Supplementary Information: A Water Activity Based Model of Heterogeneous Ice Nucleation Kinetics for Freezing of Water and Aqueous Solution Droplets†

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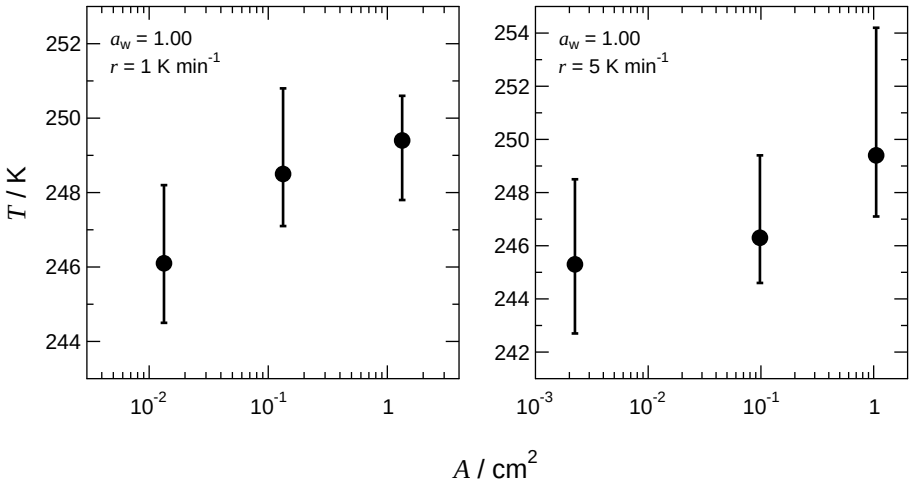

Fig. 1 Median immersion freezing temperatures of water droplets initiated by *Nannochloris atomus*. As immersed particle surface area, A, is increased, median freezing temperatures increase independent of cooling rate, r.

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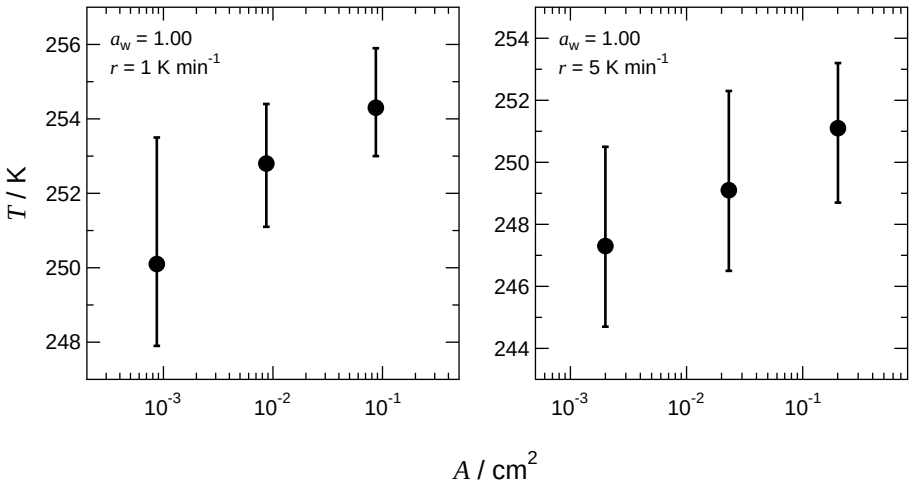

Fig. 2 Median immersion freezing temperatures of water droplets initiated by *Thalassiosira pseudonana*. As immersed particle surface area, A, is increased, median freezing temperatures increase independent of cooling rate, r.

