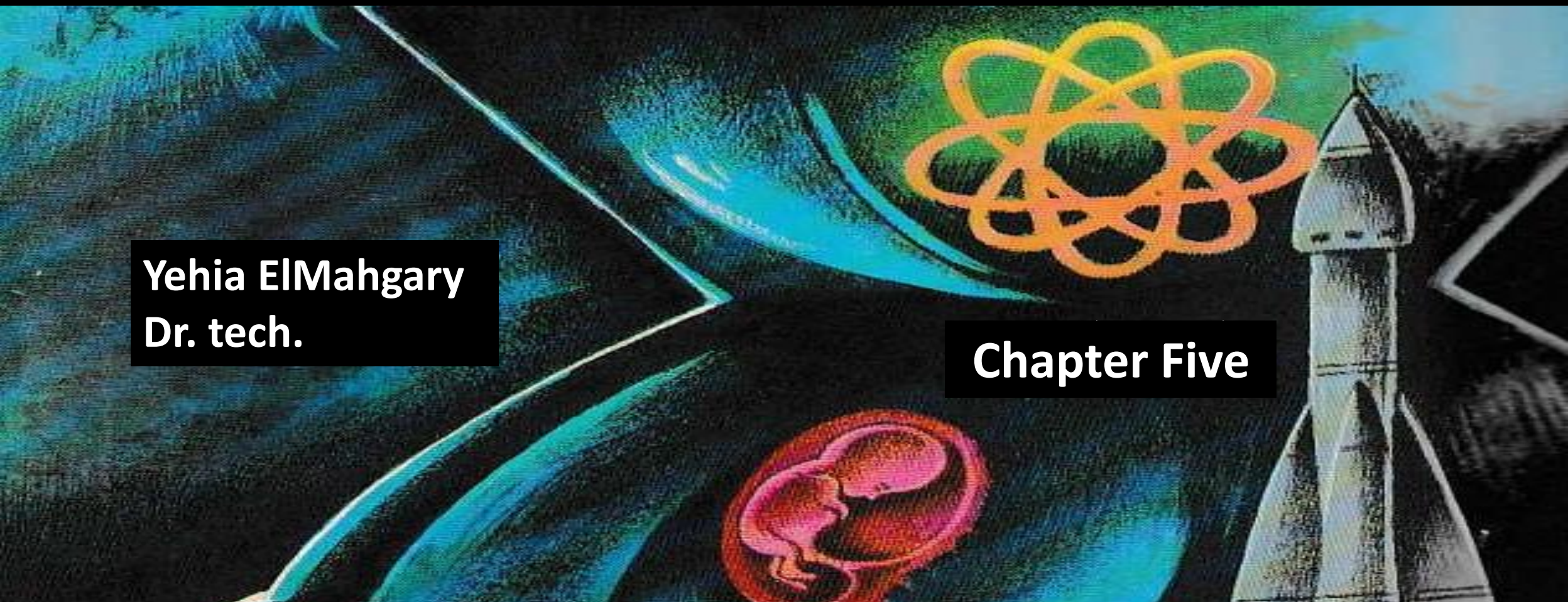


VERSES OF QUR'AN IN THE NICHE OF SCIENCE

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Dr. tech.

Chapter Five



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

IN THE NAME OF ALLAH THE MOST GRACIOUS THE MOST MERCIFUL

Chapter Five

Earth Creation and its Phenomena

The Verses of Qur'an

• وَالْأَرْضَ بَعْدَ ذَلِكَ دَحَاهَا ، أَخْرَجَ مِنْهَا مَاءَهَا وَمَرْعَاهَا (النازعات 30 – 31)

• And after that He rolled the earth, and brought forth therefrom its water and pasture 79/31

• وَتَرَى الْجِبَالَ تَحْسَبُهَا جَامِدَةً وَهِيَ تَمُرُّ مَرَّ السَّحَابِ ۚ صُنَعَ اللَّهُ الَّذِي اتَّقَىٰ كُلَّ شَيْءٍ ۚ إِنَّهُ خَبِيرٌ بِمَا تَفْعَلُونَ (النمل 88)

• And you see the mountains and think them rigid, but they pass as the passing away of the cloud (27/88)

• وَأَلْقَىٰ فِي الْأَرْضِ رَوَاسِيَ أَن تَمِيدَ بِكُمْ وَبَثَّ فِيهَا مِن كُلِّ دَابَّةٍ (لقمان 10)

• And He has set on the earth firm mountains lest it should shake with you (31/10)

• أَلَمْ نَجْعَلِ الْأَرْضَ مِهَادًا وَالْجِبَالَ أَوْتَادًا (النبأ 8 - 7)

• Have We not made the earth as dwelling and the mountains as pegs? (78/7 – 8)

• أَمْ نَجْعَلِ الْأَرْضَ قَرَارًا وَنَجْعَلِ خِلَالَهَا أَنْهَارًا وَنَجْعَلِ لَهَا رَوَاسِيَ وَنَجْعَلِ بَيْنَ الْبَحْرَيْنِ حَاجِزًا ۗ إِنَّهُ مَعَ اللَّهِ (النمل 61)

• Is not He Who made the earth as fixed abode, and placed rivers in its midst, and placed firm mountains therein, and has set a barrier between the two seas. Is there a god with Allah?

