

Discussion: Oceanographers know, with sonar, how fast sound waves travel in water. Thus they know how far the waves travel during their round trip to the surface. Half this distance is the depth of the ocean at that spot. The formula used to find the ocean floor depth is

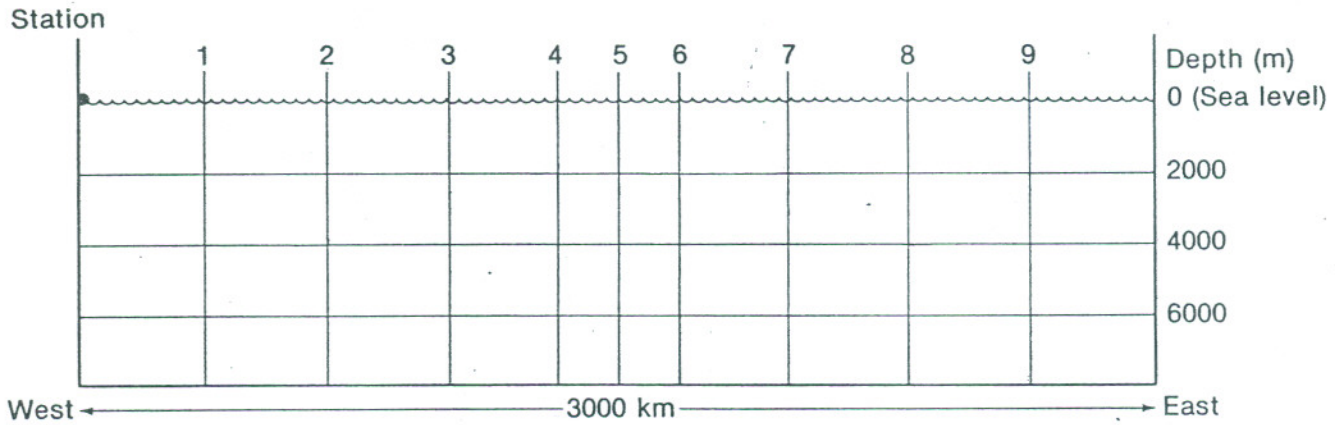
$$D = \frac{1}{2} t \times v$$

In the formula, *D* stands for depth, *t* for time between sending and receiving, and *v* for the

velocity or speed of sound in water. The speed of sound in water is 1524 meters per second.

The table below gives you some sonar sounding data. Calculate the ocean floor depth for each sounding. Then plot these depths on the graph below. Smoothly connect the depth points and you will have a cross-sectional map of the South Atlantic Ocean floor. (Note: These data are rounded approximations.)

Station	Time for signal to return (s)	Depth (m)	Station	Time for signal to return (s)	Depth (m)
1	6.0				
2	5.2		6	2.4	
3	4.0		7	4.0	
4	2.4		8	5.2	
5	3.2		9	6.0	



1. From what point do oceanographers measure depth?
2. At which station(s) is the ocean deepest?
3. At which station(s) is the ocean the most shallow?
4. What large ocean floor feature is evident in the cross - sectional map?
5. What is the name of the ocean floor feature located directly below Station 5?
6. Suppose you need to test how light affects a certain plant in the ocean. To do this you would fill three jars with ocean water and the plant species being tested.
 - a. What condition do you want to vary (change)?
 - b. What conditions must remain constant?
 - c. If you added plant food to one jar, would you be introducing another constant, control, or variable?
 - d. What do you call the jar whose light is not changed (constant, control, or variable)?
7. Read Micah 7: 18 - 19. What illustration does the Bible give about God's forgiveness for our iniquities (sin)?