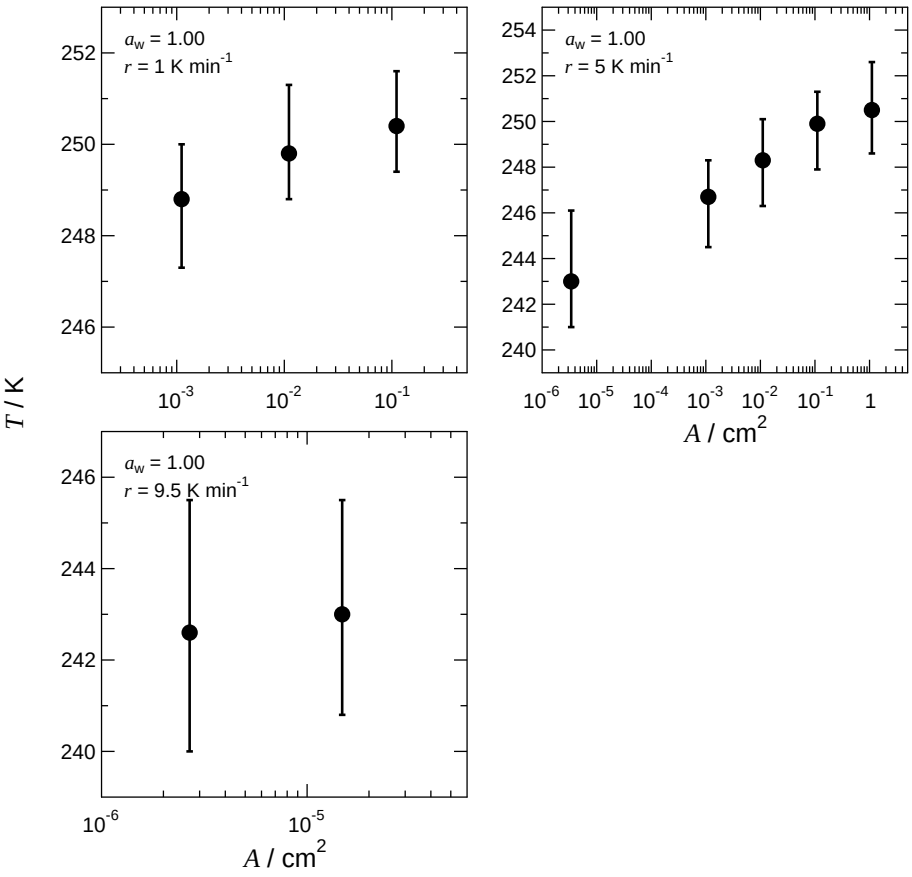

Fig. 3 Median immersion freezing temperatures of water droplets initiated by Pahokee Peat. As immersed particle surface area, A, is increased, median freezing temperatures increase independent of cooling rate, r.

