Supplementary Information

Overview of mercury dry deposition, litterfall, and throughfall studies

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Contents

1. Chemical transport models

There are currently six global chemical transport models that include algorithms for the dry deposition of Hg: GRAHM, Environment Canada's Global/Regional Atmospheric Heavy Metal Model (Dastoor and Laroque, 2004); GEOS-Chem, the United States' Goddard Earth Observing System mercury model (Selin et al., 2007); ECHMERIT, a European global online model based on the Atmospheric General Circulation Model (*ECH*AM5) and a *MER*cury chemistry module, developed in Rende, *IT*aly, (Jung et al., 2009); GNAQPMS-Hg, the Asian Global Nested Air Quality Prediction Modelling System for Hg (Chen et al., 2015), GLEMOS, the Russian Global EMEP Multi-media Modelling System (Travnikov and Ilyin, 2009); and CTM-Hg, the United States' global Chemical Transport Model for Hg (Seigneur et al., 2004). A number of regional models also include dry deposition algorithms: CMAQ, the Community Multi-scale Air Quality model (Bullock and Brehme, 2002); WRF/Chem, the Weather Research and Forecasting model coupled with chemistry (Grell et al., 2005); TEAM, the North American Trace Elements Analysis Model (Pai et al., 1997); CAMx, the Comprehensive Air Quality Model with Extensions (de Foy et al., 2014); DEHM, the Danish Eulerian Hemispheric Model (Christensen, 1997; Christensen et al., 2004); REMSAD, the Regional Modeling System for Aerosols and Deposition (Bullock et al., 2008; 2009); CAM-Chem/Hg, the Community Atmospheric Model with mercury CAM-Chem/Hg (Lei et al., 2014); and ADOM, the Canadian-German Acid Deposition and Oxidants Model (Petersen et al., 2001). A summary of the algorithms for GEM, GOM, and PBM used by the global chemical transport models is provided in Table S1.

Table S1: Summary of the dry deposition schemes of GOM, PBM, and GEM in chemical transport models.

Model	Approach			Scheme Reference	References
	GOM	PBM	GEM		
Global					
GRAHM	Big-leaf	Size-segregated particle dry deposition model	Big-leaf	Zhang et al., 2001; 2003; 2009	Dastoor and Laroque, 2004; Dastoor et al., 2008; 2015; Ryaboshapko et al., 2007a; 2007b; Kos et al., 2013; Zhang et al., 2012a; 2012b
GEOS-Chem	Resistance	Resistance	Dry deposition only; Resistance	Wesely (1989); Zhang et al., 2001	Selin et al., 2008; Holmes et al., 2010; Corbitt et al., 2011; Amos et al., 2012; Fisher et al., 2012; Zhang et al., 2012; Kikuchi et al., 2013; Chen et al., 2014; Song et al., 2015
ECHMERIT	Big-leaf	Dry deposition and gravitational settling (Slinn and Slinn, 1980; CAMx, 2006)	Big-leaf model V_{dmax}=0.03 cm s^{-1}	Wesely, 1989; Slinn and Slinn, 1980; Kerkweg et al., 2006	Jung et al., 2009; De Simone et al., 2014
GNAQPMS-Hg	Resistance HLC: HNO_3 SR: zero	Resistance $V_{dPBM} = V_d(SO_4^{2-})$	Resistance HLC: 0.11 M atm^{-1} SR: zero		Chen et al., 2015
GLEMOS	Resistance	Resistance	Resistane		Travnikov and Ilyin, 2009; Travnikov et al., 2010
CTM-Hg	V_{dGOM}=V_{dHNO3}=0.5 cm s^{-1}	V_{dPBM} = 0.1cm s^{-1} land V_{dPBM} = 0.01 cm s^{-1} water	V_{dGEM}=0.01cm s^{-1} land V_{dGEM}=0 cm s^{-1} water		Shia et al., 1999; Seigneur et al., 2001; 2004; 2006; Lohman et al., 2008
Regional					
CMAQ	M3DRY	M3DRY	MADRID	Pleim and Byun, 2004	Bullock and Brehme, 2002; Lin et al., 2006; 2007; Gbor et al., 2007; Vijayaraghavan et al., 2007; Pongprueska et al., 2008; Bash, 2010; Baker and Bash, 2012; Holloway et al., 2012; Lin et al., 2012; Bash et al., 2014
WRF/Chem-Hg	$V_d(GOM) = V_d(HNO_3)$	Resistance	Not included	Wesely, 1989; Lin et al., 2006	Grell and Dévényi, 2002; Grell et al., 2005; Lin et al., 2006; Gencarelli et al., 2014; 2015
TEAM	Resistance	Size-segregated	Not included	Pleim et al., 1984	Pai et al., 1997; 1999; Seigneur et al., 2003; 2004; 2006
RCTM	Resistance V_{dGOM} = 4 cm s^{-1}	Resistance V_{dPBM} = 0.15 cm s^{-1}	Resistance V_{dGEM} = 0.0155 cm s^{-1}	Fowler et al., 1991	Lee et al., 2001
REMSAD	Resistance	Resistance	Not included	Wesely, 1989	Bullock et al., 2008
CAMx	Resistance	Resistance	Not included	Wesely, 1989	Baker and Bash, 2012; De Foy et al., 2012; 2014
DEHM	Resistance $SR(GOM) = SR(HNO_3)$	$V_d(PBM) = V_d(SO_4^{2-})$	Not included		Christensen, 1997; Christensen et al., 2004; Skov et al., 2004
ADOM	Resistance	Resistance	Not included		Petersen et al., 2001
CAM-Chem/Hg	Resistance	Resistance	Resistance	Wesely, 1989	Lamarque et al., 2012; Lei et al., 2013

Table S2: Summary of dry deposition estimation of GOM and PBM.

Region	Dep Flux ($ng\ m^{-2}\ hr^{-1}$)	Dep Flux ($ng\ m^{-2}\ hr^{-1}$)	Conc ($pg\ m^{-3}$)		V_d ($cm\ s^{-1}$)		Surface	Year	Reference	Comments
	GOM	PBM	GOM	PBM	GOM	PBM				
North America										
House Creek, Idaho	0.12		2.3 – 8.1		0.4 – 0.76		Short grass and forbs	2005-2006	Abbott et al., 2008	Wesely 1989 model
South central New Mexico	0.1	0.003	6.8 (1.6 - 25.0)	1.52 (0.57 - 7.2)	0.5	0.1	Arid/ Remote	2001-2002	Caldwell et al., 2006	V_ds from Seigneur et al., 2004
Garrett County, Maryland	0.4 (0.14 – 1.35)		10.40 (5.2 - 32.9)		0.95 (0.54 - 1.18)		Forest and agriculture	2009-2010	Castro et al., 2012	V_d from big-leaf. $\alpha=\beta=10$ SS in same study, see Table 3.
Lostwood Refuge, North Dakota	0.19	0.009	2.0	2.2	0.49 – 5.01	0.02 – 0.37	Grassland	2004	Engle et al., 2010	V_d values are for all sites, individual sites values not provided.
Virginia, USA	0.16	1.23	1.8	4.6	0.49 – 5.01	0.02 – 0.37	Deciduous Forest	2006	Engle et al., 2010	
Milwaukee, Wisconsin	0.61	0.07	10.05	11.78	0.49 – 5.01	0.02 – 0.37	Water/ Urban	2004-2005	Engle et al., 2010	
East St.Louis, Illinois	5.91	0.17	37.45	25.4	0.49 – 5.01	0.02 – 0.37	Urban	2004	Engle et al., 2010	
South Carolina, USA	0.21	0.003	3.33	2.28	0.49 – 5.01	0.02 – 0.37	Water/ Wetlands	2006-2007	Engle et al., 2010	
Weeks Bay, Alabama	0.25	0.006	3.8	2.83	0.49 – 5.01	0.02 – 0.37	Water/ Grass/ Crops	2005-2006	Engle et al., 2010	
Masachussetts, USA	0.11	0.02	2.65	4.0	0.49 – 5.01	0.02 – 0.37	Water/ Urban	2008-2009	Engle et al., 2010	
Puerto Rico	0.06	0.002	1.5	1.2	0.49 – 5.01	0.02 – 0.37	Water	2006	Engle et al., 2010	
Orlando, Florida	0.1 – 1.2	0.1 –0.6	2.44 – 6.77	2.04 – 3.28	1.7 (0 – 4.9)	0.24 (0 – 0.73)	Urban	2005	Fulkerson, 2006	Big-leaf
New Hampshire	0.65 – 1.75	0.07 - 0.18					Urban	1996, 1999, 2002	Han et al., 2008	Range of annual average fluxes. Close to point sources.
House Creek, Idaho	0.21						Short grass and forbs	2008	Holmes et al., 2011	LUC=Ice in winter; $\alpha=\beta=10$; $R_m=0$; Zhang 2003 model
House Creek, Idaho	0.19 – 0.22						Short grass and forbs	2008	Holmes et al., 2011	LUC=Ice in winter; $\alpha=\beta=10$; $R_m=0$; Wesely 1989/96 model
Huntington, NY	0.02	0.007	1.9		0.53	0.10	Mixed Wood Forest	2009-2010	Huang et al., 2012	V_d Zhang et al. (2009) model.
Rochester, NY	0.40	0.018	4.2		1.63	0.19	Urban	2009	Huang et al., 2012	V_d Zhang et al. (2009) model.
Cleveland, Ohio	0.86	0.044	29.5		1.27	0.15	Urban	2009	Huang et al., 2012	V_d Zhang et al. (2009) model.
Nevada and California, USA	~2.9 (0.1 – 22.4)				0.3 – 2.8		Thorn shrubs/ High elevation	2012-2013	Huang and Gustin, 2015	Scaling factor=3 for GOM conc. in flux calculations. $\alpha=\beta=10$
Lake Michigan	0.97	0.14					Water	1994-1995	Landis and Keeler, 2002	Fine:$K_{bs}=27cms^{-1}$,$K_m=0.9cms^{-1}$; Coarse:$K_{bs}=225cms^{-1}$,$K_m=1.2cms^{-1}$
Augusta, Georgia	0.32 (0 – 36.3)		8 – 9				Industrial	2000	Landis et al., 2004	Mercury Cell Chlor-Alkali plant. HY-SPLIT (10 km^2 domain)

