Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

SCG74-P10 Room:Convention Hall Time:May 24 17:15-18:30

The Great Eastern Japan Earthquake 2011 and Its Mechanisms According to the Theory of Solid State Lithologic Flow

MADO, Shinichiro[1*]

[1]Mado Research Office of Sciences and Arts

1. Introduction

The Great Eastern Japan Earthquake, hit Tohoku and Kanto districts in Japan on March 11th 2011, was estimated 9.0 in its magnitude. It is the greatest earthquake which Japanese have ever experienced. However, it brought us very curious evidences to reconsider the orthodox theory about mechanisms of great earthquakes. Especially, the key for understanding seems to be the theory of solid state lithologic flow. Therefore, we discuss it in this paper.

2. A question about mechanisms of great earthquakes

The orthodox theory about mechanisms of great earthquakes was based upon plate tectonics and thermal mantle convection. However, the theory of solid state lithologic flow also explains that. Althogh it appears as if the two theories were able to explain the same phenomena, **the primal difference between them lies on the force which causes the crustal movements**.

3. Orthodox theory

The orthodox theory explains the great earthquakes with plate tectonics. The theory premises on thermal convections within mantle. This theory also premises that **the internal thermal energy in the Earth creates the force to drive convections**. To the east of Japan there is Japan Trench. The Pacific Plate lies under the bottom of the Paciphic Ocean east of Japan Trench. The orthodox theory supposes that there is a current of thermal mantle convection that flows under Japan Trench from the Paciphic Ocean side, and that the mantle convection drag the Paciphic Plate into the layer under Japan. Therefore, the Japan Islands are gradually subsiding with the Paciphic Plate. However, because the specific gravity of the continental Plate including the Japan Islands is smaller than the Paciphic Plate, the buoyancy makes a sudden rise after a while. At that sudden rise, a great earthquake and a great tsunami occur. **Nevertheless, coast subsidences were observed instead of coast upheavals.** This fact is enough for us to doubt the orthodox theory.

4. Mechanisms of the earthquake based on the theory of solid state lithologic flow

Please look at the figure.

A) As if it were a glacial flow, the solid state lithologic flow from higher places to lower places is made by gravity.

B) Since the Japan Trench is a very low place, the solid state lithologic flow flows into the trench. Therefore, there is the forefront of the flow on the trench.

C) The forefront of the flow run into the lithologic plate of the bottom of the Pacific Ocean. Then, it run over the plate.

D) It is the heavy weight of the forefront of the flow running over the Pacific plate, that push the Pacific plate into the Earth.

E) The lithologic plate of the bottom of the Pacific Ocean is gradually pushued deep into the Earth.

The causal chain of working force is following: **A->B->C->D->E**.

There is nothing but gravity to work. Thermal mantle convections have no place in this theory.

Since the movement C is a very sudden phenomenon, the great earthquake and tsunami occur.

The phenomena occur in the reverse order: **E->D->C->B->A**, because it is a repeated current.

5. The comprehension with the theory of solid state lithologic flow

It is possible for us to take one set understanding of these two phenomena: (1) the 5.3m movement toward the east and (2) the 1.2m subsidence of the sea coast (Both are observed at Ojika Peninsura).

These phenomena gave us evidences to understand the movement of the Japan Islands as a solid state lithologic flow. It flows from higher places to lower places. It flowed 5.3m to the east horizontally while it flowed down 1.2m vertically (Denoted by A).

It is possible for us to understand these movement as a movement of the whole Japan Islands with a current of solid state lithologic flow.

This explanation based on the new theory, which takes the lithologic flows as same as glacial flows, gives us very clear understanding without any difficulty.

Probably the sharply pointed shape of Ojika Peninsura has been created by repeated diastrophism like this time.

Keywords: Diastrophism, Earthquake, The Great Eastern Japan Earthquake 2011, Tsunami, Solid State Lithologic Flow, Gravity