Thank you for your very constructive and detailed comments and suggestions related to our manuscript 'Landslide inventory in a data sparse region: spatial and temporal characteristics of landslides in Papua New Guinea'. We have taken on-board all your comments and have outlined below how we are addressing the issues raised. This initial response addresses the general comments (more detailed responses to in-text comments are provided in the attachment).

(1) The reviewer indicates 'It's not clear the completeness of the inventory'. The entries obtained to produce this first, preliminary version of the country-wide, landslide database were collected from a range of sources (detailed in the manuscript) based on 2 years of information collation, review and sifting. In addition, we travelled to PNG and spent over a month at the Mineral Resources Administration (MRA) offices in Port Moresby reviewing and identifying data sources from their archive/library. There remains no systematic or routine approach to landslide event collection in PNG, and therefore basic information related to the timing and location of landslide events is frequently unavailable. The aim of this research is to (1) document the basic requirements for landslide event recording, identify the issues associated with this collection and provide evidence for why landslide recording is so important ; (2) how currently, freely available data sources can be used to provide useful insights into landslide occurrence and (3) identify techniques and approaches which can support and improve landslide event recording for the future.

To address your concerns we have made to following amendments:

- provided additional information on the current landslide recording practices in PNG to provide context for this analysis in Section 1: Introduction (*pg. 4873|ln. 16*).
- included the information outlined above to illustrate the sources used in the construction of the inventory, the time frames over which information was collected and the additional information related to in-country data collection (*pg. 4877|ln. 5*).
- where possible we have provided an indication of the numbers of useful (there were a lot more sources reviewed which did not meet the filtering criteria (date/time and location information) for entry into the database) sources of information identified from the sift of information and the search criteria used for media web searching (*pg. 4877|ln. 23*);
- We have also modified the structure of 'Section 2: Materials and methods' to improve the clarity of how the landslide database was developed, as follows:
  - 2.1 Regional landslide inventory construction: constraints and data sources
  - 2.2 Database compilation and complexities
  - 2.3 Reducing spatial and temporal uncertainty in the landslide inventory
  - 2.4 Rainfall data
- The author has also completed research (not published to date) on the use of satellite data to map landslides in specific (small domain) regions of PNG. This was not included in this manuscript as it forms part of a larger piece of work to look at the control factors related to landslide susceptibility in different areas of the country. We also wanted this paper to focus on the results of this specific database as the constraints put in place (date/location requirements) are essential for correlation with potential triggering events. However, we hope to further address the reviewers concerns by comparing the database outlined in this manuscript (derived from various media) with the findings from the satellite-derived database (lower temporal resolution and generated only for selected small domain areas of

PNG). To accomplish this a subsection will be added to '3.1 Landslide inventory statistics' entitled 'completeness of the inventory'.

(2) The reviewer has expressed concern regarding the analysis of 'one major landslide and entries related to more than 1000 failures' identifying that these are 'completely different and should be analyzed in a different way'. We agree and recognise that the slope-scale dynamic processes that lead to landslides will be different in cases where landslides are triggered by tropical cyclones or monsoon rainfall or flooding or convection driven by meridional troughs. It is not within the scope of this manuscript to assess the slope-scale dynamics which led to failure in each of these instances and this is one reason why the analysis conducted in this manuscript focuses on assessing the occurrence of landslide-triggering events in the context of climatological rainfall patterns. We would also like to assure the reviewer, that all landslide-triggering events associated with more than 1000 failures were linked to earthquake events and are therefore not considered in the further analysis and results described in section 3.

To address your concerns we have made to following amendments:

- The 'landslide cluster group size' referred to in the manuscript (*p4878|ln. 27*) is a subjectively determined categorisation of the data based on our knowledge of the recording practices and landsliding across PNG. Actual information related to the number of landslide deposits associated with a single triggering event (eg. Tropical Cyclone) is very rarely recorded and therefore these cluster groups size classes have been used to provide some guide as to the uncertainty in the 'true' number of landslides being recorded. We have re-worded this section (*pg. 4878|ln. 26 onwards*) to clarify this.

- We acknowledge that the uncertainty around the landslide cluster group size' (i.e. the actual number of landslides which occurred opposed to the recorded number of landslides) could alter the spatial distribution patterns and we propose to re-produce figure 9 to show landslide density based on a combination of points and polygon data.

- The analysis results are looking to describe the temporal and spatial distribution of landslide-triggering events (i.e. the floods, tropical cyclones, heavy rainfall etc.) which lead to landslides rather than assess the dynamic processes involved with individual events. This has been clarified throughout the manuscript with amendments made to Section 1 and Section 3.

(3) With regard to the different magnitude and impacts associated with different landslide-triggering events, we have provided information to explain the variability associated with the different entries in the database (*pg. 4881|ln. 14*). We are also producing an additional figure that illustrates the area affected (size) variability across the different landslide-triggering event entries where this information is available and robust.

(4) Regarding the numbers of points which are added to the database for multiple events we have clarified this by adding information to 'Section 2'. The modifications to the structure of Section 2 should also help to make this clearer and explain more fully the database structure and compilation procedure.