RAINFALL
pH TEST REPORTS

Measurements taken by involved citizens across the country.
Posted by Clifford E Carnicom
September 2000

1990 Difference Statistics:	1999 Difference Statistics:
Number of Observations: 87	Number of Observations: 87
Average of Differences : 1.41	Average of Differences : 1.37
Sample Standard Deviation of Differences: 0.72	Sample Standard Deviation of Differences: 0.72
t Statistic: 18.3	t Statistic: 17.7
Significance Level: 99.999%+	Significance Level: 99.999%+

Wilcoxon's Signed Rank Non-Parametric Test also indicates the pH differences from 2000 with respect to 1999 data to be significant at the 99.9999%+ level. (n=24)

Significant differences from the baseline indicate significant changes in atmospheric chemistry that have occurred since the baseline values were recorded. Significant positive differences indicate a much higher presence of hydroxide ions (OH-) than is expected. Significant differences, as found, warrant a formal investigation into the magnitude and origin of recent changes in atmospheric chemistry.

Date (2000)	N	Location	1990 pH	1999 pH	2000 Measured pH	1990 Difference	1999 Difference
Jun 26	1	NM	5.1	5.0	6.6	1.5	1.6
Jun 27		NM	5.1	5.0	6.6	1.5	1.6
Aug 17		NM	5.1	5.0	6.2	1.1	1.2
Aug 18		NM	5.1	5.0	6.3	1.2	1.3

Aug 19	5	NM	5.1	5.0	6.6	1.5	1.6
Sep 10		WA	5.3	5.1	5.3	0.0	0.2
Sep 11		IN	4.4	4.4	7.0	2.6	2.6
Sep 11		Great Lakes	4.4	4.5	6.6	2.2	2.1
Sep 11		Great Lakes	4.4	4.5	7.6+	3.2	3.1
Sep 15	10	OR coast	5.3	5.4	5.6	0.3	0.2
Sept 15		Nor. CA-coast	5.3	5.3	5.0	-0.3	-0.3
Sep 17		MA	4.4	4.5	6.0	1.6	1.5
Sep 15		ND	5.3	6.0	6.0	0.7	0.0
Sep 19		WI	4.7	4.7	6.8	2.1	2.1
Sep 19	15	WI	4.7	4.7	7.0	2.3	2.3
Sep 19		MA	4.4	4.5	6.3	1.9	1.8
Sep 21		KS	5.3	5.1	6.8	1.5	1.7
Sep 21		WA	5.3	5.2	5.3	0.0	-0.1
Sep 19		CO	5.2	4.9	5.7	0.5	0.8
Sep 20	20	CO	5.2	4.9	6.0	0.8	1.1

Sep 20		CO	5.2	4.9	5.9	0.7	1.0
Sep 22		WI	4.7	4.7	6.4	1.7	1.7
Sep 22		WI	4.7	4.7	6.6	1.7	1.7
Sep 23		MI	4.3	4.5	6.2	1.9	1.7
Sep 25	25	CO	5.2	4.9	5.5	0.3	0.6
Sep 25		CO	5.2	4.9	5.9	0.7	1.0
Sep 26		MA	4.4	4.5	6.3	1.9	1.8
Sep 27		TX	5.1	5.1	6.7	1.6	1.6
Oct 5		MA	4.4	4.5	6.2	1.8	1.7
Oct 6	30	IN	4.4	4.4	6.7	2.3	2.3
Oct 6		GA	4.6	4.6	5.2	0.6	0.6
Oct 9		OR coast	5.3	5.4	5.3	0.0	-0.1
Oct 10		CA	5.3	5.5	6.4	1.1	0.9
Oct 9		CA (N.)	5.3	5.4	6.4	1.1	1.0
Oct 10	35	CA (N.)	5.3	5.4	6.4	1.1	1.0
Oct 11		CA (N.)	5.3	5.4	6.4	1.1	1.0
Oct 13		WI	4.8	4.8	6.6	1.8	1.8
Oct 16		MA	4.4	4.5	6.1	1.7	1.6

Oct 18		MA	4.4	4.5	6.2	1.8	1.7
Oct 23	40	WI	4.8	4.8	6.8	2.0	2.0
Oct 23		WI	4.8	4.8	6.6	1.8	1.8
Oct 22		CO	5.2	5.0	7.0	1.8	2.0
Oct 23		WI	4.8	4.8	6.8	2.0	2.0
Oct 8		TX	5.1	5.1	6.5	1.4	1.4
Oct 15	45	TX	5.1	5.1	6.8	1.7	1.7
Oct 23		TX	5.1	5.1	7.0	1.9	1.9
Oct 25		CA	5.3	5.4	6.3	1.0	0.9
Oct 26		WI	4.8	4.8	6.4	1.6	1.6
Oct 27		WI	4.8	4.8	6.6	1.8	1.8
Oct 27	50	CA	5.3	5.5	6.2	1.9	1.7
Nov 1		ND	5.3	6.0	6.3	1.0	0.3
Nov 2		WI	4.8	4.8	7.0	2.2	2.2
Nov 5		MA	4.4	4.5	6.2	1.8	1.7
Nov 6		WI	4.8	4.8	6.2	1.4	1.4
Nov 6	55	WI	4.8	4.8	6.4	1.6	1.6
Nov 7		IN	4.4	4.4	6.8	2.4	2.4
Nov 9		GA	4.6	4.6	5.7	1.1	1.1
Nov 14		MA	4.4	4.5	6.2	1.8	1.7

