

## **Response to Editor**

Dear Editor David Schroeder:

Thank you very much for handling and review of our manuscript. We have read the technical comments made by Referee #3, which help us improve our research. In the latest revised manuscript, we have corrected the typos and referred to the recommended literature when discussing the radiative effects of cloud on reanalysis and the (Line 269-275) and the driving mechanisms of early melt onset (Line 300-306). Note that we have summarized the existing knowledge about the effects of enhanced moisture and energy transport on the melt onset of the sea ice surface and reorganized these sentences for a better expression (Line 300-306).

Best regards

Yu Liang and co-authors