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Calculation to change of Earth as planet and surface of Mars

Akio Wada

Faculty of general education, Sapporo University

The author already discussed that which in mantle, to temperature and heat flow, complex number plane can be applied.

Time to change of earth as planet is very large, consequently equation of change $\frac{\partial s}{\partial t}=$e (x, y, z, t)……① is aapproximately as follows. $\frac{\Delta s}{\Delta t}=e\ (x, y, z, t)$……② Change of earth as planet is change of large mass. Consequently, this change is showed by group of change of each mass. From that following equation is gained. $\frac{\Delta s}{\Delta t}=\Sigma e\ (x, y, z, t)$……③ If standpoint exists on definite mass, $\frac{\Delta s}{\Delta t}=\Sigma e(t)$……④ At large time interval, $e(t)$ is approximately constant. $\therefore \Delta s=\Sigma c\,\Delta t$……⑤ Solution of equation may be gained by probability. This can be calculated by per sonal computer. From equation……⑤, $S=\Sigma ct+D$……⑨

The author already discussed to Belt of Jupiter by graph given by personal computer.[1] Equation……⑥ is same to equation to Jupiter's. Belt and same grapf can be gained. This is showed by fig. From this graph. rot$q$=c……⑦

Above discussion can be applied to mantle convection. If mantle convection is d istricted to maximum convection

$\delta \oint \mathrm{rot} q ds=o$……⑧

$\oint \mathrm{rot} q ds \cdots\cdots ⑨$ is "action" in Euler's theorem and can b transformed to following equation.

$\int^{\Delta t}(\mathrm{T}-\mathrm{U})\ dt \cdots\cdots ⑩$ $\quad \therefore \frac{\partial}{\partial t}\oint \mathrm{rot} q ds = \mathrm{T}-\mathrm{U} = \mathrm{CL} \cdots\cdots ⑪$

$\varepsilon = \mathrm{P} \cdot v - \mathrm{L} \cdots\cdots ⑫$ stand point is on mass, Consequently

$v = 0 \quad \therefore\ \varepsilon = -\mathrm{L} \cdots\cdots ⑬ \quad \therefore\ \varepsilon = \frac{\partial}{\partial t}\int \mathrm{rot} q\ ds \cdots\cdots ⑭$

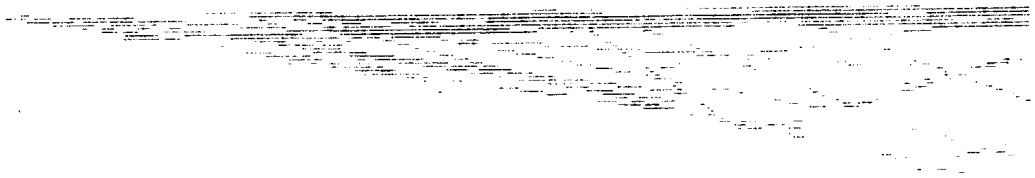

Fig. Convection of Mantle by personel computer.

If change of rot q depends upon probability, from equation ⑭, from conservation of energy, energy emission and absorbtion occur. Declination of rot q causes energy emission and increase of rot q causes energy absorbtion. From that periodic change of energy state in mantle may exist.

If change of rot q is showed by radius of circulation, this may show spiral.

Great yellow dust of Mars

When Mars is near periheria, great yellow dust generally occur. Supposition may be set as follows. Great yellow dust is phenomina of group of each change.

Then ABOVE DISCUSSION may be applied. Result are as follws. When Mars receives largest sun energy spiral which moves outside appears and it causes energy emission and it balances energy change.

Change in ordinary time scale

Equation to change is as follows. $\frac{ds}{dt}=e(x, y, z, t)$ ……⑳

If standpoint exists on mass

$\frac{ds}{dt}=e(t)$ ……㉑ $e(t)$ is transformed as follows,

$e(t)=ct+D+e'(t)$ ……㉑ $\therefore S=\frac{ct^2}{2}+Dt+\int^{\Delta t} e'(t)dt+F$ ……㉒

equation ㉒ is analogy to motion in gravity field. From that, generally it has maximum value. At this time generally it has maximum value in space. Consequently $\delta S=0$ ㉓ At this case generally, from equation ㉑, $\int^{\Delta t} e'(t)dt$ ……㉔ has maximum value. From that $\delta\int^{\Delta t} e'(t)dt=0$ ……㉕ From above approximately following discussion may be made.

