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Dear Reviewer 2,

Many thanks for your review of our manuscript entitled 'Inter-comparison of field- and laboratory-derived surface emissivities of natural and manmade materials in support of land surface temperature (LST) remote sensing'. We found your comments very constructive and they have provided valuable insight towards enhancing the contents and analysis of our paper.

Please find below our responses to each of your comments.

Reviewer Comment	Author Response
Perhaps the biggest problem is that there are two Figure 2's, which causes many problems with figure references in the text. The fix is to relabel the second Fig. 2 (p.9) as Fig. 3 and renumber all subsequent figures accordingly. Figure citations in the text are all then correct and need no editing.	Many thanks for raising this. As mentioned to Reviewer 1, we couldn't find this error occurring in the word document downloaded but did see it in the PDF. We've redone all the figure captions in the word document and raised it with the editor to hopefully resolve any issues. When converting it to PDF, the issue is not replicated now so has hopefully been resolved.
Harmonize use of italic/non-italic variable designators throughout the manuscript.	Many thanks. All variables and functions are now italicised with superscript and subscript identifiers not italicised
Harmonize format of the references and add DOIs/URLs wherever available.	Many thanks. All references have been reviewed in Mendeley with DOIs/ URLs added where suitable. Bibliography was generated using Mendeley Plugin with word to ensure consistent formatting.
L105: "...approaches based spectral radiance..." – is there a word missing here?	Yes, this should say 'approaches based on spectral radiance' – now corrected in LL. 115 - 116, many thanks for pointing out this typo.
L232: "...those or distilled..." should read "...those of distilled..."	Corrected
L248: "12 v" – use upper case "V."	Corrected
L257: "...LWIR spectral..." should read "...LWIR spectra..."	Corrected
L264: Delete "at."	Corrected (also observed by Reviewer 1)
L270: Table 2, column 3 – what is the significance of "advised" appearing beneath the quoted spectral range?	The team at JPL processed data over 8 – 12 um and this corresponded to that. In retrospect this was not used in this study so we have taken it out and changed the upper bounding limit to 14 um as in Korb et al. (1996) (https://doi.org/10.1364/AO.35.001679)
L288: Insert "is" after LBB(Ts).	Done
L305: "...downwelling..."	Corrected from 'dowelling' – many thanks.
LL334-335: FOV of the radiometer is non-linear with distance? This must mean that the authors are casting the FOV in terms of area rather than angle or solid angle, which is unconventional usage. Correct FOV	Many thanks for the clarification. We were provided a 'FOV Diagram' of the radiometer by the manufacturer which provided this in area rather than angle or solid angle (Up to 100mm distance, the diameter observed

usage is provided in Table 2 so it is recommended that the term “areal field-of-regard” or some equivalent terminology be substituted here.	decreases and then above 100mm distance it increases exponentially). To avoid confusion we’ve removed the reference to FOV here and just replaced it with the observed surface area (L. 363, revised Word document).
L359: Eqn. 7 – “Error! Bookmark not defined.”	As with the Figure caption issue, we can’t see this in the word document downloaded but it does appear in the PDF. We’ve rewritten this equation to hopefully get rid of this.
L379: Table 3 caption: SI usage is lower case (i.e., “kelvin”) when unit is spelled out in full.	Corrected throughout – many thanks for the observation.
LL511-512: “...non-physical emissivities of the grass sample...” Earlier it’s pointed out that this non-physicality is really just noise-induced (LL499-500). It’d be worth referring to the appropriate figure here.	Many thanks for raising this. Here we are considering alternative explanations for the non-physical emissivities, in case noise wasn’t the only cause. We’ve included figure reference for ease of the reader
Also, Fig. 9 (which should be Fig. 10) indicates a more systematic non-physical emissivity beyond 12.4 μm for the white tarp. This observation should also be noted and discussed.	Good point about Figure 10 – have included this observation in L. 588 (revised word document)
LL532-533: “...agreement between the laboratory and field measurements of the gravel sample from Duxford is poor...” The sample exhibits significant inhomogeneity (Fig. 7c), as also noted on LL609-610. Could this not be the most obvious reason for the lack of agreement? How do the fields-of-regard compare for the two measurement scenarios?	Excellent point - the diameter of the sample port for the laboratory spectrometer is 25 mm while the EM27 would observe an area with diameter 50mm since we had it around 0.8m from the sample. The total field-of-regard for the EM27 was therefore 4 times larger than that of the laboratory measurements. We did try to reduce the impact of this by making multiple measurements in the laboratory and moving the sample each time but it is likely that this did not correct for it given the size of the gravel pieces as shown in Figure 8c. We’ve added this interpretation into the revised version (LL. 568 – 572)
LL679-680: Table 6 caption refers to “Red and blue highlighting...,” but there is no highlighting in the table.	Corrected – thanks for noting
L682: Use “deployed” in place of “deploy.” Or maybe “described” would be better?	Changed to deployed (L. 678)
L704: Delete “the.”	Done
L730: “...with together...” should read “...which together...”	Corrected
LL771-772: The proper form of this reference source is: Eos, Transactions of the American Geophysical Union.	Corrected, and all reference details have been checked in Mendeley.

Once again, we thank you for the time you put in reviewing our paper and we look forward to meeting your expectations. If you have any further comments or feedback, please don’t hesitate to get in touch.

Yours sincerely,

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