This research applied image fusion of Landsat OLI and GOCI images using ESTARFM, then extracted linear structure on the lake ice surface of the high spatial-temporal fusion images and monitored the changes in surface morphology in Chagan Lake. Through the correlation analysis with meteorological factors, it showed that the surface morphology is closed related to wind direction, snowfall, and air temperature. This paper provided a good idea for monitoring lake ice surface morphology. However, there are still some improvement should be made and some mistakes need to be corrected in the manuscript.

1、 Line 11-14, "The surface morphology of lake ice undergoes remarkable changes under the combined influence of thermal and mechanical forces, which has been rarely observed by remote sensing. A large-scale linear structure has repeatedly appeared on satellite images of Chagan Lake in recent years." The first sentence said the surface morphology has been rarely observed by remote sensing, the second sentence said that a large-scale linear structure has repeatedly appeared on satellite images of Chagan Lake in recent years. So, why it was rarely observed before and appeared recently? Is it because of the remote sensing image with course resolution or there are few surface morphology before?

2、 Line14，"We prosed a method to extract linear structure on the lake ice surface." According to the manuscript, the extraction method of linear structure on the lake ice surface is not proposed in this paper, but your work before.

3、 Line 51-54, these sentences do not fit in here. You said, "multi-sensor, multi-temporal and multi-spatial resolution remote sensing image data have been successfully applied to monitoring the lake ice" in end of last paragraph. Then the common fusion methods should be described. While the high spatial-temporal resolution fusion such as Landsat and MODIS fusion is just one of these fusion methods.

4、 Line 134，Why are the reflectance images of Landsat band 2 and GOCI band 3 chosen to be fused? Why not the Pan band of OLI with 15m resolution?

5、 Line 138, "estarfm" should be capitalized.

6、 There are some problems in formula 1

(1) There are two “n” in the formula, k=m,n and i=1 to n

(2) L is “Landsat OLI”, but not “MODIS ”

(3) How to calculate the *Wi* and the *Vi*, and what is the convert coeffects?

(4) I think the formula is STARFM but not the ESTARFM

7、 Line 172, “The high R^2 between actual and predicted images was 0.935 on November 28, 2018, which proved that the fusion images are consistent with the remote sensing data.” I think there is no Landsat OLI image on November 28, 2018, how can you do that?

8、 Line 176, “Estarfm” shoud be capitalized.

9、 Line 191, figure9 should be figure6.

10、Line 214, “However, the ice ball was frozen beneath the ice surface, and the surface was relatively smooth.” Is it said the ice ball of 2022? It should be clear in the manuscript.

11、Line 257, same as the second comment.

12、Line 275, “From Figure 9, the occurrence of ice ball needs to meet the strict requirements of climate conditions together during the frozen process:” It seems that the conditions for the occurrence of ice ball are summarized in Figure 9. However, line 281 is “During the past decade, only the cold season of 2020 and 2021 could meet all three conditions”. Here , the logic is not clear.