

Supplementary Data

Table S1. Alexandersson's Standard Normal Homogeneity Test (SNHT) statistics for all stations.

Station	Variable	No. of readings (n)	SNHT standard Normal Homogeneity test			
			t	p-value	μ_1	μ_2
Ottawa	Winter Mean Max daily Temp (°C)	117	1997	<0.0001	0.234	2.267
	Winter Mean Min daily Temp (°C)		1947	0	-9.593	-7.715
	Winter Total daily Rainfall (mm)		1918	0.001	162.669	215.34
	Winter Total daily Snowfall (cm)		1927	0.001	234.913	190.313
	Winter Total daily Precipitation (mm)			0.214	396.957	
Brockville	Winter Mean Max daily Temp (°C)	41	1997	0.002	1.948	3.669
	Winter Mean Min daily Temp (°C)		1997	0.027	-6.238	-4.637
	Winter Total daily Rainfall (mm)			0.144	270.893	
	Winter Total daily Snowfall (cm)		1978	0.02	240.9	176.536
	Winter Total daily Precipitation (mm)			0.421	466.439	
Kingston	Winter Mean Max daily Temp (°C)	29		0.094	3.208	
	Winter Mean Min daily Temp (°C)			0.31	-5.104	
	Winter Total daily Rainfall (mm)			0.498	316.855	
	Winter Total daily Snowfall (cm)			0.317	159.721	
	Winter Total daily Precipitation (mm)			0.831	476.576	
North Bay	Winter Mean Max daily Temp (°C)	69	1997	0.01	-1.516	-0.227
	Winter Mean Min daily Temp (°C)		1997	0.027	-10.824	-9.408
	Winter Total daily Rainfall (mm)		1978	0.015	162.2	209.79
	Winter Total daily Snowfall (cm)		2001	0.002	272.542	363.457
	Winter Total daily Precipitation (mm)		2000	0.007	423.246	518.975
Kenora	Winter Mean Max daily Temp (°C)	70	1997	0.015	-4.425	-2.624
	Winter Mean Min daily Temp (°C)		1997	0.009	-13.617	-11.473
	Winter Total daily Rainfall (mm)			0.094	39.894	
	Winter Total daily Snowfall (cm)		1972	0.015	181.956	144.336
	Winter Total daily Precipitation (mm)		1966	0.003	215.539	174.279
Sioux Lookout	Winter Mean Max daily Temp (°C)	70	1997	0.018	-4.189	-3.097
	Winter Mean Min daily Temp (°C)		1997	0.016	-15.406	-13.356
	Winter Total daily Rainfall (mm)			0.104	39.85	
	Winter Total daily Snowfall (cm)			0.28	195.94	
Thunder Bay	Winter Total daily Precipitation (mm)	51		0.503	229.526	
	Winter Mean Max daily Temp (°C)			0.572	-1.703	

Station	Variable	No. of readings (n)	SNHT standard Normal Homogeneity test			
			t	p-value	μ_1	μ_2
Fergus	Winter Mean Min daily Temp (°C)	67		0.793	13.136	
	Winter Total daily Rainfall (mm)			0.902	85.398	
	Winter Total daily Snowfall (cm)			0.121	200.288	
	Winter Total daily Precipitation (mm)		1956	0.001	326.733	234.019
	Winter Mean Max daily Temp (°C)		1997	0	1.106	2.973
	Winter Mean Min daily Temp (°C)		1980	<0.0001	-7.555	-5.921
	Winter Total daily Rainfall (mm)			0.101	252.673	
	Winter Total daily Snowfall (cm)			0.09	166.122	
	Winter Total daily Precipitation (mm)			0.712	417.088	
	Winter Mean Max daily Temp (°C)		1997	0.007	3.086	4.945
London	Winter Mean Min daily Temp (°C)	61	1997	0.044	-5.234	-3.46
	Winter Total daily Rainfall (mm)			0.224	293.52	
	Winter Total daily Snowfall (cm)			0.498	198.043	
	Winter Total daily Precipitation (mm)			0.255	468.144	
	Winter Mean Max daily Temp (°C)		1997	0.027	2.398	3.72
Owen	Winter Mean Min daily Temp (°C)	42	1982	0.005	-5.61	-4.213
	Winter Total daily Rainfall (mm)		1978	0.013	200.707	273.182
	Winter Total daily Snowfall (cm)			0.961	333.145	
	Winter Total daily Precipitation (mm)			0.067	579.636	
	Winter Mean Max daily Temp (°C)		1997	0	1.925	3.87
Stratford	Winter Mean Min daily Temp (°C)	47	1989	0.001	-5.783	-4.186
	Winter Total daily Rainfall (mm)		1964	0.015	204.48	303.917
	Winter Total daily Snowfall (cm)			0.112	237.413	
	Winter Total daily Precipitation (mm)		1964	0.021	393.42	546.774
	Winter Mean Max daily Temp (°C)		1997	0.001	3.152	4.622
Toronto Pearson	Winter Mean Min daily Temp (°C)	69	1997	0	-5.5	-3.601
	Winter Total daily Rainfall (mm)			0.116	234.007	
	Winter Total daily Snowfall (cm)			0.072	124.086	

Table S2. Trend slopes for precipitation, rainfall and snowfall over winter period.