• أَوْ كَظُلُمَاتٍ فِي بَحْرٍ لُّجِّيٍّ يَغْشَاهُ مَوْجٌ مِّنْ فَوْقِهِ مَوْجٌ مِّنْ فَوْقِهِ سَحَابٌ ظُلُمَاتٌ بَعْضُهَا فَوْقَ بَعْضٍ (النور 24/40)

• Or (the state of the disbeliever) the darkness in a vast deep sea, overwhelmed with waves topped with waves topped by dark clouds (layers) of darkness upon darkness (24/40)

• أَوَلَمْ يَرَوْا أَنَّا نَأْتِي الْأَرْضَ نَنْقُصُهَا مِنْ أَطْرَافِهَا وَاللَّهُ يَحْكُمُ لَا مُعَقِّبَ لِحُكْمِهِ (الرعد 41)

• See they not that we gradually contract the crust (extremities) of earth? (13/41)

The Earth's Layers

❖ Starting from the center, the earth is composed of seven distinct layers: the inner core, the outer core, the inner mantle, the outer mantles, the asthenosphere, the lithosphere and the crust.

❖ The inner core is a solid metal ball 1,220 km radius, about 5400°C hot and consisting mainly of iron & nickel.

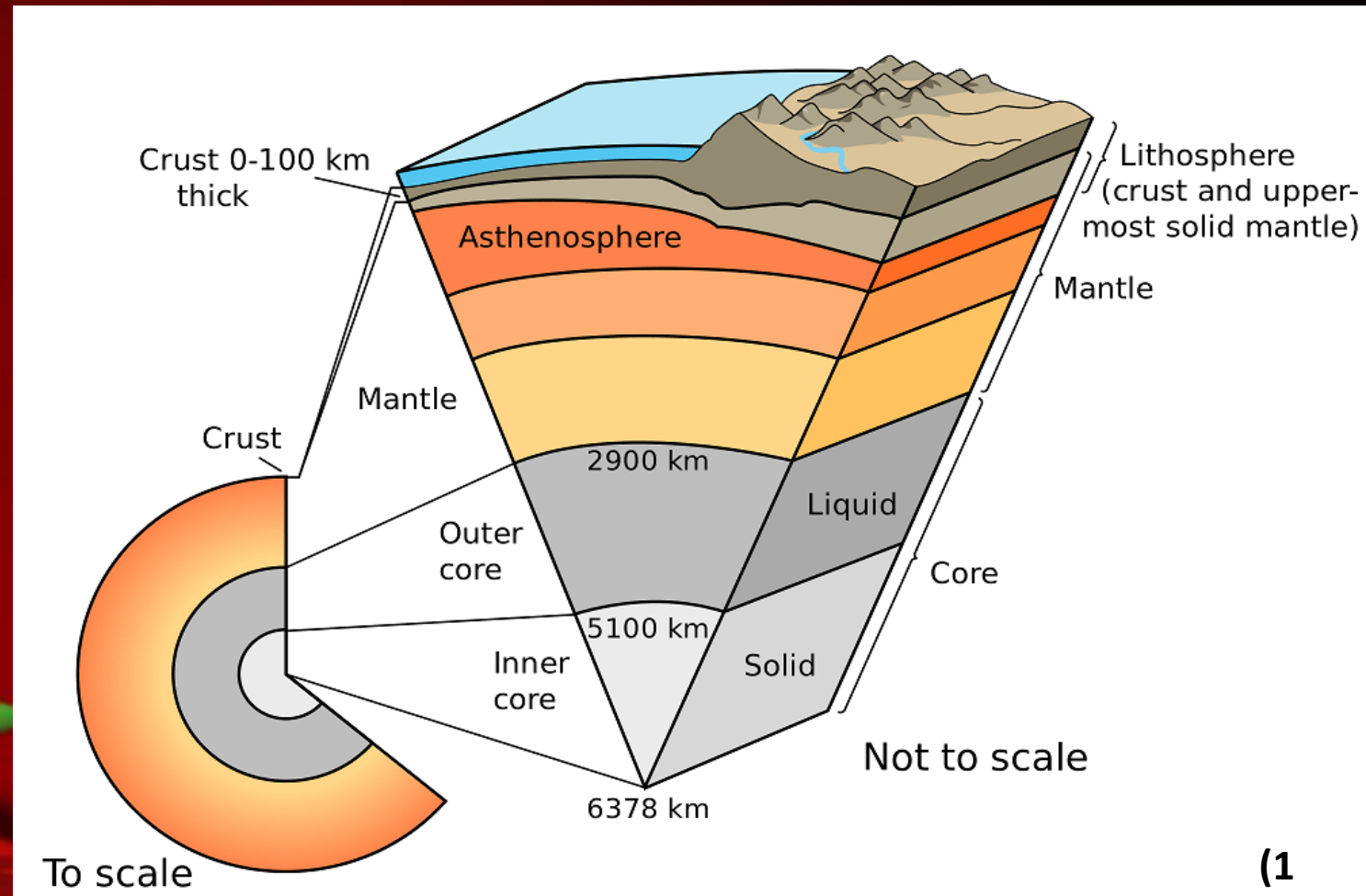
❖ The outer core, made of iron & nickel, lies between 5100 and 2900 km below the surface and is responsible of the earth's magnetic field.

