

## ***Interactive comment on “Brief communication “The magnitude 7.2 Bohol earthquake, Philippines”” by A. M. F. Lagmay and R. Eco***

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Comments:

1) The organization of the paper appears unusual, first the data (seismological and field data), then the previous earthquakes and, last, the geodynamic setting. Is it possible to change and to anticipate geodynamic setting and past earthquakes? For me it is more logical.

reply: Changed the format as suggested and added these in the Introduction:

Here we describe the tectonic setting of the Philippines, the known active faults in the Central Philippines region and past earthquakes that have affected Bohol. We then

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make an initial interpretation of the source mechanisms of the earthquake and propose a name for the newly-mapped fault responsible for devastating the island of Bohol. This document serves as a quick reference for the M<sub>w</sub> 7.2 event, and the possible consequent hazards that may have been generated. These include destabilized hillside slopes, landslide-dammed rivers, and incipient sinkholes, which need to be identified and addressed before heavy rains come in the remaining months of the year.

2) Introduction: the authors are using only the USGS data for magnitude and location (page 2104, lines 15-20), but there are also local data, from the Philippine Institute of Volcanology and Seismology, data cited later in the text. Why do not you add also those data here?

reply: The first and second sentences are from Phivolcs data. We added another reference in the first sentence for a more specific source. The sources from USGS are indicated in the paragraph because they were the first to release on twitter and on the web, the report on the Bohol earthquake's magnitude and location.

3) Tectonic framework of the Philippines: interesting paragraph, but without any relation with the described earthquake; please, add some sentences to explain how the studied earthquake is set in the geodynamic framework

reply: We have changed this accordingly to describe the geodynamic framework of the NE-SW trending fault in Bohol Island and nearby areas.

4) Conclusion: I suggest to strength it, avoiding the atomic bombs, and suggesting a mapping project of capable faults and a study of the recurrence time related to the strongest earthquakes. Some sentences are useless, as lines 1-3 (page 2109) and lines 4-8.

reply: a section on follow up work was added - "Follow on work is necessary to adequately describe the M<sub>w</sub> 7.2 earthquake and understand the recurrence interval of movement of the fault which generated the strongest earthquakes in Bohol in 2013.

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This article is initial documentation, prepared and submitted two weeks after the October 2013 Bohol temblor. Currently, numerous research activities are underway from local and foreign scientists working with the National Institute of Geological Sciences, University of the Philippines and Phivolcs. Research work, both planned and ongoing include the following: 1) Pre- and post-earthquake event field analysis aided by high-resolution LiDAR and IfSAR digital terrain models; 2) paleoseismic trenching study of the Inabanga Fault; 3) microtectonic analysis of the exposed fault in Inabanga, Bohol; 4) seismic reflection survey of the Inabanga Fault, and 5) analysis of capable faults in Bohol and nearby islands. "

Dropped the atomic bomb and scrapped useless sentences, as suggested.

Added more sentences to beef up the discussion and conclusions section.

5) Figure 1: not so clear, most elements described in the caption are not visible, as the largest circle of M 7.2, and the lineaments. In addition, please, locate fig. 1a in the 1b. Finally, 1b should be located in fig. 5

reply: Revisions were made as suggested. Figure 1B, however, was maintained in its position as we think it is best placed there.

6) Figure 5: please improve the readability of this figure. Too many information and letters

reply: We will improve readability of the figure.

Answers to Specific comments:

1) page 2104, line 2: 12 km reply: changed

2) line 6: US\$ 52.06 reply: added the dollar sign

3) line 21: PEIS, please, add a reference reply: Added the reference for PEIS

4) page 2105, line 7, please use a rough estimation, as 2.257 million Philippines Pesos

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reply: Changed to 2.257 million Philippine Pesos instead of 2,257,337.182

5) line 17: can you add also any field data to support the fault kinematics reply: We reserved this data for a future document as the geologists who measured many of the fault kinematic data wishes not to include them in this report.

6) lines 18-21: repeated, please rephrase reply: Rephrased. Removed this part "based on their focal mechanism solutions".

7) line 25: earthquake, . . . reply: Comma added.

8) page 2106, lines 4-5: . . . there were recorded several aftershocks reply: edited to "there were several recorded aftershocks". Thank you.

9) line 6 and following: please, change wall with "scarp" (also in the caption of fig. 4, p. 2114) reply: Changed wall to scarp

10) lines 3-9: there are no witnesses or observers that can describe when the scarp has been formed? reply: added "Eyewitnesses recount heaving of the ground and development of the scarp right before them sometime between 8:00-8:30 am. Some noted the upheaval of the gently sloping grounds at the foot of hilly terrain generating a vertical wall over the span of a minute."

11) Lines 13-14. This sentence is a repetition of lines 10-11 of page 2105, but with different data and numbers. Please, uniform and avoid the repetition reply: This has been corrected

12) Lines 19-20, lineaments found reply: The word "structure" has been dropped

13) Lines 23-24: matter is normally . . . reply: Change to "matter is normally . . ." 14)

Line 25: ... is located where . . . reply: Changed accordingly. Thank you.

15) Line 26: the fault, as the Inabanga Fault reply: Added the word "as"

16) Lines 27-29: can you add the geographic coordinate of the archetypal fault loca-

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tion? reply: Yes, we added the coordinates of the Inabanga Fault. It is now a tourist destination.

17) Page 2107, line 1: M 6.8 reply: Added a space before 6.8

18) Lines 1-2: please locate them in fig. 1 reply: Located it in fig. 1

19) Page 2108, line 18: mapped or unmapped? reply: mapped. We can mention though that the fault responsible for the 2013 Bohol earthquake was unmapped to make it clear. Added in the paragraph "The most recent fatal temblor originated from a previously unmapped fault which devastated the island of Bohol."

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