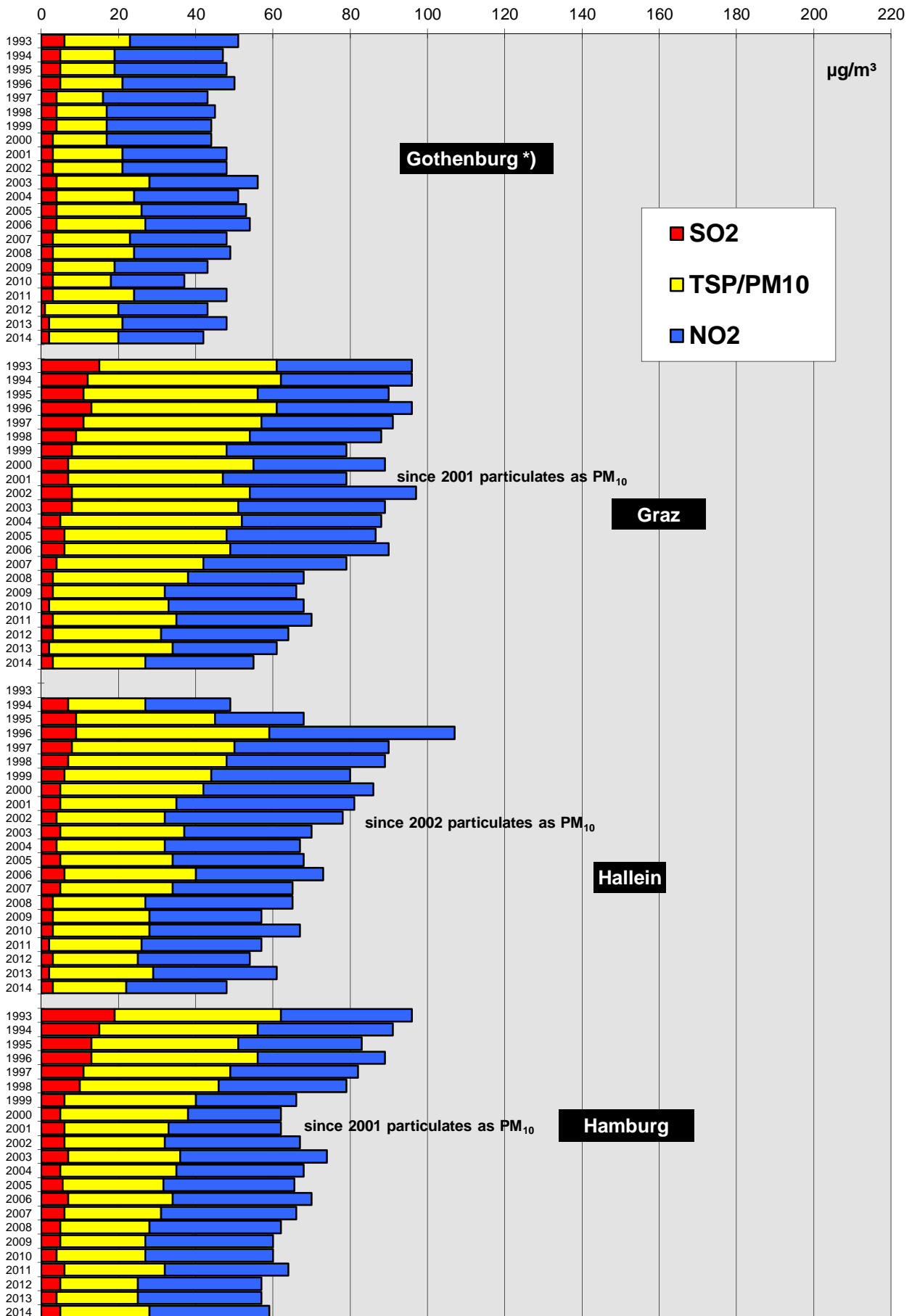
Comparison Of The Air Quality 1993-2014 Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂ (mean of all monitoring stations)



*) particulates calculated as PM₁₀ **) no data

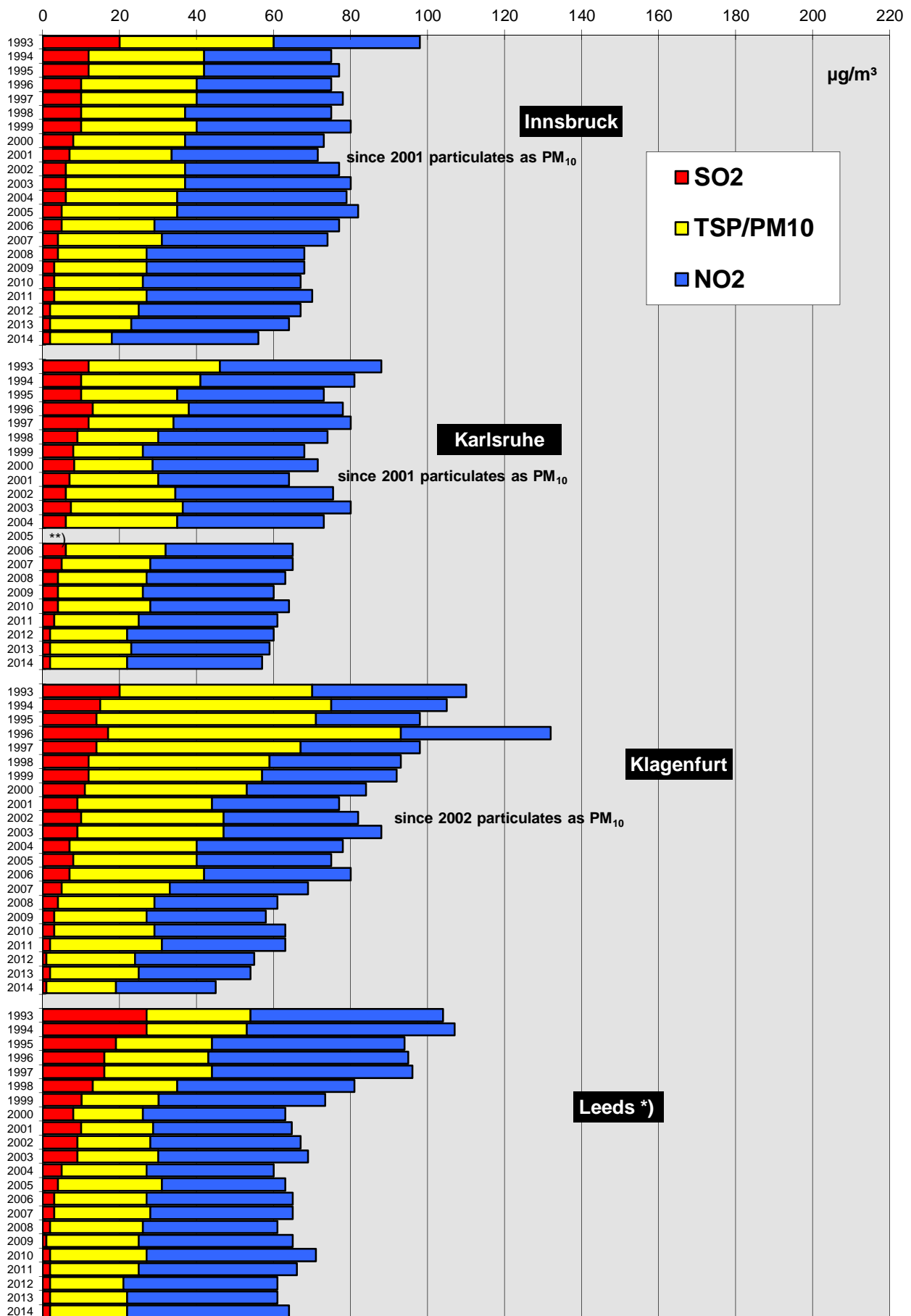
Comparison Of The Air Quality 1993-2014

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



*) particulates calculated as PM₁₀ **) no data

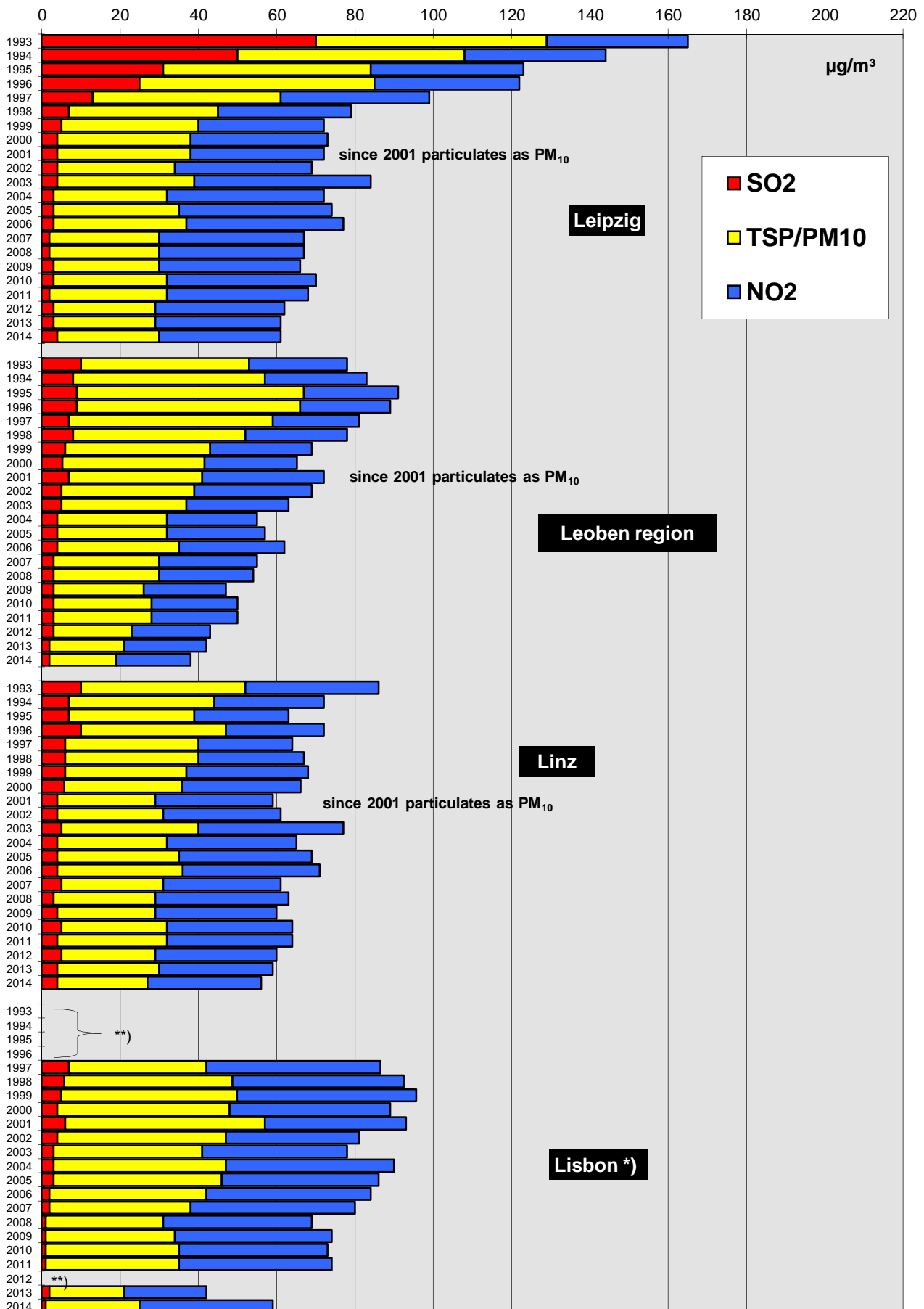
Comparison Of The Air Quality 1993-2014 Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂ (mean of all monitoring stations)



