Interactive comment on "Half-hourly changes in intertidal temperature at nine wave-exposed locations along the Atlantic Canadian coast: a 5.5-year study" *by* Ricardo A. Scrosati et al.

Anonymous Referee #2

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Summary: This manuscript presents a 5-year record of field observations for temperature across various rocky intertidal zones along the Atlantic Canadian coast. The purpose of the dataset is to address data and knowledge gaps in temperature fluctuations in intertidal regions that are influenced by seasonal factors, daily tidal oscillations, as well as large and small scale atmospheric processes. In this way, the dataset can be used to help advance our understanding of the processes affecting the ecology rocky intertidal zones, and how these processes are influence by broader climate change.

Overall Comments: The manuscript describing this dataset is very well written. The authors do a very nice job of explaining why the data are important and relevant and

how the field data were collected. I also believe the authors do a good job of interpreting their dataset to the audience. In particular, I like that the data are presented in terms of temperature variability across a range of spatial and temporal scales. For instance, for the temporal dimension, the authors use the data to show the general variation in temperature due to seasonal Earth-Sun relationships (i.e. peak temps occurring slightly after the summer solstice), and the hourly variations arising from the push and pull of the tides. Spatial variability is also highlighted by the data with regional variations due to upwelling and the small-scale effects of local weather. Furthermore, the authors use the data to highlight the broader effects of global atmospheric circulation processes (i.e. ENSO; NAO) on rocky intertidal zone temps. This adds broader impacts of the dataset in that it can help move forward modeling studies to address, for instance, the effects of climate change on these ecosystems.

I do not know of any other dataset quite like this one, so I do believe it is new. However, the methods are not necessarily novel. But, that is OK I think. The quality of the dataset are good and the links are accessible. The authors use replicate loggers and run statistics across the datasets with high correlation between sites over the study period. Figures and table look good and are appropriate.

Rating: Uniqueness: 1 – Again, I do not know of any other dataset like this one, and I do believe that it "provides data on a variable that is supposed to reflect changes in the Earth system". Usefulness: 1 – I believe that this data could be used alone to compare to future trends to assess changes in the Earth system, and can also be combined with other datasets (such as those from a coastal zone observatory) to develop numerical models to predict such changes and assess the forcing mechanisms behind that change. Completeness: 1 – data are complete and do not appear to be split across multiple manuscripts.

Minor (technical) considerations: L48-49: The wording in this sentence is a bit awkward. Consider rephrasing? L97: "which is the data set on which this paper is based" → I'm not sure you need to say this here? Maybe delete this statement for better flow?

L117 – 121: consider adding numbers to the two exceptions. It was a little hard to dig these out of the text and I think adding a number between each will help pull it out and make it clearer for the reader. For instance, "...with just two exceptions: 1) the period between 20 March and 12 April 2017 for L1 because of logger removal by drift sea ice coming from the Gulf of S. Lawrence, and 2) the period between 30 September...."