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Acid Rain Independent Research
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**Acid Deposition Analysis of Precipitation Samples
from Trinity College in Hartford, CT**

Acid deposition has been an environmental issue since the Industrial Revolution. Acid deposition forms when sulfur dioxide (SO_2) and nitrogen oxides (NO_x) are emitted into the atmosphere from burning fossil fuels. While in the atmosphere these compounds react with water to form sulfuric acid (H_2SO_4) and nitrous acid (HNO_2). Concentrations of these acids form in storm clouds and are released through either wet or dry deposition. Acid rain is especially a problem in the northeastern United States, which receives much its precipitation from storms that track over fossil fuel burning power plants in the Midwest. In addition, the high density population of the Northeast is a local source of sulfur and nitrate. Samples were collected from Trinity College in Hartford, Connecticut and tested for pH, total free acid (H_3O^+), total acid strength and for concentrations of nitrates and sulfate. The storm track was recorded and the amount of rainfall was calculated from weather observations at Brainard Airport in Hartford. It was found that there was a correlation between pH and the concentration of nitrate and sulfate. When nitrate and sulfate concentrations rose there was a decrease in pH. There was also a correlation found between the size of the storm (amount of rainfall) and the concentration of nitrates and sulfates. The nitrate and sulfate concentrations varied greatly between the small storm systems, which may correlate to the sample's storm track. Certain Storms were also of interest and may help to predict which storms in the future will have higher or lower concentrations of nitrates and sulfates.