



## Earthquake: Why Can't We Still Predict It and What Science Can Do? Fuzhou Wang

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# Earthquake: Why Can't We Still Predict It and What Science Can Do?

Fuzhou Wang<sup>\*,Δ</sup>

**SUMMARY** Before the word “science” was created; people were curious upon the bases of the world and sought the possible explanation of it. That time the things the ancestors encountered were so complex that they could not decipher them in a reasonable way. However, the appearance of so-called science made all these things be changed. Till today, science makes our life change in an unprecedented speed. Facing today's explosive information, we are filled with curiosity in accompany with knowledge-induced anxiety. When we walk forward more, we found far more things we do not know. In some areas, we have reached an advanced level such as in the field of outer space exploration, but in some others, like earthquake prediction, we are still there where we just started. Even a lot of entities provide us information about the happened earthquakes, whereas no one can tell us when it will be. In fact, it is really hard for science to give us the original answer “Why is it like that?” although we know something about the focused question. The only thing that science can do is justifying the theories using its own ways. It is understandable because science itself was a product of people's thought, and it needs to be perfected *per se*.■

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**S**CIENCE advances in an unprecedented speed. It is so hard for us to browse all the scientific knowledge appeared every day, as thus we just do as the info-picker through fast-glancing at the topics and titles without in-depth reading on the whole scientific stories. However, science still cannot tell you when the earthquake will happen, even though scientists now know

something about the possible underlying causes and formations. One more interesting thing is that scientists can only do the *post hoc* “prediction” on the earthquake. So this is the real reason why the consequence of each earthquake is so severe. Along with the frequent occurrence of earthquake as well as the inadequate knowing on its prediction, people's

expectation and science's lagging make this balance be imbalance.

A large number of agencies and entities built up different types of seismic monitoring systems, but are they working well for our life? Some of them are just tell you where, when and what size of the magnitude (see the recent earth quakes with magnitude over 7.0 in the Table 1).

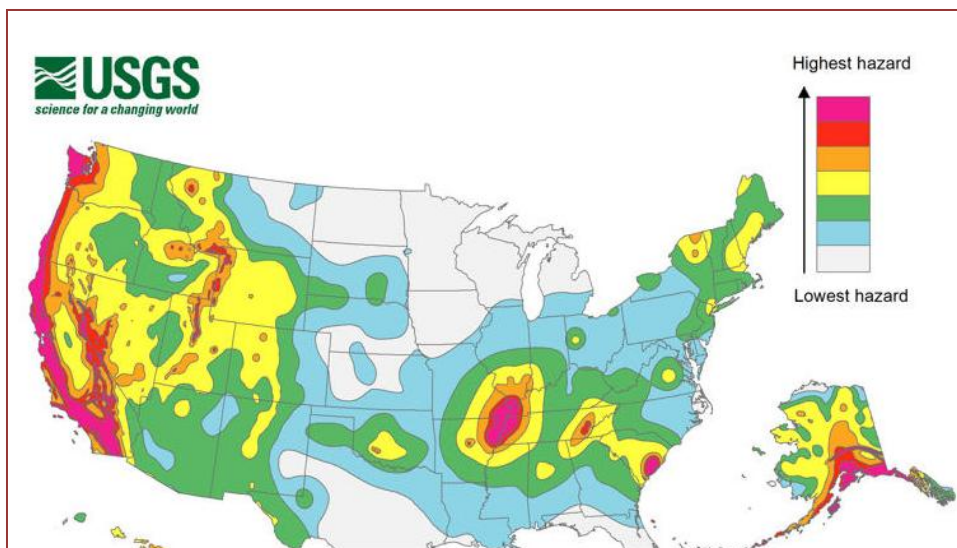
When we seek the answers to this long-suspending thorny question, we must face the fact that our science is still under the control of the power of The Almighty. If you look back, think about, and study them carefully, you will find no matter how hard we human beings work on the so-called science, and how confident we are when disclosing some existing facts or rules that stayed there from the beginning of the world. Today's science, in fact, just reveals part of the facts through different man-developed means. In other words, science is just a passive human action through it we discover the "deep-buried" facts. Therefore, it is impossible for us if we want to reveal the mystery of the world via science, because science itself is merely a mental product that is used intentionally by human being.

