A method to ditect seismic precursors

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A method to detect seismic precursors precursory seismic electric fields
earthquake prediction Introduction
Many precursors have been observed before a big earthquake. Most of them are regarded as the result of microcracks in the source region. Therefore, if we can detect the microcracks, it will become possible to predict directly or indirectly the earthquakes. Detection of microcracks
By arranging four electrodes around the earthquake region, we measure the electric potential and resistance (though this method is difficult at seabed), then we can detect the microcrack. But this method is nearly impossible, as we can't know the precise location of the earthquake region.
If Gravitational Waves (GWs)are
emitting from the source region, it becomes possible to detect the region and to predict the earthquakes. But the following shows this is perfectly impossible.
Receiving GW
First the intensity of GW is shown which was detected.
The intensity of GW150914, which emitted when the two Black Holes (BHs) combined, is calculated as follows:
Symbols and approximate values of constants are as follows:
???Fraise to the power ˜
Light velocity:????3?˜(10??5) km/sec
One light-year??9.46?˜(10??12) km
Solar Mass:?Q?˜(10??30) kg
The values of GW150914 when it combined: The distance to the BHs:
??=13 hundred million light-years
The mass of the smaller BH:
M=29 Solar mass
The collision between BHs means that the each BH enters partner's Event Horizon. So the collision means the combine. Then the kinetic energy turns into wave energy of GW.
The relative speed between BHs can't be beyond the light speed, so the speed of each BH is less than about c/2.
The GW is generated by the rapid change of the gravitational field, so the wave is also generated by the change of the momentum. As the GW is a kind of wave, so GW is inversely proportional to the square of the distance r to the observing point. Therefore the GW150914 observed on the earth is proportional to the value expressed by the following formula:
GWbh?? 29 ?˜2?˜(10??30)?˜1.5?˜(10??5)??{(13?˜9.46?˜(10??12)?p??2
?@?? 5.75 ?˜10??8) (kg?^sec?Ekm)
The GW which might be generated accompanied by a earthquake is calculated as follows:
The energy E of a earthquake, magnitude M is expressed as follows:
?@?@log E??4.8 + 1.5 M When M=7,
log E ?? 4.8 + 10.5 ?? 15.3
E ?? 10??15.3 J??2?˜10??15 J
??2?˜10??9 kg (km?^sec)??2
The mass which moves by the earthquake is calculated from
?@ E??0.5?˜m ?˜v??2

When the speed of the earthquake wave on the surface v=5.45 km/sec is substituted, the momentum is
??v ??2 E?^??
?? 4?˜10??9?^5.45 kg?E?q?^sec
??0.734?˜10??9 kg?E?q?^sec
In the case of GW150914, only the speed of more than about c/2 contributed to generate the GW, so it is thought that only when the speed is more than about c/2, the GW is generated.
In general, the speed is distributed as normal distribution. The part of the earthquake wave speed more than c/2 becomes neglectfully small, when it is calculated from the mean value and standard deviation of earthquake wave speed. So, it will be concluded that any earthquake never generates GW.
Now let try in any case we can observe the GW
Let calculate GW when a meteorite falls on the earth with the speed of c/2. By the way, the moon never falls on the earth, because the tidal force breaks the moon into pieces, and the falling pieces burn out in the atmosphere. And the radar can't detect the object which approach with the speed of more than c/2, because the object with the speed more than c/2 arrives before it is detected.
The observed GW, when the Meteorite of the mass of the moon falls at the distance of r, is proportional to
GWme??m v?^????2 ?@kg?^km?Esec
where
mass of the moon: m??7.343?˜10??22?s
r??10000 km
GWme??1.10 ?˜10??21?@ kg?^?q?Esec
Now,
GWme?^GWbh??1.10?˜10??21?^5.75?˜10??8
??1.91?˜10??11
This value means that the meteor of the mass of 1?^1.91?˜10??11 of the moon causes the GW.
The maximum Meteor we know is about ten thousand tons, so if more than one hundred thousand tons meteor falls on the earth, all the life on the earth disappears. Ending Remark
It will be clear that predicting all earthquakes is impossible because even the precursors are difficult to predict. Even the locating the place of the microcrack, which is origin of precursors, is nearly impossible.
Reference
Kozo Takahashi: Mechanism of generating electromagnetic fields just before great earthquakes, Japan Geoscience Union Meeting 2011, S-SS024-13 Introduction

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