Tennessee, USA		0.08 – 0.12				0.11	Forest		Lindberg et al., 1994	
WBW, Tennessee	5.7	0.07	70	20	2	0.1	Forest	1992, 1995	Lindberg and Stratton, 1998	
Durham, New Hampshire	0.28				2.31		Rural/ Agricultural	2007	Lombard et al., 2011	V_d from nocturnal inversions.
Durham, New Hampshire	0.17				2.31		Rural/ Agricultural	2008	Lombard et al., 2011	V_d from nocturnal inversions. Higher precipitation this year.
Detroit, Michigan	0.23 – 3.96		6.41 – 22.0		1 - 5		Urban	2000-2001	Lynam and Keeler, 2005	V_d from Lindberg and Stratton, 1998
Winnemuca & Wells, Nevada	0.02 – 0.37	0.24 – 1.24	10.11	10.89	0.3 – 0.78	0.13	Rural	2005-2006	Lyman et al., 2007	No data from rain periods.
Reno, Nevada	0.02 – 0.93	0.1 – 4.54	24.78	5.78	0.37	0.10	Suburban	2005-2006	Lyman et al., 2007	$\alpha=\beta=2$ No data from rain periods.
Reno,Nevada					0.2/ 1.1		Evergreen broadleaf shrubs	2006-2008	Lyman et al., 2009	V_d calculated using: R_c measured V_d / R_c=10 s m^{-1}.
Paradise, Nevada					0.3/ 1.5		Evergreen broadleaf shrubs	2008	Lyman et al., 2009	V_d calculated using: R_c measured V_d / R_c=10 s m^{-1}.
Pensacola, Florida					0.5/ 0.9		Short grass and forbs	2006-2008	Lyman et al., 2009	V_d calculated using: R_c measured / R_c=10 s m^{-1}.
Yorkville, Georgia					0.5/ 0.9		Short grass and forbs	2006-2008	Lyman et al., 2009	V_d calculated using: R_c measured V_d / R_c=10 s m^{-1}.
Florida Everglades		0.05 - 0.28		1.9 - 25	0 - 1.6	0.003 – 0.12	Sawgrass and cattail	1999	Malcolm and Keeler, 2002	
Florida Everglades	0.14[a]				0.47 – 1.27	0.01 – 0.13	Sawgrass (tall grass)	1999	Marsik et al., 2007	D_{RGM}=0.09 cm^2s^{-1}; R_{st}=109 sm^{-1}; $\alpha=\beta=10$
Florida Everglades	0.075[a]				0.67 – 2.10	0.01 – 0.15	Sawgrass (tall grass)	2000	Marsik et al., 2007	D_{RGM}=0.09 cm^2s^{-1}; R_{st}=109 sm^{-1}; $\alpha=\beta=10$
Northeastern North America	0.54 – 1.14	0.02 – 0.06					Rural	1997-1998	Miller et al., 2005	Averaged over 14 sites. Assumed RGM was 1%TGM
Utah, USA	0.3 – 1.0		2 - 14		0.9 – 3.0		Lake surface	2006-2007	Peterson and Gustin, 2008	Big leaf from Zhang et al. (2003) and Lyman et al. (2007).
Florida	0.02 – 0.06				0.26 – 0.29		Short grass and forbs	2009-2010	Peterson et al., 2012	$\alpha=\beta=2$; LAI=0.5 (3 sites)
Detroit, Michigan		0.0047 – 0.125		12 - 1230			Lake regions	1992-1994	Pirrone et al., 1995	HRD Model.
Vermont, USA		0.013 – 0.063		3 - 15		0.029 - 0.176	Mixed Hardwood	1994	Rea et al., 1996	
Pellston, Michigan	2.6	0.023	4	7	1.9	0.092	Deciduous Forest	1996	Rea et al., 2001	
San Francisco Bay, California	0.88		25.2	80.8	0.88		Cement plant	2008	Rothenberg et al., 2010	Assumed GOM=$HgCl_2$ for D_A
San Francisco Bay, California	0.11		2.58	3.17	1.1		Urban	2008	Rothenberg et al., 2010	Assumed GOM=$HgCl_2$ for D_A
San Francisco Bay, California	0.58		14.5	7.99	0.89		Rural	2008	Rothenberg et al., 2010	Assumed GOM=$HgCl_2$ for D_A
Adirondack, NY	0.018	0.034	1.18	3.74	0.38 - 0.82	0.08 - 0.15	Forest	2009-2011	Yu et al., 2013	GOM: $\alpha=\beta=10$
Lake Superior, Lake Michigan,	0.29 – 0.57							2003-2009	Zhang et al., 2012a	(GOM+PBM) CMAQ2005

Lake Huron										
Lake Superior, Lake Michigan, Lake Huron	< 0.29							2003-2009	Zhang et al., 2012a	(GOM+PBM) GRAHM2005
US/Canada Border (north)	0.57 – 1.71							2003-2009	Zhang et al., 2012a	(GOM+PBM) CMAQ2005
US/Canada Border (north)	< 0.57							2003-2009	Zhang et al., 2012a	(GOM+PBM) GRAHM2005
US/Canada Border (south)	1.14 – 4.57							2003-2009	Zhang et al., 2012a	(GOM+PBM) CMAQ2005
US/Canada Border (south)	0.57 – 4.57							2003-2009	Zhang et al., 2012a	(GOM+PBM) GRAHM2005
Toronto, Ontario	0.23 – 3.19	0.05 – 0.44	14.8 (7.5 – 25.9)	21.84 (14.2 – 39.2)	0.5 – 2.0	0.08 – 0.22	Urban	2003-2004	Zhang et al., 2012c	V_d from Zhang et al., 2011; Hg_p<2.5
Toronto, Ontario		0.23 – 1.52		70.3 (40.99 – 97.33)		0.16 – 0.44	Urban	2003-2004	Zhang et al., 2012c	V_d from Zhang et al., 2011; THg_p
Europe										
Central and Northern Europe		0.01 - 2			4	0.2		1988	Petersen et al., 1995	
18 Sites across Europe	0.24 – 0.62						Rural	2009	Bieser et al., 2014	GOM+PBM
Pinet, French Pyrenees	0.05 (0 –0.76)				0.93	0.11	Bog	2010	Enrico et al., 2016	GOM+PBM
East Asia										
Taichung, Taiwan	20.4[a]		332	71.1			Suburban/ Industrial	2011	Huang et al., 2012	IXM with KSS
Changchun, China		4.92		303 (22 - 1984)		0.5	Urban	1999-2000	Fang et al., 2001	Concentration two times higher during heating season. V_d assumed value
Changchun, China		2.43		147 (26 - 569)		0.5	Suburban Forest	1999-2000	Fang et al., 2001	Contrast site. V_d assumed value
Hungkuang, Taiwan		29.7		1.6 – 55.7		3.49	Traffic	2009	Fang et al., 2010	Baklanov and Sorensen 2001 model
Hungkuang, Taiwan		46.26		1.6 – 55.7		3.49	Traffic	2009	Fang et al., 2010	Zhang 2001 models
Westing Park, Taiwan		1.17 – 2.13		22		1.74	Suburban	2011-2012	Fang et al., 2012a	Petroff and Zhang model; Ratio range 0.93 – 1.69 of measured flux
Taichung, Taiwan		1.45 – 2.62		27		1.03	Airport	2011-2012	Fang et al., 2012a	Petroff and Zhang model; Ratio range 1.05 – 1.90 of measured flux
Hungkuang, Taiwan		~7.2		570		0.35	Traffic	2010-2011	Fang et al., 2012b	Using V_d from Zhang et al. (2012) and mass fractions
Gaomei, Taiwan		~3.4		170		0.55	Wetland	2010-2011	Fang et al., 2012b	Using V_d from Zhang et al. (2012) and mass fractions
Quanxing, Taiwan				940		0.52	Industrial	2010-2011	Fang et al., 2012b	Using V_d from Zhang et al. (2012) and mass fractions
Hungkuang, Sha Lu, Taiwan		0.66 – 8.94		24			Traffic –Day	2011-2012	Fang et al., 2016	Ratio ranges: Baklanov and Sorensen 2001 (0.71-6.77) / Williams 1982 (0.5-2.15)
Hungkuang, Sha		0.43 – 5.81		18			Traffic - Night	2011-2012	Fang et al., 2016	Ratio ranges: Baklanov and

Lu, Taiwan							Sorensen 2001 (0.64-6.05) / Williams 1982 (0.45-1.92)
Taichung Airport, Taiwan	0.59 – 7.98	27		Airport	2011-2012	Fang et al., 2016	Ratio ranges: Baklanov and Sorensen 2001 (0.61-5.78) / Williams 1982 (0.43-1.84)
Westing Park, Sha Lu, Taiwan	0.48 – 6.46	22		Urban	2011-2012	Fang et al., 2016	Ratio ranges: Baklanov and Sorensen 2001 (0.54-5.13) / Williams 1982 (0.38-1.63)
Beijing, China	46.46	1.18 (0.18 – 3.51)	0.1, 1.3, 2.9	Urban	2003-2004	Wang et al., 2006	V_d from Nho-Kim 2004
Beijing, China	30.82	0.68 (0.13-2.4)	0.1, 1.3, 2.9	Suburban	2003-2004	Wang et al., 2006	V_d from Nho-Kim 2004

Table S3: Summary of GOM and PBM dry deposition measurements in peer-reviewed literature.

