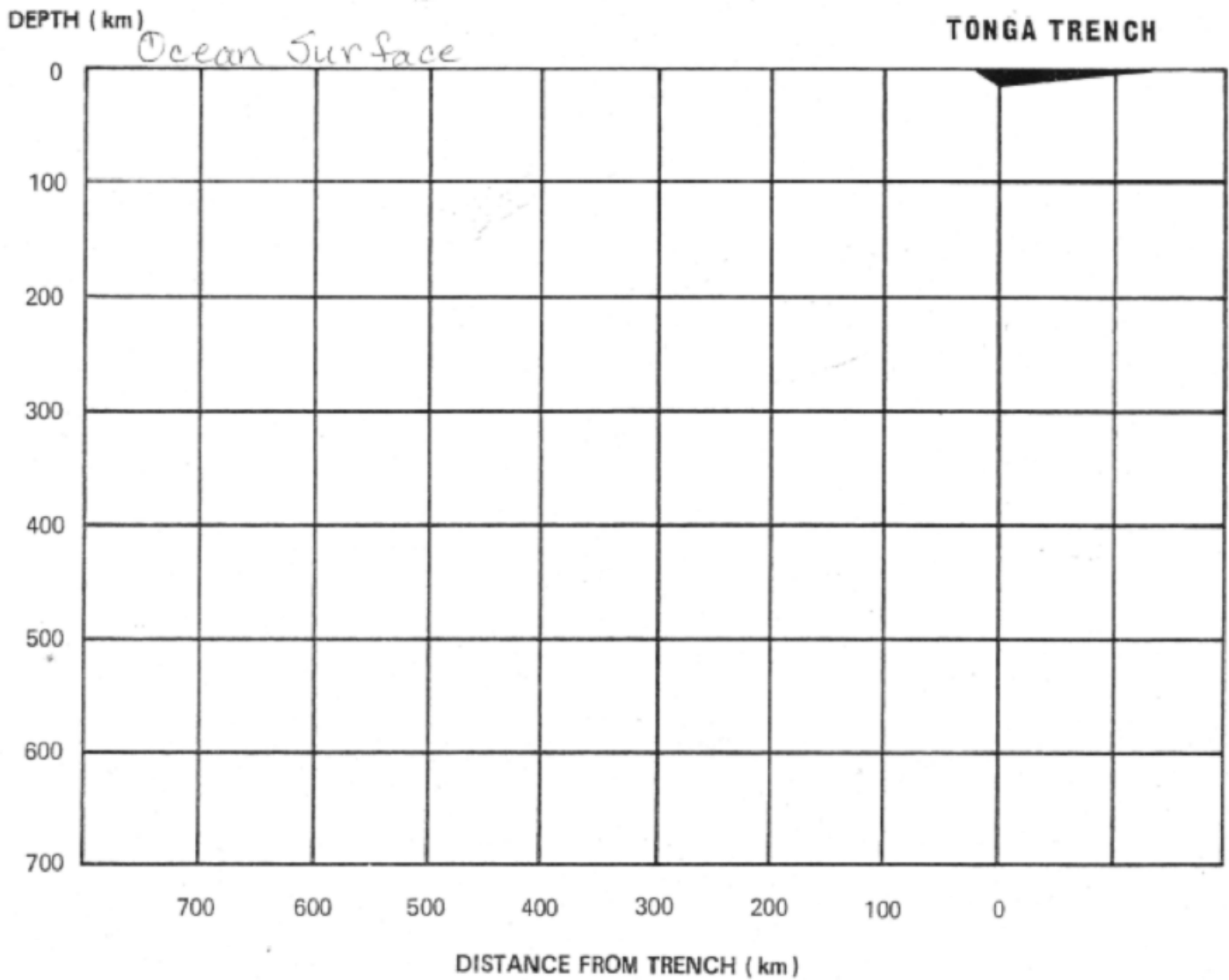


EARTH QUAKE FOCUS PROFILE - TONGA TRENCH

CROSS SECTION ACROSS 22° S LATITUDE



EARTHQUAKES OF THE TONGA TRENCH AREA

| Depth (km) | Distance from Trench (km) |
|------------|---------------------------|
| 0 | 16, 50, 72, 96 |
| 32 | 168 |
| 66 | 132 |
| 83 | 168, 184 |
| 116 | 232, 248 |
| 150 | 200, 260 |
| 200 | 216, 248 |
| 216 | 264 |
| 232 | 254 |
| 250 | 264 |
| 300 | 360 |
| 350 | 364, 400 |

| Depth (km) | Distance from Trench (km) |
|------------|---------------------------|
| 383 | 408 |
| 416 | 432 |
| 448 | 448 |
| 472 | 416, 432 |
| 500 | 450, 458 |
| 516 | 432, 456 |
| 550 | 500 |
| 580 | 450, 464 |
| 600 | 480, 508, 524 |
| 624 | 508, 524 |
| 650 | 532 |
| 667 | 648 |

Study your Earthquake Focus Profile and answer the following questions:

1. What is the relation between the depth of earthquakes and their distance from the Tonga Trench?

2. Is there a distinct pattern in the earthquake locations on your map? If so, draw a line (on the map on the other side) that best represents this pattern.

3. What is your explanation for the distribution of the earthquake foci?

4. Does the shape of the earthquake focus pattern support the theory of plate tectonics? Explain your answer.

5. As the tectonic plate dives down into the mantle it begins to melt. At what depth is the plate no longer rigid enough to produce earthquakes?

6. What surface feature might result from the melting of the plate?
