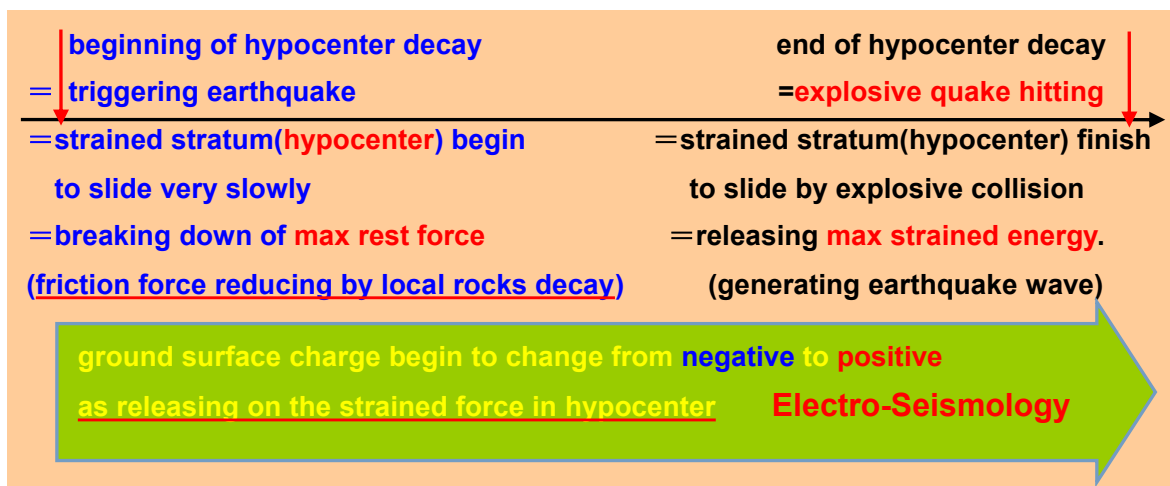


## Short Term Earthquake Prediction by Phenomena of **Electro-Seismology**.

There is **precious time interval** of few days to weeks to hit explosive earthquake from actual **beginning of hypocenter decay**. In the interval, **massive ground surface charges** is to turn from negative toward positive. This is nothing, but precious warning signal of **short term earthquake prediction** (time, place, and intensity) by **Electro-Seismology**.

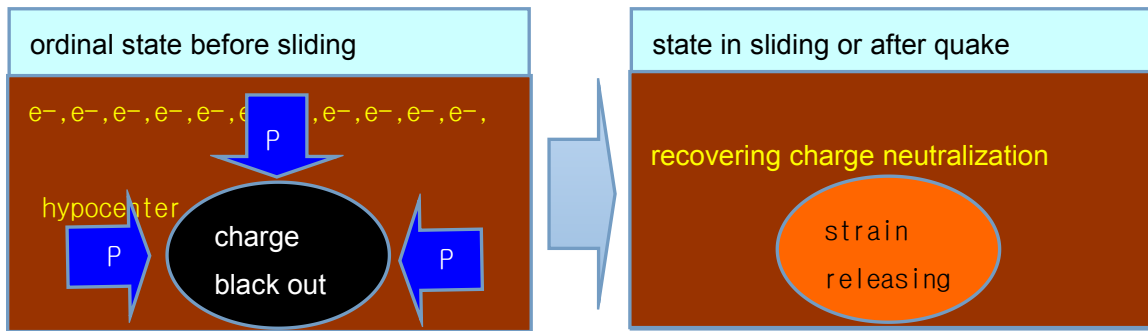
2014/10/17, 24 <correction: ↗ charge black out (← charge black hole) and addendum>.



[ 1 ] : Earthquake is massive releasing of extremely strong strained force in hypocenter which is to cause **massive electron absorption** as charge neutralization.

In other words, **ultra high pressure of hypocenter** before earthquake starting had been **emitting massive electron**. This report claims that  $\text{Si}\{3s^23p^2\}$  under extreme high pressure emits electron to the surface. It is **metalization** of Si by ultra high pressure.