Region	Method	DRY DEP ($ng\ m^{-2}\ hr^{-1}$)	DRY DEP ($ng\ m^{-2}\ hr^{-1}$)	CONC ($pg\ m^{-3}$)		Vd ($cm\ s^{-1}$)		Surface	Year	Reference	Comments
		GOM	PBM	GOM	PBM	GOM	PBM				
Micrometeorological Methods											
Barrow, Alaska	REA	1.44		70	10	1		Snow	2001	Lindberg et al., 2002	2 hr sampling over 3 months in AMDE period.
Bay St. François, Québec, Canada	MBR	2.6 (0 - 25.6)	0.4 (0 - 8.7)	3.63 (0 – 22)	6.44 (0.5 – 18)	7.6 (0.012 – 73)	2.1 (0.001 – 43.1)	Wetlands	2002	Poissant et al., 2004	Tekran system with KCL-coated denuder and 1 hr sampling.
Barrow, Alaska	REA	5.11		35.1		4.16		Snow	2001	Skov et al., 2006	REA coupled to KCl-coated denuder. During spring with AMDEs.
Barrow, Alaska	REA	17.71		39.9		12.31		Snow	2002	Skov et al., 2006	REA coupled to KCl-coated denuder. During spring with AMDEs.
Barrow, Alaska	REA	27.83		81.8		9.45		Snow	2003	Skov et al., 2006	REA coupled to KCl-coated denuder. During spring with AMDEs.
Dynamic Flux Chambers											
Tennessee, USA	MC	0.7		49 – 53		0.4		Grass	1993	Lindberg and Stratton, 1998	1 hr sampling. MBR approach using MC for fluxes.
Tennessee, USA	MC	21 – 58		98 - 350		5.1 – 5.9		Forest	1992, 1995	Lindberg and Stratton, 1998	1 hr sampling. MBR approach using MC for fluxes.
Surrogate Surfaces											
North America											
New Mexico, USA	IXM	4.47 ± 2.33						Arid/ Remote	1998	Caldwell, 2000	Tekran 1130 with KCL-coated denuder. Ion-exchange membrane. 72 hr intervals.
New Mexico, USA	IXM	4.0 ± 3.42		6.8 (1.6 - 25.0)	1.52 (0.57 - 7.2)			Arid/ Remote	2001-2002	Caldwell et al., 2006	Tekran 1130 with KCL-coated denuder. Ion-exchange membrane. 24 hr intervals.
Garrett County, Maryland	CEM	0.37 (0.080 - 1.512)		10.40 (5.2 - 32.9)		0.97 (0.23 - 1.65)		Forest & agriculture	2009-2010	Castro et al., 2012	Tekran 1130 with KCL-coated denuder. ICE 450. 17 weekly sampling periods.
Florida, USA	CEM	0.05 – 0.2		2 – 7	2 – 3	0.78 – 1.8		Grassland	2009-2010	Gustin et al., 2012; Peterson et al., 2012	Tekran system with 1 hr sampling. ICE 450 facing downward and collected bi-weekly. Adjusted with correction factor of Lyman et al., 2009.
Florida, USA	PS	0.14 (0.03 - 0.46)		4.8 – 6.6	2.3 (2 - 65)	1.33 (0.57 - 6.8)		Grassland	2009-2010	Gustin et al., 2012; Peterson et al., 2012	Tekran system with 1 hr sampling. Passive samplers exposed surfaces facing downward.
Huntington, NY, USA	CEM	0.1[a]		1.9 ± 0.5				Rural Forest	2009-2010	Huang et al., 2012	Tekran 1130 and 1135. KSS with ICE 450 upward facing. 2 hr intervals.
Rochester, NY, USA	CEM	0.5[a]		4.2 ± 2.0				Suburban	2009	Huang et al., 2012	Tekran 1130 and 1135. KSS with ICE 450 upward facing. 2 hr intervals.
Cleveland, Ohio,	CEM	2.0[a]		29.5 ± 4.9				Urban/	2009	Huang et al., 2012	Tekran 1130 and 1135. KSS with ICE

USA						Industrial			450 upward facing. 1 hr intervals.
Cleveland, Ohio, USA	CEM	1.7[a]	29.5 ± 4.9			Urban/ Industrial	2009	Huang et al., 2012	Tekran 1130 and 1135. KSS with ICE 450 downward facing. 1 hr intervals.
California and Nevada, USA	CEM	2.33				High elevation	2012-2013	Huang and Gustin, 2015	Tekran System and Mustang S sampler downward facing. 2 week samplings.
California and Nevada, USA	CEM	0.725				Low elevation	2012-2013	Huang and Gustin, 2015	Tekran System and Mustang S sampler downward facing. 2 week samplings.
New York State, USA	WSS	0.35 – 0.87	2.8	8	5.6	Rural grassland		Lai et al., 2011	Tekran system with 2 hr sampling.
New York State, USA	KSS	39.27 – 59.33	2.8	8		Rural grassland		Lai et al., 2011	Tekran system with 2 hr sampling. Gold-coated QFF
Michigan, USA	WSS	3.33	17.7 (1.8 – 904)	20.8 (1.8 – 61 1)		Urban	2003	Liu et al., 2007	Tekran system with 1 hr sampling. RGM denuder upstream.
Nevada, USA	CEM	0.71 (0.24-1.24)	10.11	10.89	1.72	Rural	2005-2006	Lyman et al., 2007	Tekran 1130 & 1135 with KCL-coated denuder. ICE 45S3R facing down and backing side exposed. No data from rain periods.
Nevada, USA	CEM	1.34 (0.1 – 4.54)	24.78	5.78	1.52	Suburban	2005-2006	Lyman et al., 2007	Tekran 1130 & 1135 with KCL-coated denuder. ICE 45S3R facing down and backing side exposed. No data from rain periods.
Nevada, USA	CEM	1.0	17	9	1.4	High elevation	2006-2008	Lyman et al., 2009	Tekran System and ICE 450 facing downward. 2 hr sampling.
Nevada, USA	CEM	2.2			2.6		2008	Lyman et al., 2009	Tekran System and ICE 450 facing downward. Rectangular mount.
Georgia, USA	CEM	0.2	7	3	0.9		2006-2008	Lyman et al., 2009	Tekran System and ICE 450 facing downward. 1 hr sampling.
Florida, USA	CEM	0.1	4	2	1.1		2006-2008	Lyman et al., 2009	Tekran System and ICE 450 facing downward. 1 hr sampling.
Illinois, USA	TSS	2.22 (0.97 – 3.06)					2011	Lynam et al., 2014	Astro Turf with 72 hr sampling.
Florida Everglades, USA	WSS	0.54				Mixed sawgrass	1999	Marsik et al., 2007	Tekran system wth 2 hr sampling. WSS covered during rainfall with ~12 hr sampling. Dry season
Florida Everglades, USA	WSS	0.25				Mixed sawgrass	2000	Marsik et al., 2007	Tekran system wth 2 hr sampling. WSS covered during rainfall with ~12 hr sampling. Wet season
Utah, USA	CEM	0.5 - 1.9	2 – 14		2.8 - 7.8	Marina	2006-2007	Peterson and Gustin, 2008	Tekran system with KCL-coated denuder. CEM facing down.
Michigan, USA	SS	0.19[a]	10 - 40		0.1 - 0.5	Mixed hardwood	1996	Rea et al., 2000	Teflon filter packs. 98 hr sampling. Assume GOM=1-3% TGM
Four Corners, USA	CEM	0.4 – 1.0			~0.5 - 6.5	Rural and urban	2009-2011	Sather et al., 2013	Tekran System and ICE 450 facing downward. 2 week sampling. 6 sites.
Oklahoma, USA	CEM	0.2				Rural	2009-2011	Sather et al., 2013	Tekran System and ICE 450 facing downward. 2 week sampling.
Oklahoma, USA	CEM	0.2				Rural	2011-2012	Sather et al., 2014	Tekran System and ICE 450 facing downward. 2 week sampling.

