

Data structure – Air

The aim of this document is to provide a short and clear description of parameters (data items) that are to be reported in the data import forms under the Global Monitoring Plan (GMP) in its third phase (data up to 2019 inclusive, where available). Data itself should be reported by means of MS Excel spreadsheets as suggested in the document UNEP/POPS/COP.9/INF/36, chapter 2.3, p. 19.

Aggregated data can also be reported via on-line forms available in the GMP data warehouse (GMP DWH) - see chapter 6.4.2. Structure of the database and associated code lists are based on the most recent version of the Guidance on the Global Monitoring Plan for Persistent Organic Pollutants UNEP/POPS/COP.9/INF/36.

The individual reported data component is inserted as:

- text (Site name, Monitoring programme, Recalculation description, Laboratory)
- number (e.g. Latitude, Longitude, Year, LOQ, Value)
- date (Start of sampling, End of sampling) in the format YYYY-MM-DD
- a defined input selected from a particular code list (e.g., Region, Country, Parameter, Analytical method). All code lists (i.e., allowed values for individual parameters) are enclosed in this document, either in a particular section (e.g., Region, Analytical method) or listed separately in the annexes below (Country, Parameter) for your reference.

Site

- **Site name (text)***
Description: Name of the site. Note: When providing data from the site that was already reported, the name used this time must be identical to that already contained in the GMP DWH.
- **Longitude (number)***
Description: Longitude of the site in decimal format XX.XXXXXX (-180, 180)
- **Latitude (number)***
Description: Latitude of the site in decimal format XX.XXXXXX (-90, 90)
- **Region (code list)***
Description: list of UN regional groups
 - Asia and Pacific
 - Africa
 - CEE
 - GRULAC
 - WEOG
- **Country (code list)***
Description: Country, in which the site is located
 - code list – see “Country” code list
- **Site type (code list)**
Description: Character of the site with respect to the population density defined in the UNEP/POPS/COP.9/INF/36, p. 31
 - Urban
 - Sub-urban
 - Rural

- Remote
- High altitude
- Polar
- **Potential source type (code list)**

Description: Character of the site with respect to potential sources of POPs defined in the UNEP/POPS/COP.9/INF/36, p. 31

 - Industrial
 - Traffic
 - Residential
 - Agricultural
 - Waste sector
 - Natural
- **Monitoring network (text)**

Description: Name of the monitoring programme or network that provided this data record.

Monitoring networks used in GMP 2:

 - AIR - GEF
 - AMAP
 - Colombia - POPs monitoring
 - EMEP
 - Europe Air PUF
 - GAPS
 - GAPS GRULAC
 - IADN
 - Kosetice
 - LAPAN
 - MONARPOP
 - MONET
 - MONET Africa
 - NCP
 - POPs Monitoring Project in East Asian Countries
 - TOMPs
 - Chemicals in Environment (Ministry of the Environment, Japan)
 - China National POPs Monitoring

Sampling attributes

- **Year (number)***
Description: Year in the format YYYY
- **Start of sampling (text)***
Description: Date in the format YYYY-MM-DD
- **End of sampling (text)***
Description: Date in the format YYYY-MM-DD
- **Sampling type air (code list)***
Description: Type of air sampling
 - Active
 - Passive
- **Sampling type air passive (code list)***
Description: A method (filter) used for passive sampling
required for “Sampling type air” = “Passive”
 - PUF
 - SIP
 - XAD
- **Recalculation (code list)**
Description: A method used to recalculate values from air-passive sampling to those of air-active sampling
allowed for “Sampling type air” = “Passive”
 - PRC
 - Calibration
 - Harner's model
 - Herkert's model
 - Others
 - Multiple methods (allowed for aggregated data)
- **Recalculation description (text)**
Description: Short description of the recalculation process
allowed for “Sampling type air” = “Passive”

Measurement

- **Parameter (code list)***
Description: Parent POPs, isomers and transformation products of POPs listed in the Stockholm Convention, and summations defined in the document UNEP/POPS/COP.9/INF/36, chapter 2.2, p. 14–18. The parameters are directly linked with units. Please note that each parameter should be reported in pg per m³ or fg per m³ (for dl-PCBs, dioxins and furans)
 - code list – see “Parameter” code list
- **Analytical method (code list)***
Description: Analytical method used for determination of the concentration
 - GC-APCI-HRMS
 - GC-APCI-MS-MS
 - GC-ECD
 - GC-ECNI-MS
 - GC-HRMS