Ordinal ground surface is negative charged, while **before earthquake hitting**, **ground surface charge** is to turn toward positive from negative. **Elastic rebound theory** tells earthquake is sudden explosive transition from static to dynamic by accumulated **strain force energy** in **hypocenter stratum**. It is dynamical collision between portion of static stratum and that of strongly and hysterically strained stratum caused by strong power of **continental plate flow**. The problem kernel is **sudden triggering**, which is **breaking down of upper limit of friction force** having been fixing strained stratum with static one. Note earthquake hitting is **releasing the strain force**, but not driving strain force. Then there is very precious time for **short term earth prediction**. It is **from the triggering till quake explosion**, which is told **few days to few week**. It is the time when strained stratum is to begin **sliding** toward quake explosion. Also electrical charge change becomes observable in the time interval near at epicenter. Strong charge change means strong quake possibility.



[ 2 ] : The elementary process of those **Electro-Seismology** are as follows.

(1) **Charge Black Out Hypothesis** in ultra high pressure hypocenter <before quake>.

Rock in hypocenter is with ultra high pressure (5200atm at 20Km depth). High pressured rock (Si) emits electrons toward exterior (ground surface). Pressure releasing is to sink those electron for **charge neutralization**.

$$* P = \rho gh = 2700\text{kg/m}^3 \times (9.8\text{m/s}^2) \times 20,000\text{m} = 5.3 \times 10^8 \text{Pascal} = 5200\text{atm}$$

(2) Solid state physics admits every matter becomes metal in pressure limit.

Note **metal surface is filled with free electron** which are emitted from charge black out in metal. The most peculiar feature of metal is its **close packed structure**, which could weaken Coulomb force between nuclei and electron clouds toward electron releasing.

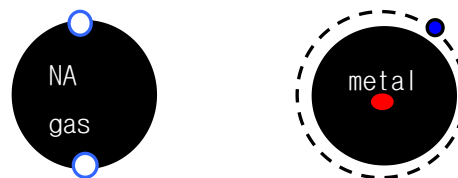
(3) In the periodic table, **Si** places at upper **Ge** (semi conductor), **Al** (conductor) places left of Si. That is, Si is almost near at metal.

(4) The problem which should be proved by you is

whether Si can become metal by pressure of hypocenter (5200atm at 20Km depth) ?.

3s <sup>2</sup> 3p <sup>1</sup> <b>13 Al</b>	3s <sup>2</sup> 3p <sup>2</sup> <b>14 Si</b>
4s <sup>2</sup> 4p <sup>1</sup> <b>31 Ga</b>	4s <sup>2</sup> 4p <sup>2</sup> <b>32 Ge</b>

Metal is easy to release electron, while non-metal is likely to absorb electron to form absolute stable of non active gas orbital.



Remarkable feature of metal is **close packed structure** by spherical atoms. Si is very near at metal of Al, but atomic spherical charge is +2e (Al is +e and become most packing without pressure). Thereby, by pressure, Si may become most packing (metal).

## **APPENDIX\_1:List of phenomena in Electro-Seismology.**

(1)**Ground surface charges** is to change from negative to positive.

This is observable by **charge sensitive detectors**.

<http://www11.ocn.ne.jp/~juno/page5.html>

<http://amasci.com/emotor/chargdet.html>

[http://www.school-for-champions.com/science/static\\_detection.htm#.VD-IISKsVzo](http://www.school-for-champions.com/science/static_detection.htm#.VD-IISKsVzo)

<http://seidenba.workarea.jp/densinamazu/kagaku/index.html>

(2)**Ionized sphere** becomes more negative induced by positive increasing in ground.

causing good **VLF,LF propagation**

<http://earthquakenet.com/blog/english>

(3)**VAN method** due to **grand current** generated by massive charge change.

<http://physlab.phys.uoa.gr/org/director.htm>

[http://physlab.phys.uoa.gr/org/varotsos\\_cv\\_van\\_earthquake\\_prediction\\_method\\_english.htm](http://physlab.phys.uoa.gr/org/varotsos_cv_van_earthquake_prediction_method_english.htm)

[http://depem.itu.edu.tr/VAN\\_METHOD.htm](http://depem.itu.edu.tr/VAN_METHOD.htm)

(4)**Warning by abnormal behavior of charge,....., sensitive animals**

cat fish,eels,frog and snake,fishes in deep sea

[https://faculty.washington.edu/tswanson/ESS/315/Student%20PP%20Presentations/animal\\_prediction.pdf](https://faculty.washington.edu/tswanson/ESS/315/Student%20PP%20Presentations/animal_prediction.pdf)