Texas, USA	CEM	0.2 (0.1 - 0.3)						Urban and rural	2011-2012	Sather et al., 2014	Tekran System and ICE 450 facing downward. 2 week sampling. 4 sites.
Washington, DC, USA	CEM	0.19 – 6.96	0.01 – 0.14	400	200	0.13 – 4.83	0.02 – 0.20	Research pier	1998-1999	Sheu and Mason, 2001	0.45 µm Teflon filter in front of air inlet and one on top of quartz chamber. 6-24 hr sampling.
Georgia, USA	CEM	0.22		8	3			Rural	2007-2008	Weiss-Penzias et al., 2011	Tekran System and ICE 450 facing downward. 1 hr sampling.
Florida, USA	CEM	0.14		4	3			Suburban	2007-2008	Weiss-Penzias et al., 2011	Tekran System and ICE 450 facing downward. 1 hr sampling.
California, USA	CEM	(0.3) 0.1 – 0.7						Salt marsh	2009-2011	Weiss-Penzias et al., 2012	Downward facing CEM. Collected weekly.
California to Nevada, USA	SS	0.2 - 2.4		0.5 - 67	4 - 25				2010-2012	Wright et al., 2014	Tekran system with KCl-coated denuder 2 hr sampling. 1 week intervals.
Asia											
Korea	KSS	0.62 (0.05 – 1.64)	0.06 (0.09 – 2.21)					Deciduous forest	2008-2010	Han et al., 2016	Tekran system. Units and conflicting values?
Hung Kuang, Sha Lu, Taiwan	DDP		57.11 (25.28 – 98.68)		1.6 – 55.7		3.49	Traffic	2009	Fang et al., 2010	PS-1 Sampler' $PM_{2.5}$
Westing Park, Taiwan	DDP		1.26 (0.84 – 2.16)		22 (14 – 39)		1.74 (0.595 – 4.07)	Urban	2011-2012	Fang et al., 2012a	Silicone grease coated.
Hungkuang, Sha LuTaiwan	DDP		1.38 (0.9 – 2.82)		27 (15 - 60)		1.03 (0.592 – 2.906)	Traffic		Fang et al., 2012a	Silicone grease coated.
Hungkuang, Sha LuTaiwan	DDP		6.96		570 (27 – 3100)		0.34	Traffic	2010-2011	Fang et al., 2012b	Daily measurements but 9 month averages provided here MOUDI 100-S4 sampler
Gaomei, Taiwan	DDP		3.65		170 (5 – 1200)		0.6	Wetland	2010-2011	Fang et al., 2012b	Daily measurements but 9 month averages provided here MOUDI 100-S4 sampler
Quanxing, Taiwan	DDP		9.70		940 (45 – 3100)		0.29	Industrial	2010-2011	Fang et al., 2012b	Daily measurements but 9 month averages provided here MOUDI 100-S4 sampler
Taichung, Taiwan	IXM	52.9		332	71.1			Suburban/ Industrial	2011	Huang et al., 2012	IXM with KSS
Hungkuang, Taiwan	IXM	1.2 – 1.62	1.08 – 1.56					Traffic		Fang et al., 2013	KSS for GOM and PBM, DDP for PBM.(Abstract only)
Hung Kuang, Sha Lu, Taiwan	DDP		0.96 - 1.32		18		1.483 (0.823 – 2.935)	Traffic	2012	Fang et al., 2014	PS-1 Sampler; Nighttime - Daytime
Hung Kuang, Sha Lu, Taiwan	DDP		1.32 / 0.96		24 / 18		1.37 / 1.48	Traffic	2011-2012	Fang et al., 2016	Daytime/ Nighttime; Silicone grease filter
Taichung Airport	DDP		1.38		27		1.027	Airport	2011-2012	Fang et al., 2016	Silicone grease filter
Westing Park, Sha Lu, Taiwan	DDP		1.26		22		1.741	Urban	2011-2012	Fang et al., 2016	Silicone grease filter
Tokyo, Japan	WSS	1.26						Urban/ Industrial	2002-2003	Sakata and Marumoto, 2004	Tekran 2600.WSS covered during rainfall. ~2 week sampling.
Japan	WSS	0.9 (0.5 – 1.51)						Urban and Remote	2002-2003	Sakata and Marumoto, 2005	Tekran 2600.WSS covered during rainfall. ~2 week sampling. 9 sites.

Japan	WSS	1.22			Urban and Remote	2003-2004	Sakata et al., 2006	Tekran 2600.WSS covered during rainfall. ~2 week sampling. 10 sites.
Japan	WSS	1.2	17.3	0.65 (0.12 - 5.9)	Urban and Remote	2004-2006	Sakata and Asakura, 2008	Tekran 2600.WSS covered during rainfall. ~2 week sampling. 10 sites. $V_{d(PBM)}=V_d(C_d$ and $P_b)$

Table S4: Summary of available measurements of Hg concentrations in leaves and litter (ng g^{-1}) and litterfall Hg (μg m^{-2} yr^{-1}).

Site Name	Country	Forest Type	Year of Sampling	Hg in Leaves (ng g^{-1})	Hg in Litter (ng g^{-1})	Litterfall Hg (μg m^{-2} yr^{-1})	Reference	Comments
Asia								
Mangrove National Parks: Hainan Province, Guandong Province, Guangxi Autonomous, Fujian Province)	SE China	Mangroves	July and August 2008	55.3 – 1755.8 (Juvenile) 203.7 – 1800.6 (Mature)	1180 ± 1260 (384.7 – 2131.6)		Ding et al., 2011	Juvenile, mature, and litter leaves were hand sampled during low tide.
Mt. Leigong, Guizhou	Guizhou, SW China	Cinnamomum camphora (L.) Presl forest	May 2008 – May 2009		106	30.4	Fu et al., 2010a	Mountain peak. 0.25 m^2 LFCs collected monthly.
Mt. Leigong, Guizhou	Guizhou, SW China	Rhododendron simsii Planch forest	May 2008 – May 2009		57	17.6	Fu et al., 2010a	Mountain peak. 0.25 m^2 LFCs collected monthly.
Mt. Leigong, Guizhou	Guizhou, SW China	Fargessia spathacea Franch forest	May 2008 – May 2009		110	70.6	Fu et al., 2010a	Mountain peak. 0.25 m^2 LFCs collected monthly.
Mt. Gongga Area, Hailuogou National Forest Park	Sichuan, SW China	Grossulariaceae	Aug 22-24, 2006	36.1 ± 11.2		35.5 (All species)	Fu et al., 2010b	Collected from branches with fully developed undamaged leaves
Mt. Gongga Area, Hailuogou National Forest Park	Sichuan, SW China	Maple	Aug 22-24, 2006	34.5 ± 34.5			Fu et al., 2010b	Collected from branches with fully developed undamaged leaves
Mt. Gongga Area, Hailuogou National Forest Park	Sichuan, SW China	Mountain Ash	Aug 22-24, 2006	32.4 ± 6.6			Fu et al., 2010b	Collected from branches with fully developed undamaged leaves
Mt. Gongga Area, Hailuogou National Forest Park	Sichuan, SW China	Emei Fir	Aug 22-24, 2006	26.6 ± 5.1			Fu et al., 2010b	Collected from branches with fully developed undamaged leaves
Mt. Gongga Area, Hailuogou Nationa Forest Park	Sichuan, SW China	Broad leaf Cuculidae	Aug 22-24, 2006	24.2 ± 9.6			Fu et al., 2010b	Collected from branches with fully developed undamaged leaves
Mt. Gongga Area, Hailuogou Nationa Forest Park	Sichuan, SW China	Woolly foliage Cuculidae	Aug 22-24, 2006	12.2 ± 2.9			Fu et al., 2010b	Collected from branches with fully developed undamaged leaves
Yadong	Tibetan Plateau, NE China	Pine and fir	August 2008	5.4 ± 2.9			Gong et al., 2014	Cut with scissors 2 m above ground, 1 yr old needles
Linzhi	Tibetan Plateau, NE China	Pine and fir	August 2008	8.4 ± 3.7	59.2 ± 21.8 (28.3-101.0)	4.2	Gong et al., 2014	Cut with scissors 2 m above ground, 1 yr old needles. Litter conc. was assumed to be 1.5 times foliar concentration.
Nujiang River	Tibetan Plateau, NE China	Pine	August 2008	12.2 ± 5.0			Gong et al., 2014	Cut with scissors 2 m above ground, 1 yr old needles
Sichuan	Tibetan Plateau, NE China	Pine	August 2008	13.6 ± 11.0			Gong et al., 2014	Cut with scissors 2 m above ground, 1 yr old needles
Mt. Damei, Zhejiang	E China		August 2012 – July 2013		46.6	26.0	Lang et al., 2014	MSc. Dissertation (in Chinese). Still need.
TieShanPing	SW China	Masson pine *(Pinus massoniana)*	2010 – 2011	31.4 ± 2.8 (Control) 30.2 ± 5.5 (FGDG)	116.9 ± 19.2 (Control) 106.5 ± 15.8 (FGDG)	22.3 (Control) 20.9 (FGDG)	Luo et al., 2015	1m^2 collected monthly. FGDG = Flue Gas Desulfurization Gypsum. Needles cut from crown top of trees (15-25m).
TieShanPing	SW China	Herbaceous plants	2010 – 2011	53.3 ± 12.3			Luo et al., 2015	Leaves sampled early November each