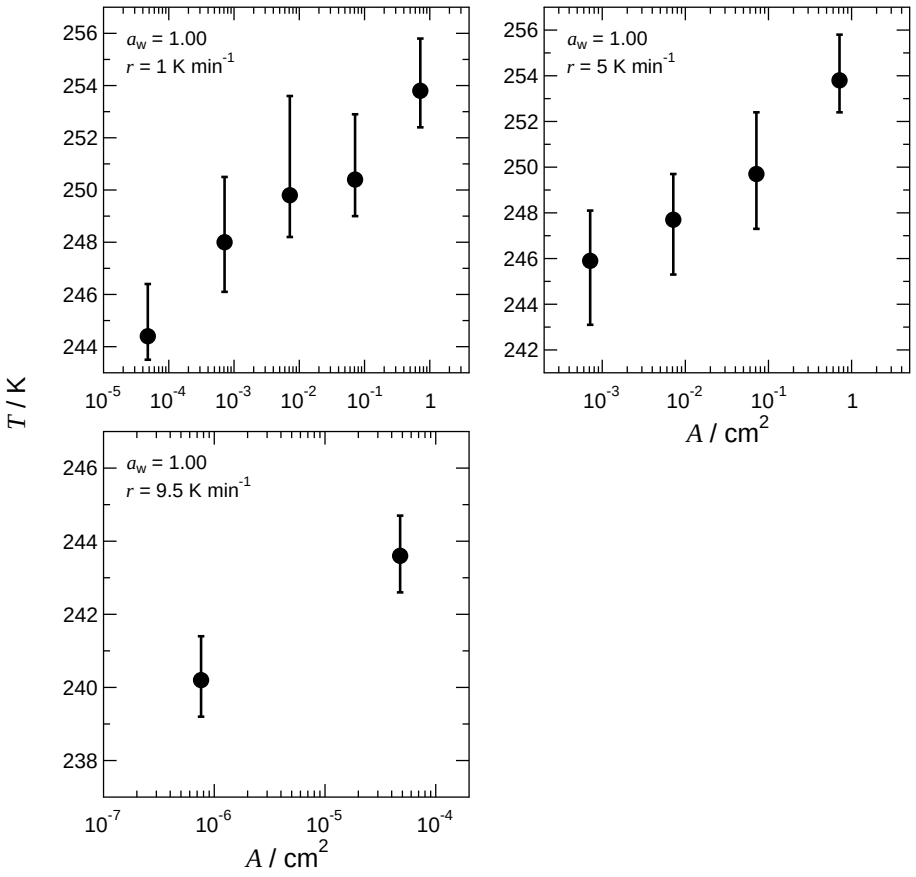

Fig. 4 Median immersion freezing temperatures of water droplets initiated by Leonardite. As immersed particle surface area, A, is increased, median freezing temperatures increase independent of cooling rate, r.

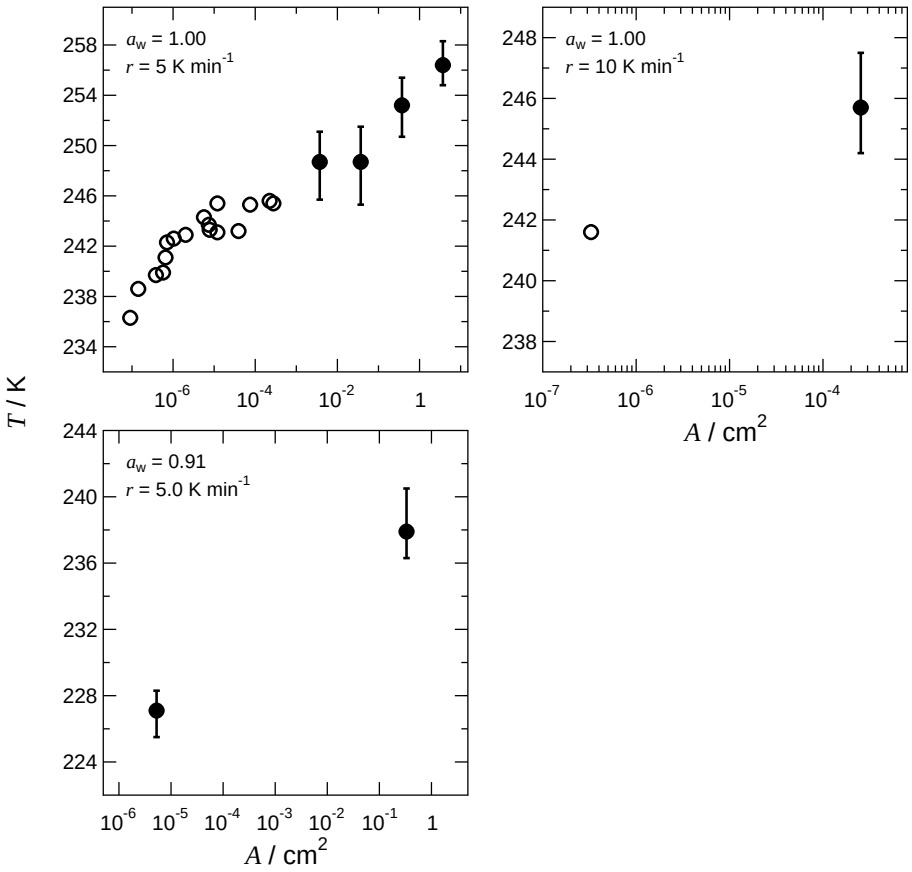

Fig. 5 Median immersion freezing temperatures of water droplets initiated by Illite. As immersed particle surface area, A, is increased, median freezing temperatures increase independent of cooling rate, r, and water activity, a_w. Open circles represent immersion freezing data by Broadley *et al.* [1].

