

The Cryosphere Discuss., community comment CC2
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Reply on CC1

Thomas Krumpen

Community comment on "MOSAiC drift expedition from October 2019 to July 2020: sea ice conditions from space and comparison with previous years" by Thomas Krumpen et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2021-80-CC2>, 2021

Dear Hans-Werner

we are currently checking the logbooks to see whether it actually rained or whether liquid water settled on the instruments. For the latter, there is a picture proof. In any case, we will adapt the text to emphasise more clearly that the mechanisms that have led to a reduction in ice concentration in April are not yet understood. Here is a suggestion:

Observations from the ship and helicopter confirm that the ice concentration stayed higher during that time period. At that time a warm air intrusion raised temperatures close to 0°C, which was accompanied by a significant increase in wind speed (Fig. 6). Already below 0°C liquid water content in the snow and snow metamorphism increases. A refreeze after the warming event can cause formation of ice lenses in the snow. The strong wind can change the surface roughness. On one day liquid water was observed on some of the instruments. How these effects influenced the microwave brightness temperatures (i.e. an increase in polarization difference) will be the topic of future studies.

With best regards and again thanks for the comment

Thomas