		(*Woodwardia japonica, Dryopteris fuscipes, Dryopteris pedata, Miscanthus sinensis*)		(Control) 40.95 ± 14.1 (FGDG) (18.5 – 85.7)				year. FGDG = Flue Gas Desulfurization Gypsum
Suburban mountainous areas, China (22 sites)	China	Suburban evergreen broadleaf forest	Not provided		50.8 ± 39.4 (8.3-205.0)	17.9	Niu et al., 2011	
Suburban mountainous areas, China (22 sites)	China	Suburban deciduous broadleaf forest	Not provided		25.8 ± 10.1 (13.3-49.3)	8.37	Niu et al., 2011	
Beijing	N China	Urban forests (mainly deciduous)	Not provided		28.1 ± 16.6 (8.8-119.0)		Niu et al., 2011	LUCs include suburban, landfill, universities, parks, and streets.
TieShanPing	SW China	Masson Pine dominated, coniferous-broad leave mixed subtropical forest	March 2005 – March 2006		104.8 ± 18.6	219.9	Wang et al., 2009	1 m^2 nylon nets 1 m above forest floor were collected monthly.
LeiGongShan	SW China	*Pinus armandii* dominated, coniferous-broad leave mixed subtropical forest	March 2005 – February 2006		135.1 ± 31.7	78.3	Wang et al., 2009	1 m^2 nylon nets 1 m above forest floor were collected monthly.
Xujiaba region, Mt. Ailao	SW China	Montane moist evergreen broad-leaved primary forest	June 2011 – May 2012		54 (43-62)	71.2	Zhou et al., 2013	1 m^2 litterfall collectors collected monthly
Tieshanping National Forest Park	SW China	Masson pine dominated coniferous-broad leave mixed subtropical forest	March 2014		150 ± 21 (110-180)		Zhou et al., 2015	Litter (1-4 cm) Altitude 200-400 m
Tieshanping National Forest Park	SW China	Masson pine dominated coniferous-broad leave mixed subtropical forest	March 2014		157 ± 23 (109-208)		Zhou et al., 2015	Altitude 400-500 m
Tieshanping National Forest Park	SW China	Masson pine dominated coniferous-broad leave mixed subtropical forest	March 2014		160 ± 26 (113-201)		Zhou et al., 2015	Altitude 500-600 m
Amazon								
Negro River Basin (AM)	Brazil	Tropical rainforest	January – December 2003		48 ± 10 (35.4-61.5)	43 ± 15	da Silva et al., 2009	1 m^2 nylon traps 20 cm above ground sampled monthly. Naturally high Hg levels
Atlantic Forest - PEFI, São Paulo	Brazil	Urban forest	May – September 2001		97	72 ± 48	Fostier et al., 2003	6 months sampling, dry season.
Atlantic Forest - Cunha, São Paulo	Brazil	Rural forest	May – September 2001		70	60 ± 36	Fostier et al., 2003	6 months sampling, dry season.
Negro River Basin (AM)	Brazil	Partially flooded tropical rainforest	1999	60 ± 23			Fostier et al., 2015	19 samples collected at different tree heights. Previously unpublished data.
Alta Floresta (MT)	Brazil	Old-growth tropical rainforest	2013		55 ± 10	49 ± 14	Fostier et al., 2015	6 different sample sites.
Candelas de Jamari (RO)	Brazil	Old-growth tropical rainforest	2013		61 ± 11		Fostier et al., 2015	4 different sample sites.
Candelas de Jamari (RO)	Brazil	Old-growth tropical rainforest	2014		57		Fostier et al., 2015	6 different sample sites.
Amazonian Forest	Brazil	Tropical rainforest			48 ± 10	43 ± 14	Magarelli, 2006	6 months sampling
EMBRAPA farm, Rio Branco, Acre	Brazil	Ombrophilous Open Forest	July 2011	33 ± 18 mean (11.59-55)	40 ± 5	0.62 g ha^{-1}	Melendez-Perez et al., 2014	Litterfall manually picked up during felling prior to burning
Les Nouragues	French Guiana	Tropical rainforest (3 Species)	1999	59 ± 28 (32-114)		45 ± 10	Mélières et al., 2003	1-3 yr old leaves from upper canopy, high forest drained soil.
Pic Matecho	French Guiana	Tropical rainforest (5 Species)	2001	70 ± 16 (52.4-103.0)			Mélières et al., 2003	Upper canopy leaves from high forest, drained soil (64 ng/g average for both

								years)
Alta Floresta, Mato Grosso	Brazil	Old-growth tropical rainforest (10 tree species)	2004	46 ± 9 (35.1-58.1)	60 ± 10	16.3 Mg ha^{-1}	Michelazzo et al., 2010	Foliage collected at different heights, litter from 5 locations after felling.
Alta Floresta, Mato Grosso	Brazil	Old-growth tropical rainforest (10 tree species)	2005	33 ± 10 (19.3-57.9)	111 ± 23		Michelazzo et al., 2010	Foliage collected at different heights, litter from 5 locations after felling.
Sor River Catchment, Galicia	Spain	Oak and birch	November 1997 and 2001		143.8 ± 26.3		Nóvoa-Muñoz et al., 2008	1 m^2 boxes with nylon nets 50 cm above ground.
Sor River Catchment, Galicia	Spain	Heather	November 1997 and 2001		85.7 ± 4.4		Nóvoa-Muñoz et al., 2008	30 cm^2 boxes with nylon nets 50 cm above ground.
Sor River Catchment, Galicia	Spain	Gorse	November 1997 and 2001		92.2 ± 0.5		Nóvoa-Muñoz et al., 2008	30 cm^2 boxes with nylon nets 50 cm above ground.
Sor River Catchment, Galicia	Spain	Pine	November 1997 and 2001		128.4 ± 0.5		Nóvoa-Muñoz et al., 2008	1 m^2 boxes with nylon nets 50 cm above ground.
Maciço da Peda Branca, Rio de Janeiro	Brazil	Urban rainforest	August 2000 – July 2001		170 ± 70	128	Oliveira et al., 2005	
Tapajós River Valley, Pará state	Brazil	Rainforest on plateau (6 sites)			73 (58 – 100)	52	Roulet et al., 1998	300 m^2 circular area.
French Guiana	French Guiana	Old-growth tropical rainforest (3 sites)	1992, 1994, 1995	142 ± 52 (51-291)	119 ± 26 (60-197)	118	Roulet et al., 1999	15 cm dia. PVC tube soil core
Tocantins	Brazil	Old-growth tropical rainforest (1 site)	1992, 1994, 1995	93 ± 23 (63-128)	114 ± 40 (67-162)		Roulet et al., 1999	15 cm dia. PVC tube soil core
Tapajós Basin	Brazil	Partially/Permanently flooded tropical rainforest (13 sites)	1992, 1994, 1995	73 ± 38 (3-198)	82 ± 12 (51-109)		Roulet et al., 1999	15 cm dia. PVC tube soil core
Atlantic Forest - Ilha Grande, Rio de Janeiro	Brazil	Primary forest (134 species over 26 plots)	January-December 1997		131 ± 74 (20-244) 99 ± 54 (Dec-May) 225 ± 17 (Jun-Aug)	122	Silva-Filho et al., 2006	0.25 m^2 litter traps collected monthly. Higher values in dry season than rainy season.
Camorim Forest, Rio de Janeiro	Brazil	Secondary tropical forest	Nov. 2005 – Oct. 2006		238 ± 52 (167-334)	184 ± 98	Teixeira et al., 2012	0.25 m^2 plastic litter traps (15 days)
Europe								
Botanical Garden	Pisa, Italy	Pine needles		55.8 ± 4.4 – 102.7 ± 17.5			Barghigiani et al., 1991	
Giardino Scotto, public park	Pisa, Italy	Pine needles		10.5 ± 5.3 – 22.5 ± 2.8			Barghigiani et al., 1991	Mining area.
Lake Gårdsjön catchment	SW Sweden	Norway spruce *Picea abies* (L.) Karst (50-70 yr old stand)	December 1989	45.2 ± 15.0 (20 – 80)	125.2 ± 19.7 (97.4 – 140.6)	25	Iverfeldt, 1991	Spruce needles were 1-2 yrs old. Litterfall collected with nets.
Junsele	N Sweden	Norway spruce (>80 yrs old)			17 - 313		Jiskra et al., 2015	Litter collected after snowmelt.
Langtjern, Buskerud	SE Norway	Nutrient-poor sparse pine forests (2 sites)	April 2004 – October 2005		28.0 ± 3.7 32.7 ± 11.7	1.9 and 3.5	Larssen et al., 2008	Collected monthly. Higher Hg concentrations in old needles than fresh.
Langtjern, Buskerud	SE Norway	Moderately productive spruce	April 2004 – October 2005		50.2 ± 12.7	9.9	Larssen et al., 2008	Collected monthly. Higher Hg concentrations in old needles than fresh.
Svartberget Catchment	N Sweden	Mature Norway spruce and Scots pine	1994 – 1997			17 (9 – 20)	Lee et al., 2000	Nylon nets collected monthly.
Etna Volcano	Sicily	Deciduous *Casranea sativa* (sweet chesnut)	2005 – 2008, 2010 – 2011	19 – 190			Martin et al., 2012	[Hg] higher later in the growing season.
Gårdsjön catchment	SW Sweden	Coniferous forest	March – August 1993		33 – 140	10.4	Munthe et al., 1995	Nylon nets collected monthly.

Gårdsjön catchment	SW Sweden	Norway spruce	1995 – 1997			23	Munthe et al. 1998	
Lehstenbach catchment, Fichtelgebirge mountains, Bavaria	Germany	Coniferous, primarily Norway spruce (different ages)	April 1998 – April 1999		68 (33 – 88)	15.7	Schwesig and Matzner, 2000	35 cm dia. funnels with 15 cm dia. PTFE nets 1 m above ground were collected monthly.
Steinkreuz catchment, Steigerwalk mountains, Bavaria	Germany	Deciduous: *Faugs sylvatica* L. and *Quercus petraea* (Matt.) Liebl. (~130 yrs old)	April 1998 – April 1999		59 (46 – 75)	34	Schwesig and Matzner, 2000	1 m^2 fiberglass nets at the ground were collected monthly.
Lehstenbach catchment, Fichtelgebirge mountains, Bavaria		Coniferous, primarily Norway spruce (~140 yrs old)	September 1998 – September 1999		70 (33 – 88)	15.1	Schwesig and Matzner, 2001	35 cm dia. funnels with 15 cm dia. PTFE nets 1 m above ground were collected bi-monthly.
Lehstenbach catchment, Fichtelgebirge mountains, Bavaria	Germany	Ground vegetation in coniferous forest: *Deschampsia flexuosa* (L.) Trin., *Calamagrotis villosa* (Chaix) J.F. Gmel, and *Vaccinium myrtillus* L.	May, July, August 2000			0.04 – 1.0	Schwesig and Krebs, 2003	3 sampling events.
Karkonosze National Park	Poland	Mountainous forests (68 Sites)			380 ± 50 (40 – 970)		Szopka et al., 2011	Highest Hg concentrations at intermediate altitudinal zone.
Malmö	Southern Sweden	Italian Rye Grass *(Lolium hultiflorum)* Open Field (6 sites)	1990-1994	66 ± 28 (40-98)		42	Xiao et al., 1998	Clippings collected every second week. Average decreased from 76 to 41 from 1990 to 1994.
North America								
Adirondack Park, NY 45 Sites	USA	Red Spruce	Aug. 4-15, 2009	5.5 ± 3.0 (Age 0) 13.9 ± 5.4 (Age 1)			Blackwell and Driscoll, 2015a	Steel shotgun pellet leaf retrieval
Adirondack Park, NY 45 Sites	USA	Red Pine	Aug. 4-15, 2009	5.2 ± 1.5 (Age 0) 18.0 ± 2.5 (Age 1)			Blackwell and Driscoll, 2015a	Steel shotgun pellet leaf retrieval
Adirondack Park, NY 45 Sites	USA	White Pine	Aug. 4-15, 2009	6.3 ± 1.1 (Age 0) 22.7 ± 4.2 (Age 1)			Blackwell and Driscoll, 2015a	Steel shotgun pellet leaf retrieval
Adirondack Park, NY 45 Sites	USA	Balsam Fir	Aug. 4-15, 2009	7.5 ± 2.7 (Age 0) 19.4 ± 6.3 (Age 1)	198 ± 73		Blackwell and Driscoll, 2015a	Steel shotgun pellet leaf retrieval. PVC tubes soil core.
Whiteface Mountain, Adirondack Park, NY	USA	Hardwood, Spruce-fir, Alpine	June 2009 – June 2011			6.3 (hardwood) 9.15 (spruce-fir) 4 (alpine)	Blackwell and Driscoll, 2015b	Green foliage from high canopies, litter in plastic crates.
Huntington Wildlife Forest, Adirondack Mountains	New York State, USA	*A. saccharum* Marsh (sugar maple)	May 31, 2005 Oct. 2, 2005	3.2 ± 0.4 - 32.3 ± 9.4 46.9 ± 5.6 (2004) 51.8 ± 1.0 (2005)	42.3 ± 1.5 (2004) 46 ± 1.1(2005)	8.21 (2004) 7.73 (2005)	Bushey et al., 2008	Foliage collected monthly, shot down from ~10m. 0.25m^2 traps collected litter monthly.

