Point-by-Point Response to Reviewer 1

We thank Reviewer 1 for the valuable feedback on the manuscript. The comments are reproduced below in blue Arial fonts, with our responses and indications of how we have revised the manuscript indicated in black.

The manuscript presents numerical simulations of seismic and tsunami signals at the planned Tamtam SMART cable. The study considers recent large regional earthquakes and UNESCO-IOC maximum scenarios, and extracts synthetic waveforms at the proposed cable sensor locations. Overall, the manuscript is a useful scenario-based study for a planned observing system.

The numerical schemes are generally well justified and clearly presented. The use of finite fault slip models, NEOWAVE-based tsunami modeling, and synthetic seismic wave modeling is appropriate for the purpose. However, these numerical approaches are already well established and widely used in tsunami and seismic-wave studies. Therefore, the manuscript could be made more concise in the methodological description and in the presentation of the numerical results.

The paper caters to a diverse group of readers with backgrounds in seismology, tsunami science, hazard mitigation, and submarine cable communication. A summary of the methodologies is thus necessary. We do recognize the reviewer's point and have shortened and combined Sections 2.2 and 2.3 into one entitled "Tsunami and seismic wave modeling".

Since the cable is not yet installed, direct validation against SMART-cable observations is not possible at this stage. This is understandable, but the limitation should be stated more explicitly. The authors should also discuss how the modeled signals could be validated after deployment, using future cable pressure and seismic records, as well as comparisons with tide gauges, DART stations, and regional seismic observations. This would help clarify how the present synthetic results may be tested and refined in the future.

The synthetic tsunami and seismic waveforms are meant to provide a range of large events that the proposed SMART sensors might record signals for. Both the historical and maximum events are unlikely to occur in the same form in the future. We do see the importance of validation as with any new approach and added a statement in Section 4.2 for future evaluation of SMART sensor records with DART and seismic observations through the modeling approach outlined in Section 2.

The title refers to "information system design and data integration," but these aspects need to be discussed more specifically. For example, the manuscript could discuss expected data specifications, including sampling rate, data volume, bandwidth, transfer latency, buffering, and real-time processing requirements. These are important for hazard mitigation because the practical value of the observations depends not only on detecting seismic or tsunami signals, but also on transferring and processing them fast enough for warning decisions.

The data specification is currently unavailable. We have modified the title to better reflect the materials presented in the paper.

The data-integration discussion would also benefit from more detail. At present, it appears to describe mainly future data distribution. The authors should explain more clearly how SMART-

cable observations will be combined with tide-gauge, DART, seismic-network, and other observational data streams. For example, it would be useful to describe how cable seismic records may contribute to rapid source characterization, and how pressure records may contribute to tsunami confirmation, forecast, or warning timing.

We have addressed implementation of SMART-cable observations to provide early warning of local events and in existing networks to improve resolution of source characterization and tsunami forecast in Section 4.2.