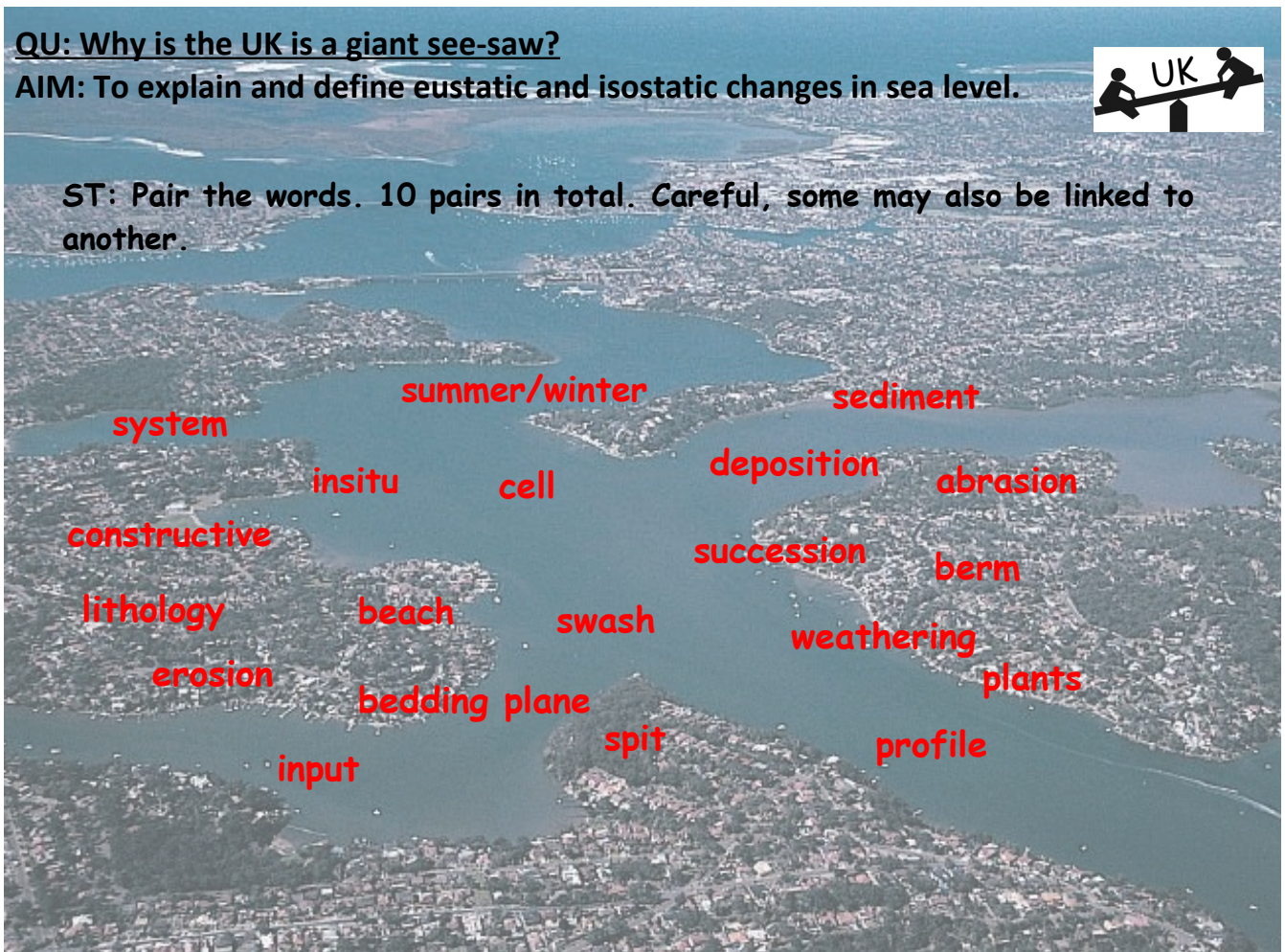


**QU: Why is the UK is a giant see-saw?**

**AIM: To explain and define eustatic and isostatic changes in sea level.**

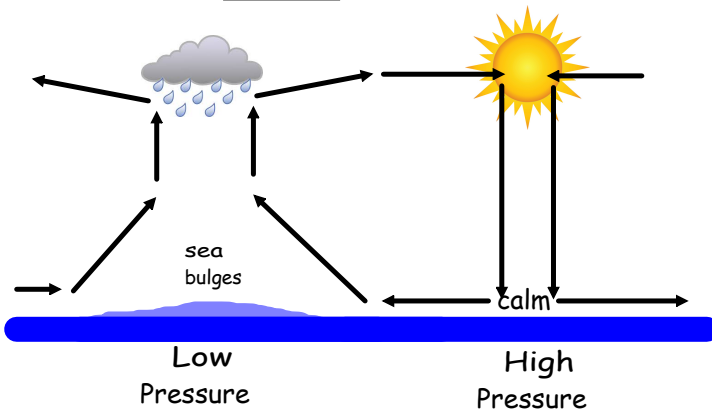


**ST: Pair the words. 10 pairs in total. Careful, some may also be linked to another.**



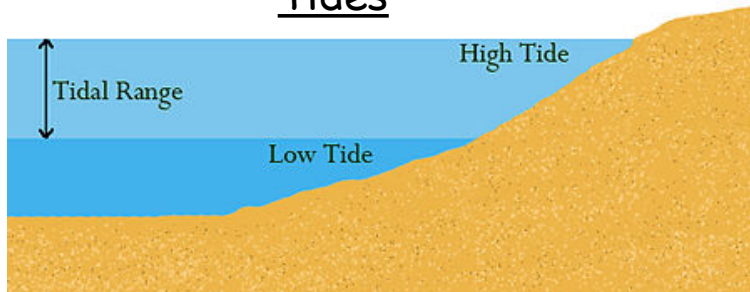
## Short term sea level changes

### Effects of air pressure on the sea.



Sea level can change with weather/air pressure as we saw in the Severn Estuary last lesson.

### Tides



Sea level changes daily with tides

