Dear editors,
We thank the referees for the detailed comments. We have addressed the referees' recommendations and made a number of changes to the paper. This has certainly strengthened the presentation of the results in the manuscript. Please find here the new version of the manuscript, and below our replies to the referees' comments.

Referee: 1

Comments

1 p1. 24 (abstract) Preliminary low latency hypocenter and magnitude information...
- This is now fixed.

2 p2. 9 such as time, location...
- This is now fixed.

3 p2. 13, 14 and 16: section (n. is missing)
- This is now fixed.

4 (number sections) 1. ALGORITHM and so on.
- This is now fixed.

5 p2. 52 which occurred during the last Ligo (?) science run (when)...
- This information has been added.

6 p2. 49 (Right column) earliest... : I advise to anticipate here which is the typical delay of this low latency channel
- We added: "The earliest solutions provide event source parameters, including both location and magnitude estimates, within 5 to 20 minutes depending on its magnitude and location."

7 p2. 51 (R column) later times... : and which is this typical delay?
- We have added: "At later times, moment tensor solutions and finite fault models are calculated from the array data, usually arriving many hours after the initial notice."

8 p2. 58 (R column) In particular... on the information. This sentence seems a bit too technical and might possibly be removed.
- We think this detail is important for those who ask what information we receive.

9 p3. 41 Based on cuts you apply on EQ magnitude and the notification delay might you add here (or wherever more appropriate) a consideration about consequent "blind" zones ?
- To the notification latency section, we added: "For example, for the LIGO Hanford detectors, there have been cases of earthquakes near Northern California or the southern tip of Alaska that were not caught in time."

10 p3. 57: P- and S-wave ... move to a new line.
- This is now fixed.

11 p3. 5 (R) assuming a constant wave velocity seems in contraddiction with using it as free parameter in eq (1).
- We have added the line: "One might note here that in the case of the time-of-arrival predictions we assume a constant velocity, and in the amplitude predictions we allow the value to vary. We have found this important for accounting for site

specific effects as to the response to earthquakes, whereas in the time-of-arrival case, we desire an approximate time by which any changes must be made."

12 p3. 5 (R) What about S and P waves? or shell it be deduced that you are only interested in predicting Surface waves? If so, can you comment about it?

- We have added the line: "Because we have found no instances of P-wave arrivals causing the detector to lose lock, and very rare cases of the S-wave arrivals doing so, we have found it sufficient to concentrate on surface waves."

13 p3. 11-14 We chose .... in question. I would suggest removing since it does not add information.

- This has been removed.

14 p3. 41 (R) ... and r is distance (SI units).

- This has been added.

15 p3. 56 (R) These are summarized... -> Best fit parameters values are summarized .... (or equivalent)

- This has been added.

16 p3. 57 (R) Table I: Surface wave speeds (c) seems to deviate significantly from you assumption (3.5km/s) and particularly for GEO. Can you comment on this?

- We have added: "There is significant scatter in the parameter values across the detectors. In particular, the surface wave speed parameter varies about an order of magnitude between GEO and the other detectors. This is due to the significant degeneracy between parameters in the adopted model and the fact that many parameter combinations give similar results. It is possible that in the future, an equation with fewer degenerate parameters could be found to alleviate this issue."

17 p3. 59 (R) Figure 3: it helps if you could mark the factor 5 deviation areas

- This has been added.

18 p4. 40 We will validate these fits .... in the next section. I suggest moving here lines 30-41 of page4 and figure 6-right
so to conclude about amplitude prediction, or instead (maybe better?) moving this figure 3 to next section. However, my comment is that the present layout sounds a bit too scattered to follow.

- We moved Figure 3 and surrounding text to the next section.

19 p4. 46 Figure 4 .... till the end of sec. This Figure 4 seems not to add relevant information, I would suggest removing.

- To motivate this figure, we added: Gravitational-wave detector operators have found that $1\,\mu$m/s is the approximate threshold that detectors can continue to take data during, and so it is useful to have a quick visual as to expected ground velocities for any given earthquake.

20 p5. 4 Here describe which data are you using (move it here from previouse sec). Also tell if you apply a selection cut on EQ magnitude, ...or else?

- This is now added.

21 p5. 14 typo: figure5 -> figure 5

- This is now fixed.

22 p5. 14 we show the time delay cumulative density functions...

- This is now fixed.

23 p5. 37 ...are within a factor 5 of the predicted value.
- This is now fixed.

24 p5. 47 In figure 6, we show the difference of arrival times and predicted ... I do not see this in Figure 6, it is just about peak velocities.
- This is now fixed.

25 Indeed, it seems missing an evaluation of the accuracy of the arrival time prediction, which I think crucial for the paper.
- We have added Figure 5 and surrounding text to address this point.

26 p5. 7 (R) (and which...): remove ()?
- This is now fixed.

27 p5. 14 (R) We then compare these two figures of merit.: Not clear which are the two.
- This is an unnecessary line and was removed.

28 p5. 26 (R) (and the ground velocities they create): I would move at th end of the sentence and remove ().
- This is now fixed.

29 p5. 47 (R) receiver operator characteristic (ROC)
- This is now fixed.

30 p6. Fig5 legend: A majority of the earthquake locations ...
- This is now fixed.

31 p6. Fig6 x-axis: explain the quantity is on x-axis
- We have added: The x-axis gives the maximum of the ratio between the estimated and measured peak ground velocities and vice versa.

32 p6. 57 Does 0.5 mean 50% of fakes? I wander if this is a possible issue, in the sense that I understood that for each of these fake events you switch the detector to a "more noisy" configuration. Could you comment on this? Or any idea to improve it?
- We have added: While there is potential frustration of using a detector configuration that is, by design, more noisy, during false positive events, as the switch between detector configuration states is orders of magnitude faster than lock acquisition for gravitational-wave detectors, it is worth the trade-off. This is of course not to say that potential improvements are not important, and we have begun to explore potential direction dependent effects to improve the statistics.

33 p7. Figure 8. It might improve readibility if you remove blue ones (not locked), these seems not really needed in the contest...
- We think it is important to have the non-lock time events to see what is characteristic in terms of ground velocities and distances for both detectors (we are limited to some degree by statistics).

34 p7. Figure 9. I guess these refer to LHO and LLO? a label is missing.
- This is now fixed.

Referee: 2

The article is simply not ready for submission. This is obvious from many minor issues like missing section numbers on page two, line 13-16 to missing labels on axis in Figure 3, 4, 5, 6, 7,8, 9.

- We apologize for the oversight of not including section labels. This was due to a last minute change of the latex template on my part. Under my PDF reader, all labels on axes are present. Perhaps we can work with the editors to ensure you are provided a copy with a PDF that renders correctly on your computer.

Other issues: What is r in equation (1). Where is mu in equation 1. As is, I have no idea what to make of all these plots and claims. That needs to be fixed first before a serious review can happen.

- We have noted the meaning of r in equation 1. Assuming mu refers to the site sheer modulus, this is degenerate with the fit parameters. If it refers to the sheer modulus of the earthquake region, it is accounted for in the earthquake magnitude.

Thank you,
Michael Coughlin for the authors