- GC-MS
- GC-MS-MS
- HPLC-DAD
- HPLC-FLU
- HPLC-MS
- HPLC-MS-MS
- Multiple methods (allowed for aggregated data)
- **LOQ (positive real number)***
 Required if Minimum = 0
 Description: Number representing Limit of quantification value
- **No. of values (positive integer)***
 Description: Number representing amount of values aggregated
- **No. under LoQ (non-negative integer)***
 Description: Number representing amount of values in this aggregation that were smaller than the LoQ value
- **Value (mean) (non-negative real number)***
 Description: Number; Mean of aggregated values
- **Value (median) (non-negative real number)***
 Description: Number; Median of aggregated values
- **Minimum (non-negative real number)***
 Description: Number; Minimum value in this aggregation
- **Maximum (non-negative real number)***
 Description: Number; Maximum value in this aggregation
- **5th percentile (non-negative real number)**
 Description: Number; Value on the 5% position of the aggregated data set (sorted from the lowest to highest concentration)
- **95th percentile (non-negative real number)**
 Description: Number; Value on the 95% position of the aggregated data set (sorted from the lowest to highest concentration)
- **SD (non-negative real number)***
 Description: Number; Standard deviation of aggregated values
- **Laboratory (text)**
 Description: Name of the laboratory performing analysis of this data record

“Country” Code List

Afghanistan	Ecuador	Liechtenstein	San Marino
Albania	Egypt	Lithuania	Sao Tome and Principe
Algeria	El Salvador	Luxembourg	Saudi Arabia
Andorra	Equatorial Guinea	Madagascar	Senegal
Angola	Eritrea	Malawi	Serbia
Antarctica	Estonia	Malaysia	Seychelles
Antigua and Barbuda	Ethiopia	Maldives	Sierra Leone
Argentina	Fiji	Mali	Singapore
Armenia	Finland	Malta	Slovakia
Australia	North Macedonia	Marshall Islands	Slovenia
Austria	France	Mauritania	Solomon Islands
Azerbaijan	Gabon	Mauritius	Somalia
Bahamas	Gambia	Mexico	South Africa
Bahrain	Georgia	Micronesia, Federated States of	South Sudan
Bangladesh	Germany	Moldova, Republic of	Spain
Barbados	Ghana	Monaco	Sri Lanka
Belarus	Greece	Mongolia	Sudan
Belgium	Grenada	Montenegro	Suriname
Belize	Guatemala	Morocco	Swaziland
Benin	Guinea	Mozambique	Sweden
Bhutan	Guinea-Bissau	Myanmar	Switzerland
Bolivia	Guyana	Namibia	Syria
Bosnia and Herzegovina	Haiti	Nauru	Tajikistan
Botswana	Honduras	Nepal	Tanzania, United Republic of
Brazil	Hungary	Netherlands	Thailand
Brunei	Iceland	New Zealand	Timor-Leste
Bulgaria	India	Nicaragua	Togo
Burkina Faso	Indonesia	Niger	Tonga
Burundi	Iran, Islamic Republic of	Nigeria	Trinidad and Tobago
Cambodia	Iraq	Niue	Tunisia
Cameroon	Ireland	Norway	Turkey
Canada	Israel	Oman	Turkmenistan
Cabo Verde	Italy	Pakistan	Tuvalu
Central African Republic	Côte d'Ivoire	Palau	Uganda
Chad	Jamaica	Palestine	Ukraine
Chile	Japan	Panama	United Arab Emirates
China, Peoples Republic of	Jordan	Papua New Guinea	United Kingdom
Colombia	Kazakhstan	Paraguay	United States of America
Comoros	Kenya	Peru	Uruguay
Congo	Kiribati	Philippines	Uzbekistan
Congo, Democratic Republic of	Korea, Republic of	Poland	Vanuatu
Cook Islands	Korea, Democratic People's Republic of	Portugal	Holy See
Costa Rica	Kosovo	Qatar	Venezuela
Croatia	Kuwait	Romania	Viet-Nam
Cuba	Kyrgyzstan	Russian Federation	Yemen
Cyprus	Laos	Rwanda	Zambia
Czech Republic	Latvia	Saint Kitts and Nevis	Zimbabwe
Denmark	Lebanon	Saint Lucia	Bermuda
Djibouti	Lesotho	Saint Vincent and the Grenadines	Faroe Islands
Dominica	Liberia	Samoa	Greenland
Dominican Republic	Libya		