(5)**Abnormal change in (charge,....., sensitive) clouds**

[https://www.google.co.jp/search?q=%E5%9C%B0%E9%9C%87%E9%9B%B2+%E7%94%BB%E5%83%8F&espv=2&biw=1280&bih=909&tbm=isch&tbo=u&source=univ&sa=X&ei=X7I\\_VP25loKxmAXnjiHqCg&ved=0CCIQsAQ](https://www.google.co.jp/search?q=%E5%9C%B0%E9%9C%87%E9%9B%B2+%E7%94%BB%E5%83%8F&espv=2&biw=1280&bih=909&tbm=isch&tbo=u&source=univ&sa=X&ei=X7I_VP25loKxmAXnjiHqCg&ved=0CCIQsAQ)

(6)**High voltage discharging with lightening** between ground to atmosphere

[https://www.google.co.jp/search?q=%E5%9C%B0%E9%9C%87%E9%9B%B2+%E7%94%BB%E5%83%8F&espv=2&biw=1280&bih=909&tbm=isch&tbo=u&source=univ&sa=X&ei=X7I\\_VP25loKxmAXnjiHqCg&ved=0CCIQsAQ#tbm=isch&q=%E5%9C%B0%E9%9C%87%E3%80%81%E6%94%BE%E9%9B%BB%E7%8F%BE%E8%B1%A1](https://www.google.co.jp/search?q=%E5%9C%B0%E9%9C%87%E9%9B%B2+%E7%94%BB%E5%83%8F&espv=2&biw=1280&bih=909&tbm=isch&tbo=u&source=univ&sa=X&ei=X7I_VP25loKxmAXnjiHqCg&ved=0CCIQsAQ#tbm=isch&q=%E5%9C%B0%E9%9C%87%E3%80%81%E6%94%BE%E9%9B%BB%E7%8F%BE%E8%B1%A1)

(7)**Other various abnormal phenomena as predicting one.**

<http://ja.wikipedia.org/wiki/%E5%AE%8F%E8%A6%B3%E7%95%B0%E5%B8%B8%E7%8F%BE%E8%B1%A1>

**APEDX\_2:High density(by high pressure)could weaken Coulomb Force.**

(1)the appearance evidences.

Metal is **closest packed structure** with **sphere** elements without intentional high pressure.

[https://chemistry.osu.edu/~woodward/ch754/str\\_cp.htm](https://chemistry.osu.edu/~woodward/ch754/str_cp.htm)

Solid state physics admits *every matter becomes metal in pressure limit.*

Pressure limit is to realize closest packed structure which may cause elements metal.

**Pressure-induced semiconducting to metallic transition in multilayered molybdenum disulphide**

<http://www.nature.com/ncomms/2014/140507/ncomms4731/abs/ncomms4731.html?message-glob al=remove>

**Pressure induced structural transitions and metallization in Ag2Te**

<http://arxiv.org/abs/1301.3212>

**Metallization and Superconductivity of Molecular Crystal BI3 under Pressure**

[http://iopscience.iop.org/1742-6596/121/3/032008/pdf/1742-6596\\_121\\_3\\_032008.pdf#search='Structure+transition%2C+metallization+in+highpressure'](http://iopscience.iop.org/1742-6596/121/3/032008/pdf/1742-6596_121_3_032008.pdf#search='Structure+transition%2C+metallization+in+highpressure')

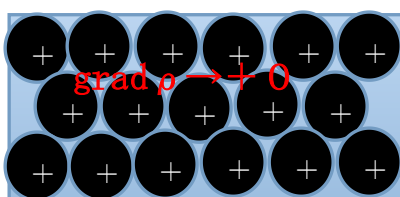
(2)higher,but monotonous charge density field become charge black out.

Charge density filed  $\rho(x;t)$  determine scalar field  $\phi(x;t)$  by Maxwell equation.

