Supporting Information

Spatial Distribution of Selected Persistent Organic Pollutants (POPs) in Australia Atmosphere

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Detailed description of chemical analysis

Sample extraction. The XAD resin samples were transferred into cellulose thimbles. The samples were spiked with a range of ^{13}C-labelled PCB congeners (100µL of 20ng/mL internal standard) and OCPs (400µL of 25ng/mL internal standard) listed in Table S1 and then Soxhlet extracted with toluene for 18-24 hours. The extract was concentrated using a rotary evaporator and 40% of the aliquot of the extract was taken for PCB analysis and 25% for OCP analysis.

Sample cleanup. The PCB and OCP aliquot was cleaned up using a sulphuric acid treated silica gel, alumina and florisil chromatographic column and a florisil chromatographic column, respectively. The eluant was concentrated under a gentle stream of nitrogen and a recovery standard was added at 100µL of 20ng/mL prior to adjusting the final volume to 50µL in nonane.

Sample analysis. The extracts were analysed by a GC-HRMS (Agilent 6890/7890 GC coupled with Waters Ultima/Premier HRMS) at a nominal mass resolving power of 10,000 using electron impact (EI) ionisation. At least two exact ions are monitored for each target analyte. Identification of the analytical responses is confirmed using a combination of signal to noise, relative retention time and response ratio for the two exact ions monitored. Analyte concentrations are calculated from their relative response to a specific internal standard listed in Table S1 against the slope of a multi-point calibration curve.

Table S1. List of target compounds and internal standards

Target PCBs	Internal standard	Target OCPs	Internal standard
PCB#77	$^{13}C_{12}$ PCB#77	pentachlorobenzene (PeCB)	$^{13}C_6$ PeCB
PCB#81	$^{13}C_{12}$ PCB#81	HCB	$^{13}C_6$ HCB
PCB#126	$^{13}C_{12}$ PCB#126	α-HCH	$^{13}C_6$ α-HCH
PCB#169	$^{13}C_{12}$ PCB#169	β-HCH	$^{13}C_6$ β-HCH
PCB#105	$^{13}C_{12}$ PCB#105	γ-HCH	$^{13}C_6$ γ-HCH
PCB#114	$^{13}C_{12}$ PCB#114	δ-HCH	$^{13}C_6$ δ-HCH
PCB#118	$^{13}C_{12}$ PCB#118	heptachlor (HEPT)	$^{13}C_{10}$ HEPT
PCB#123	$^{13}C_{12}$ PCB#123	heptachlor exo-epoxide (HEPX)	$^{13}C_{10}$ HEPX
PCB#156	$^{13}C_{12}$ PCB#156	aldrin	$^{13}C_{12}$ aldrin
PCB#157	$^{13}C_{12}$ PCB#157	dieldrin	$^{13}C_{12}$ dieldrin
PCB#167	$^{13}C_{12}$ PCB#167	endrin	$^{13}C_{12}$ endrin
PCB#189	$^{13}C_{12}$ PCB#189	endrin ketone	$^{13}C_{10}$ CN
PCB#1	$^{13}C_{12}$ PCB#1	oxychlordane	$^{13}C_{10}$ Oxychlordane
PCB#3	$^{13}C_{12}$ PCB#3	trans-chlordane (TC)	$^{13}C_6$ TC
PCB#4/10	$^{13}C_{12}$ PCB#4	cis-chlordane (CC)	$^{13}C_6$ TC
PCB#15	$^{13}C_{12}$ PCB#15	trans-nonachlor (TN)	$^{13}C_{10}$ TC
PCB#19	$^{13}C_{12}$ PCB#19	cis-nonachlor (CN)	$^{13}C_{10}$ CN
PCB#28	$^{13}C_{12}$ PCB#37	α-endosulfan (α-ES)	$^{13}C_9$ α-ES
PCB#37	$^{13}C_{12}$ PCB#37	β-endosulfan (β-ES)	$^{13}C_9$ β-ES
PCB#44	$^{13}C_{12}$ PCB#54/77/81	*o,p'*-DDE	$^{13}C_{12}$ *o,p'*-DDE
PCB#49	$^{13}C_{12}$ PCB#54/77/81	*p,p'*-DDE	$^{13}C_{12}$ *p,p'*-DDE
PCB#52	$^{13}C_{12}$ PCB#54/77/81	*o,p'*-DDD	$^{13}C_{12}$ *o,p'*-DDD
PCB#54	$^{13}C_{12}$ PCB#54	*p,p'*-DDD	$^{13}C_{12}$ *p,p'*-DDD
PCB#70	$^{13}C_{12}$ PCB#54/77/81	*o,p'*-DDT	$^{13}C_{12}$ *o,p'*-DDT
PCB#74	$^{13}C_{12}$ PCB#54/77/81	*p,p'*-DDT	$^{13}C_{12}$ *p,p'*-DDT
PCB#99	$^{13}C_{12}$ PCB#104/105/114/118/123/126	methoxychlor	$^{13}C_{12}$ *p,p'*-DDT
PCB#101	$^{13}C_{12}$ PCB#104/105/114/118/123/126	mirex	$^{13}C_{10}$ mirex
PCB#104	$^{13}C_{12}$ PCB#104		
PCB#110	$^{13}C_{12}$ PCB#104/105/114/118/123/126		
PCB#138/163/164	$^{13}C_{12}$ PCB#155/156/157/167/169		
PCB#153	$^{13}C_{12}$ PCB#155/156/157/167/169		
PCB#155	$^{13}C_{12}$ PCB#155		
PCB#170	$^{13}C_{12}$ PCB#189		
PCB#180	$^{13}C_{12}$ PCB#188/189		
PCB#183	$^{13}C_{12}$ PCB#188/189		
PCB#187	$^{13}C_{12}$ PCB#188/189		
PCB#188	$^{13}C_{12}$ PCB#188		
PCB#194	$^{13}C_{12}$ PCB#202/205		
PCB#196/203	$^{13}C_{12}$ PCB#202		
PCB#200	$^{13}C_{12}$ PCB#202		
PCB#202	$^{13}C_{12}$ PCB#202		
PCB#205	$^{13}C_{12}$ PCB#205		
PCB#206	$^{13}C_{12}$ PCB#206		
PCB#208	$^{13}C_{12}$ PCB#208		
PCB#209	$^{13}C_{12}$ PCB#209		

