

The authors successfully address all my comments in the revision submission. I don't need to see the manuscript again. Below are a few minor suggestions left for the authors to decide if they feel it is good to take. The suggestions may help further polish the manuscript.

Minor suggestions:

Lines 402-404. Yes, the horizontal solid and dashed gray lines in Fig. 9 are above their counterparts in Fig. 8. In other words, the net upwelling longwave irradiance is smaller at the surface than that at the top of the atmosphere. However, the slopes of the colorful curves in Figs. 8 and 9 are not affected by the offsets (or y-intercepts) of the curves. Are the reduced slopes of the colorful curves in Fig. 9 probably due to the higher proportion of the diffusive downwelling shortwave irradiance at the surface than that at the top of the atmosphere? Is the decrease of the diffusive downwelling shortwave irradiance with increasing *sza* less pronounced than the decrease of the direct downwelling shortwave irradiance with increasing *sza*?

Lines 424-425. Does the relative importance of surface albedo vs. cloud albedo play a role in the cloud radiative forcing shown in Fig. 10? Is the sign of cloud shortwave radiative forcing predominately determined by whether the cloud albedo is greater or smaller than the surface albedo at a given *sza*?

Section 5.2.4 and Lines 540-542. In the authors' response to my major comment in the last review, they show that the longwave heating/cooling rate profile is affected by the temperature profile. It appears that a small lapse rate within the cloud layer results in longwave radiative warming at the cloud base and longwave radiative cooling at the cloud top, whereas a large lapse rate within the cloud layer results in longwave radiative warming at the upper portion of the cloud layer and longwave radiative cooling at the lower portion of the cloud layer. For the selected case on January 25, 2016, the lapse rate between 6 km and the tropopause is near the superadiabatic lapse rate. Not sure if such a steep upper tropospheric temperature gradient is common over the Arctic, but this is interesting to me. One of focuses of this study is the influence of ice cloud radiative effect on the thermal stratification. As introduced in numerous previous studies such as those I listed in the last review, cloud base absorption and top emission result in longwave radiative heating at cloud base and cooling at cloud top in general. Hence, the cloud longwave radiative effect generally tends to decrease the static stability of the cloud layer. However, in this study, the authors show that if the lapse rate is near the superadiabatic lapse rate within the cloud layer, longwave radiation heats the upper cloud layer and cools the lower cloud layer and hence tends to increase the static stability. Would it be helpful if such a contrast is emphasized?