❖ The whole mantle ≈ 3000 km thick, and is made of iron, magnesium and silicon.

❖ The asthenosphere is above the upper mantle and is 100 – 200km deep and is formed mainly of molten rocks. Tectonic plates ride upon and slide across the asthenosphere.

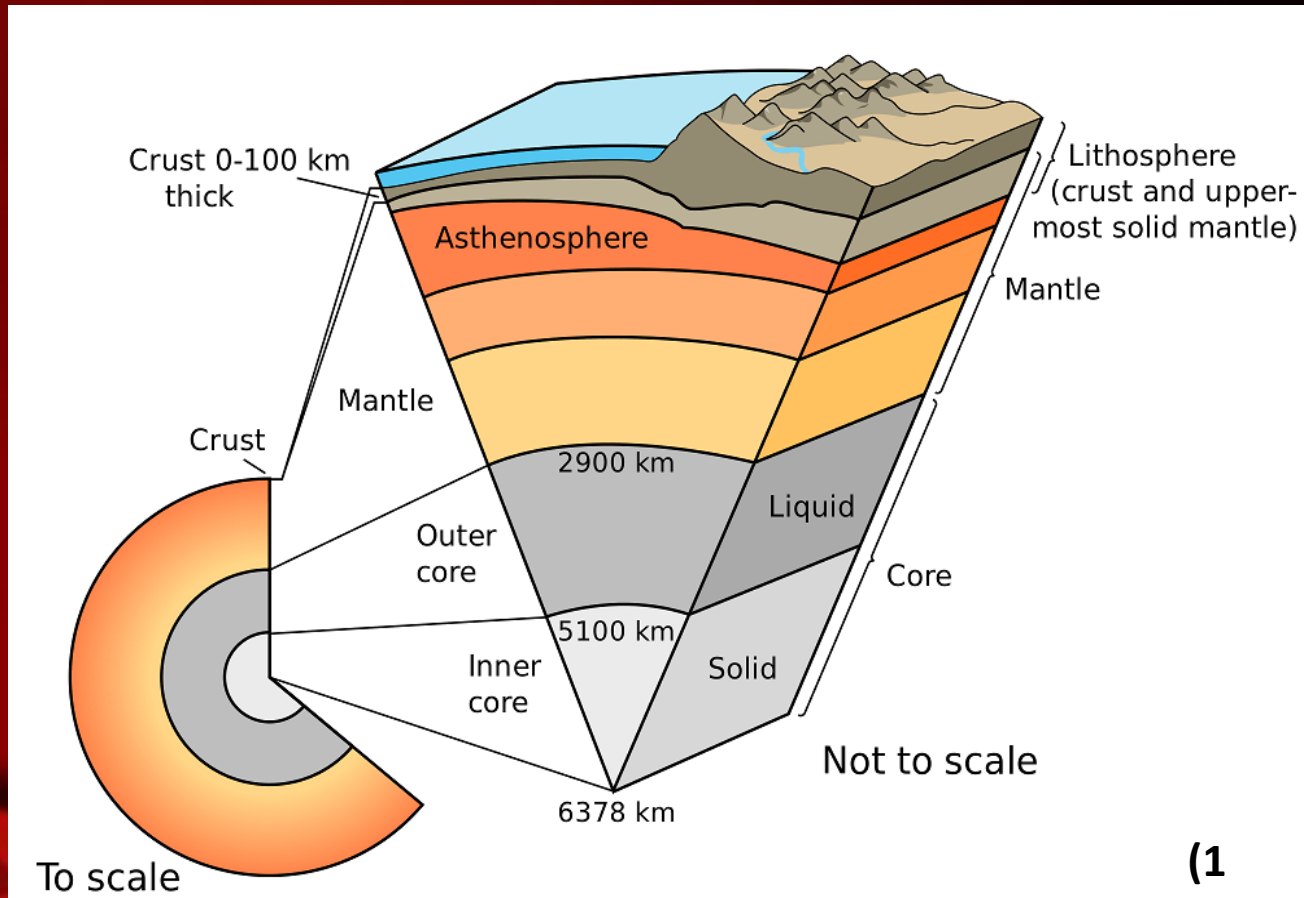
❖ Above the asthenosphere and the upper part of the mantel is the lithosphere.