Table S2. Sampling rate *R* for interested chemicals on 10 cm length (62.5 cm^2 surface area) XAD cylinders

Chemicals	*R* (m^3/sampler/day)	References or estimating method
PCBs	0.55	[1]
PeCB	0.72	use the value for HCB
HCB	0.72	[2, 3]
α-HCH	0.91	[2, 3]
β-HCH	0.86	averaged from the value for a- and γ-HCH
γ-HCH	0.81	[2, 3]
δ-HCH	0.86	averaged from the value for a- and γ-HCH
HEPT	0.43	averaged from the value for TN, CC and TC
HEPX	0.43	averaged from the value for TN, CC and TC
oxychlordane	0.43	averaged from the value for TN, CC and TC
TC	0.54	[2]
CC	0.42	[2]
α-ES	0.78	[2]
β-ES	0.62	[2]
TN	0.34	[2, 3]
CN	0.34	use the value for trans-nonachlor
aldrin	0.43	averaged from the value for TN, CC and TC
dieldrin	0.43	averaged from the value for TN, CC and TC
endrin	0.43	averaged from the value for TN, CC and TC
endrin ketone	0.43	averaged from the value for TN, CC and TC
o,p'-DDE	0.62	averaged from the values for all the reported pesticides
p,p'-DDE	0.62	averaged from the values for all the reported pesticides
o,p'-DDD	0.62	averaged from the values for all the reported pesticides
p,p'-DDD	0.62	averaged from the values for all the reported pesticides
o,p'-DDT	0.62	averaged from the values for all the reported pesticides
p,p'-DDT	0.62	averaged from the values for all the reported pesticides
methoxychlor	0.62	averaged from the values for all the reported pesticides
mirex	0.62	averaged from the values for all the reported pesticides

Table S3. Comparison between amount of PCBs and OCPs obtained from duplicated samples at sampling site UR4 (pg/sampler/day)

PCBs	UR4-dulplicate #1	UR4-dulplicate #2	OCPs	UR4-dulplicate #1	UR4-dulplicate #2
PCB#4/10	4.9	4.3	HCB	69	58
PCB#15	1.9	1.9	α-HCH	0.48	0.39
PCB#19	1.1	0.92	γ-HCH	5.0	4.4
PCB#28	5.5	4.1	HEPT	56	50
PCB#37	1.2	0.74	HEPX	2.8	2.8
PCB#44	2.1	1.8	TC	65	57
PCB#49	1.8	1.5	CC	25	22
PCB#52	4.2	3.4	TN	14	11
PCB#70	2.6	2.3	α-ES	15	16
PCB#74	0.99	0.88	*o,p'*-DDE	0.28	0.28
PCB#101	1.9	1.7	*p,p'*-DDE	4.4	3.9
PCB#110	1.5	1.4	aldrin	0.42	0.25
PCB#118	1.1	1.0	dieldrin	46	42
PCB#153	0.96	0.92	endrin	0.73	0.81
PCB#180	0.22	0.21			
PCB#187	0.27	0.28			

Table S4. Comparison between annual concentrations (pg/m^3) derived from AAS and the ones from PAS at site SUR

Chemicals	C_{AAS}	C_{PAS}	Chemicals	C_{AAS}	C_{PAS}
PCB#19	0.19	0.29	HCB	32	39
PCB#28	1.1	1.7	α-HCH	0.24	0.28
PCB#37	0.25	0.30	γ-HCH	2.2	1.8
PCB#44	0.58	0.65	HEPT	10	10
PCB#49	0.35	1.1	HEPX	1.8	1.8
PCB#52	1.0	1.5	dieldrin	24	51
PCB#70	0.81	1.2	aldrin	2.7	5.8
PCB#74	0.23	0.44	CC	9.6	9.6
PCB#99	0.46	0.50	TC	21	15
PCB#101	1.1	1.2	α-ES	22	9.5
PCB#110	1.2	1.0	*p,p'*-DDT	1.0	0.52
PCB#118	0.70	0.67	*p,p'*-DDD	0.25	0.30
PCB#138	0.45	0.38	*p,p'*-DDE	0.60	0.50
			mirex	1.1	0.64

Table S5. Amount of PCBs sequestered by PAS at each sampling site (pg/sampler/day)

