The manuscript “Improving land-atmosphere coupling in seasonal forecast system by implementing a multi-layer snow scheme” evaluated the retrospective seasonal forecast performance of the Global Seasonal Forecast System (GloSea) version 5 (GloSea5) and version 6 (GloSea6) over a 24-year period (1993-2016) and tried attributing the improving retrospective seasonal forecasts in GloSea6 during winter and snow melting seasons to the implementation of multi-layer snow scheme in GloSea6. The comparison results indicated that the snow melting season shifts two weeks later in GloSea6, consequently improving the simulations of soil moisture in its climatology and memory, surface temperature, and land-atmosphere coupling regime as well. The authors thought that the subsequent improvements in surface temperature and precipitation over snow-covered regions were resulted from the implementation of multi-layer snow scheme in GloSea6. This probably holds when other model physics are same in GloSea5 and GloSea6. Therefore, the authors should find other ways to analyze the results. Here are some specific comments:

1. From Table 1, we could see that only the model resolution in two versions of GloSea are same. The model coupler and model physics are all updated in GloSea6. The surface air temperature and precipitation are impacted not only by the local effect but also the nonlocal effect. For a coupled system, the physics interact with each other. Therefore, it is It is unrealistic to talk about only one physical process while ignoring the influence of other physical processes.
2. From Table 3 in Kim et al. (2021), compare with GL6.0 in GloSea5, the GL8.0 in GloSea6 added the multi-layer snow scheme, improved the land surface albedo physics and modified the atmospheric rain fractions. Temporarily leaving aside the influences of modification in land surface albedo, how does the modification in partition between rain and snow affect the snow characteristics? Moreover, in around Line 120, how could the authors distinguish the albedo changes from the multi-layer snowpack or improved surface albedo physics?
3. In around Line 265, “The multi-layer snowpack also extends the area of snow cover, which leads to the increased surface albedo, where increasing snow

amount leads to an increase of surface albedo at the land surface about 10 days later (SFs. 1a, b)". The surface albedo was closely connected with the snow cover fraction over the snow-covered regions. However, the more snow amounts couldn't always mean larger snow cover area. It would be good to compare the snow cover fraction and snow albedo in two versions. Otherwise, how to explain the similar snow amount in two versions from Oct to Jan but the different surface albedo?

4. In Line 25-30: "As the memory of initial land conditions can extend out to approximately 2 months, the importance of realistic land surface initialization in determining skill of the subseasonal forecast is paramount (Koster et al., 2011; Guo et al., 2011; Seo et al., 2019)." However, the two versions used different land initial conditions. How to exclude this effect from the effect of multi-layer snowpack?

5. Around Line 190, "reanalysis-based precipitation dataset with are available for 1979–present". Not clear.

6. The label bar in Fig.8 was missed. It's hard to follow the left-bottom-corner sub-figure.