❖ Then comes the thin and brittle crust which is made of light elements, with a varying thickness of 5 km under the oceans and 30–70 km under the continents.



اللَّهُ الَّذِي خَلَقَ سَبْعَ سَمَاوَاتٍ وَمِنَ الْأَرْضِ مِثْلَهُنَّ يَتَنَزَّلُ الْأَمْرُ بَيْنَهُنَّ لِتَعْلَمُوا أَنَّ اللَّهَ عَلَىٰ كُلِّ شَيْءٍ قَدِيرٌ وَأَنَّ اللَّهَ قَدْ أَحَاطَ
بِكُلِّ شَيْءٍ عِلْمًا (الطلاق 12) It is Allah who has created seven heavens and of the earth the like thereof (i.e., seven). His command descends between them (heavens and earth), that you may know that Allah has power over all things and that Allah surrounds all things in (His) knowledge (66/12)

The heaven as well as the earth were mentioned in the Qur'an in singular form in several verses. This matches the knowledge and the observation of the people since Qur'an came and until last century. In addition, they both were mentioned also in plural form. The interpretation of the seven heavens was given in chapter 2. The interpretation of the seven layers of the earth is given in the figure attached. These are: the inner core, the outer core, the inner mantle, the outer mantle, the asthenosphere, the lithosphere and the crust.



وَالأَرْضَ بَعْدَ ذَلِكَ دَحَاهَا ، أَخْرَجَ مِنْهَا مَاءَهَا وَمَرْعَاهَا ، وَالْجِبَالَ أَرْسَاهَا (النَّازِعَات 30 – 32)

And after that He rolled/spread the earth, and brought forth therefrom its water and pasture (79/31)



The translation of the Arabic verb ‘*daha*’ can be both rolled and spread. This is exactly what happened to the earth: it was first rolled to become a sphere and then spread out. In any direction we walk, there’s an endless route. The spherical nature of the earth is emphasized in another verse “يُكْوِّرُ اللَّيْلَ عَلَى النَّهَارِ وَيُكْوِّرُ النَّهَارَ عَلَى اللَّيْلِ” (الزمر 5)

He rolls the night over the day and rolls the day over the night” (39/5). Then He brought from within the earth its water and pasture. We now know that the water of oceans evaporated from earth rocks, stayed as vapor, then condensed when the earth got cooler.

وَتَرَى الْجِبَالَ تَحْسَبُهَا جَامِدَةً وَهِيَ تَمُرُّ مَرَّ السَّحَابِ صُنِعَ اللَّهُ الَّذِي أَنْتَقَنَ كُلَّ شَيْءٍ إِنَّهُ خَبِيرٌ بِمَا تَفْعَلُونَ (النمل 88)

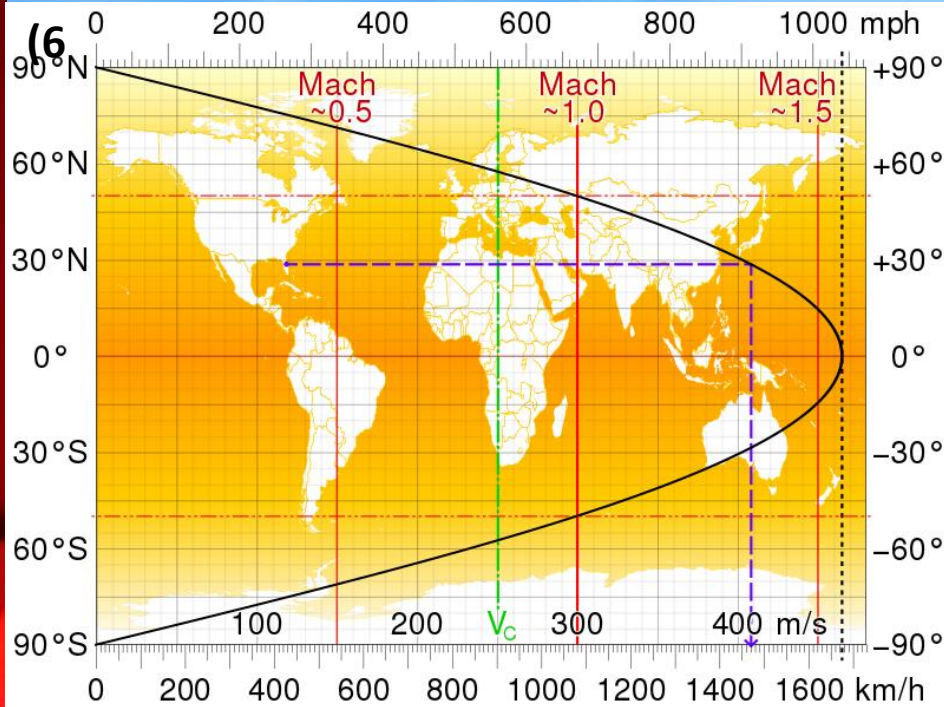
And you see the mountains and think them rigid, but they pass by as the passing away of the cloud (27/88)