Classification	Blank	Background	Background	Background	Background	Background	Agricultural	Agricultural	Agricultural	Agricultural	Agricultural	Semi-urban	Urban	Urban	Urban	Urban	Urban
Sampling Site	FB	BA1	BA2	BA3	BA4	BA5	AG1	AG2	AG3	AG4	AG5	SUR	UR1	UR2	UR3	UR4-1	UR4-2
Location	Field Blank	Dunk Is	Kakadu	Uluru	Cape Grim	Phillip Island	Tully	Mildura	Gunnedah	Barossa Valley	Kununurra	Darwin	Brisbane	Rozelle	Homebush Bay	Adelaide	Adelaide
State		QLD	NT	NT	TAS	VIC	QLD	VIC	NSW	SA	WA	NT	QLD	NSW	NSW	SA	SA
PCB#77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.090	ND	ND	ND
PCB#81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#126	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#169	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#105	ND	ND	ND	ND	ND	ND	ND	0.090	ND	ND	ND	ND	0.32	0.40	0.50	0.38	ND
PCB#114	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#118	ND	ND	ND	ND	0.18	0.14	ND	0.30	ND	ND	ND	0.37	ND	1.0	1.4	1.1	1.0
PCB#123	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#156	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.060	ND	ND
PCB#157	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#189	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#4/10	ND	0.24	ND	ND	ND	0.43	6.0	0.50	ND	0.40	ND	ND	4.1	2.4	3.4	4.9	4.3
PCB#15	ND	ND	ND	0.23	ND	0.27	2.7	ND	ND	ND	0.15	ND	1.2	0.91	ND	1.9	1.9
PCB#19	ND	ND	ND	ND	ND	0.070	0.87	ND	ND	ND	ND	0.16	0.67	0.46	0.88	1.1	0.92
PCB#28	ND	ND	0.27	0.36	ND	0.60	2.3	0.73	ND	0.32	0.25	0.94	3.0	2.3	3.3	5.5	4.1
PCB#37	ND	ND	ND	0.13	0.20	0.22	0.14	0.28	ND	ND	0.11	0.17	0.61	0.51	0.62	1.2	0.74
PCB#44	ND	ND	ND	0.21	ND	0.26	0.40	0.83	0.15	ND	ND	0.36	1.6	1.5	3.6	2.1	1.8
PCB#49	ND	ND	ND	0.33	ND	0.18	0.40	0.68	ND	0.29	0.16	0.59	1.2	1.2	3.7	1.8	1.5
PCB#52	ND	0.19	ND	0.48	0.95	0.47	0.79	2.0	0.30	0.51	0.24	0.80	2.5	3.0	7.0	4.2	3.4
PCB#54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#70	ND	ND	ND	0.19	0.54	0.28	0.16	1.4	0.18	0.25	ND	0.67	1.7	2.4	3.1	2.6	2.3
PCB#74	ND	ND	ND	ND	0.21	0.13	ND	ND	ND	ND	ND	0.24	ND	0.94	1.2	0.99	0.88
PCB#99	ND	ND	ND	ND	ND	0.090	ND	0.27	ND	ND	0.070	0.28	0.57	0.57	1.9	ND	0.60
PCB#101	ND	0.080	0.070	ND	0.47	0.25	ND	0.73	0.17	0.22	0.14	0.66	1.4	1.5	3.7	1.9	1.7
PCB#104	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#110	ND	ND	0.060	0.070	0.29	0.17	ND	0.34	0.11	ND	ND	0.56	1.2	1.0	2.6	1.5	1.4
PCB#138/163/164	ND	ND	ND	ND	ND	0.090	0.080	0.13	ND	ND	ND	0.21	0.70	0.82	1.2	ND	ND
PCB#153	ND	ND	ND	0.060	0.14	0.11	ND	0.18	ND	ND	0.070	ND	0.69	0.68	1.1	0.96	0.92
PCB#155	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#170	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22	0.21
PCB#183	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.080	ND	ND
PCB#187	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.21	0.27	0.28
PCB#188	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#194	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#196/203	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#202	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#205	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#206	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#208	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB#209	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table S6. Concentrations of atmospheric PCBs at each sampling site (pg/m^3)

Sampling site	BA1	BA2	BA3	BA4	BA5	AG1	AG2	AG3	AG4	AG5	SUR	UR1	UR2	UR3	UR4-1	UR4-2	Median
Location	Dunk Is	Kakadu	Uluru	Cape Grim	Phillip Island	Tully	Mildura	Gunnedah	Barossa Valley	Kununurra	Darwin	Brisbane	Rozelle	Homebush Bay	Adelaide	Adelaide	
State	QLD	NT	NT	TAS	VIC	QLD	VIC	NSW	SA	WA	NT	QLD	NSW	NSW	SA	SA	
PCB#77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.16	ND	ND	ND	NA
PCB#81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#126	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#169	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#105	ND	ND	ND	ND	ND	ND	0.17	ND	ND	ND	ND	0.58	0.72	0.92	0.69	ND	NA
PCB#114	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#118	ND	ND	ND	0.32	0.25	ND	0.54	ND	ND	ND	0.67	ND	1.9	2.6	2.0	1.8	0.13
PCB#123	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#156	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND	ND	NA
PCB#157	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#189	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#4/10	0.43	ND	ND	ND	0.78	11	0.91	ND	0.73	ND	ND	7.4	4.3	6.1	8.9	7.8	0.76
PCB#15	ND	ND	0.42	ND	0.49	4.8	ND	ND	ND	0.28	ND	2.1	1.7	ND	3.4	3.4	0.14
PCB#19	ND	ND	ND	ND	0.12	1.6	ND	ND	ND	ND	0.29	1.2	0.84	1.6	2.0	1.7	0.062
PCB#28	ND	0.49	0.65	ND	1.1	4.1	1.3	ND	0.58	0.46	1.7	5.4	4.2	5.9	10	7.5	1.2
PCB#37	ND	ND	0.23	0.36	0.39	0.25	0.51	ND	ND	0.19	0.30	1.1	0.93	1.1	2.1	1.3	0.33
PCB#44	ND	ND	0.38	ND	0.48	0.72	1.5	0.26	ND	ND	0.65	2.9	2.7	6.6	3.9	3.2	0.57
PCB#49	ND	ND	0.60	ND	0.33	0.73	1.2	ND	0.54	0.29	1.1	2.1	2.2	6.7	3.2	2.7	0.67
PCB#52	0.34	ND	0.88	1.7	0.86	1.4	3.6	0.55	0.93	0.43	1.5	4.6	5.4	13	7.6	6.1	1.5
PCB#54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#70	ND	ND	0.35	0.99	0.51	0.29	2.6	0.33	0.46	ND	1.2	3.2	4.4	5.7	4.7	4.1	0.75
PCB#74	ND	ND	ND	0.38	0.24	ND	ND	ND	ND	ND	0.44	ND	1.7	2.2	1.8	1.6	NA
PCB#99	ND	ND	ND	ND	0.17	ND	0.50	ND	ND	0.13	0.50	1.0	1.0	3.5	ND	1.1	0.063
PCB#101	0.15	0.13	ND	0.85	0.45	ND	1.3	0.31	0.40	0.26	1.2	2.6	2.6	6.7	3.5	3.0	0.65
PCB#104	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#110	ND	0.11	0.13	0.53	0.31	ND	0.62	0.20	ND	ND	1.0	2.2	1.8	4.7	2.8	2.5	0.42
PCB#138/163/164	ND	ND	ND	ND	0.17	0.14	0.24	ND	ND	ND	0.38	1.3	1.5	2.2	ND	ND	NA
PCB#153	ND	ND	0.11	0.25	0.19	ND	0.33	ND	ND	0.12	ND	1.3	1.2	2.0	1.8	1.7	0.16
PCB#155	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#170	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.40	0.38	NA
PCB#183	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15	ND	ND	NA
PCB#187	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.37	0.49	0.50	NA
PCB#188	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#194	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#196/203	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#202	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#205	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#206	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#208	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
PCB#209	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA

