

What Controls the Rheologic Structure of Earth

Using the data below plot Earth's Geothermal gradient and the Solidii of silicate rocks and iron alloy on the graph on the next page. While plotting the data keep in mind what you are plotting; The geothermal gradient represents the temperature of rock at different depths within the Earth and Solidii lines represent the melting temperature of different Earth materials at different depths.

Geothermal Gradient		Solidus Silicate Rocks		Solidus of Iron alloy	
Depth (km)	Temp. (C)	Depth (km)	Temp. (C)	Depth (km)	Temp. (C)
0	0	0	1500	No Iron Alloy at these depths	
20	500	20			
40	750	40	1500		
60	1100	60	1550		
80	1300	80	1600		
100	1500	100	1725		
120	1650	120	1750		
140	1780	140			
160	1850	160			
180	2000	180			
200		200			
220	2200	220	2250		
240		240			
260	2300	260			
280		280	2500		
300	2400	300			
Scale Change		Scale Change			
1500	2650	1500	3000		
2000		2000			
2500	3050	2500	4250		
3000		3000	4500		
3500	3500	No Silicate Rocks at these depths		3000	2800
4000				3500	
4500	3900			4000	3500
5000				4500	
5500	4250			5000	4250
6000				5500	
6250	4400			6000	
				6250	5100

1. Describe and discuss what the shape of the the geothermal gradient, specifically how does the upper 60 km of the geothermal gradient compare to the lower 6000 km.

2. Describe and discuss the shape of the solidii.

3. The location of rheologic boundaries with Earth are Variable around the planet depending on the Geothermal gradient which is not constant globally. Disucss and draw at what depths the Lithoshpere-Asthenoshere boundary, the Asthenosphere-Mesosphere boundary, and inner core-outer core boundaries occur.

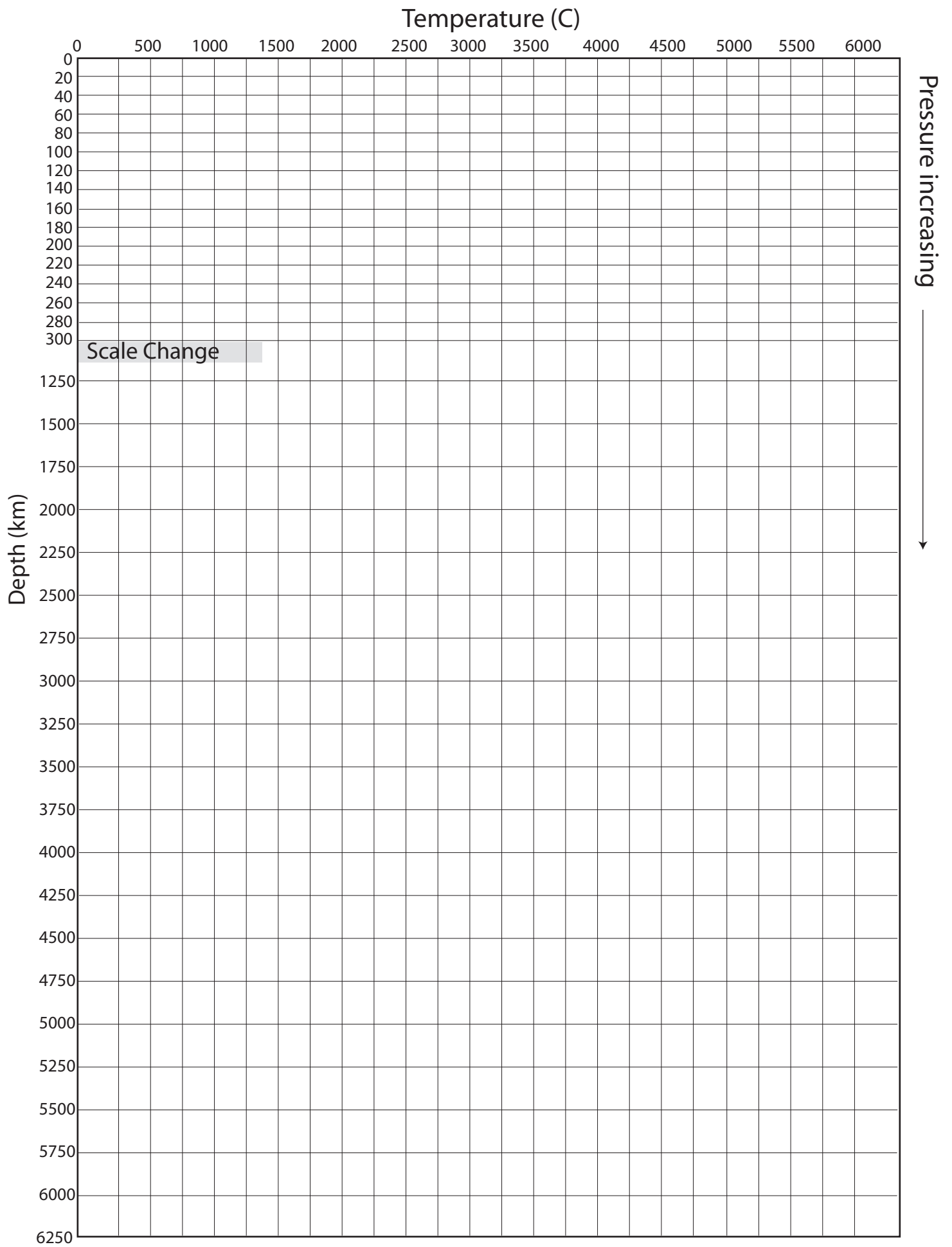


Figure 2