*) particulates calculated as PM₁₀ **) no data

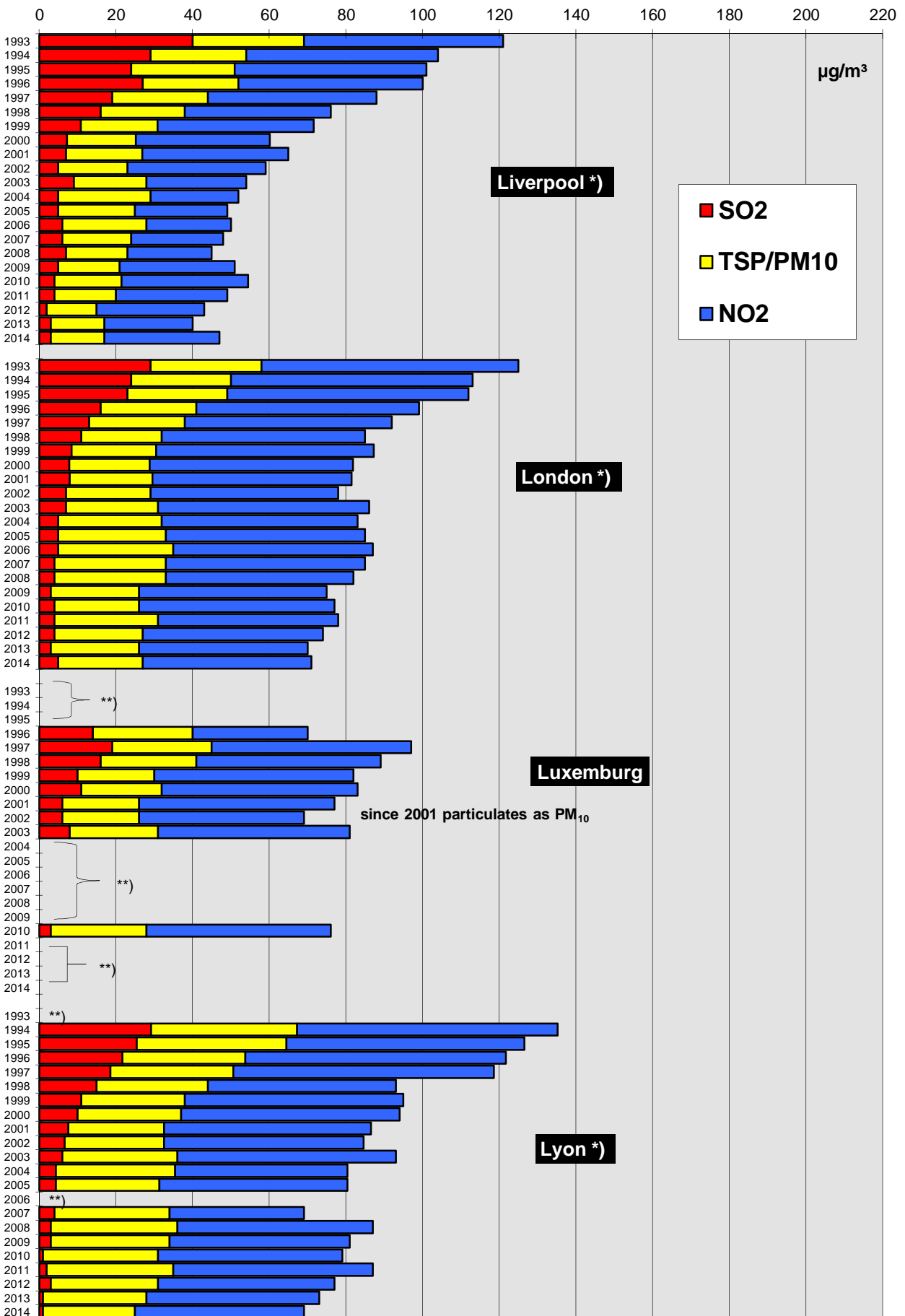
Comparison Of The Air Quality 1993-2014

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



*) particulates calculated as PM₁₀ **) no data

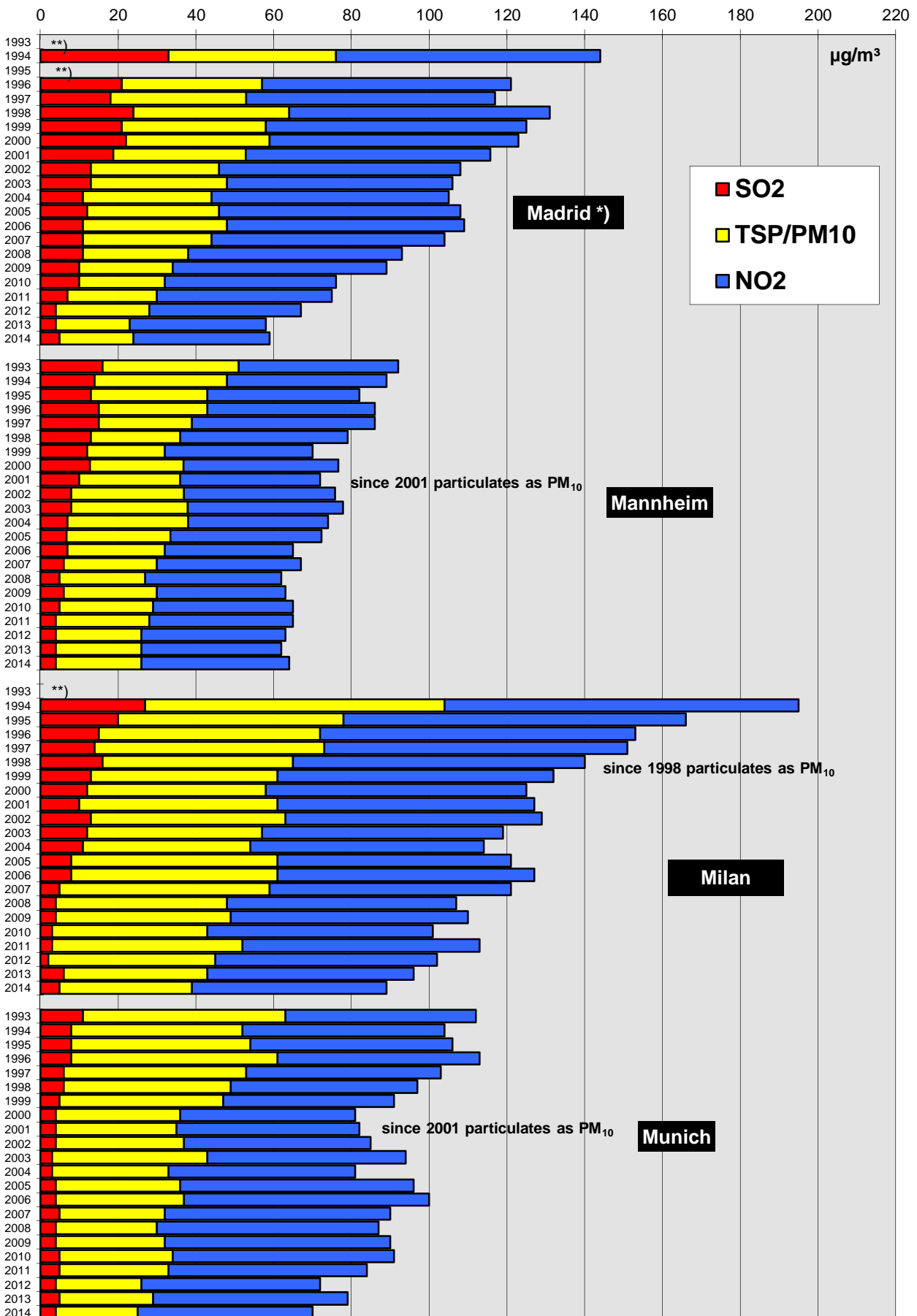
Comparison Of The Air Quality 1993-2014 Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂ (mean of all monitoring stations)



