

## Authors' Response to Reviews of

# Brief communication: The hidden labyrinth: Deep groundwater in Wright Valley, Antarctica

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*Cryosphere*

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RC: Reviewers' Comment, AR: Authors' Response

### 1. Editor

RC: *Please add a sentence at the end of your introduction (L64) stating the purpose of the paper or the science question to be investigated.*

AR: *We have added the following paragraph to the end of the introduction: The aforementioned studies in Wright Valley were limited in their spatial observations by the difficulty in carrying out investigations in a remote and protected area. This study provides the first integrative overview of subsurface brines in Wright Valley using non-destructive geophysical measurements. Our research goals were to map water distribution and hydrological connectivity in order to further our understanding of permafrost hydrogeology.*

RC: *L82: repetition of 'ground', try and rephrase*

AR: *Replaced one usage of 'ground'.*

RC: *L89: replace 'know' with 'acknowledge'*

AR: *Replaced*

RC: *Add a sentence at the end of the discussion indicating the wider significance of your results: the readership of The Cryosphere is wide, so please tell them why they should care about DV subsurface brines.*

AR: *We have added a new sentence to indicate the importance and relevancy of this work.*

AR: *The conclusion now reads (excluding citations): The formation of spatial extent of Wright Valley brines are relevant to Antarctic hydrological and geochemical processes, including those at subglacial and submarine interfaces, as well as hydrogeological processes on other icy planets. Furthermore, these brines may be a refuge for unique microbial life. Our spatial investigation of Wright Valley did not resolve the potential for valley-wide groundwater connectivity, but did confirm the presence of unfrozen brine saturated regions in the subsurface, and importantly, highlights regions that deserve further investigation.*