

The collectors are located in flat open areas, away from roads, point sources, heavily urbanized and/or agricultural areas, trees and overhead wires.

All monitors are trained by the DEC and the monitor's techniques are observed bi-annually. There has been a low turnover of monitors, which has contributed to consistency in the data collection.

The pH meters are calibrated with buffers 4.00 and 7.00 prior to each use. To ensure that the electrodes are working properly, the monitors are supplied with a check sample of pH 4.70 \pm 0.10 at 25EC. The pH meters are professionally calibrated every year and the electrodes are replaced when they show signs of slow response or failure. The pH and the amount of precipitation is recorded on a monthly report sheets

Underhill	4.25	4.25	4.41	4.19	4.36	4.36	4.37	4.46
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W = Winter, S = Summer, ND = No Data

Elevational and Spatial Variation

In comparing Mt. Mansfield (3800') with Underhill (1300'), and Morrisville (700') there appears to be a pattern of decreasing pH with increasing elevation. In comparing spatial relationships, Underhill, located to the west of Mt. Mansfield, has a lower yearly mean weighted pH than does Morrisville, located on the east side of Mt. Mansfield. (Table 1.)

Discussion:

The majority of bulk precipitation in Vermont is unquestionably acidic. However, based on this network there has been no clear trend indicating a statistical change in pH since 1980 in Vermont. It has been suggested that if sulfur emissions decreased, then pH would increase. The VAPMP data does not support this hypothesis. This may be due to the importance of nitrate in atmospheric chemistry, which has not been regulated as strictly as sulfur emissions. In addition, there has been a reduction of base cations in the atmosphere, which provides an atmospherically deposited buffer. This is due in part to the removal of dust particulates from emissions. With the implementation of Phase II of the 1990 Clean Air Act, nitrate emissions will be reduced, possibly improving the pH of precipitation. However, Utility Restructuring may have a profound effect on Vermont's precipitation chemistry. Older coal-powered utility plants which were grandfathered in the Clean Air Act may begin to run at full capacity. These plants are able to produce cheap energy without installing pollution prevention devices. The State of Vermont has pending legislation requiring each utility to purchase a portion of renewable energy and meet certain environmental criteria.

Although the summer volume weighted means tend to be slightly lower than the winter volume weighted means, there is no significant trend. In addition, from 1989-1994, summer means appear to be higher than the winter means. In general, a lower pH is expected in the summertime due to increases in sunlight,

References: