**Looking into Japan’s Fault**

**Geological Field Study - Investigation question**:

What is going on down there? What’s with all the shaking?

Graph the following:



Below is the average epicenter and corresponding depth from the following Japanese region: N35° - N40° Latitude, and E133° and E146° Longitude from 2000 - 2010. Graph the coordinates below and answer the following questions.

|  |  |  |
| --- | --- | --- |
| **Longitude (°East)** | **Depth (km)** | **Place a special dot – all by its self for the 9.0 Magnitude Earthquake that hit on March 11, 2011. Place large circles around it.****Its coordinates are: 142.3°East and -29 km down.**  |
| 145.0 | -15.9 |
| 144.5 | -26.1 |
| 144.0 | -34.8 |
| 143.5 | -35.7 |
| 143.0 | -35.9 |
| 142.5 | -36.5 |
| 142.0 | -43.6 |
| 141.5 | -74.9 |
| 141.0 | -87.2 |
| 140.5 | -92.4 |
| 140.0 | -126.0 |
| 139.5 | -131.4 |
| 139.0 | -154.2 |
| 138.5 | -194.8 |
| 138.0 | -195.9 |
| 137.5 | -245.9 |
| 137.0 | -261.2 |
| 136.5 | -335.9 |
| 136.0 | -352.4 |
| 135.5 | -368.4 |
| 135.0 | -381.1 |
| 134.5 | -408.8 |
| 134.0 | -446.2 |
| 133.5 | -454.2 |



**Graph Activities**

The graph you drew is the average depth of real earthquakes within smaller regions in Japan. In 2011, as a result of the 9.0 earthquake, Japan moved eastward 8 ft. The Pacific plate moved towards Japan 79 ft. Armed with this information, use the map to do the following on your graph.

1. Graph an individual spot for the large earthquake that occurred on March 11, 2011. It’s coordinates are: 142.3°East & -29 km down
2. Use the map to indicate where Japan would be on your graph.
3. Use the map to indicate where the trench is on your graph.
4. Use the map to indicate where the pacific plate is on your graph
5. Draw arrows describing the direction between the two plates on your graph and on your map.

**Questions**:

1. What is that line going down? What is the connection between the line and all of the earthquakes?
2. Explain why are there no earthquakes in the other areas of the graph?
3. Why do you think the graph is jagged?
4. How might this graph help to explain why we had a large earthquake in 2011?

**Putting it all together – reflections on your investigation:**

With the direction of the plate’s motion, and the depths of all of those earthquakes, write a paragraph or two explaining what you think is going on deep down there.