By Euler's theorem

$\delta\int^{\Delta t}(T-U)dt=0$ ……㉖ $\therefore L=T-U=e'(t)$ ……㉗

$\varepsilon=p\cdot v-L$ ……㉘ Stand point is on mass cousequently

$\varepsilon=-L$, $\therefore\varepsilon=-e'(t)$ ……㉙

By observation to snow fall on mountain, it begins with formation of snow block near mountain top and snow cover expand widely. Development of snow block and snow cover is proportional to each initial stage and gradually be same.

From above, at initial stage, at snow block approximately $\delta e(t)=0$ ……㉚, From Euler's equation $e(t)=\int^{\Delta t} Ldt$

$L=T-U$ $T=0$, $\therefore L=-U=-\varepsilon$ $\therefore\varepsilon=-\frac{de(t)}{dt}$ ……㉛

From equation……㉒ $\frac{de(t)}{dt}=C+\frac{de'(t)}{dt}$ ……㉜

From……㉛ and……㉔, $\varepsilon=\frac{d\varepsilon}{dt}+C$ $\therefore\varepsilon=c'e^t-c$ ……㉝

Temperature of snow block is under 0°C, Consequently, $c'<0$.

Observaion to Lava and volcanic shell

By observation to lava relatively simple phase of glass is observed in relatively complex phase of glass. Crystal is made of group of mass and its group has some means such that regular form, thus may be applied to "group" in mathematics thus it is represented by $\binom{a}{b}$ Glass is represented by A Equation is as follows. $\binom{a}{b}=A+\varepsilon\cdots\cdots$㉞ ε is heat emission in crystal formation. From equation relatively simple phase of glass is made by relatively large crystal.

By observalion to volcanic shell remelted glass is observed. It means existance of heat divergent in volcanic shell. The author alreaty discussed to the problrem that destroy of "group of crystal" emit heat by same mechanism at atomic neucleous, s destroy. "Group of crystal" is observed in volcanic shell and is repesented By "group" in mathematics such as matrix. Equation is as follows.

$\binom{a}{b}=a+b+\varepsilon\cdots\cdots$㉟ ε is heat emission

Formation of Earth

Earth is formed by group of meteorite. Sepposition may be set as follows.

1. Probability of existance of large mateoriteois near Sun is large
2. Probabillity of existance of small mateorite near large meteorite is large

From above supposition result of calculation by personal computer shows approximately formation of surface of cube at

initial stage and gradualy formation of inner zone begins. From above, at initial stage age of material may be older at surface than material of inner zone. At next stage Earth form cube by gravity and by its radioactive material and by already discussed mechanism that heat emit by destroy of "group of crystal" temperature rises in interior of earth. At surface of Earth energy emission cause decrease of temperature and crust is formed. Existance of boundary between crust and mantle critical value exists. It may be concern Curie point. The author already showed that in mantle complex number plane can be applied and by calculationin by Hermite form, upper mantle consist of group of crystal and in more interior zone glass exceeds and it causes large difference at surface of mantle to crust.

At near center of earth heat source does not exist. It coincid to that core is made of iron.

Magma

Heat source of magma may be radioactive material in crust or mantle. Existance of magma is at particular place. Consequently heat source of magma may be generally mantle. From that under magma narrow zone may continue till mantle. From above under volcanoe it may be thought that

1. invade of mantle in crust
2. crust is particular i. e material of crust is particular and feable zone in geologic mean exist.
2. is as follows. Basalt resemble volcanic shell than granite. Consequently basalt exceeds at volcanoe.

