Global Monitoring Plan data reporting and visualization tool

www. pops-gmp.org

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The Glpbal Monitoring Plan: data management and visualization tool

The goal is to

- enhance **visibility of the GMP** and relevant data,
- facilitate **improved interpretation, spatial visualization, and modeling** of available monitoring data,
- improve **the flow of relevant data** to the environmental and health communities,
- enhance our **understanding of environmental factors affecting human health** and well-being,
- promote **a focus on prevention** of environmental and human impacts.

Background - purpose and objective

GMP for effectiveness evaluation

Objective

Provide a **harmonized** organizational **framework** for the **collection of comparable monitoring data** on the presence of the persistent organic pollutants listed in Annexes A, B and C of the Convention in order **to identify time trends** in emissions and/or exposure to chemicals in Stockholm Convention as well as **to provide information on** their **regional and global environmental transport**.

GMP - where are we now?

GMP steps/tools

Data generation: monitoring programmes

Data handling: data collection, transfer and storage

Data analysis: analytical tools and reporting

↓

Effectiveness evaluation:

trend assessment - emissions and human exposure

evaluation of environmental transport,

preparation of regional/global reports for the decision making by Parties at COP7

Where are we?

1st report to GMP endorsed at COP4 in 2009 as 5 GMP regional reports in .pdf

Effectiveness evaluation - can use the 1st GMP report for baseline,

2nd monitoring report - data collection in 2013/2014, regional reports due in 2015 (COP7)

= need to prepare now for effective linking with previous work and bridging the identified challenges

GMP - chapter VI - data handling

What are the building stones?

GMP Guidance - Chapter VI: Data handling

Ensure that **collected data** are

1. Relevant and up-to-date
2. Have sufficient quality and level of detail
3. Consistent and comparable over time
4. Transparent and to the extent possible public or unrestricted as much as possible

1. Data relevance/scope

- POPs in Annexes A,B,C
  - individual chemicals or cogeners = GMP recommended analytes
- Selected core matrices
  - air, human tissues + new POPs:expanded to water, technical samples

Chapter VI

2. Data structure

Primary GMP data - un-aggregated values; LOD/LOQ use

GMP meta-data - complementary information to primary data

- sampling location(s) / site description;
- time of sampling (or the time period represented by the dataset);
- Data on other factors (i.e age/size of animals sampled, volumes of air sampled, information on smoking or dietary habits of the sampled populations, methods employed….);
- Data on parameters to allow conversion between reporting basis (e.g. % lipid and methods used for lipid determination);
- Information on methodologies employed for sampling and analysis,
- Information on QA/QC routines;

Aggregated data: need clear indication of aggregation type: average, geometric mean, median..

+ variability measures (standard deviation, confidence interval etc.)

Uniform methodology for derived parameters - TEQ

Application of QA/QC routines

3. Data Quality

Quality check cycle

various levels: at the source, nationally/monitoring programme, regionally

same for all regions (not the lowest common denominator)

- use of appropriate methodology and QA/QC routines
- correctness and completeness check regarding the reporting requirements
- data suitability for the purposes of the effectiveness evaluation - assessment of data, confidence intervals, supporting information, sampling and analytical methods
- ownership/transparency:
  - Confirmation of correct and accurate transformation/transfer of data
  - Recognize data owners/potential restrictions
  - Require comments from data sources to the output

Chapter VI - data management

What is the next step for better/most effective use of existing data?
How best assist ROGs in their task?

Chapter VI suggests

Creation of GMP data repository/ regional nodes = 6 geographic regions

- compile and archive national/regional data and outputs
- Facilitate access to data by regional assessment groups
- Ensure transparency, interoperability (forward looking)
- Standardized data exchange and reporting system (comparability, ↓errors, links)

Priority tasks/identified challenges

- Based on experience with GMP1 - need for standardized data exchange and reporting system - what is practical and feasible? How to make it comprehensive AND simple and user friendly?
- Definition of tools for analyses such as time trends + minimum detectable change
- Comprehensive GMP data management - e-tool to store, visualize and assess data and assist ROG/GCG most effectively

First monitoring report

Chemicals in the Stockholm Convention

Chemicals in the Stockholm Convention	Chemicals identified in GMP reports (isomers, sums, transformation products)
Aldrin	**Aldrin**
Chlordane	**Cis- (alpha-) chlordane, Trans- (gamma-) chlordane**, **Oxychlordane**, **Cis- and Trans-nonachlor,** Chlordane (as a group), Chlordane + Nonachlor, Chlordane + trans-nonachlor
DDT	DDT, DDE, DDD, **o,p'-DDT**, **o,p'-DDE, o,p'-DDD**, **p,p'-DDT**, **p,p'-DDE, p,p'-DDD**, Sum of DDTs, Sum p,p-DDX (p,p-isomers together), Sums of various number of DDT isomers, DDT + p,p-DDE
Dieldrin	**Dieldrin, Endrin** (also **ketone** and Endrin group = sum of)
Endrin	
Heptachlor	**Heptachlor,** Heptachlorepoxide, **Heptachlorepoxide cis-, Heptachlorepoxide trans-**, Heptachlor group (sum of)
Hexachlorbenzene (HCB)	**Hexachlorbenzene (HCB)**
Mirex	**Mirex**
Polychlorinated biphenyls (PCB)	36 various PCBs: indicator PCBs (**PCB 28, PCB 52, PCB 101, PCB 118, PCB 138, PCB 153, PCB 180**) and 29 others. Various PCBs WHO-TEQ and PCBs I-TEQ**,** Sum of 3, 10, 14, 21, 25, 48 PCBs, dl-PCBs (also with WHO-TEQ), Mono-ortho and Non-ortho PCBs in TEQs
Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDDs/PCDFs)	PCDDs and PCDFs (**15 congeners**) in sum or separately - PCDDs, PCDFs, PCDDs/Fs – often as various TEQs: WHO-TEQ, Nordic-TEQ and I-TEQ, **OCDD, OCDF**
Toxaphene	Parlar (Toxaphene) **26 isomers**, Parlar (Toxaphene) 50, Parlar (Toxaphene) 62, Toxaphene (as a group), Parlar 40, Parlar 41, Parlar 44
Pentachlorbenzene (PeCB)	Pentachlorbenzene (PeCB)
Tetrabromodiphenyl ether (tetraBDE) Pentabromodiphenyl ether (pentaBDE) Heptabfomodiphenyl ether (hepta BDE) Hexabromdiphenyl ether (hexa BDE)	Reported only as a sum of 3 PBDEs
Chlordecone	
Hexabrombiphenyl	
Perfluorooctane sulfonic acid (PFOA), its salts and perfluoroctane sulfonyl fluoride	
Alpha hexachlorocyclohexane (a-HCH)*	a-HCH, b-HCH, g-HCH, d-HCH, HCHs (sum of)
Beta hexachlorocyclohexane (b-HCH)*	
Lindane (g-HCH)*	
Endosulfan	Endosulfan I, Endosulfan II, Endosulfan SO4, Endosulfans (sum of)

+ **other chemicals** not listed in the Stockholm Convention Dacthal, Isodine, Methoxychlor, trifluralin and delta-HCH

Parameters in GMR1

Together, all regional GMP reports contain 171 variables (including concentration data on congeners, isomers, transformation products, various summations and toxic equivalents – TEQs). Analysing the primary pool of reported parameters, 58 of them were related to 12 original Stockholm Convention POPs) as specified in the chapter 2 of the *Guidance on the GMP for Persistent Organic Pollutants, 2007* (compounds highly recommended for monitoring and evaluation).

Additional 7 of all reported variables (alpha-HCH, beta-HCH, gamma-HCH, PeCB, endosulfan I, endosulfan II and endosulfan SO_4) were not obligatory at the time of the first GMP report, but they are very important for the future as they are related to the additional 10 compounds that were listed in the Stockholm Convention in 2009 and in 2011, respectively.

Their specification can be found in the revised *Guidance on the GMP for Persistent Organic Pollutants, 2009*. Draft revised guidance on the global monitoring plan for persistent organic pollutants.

Parameters in GMR1

The third group (84 variables) comprises parameters related to the Stockholm Convention POPs, but not specified in the Guidelines. Among them, there are various PCB congeners (not recommended in the Guidance) and often not very well defined summations of the individual compounds (56 together) as well as variety of 28 toxic equivalents (TEQs for dioxins, furans and PCBs based on various TEFs, often not cited correctly).

In the fourth group there are 22 chemicals or parameters with no relation to the Stockholm Convention (mostly PAHs (16 PAHs + sum of PAHs). We believe that only the first two groups of parameters should be reported in the next GMP data collection campaigns as parameters from the third group can be calculated in the (global) database and parameters currently reported under the fourth group have no relation to the effectiveness evaluation of the Stockholm Convention.

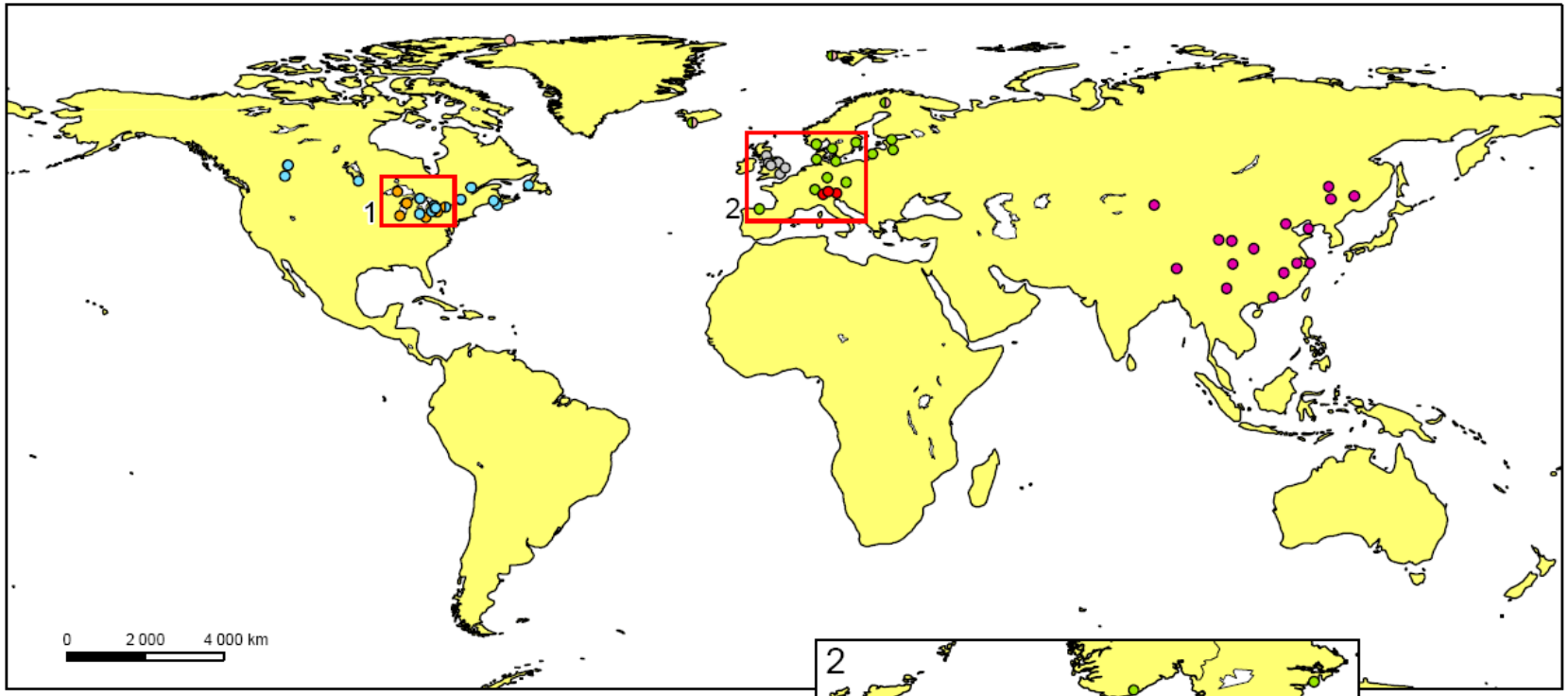
Identified data challenges

- heterogenous **nomenclature** (i.e. trans-chlordane vs. gamma-chlordane)
- unclear reporting or **missing units**
- parameters **without specification which isomers or degradation products summed up** (“chlordanes”, “PCBs”, “DDTs”, “heptachlor)
- Difference in labeling of PCBs summations
- **Limit of Quantification** (LOQ) not reported
- **Ambient air** data reported as **spatially aggregated values**, often without specific information on number and type of sampling site
- **Missing or wrong specification of the TEF values** used for calculation of the TEQ (year).
- Various WHO-TEQ values used (WHO-TEQ 1995, 1997, 1998, 2001, 2005)

Consequence

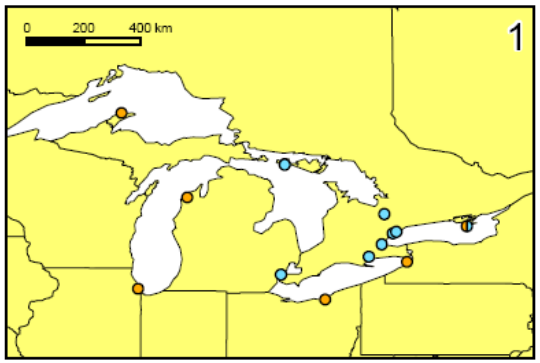
- reliability of collected GMP1 data significantly influenced
- narrowed data pool for future comparisons BUT could be improved if we can find the way how to amend/complement problematic records in GMP1 and effectively link them to GMP2

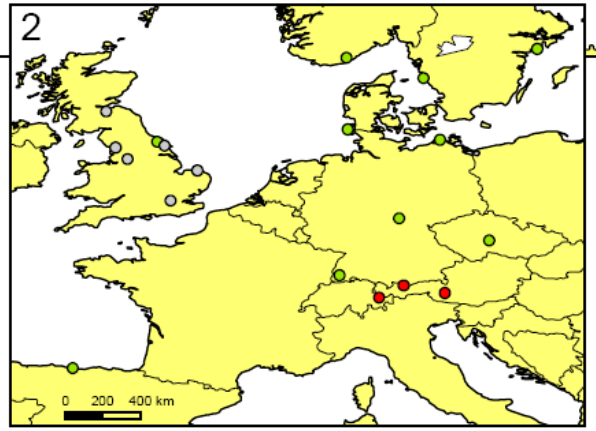
Long-term active air sampling networks



Sampling program

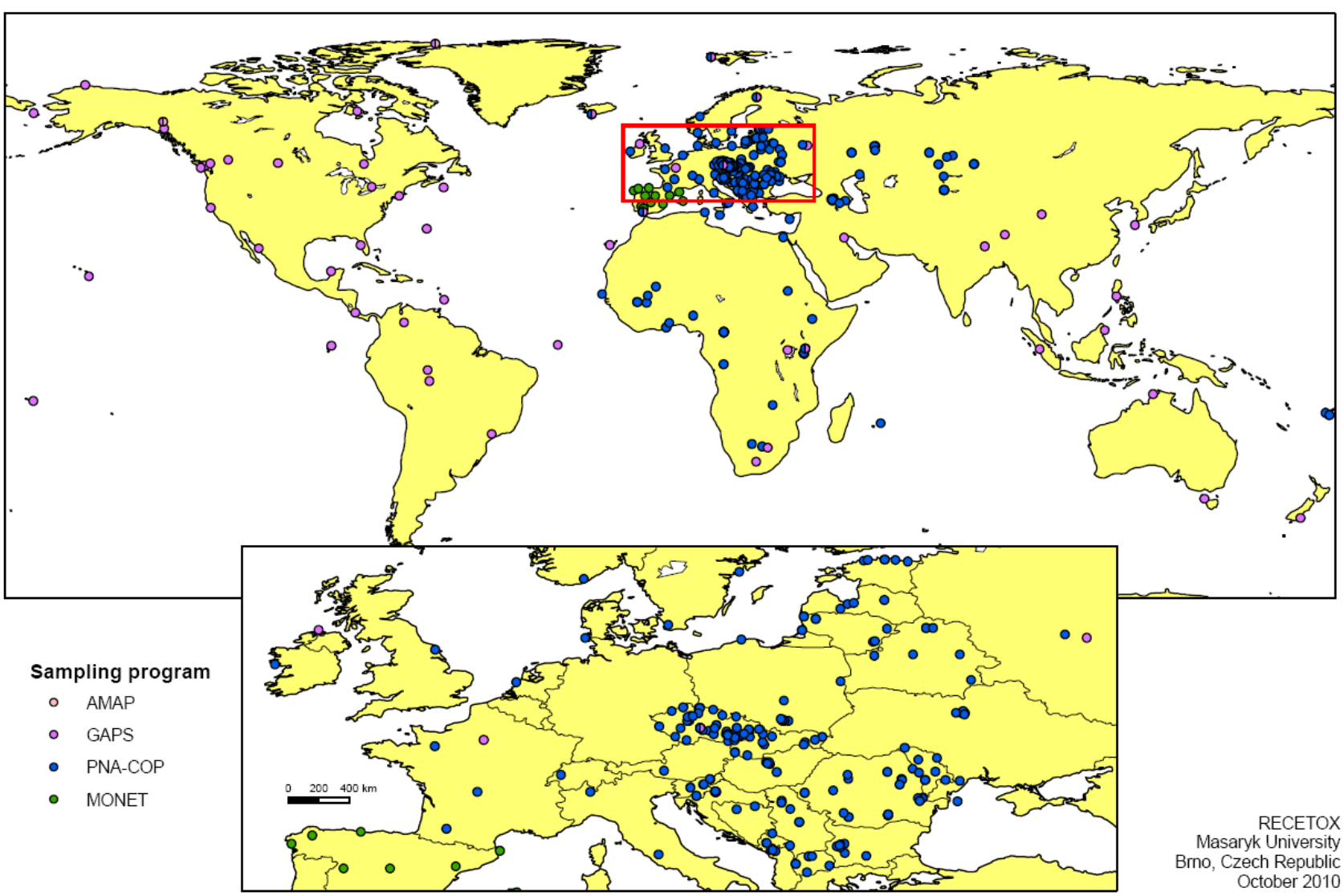
- EMEP
- AMAP
- IADN
- NAPS
- MONARPOP
- TOMPS
- SAMP II