Huntington Wildlife Forest, Adirondack Mountains	New York State, USA	*F. grandifolia* Ehrh (American beech)	May 31, 2005 Oct. 2, 2005	5.6 ± 3.6 - 47.3 ± 12.4 61.6 ± 5.9 (2004) 57.9 ± 0.2 (2005)	75.35 ± 13.8 (2004) 60.6 ± 6.8 (2005)	9.44 (2004) 8.67 (2005)	Bushey et al., 2008	Foliage collected monthly, shot down from ~10m. 0.25m^2 traps collected litter monthly.
Huntington Wildlife Forest, Adirondack Mountains	New York State, USA	*Betula allenghaniensis* (yellow birch)	May 31, 2005 Oct. 2, 2005	4.4 ± 3.3 - 29.1 ± 4.6	35.8 ± 1.9 (2004) 45.5 (2005)	0.3 (2004) 0.02 (2005)	Bushey et al., 2008	Foliage collected monthly, shot down from ~10m. 0.25m^2 traps collected litter monthly.
Sunday Lake Watershed, Adirondack, New York	USA	North temperate mixed deciduous (American beech)	October 2001, May and October 2002, May, September and December 2003		56.9 ± 2.1 (Initial) 118.8 ± 8.7 (Final)	14.9 ± 0.5	Demers et al., 2007	Litterbags over 750 day study.
Sunday Lake Watershed, Adirondack, New York	USA	Coniferous forest (red spruce and balsam fir)	October 2001, May and October 2002, May, September and December 2003		39.0 ± 0.8 (Initial) 88.5 ± 6.6 (Final)	9.7 ± 0.2	Demers et al., 2007	Litterbags over 750 day study.
USDA Forest Service Marcell Experimental Forest, Grand Rapids, Minnesota	USA	Black spruce *picea mariana* Sphagnum bog	August – November 1995		29.7 ± 2.4 (leaves and needles) 126 ± 19 (other)	11.7 ± 1.36	Grigal et al., 2000	28.5 cm dia. collectors collected three times.
USDA Forest Service Marcell Experimental Forest, Grand Rapids, Minnesota	USA	Deciduous aspen *populus tremuloides,* paper birch, and red maple (upland)	August – November 1995		38.3 ± 1.4 (leaves and needles) 34.3 ± 6.9 (other)	12.5 ± 0.85	Grigal et al., 2000	28.5 cm dia. collectors collected three times.
Great Smoky Mountains National Park - Clingmans Dome	USA	Primarily red spruce with some Fraser fir	2008-2009 (April-October)		52.14 ± 3.99 50.86 ± 11.47	10.34	Fisher and Wolfe, 2012	Wood and nylon screen traps
Great Smoky Mountains National Park - Noland Divide	USA	Red spruce with yellow birch, American ash, and striped maple	2008-2009 (April-October)		55.03 ± 5.03 72.66±16.29	14.15	Fisher and Wolfe, 2012	Wood and nylon screen traps
Great Smoky Mountains National Park - Noland Creek	USA	Mixed-deciduous oaks and tulip poplar	2008-2009 (April-mid-November)		32.03 ± 5.47 42.95 ± 11.03	29.31	Fisher and Wolfe, 2012	Wood and nylon screen traps
Prince Albert National Park, Saskatchewan	Canada	Boreal forest upland (mature and immature pine, spruce, conifers, aspen, immature deciduous)			68.3 ± 3 (39 yr old stand) 127.1 (180 yr old stand)	22.0 (young) 17.4 (old)	Friedli et al., 2007	Foliage and lichen concentrations also measured.
Experimental Lakes Area, NW Ontario	Canada	Fire-regenerated upland forest of young dense jack pine with birch	2001 – 2006		29.5 ± 2.6	9	Graydon et al., 2008	625 cm^2 collectors collected each year in early May and late October.
Experimental Lakes Area, NW Ontario	Canada	Forested wetland of black spruce, jack pine, and alder	2001 – 2006		38.2 ± 7.0	10.3	Graydon et al., 2008	625 cm^2 collectors collected each year in early May and late October.
Experimental Lakes Area, NW Ontario	Canada	Mature black spruce and balsam fir	2001 – 2006		48.4 ± 9.6	11.0	Graydon et al., 2008	625 cm^2 collectors collected each year in early May and late October.
Experimental Lakes Area, Precambrian Shield, Ontario	Canada	Pine	Autumn 1999; Spring and Autumn 2000 and	14.07 (Initial)	16.09 ± 0.07 (79 days) 21.92 ± 1.42		Hall and St. Louis, 2004	Decomposing plant study using litterbags in unflooded sites. Compensation point of 30 ng g^{-1}

			2001		(431 days) 35.41 ± 2.98 (798 days)			observed.
Experimental Lakes Area, Precambrian Shield, Ontario	Canada	Birch	Autumn 1999; Spring and Autumn 2000 and 2001	7.13 (Initial)	13.27 ± 1.07 (79 days) 30.71 ± 4.01 (431 days) 40.91 ± 6.42 (798 days)		Hall and St. Louis, 2004	Decomposing plant study using litterbags in unflooded sites. Compensation point of 30 ng g^{-1} observed.
Experimental Lakes Area, Precambrian Shield, Ontario	Canada	Herbs and Shrubs (alder, blueberry, bunchberry, Labrador tea leaves)	Autumn 1999; Spring and Autumn 2000 and 2001	5.75 – 27.13 (Initial)	10.95 – 33.87 (79 days) 24.18 – 35.92 (431 days) 33.29 – 66.36 (798 days)		Hall and St. Louis, 2004	Decomposing plant study using litterbags in unflooded sites. Compensation point of 30 ng g^{-1} observed.
Appalachian Plateau, Pennsylvania	USA	Austrian pine	October 2004 - 2010	18.8 ± 7.3 (all yrs) 22.0 ± 7.3 (2004) 17.9 ± 6.7 (2010)			Hutnik et al., 2014	Readily accessible lower branches (1-2 m). All age needles. Older needles had higher [Hg].
Cadillac Brook Watershed, Acadia National Park, Maine	USA	Predominantly deciduous maple-American beech forest (thin soil, fire 1947)	September – November 2000		39.7 ± 3.1	57.1	Johnson, 2002	0.15 m^2 collectors, only collected in the fall.
Hadlock Brook Watershed, Acadia National Park, Maine	USA	Predominantly coniferous spruce-fir forest (thick soil)	September – November 2000		51.3 ± 6.3	29.0	Johnson, 2002	0.15 m^2 collectors, only collected in the fall.
Vermont (15 sites)	Vermont, USA	Northern hardwood and mixed hardwood/conifer	2008 and 2009 (October)		50.0 ± 19.0 (29.4-110)	17.9 (12.6 – 28.5)	Juillerat et al., 2012	Falling leaves individually collected during dry weather. Range is of mean values for different species
Sunday Lake Watershed	USA	Coniferous (red spruce, balsam fir, eastern hemlock, eastern white pine)	October 2000		40.3 ± 3.7 – 74.3 ± 7.5 (eastern white pine – red spruce)	5.7	Kalicin et al., 2008	Leaves collected by hand
Sunday Lake Watershed	USA	Deciduous (American beech, yellow birch, sugar maple)	October 2000			15	Kalicin et al., 2008	Leaves collected by hand
Walker Branch Watershed, TN	Tennessee, USA	Hardwood			105	30.0	Lindberg et al., 1996	
Walker Branch Watershed, TN	Tennessee, USA	Softwood			61		Lindberg et al., 1996	
Sunday Lake	USA	American beech (*Fagus grandifolia*)	June – September 2002	22.9 – 41.7 (Sun) 24.0 – 49.0 (Shade)			McLaughlin et al., 2008	Sun: ends of branches outside canopy and shade: branches close to tree trunks.
Sunday Lake	USA	Upland balsam fir (*Abies balsamea*)	June – September 2002	10.9 – 31.5 (Sun) 3.8 – 59.2 (Shade)			McLaughlin et al., 2008	Sun: ends of branches outside canopy and shade: branches close to tree trunks.
14 Forest sites	USA	17 different species	2007-2009	25 (8-48)	38 (22-83)		Obrist et al., 2011	Fresh foliage directly cut from trees. Fresh undecomposed surface litter