*) particulates calculated as PM₁₀ **) no data

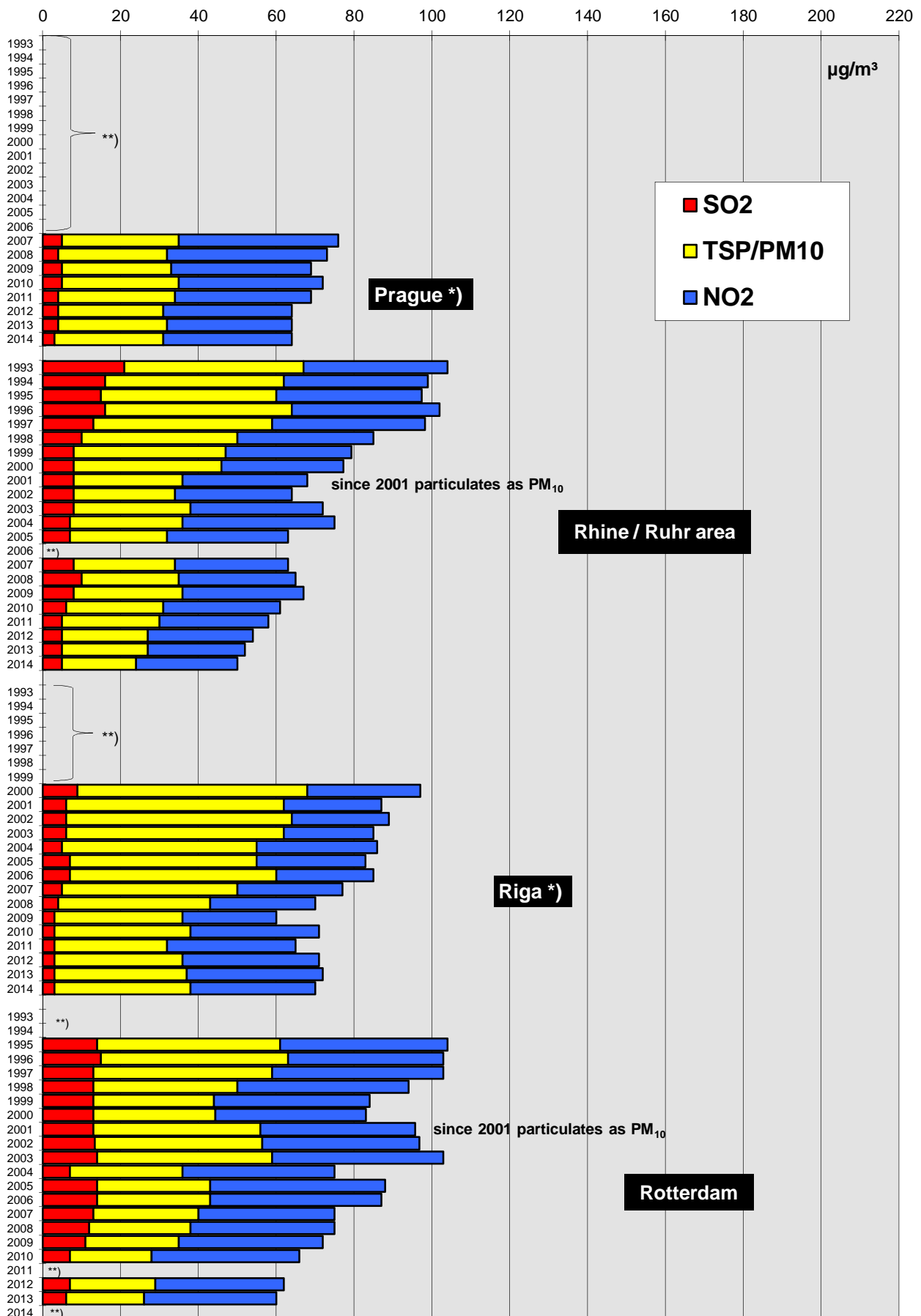
Comparison Of The Air Quality 1993-2014

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



*) particulates calculated as PM₁₀ **) no data

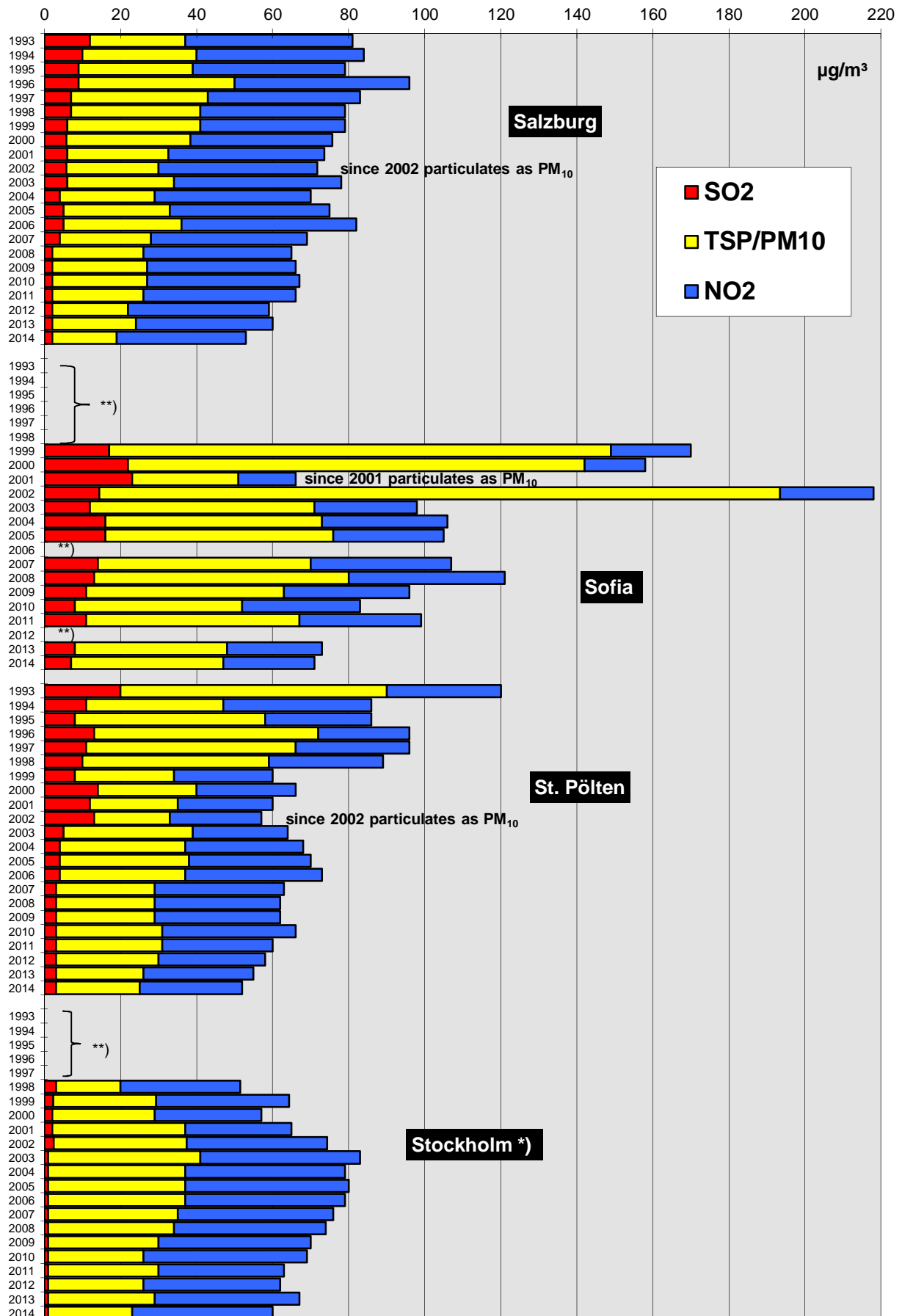
Comparison Of The Air Quality 1993-2014 Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂ (mean of all monitoring stations)