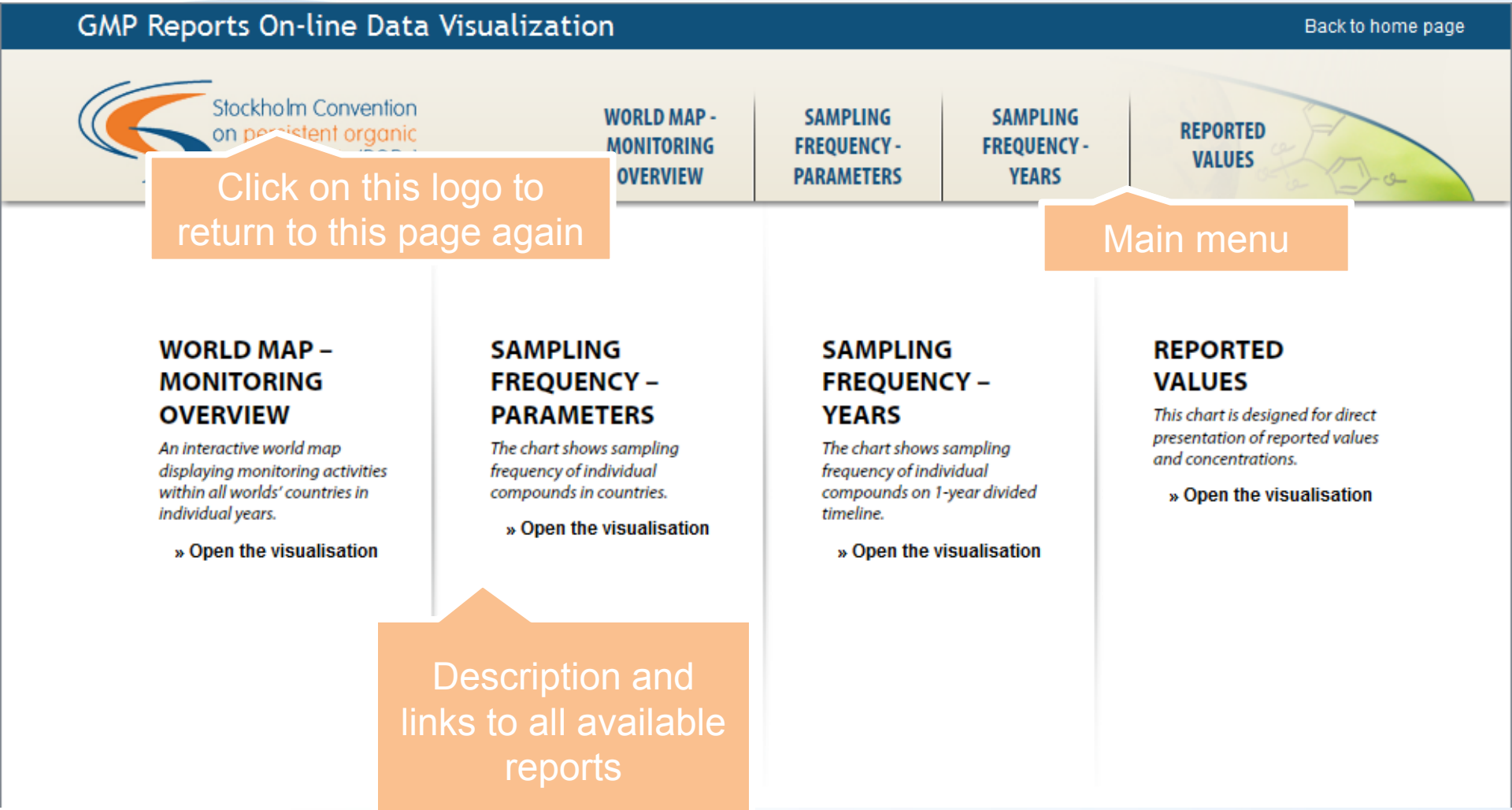


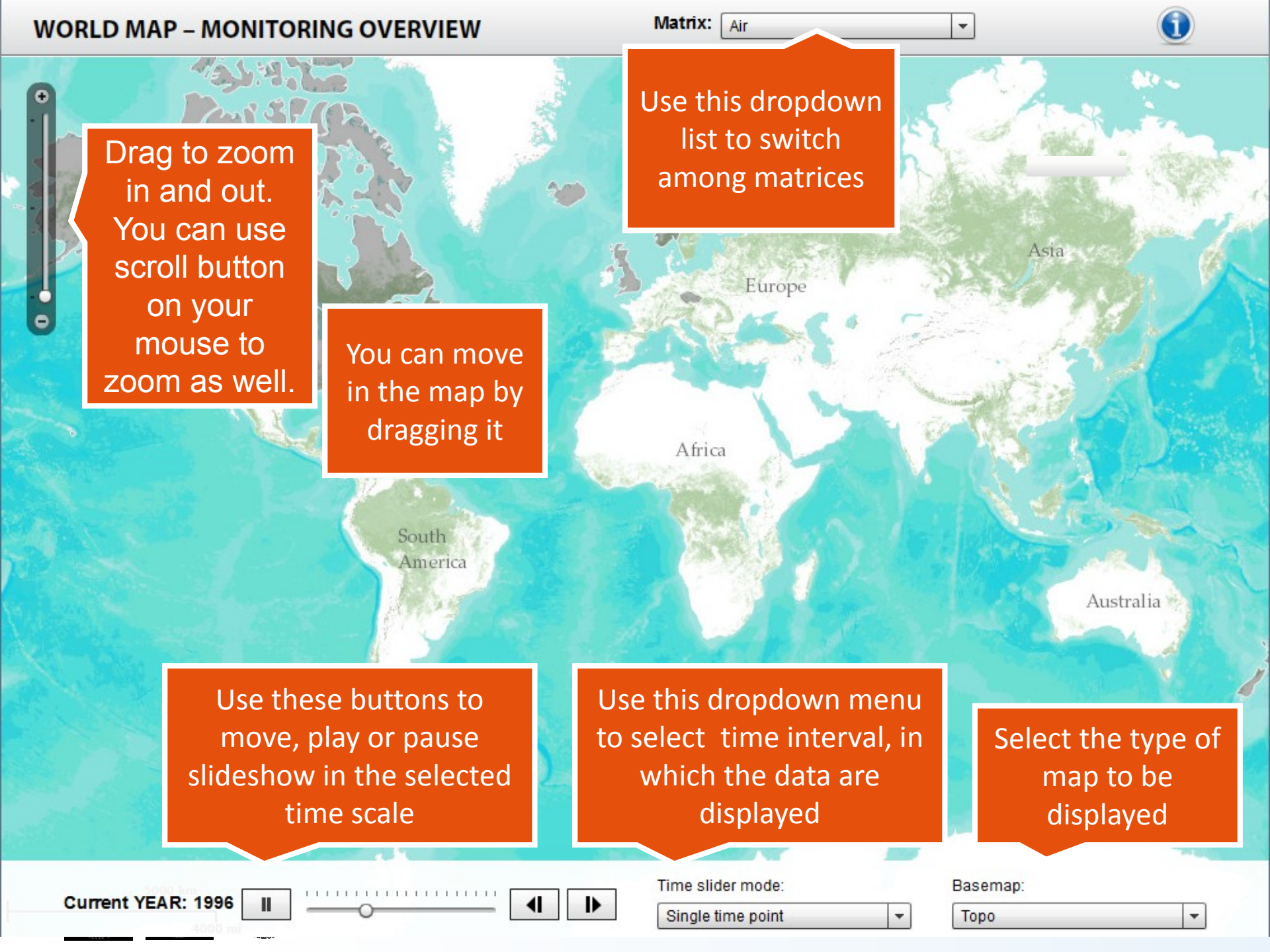


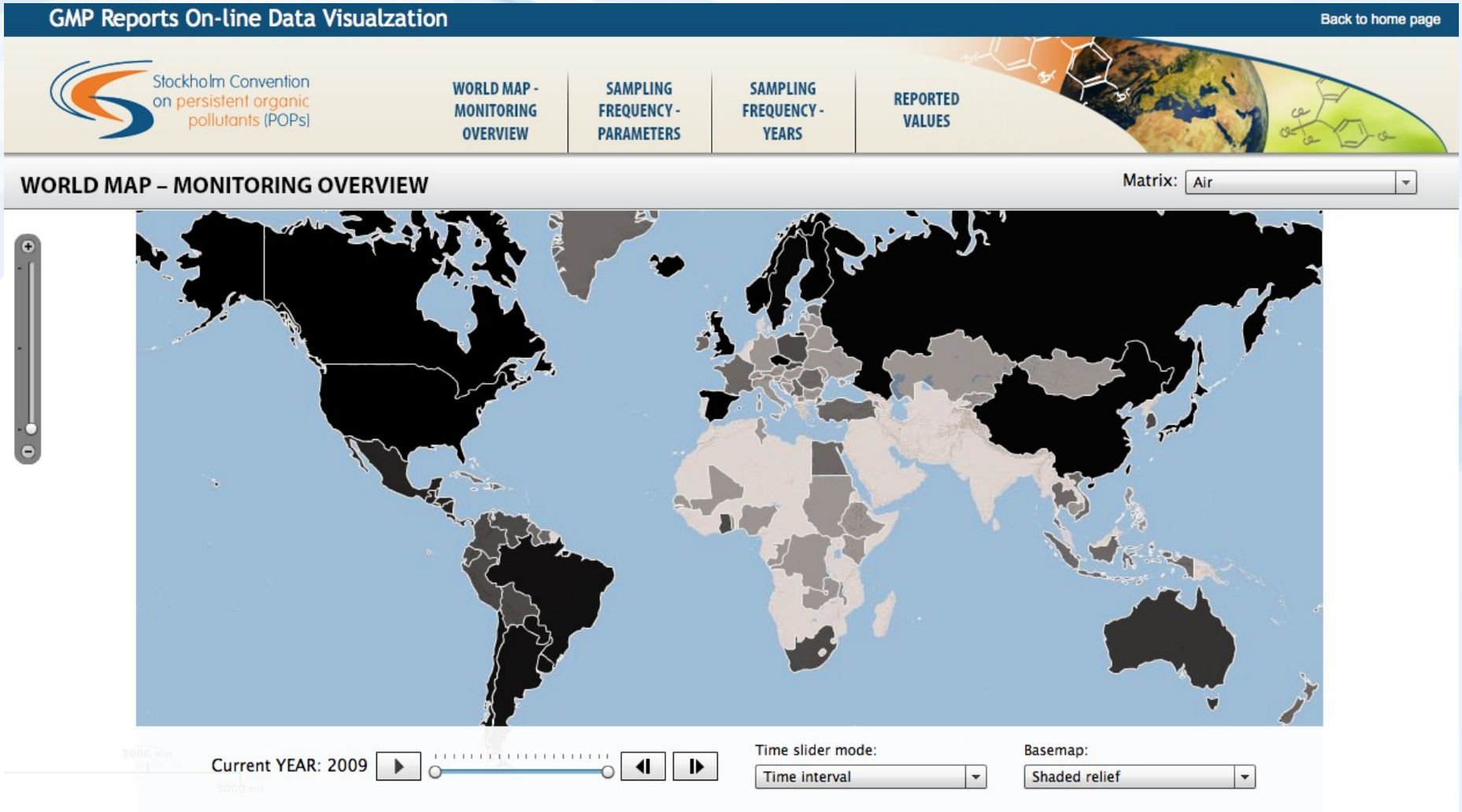
RECETOX
Masaryk University
Brno, Czech Republic
October 2010

Passive air sampling networks

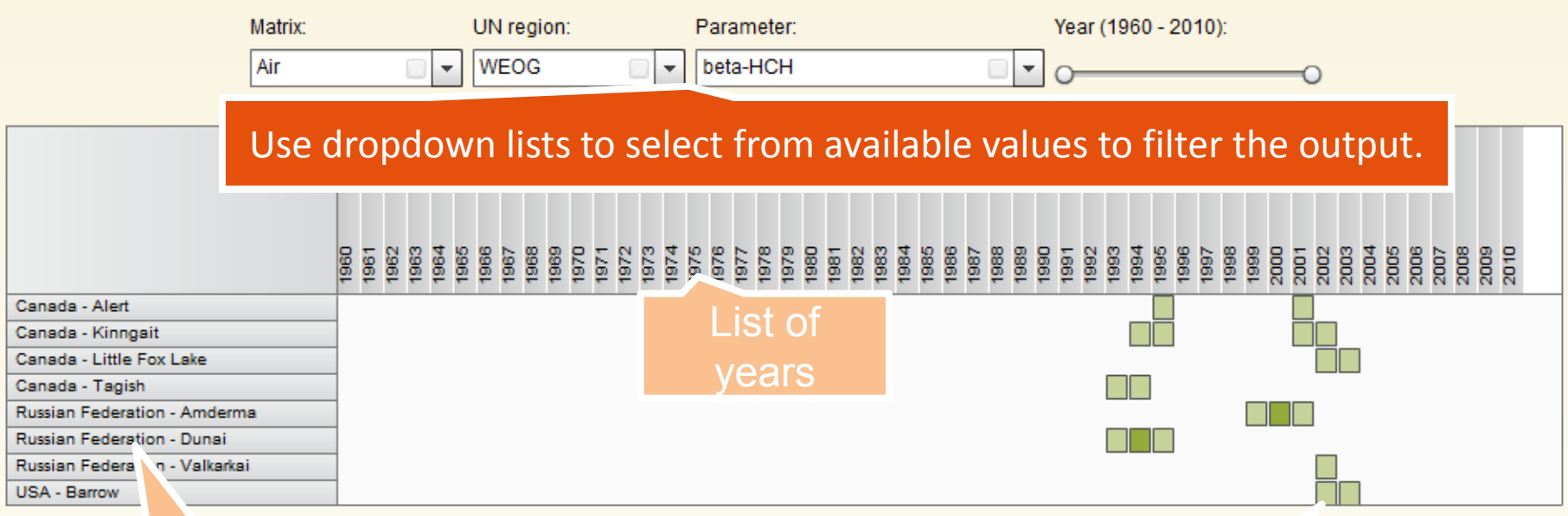



GMP Reports On-line Data Visualization
Back to home page
Stockholm Convention on persistent organic
WORLD MAP - MONITORING OVERVIEW
SAMPLING FREQUENCY - PARAMETERS
SAMPLING FREQUENCY - YEARS
REPORTED VALUES
Click on this logo to return to this page again
Main menu
WORLD MAP – MONITORING OVERVIEW
An interactive world map displaying monitoring activities within all worlds' countries in individual years.
» Open the visualisation
SAMPLING FREQUENCY – PARAMETERS
The chart shows sampling frequency of individual compounds in countries.
» Open the visualisation
SAMPLING FREQUENCY – YEARS
The chart shows sampling frequency of individual compounds on 1-year divided timeline.
» Open the visualisation
REPORTED VALUES
This chart is designed for direct presentation of reported values and concentrations.
» Open the visualisation
Description and links to all available reports


WORLD MAP – MONITORING OVERVIEW
Matrix:
Air
Use this dropdown list to switch among matrices
Drag to zoom in and out. You can use scroll button on your mouse to zoom as well.
You can move in the map by dragging it
Asia
Europe
Africa
South America
Australia
Use these buttons to move, play or pause slideshow in the selected time scale
Use this dropdown menu to select time interval, in which the data are displayed
Select the type of map to be displayed
Current YEAR: 1996
Time slider mode:
Single time point
Basemap:
Topo


GMP Reports On-line Data Visualzation
Back to home page
Stockholm Convention on persistent organic pollutants (POPs)
WORLD MAP - MONITORING OVERVIEW
SAMPLING FREQUENCY - PARAMETERS
SAMPLING FREQUENCY - YEARS
REPORTED VALUES
WORLD MAP – MONITORING OVERVIEW
Matrix: Air
Current YEAR: 2009
Time slider mode:
Time interval
Basemap:
Shaded relief

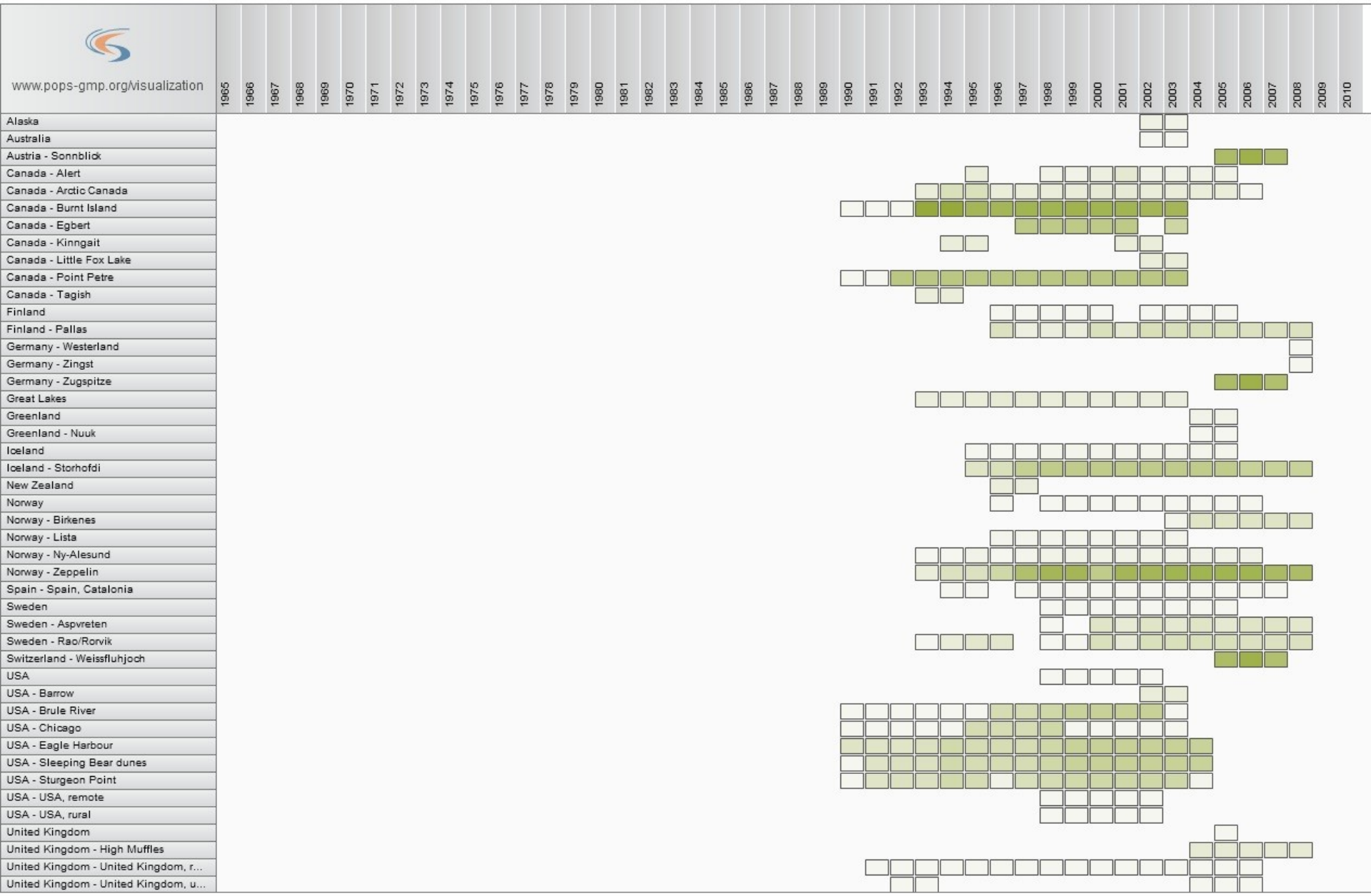
SAMPLING FREQUENCY – YEARS



GMP Reports On-line Data Visualization

AVAILABLE DATA – YEARS

Matrix: **Air** | Sampling method: **active** | UN region: **WEOG** | Parameter: **null** | Year range: **1965,2010**