Events if frequently happened but without evitable solutions that mean the event itself is lacking of the consistency. The amounts of the rules in charge of the world's existence are consistent and therefore we can find some that can be used for our daily activities. This is the very thing that determines the reason why we are not yet completely elucidate each aspect of the things we faced. If you studied in-depth more, you will find much more unclear. Besides, our human beings invented the word "science" to differentiate their work from "creative rules". We have different types of languages that make us difficult to be understood each other, but today we are not affected by this anymore. In order to build up the complete theory, science uses her own man-made ways to make its theory "rationalized". One exact example is the origin of the human being, science advocates the evolutionary theory, from which we human beings derived from ancient apes, and also provides a large number of "evidence" to verify such declaration. Nonetheless, our advanced science cannot reproduce such an environ-

**Table 1. Recent earth quakes with magnitude over 7.0**

Date & Time	Magnitude	Region
2011-03-11 05:46:23.0	9	Near East Coast Of Honshu, Japan
2011-03-11 05:46:23.1	8.4	Off W Coast Of Northern Sumatra
2011-03-11 05:46:23.2	8.3	Sea Of Okhotsk
2011-03-11 05:46:23.3	8.1	Offshore Tarapaca, Chile
2011-03-11 05:46:23.4	8	Off W Coast Of Northern Sumatra
2011-03-11 05:46:23.5	7.9	Rat Islands, Aleutian Islands
2011-03-11 05:46:23.6	7.9	Santa Cruz Islands
2011-03-11 05:46:23.7	7.9	Near East Coast Of Honshu, Japan
2011-03-11 05:46:23.8	7.8	Iran-Pakistan Border Region
2011-03-11 05:46:23.9	7.8	Iran-Pakistan Border Region
2011-03-11 05:46:23.10	7.7	Pakistan
2011-03-11 05:46:23.11	7.7	Scotia Sea
2011-03-11 05:46:23.12	7.7	Sea Of Okhotsk
2011-03-11 05:46:23.13	7.7	Queen Charlotte Islands Region
2011-03-11 05:46:23.14	7.7	Kep. Mentawai Region, Indonesia
2011-03-11 05:46:23.15	7.6	Offshore Tarapaca, Chile
2011-03-11 05:46:23.16	7.6	Solomon Islands
2011-03-11 05:46:23.17	7.6	Philippine Islands Region
2011-03-11 05:46:23.18	7.6	Costa Rica
2011-03-11 05:46:23.19	7.6	Off East Coast Of Honshu, Japan
2011-03-11 05:46:23.20	7.6	Kermadec Islands Region
2011-03-11 05:46:23.21	7.5	Bougainville Region, P.N.G.
2011-03-11 05:46:23.22	7.5	Southeastern Alaska
2011-03-11 05:46:23.23	7.4	South Of Fiji Islands
2011-03-11 05:46:23.24	7.4	Solomon Islands
2011-03-11 05:46:23.25	7.4	Offshore El Salvador
2011-03-11 05:46:23.26	7.4	Kermadec Islands Region
2011-03-11 05:46:23.27	7.4	Guerrero, Mexico
2011-03-11 05:46:23.28	7.4	Bonin Islands, Japan Region
2011-03-11 05:46:23.29	7.3	New Ireland Region, P.N.G.
2011-03-11 05:46:23.30	7.3	South Sandwich Islands Region
2011-03-11 05:46:23.31	7.3	Offshore Guatemala
2011-03-11 05:46:23.32	7.3	Off East Coast Of Honshu, Japan
2011-03-11 05:46:23.33	7.3	Fox Islands, Aleutian Islands
2011-03-11 05:46:23.34	7.3	Fiji Region
2011-03-11 05:46:23.35	7.3	Vanuatu Region
2011-03-11 05:46:23.36	7.2	Kuril Islands
2011-03-11 05:46:23.37	7.2	Bougainville Region, P.N.G.
2011-03-11 05:46:23.38	7.2	Guerrero, Mexico
2011-03-11 05:46:23.39	7.2	Colombia
2011-03-11 05:46:23.40	7.2	Near East Coast Of Honshu, Japan
2011-03-11 05:46:23.41	7.2	Eastern Turkey
2011-03-11 05:46:23.42	7.2	Off W Coast Of Northern Sumatra
2011-03-11 05:46:23.43	7.2	Near S Coast Of Papua, Indonesia
2011-03-11 05:46:23.44	7.2	Southwestern Pakistan
2011-03-11 05:46:23.45	7.2	Near East Coast Of Honshu, Japan
2011-03-11 05:46:23.46	7.1	Bohol, Philippines
2011-03-11 05:46:23.47	7.1	Off East Coast Of Honshu, Japan
2011-03-11 05:46:23.48	7.1	Maule, Chile
2011-03-11 05:46:23.49	7.1	Banda Sea
2011-03-11 05:46:23.50	7.1	Santa Cruz Islands
2011-03-11 05:46:23.51	7.1	Near East Coast Of Honshu, Japan
2011-03-11 05:46:23.52	7.1	Off East Coast Of Honshu, Japan
2011-03-11 05:46:23.53	7.1	Vanuatu
2011-03-11 05:46:23.54	7.1	Vanuatu
2011-03-11 05:46:23.55	7.1	Eastern New Guinea Reg., P.N.G.
2011-03-11 05:46:23.56	7.1	Vanuatu
2011-03-11 05:46:23.57	7.1	Maule, Chile
2011-03-11 05:46:23.58	7.1	Bio-Bio, Chile
2011-03-11 05:46:23.59	7	Andreanof Islands, Aleutian Is.
2011-03-11 05:46:23.60	7	Near Coast Of Southern Peru
2011-03-11 05:46:23.61	7	Gulf Of California
2011-03-11 05:46:23.62	7	Santa Cruz Islands
2011-03-11 05:46:23.63	7	Santa Cruz Islands

