

# What is the global outlook for great earthquakes and large volcanic eruptions in the next decade?

## *Revisions Record*

Draft 1.0 posted on/before 02 October 2016

Draft 2.0 posted on/before 13 November 2016

*Draft 1.0 to Draft 2.0 changes:*

1. In section 2 – Replace ‘*Polar drift*’ with ‘This *polar drift*’ for clarity and flow. In sentence 3, replace ‘is’ with ‘appears to be’ for accuracy.
2. In section 3 – Italicize sentence 1 for emphasis. After sentence 1, insert, “Evidence of this causal relationship is presented below in section [4] by comparing the speed of polar drift to the estimated global seismic energy over a period of 72 years.” for logical flow. Replace sentence 5 with, ‘The calculated amount of theoretical, georadial adjustment of the crust per year is termed *ellipsoidal demand*, which varies geometrically across the globe with respect to the direction of polar drift.’ for completeness and flow. In sentence 7, replace ‘This complex system of crustal forcing’ with ‘A model for this complex system of mechanical forcing of the crust’ for accuracy and flow. Delete last sentence.
3. Section 5 – Entirely rewritten for completeness, clarity, and flow.
4. In section 7 – In sentence 1, replace ‘Figures 1 and 2’ with ‘Figure 2 with Figure 1’ for logical flow.
5. In section 8 – Sentence 2 is rearranged and modified for better flow. At the end of sentence 5, add ‘(i.e. near 2025?)’ for clarity. In the last sentence, replace ‘the five’ with ‘sixteen’ for updated accuracy and ‘unnamed’ with ‘unlocated’ for specificity.
6. In section 9 – In sentence 1, before ‘direction’ insert ‘recent’ for clarity. In sentence 3, replace ‘still’ with ‘quite’. In sentence 8, replace ‘of’ with ‘that we project for’ for clarity. In sentence 7, replace ‘14.5°’ with ‘14.4°’ for accuracy. In sentence 9, before ‘we’ insert ‘Earth is now experiencing and’ for completeness. After the last sentence add, “Additional support for an eruption of Mt. Vesuvius is that its last eruption (VEI 2) occurred on March 27, 1944, when the direction of polar drift was along the MGC that included the 14° E meridian (194° E in Fig.3).” for completeness.
7. Section 12 – Rewritten for clarity and comprehensiveness.
8. In section 14 – In sentence 2, delete ‘the’ for concision.

Draft 3.0 posted on/before 10 January 2017

*Draft 2.0 to Draft 3.0 changes:*

1. Title – Change to ‘What is the global outlook for great earthquakes and volcanic eruptions in the next decade?’ for completeness.
2. In section 1 – Replace sentence 2 with two sentences for accuracy and clarity.
3. In section 2 – In sentence 2, replace ‘This *polar drift* varies’ with ‘Such *polar drift* is observed to vary’ for accuracy. Last sentence is replaced with two sentences for evidential support and clarity.
4. In section 3 – In sentence 4, after ‘forces’ rewrite remainder for accuracy and clarity. In sentence 5, after ‘respect to’ insert ‘both’ and after ‘polar drift’ insert ‘and the ellipsoidal figure’ for completeness.

5. In section 5 – After sentence 1, insert, ‘Speed of polar drift is calculated using mean-pole data that has been filtered to remove the Chandler and annual wobble terms. Acceleration is calculated as the first time derivative of speed and then LOESS smoothed as indicated in legend.’ for context. In (old) sentence 3, replace ‘results’ with ‘may result’ for accuracy. In (old) sentence 6, after ‘temporal cluster of’ insert ‘six’ for specificity. In (old) sentence 11, after ‘Fig. 1 support a’ insert ‘hypothesis that includes’ for accuracy. In (old) sentence 12, after ‘probabilities of’ insert ‘global’ for specificity.
6. In section 6 – In sentence 1, after ‘energy’ insert ‘of great quakes’ for accuracy.
7. In section 7 – In sentence 1, replace ‘When’ with ‘In’ for simplicity.
8. In section 8 – In sentence 4, replace ‘(or two)’ with ‘and multiple great quakes’ for accuracy. In sentence 5, replace ‘(or two)’ with ‘and multiple great quakes’ for accuracy and replace ‘a hazard’ with ‘hazards’ for accuracy. In sentence 7, after ‘efficacy’ insert ‘of extrema’ for specificity.
9. In section 9 – In sentence 1, after ‘determining’ rewrite end of sentence for clarity. In sentence 2, after ‘COS of the’ insert ‘shortest’ for accuracy and after ‘interest’ insert ‘(Zbikowski, 2014–2015)’ for style. In sentence 4, after ‘demand’ replace ‘can’ with ‘may’ for accuracy. In sentence 7, add ‘e.g.’ inside both parentheticals and after ‘14.4° E’ insert ‘, Phlegraean Fields (*Campi Flegrei*) are 14.2° E’ for completeness. In sentence 9, after ‘experiencing and’ insert ‘that’ for clarity and after ‘*Mount Vesuvius*’ insert ‘*or Campi Flegrei*’ for completeness. In the last sentence, after ‘support for’ insert ‘projecting’ and after ‘meridian’ substitute all with ‘: (1944, 194° E) in Fig.3.’ for clarity.
10. In section 10 – In sentence 6, after ‘cyclicity’ insert ‘in proposed triggering impetus’ for specificity.
11. In section 12 – After sentence 2, insert, ‘Of immediate value, would be the acquisition of refined and presumably more accurate estimates of the years when both drift speed and acceleration reach turning points. Further,’ for additional information. In sentence 3, after ‘probabilities of’ insert ‘global’ for specificity.
12. In section 13 – In sentence 1, after ‘this and’ replace ‘other’ with ‘referenced’ for specificity.

