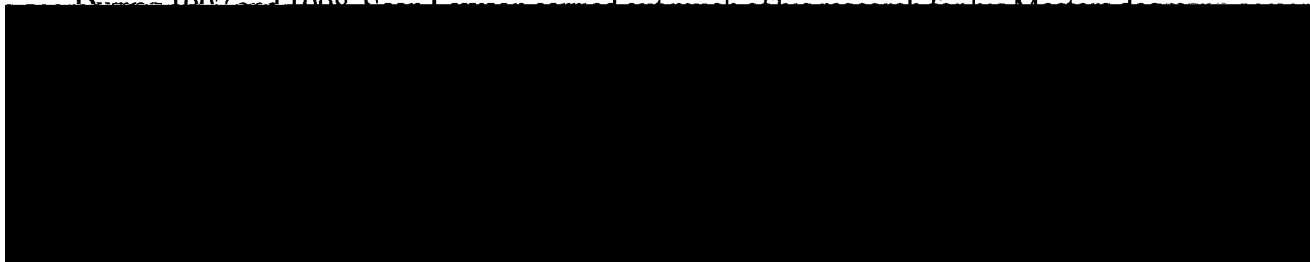


**CLOUD WATER CHEMISTRY AND MERCURY DEPOSITION
IN A HIGH-ELEVATION SPRUCE-FIR FOREST**

In Partial Fulfillment of the Requirements
for the Degree of Master of Science



During 1997 and 1998, Sean T. Lawson, Timothy Scherbatskoy, Elizabeth G. Malcolm, and Gerald I. Keeler

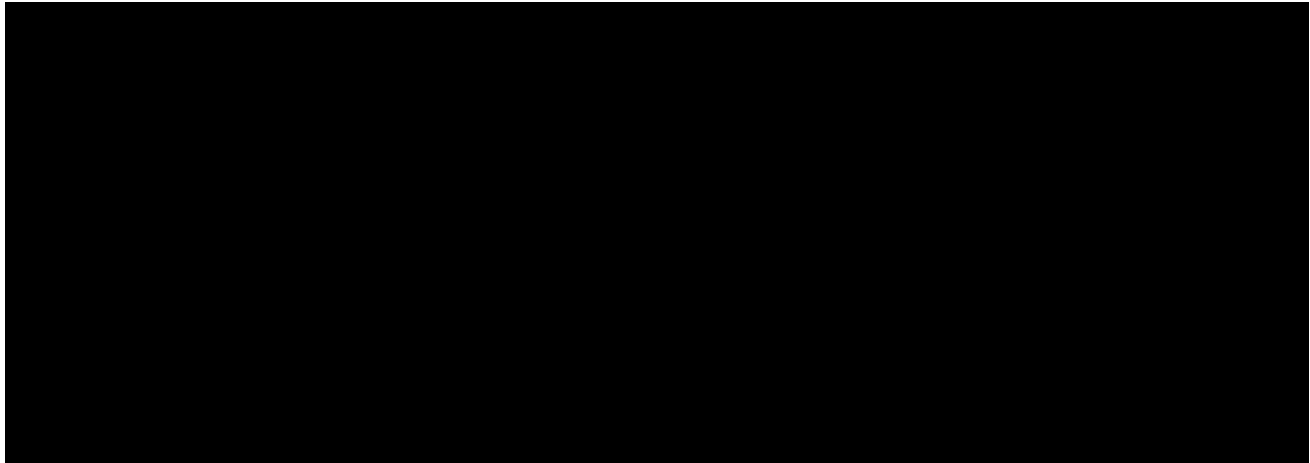


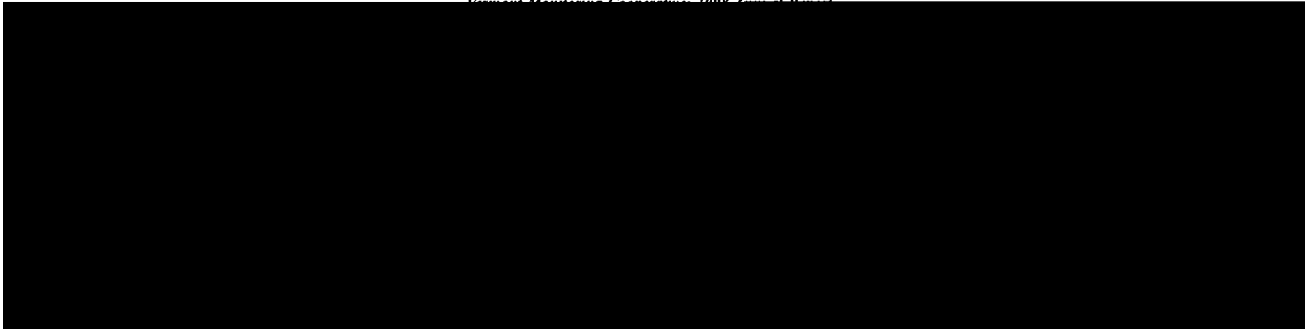
**Cloud Water Deposition and Throughfall Chemistry in a High Elevation Spruce-Fir
Forest at Mt. Mansfield, Vermont**

Sean T. Lawson, Timothy Scherbatskoy
the University of Vermont, Burlington, VT

Elizabeth G. Malcolm, Gerald I. Keeler

The logo of the University of Vermont, featuring a stylized tree and the text "UNIVERSITY OF VERMONT" and "VERMONT STATE COLLEGE".





Site	Elevation (meters)	Year	Cloud H ₂ O (cm yr ⁻¹)	Cloud (%) frequency	Reference
Mt. Mansfield, V	1204	1998	92 p 26 ^a	25 ^b	Lawson et al. (1999)
Whiteface Mt., NY	1225	1986-90	81.1	32	Miller et al. (1993a)
Mt. Moosilauke, NH	1220	1990	40.5		Miller et al. (1993a)
Mt. Moosilauke, NH	1220	1980-81	84.0	40	
Madonna Mt., VT	1110	1980-81	154.0	--	
Camel Hump, VT	1110	1970	76.0		
	1050	1986-89	28.4	10	
	1350	1986-89	153.5	36	
	1483	1987	127.0	42	

- a. [Redacted]
- b. [Redacted]

Table 4. Mean Hg concentrations, precipitation, and deposition rates at site 1.

	Date	8/18	8/26	9/10	10/1 ^a	Total	Units
Hg [redacted]	Throughfall	15.02	*	13.47	19.58		
	Cloud	7.52	33.9	*	4.83		ng L ⁻¹
Hg [redacted]	Throughfall	7.50	*	1.66	14.75		
	Cloud	1.83	1.2	0.53	0.53		ng m ⁻³
Cloud Deposition Rates	Hg	3.91	9.74	3.86	6.47		ng m ⁻² hr ⁻¹
	Water	0.52	0.29	0.33	1.34 ^a		mm h ⁻¹

c. [redacted]

* [redacted]

Cloud water			0.54	9.89
Net throughfall			0.60	1.77
Total throughfall			1.14	11.66
Estimated cloudwater deposition (mg m ⁻¹) August 1 - October 31, 1998)			0.05	0.82