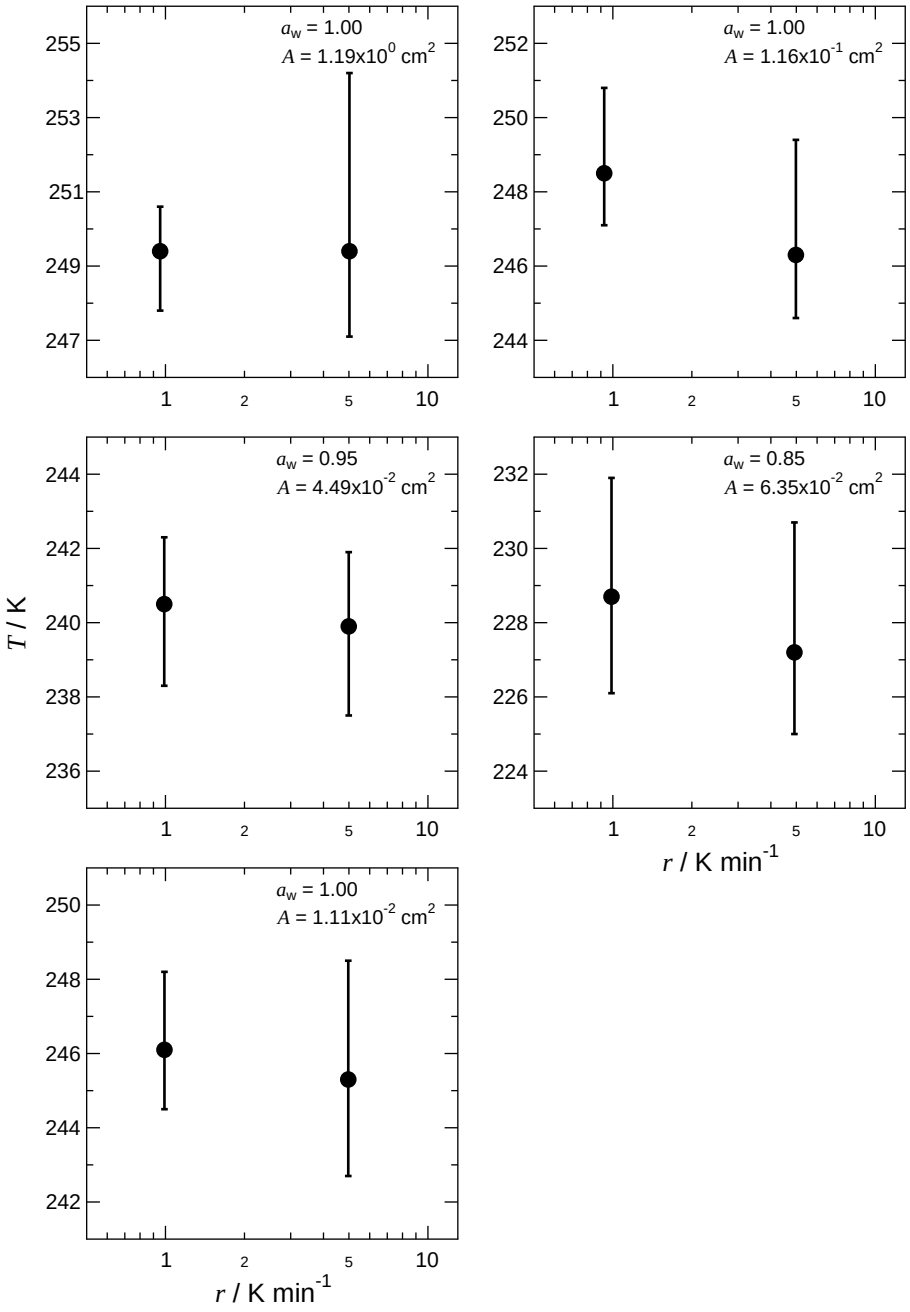

Fig. 6 Median immersion freezing temperatures of water droplets initiated by *Nannochloris atomus*. As the cooling rate, r, is increased, median freezing temperatures decrease independent of immersed particle surface area, A, and water activity, a_w.

