This paper utilizes MODIS cloud observations and environmental variables from ERA-5 to analyze the meteorological influences on low-cloud susceptibility. They find that non-precipitative brightening typically occurs near the coast in primarily stratocumulus regions, precipitative brightening is most frequent over the central oceans, and darkening occurs predominately in the stratocumulus regions of the southeast Pacific and Atlantic (west of the non-precipitative brightening region). Regarding any meteorological influences, they found that the co-variability between the different variables analyzed influences the monthly evolution of albedo susceptibility, and differs depending on region.

Overall, I think this is a well written paper with impactful results, however I do have a few questions (listed below) that I would like answered prior to publication.

General Comments/Questions:

Lines 119 – 120: Regarding the precipitation brightening regime shown in Figure 2 and discussed here, "to the left of the 12-15 microns" means all susceptibility values to the left of the 12-micron isoline (not between the 12- and 15-micron isolines)?

Lines 124 – 126: You discuss how heavy precipitation would reduce cloud water through drop scavenging but state that your focus on high-cloud-fraction scenes does not allow you to analyze this (If I understand correctly). How do you think you results would have changed if you could have analyzed scenes where scavenging had occurred. Maybe I completely missed this point, but was curious about it.

Lines 160 – 163 and Figure 3: It looks like precipitation brightening is most frequent over the entire ocean basins other than right near the coast (especially in regions of primarily stratocumulus). Is this what you mean in the sentence starting "The precipitating brightening regime, although occurring over 50% of the time"?

Minor comments:

Lines 30 – 35: "Simulations of marine boundary layer (MBL) clouds," this sentence is a bit clunky (i.e. a bunch of comma splices) which reduces its readability. If you could break it up, that would be appreciated.

Line 76: What does f_c represent in the radiative susceptibility equation?

Line 124: "Heavy precipitations deplete" should be "Heavy precipitation depletes"

Figure 6: It took me three reads to see the contour labels (i.e. lines of constant F_o) in the left plot of each panel (a-e). This made my interpretation of some of the text (e.g. lines 218 – 219: discussing that the southeast Pacific has the only monthly mean darkening potential) difficult.