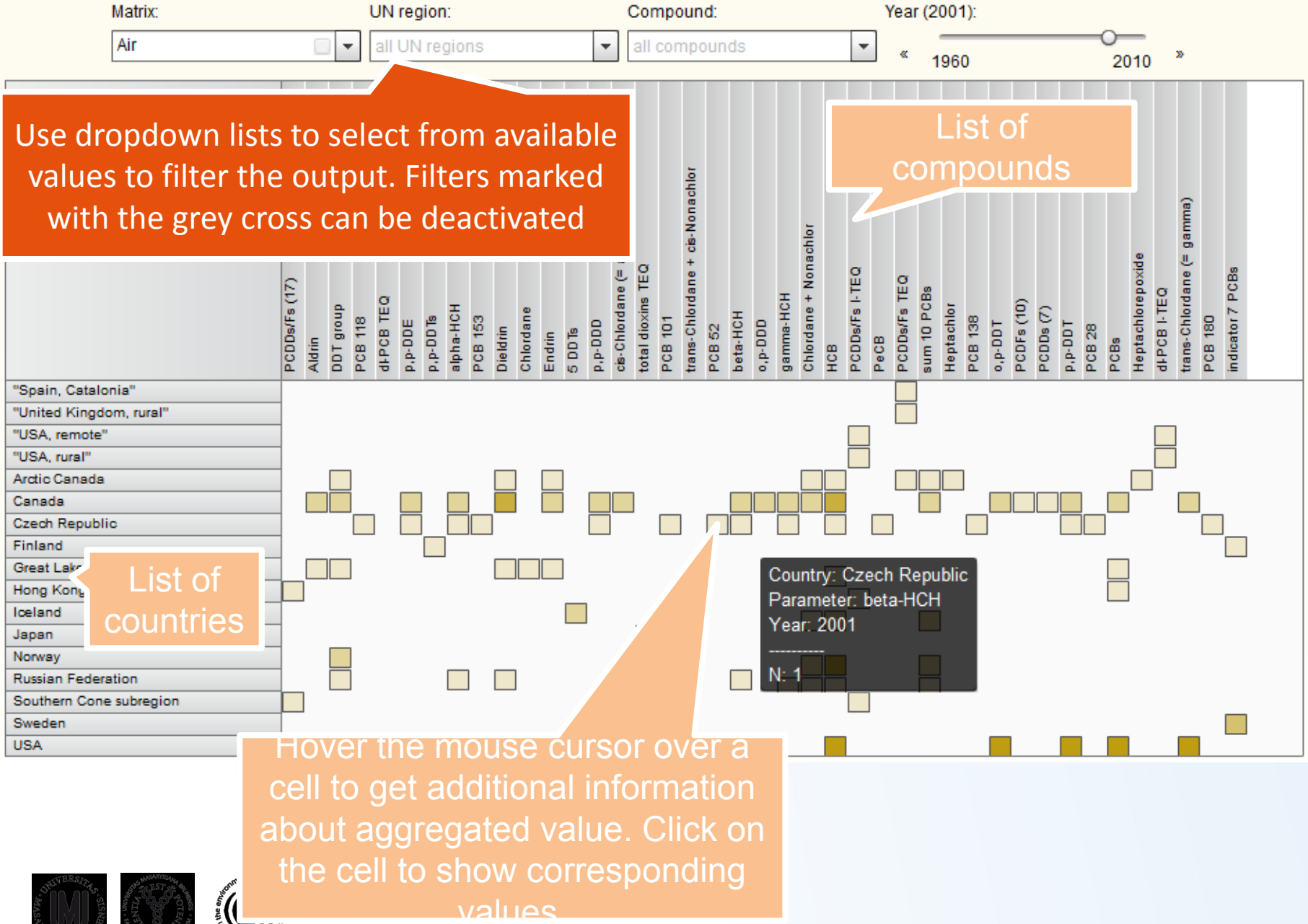


GMP Reports On-line Data Visualization

AVAILABLE DATA – YEARS

Matrix: **Breast milk** | Sampling method: **null** | UN region: **WEOG** | Parameter: **PCDDs/Fs WHO98-TEQ** | Year range: **1965,2010**

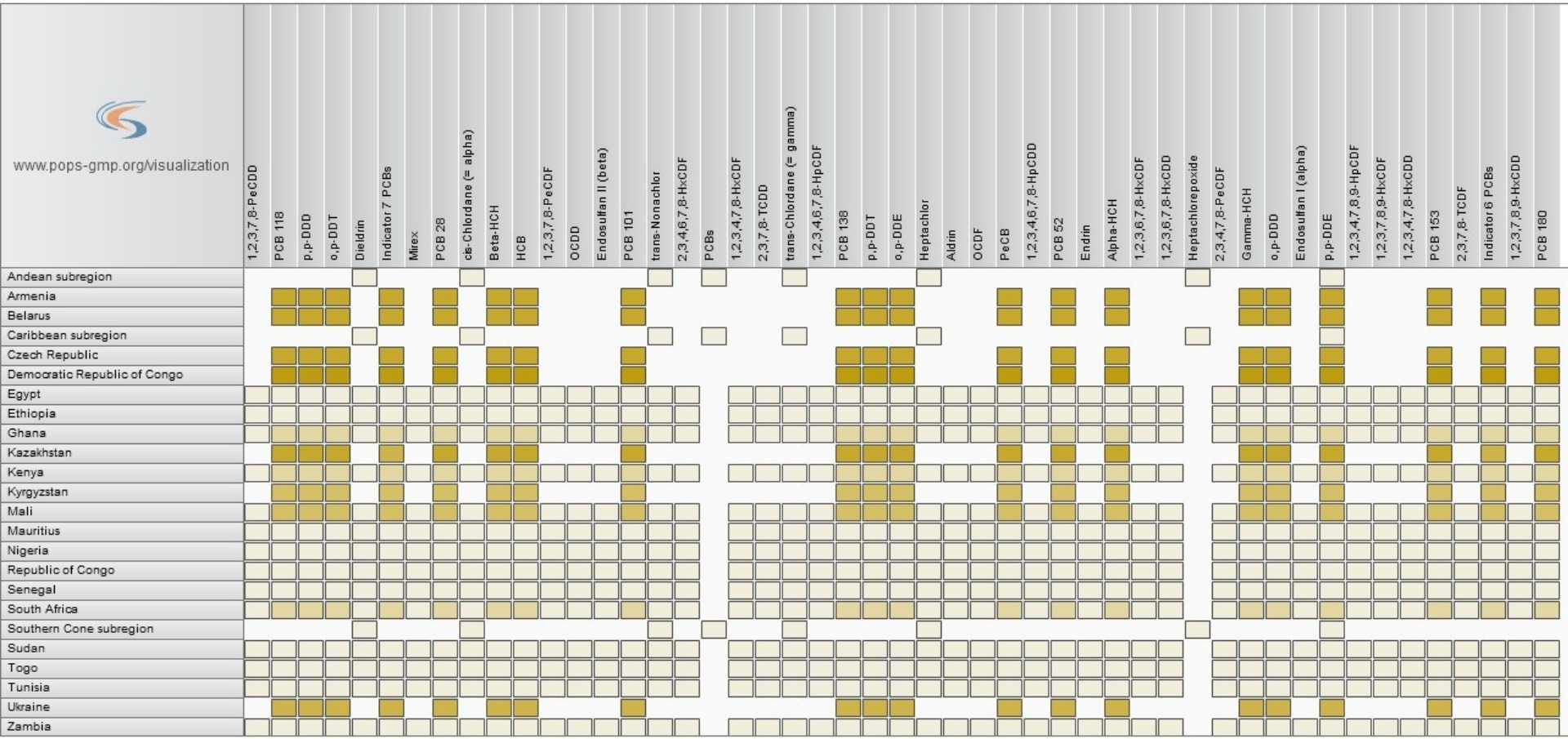
SAMPLING FREQUENCY – PARAMETERS



GMP Reports On-line Data Visualization

AVAILABLE DATA – PARAMETERS

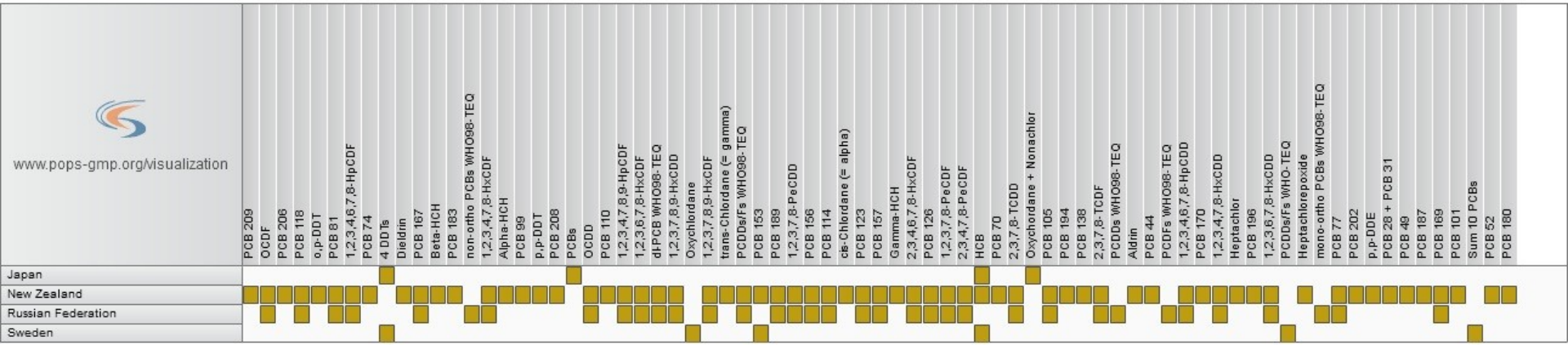
Matrix: **Air** | Sampling method: **passive** | UN region: **null** | Compound: **null** | Year: **2008**



GMP Reports On-line Data Visualization

AVAILABLE DATA – PARAMETERS

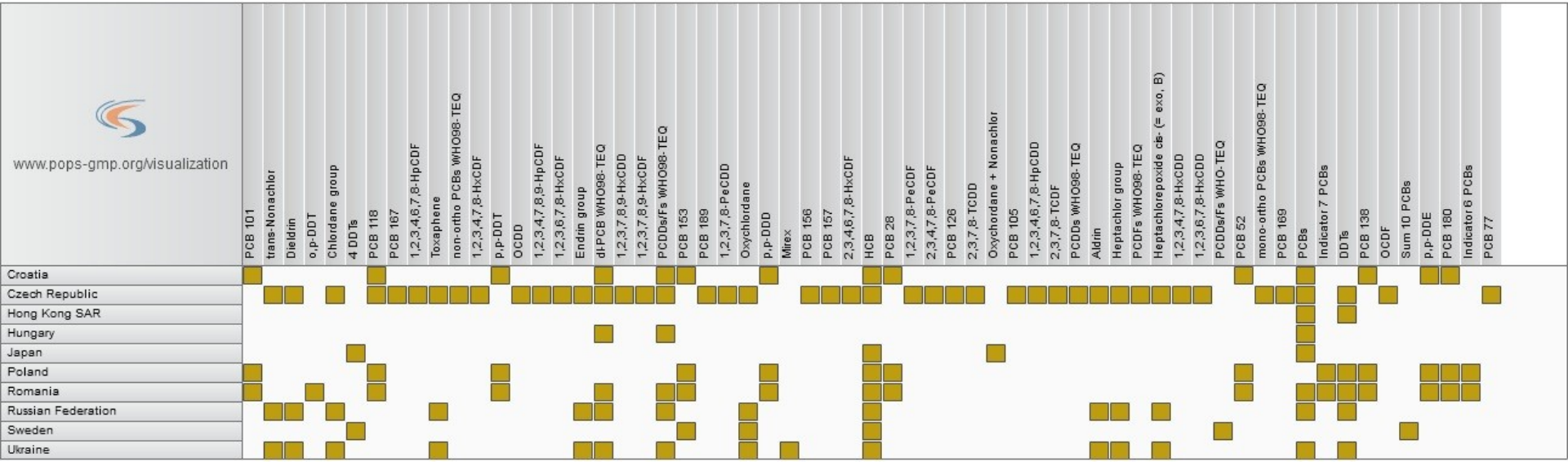
Matrix: **Breast milk** | Sampling method: **null** | UN region: **null** | Compound: **null** | Year: **1998**



GMP Reports On-line Data Visualization

AVAILABLE DATA – PARAMETERS

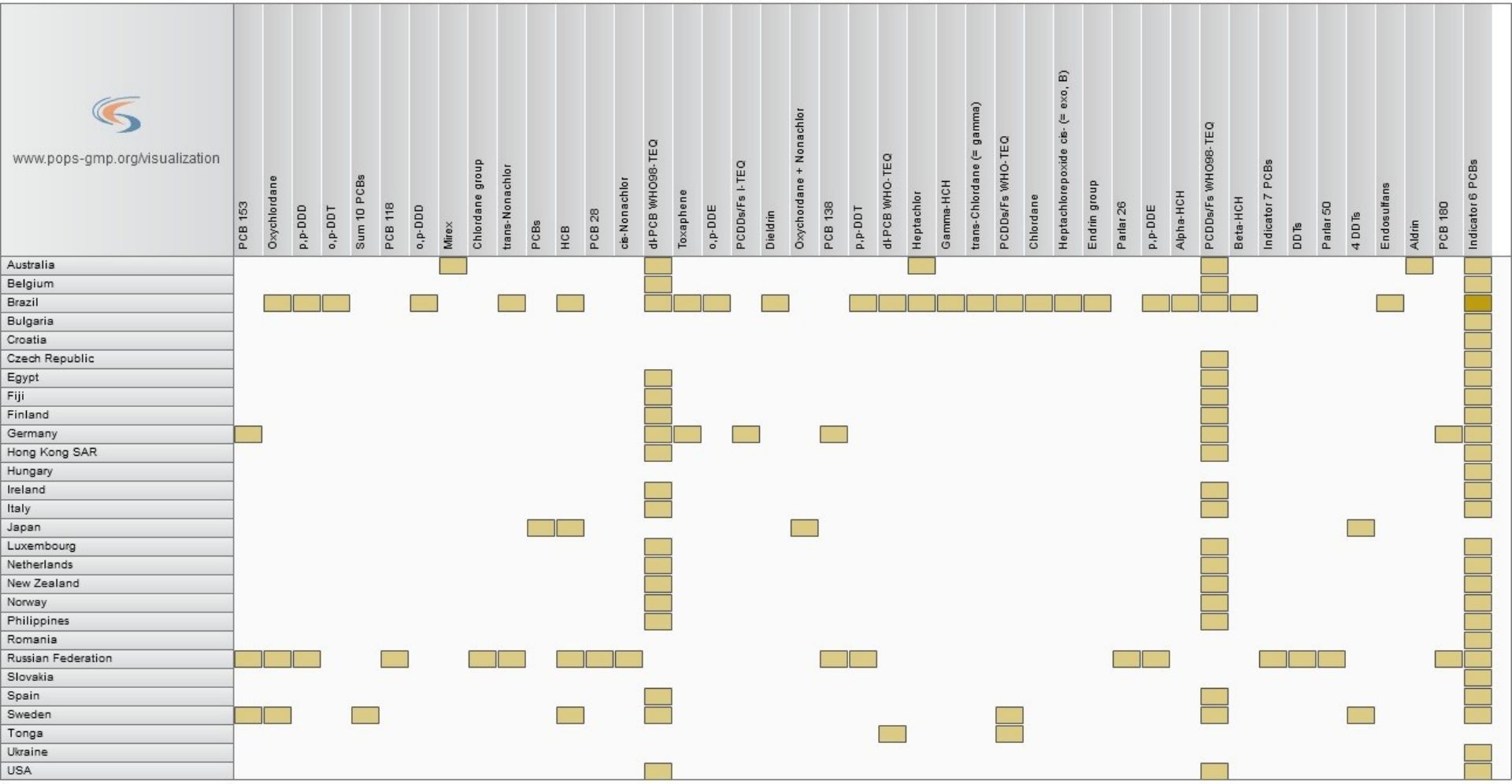
Matrix: **Breast milk** | Sampling method: **null** | UN region: **null** | Compound: **null** | Year: **2000**



GMP Reports On-line Data Visualization

AVAILABLE DATA – PARAMETERS

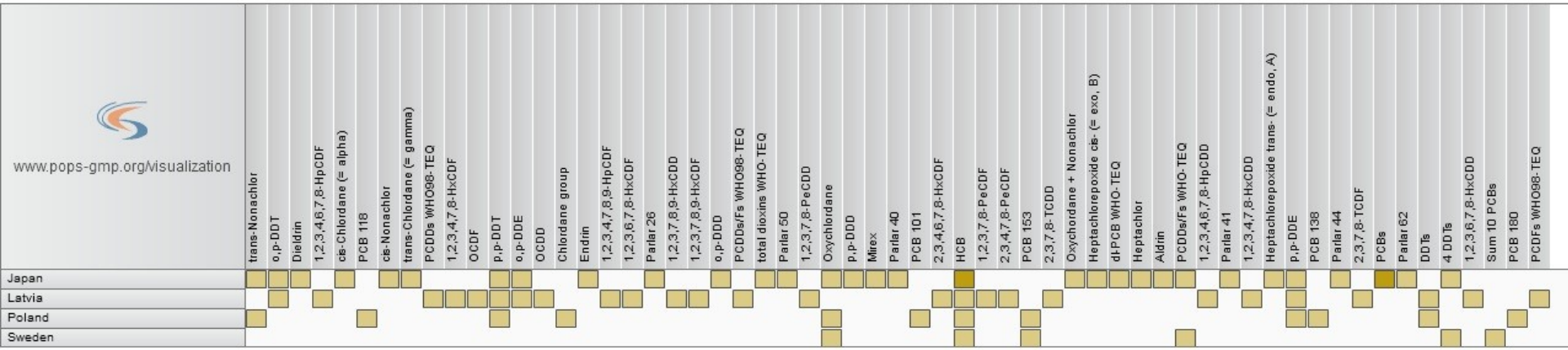
Matrix: **Breast milk** | Sampling method: **null** | UN region: **null** | Compound: **null** | Year: **2002**