At thermal zone at some depth where generally granite

exists basaltic material exits.[2] If in basalt similar material to volcanic shell heat emergence exists and it causes temperature difference at surface of magma. Feable zone is for example fissure in crust. It causes earthquaqe. It is known that zone of earthquaqe coincide to zone of volcanoe.

Mantle of planet

Mars

Form of geopogic figure by photograph of planet surveyer may show erosion of volcanic landscape. This shiows extremely long past large volcanic errupsion exists. At now, from above, temperature of mantle may be low and crust may be sick and air exists.

Venus

Existance of non-erosioned rock by photogbapf of planet surveyer shows existance of volcanic errupsion and temperature of mantle may be high and crust may be not sick.

Comet

Tail of comet is opposit to sun and in it many "line" along tails direction exist. Equation is as follows.

$$\mathrm{rot}q=0, \qquad \therefore \varepsilon'=\frac{\partial}{\partial t}\mathrm{rot}q=0, \cdots\cdots ㊱$$

From above sun energy is distored in comet almost by internal energy Q.

Q causes temperature rise and plase change. Phase change is as follows.

If gas is emitted, this receives light pressure to opposite direction to sun and taill appear. From above lenth of tail depends on initial gas and newly appeared gas near sun. From

above it is suggested that observation of change of tail infor mation is gained to calculate comet.

Boundary condition to time at snow fall

As already discussed energy of snow on mountain is

$T \simeq 0 : \varepsilon = ce^{t} + c' \qquad T \gg 1 : \varepsilon = ct + D \cdots\cdots$㊲

It is suggested that at $T_1 < T < T_2, : \varepsilon = c\log t + ct$

$\therefore T \simeq 0 : \varepsilon'' = ce^{t} \quad T \gg 1 : \varepsilon'' = 0 \quad T_1 < T < T_2 \quad \varepsilon'' = -\frac{1}{t^2} \cdots\cdots$㊳

This means energy of snow can not be expressed one equation at all time interval. Consequent ly boundary condition to time can be set as equation ㊳

Mantle

As alrealy discussed in another paper

$q = q_0 + divq \cdot n$ n has direction of heat flow and quanitity is

1. $q_0 = Sgradp$ p is pressure $\therefore \mathrm{rot}q_0 = 0,$

$\therefore \mathrm{rot}q = \mathrm{rot}(divq \cdot n) = divq\,\mathrm{rot}n$

$$\varepsilon = -\frac{\partial}{\partial t}\mathrm{rot}q = -\frac{\partial}{\partial t}(divq\,\mathrm{rot}n) = -\left(\mathrm{rot}n\frac{\partial}{\partial t}divq + \frac{\partial rotn}{\partial t} \cdot divq\right)$$

$$IF\ \frac{\partial rotn}{\partial t} \simeq 0, \quad \varepsilon \simeq -\mathrm{rot}n\frac{\partial}{\partial t}divq \qquad \varepsilon = -\frac{\partial}{\partial t}\mathrm{rot}q \qquad \therefore \mathrm{rot}n \simeq 1$$

$\therefore \mathrm{rot}q \simeq divq \cdot n \qquad t = y \times 1,$ dimension of 〝1〞 is $\frac{[t]}{[y]}$

From equation $\varepsilon = -\frac{\partial}{\partial y}\mathrm{rot}q \times 1 = -\frac{\partial}{\partial y}divq \cdot \mathrm{n} \times 1$

Near surface of mantle, as the authour already discussed in another paper $-\frac{\partial}{\partial \mathrm{y}}divq$ equal large, consequently if

$divq = -cy + D \qquad \varepsilon \simeq C + D + q$

From above Surface of mantle has large energy. It causes melting of mantle which coincide low velocity zone at seismic aspest.

Referrence

1) Akio Wada : Calculation to mantle and calculation by personal computer to jupiter and facula of Sun, The Jurnal of Faculty of General Education Sapporo University No. 23, 1983.
2) Olafur. G. Flovenz and Ludvic S. Georgsson : Prospecting for near vertical aquifers in low temperature geothermal areas in Iceland, Geotheraml resources council's transaction, Vol. 6.