Review:

The authors have followed my suggestions regarding the first and third comment, but there are still some concerns regarding the second point. The authors state in their response that "the intended effect is harder to predict" in using the full Earth System model. As outlined in the earlier review, Table 2 does not show the expected improvement between the FI and the other cases, and at least half of the times the RF for the FI (fixed injection) case is larger than the other cases. As can be seen in the table for 365days, for winter and summer, the FI is showing a larger forcing (significantly larger in winter), while for spring and summer the RF is slightly smaller compared to the FI case (see Table 2 below). This should be mentioned in the text. One reason for this signal may be more complicated aerosol microphysics in the atmosphere, using SO2 injections than what can be estimated from a simple model. The method may be useful but has to be further investigated before recommending as an application for aerosol geoengineering.

The authors have added some minor changes to the wording in the Discussion and Conclusions. However, the abstract is still presenting results that are not reflected in the paper and therefore need to be changed: "*Additionally, this enhanced dispersion slows aerosol microphysical growth, reducing the effective radii of aerosols* ***at monthly timescales. This has long term impacts on radiative forcing, beyond the lifespan of the original influential transport barriers. We conclude that previous feasibility studies of geoengineering likely underestimate the potential cooling efficiency of sulfate aerosol geoengineering by not strategically injecting at optimized dispersion locations.***"

1. The authors have not shown that the changes (increase and reduction, and not only reduction) in the effective radii of aerosols (at one theta level that is mostly above the enhanced aerosol layer in high latitudes) would change the radiative forcing. For example, it seems like the effective radius at 540K in spring (in Fig12) is largest for the simple case, but the radiative change (Table 2) does not reflect that and has a reduced radiative effect compared to the other cases.
2. The conclusion that the potential cooling efficiency of sulfate aerosol geoengineering is likely underestimated has not been shown in the paper.

The abstract would be much improved if the authors would point to the potential for this method, but also mention the need for further investigation of these methods in order to gain a more robust understanding.

	10 Days	**30 Days**	**365 Days**
Winter	-1.4/*-2.0*/*-1.7*	-6.9/**-5.0**/*-6.2*	-7.6/**-3.6**/**+0.4**
Spring	-1.1/*-1.3*/**-2.0**	-7.6/*-6.7*/**-6.1**	-11.1/*-11.2*/**-9.6**
Summer	-1.5/*-1.2*/*-0.8*	-4.0/**-6.1**/**-6.6**	-3.4/*-3.0*/**-2.0**
Autumn	-1.5/*-2.0*/*-2.0*	-10.1/*-10.4*/*-11.2*	-9.9/**-11.1**/**-4.6**

Table 2: Global average improvement in RF (W m^{-2}) at specified intervals after injection as compared to CESM2(WACCM6) control runs for FI (black), DI (orange), and ADI (green) injection schemes. Bold values indicate a statistically significant difference in mean RF between FI and the corresponding DBS-informed injection on that day. Gray shaded cells indicate times at which FI resulted in stronger RF than both DI and ADI.