GMP Reports On-line Data Visualization

AVAILABLE DATA – PARAMETERS

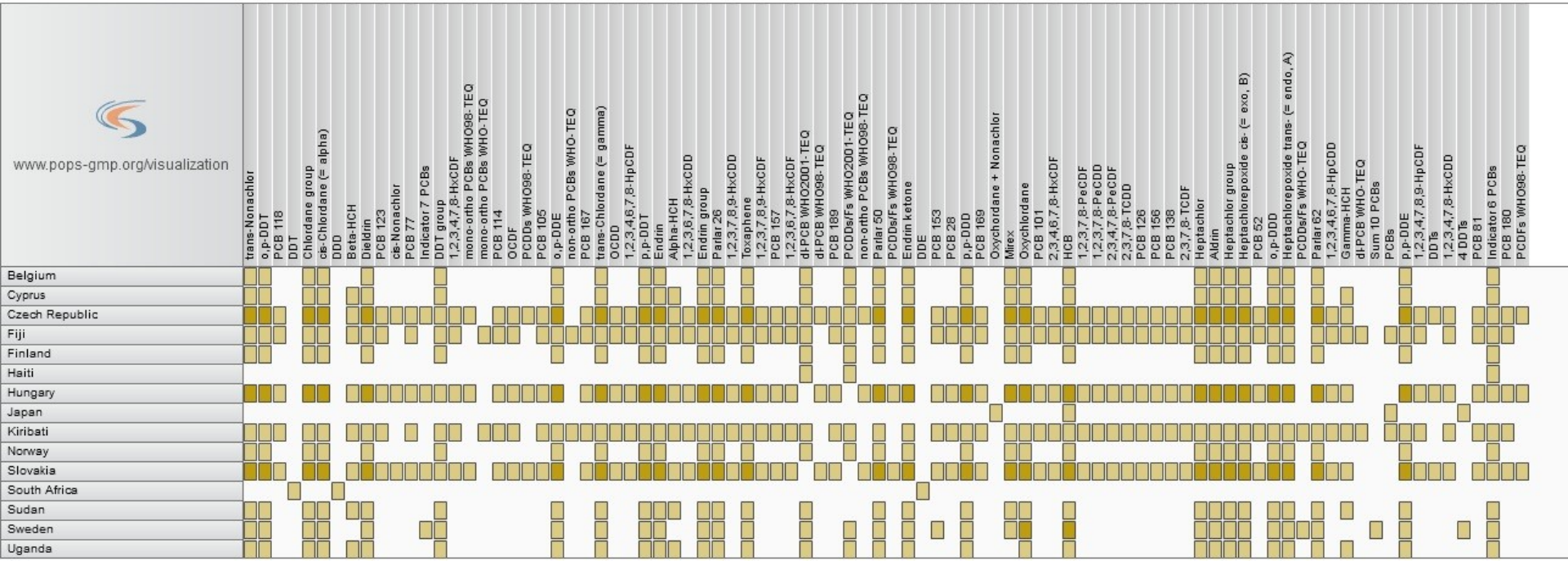
Matrix: **Breast milk** | Sampling method: **null** | UN region: **null** | Compound: **null** | Year: **2004**



GMP Reports On-line Data Visualization

AVAILABLE DATA – PARAMETERS

Matrix: **Breast milk** | Sampling method: **null** | UN region: **null** | Compound: **null** | Year: **2006**



GMP Reports On-line Data Visualization

AVAILABLE DATA – PARAMETERS

Matrix: **Breast milk** | Sampling method: **null** | UN region: **null** | Compound: **null** | Year: **2008**

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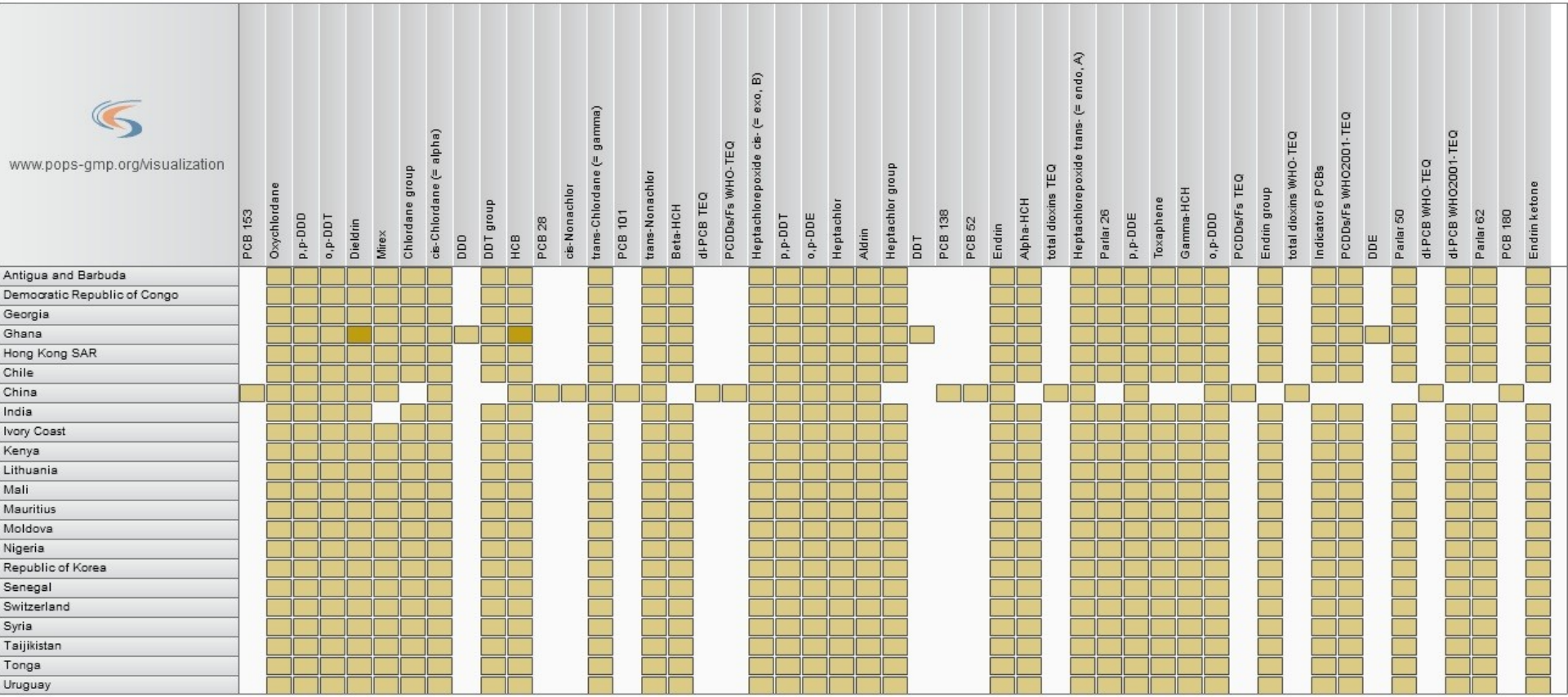
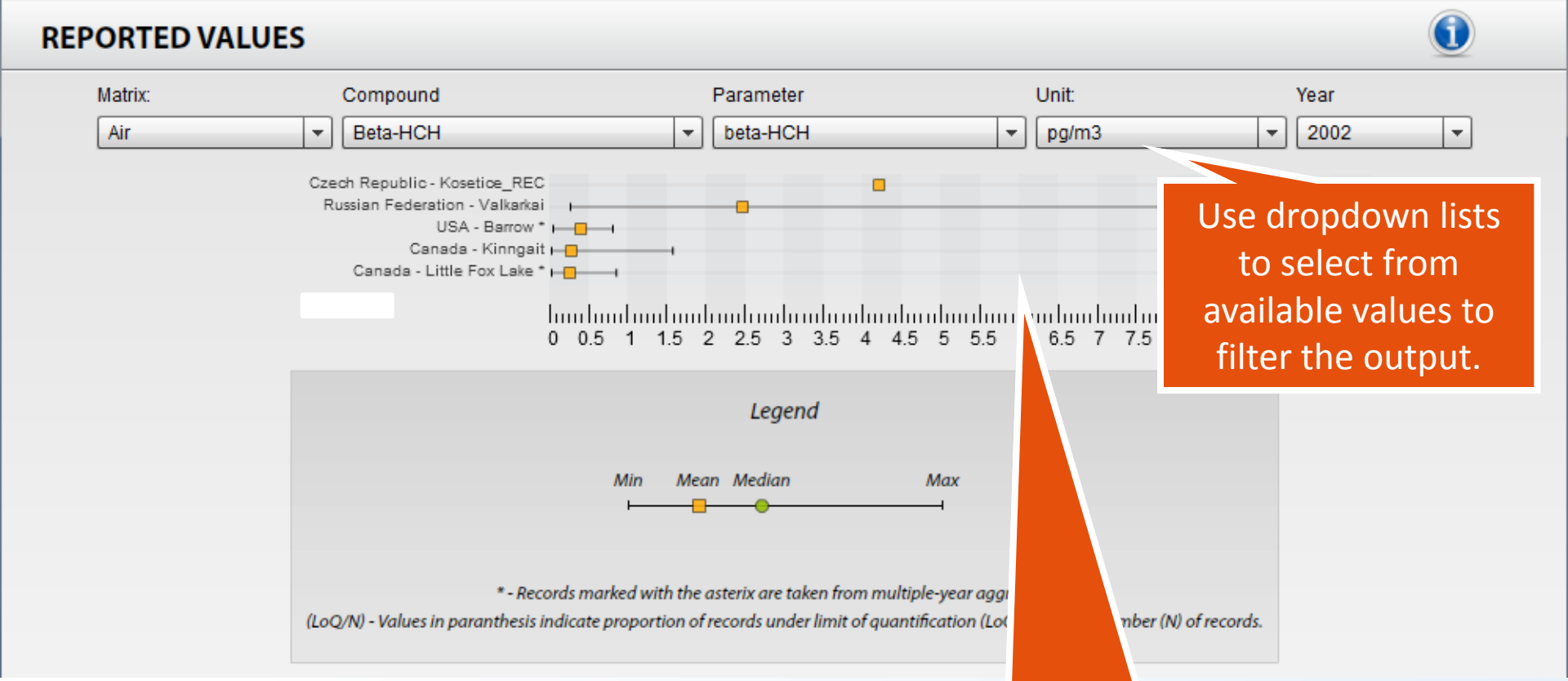


REPORTED VALUES



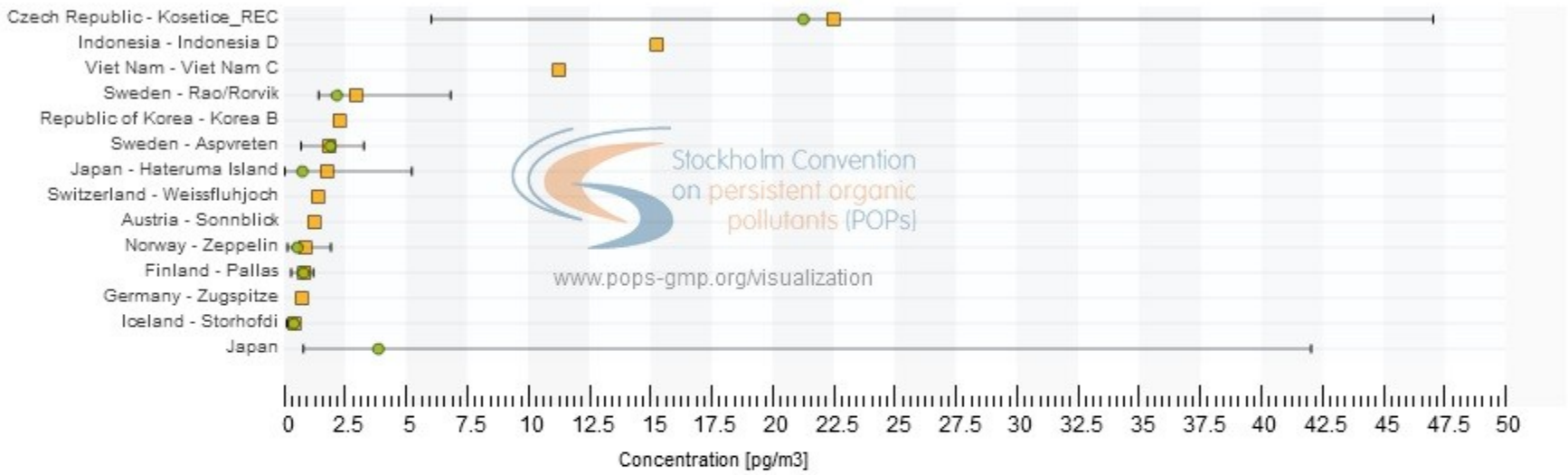
Use dropdown lists to select from available values to filter the output.

Reported values are shown as a box-and-whisker plot. A plot consist of minimum, maximum, mean and median. If a value is unavailable, appropriate sign is not displayed

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Air** | Sampling method: **active** | Compound: **Alpha-HCH** | Parameter: **Alpha-HCH** | Unit: **pg/m3** | Year: **2005**



Legend

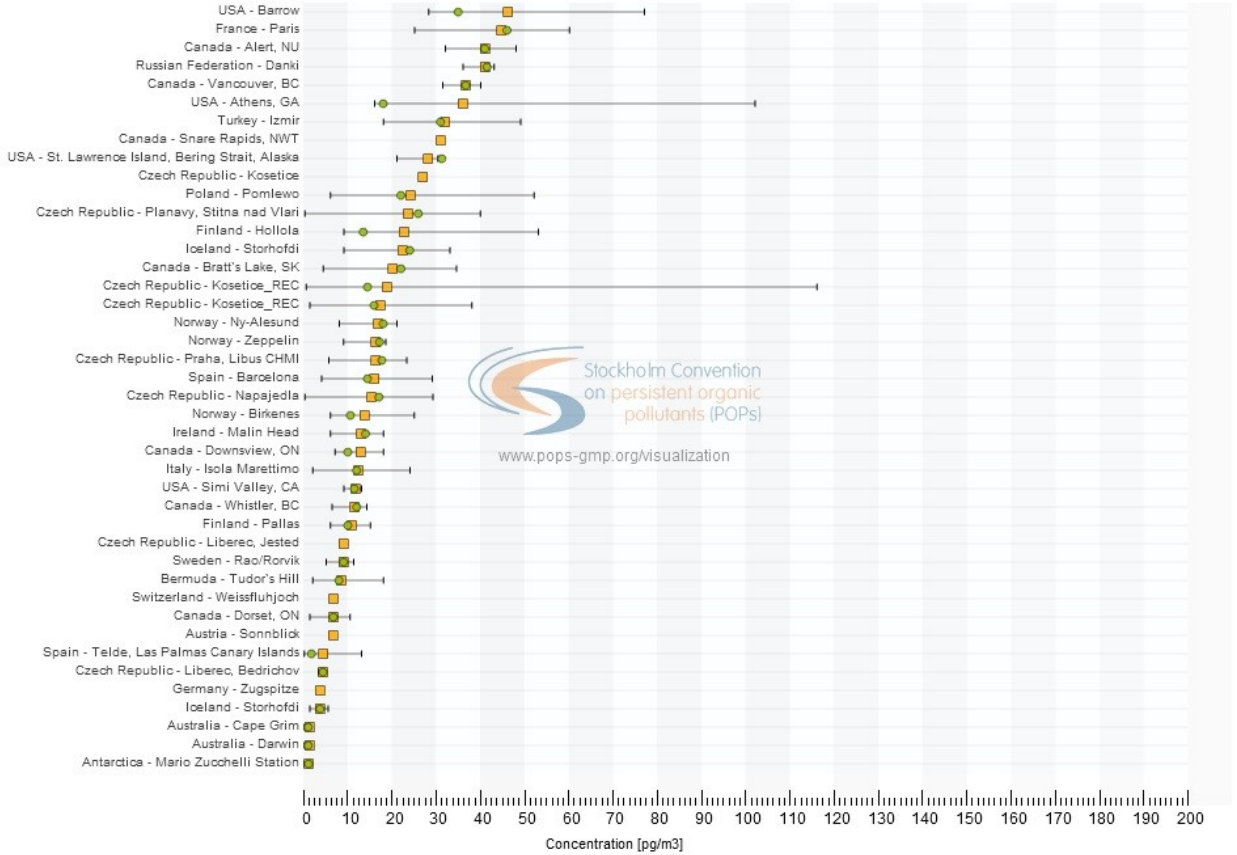
** - Records marked with the asterix are taken from multiple-year aggregation.*

(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Air** | Sampling method: **active & passive** | Compound: **Alpha-HCH** | Parameter: **Alpha-HCH** | Unit: **pg/m3** | Year: **2005**



Legend

Min *Mean* *Median* *Max*

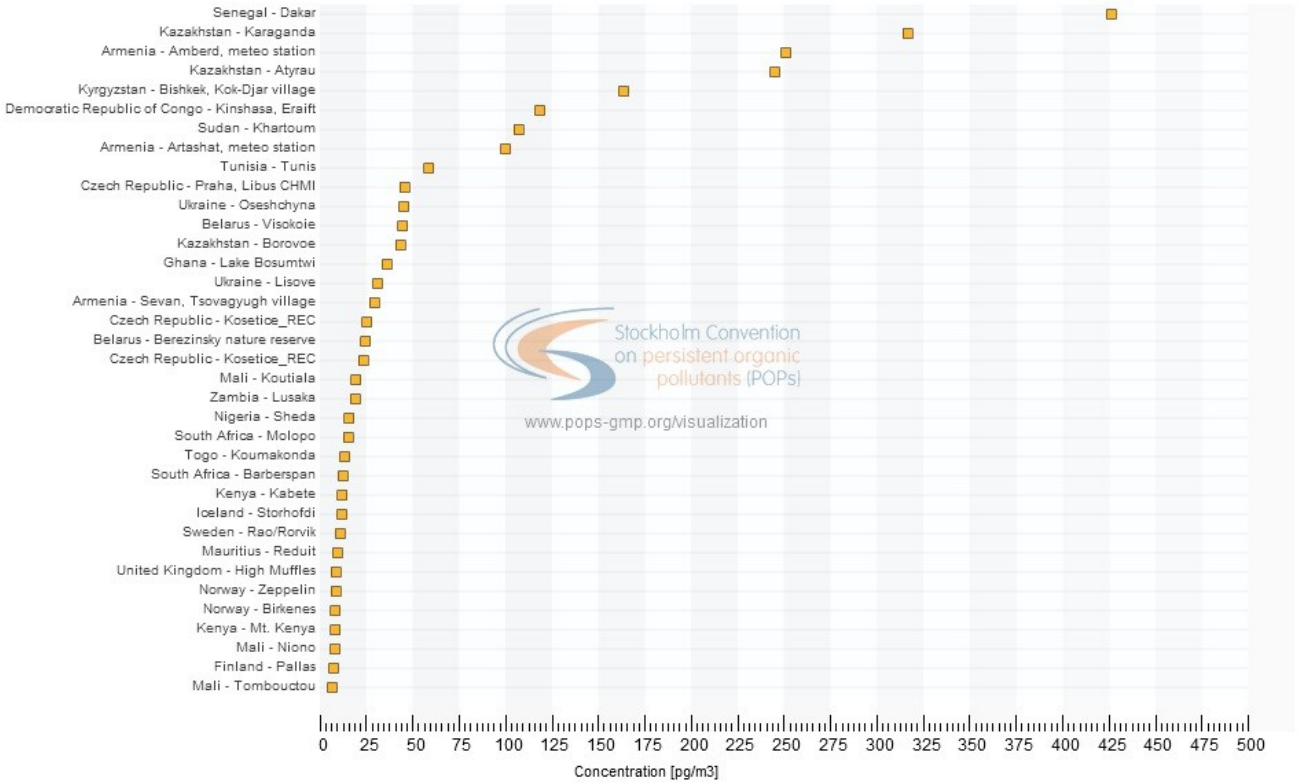
** - Records marked with the asterix are taken from multiple-year aggregation.*