								picked directly from floor.
Thompson Research Center, Cedar River, Seattle, Washington	USA	Mature douglas fir and red alder (~70 yrs)	July 2008	~50 (fir) ~10 (alder)	~70 (fir) ~35 (alder)	8.4 (fir) 9.0 (alder)	Obrist et al., 2012	Litter picked manually from ground. Foliage clipped from lower branches. ([Hg] estimated from graph)
Bartlett, New Hampshire	USA	Mixed deciduous (beech, yellow birch, sugar maple, eastern hemlock)	Late summer and fall 2008	32.4 ± 4.2	55.4		Pokharel and Obrist, 2011	Litter bags placed for one year. Laboratory decomposition study also preformed.
Reno, Nevada	USA	Aspen stand (*Populous tremuloides*)	Late summer and fall 2008	50.2 ± 1.6	65.2		Pokharel and Obrist, 2011	Litter bags placed for one year. Laboratory decomposition study also preformed.
Sierra Nevada Mountains, Georgetown, California	USA	Pine forest (ponderosa pine, sugar pine, white fir, incense cedar, Douglas fir, California black oak)	Late summer and fall 2008	39.3 ± 2.5	~40		Pokharel and Obrist, 2011	Litter bags placed for one year. Laboratory decomposition study also preformed.
Sierra Nevada foothills, Marysville, California	USA	Blue oak forest (*Quercus douglasii*)	Late summer and fall 2008	40.7 ± 1.5	61.7		Pokharel and Obrist, 2011	Litter bags placed for one year. Laboratory decomposition study also preformed.
The Precambrian Shield region, Huntsville, Ontario	Canada	Balsam fir and white spruce	1989, 1990	15 - 1989 26 – 1990 (balsam fir) 12 - 1989 28 – 1990 (spruce)			Rasmussen, 1991, 1995	Collected from boughs at waist-height.
The Precambrian Shield region, Huntsville, Ontario	Canada	Sugar maple (*Acer saccharum* Marsh)	1989, 1990	9 (6 – 25) – 1989 24 (17 – 41) - 1990			Rasmussen, 1993, 1994	
Lake Champlain Basin, Underhill Center, VT	Vermont, USA	Mixed hardwood forest	August - September 1994	34.2 ± 7.2 (13.3-49.1)	53.2 ± 11.4 (37.8-76.9)	13.0	Rea et al., 1996	Fresh leaves cut with pole pruner, LFCs (0.25 m^2) collected twice per week
Lake Huron Watershed, University of Michigan Biological Station, Pellston	Michigan, USA	Second-growth northern-mixed hardwood forest (80-90 yrs old): maple, beech, birch	June – November 1996	3.3 ± 1.1 (May) 4.9 ± 0.4 (June) 14.4 ± 2.4 (July) 21.0 ± 2.4 (August) 23.1 ± 4.1 (September)	32.5 ± 8.1	11.4 ± 2.8	Rea et al., 2002	Foliage collected mid-canopy (7-12m). Litter composited early and late season.
Lake Champlain Basin, Underhill Center, VT	Vermont, USA	Second-growth northern-mixed hardwood forest (80-90 yrs old): maple, beech, birch, oak, and aspen	June – November 1995	3.6 ± 2.6 (May) 6.9 ± 0.9 (June) 18.8 ± 0.5 (August) 28.8 ± 2.4 (September)	47.1 ± 5.6	15.8 ± 1.9	Rea et al., 2002	Foliage collected mid-canopy (9-12m).
Green Mountains, Vermont	USA	Coniferous (balsam fir, red spruce, eastern hemlock)	Early October 2012, 2013, 2014			3	Richardson and Friedland, 2015	Foliage from middle canopy (3-6m). Litter sampled July-September 2012.
Green Mountains, Vermont	USA	Deciduous (American beech,	Early October			24	Richardson and	Foliage from middle canopy (3-6m).

		sugar maple, red maple, striped maple, paper birch, yellow birch)	2012, 2013, 2014				Friedland, 2015	Litter sampled July-September 2012.
23 MDN Sites in 15 States	Eastern USA	Predominantly Deciduous	2007-2009		41.1 (21.3-62.7)	12.3(3.5 – 23.4)	Risch et al., 2012	Over 3 Years Autumn (Sept.-Dec.) passive litterfall collectors. Median value.
Hadlock Brook and Cadillac Brook watersheds, Acadia National Park, Mount Desert Island (39 sites)	Eastern Maine, USA	Hardwoods	Oct. 2002 – Nov. 2003		31.6 ± 2.6 (10.7-55.6)	10 (all Hadlock) 10.1 (all Cadillac)	Sheehan et al., 2006	LFC periods 30-133 days
Hadlock Brook and Cadillac Brook watersheds, Acadia National Park, Mount Desert Island (39 sites)	Eastern Maine, USA	Softwoods	Oct. 2002 – Nov. 2003		58.8 ± 3.3 (17.2-133.4)		Sheehan et al., 2006	LFC periods 30-133 days
Hadlock Brook and Cadillac Brook watersheds, Acadia National Park, Mount Desert Island (39 sites)	Eastern Maine, USA	Mixed	Oct. 2002 – Nov. 2003		41.7 ± 2.8 (15.4-110.8)		Sheehan et al., 2006	LFC periods 30-133 days
Hadlock Brook and Cadillac Brook watersheds, Acadia National Park, Mount Desert Island (39 sites)	Eastern Maine, USA	Scrub	Oct. 2002 – Nov. 2003		40.6 ± 2.7 (24.9-89.2)		Sheehan et al., 2006	LFC periods 30-133 days
Experimental Lakes Area, NW Ontario	Canada	Fire-regenerated upland forest of dense jack pine with birch	June 1995 – May 1996		42 ± 19 (25 – 79)	14 (11-22)	St Louis et al., 2001	30 cm x 30 cm collectors
Experimental Lakes Area, NW Ontario	Canada	Forested wetland of tamarack and black spruce, and wetland shrubs (leatherleaf, Labrador tea, alder)	June 1995 – May 1996		51 ± 14 (35 – 69) (trees) 32 ± 1.7 (30 – 34) (shrubs)	7.2 (6.4 – 8.6)	St Louis et al., 2001	30 cm x 30 cm collectors
Arbutus Lake Watershed, Hungtington Wildlife Forest, Adirondack, New York	USA	Northern hardwood forest (American beech, sugar maple, eastern hemlock, red spruce, balsam fir)	August 2004 – June 2006	Alder: 6.6 ± 1.1 (June) 61.1 ± 13.6 (October)	47.6 ± 3.0 (2004) 46.2 ± 1.7 (2005) 45.7 ± 5.1 (2006)	6.0	Selvendiran et al., 2008	0.25 m^2 litter traps

Table S5: Summary of available measurements Hg concentrations in throughfall (ng L^{-1}) and throughfall Hg (µg m^{-2} yr^{-1}).

Site Name	Country	Forest Type	Year of Sampling	Hg in Throughfall (ng L^{-1})	Throughfall Hg (µg m^{-2} yr^{-1})	Comments	Reference
Asia							
Deciduous							
Mt. Leigong, Guizhou	Guizhou, SW China	Cuculidae forest	May 2008 – May 2009	8.9 (2.8–32.5)	10.5	Mountain peak. Samplers collected weekly.	Fu et al., 2010a
Mt. Gongga Area, Hailuogou Nationa Forest Park	Sichuan, SW China	Broadleaf cuculidae forest	May 2006 – Apr 2007	43.6 ± 12.5	56.5	Samples collected weekly during rainy season. None collected during winter due to snow.	Fu et al., 2010b
Mt. Gongga Area, Hailuogou Nationa Forest Park	Sichuan, SW China	Emei fir forest	May 2005 – Apr 2006	36.8 ± 9.2	57.6	Samples collected weekly during rainy season. None collected during winter due to snow.	Fu et al., 2010b
TieShanPing	SW China	Masson pine *(Pinus massoniana)*	2010 – 2011		67.5 (Control) 64.0 (FGDG)	Collectors placed in October 2009. Starting in 2010 collected weekly.	Luo et al., 2015
TieShanPing	SW China	Masson Pine dominated, coniferous-broadleaf mixed subtropical forest	Mar 2005 – Mar 2006	69.7 (11.7–582.9)	71.3	10.6 cm diameter funnel/bottles were collected weekly.	Wang et al., 2009
LeiGongShan	Guizhou, SWChina	*Pinus armandii* dominated, coniferous-broadleaf mixed subtropical forest	Mar 2005 – Feb 2006	36.7(8.1–285.9)	41.2	10.6 cm diameter funnel/bottles were collected weekly.	Wang et al., 2009
LuChongGuan	China	Masson pine and *Cunning-hamia landeolata* dominated, coniferous-broadleaf mixed subtropical forest	Jan 2005 – Jan 2006	43.6 (3.5–493.3)	49.0	10.6 cm diameter funnel/bottles were collected weekly.	Wang et al., 2009
Amazon							
Serra do Navio, Amapá State	Brazil	Tropical rainforest	Mar – Aug 1997	47.9 (16.5 – 82.7)	72	167.4 cm^2 funnels collected monthly.	Fostier et al., 2000
Europe							
Deciduous							
Steinkreuz Catchment, Steigerwalk Mountains	Bavaria, Germany	Deciduous: *Faugs sylvatica* L. and *Quercus petraea* (Matt.) Liebl. (~130 yrs old)	Apr 1998 – Apr 1999	28 (10–227)	27.8	15 cm dia. funnel with 4 cm dia. tubes and PVC plates were collected bi-weekly.	Schwesig and Matzner, 2000
Coniferous							
Örebro, Balsjö, Svartberget	S and N Sweden	Mixed coniferous Norway spruce (*P. abies*) Scots pine (*P. sylvestris*) All throughfall	2007	18.4 ± 5.6 26.2 ± 11.6 10.3 ± 3.6 18.3 ± 4.5		Samples collected biweekly. Strong correlation with LAI (1.22, 1.68, 0.34, 1.08, respectively).	Åkerblom et al., 2015
Örebro, Balsjö, Svartberget	S and N Sweden	Mixed coniferous Norway spruce (*P. abies*) Scots pine (*P. sylvestris*) All throughfall	2008	7.0 ± 1.8 29.2 ± 17.2 17.0 ± 1.8 17.7 ± 6.0		Samples collected biweekly. Strong correlation with LAI (1.22, 1.68, 0.34, 1.08, respectively).	Åkerblom et al., 2015
Lake Gårdsjön Catchment	Sweden	Mature Norway spruce (60-110 yrs)	1991 – 1994		16.03	Swedish IVL bulk collectors monthly.	Hultberg et al., 1995
Lake Gårdsjön Catchment	Sweden	Mature Norway spruce (60-110 yrs)	Nov 1987-Sept 1988	48.4 ± 30.2	16 - 19	Monthly bulk samples from 19 cm glass vessels (Swedish IVL bulk collectors).	Iverfeldt et al.,1991
Langtjern, Buskerud	SE Norway	Nutrient-poor sparse pine forests (2 sites)	Apr 2004 – Oct 2005	2.5 – 25 4.1 – 13	6.8	Collected monthly.	Larssen et al., 2008
Langtjern, Buskerud	SE Norway	Moderately productive spruce	Apr 2004 – Oct 2005	7.8 - 39	10.2	Collected monthly. Consistently higher Hg concentrations in spruce throughfall.	Larssen et al., 2008
Svartberget Catchment	N Sweden	Mature Norway spruce and Scots pine	1993 – 1998		15 (12–17)	Bulk samplers collected monthly.	Lee et al., 2000