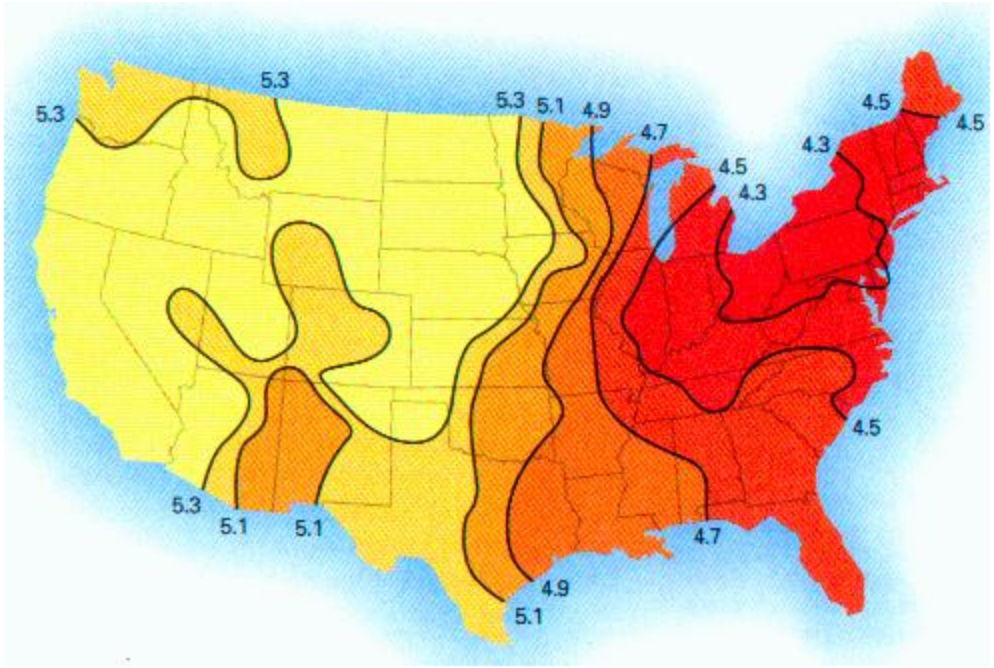
Nov 12		WI	4.8	4.8	6.4	1.6	1.6
Nov 13	60	OR	5.3	5.4	4.9	-0.4	-0.5
Nov 14		OR	5.3	5.4	4.9	-0.4	-0.5
Nov 20		NC	4.5	4.7	6.0	1.5	1.3
Nov 20		NC	4.5	4.7	6.5	2.0	1.8
Nov 21		IL	4.5	4.5	6.0	1.5	1.5
Jan 16	65	MA	4.4	4.5	6.3	1.9	1.8
Jan 19		WA	5.3	5.2	5.5	0.2	0.3
Jan 20		MA	4.4	4.5	6.2	1.8	1.7
Jan 21		ID	5.3	5.2	6.3	0.9	1.0
Jan 21		MA	4.4	4.5	6.2	1.8	1.7
Jan 21	70	ID	5.3	5.2	6.0	0.7	0.8
Jan 23		CA	5.3	5.4	6.8	1.5	1.4
Jan 23		CA	5.3	5.4	6.2	0.9	0.8
Feb 06		MA	4.4	4.5	6.1	1.7	1.6
Feb 09		OR	5.3	5.4	5.1	-0.2	-0.3
Feb 27	75	AR	4.7	4.8	5.9	1.2	1.1
Feb 25		AR	4.7	4.8	6.4	1.7	1.6
Feb 25		NC	4.5	4.9	6.4	1.9	1.5
Mar 08		OH	4.4	4.5	6.1	1.7	1.6

Mar 22		MA	4.4	4.5	6.2	1.8	1.7
Apr 20	80	WI	4.8	4.8	7.0	2.2	2.2
May 02		WI	4.8	4.8	6.9	2.1	2.1
May 05		NM	5.1	5.1	6.0	0.9	0.9
May 06		ND	5.3	6.0	6.5	1.2	0.5
May 04		WI	4.8	4.8	7.0	2.2	2.2
May 07	85	WI	4.8	4.8	6.8	2.0	2.0
May 10		WI	4.8	4.8	6.8	2.0	2.0
May 16		ME	4.5	4.8	6.1	1.6	1.3

It is emphasized once again that:

"The single most important chemical species in clouds and precipitation is the hydrogen ion (H+), whose concentration can be indicated by specifying the solution's acidity, or pH value. You may recall from high school chemistry that the pH scale ranges from 0 to 14, low pH values indicating high acidity (high concentrations of H+) and high pH values indicating high alkalinity (low concentrations of H+)"

from Atmosphere, Climate, and Change by Graedel and Crutzen, Scientific American, 1997.



Lines of equal pH in the United States 1990
from Atmosphere, Climate and Change by Graedel and Crutzen 1997
(*"The levels below 5.0 east of the Mississippi River are the result of anthropogenic [man-made] emissions of sulfur and nitrogen oxides."*)

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