*) particulates calculated as PM₁₀ **) no data

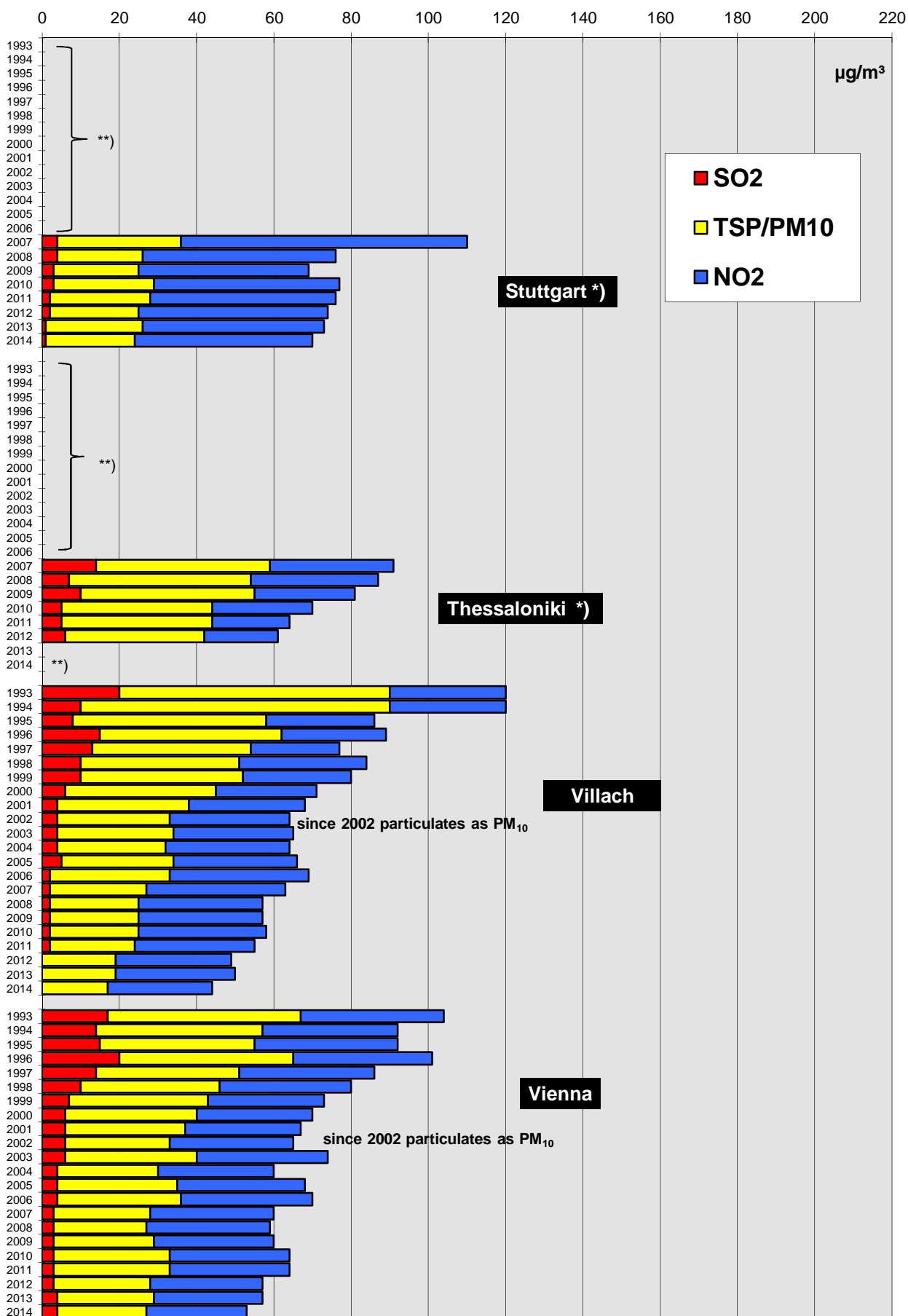
Comparison Of The Air Quality 1993-2014

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



*) particulates calculated as PM10 **) no data

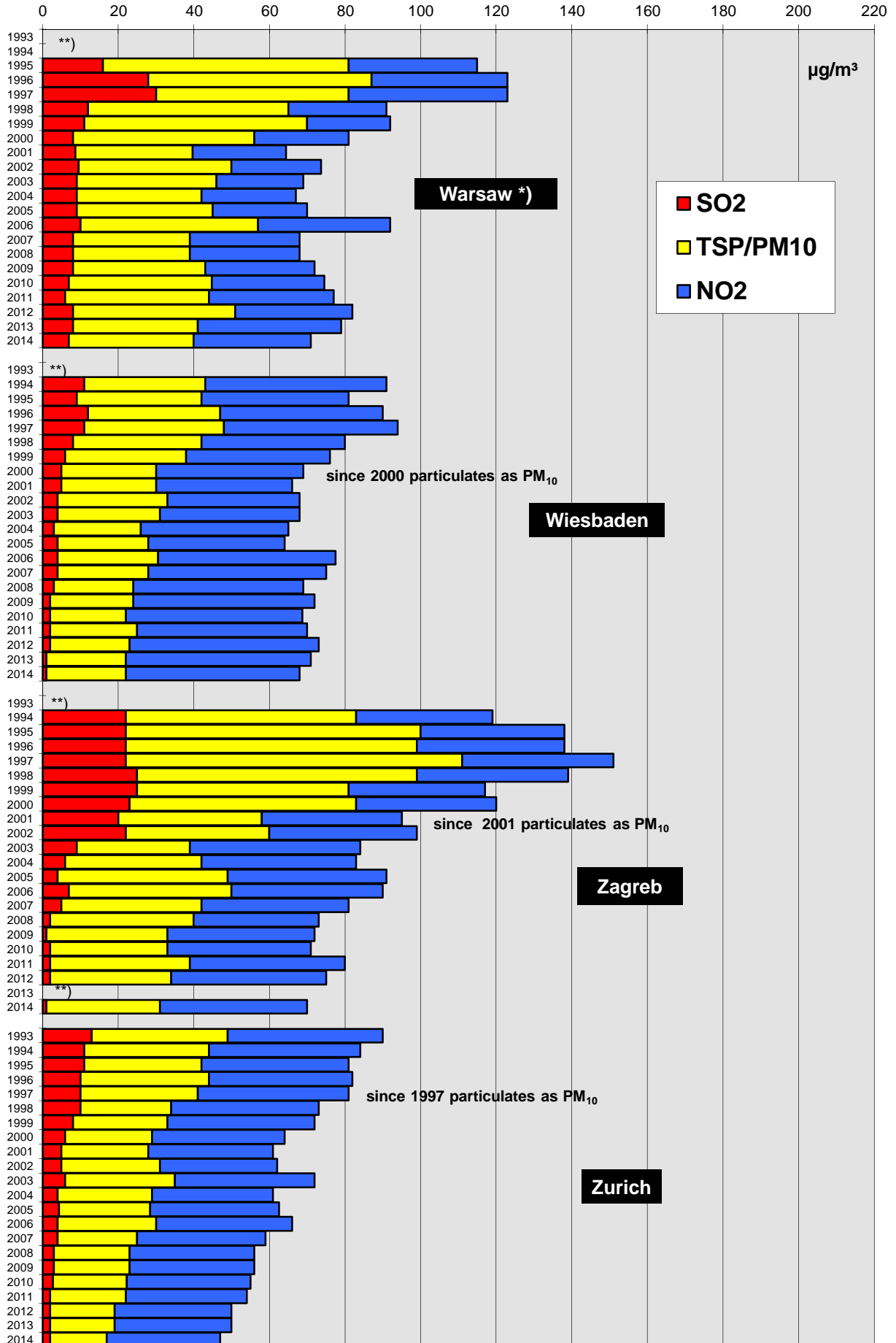
Comparison Of The Air Quality 1993-2014 Development of the annual mean values, Σ SO₂, TSP/PM₁₀, NO₂ (mean of all monitoring stations)



*) particulates calculated as PM₁₀ **) no data

Comparison Of The Air Quality 1993-2014

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



) particulates calculated as PM₁₀ **) no data

Luftgütekennzahlen 2014

der einzelnen

Vergleichsregionen

Immission Reference Values 2014

Of All Compared Regions

Comparison of The Air Quality in 2014

Athens

immission area: 1 948 km²

population: 3 551 370

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂								
PM ₁₀		No data for 2014!						
PM _{2,5}		No data for 2014!						
NO		No data for 2014!						
NO ₂		No data for 2014!						
CO		No data for 2014!						
O ₃								

PM ₁₀	Monitoring method(s) used:	
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	

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

Comparison of The Air Quality in 2014

Barcelona

immission area: 101 km²

population: 1 602 386

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]**	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³ ***
SO ₂	4	2	3	12	56	90	-	9
PM ₁₀ *	10	25	40	117	-	-	-	63
PM _{2,5} *	7	14	22	62	-	-	-	32
NO	7	17	54	183	369	461	-	167
NO ₂	7	39	65	113	166	202	-	115
CO	4	400	700	1700	2500	3500	-	1500
O ₃	5	46	78	109	147	150	-	113

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	N/A
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	19 ****
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	1 *****

Comments:

- * Gravimetric method
- ** Static average (not moving average)
- *** Maximum 98 percentile of hourly values, except PM₁₀ and PM_{2,5}, daily mean values
- **** Station: IJ-BARCELONA, GRACIA-SANT GERVASI (ES1480A, 8019044 / P90.4=42.2)
- ***** Station: (IJ-BARCELONA (GRACIA-SANT GERVASI), ES1480A,8019044) P99.8=156

Area and population of the municipalities of Barcelona (not metropolitan areas)

Minimum data capture of 75%, except for gravimetric PM₁₀ and PM_{2,5} with a minimum data capture of 45%

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

Comparison of The Air Quality in 2014

Basel

immission area: 557 km²

population: 501 285

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	3	8	27	58	83	6
PM ₁₀	1	13	24	59	102	145	148	42
PM _{2,5}	1	9	17	37	-	-	-	-
NO	1	6	16	42	117	124	145	45
NO ₂	1	21	32	53	80	89	99	58
CO	-	-	-	-	-	-	-	-
O ₃	1	47	84	109	158	172	172	123

PM ₁₀	Monitoring method(s) used:	β-Meter-measurements, calibrated with gravimetric measurements every 4 days
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	2
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Belfast

immission area: 115 km²

population: 336.830

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	2	6	-	-	-	5
PM ₁₀	2	18	27	59	-	-	-	42
PM _{2,5}	1	11	18	47	-	-	-	32
NO	2	39	93	317	-	-	-	185
NO ₂	2	45	69	130	-	-	-	99
CO	-	-	-	-	-	-	-	-
O ₃	1	38	51	79	-	-	-	64

PM ₁₀	Monitoring method(s) used:	TEOM (FDMS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	5
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	5

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

Comparison of The Air Quality in 2014

Berlin (outskirt stations) immission area: 892 km² population: 3 421 829*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	3	23	32	80	-	364 ^(b)	-	59
PM _{2,5} ^(a)	1	19	31	73	-	-	-	52
NO	5	3	6	26	-	102	-	23
NO ₂	5	14	22	44	-	85	-	41
CO	-	-	-	-	-	-	-	-
O ₃	5	45	68	106	-	180	-	116

PM ₁₀	Monitoring method(s) used:	PM ₁₀ Beta-absorption
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1.21
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	20
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Berlin (traffic stations)

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	3	5	14	-	98	-	11
PM ₁₀	5	31	44	151	-	1796 ^(b)	-	73
PM _{2,5} ^(a)	1	22	33	131	-	-	-	56
NO	6	48	72	148	-	507	-	181
NO ₂	6	51	62	117	-	208	-	113
CO	2	500	590	1010	-	2400	-	1000
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	Beta-absorption (2 stations); Light Scattering (3 stations)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1 and 1.21
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	48
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	3

Comments: *source: annual book 2014; Amt für Statistik Berlin-Brandenburg

(a) PM_{2,5}: mean or max. values from daily values (gravimetric measurement)

(b) Max. 1h mean caused by New Year's Eve fireworks

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

Comparison of The Air Quality in 2014

Berlin (urban stations)

 immission area: 892 km²

population: 3 421 829*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	4	15	-	60	-	12
PM ₁₀	3	26	38	109	-	618 ^(b)	-	68
PM _{2,5} ^(a)	3	20	32	76	-	-	-	57
NO	5	8	16	57	-	233	-	55
NO ₂	5	26	37	73	-	148	-	67
CO	-	-	-	-	-	-	-	-
O ₃	2	41	68	116	-	186	-	113

PM ₁₀	Monitoring method(s) used:	Beta-absorption (2 stations); Light Scattering (1 station)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1 and 1.21
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applic.):	34 ^(c)
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments:

*source: annual book 2014; Amt für Statistik Berlin-Brandenburg

(a) PM_{2,5}: mean or max. values from daily values (gravimetric measurement)

(b) Max. 1h mean caused by New Year's Eve fireworks

(c) Number of limit violations of the daily mean standard of 50 µg/m³ at the highest urban Station: 5 from 34 days of violations of limit on the urban station „Amrumerstraße“ are substitute values. An intern definition of the Berliner-monitoring network regulates this substitute values.

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

Comparison of The Air Quality in 2014

Birmingham

immission area: 268 km²

population: 1.101.360

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	1	2	11	-	-	-	3
PM ₁₀	2	19	31	116	-	-	-	54
PM _{2,5}	3	13	24	98	-	-	-	44
NO	3	22	88	407	-	-	-	176
NO ₂	3	30	65	143	-	-	-	94
CO	-	-	-	-	-	-	-	-
O ₃	3	39	59	92	-	-	-	77

PM ₁₀	Monitoring method(s) used:	TEOM (FDMS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	8
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	5

Bludenz

immission area: 30 km²

population: 14 005

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	-	-	-	-	-	-	-	-
PM _{2,5}	-	-	-	-	-	-	-	-
NO	1	13	38	129	266	280	426	98
NO ₂	1	21	37	61	96	108	131	62
CO	-	-	-	-	-	-	-	-
O ₃	1	45	80	117	147	150	152	118

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	2
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

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

Comparison of The Air Quality in 2014

Bratislava

immission area: 368 km²

population: 419 678

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	4	6	12	20	68	-	11
PM ₁₀	4	28	44	98	118	275	-	78
PM _{2,5}	-	-	-	-	-	-	-	-
NO	3	20	48	117	190	486	-	132
NO ₂	3	25	47	80	119	159	-	89
CO	1	656	1052	1439	1737	2293	-	1290
O ₃	2	54	81	133	151	161	-	124

PM ₁₀	Monitoring method(s) used:	TEOM
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	41
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Bristol

immission area: 110 km²

population: 432.451

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	1	17	25	39	-	-	-	65
PM _{2,5}	1	13	18	59	-	-	-	44
NO	1	13	33	214	-	-	-	90
NO ₂	1	28	39	82	-	-	-	58
CO	-	-	-	-	-	-	-	-
O ₃	1	44	59	87	-	-	-	73

PM ₁₀	Monitoring method(s) used:	TEOM (FDMS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	4
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

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

Comparison of The Air Quality in 2014

Brussels

 immission area: 161 km²

population: 1 167 951 (01.2015)