The value with a shade means ≥3×median value and further with a border if ≥10×median value was measured

Table S7. Amount of OCPs sequestered by PAS at each sampling site (pg/sampler/day)

Classification	Blank	Background	Background	Background	Background	Background	Agricultural	Agricultural	Agricultural	Agricultural	Agricultural	Semi-urban	Urban	Urban	Urban	Urban	Urban
Sampling Site	FB	BA1	BA2	BA3	BA4	BA5	AG1	AG2	AG3	AG4	AG5	SUR	UR1	UR2	UR3	UR4-1	UR4-2
Location	Field Blank	Dunk Is	Kakadu	Uluru	Cape Grim	Phillip Island	Tully	Mildura	Gunnedah	Barossa Valley	Kununurra	Darwin	Brisbane	Rozelle	Homebush Bay	Adelaide	Adelaide
State		QLD	NT	NT	TAS	VIC	QLD	VIC	NSW	SA	WA	NT	QLD	NSW	NSW	SA	SA
HCB	1.3	23	24	29	49	32	13	29	26	29	27	28	51	30	54	69	58
α-HCH	ND	0.45	ND	ND	ND	0.31	ND	0.35	ND	0.26	ND	0.26	0.89	ND	0.68	0.48	0.39
β-HCH	ND	ND	ND	ND	ND	0.51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
γ-HCH	ND	0.29	ND	ND	0.56	ND	ND	0.60	ND	3.3	ND	1.5	2.9	2.4	3.4	5.0	4.4
δ-HCH	ND	ND	ND	ND	ND	0.37	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEPT	ND	1.9	0.52	0.28	0.34	0.76	0.84	79	3.0	2.0	0.20	4.5	26	92	68	56	50
HEPX	ND	0.45	ND	ND	ND	0.40	0.11	0.83	0.96	0.23	ND	0.79	6.1	9.5	14	2.8	2.8
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	0.20	0.24	0.42	0.25
Dieldrin	ND	2.9	ND	0.53	1.2	2.7	0.91	3.5	6.5	2.1	34	10	43	60	67	46	42
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.96	ND	0.95	1.2	1.1	0.73	0.81
Endrin ketone	ND	NA[#]	NA	ND	NA	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA
Oxychlordane	ND	ND	ND	ND	ND	ND	ND	ND	0.27	ND	ND	0.28	0.70	1.2	1.5	ND	ND
TC	ND	1.1	0.62	0.29	0.34	1.3	0.35	5.2	7.3	2.8	0.51	8.3	17	62	68	65	57
CC	ND	0.26	ND	0.12	0.23	0.65	0.10	1.1	1.2	0.76	0.40	4.0	4.8	15	18	25	22
TN	ND	ND	ND	ND	ND	ND	ND	0.61	0.86	ND	ND	3.7	2.8	8.1	11	14	11
CN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	1.8	1.7	ND
α-ES	ND	2.8	3.4	4.5	6.9	ND	1.7	9.2	7.1	21	15	7.4	13	3.3	ND	15	16
β- ES	ND	ND	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	ND	1.9
o,p'-DDE	ND	ND	ND	ND	ND	0.48	ND	0.34	0.17	0.19	12	ND	0.17	ND	1.1	0.28	0.28
p,p'-DDE	ND	0.16	ND	0.090	0.37	1.7	0.19	2.4	2.4	4.7	75	0.31	3.3	2.6	11	4.4	3.9
o,p'-DDD	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.98	ND	ND	ND	4.3	ND	ND
p,p'-DDD	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	0.86	0.19	ND	ND	4.8	ND	ND
o,p'-DDT	ND	ND	ND	ND	ND	0.45	ND	0.29	ND	0.39	3.7	ND	1.4	ND	1.2	ND	0.67
p,p'-DDT	ND	ND	ND	ND	ND	ND	0.12	0.34	0.29	0.44	4.3	0.32	3.3	1.8	2.1	ND	1.3
Methoxychlor	ND	ND	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	ND	ND	ND	0.070	0.060	0.48	0.060	0.040	0.050	ND	0.080	0.40	ND	0.27	0.19	ND	ND

[#] NA: data are not available due to failed QA criteria

Table S8. Concentrations of atmospheric OCPs at each sampling site (pg/m^3)

Sampling Site	BA1	BA2	BA3	BA4	BA5	AG1	AG2	AG3	AG4	AG5	SUR	UR1	UR2	UR3	UR4-1	UR4-2	Median
Location	Dunk Is	Kakadu	Uluru	Cape Grim	Phillip Island	Tully	Mildura	Gunnedah	Barossa Valley	Kununurra	Darwin	Brisbane	Rozelle	Homebush Bay	Adelaide	Adelaide	
State	QLD	NT	NT	TAS	VIC	QLD	VIC	NSW	SA	WA	NT	QLD	NSW	NSW	SA	SA	
HCB	32	33	41	67	45	18	41	37	41	37	39	72	42	75	96	81	41
α-HCH	0.49	ND	ND	ND	0.34	ND	0.38	ND	0.28	ND	0.28	0.98	ND	0.74	0.52	0.43	0.28
β-HCH	ND	ND	ND	ND	0.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
γ-HCH	0.36	ND	ND	0.70	ND	ND	0.74	ND	4.0	ND	1.8	3.5	3.0	4.2	6.2	5.4	0.72
δ-HCH	ND	ND	ND	ND	0.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
HEPT	4.4	1.2	0.65	0.79	1.8	2.0	180	6.9	4.6	0.47	10	62	210	160	130	120	5.7
HEPX	1.1	ND	ND	ND	0.92	0.26	1.9	2.2	0.54	ND	1.8	14	22	33	6.5	6.6	1.4
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.7	ND	0.46	0.57	0.98	0.59	NA
Dieldrin	6.8	ND	1.2	2.8	6.2	2.1	8.1	15	4.9	78	24	99	140	160	110	97	12
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.2	ND	2.2	2.7	2.6	1.7	1.9	NA
Endrin ketone	ND	NA[#]	NA	ND	NA	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA
Oxychlordane	ND	ND	ND	ND	ND	ND	ND	0.62	ND	ND	0.66	1.6	2.7	3.5	ND	ND	NA
TC	2.0	1.1	0.54	0.63	2.4	0.65	9.6	14	5.3	0.94	15	35	110	130	120	110	7.5
CC	0.63	ND	0.29	0.54	1.6	0.23	2.5	2.8	1.8	0.96	9.6	11	35	43	59	51	2.2
TN	ND	ND	ND	ND	ND	ND	1.8	2.5	ND	ND	11	8.2	24	32	42	34	0.89
CN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1	5.2	4.9	ND	NA
α-ES	3.6	4.3	5.7	8.8	ND	2.2	12	9.0	27	19	9.5	17	4.2	ND	20	20	8.9
β-ES	ND	ND	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	3.1	NA
o,p'-DDE	ND	ND	ND	ND	0.77	ND	0.55	0.28	0.30	19	ND	0.27	ND	1.8	0.45	0.45	0.28
p,p'-DDE	0.26	ND	0.15	0.59	2.8	0.31	3.9	3.9	7.5	120	0.50	5.4	4.2	18	7.1	6.2	3.9
o,p'-DDD	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND	ND	7.0	ND	ND	NA
p,p'-DDD	ND	ND	ND	ND	2.0	ND	ND	ND	ND	1.4	0.30	ND	ND	7.7	ND	ND	NA
o,p'-DDT	ND	ND	ND	ND	0.73	ND	0.47	ND	0.63	6.0	ND	2.3	ND	1.9	ND	1.1	NA
p,p'-DDT	ND	ND	ND	ND	ND	0.19	0.55	0.47	0.70	7.0	0.52	5.3	2.9	3.3	ND	2.1	0.49
Methoxychlor	ND	ND	ND	ND	4.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Mirex	ND	ND	0.11	0.091	0.77	0.10	0.058	0.073	ND	0.12	0.64	ND	0.43	0.31	ND	ND	0.082

