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Effects of Aqueous Solvation on the Photochemistry of Pyruvic Acid ALLISON REED-HARRIS, University of Colorado at Boulder, BARBARA ERVENS, Cooperative Institute for Research in Environmental Sciences (CIRES) / National Oceanic & Atmospheric Administration (NOAA), RICHARD SHOEMAKER, REBECCA RAPF, JAY KROLL, ELIZABETH GRIFFITH, University of Colorado at Boulder, ANNE MONOD, Aix Marseille Universite, VERONICA VAIDA, University of Colorado at Boulder — The role of organic compounds in atmospheric chemistry leading to aerosol formation is under investigation due to the necessity to understand the effects of aerosols on global climate change. It has recently been shown that important pathways in formation of organic aerosols are in aqueous environments where high molecular weight products are formed and can potentially contribute to atmospheric aerosol mass. This presentation describes the photochemistry of pyruvic acid in aqueous solutions representative of atmospheric fogs, clouds and wet aerosols. Solvation of pyruvic acid in water completely changes the photodissociation of this molecule compared to its photolysis in the gas phase. The reaction mechanism of pyruvic acid as a function of its environment and concentration will be presented along with the kinetics obtained in aqueous solution. The resulting first order rate constants will be presented to discuss the effect of water as a solvent in this chemistry. These results are input to atmospheric models to evaluate the atmospheric consequences of solvation of pyruvic acid on its atmospheric reactivity and its role in aerosol formation.

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