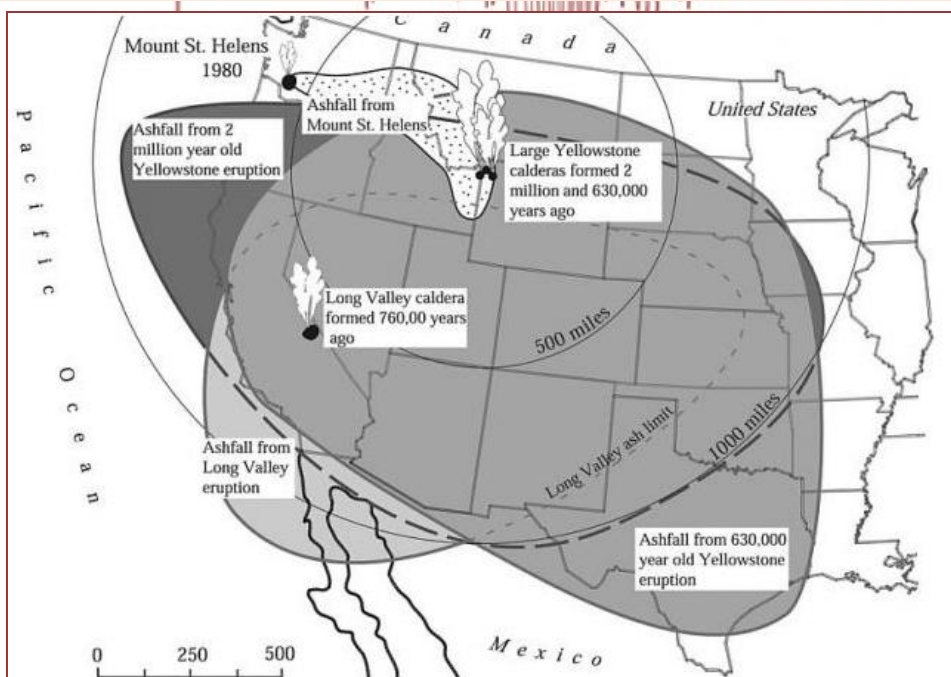
From <http://www.emsc-csem.org/>, access to 09/01/2014.