(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Air** | Sampling method: **active & passive** | Compound: **PCB** | Parameter: **Indicator 6 PCBs** | Unit: **pg/m3** | Year: **2008**



Legend

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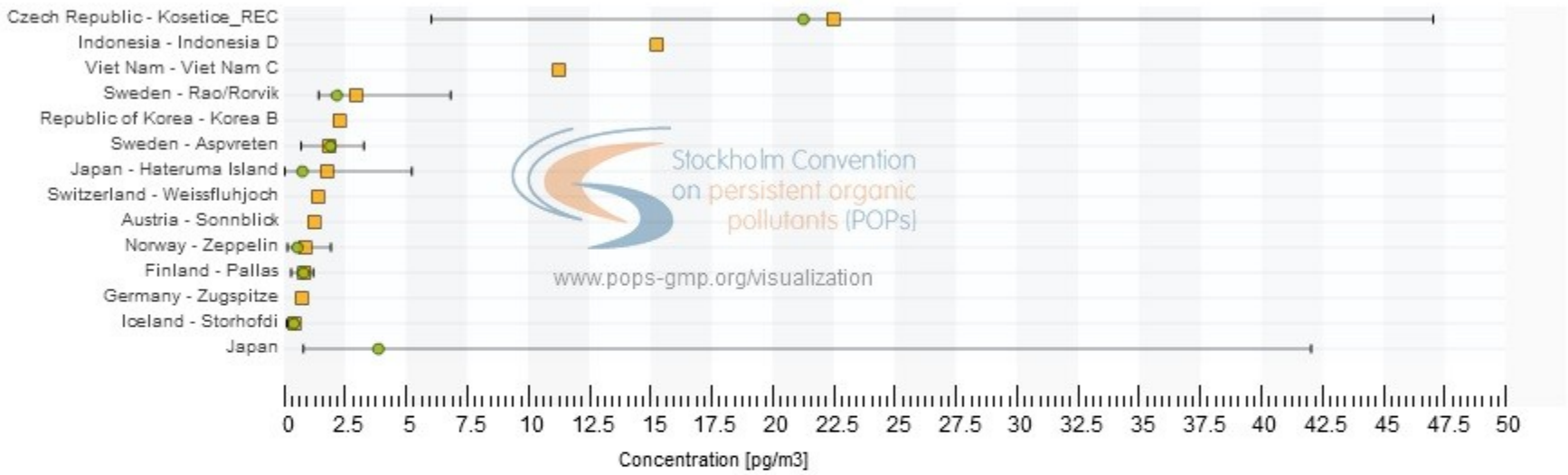
(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Air** | Sampling method: **active** | Compound: **DDT** | Parameter: **p,p-DDE** | Unit: **pg/m3** | Year: **2005**



Legend

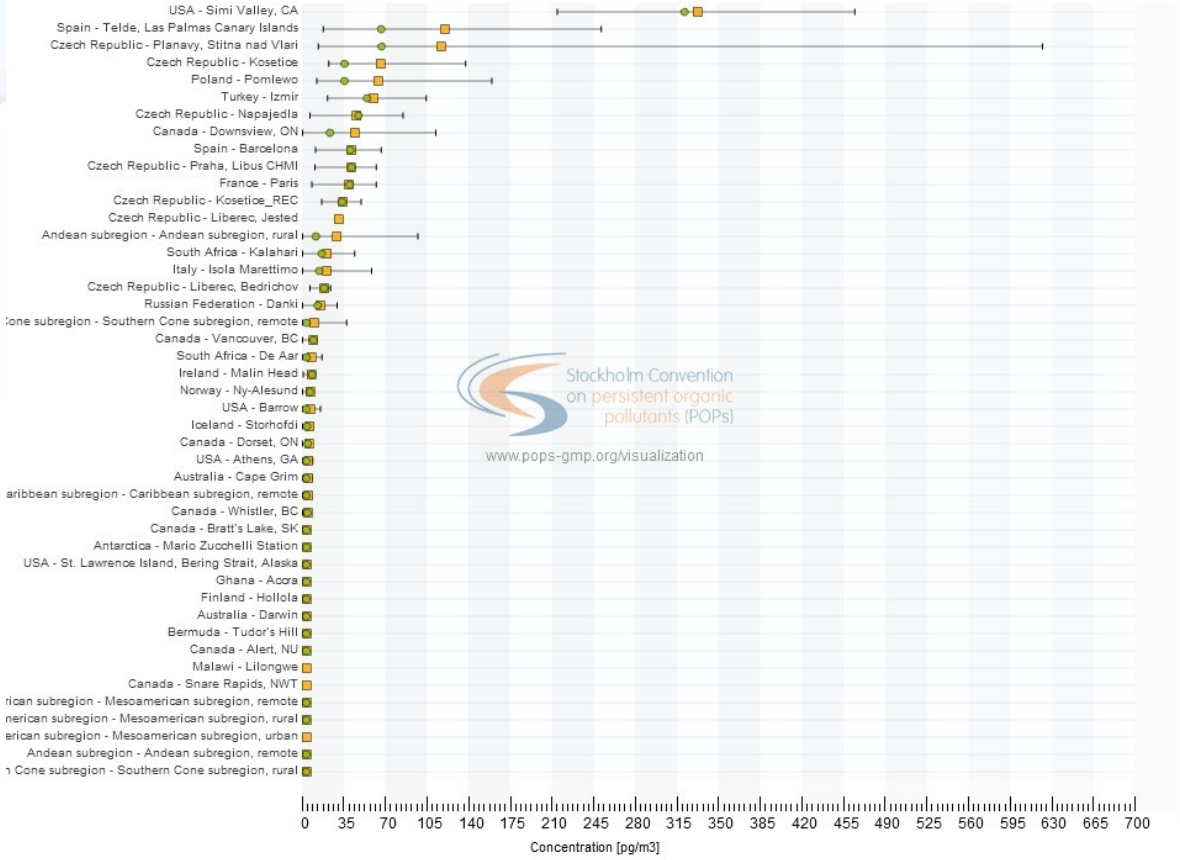
** - Records marked with the asterix are taken from multiple-year aggregation.*

(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Air** | Sampling method: **passive** | Compound: **DDT** | Parameter: **p,p-DDE** | Unit: **pg/m3** | Year: **2005**



Legend

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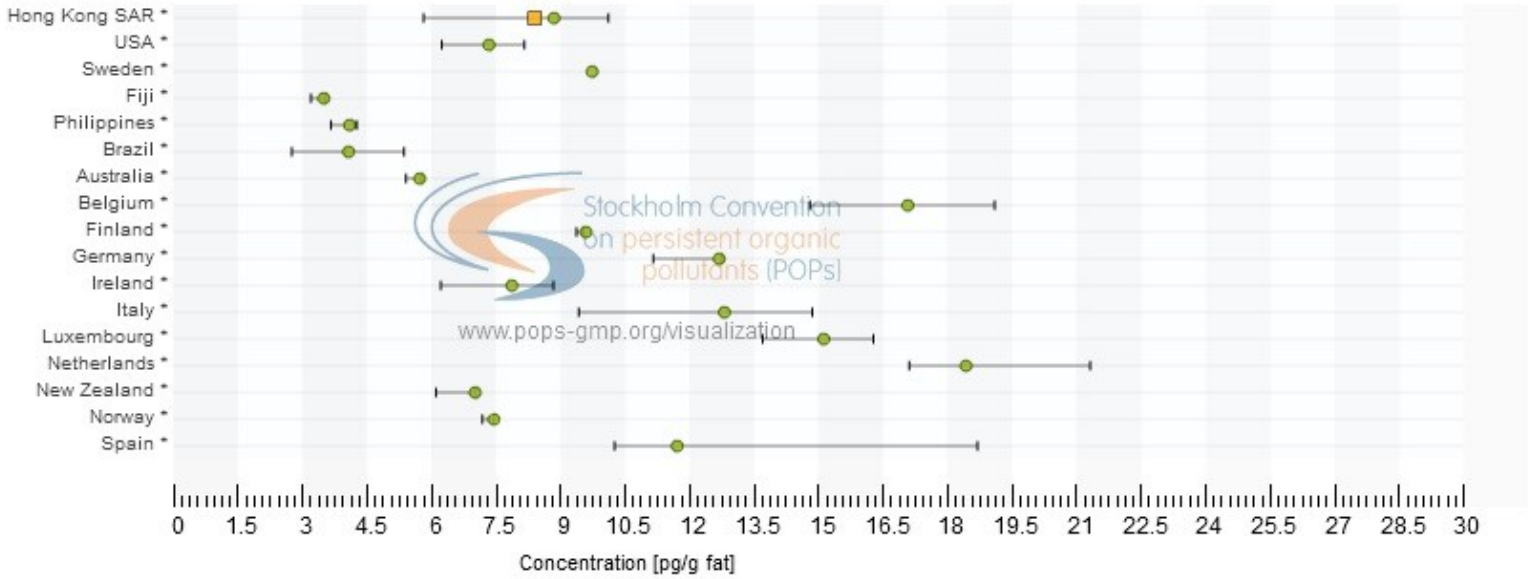
(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Breast milk** | Sampling method: **null** | Compound: **PCDF** | Parameter: **PCDDs/Fs WHO98-TEQ** | Unit: **pg/g fat** | Year: **2002**



Legend

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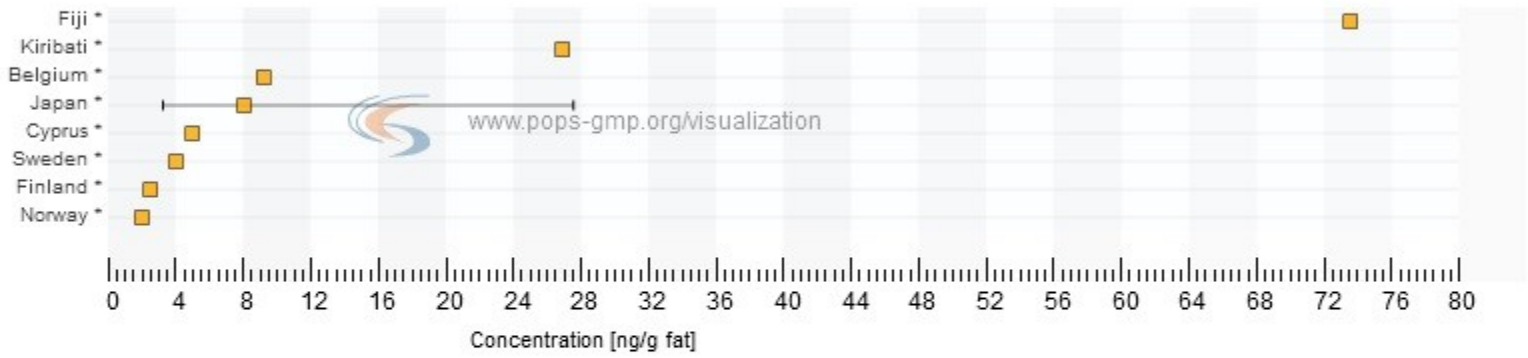
(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Breast milk** | Sampling method: **null** | Compound: **DDT** | Parameter: **p,p-DDT** | Unit: **ng/g fat** | Year: **2005**



Legend

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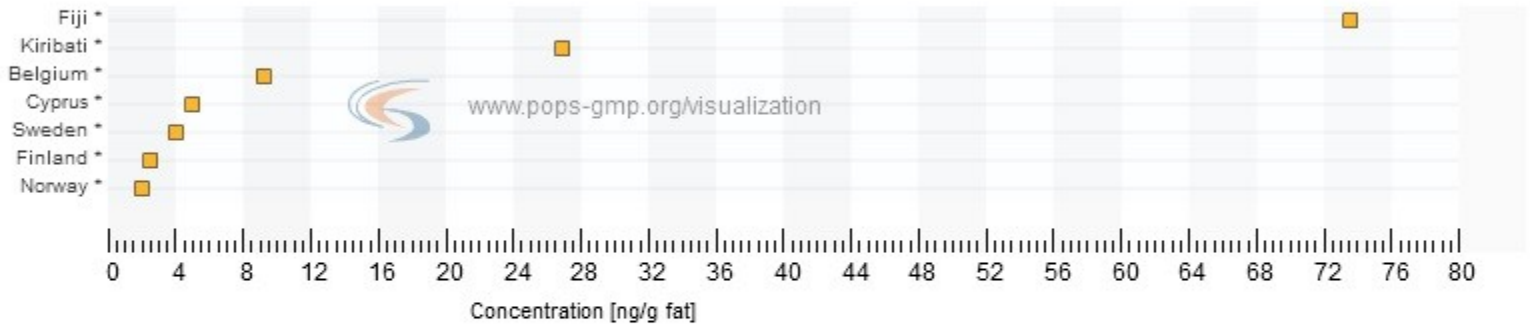
(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Breast milk** | Sampling method: **null** | Compound: **DDT** | Parameter: **p,p-DDT** | Unit: **ng/g fat** | Year: **2006**



Legend

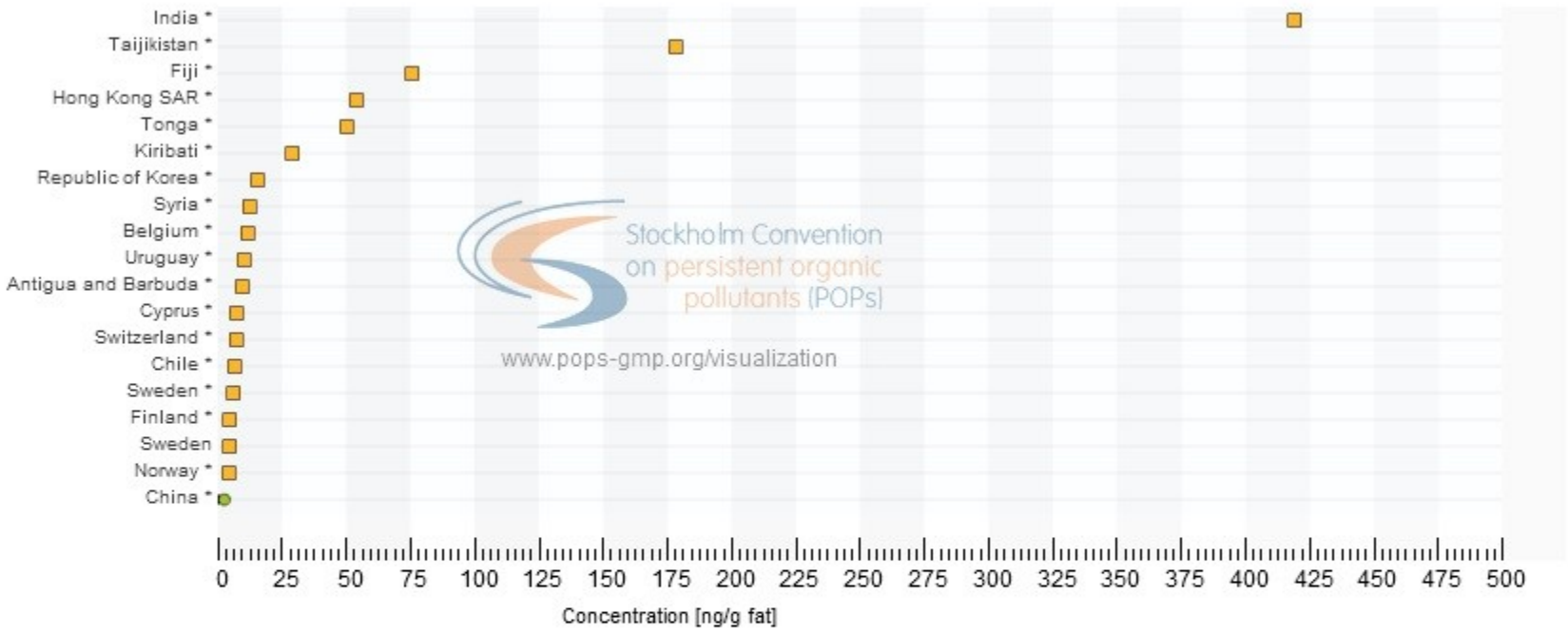
** - Records marked with the asterix are taken from multiple-year aggregation.*

(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Breast milk** | Sampling method: **null** | Compound: **DDT** | Parameter: **p,p-DDT** | Unit: **ng/g fat** | Year: **2007**



Legend

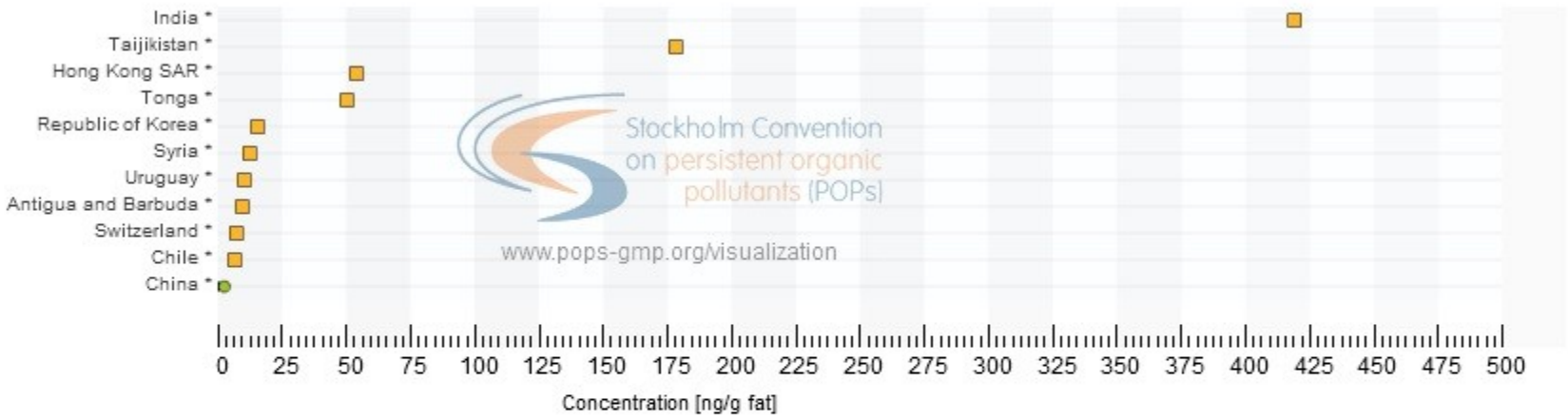
** - Records marked with the asterix are taken from multiple-year aggregation.*