❖ The rotation of the earth around its axis provides the best interpretation to this Qura'nic verse. We are rotating with the earth and so do the mountains, and that's why they seem to us rigid/stationary. Hence came the expression, 'you think them rigid', which includes in it the relative motion concept.

❖ On the other hand, when we monitor the motion of the mountains from hundreds of kilometers away from the earth, they seem to be passing by in a similar way to clouds passing by from the earth.

❖ In fact, the speed of the mountains in view of their rotation around the earth's axis varies from one place to another. Thus the speed of Himalaya is about 400m/s, when that of the Alps is around 320m/s.

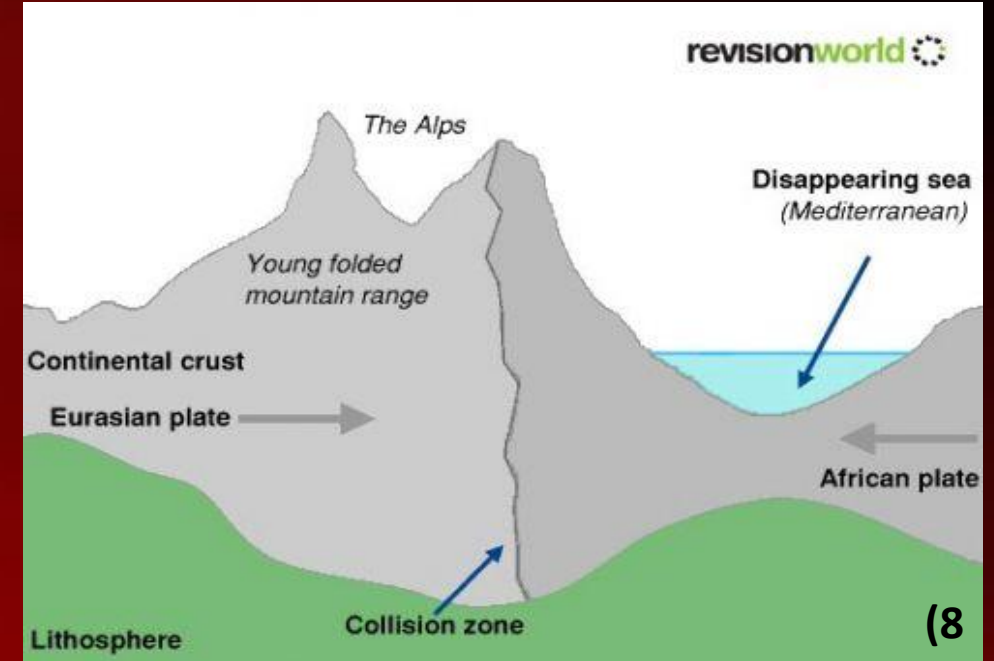
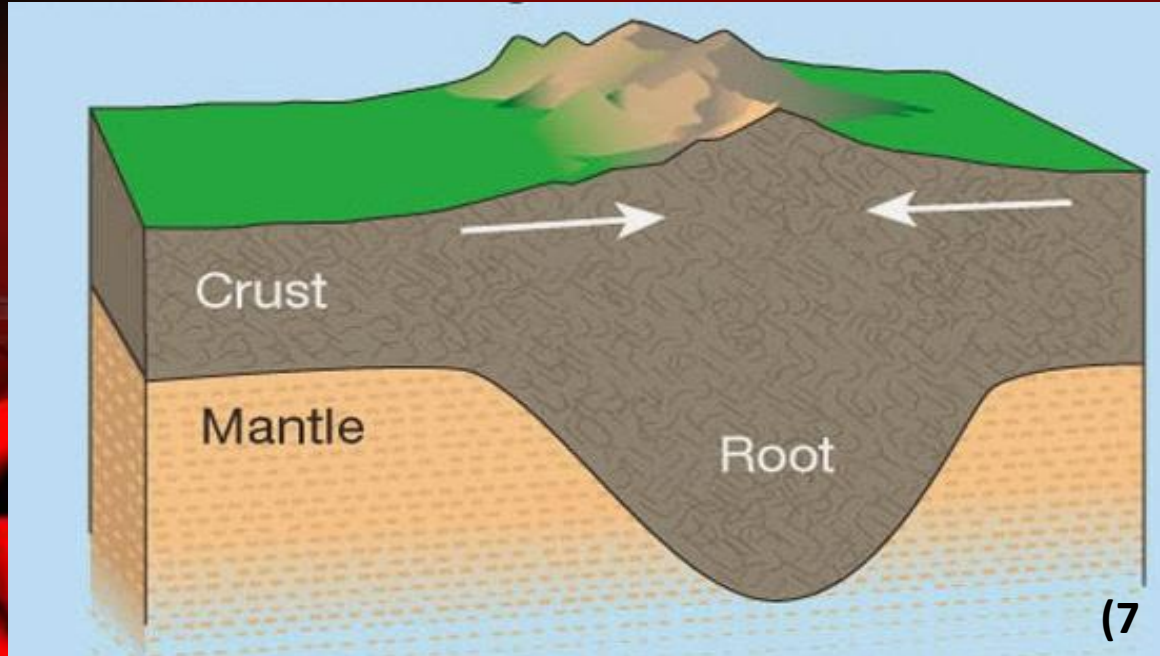
(5)



