

REVISIONS RECORD A

Apparent Triggering of Large Earthquakes in Los Angeles and San Francisco Regions Related to Time Derivatives of Ellipsoidal Demand, Kinematically Derived: Qualitative Interpretations for 1890–2014.1

Draft 1.0 posted on 12 October 2014

Draft 2.0 posted on 23 November 2014

Draft 1.0 to Draft 2.0 changes:

1. Abstract added at the beginning, numbered it section [1], and incremented all section numbers and referenced section numbers. Section numbers listed below (herein) are the newly incremented numbers.
2. Section 2 - In sentence two, after 'of' insert 'the' for clarity.
3. Section 3 - In sentence five, before 'georadial adjustment' insert 'an amount of' for clarity and replace 'involves' with 'includes' for clarity. In the last sentence, after 'appears' insert 'to have been' for better grammar.
4. Section 4 - In sentence one, replace 'impetus' with 'stimulus' for specificity.
5. Section 6 - In sentence 1, after 'jerk' remove comma for proper use of punctuation.
6. Section 7 - Replaced Figure 1 with a revision corrected to remove the '-' before '118.24 W'.
7. Section 8 - In sentence one, after 'history of' insert 'the' for clarity. In sentence seven, replace 'location' with 'city' for specificity.
8. Section 10 - In sentence four, replace 'gap' with 'gaps' to match number. In sentence five, after 'reduced' insert a comma and replace 'have' with 'produce' and after 'less' delete 'effective' for precision and clarity.
9. Section 11 - In the last sentence, after 'triggering' insert ', such as' and delete the em dash for better flow.
10. Section 12 - In sentence one, after 'a' delete 'very' and after 'Big Bear quake,' delete 'about' and after 'afterward' insert 'at 15.092 UTC' for concision and completeness. In sentence two, after the first 'Big Bear quake' insert ', only 36 km distant from the Landers,' for detail and after 'event,' replace 'as the' with 'because' for better word usage and after 'Big Bear' delete 'quake' for concision. In the last sentence, delete ', possibly also by time-derivative aspects of motion,' and delete 'M7.3' for concision, as it is already mentioned in the paragraph.
11. Section 13 - In sentence two, after 'the case' replace the remainder with 'for full moons and new moons. Quite precise alignments occur, which produce even larger tidal displacements, during lunar and solar eclipses.' and then insert 'Solar eclipses produce maximum earth tides on the side of Earth facing the Moon and Sun.' for specificity and clarity. In (new) sentence four, replace 'When' with 'Whenever' to emphasize inclusiveness and after the second 'alignment' insert 'vector' for clarity.
12. Section 14 - In sentence one, replace the first part of sentence up through 'because' with 'During several days before June 28, 1992, many repeated, earth-tide bulge/depression cycles were quite pronounced and may have acted together strongly to help trigger the Landers quake,' for clarity. Sentence one, under point (1), after 'at' insert 'their' for clarity and under point (2) replace 'alignment' with 'configuration' for clarity and after 'Moon' insert 'preceding occultation of the Sun by' and delete the same later in the sentence. Under point (3) delete 'just' and replace 'preceded' with 'followed' for accuracy. After '(crustal compression)' insert 'by only 45 minutes' and

remove the remaining up to the comma for brevity. In sentence two, replace 'extremely' with 'quite' for composure. Last sentence, replace everything before '—thereby' with 'Also, the rotation of Earth produced repeated, large amplitude tidal pulses leading up to the quake, which generated prominent, periodic flexing of the crust with alternating pulses of time-derivative aspects (e.g. jounce, jerk) of earth tides' for clarity.

13. Section 15 - In sentence three, capitalize 'Fault' and after the next 'and' insert 'any' and after the next 'eventually' add ', again,' and remove the parenthetical and replace 'contributions' with 'impetus' for specificity. Add ', than it would without an added component of positive dilatation.' at the end of the sentence. In the last sentence, after 'Of course,' insert 'the idea of' for better flow.

14. Section 16 - In sentence one, replace 'on' with 'in' in two places to match more common usage. After '(Zbikowski, 2012)' add a period and replace the em dash with 'For example of scale,' for better flow.

15. Section 17 - In sentence two, replace 'little' with 'a short' for precision.

16. Section 19 - In sentence one, replace 'surmise' with 'guess' and 'might be' with 'are' for precision and clarity. In sentence three, after 'question' replace the comma with ':' for proper punctuation. In sentence six, after 'globally to' and before 'local jerk' replace with 'sufficiently affect polar drift and subsequently produce' and after 'impetus' replace 'may help' with 'would' for clarity and brevity. In sentence seven, after 'case,' delete 'the' and replace 'matching in time' with 'temporal matching' and 'small' with 'short' and after 'provides' replace 'suggestive evidence' with 'evidence that is suggestive' for flow and precision.

17. Section 20 - In sentence four, replace 'involving' with 'including' and replace 'series and parallel coupling jolts.' with 'jolts that are coupled in series or in parallel, or both.' for precision and clarity. Replaced Figure 2 with a revision that deleted the '-' before '118.24 W' and added more minor horizontal grid lines.