(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Breast milk** | Sampling method: **null** | Compound: **DDT** | Parameter: **p,p-DDT** | Unit: **ng/g fat** | Year: **2008**



Legend

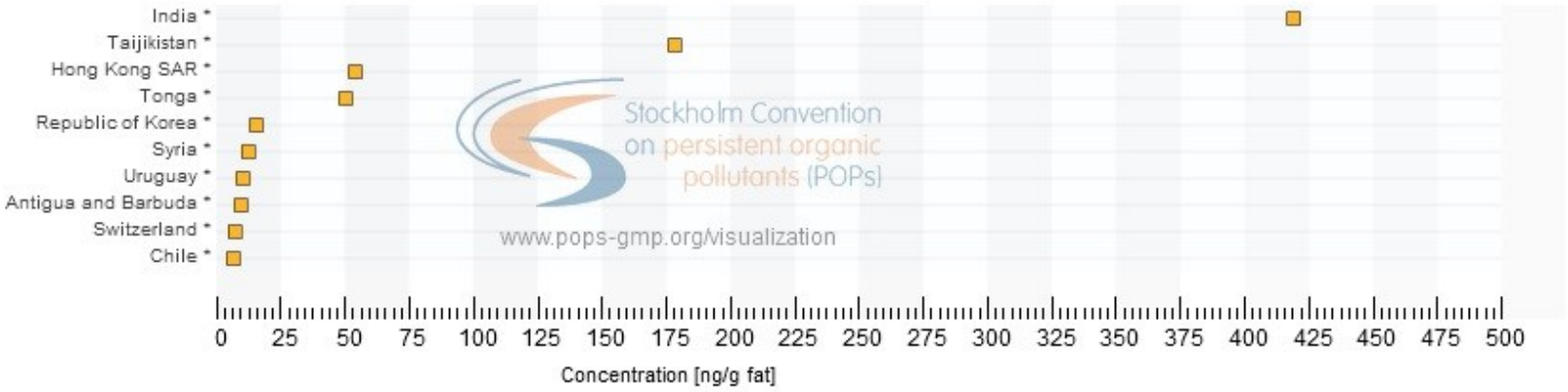
** - Records marked with the asterix are taken from multiple-year aggregation.*

(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Breast milk** | Sampling method: **null** | Compound: **DDT** | Parameter: **p,p-DDT** | Unit: **ng/g fat** | Year: **2009**



Legend

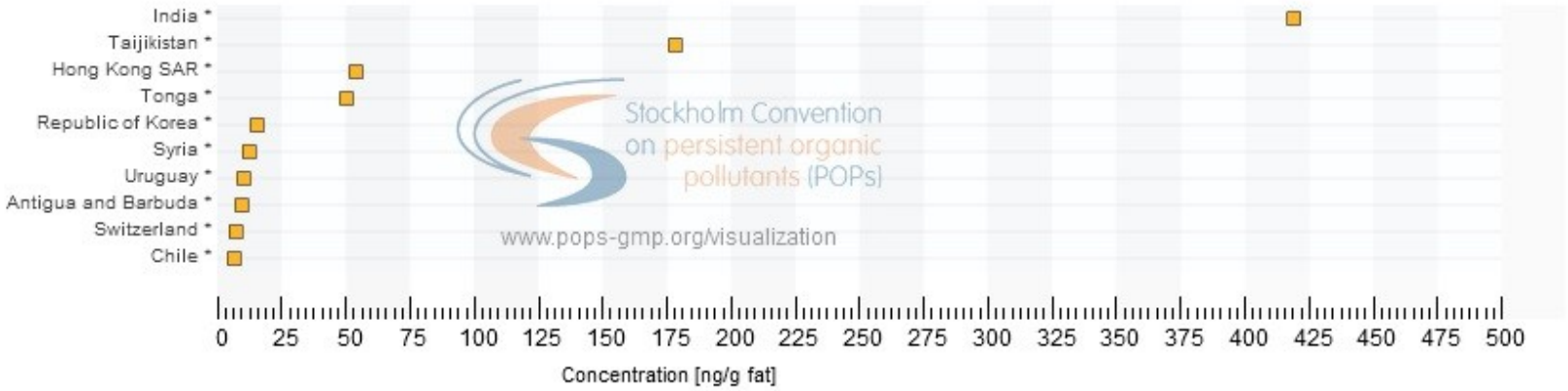
** - Records marked with the asterix are taken from multiple-year aggregation.*

(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REPORTED VALUES - backgroud sites only

Matrix: **Breast milk** | Sampling method: **null** | Compound: **DDT** | Parameter: **p,p-DDT** | Unit: **ng/g fat** | Year: **2010**



Legend

** - Records marked with the asterix are taken from multiple-year aggregation.*

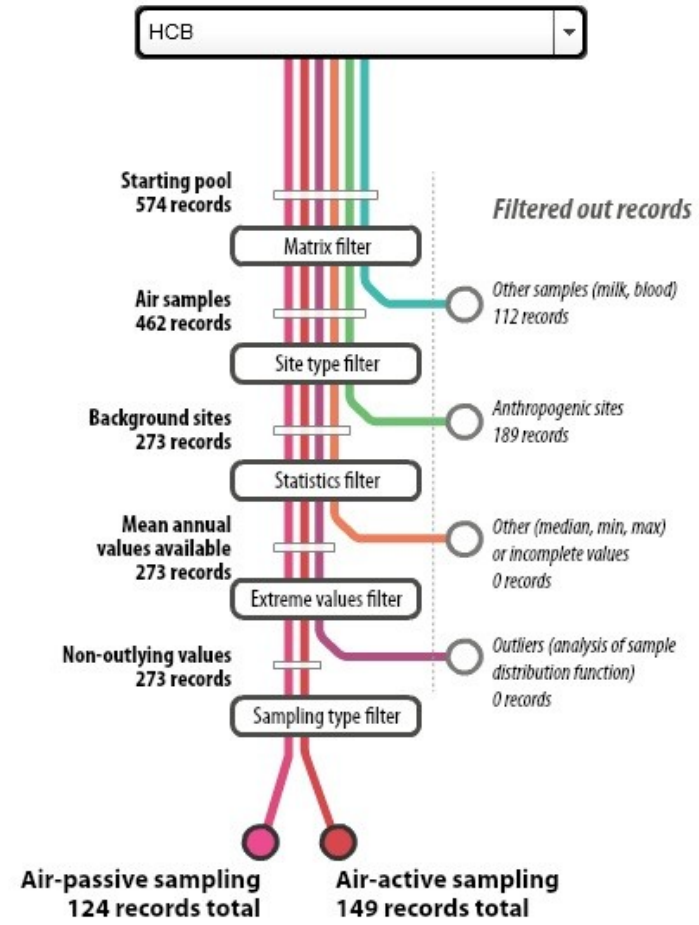
(LoQ/N) - Values in paranthesis indicate proportion of records under limit of quantification (LoQ) and total number (N) of records.

GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - data validation

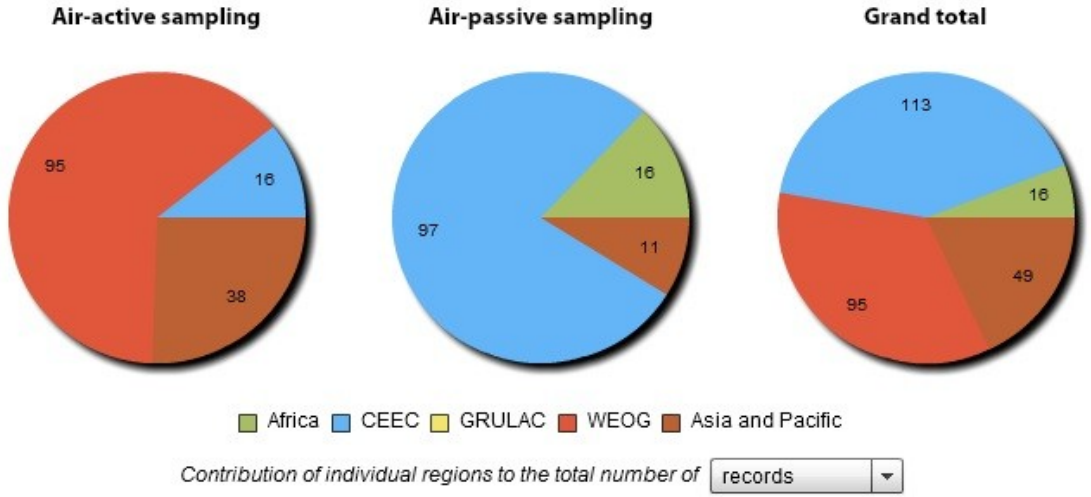
Parameter: HCB |

Process of Data Validation



Results of Data Validation

Sampling method	Africa	CEEC	GRULAC	WEOG	Asia and P...	TOTAL
HCB Air-passive sampling	12 countries 16 sites 16 records 2008 - 2008	19 countries 66 sites 97 records 2003 - 2008	0 countries 0 sites 0 records	0 countries 0 sites 0 records	3 countries 8 sites 11 records 2006 - 2008	34 countries 90 sites 124 records 2003 - 2008
HCB Air-active sampling	0 countries 0 sites 0 records	2 countries 3 sites 16 records 1998 - 2008	0 countries 0 sites 0 records	8 countries 19 sites 95 records 1998 - 2008	9 countries 32 sites 38 records 2004 - 2007	19 countries 54 sites 149 records 1998 - 2008



Stockholm Convention on persistent organic pollutants (POPs)

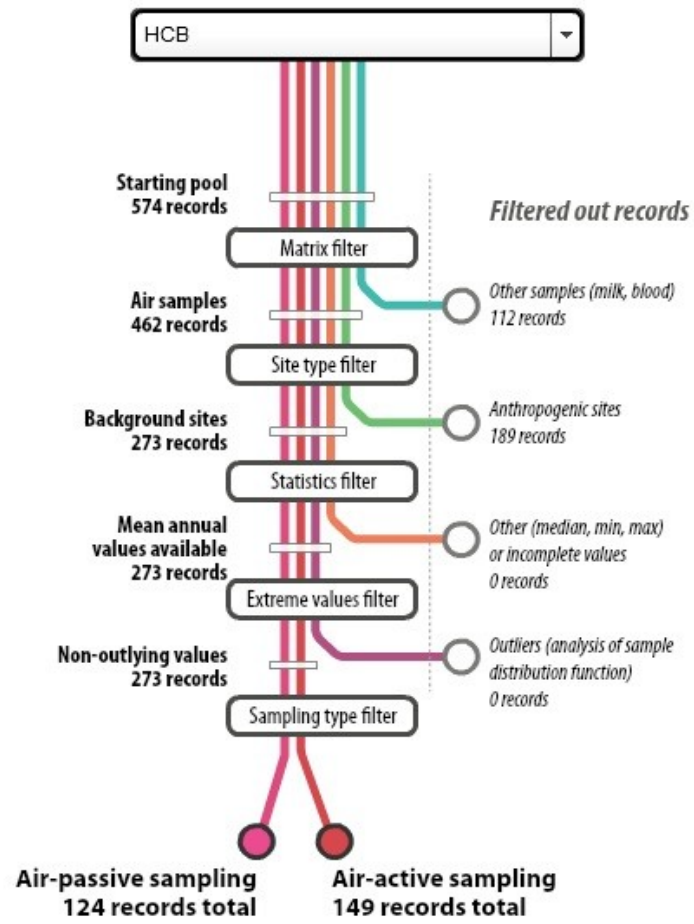
www.pops-gmp.org/visualization

GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - data validation

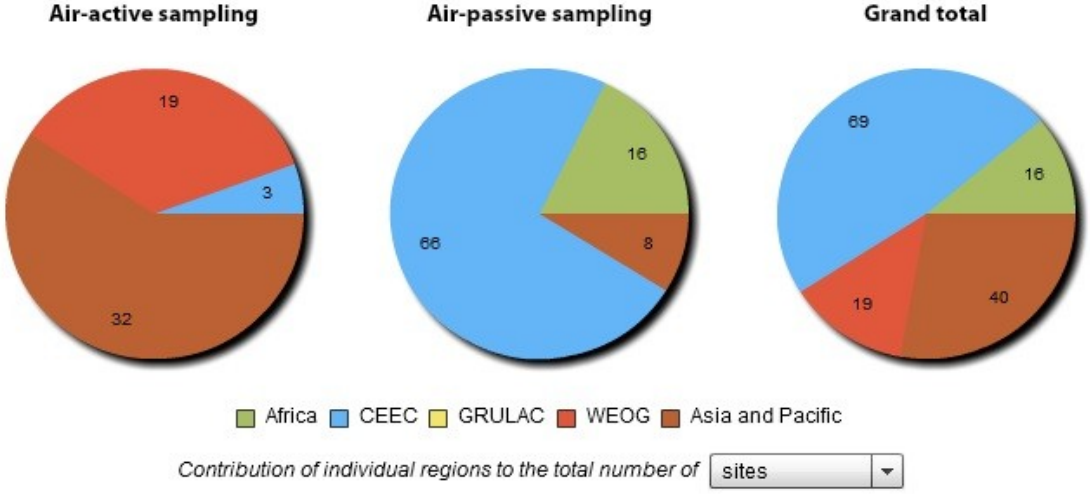
Parameter: HCB |

Process of Data Validation



Results of Data Validation

Sampling method	Africa	CEEC	GRULAC	WEOG	Asia and P...	TOTAL
HCB Air-passive sampling	**12** countries **16** sites **16** records **2008 - 2008**	**19** countries **66** sites **97** records **2003 - 2008**	0 countries 0 sites 0 records	0 countries 0 sites 0 records	**3** countries **8** sites **11** records **2006 - 2008**	**34** countries **90** sites **124** records **2003 - 2008**
HCB Air-active sampling	0 countries 0 sites 0 records	**2** countries **3** sites **16** records **1998 - 2008**	0 countries 0 sites 0 records	**8** countries **19** sites **95** records **1998 - 2008**	**9** countries **32** sites **38** records **2004 - 2007**	**19** countries **54** sites **149** records **1998 - 2008**



Stockholm Convention on persistent organic pollutants (POPs)

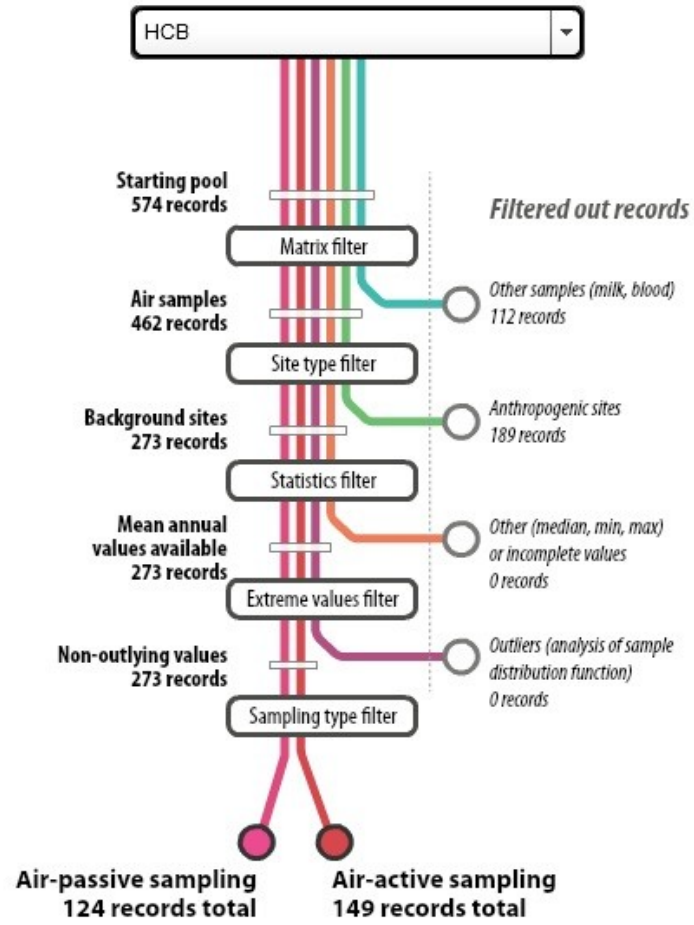
www.pops-gmp.org/visualization

GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - data validation

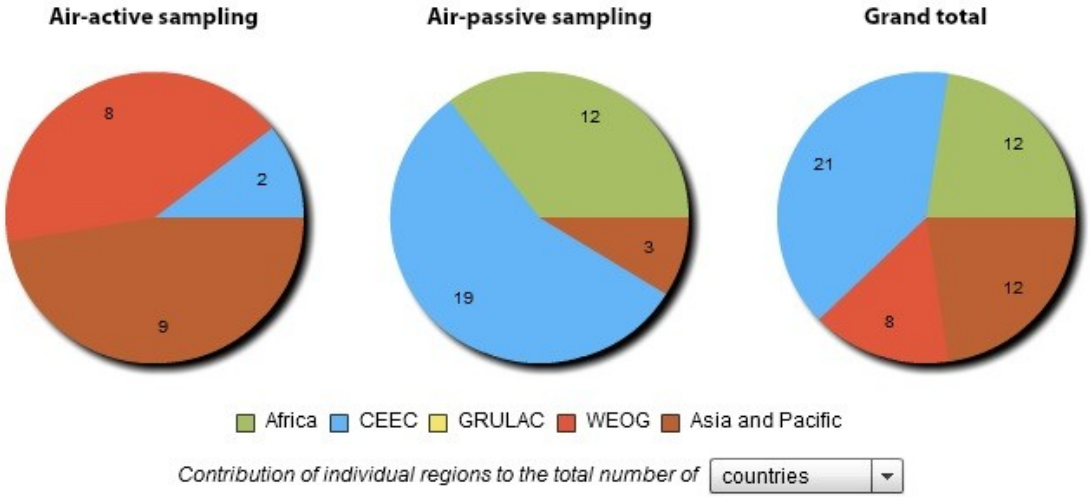
Parameter: HCB |

Process of Data Validation



Results of Data Validation

Sampling method	Africa	CEEC	GRULAC	WEOG	Asia and P...	TOTAL
HCB Air-passive sampling	12 countries 16 sites 16 records 2008 - 2008	19 countries 66 sites 97 records 2003 - 2008	0 countries 0 sites 0 records	0 countries 0 sites 0 records	3 countries 8 sites 11 records 2006 - 2008	34 countries 90 sites 124 records 2003 - 2008
HCB Air-active sampling	0 countries 0 sites 0 records	2 countries 3 sites 16 records 1998 - 2008	0 countries 0 sites 0 records	8 countries 19 sites 95 records 1998 - 2008	9 countries 32 sites 38 records 2004 - 2007	19 countries 54 sites 149 records 1998 - 2008



