

Authors' comments to Editor's comment to Anonymous Referee #1

We selected below the comments highlighted by the editor and added the corresponding changes in the manuscript.

Line 113: "both experiments are identical in their setup". Since both seeding experiments are at the same location, is there any physical reason why there are two seeding experiments on that day? For example, I can understand S25-2, S25-2.5, S25-3 can test the impact of distance (growth time), but what about S26-2.5a and S26-2.5b? What can we learn from these two experiments?

In the field we conducted experiments using an identical setup to test the validity of the signal we observe in the radar and in-situ observations (similar to doing exact replicates in laboratory experiments). Here, we use both again to show that the model can reproduce the seeding signal consistently in the two experiments, but also when changing the seeding distance (other three experiments).

We added the following (line 118): *"These two identical setup serve to test the validity of the signal we observe in the field experiments, but also in the model simulations."*

Line 149: "The frequency of model output was set to 5 min". The ice growth time is between 6 and 9 min (Table 1). Please comment on whether the relatively low output frequency would affect the comparison between observation and simulation.

In the table below we show the times of the expected arrival time and the closest model time step. The plume arrives at the field site almost always at a 5 min time step. We also tested 1 min output frequency for the simulation S26-2.5 and the results are similar. Hence, we follow here the 5 min output frequency. With the expected arrival time at the field site we also chose our model time step which may disagree with the time period of the observations given the differences / uncertainties in wind speed.

Name	Seeding start (UTC)	Growth time (min)	Arrival at field site (UTC)	Closest model time step (UTC)
S26-2.5a	10:22	8.0	10:30	10:30
S26-2.5b	10:48	7.1	10:55	10:55
S25-2	10:50	6.1	10:56	10:55
S25-2.5	10:28	8.0	10:36	10:35
S25-3	11:15	9.1	11:24	11:25

We added following to the manuscript (line 156): *"The frequency of model output was set to 5 min after also testing 1 min output frequency, which showed similar results as in the 5 min output. Moreover, calculating the expected arrival time of the seeding plume at the field site (seeding start and growth time, see Table 1) shows that the expected arrival and a full 5 min model output timestep are very close (within ± 1 min)."*

Please ensure that statements that observed and simulated ice number concentrations are in "good agreement" throughout the manuscript align with the revision that makes a more nuanced analysis; at least one earlier statement still states that they are in good agreement without such qualification.

Thank you, we have adapted this in the following (line 275): *“However, in both simulations, the median and mean concentrations are strongly underestimated, which is further discussed below (Sect. 3.3).”*.