18. Section 21 - In sentence one, replace entire sentence with, 'Figure 2 shows calculated jerk (blue trace) that is intrinsic within the speed and acceleration of ellipsoidal demand for the LA region since 1890, which were plotted in Figure 1. The projected jerk was derived from the projected acceleration in Figure 1.'

19. Section 22 - In sentence one, after 'traces and' insert 'the' for flow. In sentence five, after 'extrema,' delete 'being' for flow. Replaced Figure 3 with a revision that deleted the '-' before '118.24 W' and added more minor horizontal grid lines.

20. Section 23 - In sentence one, replace entire sentence with, 'Figure 3 shows calculated jounce (solid trace) that is intrinsic within the jerk of ellipsoidal demand for the LA region since 1890, which was plotted in Figure 2. The projected jounce (dashed) was derived from the projected jerk in Figure 2.' In sentence four, replace 'extremely' with 'quite' for composure.

21. Section 24 - In sentence one, after 'trace and' insert 'the' for flow. In sentence five, after 'both' replace ';' with a comma for correct punctuation.

22. Section 25 - In sentence two, replace 'allowed to be' with 'clearly' for accuracy. In sentence five, replace 'a' before cycle with 'an average' for accuracy. Sentence seven and on was removed and added as a new section [26] and completely revised and enlarged.

23. Section 26 - Removed from Section [25], revised, enlarged, and added a note. All following section numbers and section references were incremented.

24. Section 27 - In sentence two, replace 'due to' with 'because of' for clarity. Replaced Figure 4 with a revision that deleted the '-' before '122.42 W'.

25. Section 28 - In sentence one, after 'history of' insert 'the' for clarity. In sentence three, replace 'location' with 'city' for specificity.
26. Section 29 - In sentence three, before 'proximity of' insert 'temporal' and after replace 'quakes of $M \geq 6.0$ ' with 'occurrences of $M \geq 6.0$ quakes' for precision. After sentence four, insert 'Because ellipsoidal demand imparts vertical components of time-derivative aspects of crustal motion, the energetic impetus for triggering is dilatational. In the SF region, where the general tectonics has a relatively larger component of strike-slip (lateral shear stress/strain) than near LA, it is speculated that quake triggering may be less controlled by such vertical components of added stress impetus.' for added explanation.
27. Section 30 - In sentence two, after 'proximity' insert 'in time' for clarity.
28. Section 32 - In sentence two, replace 'A reason' with 'Rationale' and 'is' with 'are' for accuracy and number match.
29. Section 35 - In sentence one, replace 'on' with 'in' and replace 'it' with 'the expanse' for convention and clarity. In sentence three, replace 'By global symmetry, similar' with 'Considering the global symmetry of Earth, equivalent' for clarity. In sentence four, replace 'Additionally' with 'Similarly' for continuity. After the last sentence, add 'This relationship is made apparent by comparing a graph that shows the minimum strain energy drop in global great quakes ($M \geq 7.75$) as a function of year for 1904–1976 (Kanamori, 1977) to a graph of the speed of polar drift that covers the same period (Zbikowski, 2012).' for explanation.
30. Section 37 - In sentence one, item (2), replace 'aspects from' with 'components, generated by time-derivative aspects of' for precision. In the last sentence, replace '*strength of*' with '*the magnitudes of terms within*' for precision and '*appears*' to '*appear*' for number match.
31. Section 38 - In sentence three, after 'should' replace 'occur at' with 'accompany' for clarity and replace 'jounce and jerk' with 'jerk and jounce' for consistency and after 'which' change 'occurs . . . *after*' to 'occur *just before* and *just after*' to match number and detail common order.
32. Section 39 - In the last sentence, replace 'risk' with 'hazard' for accuracy.
33. Section 40 - In sentence three, replace 'orientations' with 'configurations' in two places to match more common usage. Table 3 was revised and updated with recently acquired data.
34. Section 41 - This complete section was rewritten to reflect the updating of Table 3.
35. Section 42 - In sentence three, after the first em dash insert 'such' for flow. In the last sentence, replace 'the easier it is to forecast' with 'the more clearly it can be anticipated and its potential forecast' for accuracy and clarity.
36. Section 44 - In sentence three, after '*components of*' replace the remaining with '*energetic impetus are usually necessary for its triggering.*' for clarity.
37. Section 45 - In sentence four, before 'Sun' insert 'the' for grammar.
38. In Section 50 - In the last sentence, replace 'consideration' with 'allowance' for clarity and after 'regime' insert '—an allowance presuming an influence and its mechanism that were both speculated in section [29].' for explanation.
39. Section 51 - In sentence two, after 'considerable' insert 'model' for specificity and replace 'current' with 'up-to-date' for accuracy and add to the very end of sentence ', during the past century through the next decade.' for completeness. In sentence three, after 'with' insert 'primarily' for accuracy.

40. Section 53 - Replace the Helman contributions with 'for seismic and volcanic research, general comments, and originating the *Mars Conjecture* described in section [25]' and after 'Amelia advising;' added 'Yang Fei, M.S. candidate at UC Berkeley, for statistical coding and graphing;' for updates.

41. Appendix A - Added Appendix A with graphs of the lunisolar, earth-tidal aspects for the Landers and Big Bear quakes.

42. Appendix B - Added Appendix B with graphs of jerk and jounce history for the San Francisco region.

22 Nov 2014 rev. / DWZ