$\square \phi = -\rho / \epsilon .$

$\square (-\text{grad } \phi) = \text{grad}(\rho / \epsilon) = \square \mathbf{E} = \epsilon^{-1} \text{grad } \rho .$

In pressure limit,inner metal  $\rho$  field may becomes  $\text{grad } \rho \rightarrow 0 .$

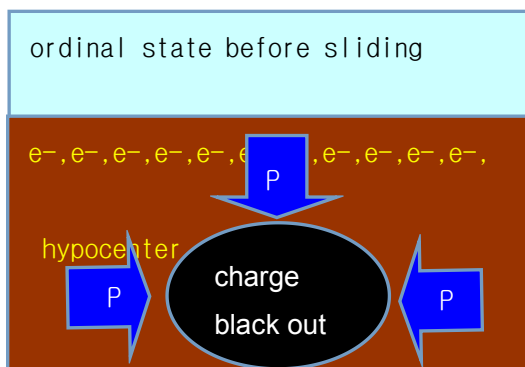


$\square \mathbf{E} = \epsilon^{-1} \text{grad } \rho \rightarrow 0 .$

As the consequence, E could be near zero !.

+Charge of nuclei exists,while D field  $\rightarrow 0 .$

$Q = \oint dS \cdot \mathbf{D} = 0$  concludes **charge empty !!!**.



This should be called **charge black out.**, which is to emit **massive free electron** toward exterior of zone with high pressure. This is nothing,but realization of **negative charged ground surface** at epicenter. Note earthquake is releasing those high pressure at hypocenter.

(3) **higher monotonous charge density field weaken Coulomb Force.**

(a) **Coulomb potential vanishing by increasing density**(space scale transform by  $\lambda$ ).

<http://www.777true.net/img0010-General-Analysis-on-Room-Temperature-Nuclear-Fusion.pdf>

$$H(\mathbf{r}, \mathbf{R}) = \sum_j^N [-\hbar^2/2m(\partial/\partial \mathbf{r}_j)^2] + \sum_k^M [-\hbar^2/2m(\partial/\partial \mathbf{R}_k)^2] \\ + \sum_j^N \sum_k^N [ee/8\pi\epsilon |\mathbf{r}_j - \mathbf{r}_k|] + \sum_j^M \sum_k^M [qq/8\pi\epsilon |\mathbf{R}_j - \mathbf{R}_k|] \\ + \sum_j^N \sum_k^M [eq/4\pi\epsilon |\mathbf{r}_j - \mathbf{R}_k|].$$

$$H(\mathbf{r}/\lambda, \mathbf{R}/\lambda) = \sum_j^N [-\hbar^2/2m(\partial/\partial \lambda^{-1}\mathbf{r}_j)^2] + \sum_k^M [-\hbar^2/2m(\partial/\partial \lambda^{-1}\mathbf{R}_k)^2] \\ + \sum_j^N \sum_k^N [ee/8\pi\epsilon |\lambda^{-1}\mathbf{r}_j - \lambda^{-1}\mathbf{r}_k|] + \sum_j^M \sum_k^M [qq/8\pi\epsilon |\lambda^{-1}\mathbf{R}_j - \lambda^{-1}\mathbf{R}_k|] \\ + \sum_j^N \sum_k^M [qq/4\pi\epsilon |\lambda^{-1}\mathbf{r}_j - \lambda^{-1}\mathbf{R}_k|]$$

$$= \langle \lambda^{-2} \rangle \{ \sum_j^N [-\hbar^2/2m(\partial/\partial \mathbf{r}_j)^2] + \sum_k^M [-\hbar^2/2m(\partial/\partial \mathbf{R}_k)^2] \} \\ + \langle \lambda \rangle \{ \sum_j^N \sum_k^N [ee/8\pi\epsilon |\mathbf{r}_j - \mathbf{r}_k|] + \sum_j^M \sum_k^M [qq/8\pi\epsilon |\mathbf{R}_j - \mathbf{R}_k|] \\ + \sum_j^N \sum_k^M [qq/4\pi\epsilon |\mathbf{r}_j - \mathbf{R}_k|] \}.$$

$$H(\mathbf{r}/\lambda, \mathbf{R}/\lambda) \equiv \langle \lambda^{-2} \rangle \{ \text{free particle terms} \} + \langle \lambda \rangle \{ \text{potential terms} \} \equiv T + V.$$

(b)  $\lambda \gg 1 \rightarrow$  **{free particle terms} becomes dominant !!**

Shortening space axis= $r$  by larger  $\lambda$  is equivalent to particle density increasing.