The value with a shade means ≥3×median value and further with a border if ≥10×median value was measured; [#] NA: data are not available due to failed QA criteria

Table S9. International comparison of concentration of atmospheric PCBs between Australia and other countries/locations--background sites (mean and range in pg/m^3)

Region	Oceania	Arctica	Antarctica	Africa	Asia			Central America and Caribbean		Europe					North America		South America	
Country/Location	Australia	Dasan station	King Sejong station	South Africa	China	Indonesia	Japan	Costa Rica	Cuba	Italy	Czech Republic	Canary Islands	Iceland	Ireland	Canada	Bermuda	Brazil	Chile
Sampling period	2012	2005-2006	2004-2005	2005	2007-2008	2005	2005	2005	2005	2000-2001	1996-2005	2005	2005	2005	2000-2001	2005	2005	2005
ref	this study	4	4	5	6	5	5	5	5	7	8	5	5	5	9	5	5	5
$\sum_7$indicator congeners	1.8 0.49~3.2 (N=5)	20 6.9~46 (N=3)	1.6 0.73~2.7 (N=3)		17 4.0~28 (N=22)					26* 8.1~59 (N=24)	84* ND~390 (N=NA)				89 53~130 (N=2)			
$\sum_{12}$dl-congeners	0.11 ND~0.32 (N=5)	1.4 0.65~2.9 (N=3)	0.49 0.18~0.91 (N=3)															
TEQ for $\sum_{12}$dl-PCB (fg/m^3)	0.0034 ND~0.0096 (N=5)	0.043 0.020~0.090 (N=3)	0.17 0.010~0.29 (N=3)		3.9 0.30~11 (N=22)					0.53 0.12~1.9 (N=24)								
∑PCBs	3.5a 0.73~6.8 (N=5)			43b 0.060~250 (N=7)		24b 6.0~41 (N=3)	380b 11~750 (N=2)	2.3b 0.060~9.0 (N=4)	38b 0.060~120 (N=4)			120b 5.7~210 (N=4)	40b 6.0~90 (N=4)	39b 16~74 (N=4)		350b 80~700 (N=4)	130b 110~150 (N=3)	11b 0.060~18 (N=4)

***#118 was not included; a 47 congeners including #77, 81, 126, 169, 105, 114, 118, 123, 156, 157, 167, 189, 4/10, 15, 19, 28, 37, 44, 49, 52, 54, 70, 74, 99, 101, 104, 110, 138/163/164, 153, 155, 170, 180, 183, 187, 188, 194, 196/203, 200, 202, 205, 206, 208, 209; b 48 congeners including #8, 15, 18, 17, 16+32, 28, 31, 33, 37, 52, 49, 44, 42, 74, 70, 66, 56+60, 81, 77, 95, 101, 99, 87, 110, 123, 118, 114, 105, 126, 151, 149, 153, 137+138, 128, 156, 157, 187, 183, 185, 174, 177, 171, 180, 170, 200, 203, 195, 205 and 206; the value below detection limit was replaced by 1/2×MDL**

Table S10. International comparison of concentration of atmospheric PCBs between Australia and other countries/locations--urban sites (mean and range in pg/m^3)

Region	Oceania	Africa		Asia					Central America and Caribbean	Europe					North America		South America	
Country/Location	Australia	South Africa	Algeria	Singapore	China	Kuwait	Philippines	South Korea	Mexico	Italy	Spain	Turkey	France		Canada	Canada	Brazil	Argentina
Sampling period	2012	2004-2005	2008-2009	2007-2008	2005	2005	2005	2005	2003-2004	unknown	2005	2005	2005		2000-2001	2005	2007-2008	2006-2007
ref	this study	10	11	12	5	5	5	5	13	14	5	5	5		5	5	15	16
$\sum_7$indicator congeners	19 5.4~32 (N=6)	39 (N=58)		4.5^ 0.70~13 (N=37)						1,100 93~8,600 (N=56)					180 27~700 (N=15)			
$\sum_{12}$dl-congeners	2.0 0.58~3.6 (N=6)		62 (N=3)							80 12~710 (N=56)								
TEQ for $\sum_{12}$dl-PCB (fg/m3)	0.086 0.017~0.24 (N=6)		130 (N=3)							22 4.0~130 (N=56)								
∑PCBs	45a 11~72 (N=6)				97b 20~250 (N=3)	290b 86~500 (N=4)	1,300b 320~2,800 (N=4)	270b 140~400 (N=2)	83e 29~190 (N=20)		120b 33~260 (N=4)	420b 170~640 (N=4)	3,100b 2,400~4,100 (N=3)			130b 18~300 (N=6)	350c 190~620 (N=4)	200d 40~360 (N=2)