Station	Linear Regression Trend Slopes, mm/yr			
	Winter Rainfall	Winter Snowfall	Winter Precipitation	Sum of Winter Rainfall and Winter Snowfall Trend slope
Sioux Lookout	0.32	-0.30	-0.11	0.02
Kenora	0.18	-0.62	-0.66	-0.44
Thunder Bay	0.12	-1.26	-2.11	-1.14
North Bay	0.97	0.30	0.04	1.27
Ottawa	0.67	-0.52	0.08	0.15
Brockville	1.29	-1.76	-0.44	-0.47
Owen Sound	2.71	0.05	2.77	2.76
Kingston	-0.55	-0.63	-1.17	-1.17
Fergus	0.97	-0.75	0.28	0.22
Toronto Pearson	0.67	-0.40	0.19	0.27
Stratford	1.36	-0.90	0.45	0.46
London	0.87	0.08	0.23	0.95
Windsor	0.90	0.68	1.21	1.58

Table S3. Temporal trend analysis for winter daily minimum mean temperature for all stations.

Station	<u>Linear regression</u>		Z Rank Mann-Kendal	Trend
	Slope (C°/yr)	R-square		
Sioux Lookout	0.02	0.04	0.70	I*
Kenora	0.02	0.07	1.57	I*
Thunder Bay	0.002	0.00	-0.46	I*
North Bay	0.02	0.06	1.18	I*
Ottawa	0.04	0.24	3.87	I†
Brockville	0.05	0.21	2.10	I†
Owen Sound	0.05	0.22	2.40	I†
Kingston	-0.003	0.001	-0.38	D*
Fergus	0.04	0.28	3.75	I†
Toronto Pearson	0.02	0.14	2.54	I†
Stratford	0.05	0.31	3.21	I†
London	0.01	0.01	0.12	I*
Windsor	0.02	0.08	1.43	I*

D=Decreasing, I=Increasing; *=Non-Significant; †=Significant

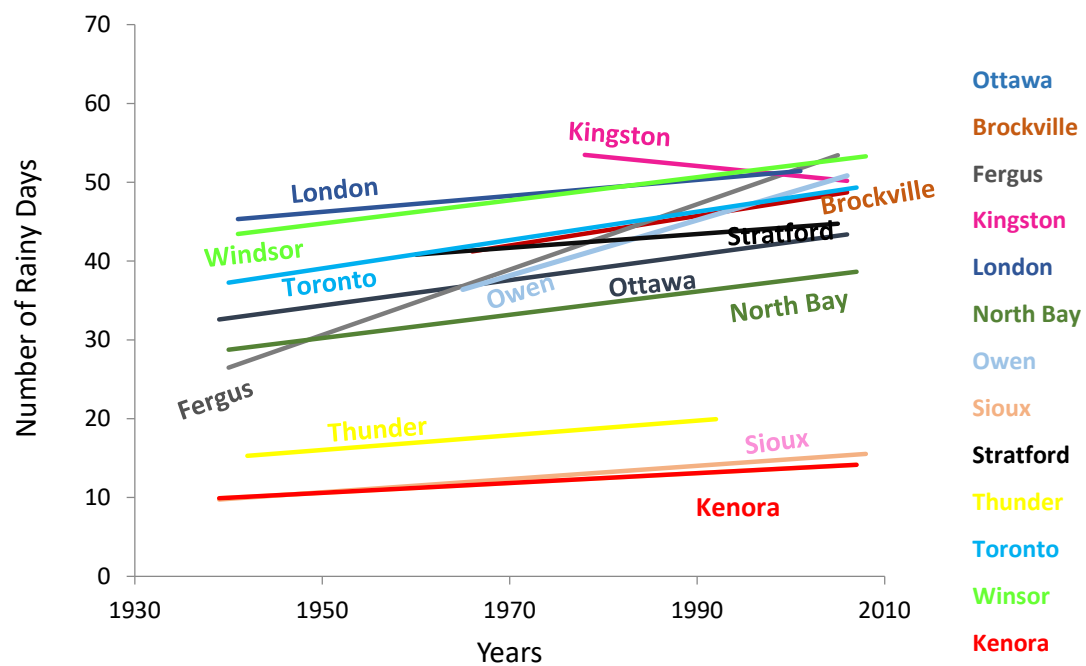


Figure S1. Linear regression of number of rainy days versus years for all stations across Ontario.