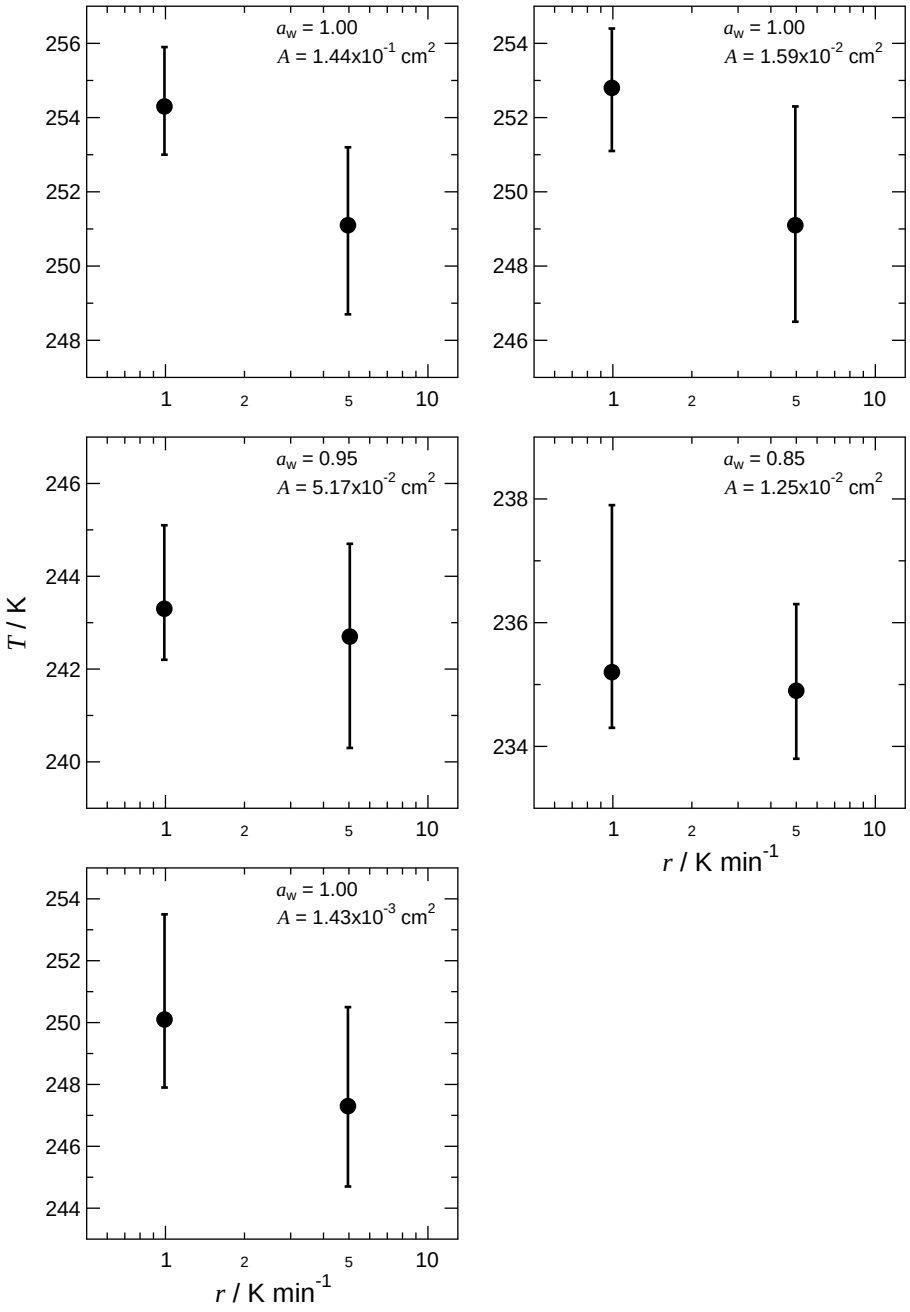

Fig. 7 Median immersion freezing temperatures of water droplets initiated by *Thalassiosira pseudonana*. As the cooling rate, r, is increased, median freezing temperatures decrease independent of immersed particle surface area, A, and water activity, a_w.