“Parameter” Code List

Aldrin (pg/m3)	1,2,3,4,6,7,8-HpCDD (fg/m3)	BDE 153 (pg/m3)
cis-Chlordane (= alpha) (pg/m3)	1,2,3,4,7,8-HxCDD (fg/m3)	BDE 154 (pg/m3)
trans-Chlordane (= gamma) (pg/m3)	1,2,3,6,7,8-HxCDD (fg/m3)	BDE 175/183 (pg/m3)
Oxychlordane (pg/m3)	1,2,3,7,8,9-HxCDD (fg/m3)	BDE 17 (pg/m3)
cis-Nonachlor (pg/m3)	1,2,3,7,8-PeCDD (fg/m3)	BDE 28 (pg/m3)
trans-Nonachlor (pg/m3)	2,3,7,8-TCDD (fg/m3)	BDE 47 (pg/m3)
o,p-DDT (pg/m3)	OCDD (fg/m3)	BDE 99 (pg/m3)
o,p-DDD (pg/m3)	Sum 7 PCDDs (fg/m3)	BDE 100 (pg/m3)
o,p-DDE (pg/m3)	PCDDs WHO1998-TEQ LB (fg/m3)	PFOS (pg/m3)
p,p-DDT (pg/m3)	PCDDs WHO1998-TEQ UB (fg/m3)	PFOSA (pg/m3)
p,p-DDD (pg/m3)	PCDDs WHO2005-TEQ LB (fg/m3)	NMeFOSA (pg/m3)
p,p-DDE (pg/m3)	PCDDs WHO2005-TEQ UB (fg/m3)	NEtFOSA (pg/m3)
Sum 3 p,p-DDTs (pg/m3)	1,2,3,4,6,7,8-HpCDF (fg/m3)	NMeFOSE (pg/m3)
Sum 6 DDTs (pg/m3)	1,2,3,4,7,8,9-HpCDF (fg/m3)	NEtFOSE (pg/m3)
Dieldrin (pg/m3)	1,2,3,4,7,8-HxCDF (fg/m3)	Endosulfan I (alpha) (pg/m3)
Endrin (pg/m3)	1,2,3,6,7,8-HxCDF (fg/m3)	Endosulfan II (beta) (pg/m3)
HCB (pg/m3)	1,2,3,7,8,9-HxCDF (fg/m3)	Endosulfan SO4 (pg/m3)
Heptachlor (pg/m3)	1,2,3,7,8-PeCDF (fg/m3)	Alpha-HBCD (pg/m3)
cis-Heptachlorepoxide (= exo, B) (pg/m3)	2,3,4,6,7,8-HxCDF (fg/m3)	Beta-HBCD (pg/m3)
trans-Heptachlorepoxide (= endo, A) (pg/m3)	2,3,4,7,8-PeCDF (fg/m3)	Gamma-HBCD (pg/m3)
Sum 2 heptachlorepoxides (cis + trans) (pg/m3)	2,3,7,8-TCDF (fg/m3)	BDE209 (pg/m3)
Mirex (pg/m3)	OCDF (fg/m3)	HCBd (pg/m3)
PCB 28 (pg/m3)	Sum 10 PCDFs (fg/m3)	PCP (pg/m3)
PCB 52 (pg/m3)	PCDFs WHO1998-TEQ LB (fg/m3)	PCA (pg/m3)
PCB 101 (pg/m3)	PCDFs WHO1998-TEQ UB (fg/m3)	Dicofol (pg/m3)
PCB 138 (pg/m3)	PCDFs WHO2005-TEQ LB (fg/m3)	Dichlorobenzophenone (pg/m3)
PCB 153 (pg/m3)	PCDFs WHO2005-TEQ UB (fg/m3)	PFHxS (pg/m3)
PCB 180 (pg/m3)	Sum 17 PCDDs/Fs (fg/m3)	PFOA (pg/m3)
Sum 6 PCBs (pg/m3)	PCDDs/Fs WHO1998-TEQ LB (fg/m3)	PCN2 (pg/m3)
Sum 7 PCBs (pg/m3)	PCDDs/Fs WHO1998-TEQ UB (fg/m3)	PCN6 (pg/m3)
PCB 77 (fg/m3)	PCDDs/Fs WHO2005-TEQ LB (fg/m3)	PCN13 (pg/m3)
PCB 81 (fg/m3)	PCDDs/Fs WHO2005-TEQ UB (fg/m3)	PCN28 (pg/m3)
PCB 105 (fg/m3)	Parlar 26 (pg/m3)	PCN27 (pg/m3)
PCB 114 (fg/m3)	Parlar 50 (pg/m3)	PCN36 (pg/m3)
PCB 118 (fg/m3)	Parlar 40/41 (pg/m3)	PCN46 (pg/m3)
PCB 123 (fg/m3)	Parlar 44 (pg/m3)	PCN48 (pg/m3)
PCB 126 (fg/m3)	Parlar 62 (pg/m3)	PCN50 (pg/m3)
PCB 156 (fg/m3)	Chlordecone (pg/m3)	PCN52 (pg/m3)
PCB 157 (fg/m3)	Alpha-HCH (pg/m3)	PCN53 (pg/m3)
PCB 167 (fg/m3)	Beta-HCH (pg/m3)	PCN60 (pg/m3)
PCB 169 (fg/m3)	Gamma-HCH (pg/m3)	PCN61 (pg/m3)
PCB 189 (fg/m3)	PBB 153 (pg/m3)	PCN66 (pg/m3)
Sum 12 PCBs (fg/m3)	PeCB (pg/m3)	PCN69 (pg/m3)
PCBs WHO1998-TEQ LB (fg/m3)		PCN72 (pg/m3)
PCBs WHO1998-TEQ UB (fg/m3)		PCN73 (pg/m3)
PCBs WHO2005-TEQ LB (fg/m3)		PCN75 (pg/m3)
PCBs WHO2005-TEQ UB (fg/m3)		Sum SCCPs (pg/m3)