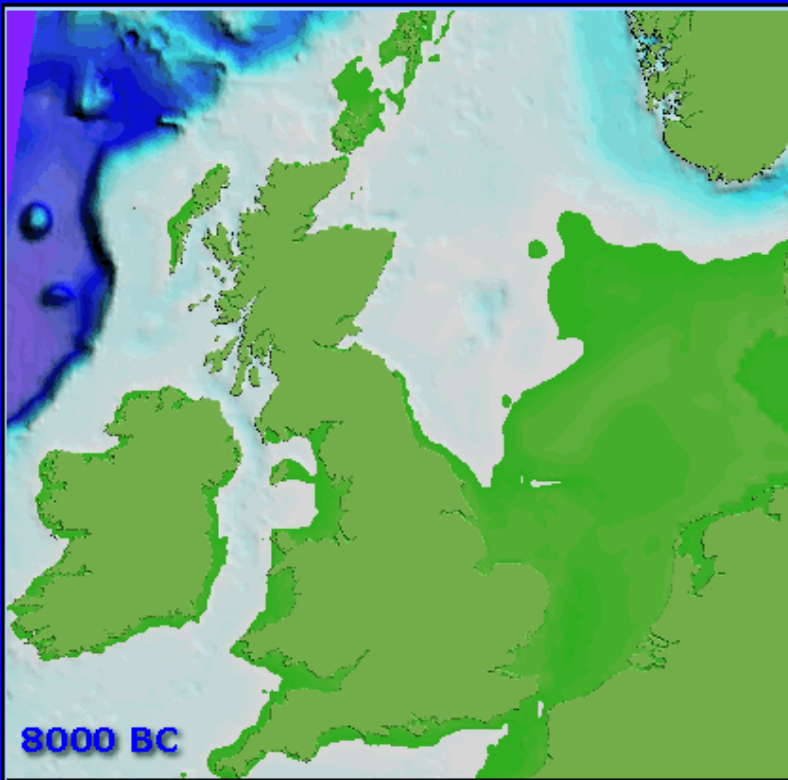
Sea level change influences coasts on different timescales.

- a. **Longer-term sea level changes** result from a complex interplay of factors both eustatic (ice formation/melting, thermal changes) and isostatic (post glacial adjustment, subsidence, accretion) and tectonics.
- b. Sea level change has produced emergent coastlines (raised beaches with fossil cliffs) and submergent coastlines (rias, fjords and Dalmatian). (6)

*Spec speak*

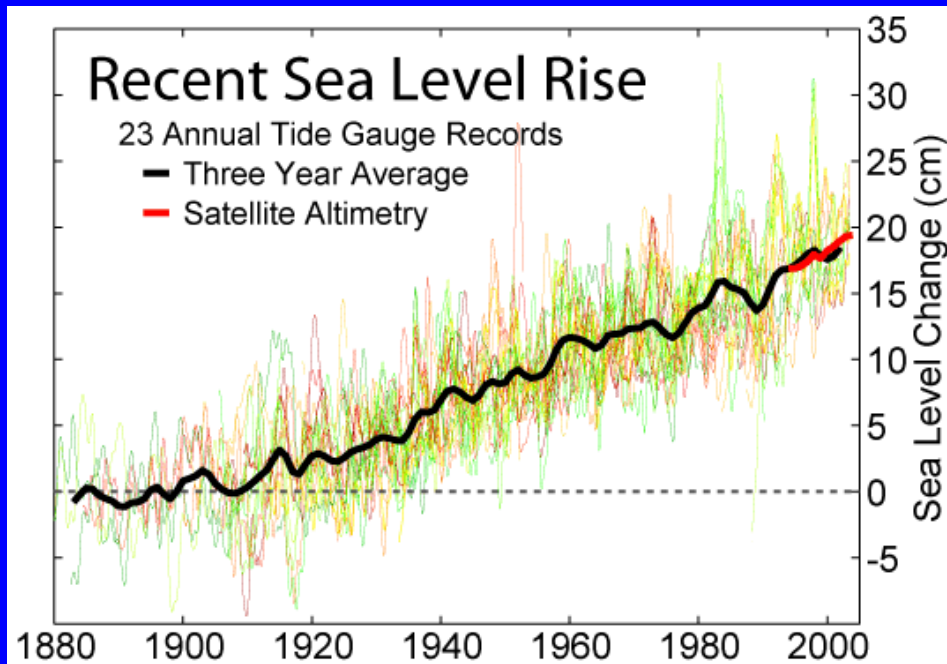
## But longer term.....