Latitude vs tangential speed at earth's surface

وَأَلْقَى فِي الْأَرْضِ رَوَاسِيَ أَنْ تَمِيدَ بِكُمْ (لقمان 10). أَلَمْ نَجْعَلِ الْأَرْضَ مِهَادًا وَالْجِبَالَ أَوْتَادًا (النبأ 7)

“And He has set on the earth firm mountains lest it should shake with you” (31/10). “Have We not made the earth as dwelling and the mountains as pegs?” (78/7 – 8)



Mountain formation happens when two tectonic plates collide with each other as one of them moves. The stronger plate slips under the other one to form the root, which may extend 6 or 7 times the mountain height, while the other one buckles up to form the mountain body. Mountains act as pegs to fix two tectonic plates together to avoid further slipping. It has been proven that the movement of the India peninsula decreased after collision and formation of the Himalaya from 20 cm/year to less than 5.

“أَمَّنْ جَعَلَ الْأَرْضَ قَرَارًا وَجَعَلَ خِلَالَهَا أَنْهَارًا وَجَعَلَ لَهَا رَوَاسِيَ وَجَعَلَ بَيْنَ الْبَحْرَيْنِ حَاجِزًا إِنَّهُ مَعَ اللَّهِ ، بَلْ أَكْثَرُهُمْ لَا يَعْلَمُونَ ” (النمل 61). “مَرَجَ
“Is not He Who made the earth as fixed abode, and placed rivers in its midst, and placed firm mountains therein, and has set a barrier between the two seas. Is there a god with Allah? Nay, but most of them know not” (27/61). “He has let loose the two seas meeting together. Between them is a barrier, which none of them can transgress. (55/19 – 20)

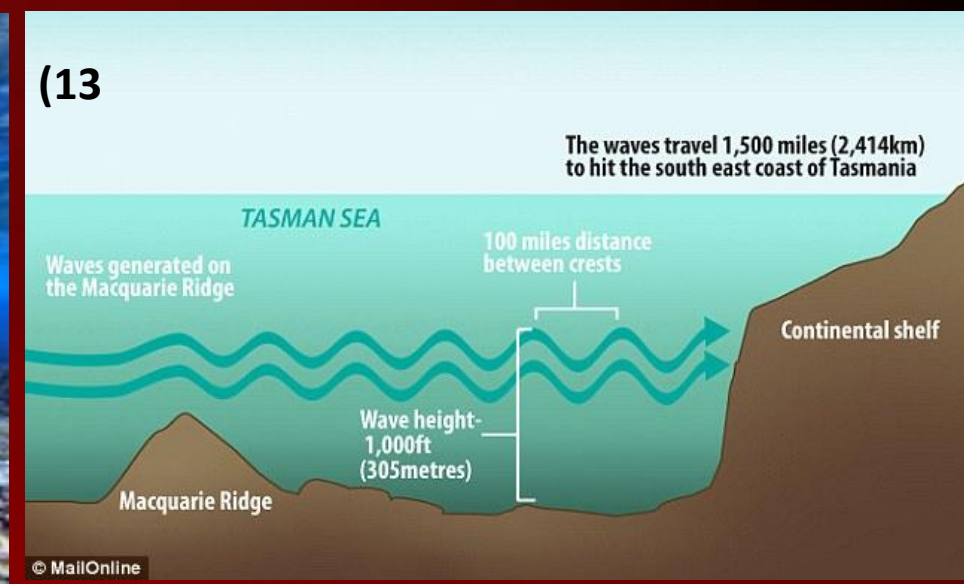


The amazing phenomenon of the converging waters of two seas, rivers, or a sea and a river, not mixing with each other, has been explained by the difference in the surface tension of the two waters. This isn't convincing as the salinity, density and temperatures are almost the same. More sensitive to these variables are the fauna and flora, as they don't blend as the surface water, and they give the waters different colors. Water itself, as we know is colorless