Contribution of individual regions to the total number of countries

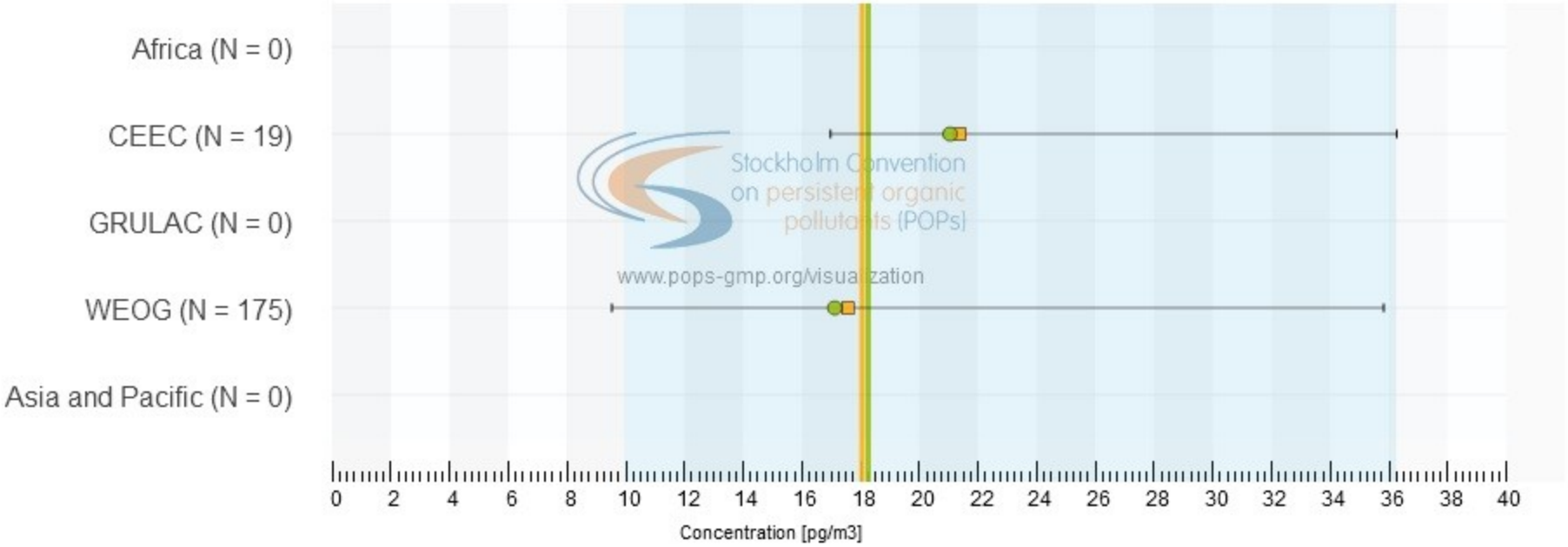
Stockholm Convention on persistent organic pollutants (POPs)

www.pops-gmp.org/visualization

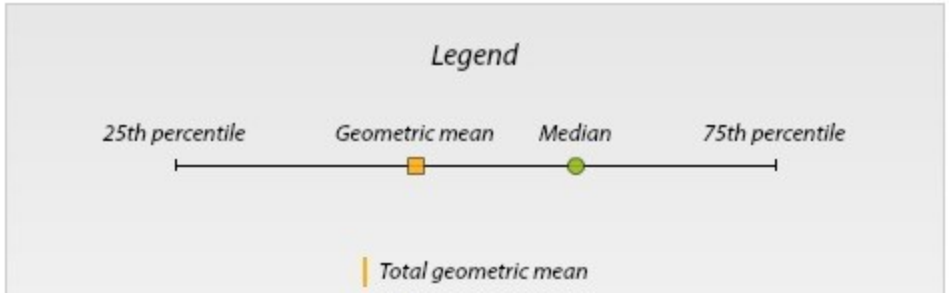
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **Alpha-HCH** | Sampling method: **active**



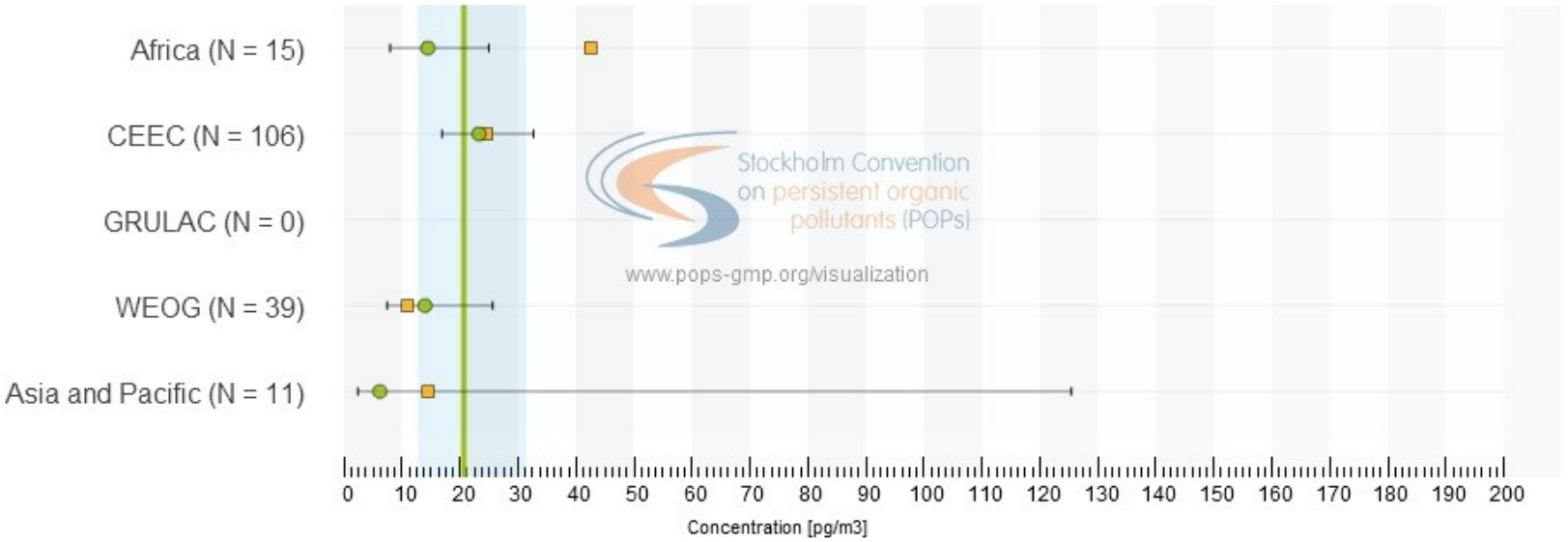
Total median: 18.1 pg/m3
Total geometric mean: 17.897 pg/m3
Total 25th percentile: 9.862 pg/m3
Total 75th percentile: 35.853 pg/m3



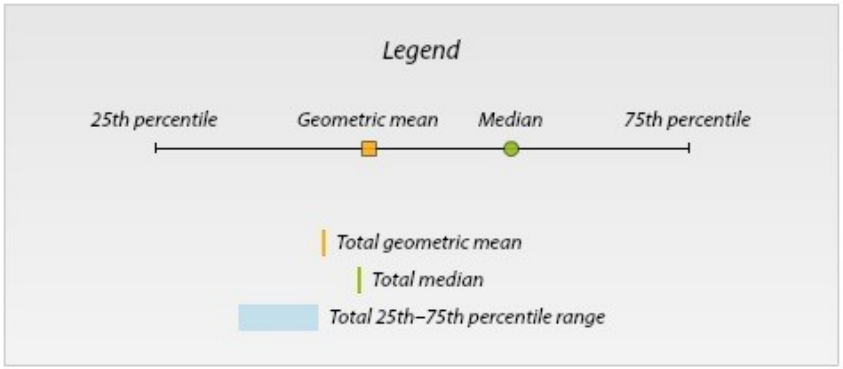
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **Alpha-HCH** | Sampling method: **passive**



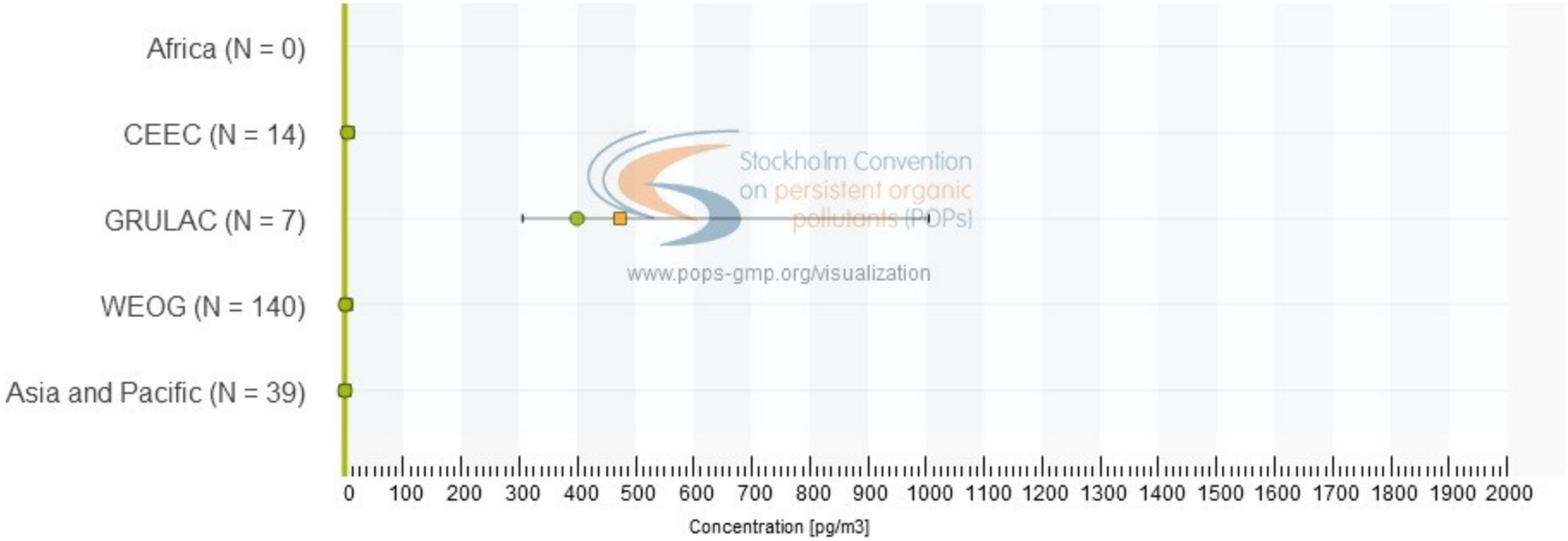
Total median: 20.854 pg/m3
Total geometric mean: 20.899 pg/m3
Total 25th percentile: 12.786 pg/m3
Total 75th percentile: 31.495 pg/m3



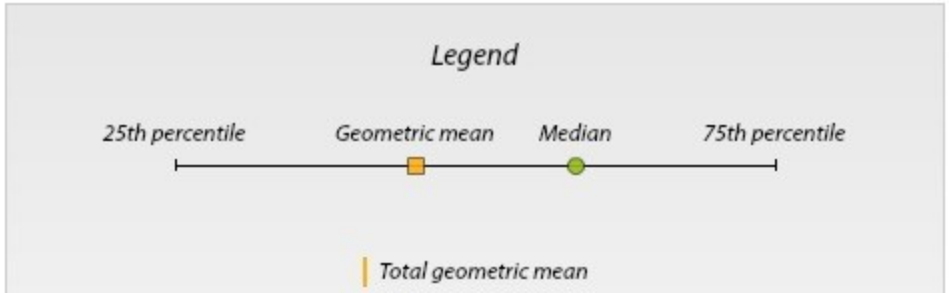
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **p,p-DDT** | Sampling method: **active**



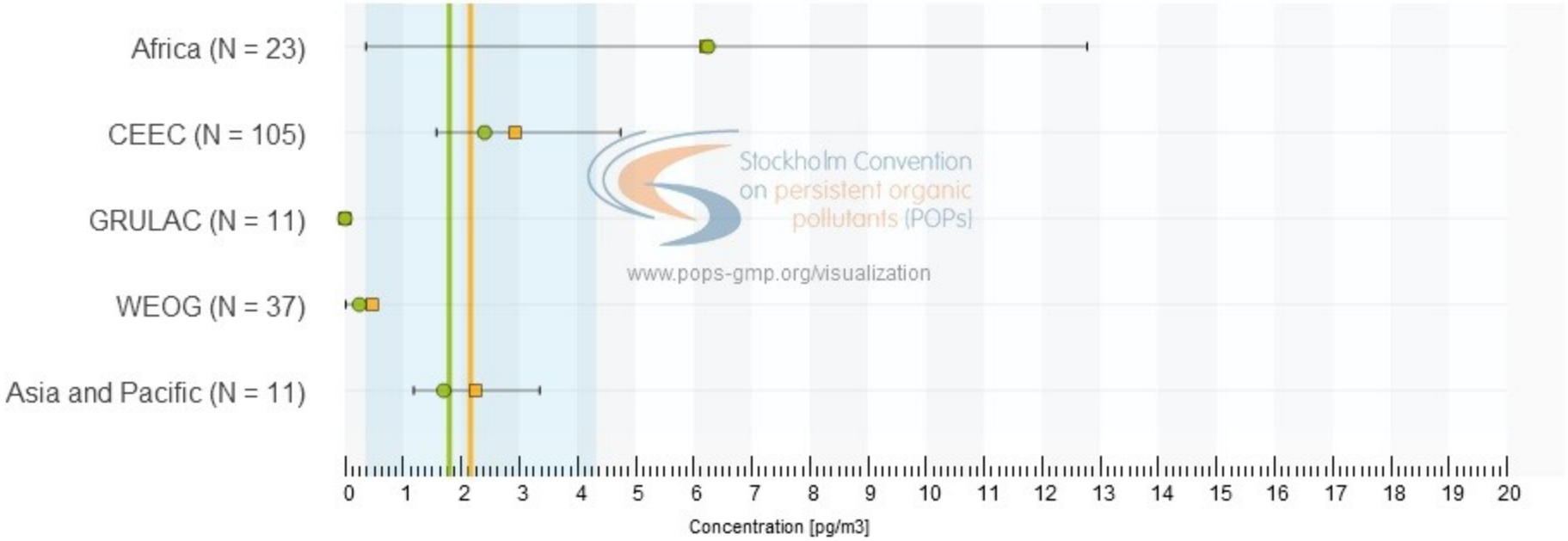
Total median: 0.796 pg/m3
Total geometric mean: 1.76 pg/m3
Total 25th percentile: 0.25 pg/m3
Total 75th percentile: 2.596 pg/m3



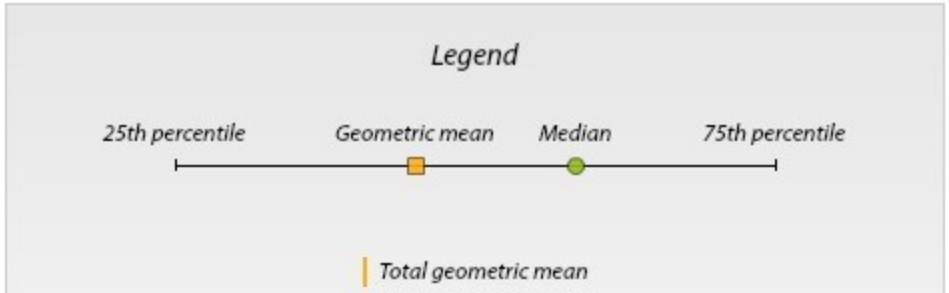
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **p,p-DDT** | Sampling method: **passive**



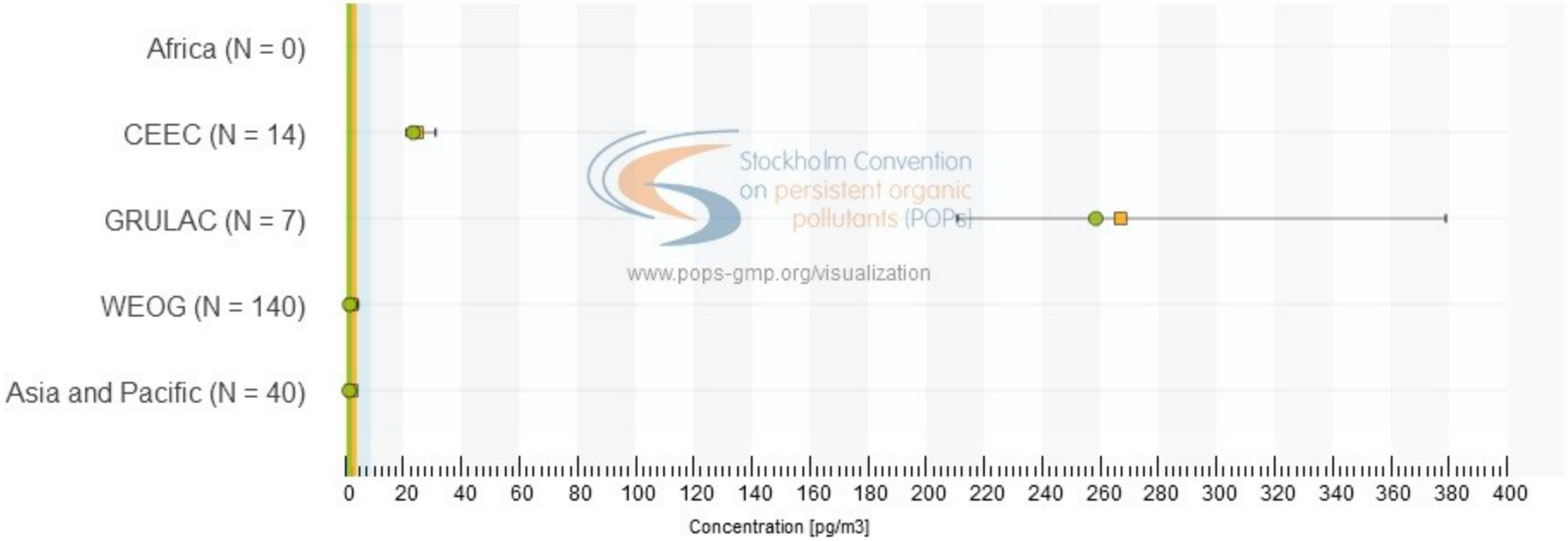
Total median: 1.813 pg/m3
Total geometric mean: 2.173 pg/m3
Total 25th percentile: 0.35 pg/m3
Total 75th percentile: 4.33 pg/m3