^#118 and #153 were not included; a 47 congeners including #77, 81, 126, 169, 105, 114, 118, 123, 156, 157, 167, 189, 4/10, 15, 19, 28, 37, 44, 49, 52, 54, 70, 74, 99, 101, 104, 110, 138/163/164, 153, 155, 170, 180, 183, 187, 188, 194, 196/203, 200, 202, 205, 206, 208, 209; b 48 congeners including #8, 15, 18, 17, 16+32, 28, 31, 33, 37, 52, 49, 44, 42, 74, 70, 66, 56+60, 81, 77, 95, 101, 99, 87, 110, 123, 118, 114, 105, 126, 151, 149, 153, 137+138, 128, 156, 157, 187, 183, 185, 174, 177, 171, 180, 170, 200, 203, 195, 205 and 206; the value below detection limit was replaced by 1/2×MDL; c 48 congeners including #8, 17 18, 16/32, 28, 31, 33, 37, 42, 44, 49, 52, 56/60,66, 70, 74, 87, 95, 99, 101, 110, 114, 118, 123, 128, 137,138,149, 151, 153, 156, 157, 171, 174, 177, 180, 183, 185, 187, 195, 194, 199, 200, 203, 207, 206, 209; d 48 congeners including #8, 17 18, 15, 16/32, 28, 33, 37, 42, 44, 49, 52, 56/60,66, 70, 74, 87, 95, 99, 101, 110, 114, 118, 123, 105, 128, 126, 137,138,149, 151, 153, 156, 157, 170, 171, 174, 177, 180, 183, 185, 187, 199, 200, 203, 205; e 51 congeners including #8, 18, 17, 15, 16/32, 31, 28, 33, 52, 49, 44, 42, 37, 74, 70, 66, 56/60, 95, 101, 99, 87, 123, 110, 151, 149, 118, 153, 105, 137/138, 187, 183, 128, 185, 174, 177, 171, 156, 157, 180, 194, 195, 199, 200, 170, 203, 205, 206, 207, 209.

Table S11. International comparison of concentration of atmospheric OCPs between Australia and other countries/locations--background sites (mean and range in pg/m^3)

Region	Oceania	Arctica	Antarctica		Africa	Asia			Central America and Caribbean		Europe				North America		South America	
Country/ Location	Australia	Greenland	King Sejong station	Bellinghausen Sea etc.	South Africa	South Korea	China	Indonesia	Costa Rica	Cuba	Czech Republic	Iceland	Ireland	Italy	Bermuda	Canada	Brazil	Chile
Sampling period	2012	2008-2010	2004-2005	2008-2009	2005a	2008-2009	2005a	2005a	2005a	2005a	2005a	2005a	2005a	2005a	2005a	2005a	2005a	2005a
ref	this study	17	18	19	5	20	5	5	5	5	5	5	5	5	5	5	5	5
HCB	44 32~67 (N=5)	80 1.2~160 (N=32)		19 2.2~52 (N=15)		94 15~260 (N=31)												
α-HCH	0.17 ND~0.49 (N=5)	8.9 0.15~12 (N=32)		0.80 0.040~5.8 (N=15)	35 0.050~120 (N=7)		110 0.050~270 (N=3)	32 2.0~55 (N=3)	3.0 0.050~12 (N=4)	14 1.0~47 (N=4)	22 13~37 (N=4)	21 9.0~33 (N=4)	11 6.0~14 (N=4)	8.3 2.0~13 (N=4)	7.3 2.0~18 (N=4)	11 1.0~30 (N=8)	24 11~34 (N=3)	0.30 0.050~0.80 (N=6)
γ-HCH	0.21 ND~0.70 (N=5)	1.3 0.070~12 (N=32)		2.2 0.070~5.8 (N=15)	22 0.050~68 (N=7)		110 36~190 (N=2)	21 5.0~43 (N=3)	3.0 0.050~6.0 (N=4)	6.3 2.0~16 (N=4)	42 20~56 (N=4)	15 6.0~21 (N=4)	14 6.0~19 (N=4)	7.3 2.0~15 (N=4)	4.5 1.0~8.0 (N=4)	4.8 1.0~16 (N=8)	27 24~30 (N=3)	4.3 3.0~8.0 (N=6)
HEPT	1.8 0.65~4.4 (N=5)	0.15 0.0010~1.1 (N=33)	0.29 0.17~0.40 (N=2)											0.70 0.050~2.0 (N=3)		0.17 0.050~1.0 (N=8)		
HEPX	0.39 ND~1.1 (N=5)	0.64 0.074~1.5 (N=32)						63 0.050~190 (N=3)	30 0.050~54 (N=4)	0.29 0.050~1.0 (N=4)	4.8 0.050~19 (N=4)	5.3 0.050~13 (N=4)	31 0.050~50 (N=4)		3.8 0.050~9.0 (N=4)	2.0 0.050~13 (N=8)		
Dieldrin	3.4 ND~6.8 (N=5)	1.7 0.23~17 (N=32)			2.3 0.070~16 (N=7)		15 0.070~30 (N=2)	11 0.070~32 (N=3)		7.3 0.070~19 (N=4)	24 0.070~53 (N=4)	13 3.0~26 (N=4)	24 0.070~38 (N=4)	37 4.0~78 (N=4)		3.8 0.070~16 (N=8)	15 0.070~44 (N=3)	2.4 0.070~7.0 (N=6)
TC	1.3 0.54~2.4 (N=5)	0.24 0.017~1.0 (N=32)	0.70 0.48~1.1 (N=3)		0.38 0.050~1.0 (N=7)		1.5 1.0~2.0 (N=2)	0.10 0.050~0.20 (N=3)	0.21 0.050~0.30 (N=4)	0.81 0.050~2.0 (N=4)	0.85 0.40~1.0 (N=4)	1.6 0.20~3.0 (N=4)	0.83 0.30~1.0 (N=4)	0.53 0.050~1.0 (N=4)	2.0 1.0~3.0 (N=4)	1.4 0.20~4.0 (N=8)	3.0 2.0~4.0 (N=3)	0.82 0.20~2.0 (N=6)
CC	0.60 ND~1.6 (N=5)	0.55 0.013~1.4 (N=32)	0.86 0.63~1.1 (N=2)		0.56 0.20~1.0 (N=7)		4.5 2.0~7.0 (N=2)	0.50 0.20~1.0 (N=3)	0.53 0.30~1.0 (N=4)	1.6 0.30~3.0 (N=4)	2.3 1.0~4.0 (N=4)	4.3 1.0~8.0 (N=4)	2.5 2.0~3.0 (N=4)	1.3 1.0~2.0 (N=4)	3.0 1.0~4.0 (N=4)	1.5 0.20~3.0 (N=8)	3.0 1.0~5.0 (N=3)	0.38 0.30~0.50 (N=6)
α-ES	4.5 ND~8.8 (N=5)	3.8 0.11~14 (N=32)	22 17~27 (N=2)		130 0.35~330 (N=7)		150 24~280 (N=2)	110 32~190 (N=3)	29 22~43 (N=4)	100 2.0~310 (N=4)	270 29~530 (N=4)	48 5.0~110 (N=4)	42 29~54 (N=4)	110 1.0~410 (N=4)	26 6.0~73 (N=4)	76 7.0~260 (N=8)	840 160~1.900 (N=3)	140 29~350 (N=6)
p,p'-DDE	0.76 ND~2.8 (N=5)	2.7 0.073~24 (N=32)			8.9 0.050~44 (N=7)		160 0.050~320 (N=2)			1.5 0.050~6.0 (N=4)	64 0.050~140 (N=4)	7.8 0.050~26 (N=4)	3.5 0.050~6.0 (N=4)	3.8 0.050~11 (N=4)		1.4 0.050~6.0 (N=8)		2.0 0.050~6.0 (N=6)
Mirex	0.20 ND~0.78 (N=5)		0.14 0.12~0.15 (N=2)			0.090 ND~0.78 (N=31)												

