Chemistry 201

Acid rain

NC State University

Acid rain

 SO_2 is the most important gas which leads to acidification of lakes and soil. 70 million tons per year in the form of SO_2 comes from fossil fuel combustion and industry (also 2.8 million tons from wildfires and 7-8 million tons from volcanoes). Emissions of nitrogen oxides which are oxidized to form nitric acid are of increasing importance.

 $CO_2 + H_2O \rightarrow H_2CO_3$

 $SO_2 + H_2O \rightarrow H_2SO_3$

 $SO_3 + H_2O \rightarrow H_2SO_4$

 $2NO_2 + H_2O \rightarrow HNO_2 + HNO_3$



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 $CO_2 + 2H_2O \rightarrow HCO_3^- + H_3O^+$

 $SO_2 + 2H_2O \rightarrow HSO_3^- + H_3O^+$

 $SO_3 + H_2O \rightarrow HSO_4^- + H_3O^+$

 $2NO_2 + 3H_2O \rightarrow NO_2^- + NO_3^- + 2H_3O^+$