أَوْ كَظُلُمَاتٍ فِي بَحْرٍ لَّجِيٍّ يَغْشَاهُ مَوْجٌ مِّنْ فَوْقِهِ مَوْجٌ مِّنْ فَوْقِهِ سَحَابٌ ظُلُمَاتٌ بَعْضُهَا فَوْقَ بَعْضٍ إِذَا أَخْرَجَ يَدَهُ لَمْ يَكِدْ

Or (the state of the disbeliever) is like the (النور 40) يَرَاهَا وَمَنْ لَمْ يَجْعَلِ اللَّهُ لَهُ نُورًا فَمَا لَهُ مِنْ نُّورٍ

darkness in a vast deep sea, overwhelmed with waves topped with waves topped by dark clouds, layers of darkness upon darkness. If a man stretches out his hand he can hardly see it.” (24/40)

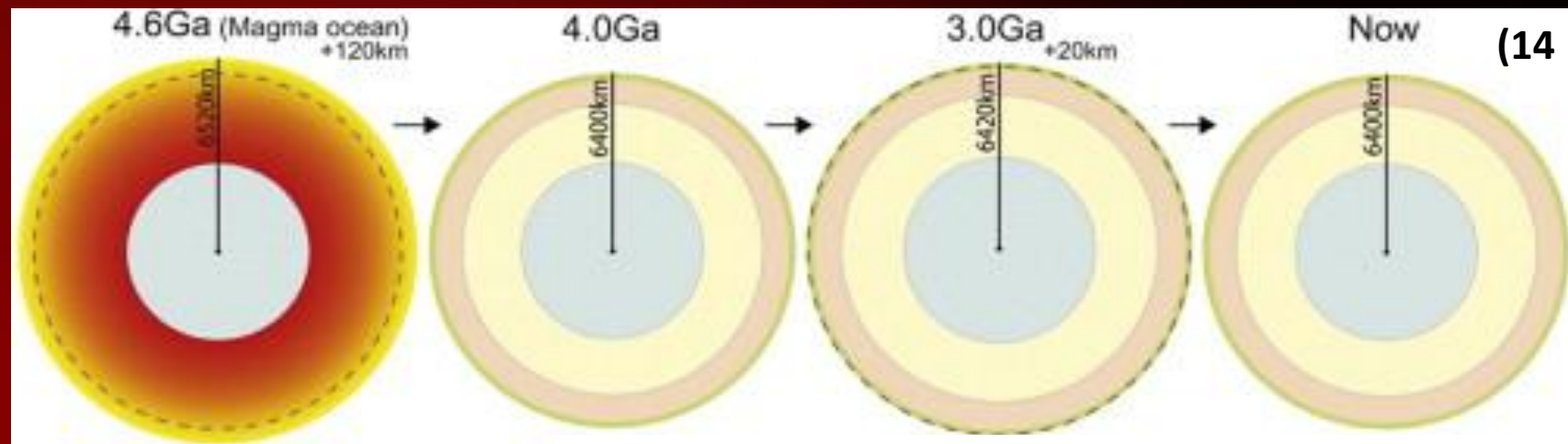


The picture on the left shows the darkness in the deep sea, the middle one shows the underwater waves (which are sometimes more massive than the pyramids), and the third is an explanation of the underwater waves. The Creator describes in the verse above the state and deeds of disbelievers as darkness in a deep sea with underwater waves topped with surface waves topped with dark clouds. Layers of darkness above each other to the extend that when one stretches out his hand he can hardly see it.

