

Interactive comment on “Accelerated dissolution of iron oxides in ice” by D. Jeong et al.

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Comment) In my previous comment, I intended to bring to the authors attention (but forgot to include) the study of Sidhu et al. (1981); Clays and Clay Minerals, 29, 269-, which reports dissolution rates of iron oxides/hydroxides in HCl at room temp. Their rate values are reported per unit surface area (BET) as I suggested in my comment. Could the authors comment on any difference in the order of dissolution rates for the iron oxides they used in their experiments to this earlier work?

Response) The cited literature dissolution data is now included in Table 3 for comparison with the present dissolution data. However, the literature dissolution data were obtained at an extreme acidic condition (pH 0.3), and cannot be directly compared with the present data. The following sentences were added to discuss this point. (p. 20120)

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“The literature data of iron oxide dissolution in an aqueous solution of pH 0.3 (Sidhu et al., 1981) (shown in Table 3) is in the comparable range with the ice dissolution data at pH 2-3. This implies that the ice grain boundary region has a highly acidic environment.”

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 20113, 2012.