

**Interactive comment on “September Arctic Sea Ice minimum prediction – a new skillful statistical approach” by Monica Ionita et al.
Anonymous Referee #2**

In this paper, the authors propose a statistical model to predict the Arctic September sea ice extent (SSIE) and East Siberian Sea ice extent (ESSIE) up to 4 months ahead with a high predictive skill compared to previous studies. Stability maps and stepwise multiple regression analysis are applied to find the optimal predictors for the model in regions and variables respectively. The results of prediction here are excellent and reliable. I believe the approach to build statistical prediction model between the predictors and predictand could be widely used in more climate predictions. I recommend to publish this paper and would like to make a few minor comments.

We thank the reviewer for the comments and useful feedback regarding our manuscript. Please find below our responses to the reviewer’s concerns. Comments will carefully be included in the revised version, as they will help to improve the clearness and scientific content.

Minor comments:

1. In Figure 1-3 and S1-S3, those regions inside the black boxes are used for SSIE. However, besides those regions, there are also other regions with significant correlation coefficients. Some regions are even more significant than those regions you choose. Why do you only choose those regions in the black boxes? Could you give an explanation?

An explanation why do we only choose those regions in the black boxes will be added in the revised version of the manuscript.

2. In Section 3.2, I recommend giving the definition or boundary of East Siberian Sea as well as other areas mentioned in Table 2.

A figure with the regions mentioned in the manuscript, as well as a clear definition of the regions, will be included in the revised version of the manuscript.

3. In Section 3.2, there is a writing mistake in the sentence “. . . coefficient between the observed and forecasted ESS SSIE is $r = 0.94$ ($r = 77$) . . .”. I think “ $r = 77$ ” should be corrected as “ $r = 0.77$ ”.

The text will be modified accordingly.