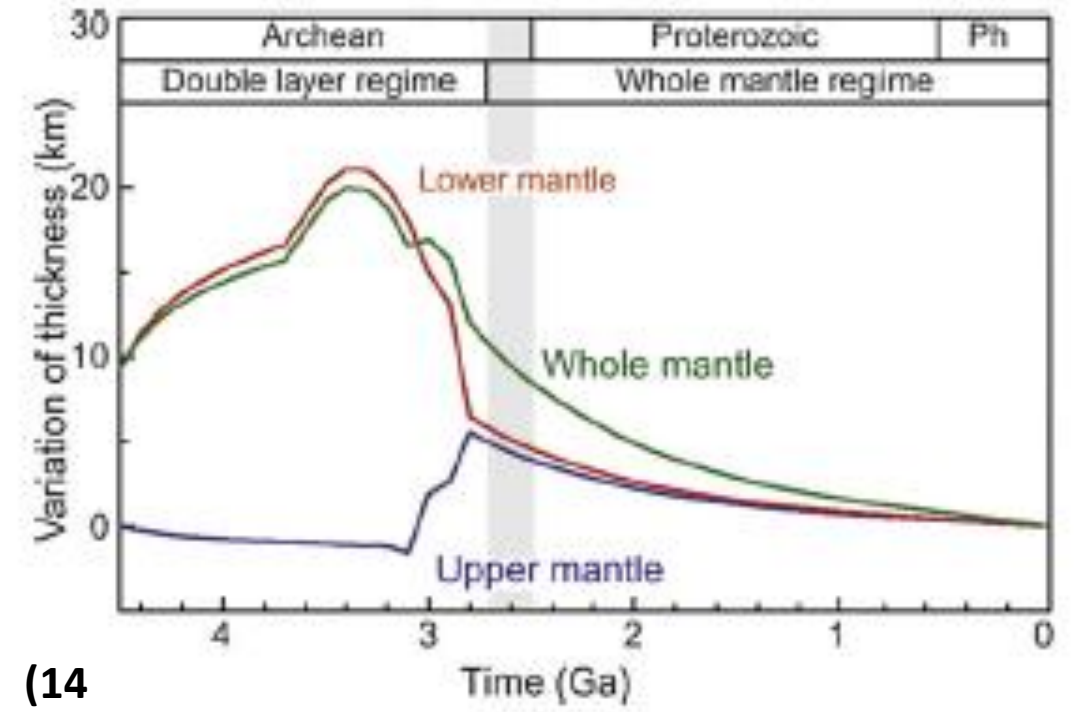
أَوَلَمْ يَرَوْا أَنَّا نَأْتِي الْأَرْضَ نَنْقُصُهَا مِنْ أَطْرَافِهَا ۗ وَاللَّهُ يَحْكُمُ لَا مُعَقَّبَ لِحُكْمِهِ ۗ وَهُوَ سَرِيعُ الْحِسَابِ (الرعد 41)

See they not that we gradually contract the crust (extremities) of earth (13/41)

Researchers from Ehime University in Japan have established a mathematical model for the development of the earth's size since its beginning about 4.5 billion years ago.



As shown in the diagrams, due to the earth's cooling, the diameter has decreased from 13040 km since its creation to 12800 km. There was a sudden increase in the diameter 3 billion years ago, because of heat radiated from the lower mantle, but since then, the earth's size has been contracting. This presents an interpretation to the Qura'nic verse above.



إِذَا زُلْزِلَتِ الْأَرْضُ زِلْزَالَهَا ، وَأَخْرَجَتِ الْأَرْضُ أَثْقَالَهَا ، وَقَالَ الْإِنْسَانُ مَا لَهَا (الزلزلة 3-1)

“When the earth is shaken with its earthquake, and when the earth throw out its burdens, and man says, ‘What is the matter with it?’” (99/1 – 3)



(15)



(16)

No picture could describe the massive earthquake of the day of judgment as the verse above, and this one: “The day you shall see every nursing mother will forget her nursling, and every pregnant one will drop her load, and you shall see mankind as in drunken state, yet they will not be drunken, but severe will be the Torment of Allah” (22/2)



(17)

Summary of Chapter 5

- ❖ We consider in this chapter verses dealing with the earth and some of its phenomena
- ❖ The Qura'nic verses about the creation of the earth as sphere, the phenomenon of day and night, the extraction of its water and providing it with pasture were all addressed.
- ❖ Also the Qura'nic verse concerning the movement of mountains with earth (though they look rigid/fixed) was explained. Hence, the formation of mountains and their function as pegs to prevent the tectonic plates from sliding.
- ❖ Then the Qura'nic verse about the phenomenon of non-mixing of converging seas/ rivers was discussed. The prevalent explanation of different surface tensions was rebut , instead the difference in flora and fauna of the two seas/ rivers was suggested.
- ❖ We also considered the Qura'nic verse about the layers of darkness describing the deeds/state of non-believers, and the existence of huge undersurface waves larger than the pyramids. Their presence was discovered fairly recently.
- ❖ Also, we mentioned that Japanese researchers found in this century, that the diameter of the earth has contracted by about 240km since its creation. This was introduced as an explanation to the Qura'nic verse concerning the contraction of earth.
- ❖ Finally, the verses on the earthquake of the day of Judgment were mentioned.

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