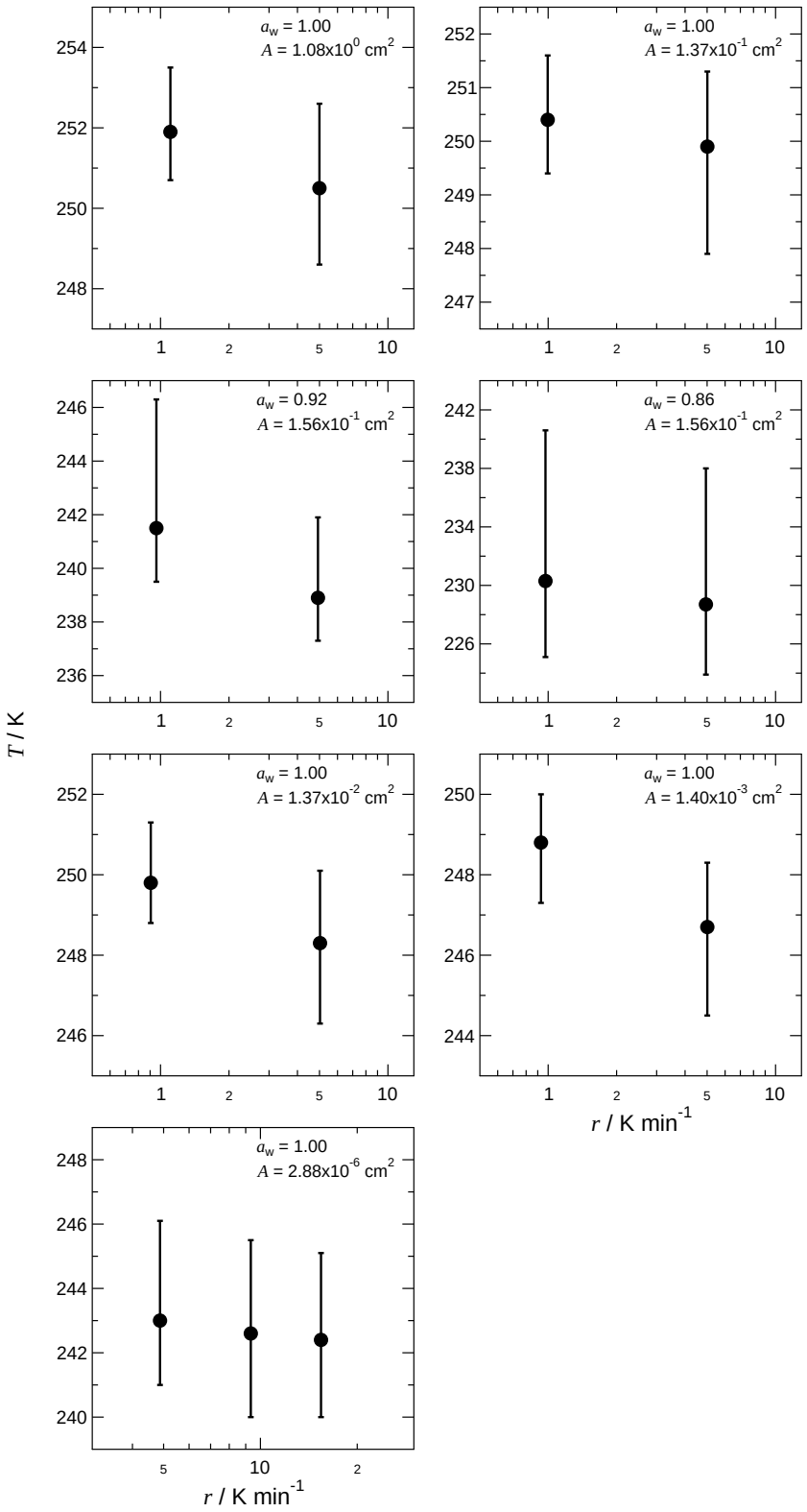

Fig. 8 Median immersion freezing temperatures of water droplets initiated by Pahokee Peat. As the cooling rate, r, is increased, median freezing temperatures decrease independent of immersed particle surface area, A, and water activity, a_w.