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per day, hour [µg/m ³]
SO ₂	7	4	8	28	-	77	83	-
PM ₁₀	6	25	54	127	-	347	397	-
PM _{2,5}	5	16	36	90	-	117	118	-
NO	10	20	96	303	-	1183	1192	-
NO ₂	10	37	82	138	-	277	285	-
CO	7	254	491	1450	-	3780	7140	-
O ₃	7	39	65	101	-	157	160	-

PM ₁₀	Monitoring method(s) used:	TEOM model 1400ab + FDMS 8500 & TEOM 1405DF
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	33
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	3

Budapest

 immission area: 525 km²

population: 1 745 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year ^{2,3,4} [µg/m ³]
SO ₂	10	5	10	22	44	47	-	16
PM ₁₀	12	31	58	126	223	248	-	109
PM _{2,5}	1	19	45	108	148	170	-	76
NO	12	18	44	157	395	424	-	153
NO ₂	12	31	58	107	158	212	-	112
CO	12	518	835	1700	2486	2874	-	1339
O ₃	10	33	71	94	159	168	-	115

PM ₁₀	Monitoring method(s) used:	β-absorption
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	60
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	1

Comments:

⁴: Max 98 percentile per year based on hourly values

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

Comparison of The Air Quality in 2014

Chemnitz

 immission area: 221 km²

population: 241 210

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	2	24	47	95	327	605	-	75
PM _{2,5}	1	17	30	70	-	-	-	-
NO	2	39	70	156	156	416	-	204
NO ₂	2	33	51	89	89	172	-	98
CO	-	-	-	-	-	-	-	-
O ₃	1	45	60	108	108	170	-	119

PM ₁₀	Monitoring method(s) used:	gravimetrically (High-Volume-Sampler, micro balance)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	see comments
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	36
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments:

 *Equivalent factors for the PM₁₀ – monitoring method:

station	PM ₁₀ -HVS	PM ₁₀ -TEOM
Chemnitz-Leipziger Straße	1.10	1.20 + f (temperature, humidity)
Chemnitz-Mitte	1.05	1.00 + f (temperature, humidity)
Chemnitz-Nord	1.10	1.00 + f (temperature, humidity)

The measurement of SO₂ on station "Chemnitz-Mitte" stopped 1/1/2008.
 The measurement of CO stopped in 2008 at all monitoring sites.

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

Comparison of The Air Quality in 2014

Copenhagen

immission area: 88 km²

population: 528 208

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	-	-	-	20	-	8
PM ₁₀	3	25	-	95	-	-	-	-
PM _{2,5}	3	16	-	69	-	-	-	-
NO	-	-	-	-	-	-	-	-
NO ₂	3	35	-	-	-	-	-	110
CO	2	302	-	-	-	1362	-	815
O ₃	2	47	-	-	-	171	-	-

PM ₁₀	Monitoring method(s) used:	Gravimetrically , TEOM						
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:							
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	26						
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0						

Dornbirn

immission area: 121 km²

population: 47 420

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	1	18	27	81	162	169	731	57
PM _{2,5}	1	12	18	53	115	125	587	42
NO	1	26	48	115	209	320	357	127
NO ₂	1	31	41	65	105	126	137	77
CO	-	-	-	-	-	-	-	-
O ₃	1	38	75	96	139	155	159	107

PM ₁₀	Monitoring method(s) used:	gravimetrically						
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1						
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	3						
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0						

Comments: Max. 1/2h-mean values were caused by New Year's Eve Fireworks.

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

Comparison of The Air Quality in 2014

Dresden

immission area: 328 km²

population: 530 754

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	5	10	25	44	54	-	17
PM ₁₀	4	25	45	92	167	237	-	71
PM _{2,5}	3	17	29	69	-	-	-	-
NO	4	25	88	243	243	672	-	261
NO ₂	4	29	60	137	137	312	-	136
CO	-	-	-	-	-	-	-	-
O ₃	3	44	76	119	119	172	-	120

PM ₁₀	Monitoring method(s) used:	Gravimetrically (High-Volume-Sampler, micro balance)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	see comments
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	36
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	9

Comments:

*Equivalent factors for the PM₁₀ – monitoring method:

station	PM ₁₀ -HVS	PM ₁₀ -TEOM
Dresden-Bergstr.	1.10	1.20 + f (temperature, humidity)
Dresden-Nord.	1.10	1.00 + f (temperature, humidity)
Dresden-Winckelmannstr.	1.00	1.00 + f (temperature, humidity)
Dresden-Wahnsdorf	1.05	1.00 + f (temperature, humidity)

The measurement of CO stopped in 2008 at all monitoring sites.

The measurement of SO₂ stopped in 2008 at the monitoring station "Radebeul-Wahnsdorf".

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

Comparison of The Air Quality in 2014

Edinburgh (St. Leonhards)

 immission area: 262 km²

population: 492.680

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	1	4	11	-	-	-	5
PM ₁₀	1	13	19	44	-	-	-	32
PM _{2,5}	1	9	15	39	-	-	-	25
NO	1	5	9	35	-	-	-	15
NO ₂	1	19	29	45	-	-	-	41
CO	-	-	-	-	-	-	-	-
O ₃	1	55	73	101	-	-	-	87

PM ₁₀	Monitoring method(s) used:	TEOM (FDMS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	0
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Frankfurt (urban stations)

 immission area: 248 km²

population: 708 543

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	3	7	25	57	69	7
PM ₁₀	2	21	35	130	457**	591**	676**	65
PM _{2,5}	1	14	26	57*	-	-	-	-
NO	2	26	55	142	244	281	314	135
NO ₂	2	36	57	89	139	151	162	88
CO	-	-	-	-	-	-	-	-
O ₃	2	34	68	116	177	190	198	115

PM ₁₀	Monitoring method(s) used:	
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	13
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments: * = value is from 1.1.2014 (New Year's Eve fire works)
 ** = monitoring method: gravimetrically

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

Comparison of The Air Quality in 2014

Frankfurt (traffic station) immission area: 248 km² population: 708 543

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	1	26	38	109	469**	772**	832**	69
PM _{2,5}	1	17	24	89	384**	658**	739**	52
NO	1	43	82	162	296	420	457	185
NO ₂	1	55	67	111	206	224	234	119
CO	1	440	661	940	1870	2640	2850	1090
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	17
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	2

Comment: ** = monitoring method: gravimetrically

Glasgow (incl. traffic station) immission area: 176 km² population: 600 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	2	18	29	59	-	-	-	49
PM _{2,5}	2	12	21	49	-	-	-	36
NO	3	47	173	366	-	-	-	259
NO ₂	3	42	98	136	-	-	-	116
CO	-	-	-	-	-	-	-	-
O ₃	1	43	62	91	-	-	-	77

PM ₁₀	Monitoring method(s) used:	GRAV EQ, TEOM (FDMS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	3
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	14

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

Comparison of The Air Quality in 2014

Gothenburg (traffic stations)

 immission area: 1 031 km² population: 543 005

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile year [µg/m ³]
SO ₂	2	2	4	14	42	52	-	6
PM ₁₀	5	19	37	91	230	270	-	66
PM _{2,5}	2	9	16	42	50	52	-	31
NO	5	16	56	56	646	646	-	189
NO ₂	6	23	49	114	214	214	-	120
CO	-	-	-	-	-	-	-	-
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	TEOM
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	VCM
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	12
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	2

Comments Gothenburg:

Generally, 2014 weather-wise has been a favorable year for low levels of air pollution. The weather is very important for levels of air pollution. During this year, it has been warmer, wetter and windier than usual which resulted in that concentrations have generally been lower than usual. The weather has been beneficial not only in Gothenburg, but also in the rest of Sweden and throughout northern Europe. This is something that one can see from the results of other cities in Sweden and Europe followed in our annual report for the past five years.

Nitrogen dioxide concentrations at Femman were the lowest measured since we started measuring in the mid-1970s. Femman station is the station that represents the levels of urban background air. Annual mean, 98th percentile for the hour and 98-percentile for the day are clearly at their lowest levels ever measured. The air quality standards (AQS) for nitrogen dioxide at the roof level (urban background air) were met by a good margin.

The air quality standards for nitrogen dioxide, by contrast, was exceeded at street level in the Gothenburg area in 2014 despite the favorable weather conditions. The AQS for nitrogen dioxide was also exceeded in Haga and in the monitoring station by the highway in Garda. This year, the levels of nitrogen dioxide, as an annual average and number of exceedances of the level of the air quality standard, were lower than the average ones during the past five years at all stations mentioned above.

The air quality standards for particulate matter seemed to be met by a good margin in Gothenburg at all monitoring stations during 2014. The levels are the lowest measured at both Femman and Haga since we started measuring particles (in 1990 Femman and 2005 in Haga). Levels of other air pollutants (sulphur dioxide, carbon monoxide and ozone) measured in the Gothenburg area during the year has been below the air quality standards by a wide margin.

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

Comparison of The Air Quality in 2014

Gothenburg (urban stations)

immission area: 1 031 km² population: 543 005

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile year [µg/m ³]
SO ₂	2	2	3	7	15	22	-	6
PM ₁₀	1	15	25	53	70	88	-	43
PM _{2,5}	1	9	10	31	45	50	-	25
NO	1	8	17	117	404	548	-	66
NO ₂	2	19	25	67	130	166	-	62
CO	1	134	302	454	547	578	-	400
O ₃	1	57	79	155	176	182	-	120

PM ₁₀	Monitoring method(s) used:	TEOM
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	VCM
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	1
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments Gothenburg:

Generally, 2014 weather-wise has been a favorable year for low levels of air pollution. The weather is very important for levels of air pollution. During this year, it has been warmer, wetter and windier than usual which resulted in that concentrations have generally been lower than usual. The weather has been beneficial not only in Gothenburg, but also in the rest of Sweden and throughout northern Europe. This is something that one can see from the results of other cities in Sweden and Europe followed in our annual report for the past five years.

Nitrogen dioxide concentrations at Femman were the lowest measured since we started measuring in the mid-1970s. Femman station is the station that represents the levels of urban background air. Annual mean, 98th percentile for the hour and 98-percentile for the day are clearly at their lowest levels ever measured. The air quality standards (AQS) for nitrogen dioxide at the roof level (urban background air) were met by a good margin.

The air quality standards for nitrogen dioxide, by contrast, was exceeded at street level in the Gothenburg area in 2014 despite the favorable weather conditions. The AQS for nitrogen dioxide was also exceeded in Haga and in the monitoring station by the highway in Garda. This year, the levels of nitrogen dioxide, as an annual average and number of exceedances of the level of the air quality standard, were lower than the average ones during the past five years at all stations mentioned above.