a the value below detection limit was replaced by 1/2×MDL

Table S12. International comparison of concentration of atmospheric OCPs between Australia and other countries/locations—agricultural sites (mean and range in pg/m^3)

Region	Oceania	Asia	Central America and Caribbean	North America		South America
Country/Location	Australia	India	Mexico	Canada	USA	Argentina
Sampling period	2012	2005a	2005-2006	2005a	2005a	2005a
ref	this study	[5]	[21]	[5]	[5]	[5]
α-HCH	0.13 ND~0.38 (N=5)	590 89~1,300 (N=6)	6.9 1.9~10 (N=3)	20 13~34 (N=4)	40 16~100 (N=4)	8.0 0.90~15 (N=2)
γ-HCH	0.95 ND~4.0 (N=5)	1,800 340~4,000 (N=6)	47 16~100 (N=3)	12 9.0~18 (N=4)	21 17~23 (N=4)	12 3.0~21 (N=2)
HEPT	40 0.47~180 (N=5)	91 0.050~320 (N=6)				32 0.050~63 (N=2)
HEPX	0.99 ND~2.2 (N=5)			8.3 0.050~33 (N=4)	3.3 0.070~13 (N=4)	1.0 0.050~2.0 (N=2)
Dieldrin	22 2.1~78 (N=5)	41 0.070~97 (N=6)	4.5 1.8~7.8 (N=3)	8.3 0.070~33 (N=4)	2.3 0.070~9.0 (N=4)	2.5 0.070~5.0 (N=2)
TC	6.0 0.65~14 (N=5)	21 4.0~66 (N=6)	2.4 0.20~4.2 (N=3)	1.3 1.0~2.0 (N=4)	42 0.050~83 (N=4)	1.0 1.0~1.0 (N=2)
CC	1.7 0.23~2.8 (N=5)	58 0.20~140 (N=6)	2.1 0.53~4.8 (N=3)	1.9 1.0~2.6 (N=4)	10 3.0~13 (N=4)	1.6 0.20~3.0 (N=2)
α-ES	14 2.2~27 (N=5)	3,300 410~11,000 (N=6)	6,900 29~19,000 (N=3)	44 28~62 (N=4)	73 56~110 (N=4)	7,300 47~15,000 (N=2)
p,p'-DDE	27 0.31~120 (N=5)	470 85~1,400 (N=6)	120 29~290 (N=3)		2.3 0.050~9.0 (N=4)	
p,p'-DDT	1.8 0.19~7.0 (N=5)		9.4 3.8~15 (N=2)			

