



EGUsphere, referee comment RC2
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Comment on egusphere-2022-224

Anonymous Referee #2

Referee comment on "Brief communication: Classification of thawed/frozen topsoil state by spectral gradient methods based on SMAP and GCOM-W1 radiometric data" by Konstantin Muzalevskiy et al., EGU sphere,
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In my opinion this manuscript communicates an interesting and potentially important observation that the spectral gradients of brightness temperatures can be used to detect the freezing / thawing of soil. I also think that the paper is well written. I do have a couple of more specific comments:

-Line 30: the authors say that the single frequency methods use viewing angle of about 40 degrees. At least in case of SMOS also multiangular data is available even though the authors mentioned in the introduction might not have used it.

-Lines 133-134, Fig. 1: the ovals mentioned in the text are practically invisible in Fig. 1 and their visibility must be improved.

-Fig. 2: the color of Ts0 and first gradient pair is very hard to distinguish. A different set of colors or line types should be applied.

-Line 175-: If the soil is dry the penetration depth at 1.4 GHz is couple of centimeters. Have the authors considered that the difference between using 6.9-1.4 GHz and 36.5-1.4 GHz could be related to this?