Or **charge density gradient** become rather monotonous to be zero electric field.

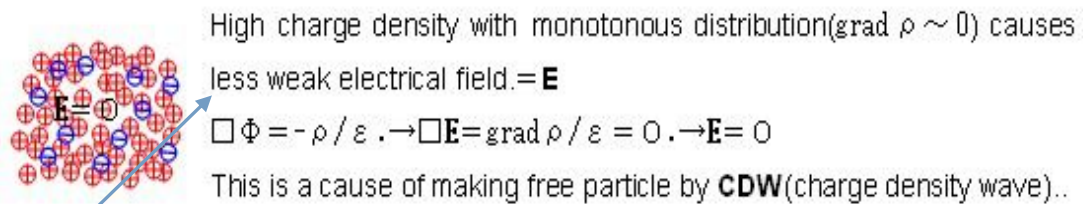
**Higher, but constant Charge Density** field can cause **lowering potential barrier.**

Free particle-nization is source of reactions by wave packet expanding.

This is a veridity for enabling **room temperature nuclear fusion** on Pt **catalyzer**

This is a cause of **Coulomb Implosion** making **pseudo higher temperature** in Brown gas.

☞ : In macroscopic view, **charge is neutral**, but becoming not neutral in some local.



\*"less" is not correct, but more

(c)  $\lambda \ll 1 \rightarrow$  **{potential terms} becomes dominant !!**

This is equivalent to cause lowering temperature to be stable solid.

## Related Topics :

[http://www.777true.net/Earthquake-Prediction-by-Phenomena-of-Seismic-Electromagnetism1\\_2.pdf](http://www.777true.net/Earthquake-Prediction-by-Phenomena-of-Seismic-Electromagnetism1_2.pdf)

<http://www.777true.net/seismology-the-frontline.pdf>

[http://www.777true.net/elastic-rebound-theory-anomaly\\_epicenter-physics\\_fluid-seismology.pdf](http://www.777true.net/elastic-rebound-theory-anomaly_epicenter-physics_fluid-seismology.pdf)

<http://www.777true.net/Earthquake-Mechanism-in-veiw-of-Chemical-Thermodynamics.pdf>

<http://www.777true.net/Earthquake-forecasting1.pdf>

## Addendum-1(2014/10/24):

Following reference shows **Si can become metal** by ultra high pressure.

### **Pressure induced phase transitions in silicon, germanium and some III–V compounds**

S. Minomura, H.G. Drickamer, Journal of Physics and Chemistry of Solids, Volume 23, Issue 5, May 1962, Pages 451–456

<http://www.sciencedirect.com/science/journal/00223697/23/5>

### **Abstract**

*Pressure induced phase transitions to a conducting state have been found for silicon (195 – 200 kbars), germanium (120 – 125 kbars), GaAs (245 – 250 kbars, 275 – 280 kbars), GaSb (80 – 100 kbars), InAs (100 kbars), InP (125 – 130 kbars) and AlSb (115 – 125 kbars). No transition occurred in GaP to 550 kbars. Although it cannot be definitely proven, it is the author's feeling that, with the exception of GaAs, all transitions are solid-solid transitions, apparently to a metallic state. For GaAs, it is postulated that the first transition involves melting to a metallic liquid, while the second transition constitutes the freezing of the liquid.*

\*1 bar = 100000 Pa == 0.98692313 atm

Note **5200atm at 20km** depth seems **far less** to cause **Si** to complete metal(195 – 200 kbars = **195000atm~250000atm**) due to above paper !!!

\*  $P = \rho gh = 2700\text{kg/m}^3 \times (9.8\text{m/s}^2) \times 20,000\text{m} = 5.3 \times 10^8 \text{Pascal} = 5200\text{atm}$

However before earthquake hitting, ground surface is to turn negative charge toward positive one. **This is sufficiently reliable data from many observed phenomena.** Now author present **you** serious **statistical physics problem** as follows.

5200atm(20km)etc is high pressure, however those may be insufficient to cause **Si** of **complete closest packing structure(195000atm~250000atm)**.

