

Reactivity of hydroxyl radicals at air-water and air-ice interfaces

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We have used a novel spectroscopic probe to monitor reaction kinetics of hydroxyl radicals (OH) *in situ* in solution and at atmospheric interfaces. We demonstrate that while hydroxyl radicals react rapidly with aromatic hydrocarbons in aqueous solution and at air-water interfaces, reactions at air-ice interfaces are immeasurably slow. Reactions between OH and aromatics are suppressed at ice surfaces whether OH is formed *in situ* at the ice surface via photolysis, or whether it adsorbs to the ice surface from the gas phase. These results may affect predictions of pollutant fate in snow and ice, as well as the composition of the overlying gas phase.

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