Draft 4.0 posted on/before 05 February 2017

*Draft 3.0 to Draft 4.0 changes:*

1. Title – Insert ‘large’ before ‘volcanic’ for specificity.
2. Under Title – After author’s affiliation, ‘Institute for Celestial Geodynamics’, add ‘(IfCG)’ for later reference.
3. In section 2 – In sentence 1, after ‘Earth’ insert ‘, produced’ and after ‘bodies’ insert ‘;’ for grammar.
4. In section 3 – In sentence 2, after ‘energy’ insert ‘of great quakes’ for specificity.
5. In section 5 – After sentence 1, insert ‘TOM’ definition for clarity. In (old) sentence 3, insert ‘drift’ before both ‘acceleration’ and ‘speed’ for specificity, and after ‘in’ insert ‘the’ for grammar. In (old) sentence 6, after ‘peaks’ and before ‘great’ replace with ‘or the acceleration trace reaches a turning point,’ for completeness. In (old) sentence 7, replace ‘with’ with ‘by’ for grammar. In (old) sentence 8, replace ‘with’ with ‘by’ for grammar and after ‘included’ rewrite for clarity. In (old) sentence 10, delete ‘struck’ for grammar and rewrite for clarity. In (old) sentence 11, replace ‘.’ with ‘.’ for grammar. For (old) sentence 12, rewrite for clarity and grammar. In (old) sentence 13, after ‘unlocated’ insert ‘great quakes (or nearly great, with varying estimates from competing sources)’ for clarity. In last sentence, replace ‘Relatedly’ with ‘Similarly’ for accuracy and after ‘location’ delete ‘,’ for grammar.
6. In section 6 – Copyright information added.
7. In section 8 – In sentence 1, replace ‘our’ with ‘IfCG’ for specificity.
8. In section 9 – In sentence 5, replace ‘should’ with ‘may’ for more tolerance.
9. In section 12 – In sentence 2, after ‘time’ delete ‘,’ for grammar. Rewrite sentence 3 for accuracy and clarity. In sentence 4, after ‘website’ delete ‘,’ for grammar.
10. In section 16 – Add Dr. Daniel Gambis and Dr. Amelia A. McNamara (both *Global View* contributors) to acknowledgments. Add Dr. Rodney Martin and Dr. Debra J. Blake to acknowledgments. Add copyright of (Kanamori, 1977) material to *American Geophysical Union*.

Draft 5.0 posted on/before 12 March 2017

*Draft 4.0 to Draft 5.0 changes:*

1. In section 2 – In sentence 1, after ‘drift’ insert ‘almost’ for specificity.
2. In section 3 – In sentence 2, replace ‘section [4]’ with ‘sections [4–7]’ for accuracy. In sentence 4, after ‘is’ insert ‘herein’ for clarity. Sentence 5 was completely rewritten for accuracy and clarity.
3. In section 5 – In sentence 3, at the very end insert ‘(Gambis, 2011)’ for reference.
4. In section 10 – Rewrite sentence 3 for clarity and accuracy and insert ‘(\*Details in sections [18-19] of *Global View* (Zbikowski, 2012–2014)).’ after it for completeness. Delete the last sentence, as it is now redundant.
5. In section 15 – Add reference of Dr. Gambis’s mean-pole dataset for completeness.
6. In section 16 – In sentence 1, replace ‘2012’ with ‘2011’ for accuracy.

#### Draft 6.0 posted on/before 21 May 2017

##### *Draft 5.0 to Draft 6.0 changes:*

1. In section 3 – Sentence 5 is rewritten for clarity and completeness.
2. In section 5 – In sentence 15, after ‘estimates’ insert ‘of magnitude’ for specificity.
3. In section 9 – In sentence 9, after ‘Islands’ insert ‘around 164° W’ for specificity.
4. In section 12 – In sentence 2, replace ‘mathematically’ with ‘statistically’ for specificity.
5. In section 15 – In sentence 2, after ‘Chandler’ remove ‘wobble’ for concision.

#### Draft 7.0 posted on/before 06 July 2017

##### *Draft 6.0 to Draft 7.0 changes:*

This draft was rewritten and reorganized to such an extent that documenting the plethora of changes became extremely cumbersome and of little merit, and so was abandoned.

#### Draft 8 posted on/before 30 July 2017

##### *For All Subsequent Drafts -*

To allow for more time and energy for writing and development, documentation of changes in drafts is stopped.

28 July 2017 rev. / DWZ