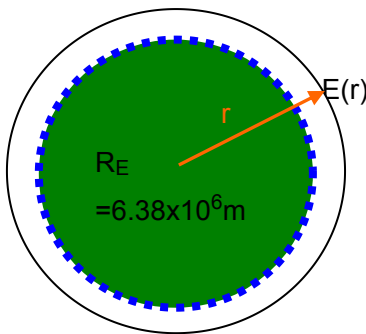
Even though, **some portion** of Si compound in **big volume hypocenter** could become **partial closest packing structure** which can emit massive electrons toward ground surface. This may be **statistical** due to **loca pressure and temperature fluctuation**.

**Addendum-2:(2014/10/23):ground surface charge and the electrical field.**

Theme at here is small charge change in under ground? could realize big observable phenomena on the ground<APPENDIX\_1> ?!! **1mol electron** is very small amount compared with massive mass of hypocenter stratum.Following are **geo-electricity**.

**Science of thunder(Japanese).**

<http://fnorio.com/0089thunderbolt1/thunderbolt1.html>



$D = \epsilon E = \tau$  .<surface charge density>  
 $Q = \oint dS \tau = \oint dS D = \oint dS \epsilon E = 4 \pi \epsilon r^2 E(R) \dots$  **Gauss law.**  
 $E(r) = Q / 4 \pi \epsilon r^2 \dots \dots$  **electric intensity**  
 Avogadro # =  $6.0 \times 10^{23} / \text{mol}$  , electron charge =  $1.6 \times 10^{-19} \text{C}$ .  
 **$Q = 96000 \text{C/mol}$ .**  
 $r(\text{ionized sphere}) = (80 \sim 250 \text{km}) + 6.38 \times 10^6 \text{m}$ .  
 $R_E = 6.38 \times 10^6 \text{m}$  <earth radius>.

$\epsilon = 8.85 \times 10^{-12} \text{F/m}$	$Q = 1 \text{mol electron}$		$Q = 5 \text{mol electron}$
$r = 6.38 \times 10^6 \text{m}$	$E(R) = 21.21 \text{V/m}$		$106.1 \text{V/m}$
$6380,000 + 100,000$	$E(R) = 20.56 \text{V/m}$		$102.8$

**About above table value:**

As height( $r = 6.38 \times 10^6 \text{m} + \text{height}$ ) goes higher,real electric field  $E(r)$  decrease far rapidly than our calculation mentioned in above table,which may be caused by **small conduction** of air.Electric field above **ocean surface** is weak(few volt meter or less).

<http://fnorio.com/0089thunderbolt1/thunderbolt1.html>

Now author is irresponsible for not knowing on geo-electricity reality.However simple calculation imply strong electric field change by small charge change.

Earth capacity ( $C = 4 \pi \epsilon_0 a = 7 \times 10^{-4} \text{F} \sim 1 \text{mF}$ )seems very small as for electrical charge.

Note **sliding area of hypocenter stratum** are estimated as follows<p27/39>.

[http://www.jishin.go.jp/main/pamphlet/wakaru\\_shiryo/wakaru\\_shiryo4.pdf](http://www.jishin.go.jp/main/pamphlet/wakaru_shiryo/wakaru_shiryo4.pdf)

**Some of those are big enough comparable with Japan island !!!.**

Those are remarkably very wide. Imagine amount of those charge !!!.

Even though **very small realizing probability of closest packing structure** by the hypocenter pressure in **unit volume**,the **hypocenter volume** is so big,emitted electron could not be small.This is authors coarse guessing.

<http://ja.wikipedia.org/wiki/%E6%9D%B1%E5%8C%97%E5%9C%B0%E6%96%B9%E5%A4%AA%E5%B9%B3%E6%B4%8B%E6%B2%96%E5%9C%B0%E9%9C%87%E5%8F%8A%E3%81%B3%E6%B4%A5%E6%B3%A2%E3%81%AE%E3%83%A1%E3%82%AB%E3%83%8B%E3%82%BA%E3%83%A0>

earthquake	Fault plane length(km)	Fault plane width(km)	Slip length(sl) average(m)	Max sl(m)	Mw
1960 Chile	1000	200	25	40	9.5
2004 Sumatra island	1000	150	15	25	9.2
2011 Touhoku	400	200	10	50(over)	9.0?
1923 Kantoh	100	50	5	10	7.9
1995 Hanshin Awaji	50	15	2	2.4	7.0