**Figure 1. The Earthquake Tendency in the United States.**

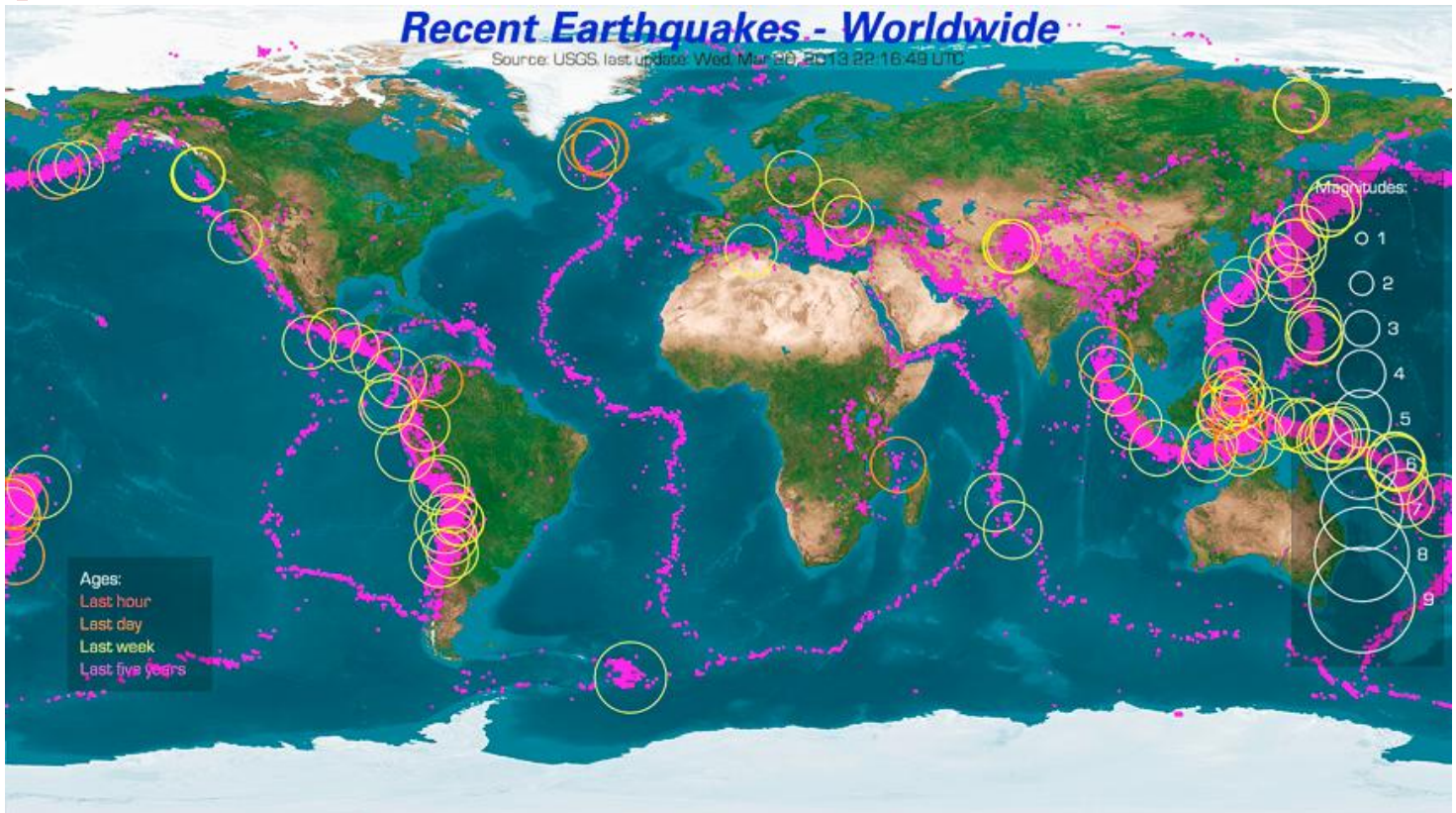
Parts of 16 states have the highest risk for earthquakes: Alaska, Hawaii, California, Oregon, Washington, Nevada, Utah, Idaho, Montana, Wyoming, Missouri, Arkansas, Tennessee, Illinois, Kentucky and South Carolina. Much of the country west of the Rockies, along with parts of Oklahoma and Tennessee and sections of central Arkansas, northern Alabama, Georgia, South Carolina, Indiana, Illinois, Ohio, Michigan, Virginia, New York and New England saw an increase in shaking hazards for small buildings like houses. At the same time much of North Carolina, the northern tip of South Carolina, patches of Texas, New Mexico, Oregon, Utah, Nebraska, Arkansas, Kentucky, Tennessee, Ohio, Pennsylvania and New York saw hazard levels lower slightly. And using a different type risk analysis for tall buildings the shaking hazard in New York City dropped ever so slightly. The maps sidestep the issue of earthquakes created by injections of wastewater from oil and gas drilling in Oklahoma and other states, saying those extra quakes weren't included in the analysis. So far this year, nearly 250 small to medium quakes have hit Oklahoma. Much of the research and cataloging was done by the nuclear industry in response to the quake and tsunami that crippled Japan's Fukushima reactor. And researchers at the University of California, Berkeley came up with a better model to simulate shaking. ■