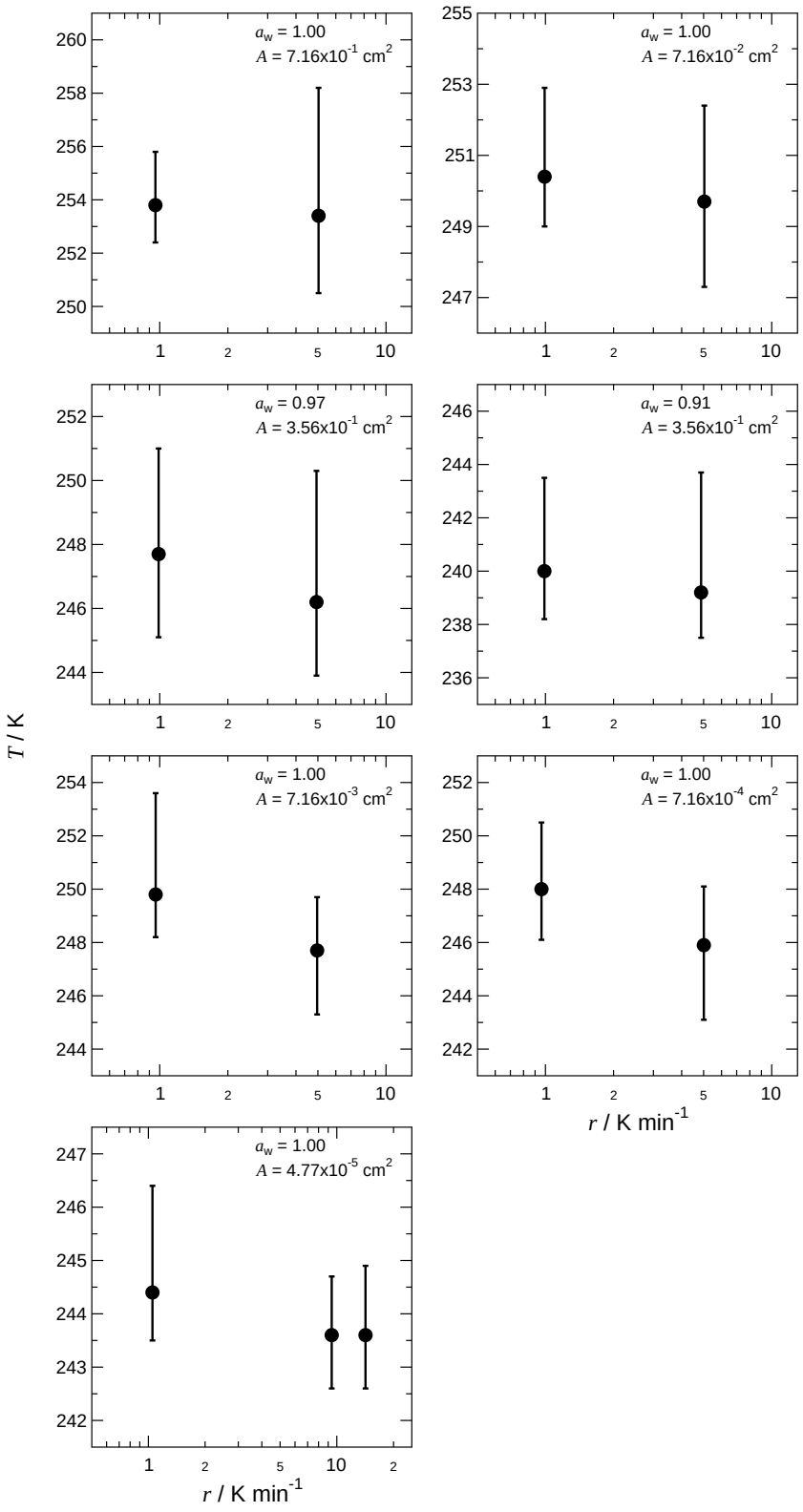

Fig. 9 Median immersion freezing temperatures of water droplets initiated by Leonardite. As the cooling rate, r, is increased, median freezing temperatures decrease independent of immersed particle surface area, A, and water activity, a_w.

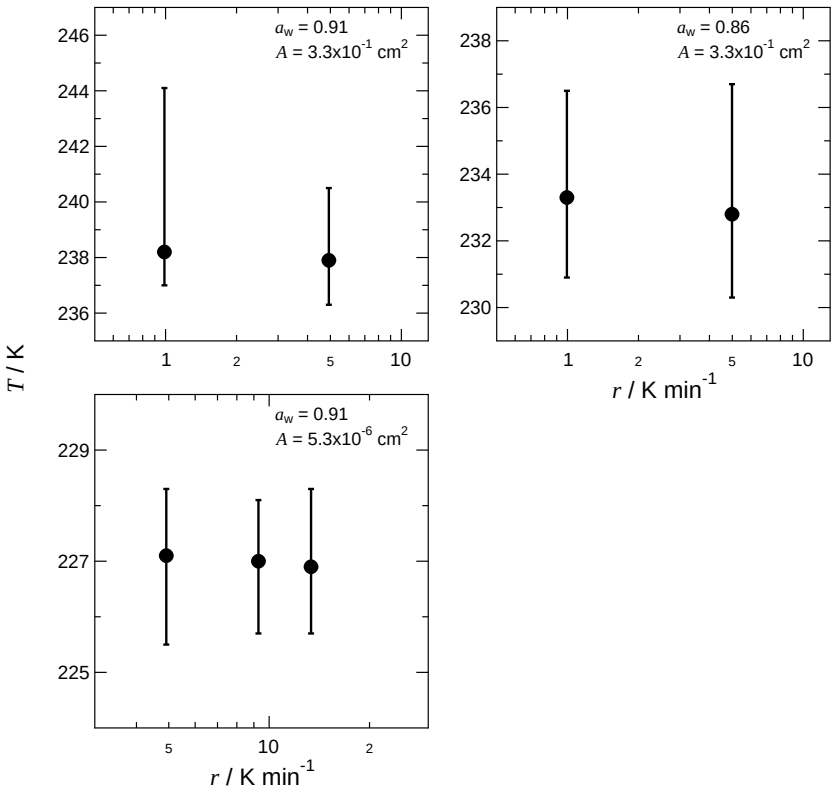

Fig. 10 Median immersion freezing temperatures of water droplets initiated by Illite. As the cooling rate, r, is increased, median freezing temperatures decrease independent of immersed particle surface area, A, and water activity, a_w.

References

1 S. L. Broadley, B. J. Murray, R. J. Herbert, J. D. Atkinson, S. Dobbie, T. L. Malkin, E. Condliffe and L. Neve, *Atmos. Chem. Phys.*, 2012, **12**, 287–307.