Lake Gårdsjön Catchment	Sweden	Mature Norway spruce (60-110 yrs)	Mar-Aug 1993	22.8	16.1	Bulk samplers collected monthly. Higher concentrations in summer and early fall.	Munthe et al., 1995
Lake Gårdsjön Catchment	Sweden	Mature Norway spruce (60-110 yrs)	1995 – 1997		23		Munthe et al. 1998
Uraani	Finland	Norway spruce	1990 – 1995		15.8		Porvari and Verta, 2003
Lehstenbach Catchment, Fichtelgebirge Mountains	Bavaria, Germany	Coniferous, primarily Norway spruce (different ages)	Apr 1998 – Apr 1999	29 (15–315)	38.4	15 cm dia. funnel with 4 cm dia. tubes and PVC plates were collected bi-weekly.	Schwesig and Matzner, 2000
Lehstenbach Catchment, Fichtelgebirge Mountains	Bavaria, Germany	Coniferous, primarily Norway spruce (~140 yrs old)	Sept 1998 – Sept 1999	27 (11 – 230)	40.1	177 cm^2 collectors 1 m above ground were collected bi-weekly.	Schwesig and Matzner, 2001
North America							
Deciduous							
Whiteface Mountain, Adirondack Park	NY, USA	Low-elevation hardwood	Jun 2009 – Jun 2010		5.3	Wet, cool, overcast growing season. Collectors collected every 10-30 days during growing season.	Blackwell and Driscoll, 2015b
Whiteface Mountain, Adirondack Park	NY, USA	Low-elevation hardwood	Jun 2010 – Jun 2011		9.7	Warm, dry, sunny growing season. Collectors collected every 10-30 days during growing season.	Blackwell and Driscoll, 2015b
Hungtington Wildlife Forest, Adirondacks	NY, USA	Deciduous ~100 yr old (dominated by American beech, sugar maple, yellow birch)	Dec 2004-Dec 2006	0.9 – 28.2	6.5 (2005) 5.5 (2006)	Lowest in winter, highest in summer. 2 yrs sampling, collected weekly.	Choi et al., 2008
Sunday Lake Watershed, Adirondack Park	NY, USA	North temperate mixed deciduous (American beech)	Oct 2000 – Oct 2001		7.4 ± 0.8	707 cm^2 collectors collected on event basis.	Demers et al., 2007
Sunday Lake Watershed, Adirondack Park	NY, USA	Deciduous (American beech, yellow birch, sugar maple)	Oct 2000	3.3	5.7	Collected on an event basis.	Kalicin et al., 2008
Marcell Experimental Forest	MN, USA	Deciduous aspen *populus tremuloides,* paper birch, and red maple (upland)	Apr – Nov 1995	17.5 ± 1.3	9.75 ± 0.32	Includes stemflow. Swedish IVL bulk collectors collected biweekly during snow free period.	Kolka 1999; Grigal et al., 2000
Superior National Forest	MN,USA	Deciduous (quaking aspen and paper birch)	May to Oct 2005 – 2006	12.53	0.35 $\mu g/m^2$	Swedish IVL bulk collectors collected biweekly. Event flux value from graph.	Witt et al., 2009
Walker Branch Watershed, Oak Ridge	TN, USA	Oak	Aug 1991 – Apr 1992	25.8 (8.85 – 39.22)		Average from 5 rain events.	Lindberg et al., 1994
Noland Creek, Great Smoky Mountains National Park	TN, USA	Mixed-deciduous oaks and tulip poplar	2008 -2009	11.76 ± 0.76 15.86 ± 2.9	2.07	Collected every 3-4 weeks.	Fisher and Wolfe, 2012
Lake Champlain Basin, Underhill	VT, USA	Mixed hardwood forest	Aug – Sept 1994	12.0 ± 8.5	11.6 ± 0.7	Funnels covered during dry periods.	Rea et al., 1996
Lake Huron Watershed, Pellston	MI, USA	Second-growth northern-mixed hardwood forest (80-90 yrs old): maple, beech, birch, oak, and aspen	Jun – Nov 1996		10.5 ± 1.0	Collected on event basis.	Rea et al., 2001
Cadillac Brook Watershed	ME, USA	Predominantly deciduous maple-American beech forest (thin soil, fire 1947)	May – Nov 2000	14.2 ± 11.7 (2.1 – 68.4)	9.4	52 Swedish IVL bulk collectors collected 10 times.	Johnson, 2002, Johnson et al., 2007; Nelson et al., 2007
Coniferous							
Whiteface Mountain, Adirondack Park	NY, USA	Mid-elevation spruce-fir, high-elevation alpine	Jun 2009 – Jun 2010		9.9 (spruce-fir) 6.0 (alpine)	Wet, cool, overcast growing season. Collectors collected every 10-30 days during growing season.	Blackwell and Driscoll, 2015b
Whiteface Mountain, Adirondack Park	NY, USA	Mid-elevation spruce-fir, high-elevation alpine	Jun 2010 – Jun 2011		16.3 (spruce-fir) 10.1 (alpine)	Warm, dry, sunny growing season. Collectors collected every 10-30 days during growing season.	Blackwell and Driscoll, 2015b
Sunday Lake Watershed, Adirondack Park	NY, USA	Coniferous forest (red spruce and balsam fir)	Oct 2000 – Oct 2001		25.4 ± 7.4	707 cm^2 collectors collected on event basis.	Demers et al., 2007

Sunday Lake Watershed, Adirondack Park	NY, USA	Coniferous (Red spruce, balsam fir, eastern hemlock, eastern white pine)	Oct 2000		17.2	Collected on an event basis.	Kalicin et al., 2008
Marcell Experimental Forest	MN, USA	Black spruce *picea mariana* Sphagnum bog	Apr – Nov 1995	33.6 ± 3.6	19.6 ± 0.84	Includes stemflow. Swedish IVL bulk collectors collected biweekly during snow free period.	Kolka 1999; Grigal et al., 2000
Superior National Forest	MN, USA	Coniferous (white spruce and balsam fir)	May to Oct 2005 – 2006	19.02	0.4 $\mu g/m^2$	Swedish IVL bulk collectors collected biweekly. Event flux value from graph.	Witt et al., 2009
Walker Branch Watershed, Oak Ridge	TN, USA	Pine	Aug 1991 – Apr 1992	24.1 (11.55 – 44.07)	~20	Average from 5 rain events.	Lindberg et al., 1994
Clingmans Dome, Great Smoky Mountains National Park	TN, USA	Primarily red spruce with some Fraser fir	2008 -2009	20.71 ± 1.75 14.87 ± 1.01	4.09	Collected every 3-4 weeks.	Fisher and Wolfe, 2012
Noland Divide, Great Smoky Mountains National Park	TN, USA	Red spruce with yellow birch, American ash, and striped maple	2008 -2009	18.20 ± 0.84 15.80 ± 1.04	3.43	Collected every 3-4 weeks.	Fisher and Wolfe, 2012
Hadlock Brook Watershed	ME, USA	Predominantly coniferous spruce-fir forest (thick soil)	May – Nov 2000	18.8 ± 11.3 (2.2 – 55.9)	10.2	52 Swedish IVL bulk collectors collected 10 times.	Johnson, 2002; Johnson et al., 2007; Nelson et al., 2007
Experimental Lakes Area	ON, Canada	Fire-regenerated upland forest of dense jack pine with birch	1998 – 1999	20 ± 12 (4.2 – 42)	8		St Louis et al., 2001
Experimental Lakes Area	ON,Canada	Forested wetland of black spruce, jack pine, and alder	May – Oct 2001 – 2006	17.2 ± 5.0	8.3	Annual volume-weighted averages from ice-free season.	Graydon et al., 2008
Experimental Lakes Area	ON, Canada	Mature black spruce and balsam fir	May – Oct 2001 – 2006	32.8 ± 6.3	12.3	Annual volume-weighted averages from ice-free season.	Graydon et al., 2008

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