The air quality standards for particulate matter seemed to be met by a good margin in Gothenburg at all monitoring stations during 2014. The levels are the lowest measured at both Femman and Haga since we started measuring particles (in 1990 Femman and 2005 in Haga). Levels of other air pollutants (sulphur dioxide, carbon monoxide and ozone) measured in the Gothenburg area during the year has been below the air quality standards by a wide margin.

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

Comparison of The Air Quality in 2014

Graz (urban stations)

 immission area: 128 km²

population: 273.838

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	3	3	5	33	112	129	131	9
PM ₁₀ [*]	2 [*]	22	40	99	-	-	-	56 ^{**}
PM _{2,5} [*]	2 [*]	16	34	81	-	-	-	52 ^{**}
NO	5	18,6	92	368	464	522	592	200
NO ₂	5	27	44	76	118	148	154	77
CO	2	400	900	2100	2800	3100	4700	1500
O ₃	4	43	81	115	141	148	152	116

PM ₁₀	Monitoring method(s) used:	continuously / gravimetrically [*]
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	23 [*]
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	-

Comments:

- * PM₁₀: gravimetric monitoring method
- ** Max. 98-Percentile per year is calculated from daily mean values.
- *** Max 3h-mean value = static average,
- **** Max 1h-mean value = static average

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

Comparison of The Air Quality in 2014

Graz (traffically influenced Don Bosco)

immission area: 128 km²

population: 273.838

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³] ***	max. 1h mean value ² [µg/m ³] ****	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	3	5	37	114	131	134	10
PM ₁₀ *	1*	28	43	97	-	-	-	66**
PM _{2,5}	-	-	-	-	-	-	-	-
NO	1	49	121	352	601	860	923	256
NO ₂	1	44	58	89	132	150	161	96
CO	1	400	800	1900	2500	2700	2900	1300
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	continuously, gravimetrically*
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	27*
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	-

Comments:

- * PM₁₀: gravimetric monitoring method
- ** Max. 98-Percentile per year is calculated from daily mean values.
- *** Max 3h-mean value = static average,
- **** Max 1h-mean value = static average

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

Comparison of The Air Quality in 2014

Hallein

immission area: 27 km²

population: 20 603

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	2	3	5	31	200	294	459	9
PM ₁₀	1	19	28	67	-	-	-	-
PM _{2,5}	1	12	18	55	-	-	-	-
NO	2	25	77	154	349	424	486	196
NO ₂	2	26	50	74	112	123	139	84
CO	1	340	500	990	1320	1510	1710	910
O ₃	1	59	88	128	168	172	175	121

PM ₁₀	Monitoring method(s) used:	Digitel and Sharp
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	6
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments: The high SO₂-value (max. 1/2h mean) was caused by a technical breakdown of an industrial company.

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

Comparison of The Air Quality in 2014

Hamburg (area monitoring stations)

immission area: 755 km²

population: 1 760 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	5	5	20	73	154	199	253	60
PM ₁₀	8	22	38	110	725	1197	1643	68
PM _{2,5}	3	15	25	57	337	487	730	50
NO	13	9	38	227	380	464	547	115
NO ₂	13	23	43	79	111	117	138	78
CO	1	210	310	590	880	1030	1220	540
O ₃	6	44	72	113	161	169	173	112

PM ₁₀	Monitoring method(s) used:	TEOM (7 stations), β-absorption (Sharp) (1 station)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	7 TEOM:1; Streustrahlung+ Beta-Absorption: 1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	17
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Hamburg (traffic stations)

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	3	26	37	112	493	1087	799	73
PM _{2,5}	1	18	27	63	146	196	284	54
NO	4	62	119	294	587	627	653	328
NO ₂	4	55	71	143	221	246	251	143
CO	2	510	660	1160	1850	2190	2930	1250
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	β-absorption (1 stations); TEOM (3 stations)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	3 TEOM:1; Streustrahlung + Beta-Absorption: Faktor 1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	26
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	11

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

Comparison of The Air Quality in 2014

Innsbruck

immission area: 105 km²

population: 126 851

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	3	9	46	52	53	6
PM ₁₀	2	16	27	84	-	-	-	54
PM _{2,5}	1	10	16	35	-	-	-	26
NO	3	31	74	338	610	622	630	184
NO ₂	3	38	55	112	179	185	188	89
CO	1	393	697	1143	1669	1851	1873	923
O ₃	3	87	105	137	152	154	154	126

PM ₁₀	Monitoring method(s) used:	gravimetrically (Digitel HVS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	8
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Karlsruhe (urban station)

immission area: 173 km²

population: 299 103*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	-	12	-	42	-	-
PM ₁₀	1	17	-	63	-	-	-	-
PM _{2,5}	1	12	-	52	-	-	-	-
NO	1	10	-	91	-	264	-	-
NO ₂	1	23	-	66	-	144	-	-
CO	-	-	-	-	-	-	-	-
O ₃	1	43	-	128	-	194	-	-

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	8
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comment: * metropolitan area (year 2013); source: Statistisches Landesamt Baden-Württemberg

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

Comparison of The Air Quality in 2014

Karlsruhe (traffic station) immission area: 173 km²

population: 299 103*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	1	22	-	232	-	-	-	-
PM _{2,5}	1	14	-	76	-	-	-	-
NO	1	39	-	144	-	476	-	-
NO ₂	1	46	-	97	-	233	-	-
CO	1	300	-	800	-	2600	-	-
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	12
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	2

Comment: * metropolitan area (year 2013); source: Statistisches Landesamt Baden-Württemberg

Klagenfurt

immission area: 120 km²

population: 95 928

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	1	2	13	43	48	49	4
PM ₁₀	2	18	28	49	-	-	-	-
PM _{2,5}	2	12	21	44	-	-	-	-
NO	2	21	73	171	325	385	406	146
NO ₂	2	26	46	69	119	147	167	77
CO	1	369	644	1152	1538	1815	1838	930
O ₃	2	41	83	108	152	160	161	120

PM ₁₀	Monitoring method(s) used:	continuously (Sharp 5030)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	-
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	-

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

Comparison of The Air Quality in 2014

Leeds

immission area: 552 km²

population: 474.632

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	4	13	-	-	-	7
PM ₁₀	2	20	35	87	-	-	-	62
PM _{2,5}	2	14	24	79	-	-	-	44
NO	2	29	79	236	-	-	-	117
NO ₂	2	42	62	98	-	-	-	77
CO	1	1000	1000	1000	-	-	-	1000
O ₃	1	38	58	90	-	-	-	74

PM ₁₀	Monitoring method(s) used:	
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	15
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

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

Comparison of The Air Quality in 2014

Leipzig

immission area: 298 km²

population: 531 582

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	4	5	15	31	52	-	10
PM ₁₀	3	26	52	99	368	809	-	85
PM _{2,5}	2	16	33	73	-	-	-	-
NO	3	29	67	186	186	611	-	191
NO ₂	3	31	49	93	93	196	-	81
CO	-	-	-	-	-	-	-	-
O ₃	1	45	67	118	118	165	-	118

PM ₁₀	Monitoring method(s) used:	gravimetrically (High-Volume-Sampler, micro balance)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	see comments
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	43
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments:

*Equivalent factors for the PM₁₀ – monitoring method:

station	PM ₁₀ -HVS	PM ₁₀ -TEOM
Leipzig-Lützner Str.	1.10	1.20 + f (temperature, humidity)
Leipzig-Mitte	1.10	1.00+ f (temperature, humidity)
Leipzig-West	1.05	1.00+ f (temperature, humidity)

No measurements of CO since 2008.

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

Comparison of The Air Quality in 2014

Leoben (Leoben, Donawitz, Göß)

immission area: 108 km²

population: 24.680

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	2***	2	4	29	109	125	127	19
PM ₁₀ *	1*	17	23	50	-	-	-	36*/**
PM _{2,5}	-	-	-	-	-	-	-	-
NO	3	10	37	114	185	206	218	76
NO ₂	3	19	35	59	152	170	184	60
CO	1	600	900	2000	6100	8200	10700	2500
O ₃	1	35	64	90	144	147	147	113

PM ₁₀	Monitoring method(s) used:	continuously, gravimetrically*
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	-
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	-

Comments:

- * PM₁₀: gravimetric monitoring method
- ** Max. 98-Percentile per year is calculated from daily mean values.
- *** Max 3h-mean value = static average,
- **** Max 1h-mean value = static average

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

Comparison of The Air Quality in 2014

Linz

immission area: 96 km²

population: 198 181

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	5	4	8	30	56	77	118	33
PM ₁₀	6	23	43	104	248	387	467	78
PM _{2,5}	4	16	31	84	-	236	332	50
NO	7	20	78	201	376	416	430	201
NO ₂	7	29	53	86	190	218	226	111
CO	5	340	680	1500	4000	4400	5600	1320
O ₃	2	37	65	94	158	162	162	115

PM ₁₀	Monitoring method(s) used:	gravimetrically and continuously
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	27
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	1

Lisbon

immission area: 85 km²

population: 547 733

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	2	1	2	10	-	29	-	4
PM ₁₀	3	24	50	117	-	146	-	67
PM _{2,5}	2	11	15	37	-	65	-	25
NO	5	15	86	224	-	908	-	187
NO ₂	5	34	71	138	-	328	-	136
CO	3	269	484	899	-	2912	-	826
O ₃	3	56	79	110	-	169	-	118

PM ₁₀ :	Monitoring method(s) used:	Beta-absorption
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1.18 (traffic stations) 1.11 (background)
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	31
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	20

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

Comparison of The Air Quality in 2014

Liverpool

immission area: 112 km²

population: 473.073

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	3	5	22	-	-	-	9
PM ₁₀	1	14	23	78	-	-	-	49
PM _{2,5}	1	11	19	70	-	-	-	40
NO	2	14	32	149	-	-	-	64
NO ₂	2	30	43	92	-	-	-	64
CO	-	-	-	-	-	-	-	-
O ₃	1	46	56	79	-	-	-	72

PM ₁₀	Monitoring method(s) used:	TEOM (FDMS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	6
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

London

immission area: 1.572 km²

population: 8 538 689

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	4	5	11	43	-	-	-	16
PM ₁₀	5	22	37	85	-	-	-	61
PM _{2,5}	1	15	24	60	-	-	-	47
NO	11	33	199	356	-	-	-	305
NO ₂	11	44	106	156	-	-	-	139
CO	2	400	700	1000	-	-	-	900
O ₃	8	35	63	94	-	-	-	78

PM ₁₀	Monitoring method(s) used:	GRAV EQ, TEOM (FDMS)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	14
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	60