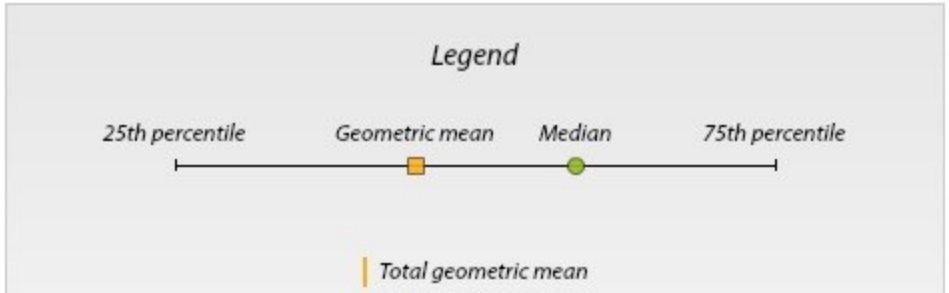
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **p,p-DDE** | Sampling method: **active**



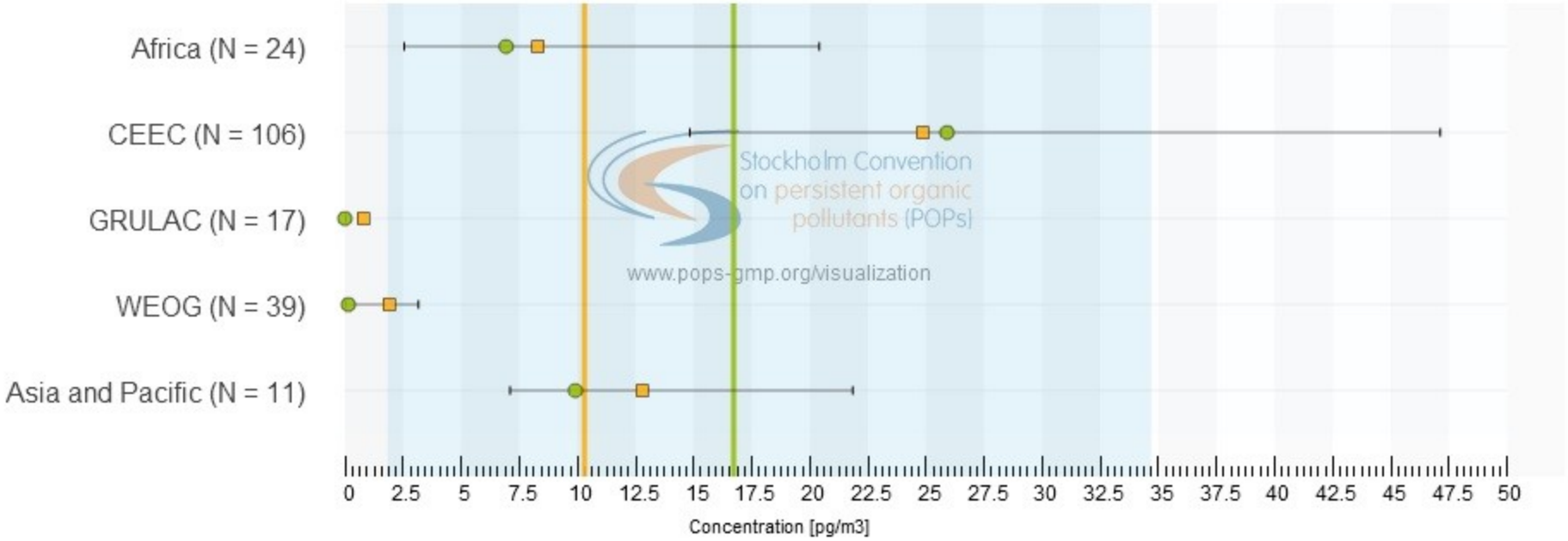
Total median: 1.823 pg/m3
Total geometric mean: 3.477 pg/m3
Total 25th percentile: 0.74 pg/m3
Total 75th percentile: 8.99 pg/m3



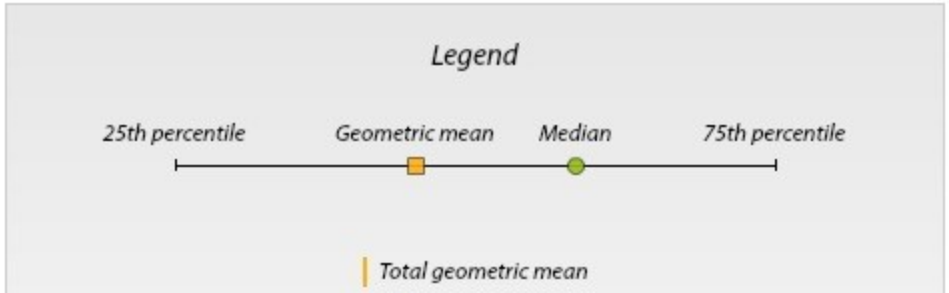
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **p,p-DDE** | Sampling method: **passive**



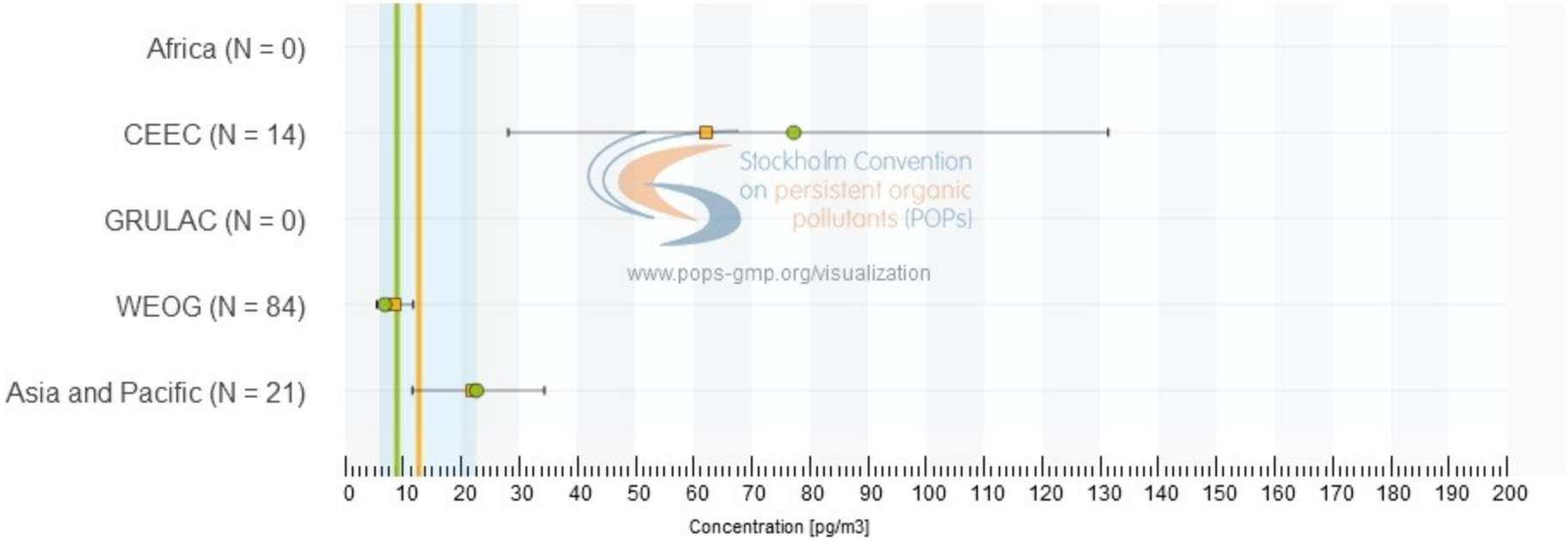
Total median: 16.763 pg/m3
Total geometric mean: 10.337 pg/m3
Total 25th percentile: 1.84 pg/m3
Total 75th percentile: 34.7 pg/m3



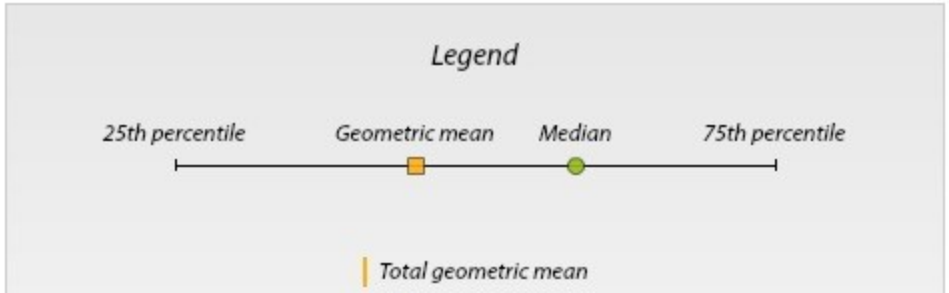
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **Indicator 6 PCBs** | Sampling method: **active**



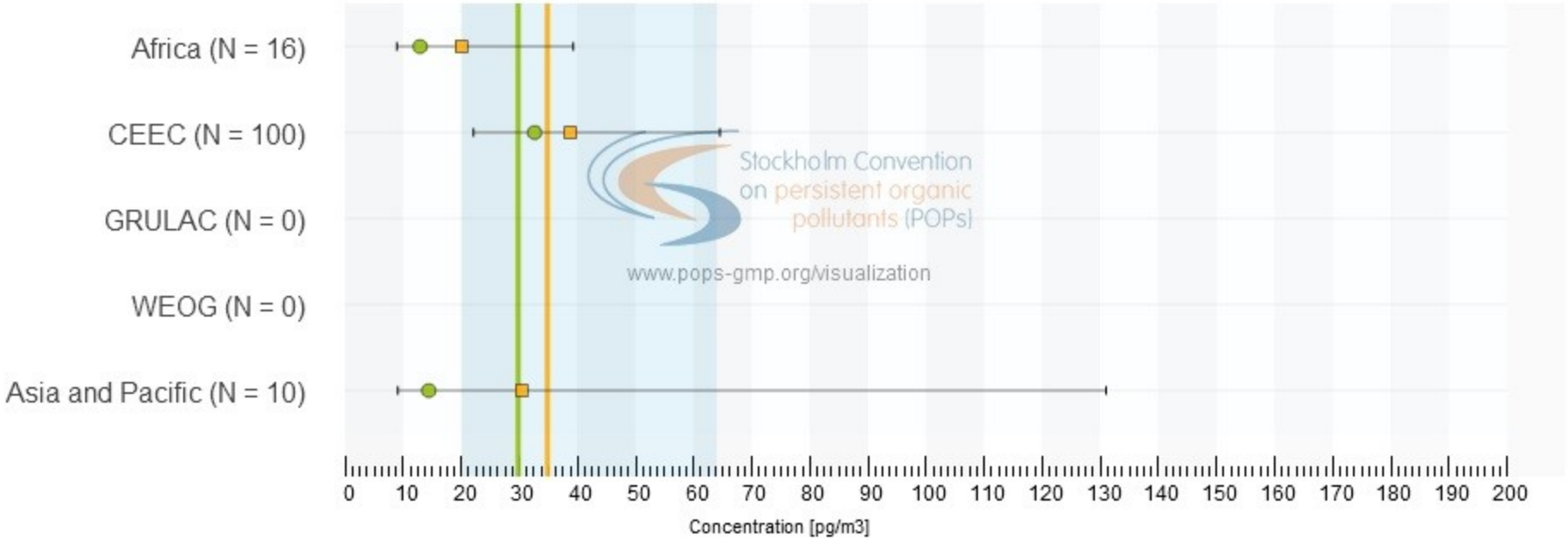
Total median: 9.0746 pg/m3
Total geometric mean: 12.896 pg/m3
Total 25th percentile: 5.915 pg/m3
Total 75th percentile: 22.664 pg/m3



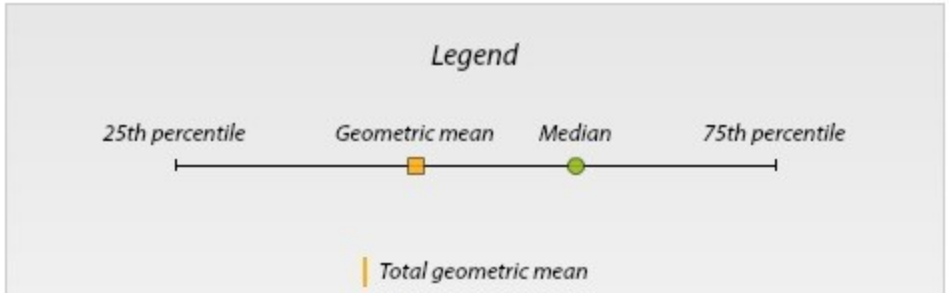
GMP Reports On-line Data Visualization

REGIONAL BACKGROUNDS - Inter-regional Variability

Parameter: **Indicator 6 PCBs** | Sampling method: **passive**



Total median: 29.975 pg/m3
Total geometric mean: 34.991 pg/m3
Total 25th percentile: 20.065 pg/m3
Total 75th percentile: 64.0575 pg/m3

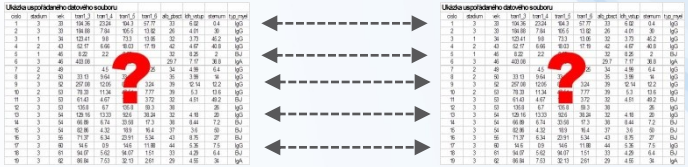


Data analysis - methodological proposal

3. Steps for standardization of the monitoring data - methodology

GMP I ⟷ *Case matching* ⟷ **GMP II**

Compatibility



Historical time trends

Recent fluctuation in time

Uncertainty & variability analysis

BASELINE ESTIMATES

EFFECT SIZE ESTIMATES

Time-related changes … statistical significance

New e-data capture system

GMP I

Retrospective corrections

GMP II

Real time validatoin

I.

NOMENCLATURE

II.

CLASSIFIERS

III.

INFORMATION SOURCE IDENTIFIERS

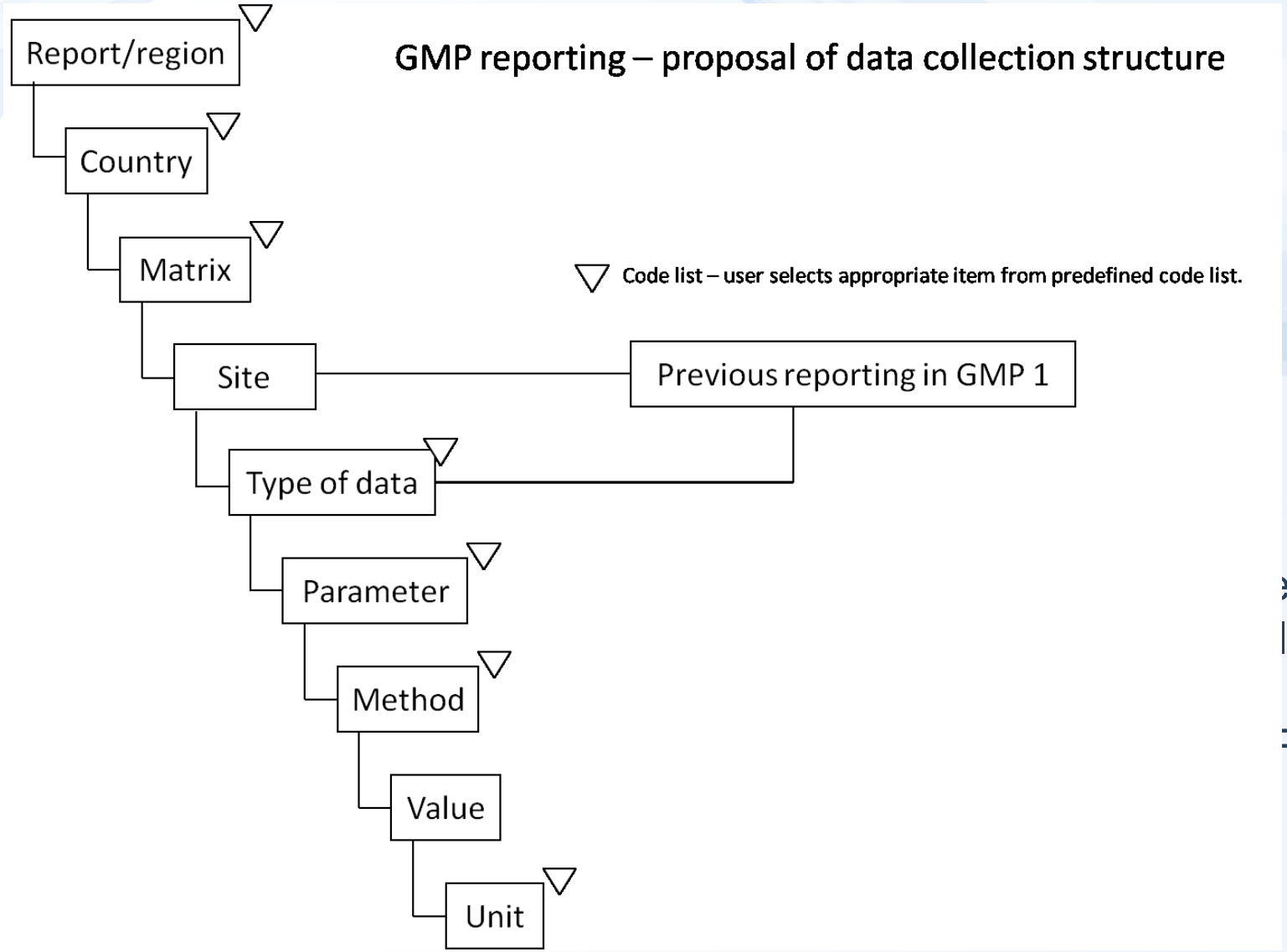
IV.

OBLIGATORY DESCRIPTORS

Proposal for e-data capture system

4. Proposal for electronic format template for the next GMP

Hierarchical structure of data entities and umbrella of ontology



elds (entities)
logy

P I data

Proposal for electronic reporting format - overview

- Ensures that GMP 2 could be effectively linked to GMP1 reports
- Data are relevant (and up-to-date) - SC chemicals only
- Data have sufficient quality and level of detail - analytical tools
- Consistent and comparable over time - hierarchical structure and optimized ontology
- Access is transparent - via web interface,
- data restriction - possible to set up depending on the user/provider/data owner
- Safety and security of data - international standards and settings in place

- Simple and feasible step-by-step approach to GMP data storage and handling, including data search and data analysis tools - now available for trials/testing

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
INVESTING IN YOUR FUTURE

2007–13
OP Research and Development for Innovation

Supported by CETOCOEN (CZ.1.05/2.1.00/01.0001) project of the European Union Structural Funds, Operational programme „Research and development of Innovations“

Thank you for your kind attention