Map from the USGS: <http://pubs.usgs.gov/of/2014/1091/>



**Figure 2. Effect of Yellowstone Volcano Eruption on the Entire World.**

Many U.S. residents would be at risk of dying or suffering from the results of an eruption. When volcanoes erupt, they shoot out lava, which becomes ash during the eruption as it's shattered into tiny particles. Volcanic ash is made up of tiny, dust-like fragments of jagged rock, minerals, and volcanic glass. Most of the United States could get covered with the ash, as it was in the previous large eruptions at Yellowstone. More than a dozen states could be covered entirely or partially with ash and debris. More importantly for those outside the U.S., the effects of a Yellowstone eruption would be worldwide, according to the U.S. Geological Service, including the "injection of huge volumes of volcanic gases into the atmosphere could drastically affect global climate." ■



ment for modern apes helping them “become” men. Could it be? We today sent out the aerospace craft into far outside space for exploring other stars, but we cannot clearly depict our own earth where we live every day. We can build our houses on “rock” using quake-resistant techniques. But we don’t know when the earthquake will happen. This is absolutely as our ancestors did not understand many natural phenomena that time, as today we do not know this existing shaking phenomenon well. Maybe it is just a random episodic, or maybe it is only from the unseen hand, or maybe it is merely due to too simple to be ignored, or maybe something else.

Newly presented data showed that the risk of earthquake increased markedly over the world including one-third increase of the United States. The U.S. Geological Survey updated its national seismic hazard maps recently for the first time since 2008, taking into account research from the devastating 2011 earthquake and tsunami off the Japanese coast and the surprise 2011

Virginia temblor. The highest risk places have a 2 percent chance of experiencing “very intense shaking” over a 50-year lifespan. Volcano eruption, a major reason generally accompanied with earthquake, is considered as one of the key threatens to the human being. However, could we predict it? Maybe distinct mechanisms exist for both earthquake and volcano eruption, and at least we can escape from the would-be eruption. However, for the earthquake we cannot. If the current thoughts on the disappearance of the

dinosaurs were correct, so if huge volcano eruption happened, we human being also would have been the same fate as the dinosaurs were (see the possible effect of Yellowstone volcano eruption on the entire world Figure 2). But if they were wrong, we just make a joke for ourselves: that science tells us so.

Therefore, why can’t we predict earthquake using our up-to-date scientific knowledge? Just let science be science, we do not need to be that censorious on the human-made so-called science. Just remember the original meaning, also the real meaning, of it: knowledge. So science means only a collection of the accumulating knowledge which shows up the people’s understanding of the world. As thus, it is understandable that we don’t know everything, of course, let alone the prediction. ■

### Conflict of Interests

None