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

Comparison of The Air Quality in 2014

Lyon (urban site)

immission area: 47,9 km²

population: 496 343

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	1	-	8	-	47	-	6
PM ₁₀	2	22	-	89	-	187	-	65
PM _{2,5}	1	14	-	71	-	90	-	50
NO	3	15	-	173	-	602	-	130
NO ₂	3	32	-	84	-	172	-	86
CO	-	-	-	-	-	-	-	-
O ₃	3	44	-	129	-	167	-	113

PM ₁₀	Monitoring method(s) used:	TEOM
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	FDMS
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	16
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Lyon (traffic site)

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	3	26	-	100	-	171	-	75
PM _{2,5}	1	17	-	73	-	103	-	53
NO	3	56	-	336	-	708	-	282
NO ₂	3	56	-	145	-	294	-	154
CO	-	-	-	-	-	-	-	-
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	TEOM
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	FDMS
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	24
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	32

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

Comparison of The Air Quality in 2014

Madrid

 immission area: 604 km²

population: 3 237 937

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]*	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year ^{**} [µg/m ³]
SO ₂	10	5	14	27	57	97	-	25
PM ₁₀	12	19	35	98	165	200	-	77
PM _{2,5}	6	11	15	35	86	176	-	37
NO	24	20	131	327	810	925	-	284
NO ₂	24	35	81	147	367	416	-	148
CO	10	400	1100	1600	4300	4400	-	1400
O ₃	14	52	89	122	184	220	-	134

PM ₁₀	Monitoring method(s) used:	Oscillating microbalance
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1.29 (summer); 0.85 (winter); 1.07 (autumn-spring)
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	12 ^{***}
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	45 ^{****}

Comments:

- * Static average (not moving average)
- ** Maximum 98 percentile of 1-hour values
- *** Station: ESCUELAS AGUIRRE (ES0118A, 28079008)/P90.4=38)
- **** Station: BARRIO DEL PILAR (ES1521A, 28079039 / P99.8=240)

Area and population of the municipalities of Madrid (not metropolitan areas)

Minimum data capture of 75%

In 2010, Madrid Air Quality Network has been restructured in order to meet the new obligations of Directive 2008/50/EC, Due to this fact, the number of stations have changed significantly.

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

Comparison of The Air Quality in 2014

Mannheim (urban station)

 immission area: 145 km²

population: 296 690*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	4	-	37	-	381	-	-
PM ₁₀	1	18	-	73	-	-	-	-
PM _{2,5}	1	14	-	54	-	-	-	-
NO	1	11	-	80	-	233	-	-
NO ₂	1	27	-	79	-	132	-	-
CO	-	-	-	-	-	-	-	-
O ₃	2	42	-	98	-	188	-	-

PM ₁₀	Monitoring method(s) used:	Gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	7
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Mannheim (traffic station)

 immission area: 145 km²

population: 296 690*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	1	25	-	90	-	-	-	-
PM _{2,5}	1	15	-	63	-	-	-	-
NO	1	39	-	170	-	435	-	-
NO ₂	1	48	-	110	-	183	-	-
CO	1	300	-	900	-	1900	-	-
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	Gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	17
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

* metropolitan area (year 2013); source: Statistisches Landesamt Baden-Württemberg

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

Comparison of The Air Quality in 2014

Milan

 immission area: 182 km²

population: 1 337 115

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year* [µg/m ³]
SO ₂	1	5	-	12	-	18	-	9
PM ₁₀	3	34	-	133	-	-	-	98
PM _{2,5}	2	26	-	128	-	-	-	77
NO	8	36	-	315	-	735	-	244
NO ₂	8	50	-	147	-	286	-	152
CO	4	1062	-	2620	-	5110	-	2430
O ₃	3	38	-	121	-	2208	-	121

PM ₁₀	Monitoring method(s) used:	Beta attenuation
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	None
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	68
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	31

Comments:

 SO₂, PM₁₀, PM_{2,5}: Max 98-percentile per year of daily mean value

 NO, NO₂, CO, O₃: Max 98-percentile per year of 1 h mean value

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

Comparison of The Air Quality in 2014

Munich

immission area: 310 km²

population: 1 410 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	4	7	10	24	42	64	10
PM ₁₀	4	21	38	81	109	139	196	72
PM _{2,5}	4	14	24	58	68	106	167	44
NO	5	40	144	241	496	592	785	348
NO ₂	5	45	93	144	211	258	309	169
CO	3	400	600	1000	1800	2100	2600	1100
O ₃	3	41	78	117	186	192	195	121

PM ₁₀	Monitoring method(s) used:	β-absorption / Oscillating micro balance / β-absorption+ nephelometer
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1.25 / 1.0
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	17** (16)
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	24

Comments:

PM₁₀/PM_{2,5}: The values from Jan. 1 2014 are not considered, because of very high single data due to fireworks during the New Year's Eve. But these values are included when calculating the number of violations of the daily mean limiting standard.

Max. 98-percentile-value per year to be based of the 1h mean values.

** PM₁₀ – exceedances of limit values: 1 day due to winter services on the streets
 “§ 25 der 39. BImSchV“ regulates the deduction of PM₁₀ - exceedances of limit values caused by winter services like road salt and grit

O₃-stations: The measurement-station “München/Stachus” not applicable in 2014 (2013 was the station in the comparison included), because there was no directive conform measurement. In 2014 the measurement of O₃ starts by the new station “Allach”.

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

Comparison of The Air Quality in 2014

Prague

immission area: 496 km²

population: 1 260 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile from daily mean per year [µg/m ³] ^{**}
SO ₂	3	3	6	21	-	77	-	10
PM ₁₀	17	28	52	130	-	897	-	82
PM _{2,5}	6	18	43	81	-	229	-	73
NO	12	20	87	184	-	714	-	130
NO ₂	15	33	64	100	-	324	-	94
CO	2	617	946	1282	-	2148	-	1136
O ₃	6	40	76	110	-	194	-	93

PM ₁₀	Monitoring method(s) used:	3 x gravimetrically, 13 x radiometrically, 1 x optoelectronically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	59
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	5

Comments:

The last column is calculated from daily averages.

This means - max. value of "98-Percentile from daily means" of all monitoring stations

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

Comparison of The Air Quality in 2014

Riga (urban station)

immission area: 307 km²

population: 659 418

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	2	3	4	13	20	24	45	6
PM ₁₀	1	24	36	86	-	-	-	62
PM _{2,5}	1	18	24	53	-	-	-	42
NO	-	-	-	-	-	-	-	-
NO ₂	2	25	38	66	134	143	146	82
CO	-	-	-	-	-	-	-	-
O ₃	2	46	80	112	114	146	149	88

PM ₁₀	Monitoring method(s) used:	beta absorption
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	0
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Riga (traffic station)

immission area: 307 km²

population: 642 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	2	40	55	99	-	183	-	102
PM _{2,5}	-	-	-	-	-	-	-	-
NO	1	100	148	237	437	414	450	298
NO ₂	1	45	62	90	122	159	175	114
CO	1	324	377	724	1070	1070	1100	495
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	beta absorption
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	39
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments for Riga:

98-percentiles:

SO₂ - 98% - value of 1- hour's means

PM₁₀ - 98% - value of 1- hour's means (traffic station)

CO - 98% - value of 1- hour's means

NO₂ - 98% - value of 1- hour's means

PM₁₀ - 98% - value of 1- daily means (urban station)

Ozone- 98% - value of 1- hour's means

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

Comparison of The Air Quality in 2014

Rhine/Ruhr area

 immission area: 5 770 km²

population: 8 213 872

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	7	5	-	-	-	387	-	71
PM ₁₀	22	19	-	-	-	-	-	-
PM _{2,5}	12	15	-	-	-	-	-	-
NO	21	10	-	-	-	604	-	153
NO ₂	21	26	-	-	-	185	-	84
CO	-	-	-	-	-	-	-	-
O ₃	16	37	-	-	-	189	-	112

PM ₁₀	Monitoring method(s) used:	1) Beta-absorption 2) Oscillating micro balance 3) gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	24
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comment: Traffic stations are not included in the calculation.

Rotterdam

 immission area: 803 km²

population: 1 200 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂								
PM ₁₀								
PM _{2,5}								
NO								
NO ₂								
CO								
O ₃								

No data for 2014!

PM ₁₀	Monitoring method(s) used:	TEOM SES and BAM
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	

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

Comparison of The Air Quality in 2014

Salzburg

 immission area: 66 km²

population: 148 256

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	2	2	4	12	67	83	96	6
PM ₁₀	3	17	29	97	-	-	-	-
PM _{2,5}	2	12	20	65	-	-	-	-
NO	3	27	93	153	363	432	496	213
NO ₂	3	34	63	82	138	165	181	108
CO	2	330	530	980	1860	2860	3420	910
O ₃	2	39	72	106	148	150	151	115

PM ₁₀	Monitoring method(s) used:	Digitel and SHARP
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	none
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	10** (1 caused by winter services)
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments:

** PM₁₀ – exceedances of limit values: 1 day due to winter services on the streets
 The „Winterstreuverordnung (BGBl. II Nr.131/2014)“ regulates the deduction of PM₁₀ - exceedances of limit values caused by winter services like road salt and grit. In 2014 there are deducted two days on station "Hallein B159".

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

Comparison of The Air Quality in 2014

Sofia

 immission area: 1 344 km²

population: 1 256 667

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	6	7	17	69	-	196	-	38
PM ₁₀	7	40	131	409	-	-	-	253
PM _{2,5}	2	20	47	267	-	-	-	-
NO	6	20	100	293	-	619	-	247
NO ₂	6	24	55	105	-	200	-	93
CO	4	760	2376	-	-	-	-	-
O ₃	5	48	101	131	-	188	-	131

PM ₁₀	Monitoring method(s) used:	β-absorption (6 stations), gravimetric (1 station)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	105
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	1

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

Comparison of The Air Quality in 2014

St. Pölten, urban station

immission area: 108 km² population: 52 322

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	3	5	15	25	44	50	8
PM ₁₀	1	21	33	72	90	114	127	60
PM _{2,5}	1	15	27	62	75	99	113	47
NO	1	7	16	71	226	467	508	50
NO ₂	1	22	31	57	104	140	147	58
CO	1	-	-	-	-	-	-	-
O ₃	1	43	72	101	152	166	167	116

PM ₁₀	Monitoring method(s) used:	oscillating micro balance						
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1,3						
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	13						
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:							

St. Pölten, traffically influenced

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	-	3	13	18	19	20	-
PM ₁₀	1	22	33	72	83	99	111	59
PM _{2,5}	1	-	-	-	-	-	-	-
NO	1	22	35	162	493	666	747	121
NO ₂	1	32	39	83	159	192	223	78
CO	1	320	500	720	1150	1460	1990	730
O ₃	1	-	61	94	145	151	153	-