a the value below detection limit was replaced by 1/2×MDL

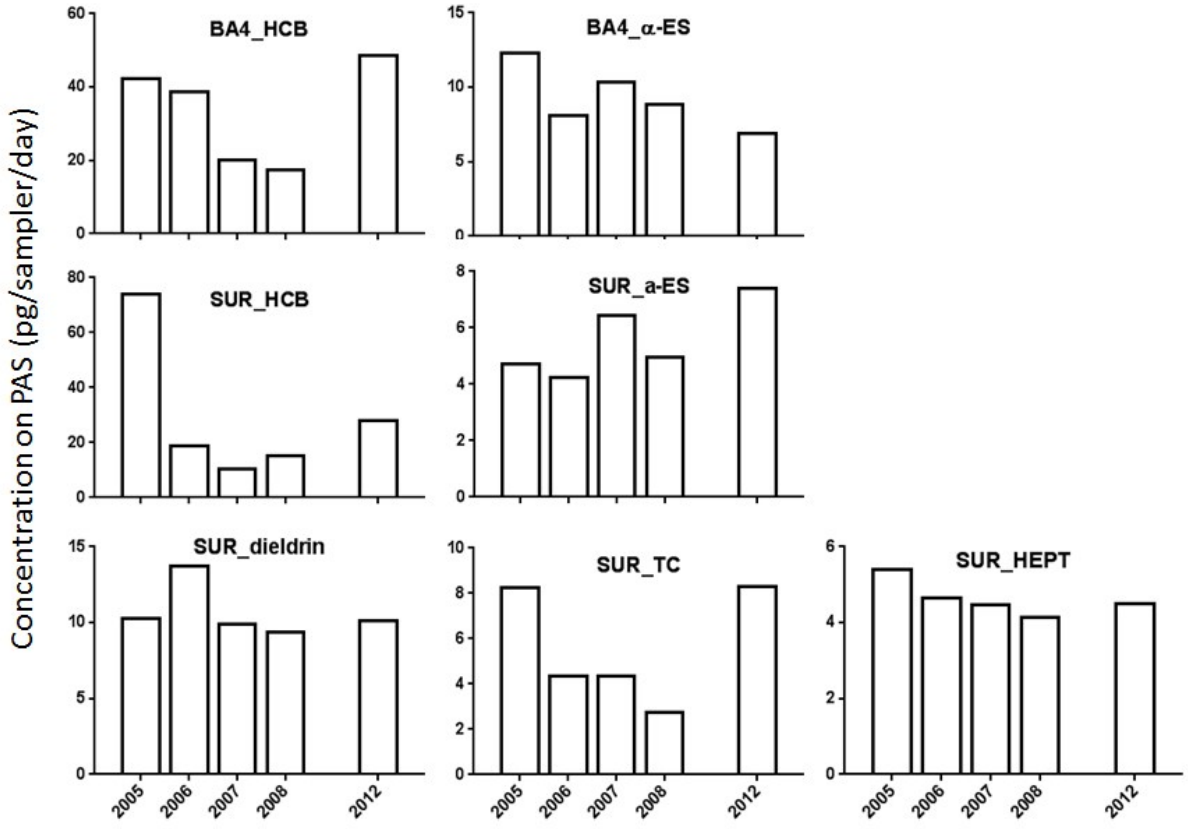
Table S13. International comparison of concentration of atmospheric OCPs between Australia and other countries/locations—urban sites (mean and range in pg/m^3)

Region	Oceania	Africa	Asia			Central America and Caribbean	Europe			North America	South America
Country/locations	Australia	South Africa	China	Kuwait	Philippines	Mexico	France	Spain	Turkey	Canada	Argentina
Sampling period	2012	2004-2005	2005b	2005b	2005b	2005-2006	2005b	2005b	2005b	2005b	2006-2007
ref	this study a	22	5	5	5	21	5	5	5	5	16
HCB	73 42~96 (N=5)	4.5 (N=47)									
α-HCH	0.54 ND~0.98 (N=5)	1.5 (N=48)	110 1.0~180 (N=4)	8.3 1.0~15 (N=4)	0.29 0.050~1.0 (N=4)	8.1 5.9~9.4 (N=3)	43 25~60 (N=3)	13 4.0~29 (N=3)	27 18~38 (N=4)	19 7.0~40 (N=6)	16 3.0~20 (N=6)
γ-HCH	4.4 3.0~6.2 (N=5)	120 (N=48)	63 1.0~140 (N=4)	22 1.0~65 (N=4)	11 0.15~21 (N=4)	25 11~49 (N=3)	520 400~650 (N=3)	50 20~89 (N=3)	25 9.0~58 (N=4)	11 4.0~25 (N=6)	19 2.0~30 (N=6)
HEPT	140 62~210 (N=5)		0.31 0.050~1.1 (N=4)		41 18~61 (N=4)		12 8.0~15 (N=3)			5.7 0.050~25 (N=6)	10 ND~20 (N=6)
HEPX	16 6.5~33 (N=5)	0.58 (N=39)	160 0.050~650 (N=4)	22 0.050~88 (N=4)	8.8 0.050~35 (N=4)		170 0.050~510 (N=3)	200 7.0~590 (N=3)	15 5.0~20 (N=4)	4.2 0.050~13 (N=6)	8.0 ND~20 (N=6)
Dieldrin	120 97~160 (N=5)			23 6.0~54 (N=4)	86 21~130 (N=4)	2.8 1.6~4.7 (N=3)	200 150~250 (N=3)	18 0.070~41 (N=3)	4.8 0.070~19 (N=4)	24 0.070~71 (N=6)	12 ND~30 (N=6)
TC	100 35~130 (N=5)	9.3 (N=48)	8.3 0.050~25 (N=4)	5.0 0.050~13 (N=4)	120 38~180 (N=4)	4.8 2.6~6.4 (N=3)	8.7 7.0~10 (N=3)	3.7 0.050~8.0 (N=3)	0.76 0.050~1.0 (N=4)	3.8 1.0~9.0 (N=6)	11 2.0~20 (N=6)
CC	40 11~59 (N=5)	11 (N=48)	3.1 0.20~6.0 (N=4)	3.0 2.0~5.0 (N=4)	78 29~110 (N=4)	4.3 2.7~5.2 (N=3)	5.7 3.0~8.0 (N=3)	5.0 1.0~11 (N=3)	1.8 1.0~3.0 (N=4)	4.4 1.0~9.0 (N=6)	3.0 ND~6.0 (N=6)
α-ES	12 ND~20 (N=5)		17 0.10~47 (N=4)	330 76~970 (N=4)	43 13~66 (N=4)	290 200~350 (N=3)	2,500 360~4,400 (N=3)	640 57~1,200 (N=3)	580 130~1,400 (N=4)	120 17~460 (N=6)	3,000 570~5,700 (N=6)
p,p'-DDE	8.1 4.2~18 (N=5)	8.5 (N=48)	14 0.050~56 (N=4)	78 22~210 (N=4)	39 14~71 (N=4)	20 13~25 (N=3)	45 29~62 (N=3)	45 29~62 (N=3)	65 46~100 (N=4)	33 0.050~110 (N=6)	11 ND~20 (N=6)
p,p'-DDT	2.7 ND~5.3 (N=5)	8.5 (N=48)									
Mirex	0.15 ND~0.44 (N=5)	27 (N=48)									

a site SUR is not included; b the value below detection limit was replaced by 1/2×MDL

Figure S1. Sampler deployment on site UR3, Homebush Bay, NSW

Figure S2. Comparison between air concentrations obtained from this study (in the year of 2012) and the ones from GAPS network also using XAD-PAS (in the year of 2005 to 2008) [23] (pg/sampler/day, normalised to a 10-cm length (62.5-cm^2 surface area) base)



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