**Referee #1:**

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| Referee's comment | Author’s response |
| I thank the authors for addressing most of my comments. In the future, please provide a track-changes document for ease of comparison between the original and revised versions of the manuscript. The highlighted version was helpful but not as good as track-changes. | We followed ISMEJ’s submission instructions, which called for untracked but highlighted changes during the review process. |
| My primary comment on the original manuscript was not included in the Responses to Reviewers document, quote, "*However, all of the interpretations related to a shift in community composition ... after the rain event are derived from only four samples (two ~1-2 years before the rain, one 6 months after, and another ~1 year after that). ... the authors need to very clearly acknowledge this caveat and temper some of their interpretations within the limitations of the dataset.*" As far as I can tell, this comment was not addressed. This would simply require: | We apologize for this oversight. We interpreted this section of your response as a summary of your concerts for the original MS, which you broke down in more detail in the comments. Thus we only addressed the specific comments. We more directly address this comment in this revision (below). |
| 1) adding an acknowledgement of the fact that this is a relatively small number of samples (4) collected over a relatively large period of time (~3-4 years), including only 2 samples before and 2 samples after the rains | We added a disclaimer to the beginning of the Results (line 283-285) and Discussion sections (line 409-413). |
| 2) scaling back some of the interpretive language used to describe these trends (e.g., ln 280 "highly sensitive", ln 281 "drastic change", ln 350 "permanently altered", ln 351 "strikingly contrasts", ln 354 "permanent shift", ln 405 "devastating", ln 407 "extraordinary"). | The word choices in the indicated sections have been changed to “sensitive”, “change”, “altered”, “contrasts”, “shift”, “major adaptations”, and “noteworthy” (respectively). |
| Proving through meteorological data that this was a catastrophic set of rains was indeed useful, but that information still does not give any indication of how these communities might have varied naturally over the same period of time. For example, to really address the question of community response and resilience to disturbance, a comparison of temporal changes prior to and after the rain would have been needed (e.g., across monthly samples collected in the year leading up to the rains and again afterwards), and differences among samples before the rain would have to be shown to be much less significant than differences between pre-rain and post-rain samples. Again, I appreciate that collecting those samples probably would have been impossible in practice, and I now appreciate that there is more temporal resolution for post-rain samples, but this does not change the fact that interpretations from these data must be made in the context of the limited temporal resolution of the dataset, particularly for pre-rain samples. | We appreciate that the reviewer understands the practical limitations of this study, which was conducted in a remote and difficult to access area of the world. As mentioned above, we included additional disclaimers of these caveats in the Results and Discussion sections. |
| Ln 310-313: Although this is true of the specific groups mentioned, this is not true overall for the PCoA plot in Fig. S4B, which does not show a gradual shift in community composition over time. Please explain or at least acknowledge this. | We added additional description of the PCoA plot in lines 317-320, addressing the lack of distinct clustering. |
| Ln 332, 411: still says proteome(s), should say predicted protein(s) | This oversight has been fixed. |
| Ln 390, 423: still says rearrangement(s), should say turnover(s) or similar | This oversight has been fixed. |
| Fig. 1B and Fig. 4A still say 16S "rDNA" on the y-axis; either change to 16S rRNA gene amplicons or delete those parts, since an explanation of data used for abundance is already in the captions | Removed mention of rDNA in all labels in Fig. 2 (originally Fig. 1) and Fig. 4, as suggested. |
| Fig. 1D still says Taxonomic "rearrangement" across the top; please change to Taxonomic "turnover" to be consistent with the y-axis of that figure and other changes made throughout the manuscript | We believe that the comment applies to Fig. 4D. Label fixed to “taxonomic turnover”. |

**Referee #2:**

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| Referee's comment | Author’s response |
| Line 44. As I highlighted in my previous revision, you are not evaluating any catastrophic event. This is just a rainfall event, which could be considered as a "rare" event in the context of an hyper-arid ecosystem. | We are afraid we have to disagree with this statement. A large amount of rain is catastrophic for communities adapted to saturated salt conditions – as demonstrated in our MS – particularly when most of the community is composed of salt-in strategists. We discussed this throughout the MS, in lines 101-103, 120, and 422-426. We also added a more explicit mention of this in lines 120-121 to avoid confusion. |
| Line 46. This is not a disturbance either. Disturbance is often use with a negative connotation, and rainfall in a desert should not be considered as such. | As explained above, a rainfall can be detrimental to communities adapted to high salt conditions. Another word would be perturbation but it also has a negative connotation. We would like to keep “disturbance”. |
| Line 48. Change "to the rain" by "after a rainfall event" | Fixed as suggested. |
| line 62. To "environmental changes" | Fixed as suggested. |
| Line 74. For what ecosystems? gut microbiomes? | Changed to “gut communities” |
| Lines 83 and 88. Can be rainfall classified as a disaster in desert ecosystems? | Yes, when in a hyper-saline system. |
| Lines 91, 437. Again, catastrophic? You need a better term to describe this event. | We changed to disastrous; rain is extremely adverse for hyper-saline communities. |
| Line 411. Do you mean "of their genomes"? Shotgun sequencing provides information about the relative abundance of functional gene (e.g., encoding proteins), not about the abundance of proteins per se. | Changed to “predicted proteins” (also requested by other referee). |
| Lines 421-422. If rainfall was the main driver of such a change in taxonomic and functional community composition, then, these changes are likely to be driven by deterministic rather than by random processes. Clarify. | We added clarification that the individual taxa (contig level) composition changes resulted from neutral processes from the re-colonization of the halites rather than adaptations to the rain (line 442). |
| Lines 431-436. This is great! | We really appreciate the positive feedback. |