PM ₁₀	Monitoring method(s) used:	oscillating micro balance						
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1,3						
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	11						
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:							

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

Comparison of The Air Quality in 2014

Stockholm

immission area (inner city): 48 km²
area (Stockholm): 220 km²

population (inner city): 308 920
population (Stockholm): 832 641

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per hour/daily [µg/m ³]
SO ₂	1	1	2	-	-	-	-	-
PM ₁₀	4	22	55	88	-	392	-	-
PM _{2,5}	3	8	14	41	-	66	-	-
NO	-	-	-	-	-	-	-	-
NO ₂	4	37	50	92	-	197	-	105/73
CO	2	300	400		-	13700	-	-
O ₃	1	50	67	105	-	144	-	-

PM ₁₀	Monitoring method(s) used:	TEOM
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	VCM correction
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	36
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments:

All stations are situated in the innercity of Stockholm

SO₂: roof level, Diffusive samplers -only per month

PM₁₀, PM_{2,5}, NO₂, CO: street level

O₃: roof level

PM₁₀: During 2014 intensified dust-binding and street-cleaning efforts during winter and spring result in record low levels in the inner city of Stockholm (se summary in report http://slb.nu/slb/rapporter/pdf8/slb2015_002.pdf)

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

Comparison of The Air Quality in 2014

Stuttgart (urban station)

 immission area: 207 km²

population: 604 297*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	1	-	5	-	14	-	-
PM ₁₀	1	18	-	74	-	-	-	-
PM _{2,5}	1	13	-	65	-	-	-	-
NO	1	16	-	93	-	212	-	-
NO ₂	1	31	-	75	-	117	-	-
CO	-	-	-	-	-	-	-	-
O ₃	1	39	-	105	-	173	-	-

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	8
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comment: * in the metropolitan area in the year 2013; source: Statistisches Landesamt Baden-Württemberg

Stuttgart (traffic station)

 immission area: 207 km²

population: 604 297*

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	1	28	-	96	-	-	-	-
PM _{2,5}	1	15	-	72	-	-	-	-
NO	1	76	-	173	-	405	-	-
NO ₂	1	61	-	106	-	177	-	-
CO	1	300	-	700	-	1400	-	-
O ₃	1	25	-	80	-	146	-	-

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	19
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Comments: * metropolitan area (year 2013); source: Statistisches Landesamt Baden-Württemberg

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

Comparison of The Air Quality in 2014

Thessaloniki

 immission area: 129 km²

population: 954 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per hour [µg/m ³]
SO ₂								
PM ₁₀		No data for 2014!						
PM _{2,5}								
NO								
NO ₂								
CO								
O ₃								

PM ₁₀	Monitoring method(s) used:	β-attenuation
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	

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

Comparison of The Air Quality in 2014

Vienna

immission area: 415 km²

population: 1 767 000

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 99,9 Percentile 3h-mean value ² [µg/m ³]	max. 99,9 Percentile 1h-mean value ² [µg/m ³]	max. 99,9 Percentile 1/2h-mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	7	4	7	31	43	46	51	17
PM ₁₀	12	23	38	81	204	223	217	72
PM _{2,5}	6	16	29	69	64	65	66	50
NO	17	13	87	183	345	390	389	222
NO ₂	17	26	58	107	151	159	158	114
CO	4	324	560	896	1008	1084	1121	812
O ₃	5	49	91	126	147	150	149	125

PM ₁₀	Monitoring method(s) used:	7 Stations gravimetric and continuous, 6 Stations only continuous (including equivalent factor)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	see comment
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	27 (Taborstraße)
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

- A defekt exhaust by the monitoring station „Lobau“ causes invalid values for the annual statistic.
- PM₁₀ – equivalent faktor 2014 for the continous measurment methode:

PM ₁₀ -Messstelle	Zeitraum	Messgeräte-Typ	Kalibrierfunktion
Taborstraße	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
AKH	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Belgradplatz	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = y_{\text{roh}} - 1.60$
Laaer Berg	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Kaiser-Ebersdorf	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
A23-Wehlstraße	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Gaudenzdorf	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Kendlerstraße	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Schafberg	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Gerichtsgasse	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Lobau	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Stadlau	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.913 \cdot y_{\text{roh}} + 0.25$
Liesing-Gewerbegebiet	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.860 \cdot y_{\text{roh}} - 1.0$

Bold printed monitoring stations: additionally gravimetrical method used

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

- $PM_{2,5}$ - equivalent faktor 2014 for the continuous measurement methode:

$PM_{2,5}$ -Messstelle	Zeitraum	Messgeräte-Typ	Kalibrierfunktion
Tabornstraße	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.827 * y_{\text{roh}} - 0.54$
AKH	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.827 * y_{\text{roh}} - 0.54$
A23-Wehlstraße	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.827 * y_{\text{roh}} - 0.54$
Kendlerstraße	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.827 * y_{\text{roh}} - 0.54$
Lobau	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.827 * y_{\text{roh}} - 0.54$
Stadlau	ab 1.1.	Grimm EDM-180	$y_{\text{äquivalent}} = 0.827 * y_{\text{roh}} - 0.54$

Bold printed monitoring stations: additionally gravimetric method used

- 99.9-Percentile values (HMW, MW1 and MW3) of PM_{10} and $PM_{2,5}$ are from continuous measure (including station factor). This is also for station with continuous and gravimetric measurements, because the gravimetric method delivers only daily mean values.
- All other particulates values (annual mean, max. MMW and max. daily mean) are derived preferably from gravimetric monitoring.

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

• Comparison of The Air Quality in 2014

Villach

immission area: 135 km²

population: 59 646

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	1	17	24	50	-	-	-	-
PM _{2,5}	-	-	-	-	-	-	-	-
NO	1	21	57	125	285	342	477	121
NO ₂	1	27	45	69	91	102	124	67
CO	-	-	-	-	-	-	-	-
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	Kontinuierlich (Sharp 5030)
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	0
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

Warsaw

immission area: 517 km²

population: 1 724 404

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per day [µg/m ³]
SO ₂	2	7	15	52	133	211	-	29
PM ₁₀	5	33	55	115	216	237	-	84
PM _{2,5}	4	26	44	78	133	149	-	62
NO	3	22	71	266	437	547	-	154
NO ₂	3	31	62	106	193	233	-	92
CO	2	523	898	1792	3342	3565	-	1282
O ₃	3	40	66	92	147	150	-	85

PM ₁₀	Monitoring method(s) used:	automatic: TEOM+FDMS, nephelometry; manual: gravimetric method
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	TEOM+FDMS: 1.0 nephelometry: 0.814
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	84
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	1

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

Comparison of The Air Quality in 2014

Wiesbaden (urban stations)

 immission area: 204 km² population: 282 313

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	1	2	5	17	41	58	4
PM ₁₀	1	20	30	138	585**	783**	886**	56
PM _{2,5}	1	13	24	72*	-	-	-	-
NO	1	16	32	122	312	345	398	112
NO ₂	1	30	42	72	124	136	148	76
CO	0	-	-	-	-	-	-	-
O ₃	1	35	60	94	163	170	172	110

PM ₁₀	Monitoring method(s) used:	
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2005 (measured values including equivalent factor, if applicable):	8
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2005:	0

Comments: ** = method: gravimetrically
* = value from Jan. 1 2014 (New Year's Eve fire works)

Wiesbaden (traffic station)

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	-	-	-	-	-	-	-	-
PM ₁₀	2	21	32	113	535**	1348**	2145**	57
PM _{2,5}	1	15	24	72	265**	611**	708**	45
NO	2	59	94	189	411	542	686	235
NO ₂	2	54	68	102	167	183	216	125
CO	1	540	740	1090	2010	2550	3730	1370
O ₃	-	-	-	-	-	-	-	-

PM ₁₀	Monitoring method(s) used:	
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	1
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2005 (measured values including equivalent factor, if applicable):	8
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2005:	0

Comments: ** = method: gravimetrically

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

Comparison of The Air Quality in 2014

Zagreb

immission area: 641 km² population: 790 017

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	6	1	6	27	-	56	-	13
PM ₁₀	6	30	139	259	-	-	-	206
PM _{2,5}	3	20	45	111	-	-	-	78
NO	-	-	-	-	-	-	-	-
NO ₂	5	39	58	124	-	241	-	89
CO	1	430	880	2110	-	3000	-	1110
O ₃	5	27	60	108	-	127	-	78

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	92
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	2

Zurich

immission area: 1 086 km²

population: 1 185 214

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	3	18	70	79	90	6
PM ₁₀	1	15	27	70	137	195	203	46
PM _{2,5}	1	10	20	56	-	-	-	-
NO	1	10	28	80	165	178	195	70
NO ₂	1	30	42	73	109	117	117	74
CO	1	285	404	668	931	971	1183	631
O ₃	1	44	84	109	163	191	194	120

PM ₁₀ :	Monitoring method(s) used:	β-meter-measurement, calibrated with gravimetric measurements every 4 days
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	3
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

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

Comparison of The Air Quality in 2014

Zagreb

immission area: 641 km² population: 790 017

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	6	1	6	27	-	56	-	13
PM ₁₀	6	30	139	259	-	-	-	206
PM _{2,5}	3	20	45	111	-	-	-	78
NO	-	-	-	-	-	-	-	-
NO ₂	5	39	58	124	-	241	-	89
CO	1	430	880	2110	-	3000	-	1110
O ₃	5	27	60	108	-	127	-	78

PM ₁₀	Monitoring method(s) used:	gravimetrically
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	92
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	2

Zurich

immission area: 1 086 km²

population: 1 185 214

	Number of monitoring stations	Annual mean value ¹ [µg/m ³]	max. monthly mean value ² [µg/m ³]	max. daily mean value ² [µg/m ³]	max. 3h mean value ² [µg/m ³]	max. 1h mean value ² [µg/m ³]	max. ½ h mean value ² [µg/m ³]	Max. 98-Percentile per year [µg/m ³]
SO ₂	1	2	3	18	70	79	90	6
PM ₁₀	1	15	27	70	137	195	203	46
PM _{2,5}	1	10	20	56	-	-	-	-
NO	1	10	28	80	165	178	195	70
NO ₂	1	30	42	73	109	117	117	74
CO	1	285	404	668	931	971	1183	631
O ₃	1	44	84	109	163	191	194	120

PM ₁₀ :	Monitoring method(s) used:	β-meter-measurement, calibrated with gravimetric measurements every 4 days
	Equivalent factor for monitoring method(s) according to EU-directive 2008/50/EG:	-
	Number of limit violations of the daily mean standard of 50 µg/m ³ at the highest stressed station in 2014 (measured values including equivalent factor, if applicable):	3
NO ₂	Number of limit violations of the 1h mean standard of 200 µg/m ³ at the highest stressed station in 2014:	0

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