We should not think of the coast as a 'fixed' line. Look how it has changed in the last 10,000 years.



6000 years ago we could walk to France!  
Thankfully sea levels rose.  
Since then sea level has been fairly stable, until now!

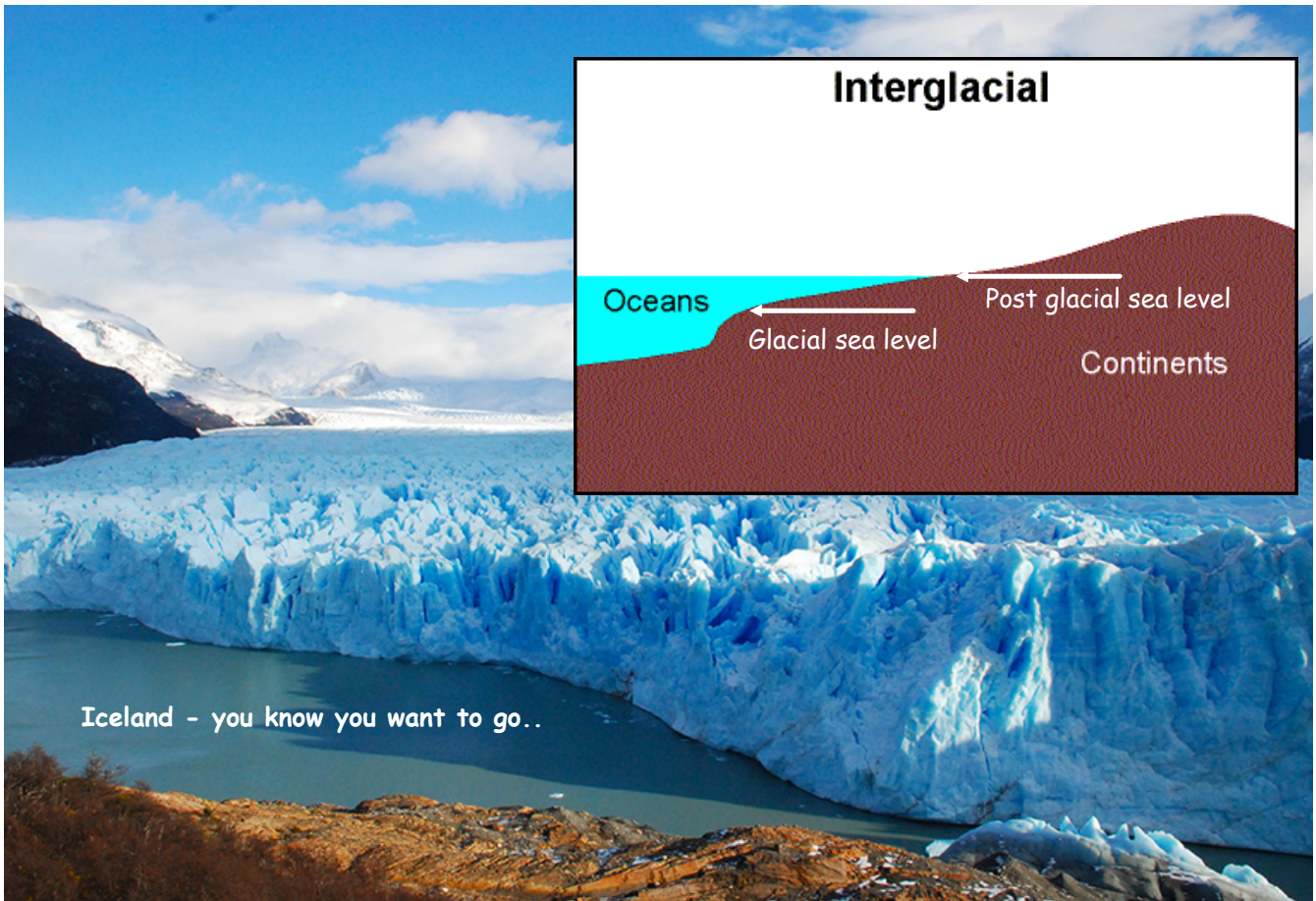
What can cause such change?



## Copy

Rise or fall of global sea levels relative to land masses =  
Eustatic change      medium paced change (100's of years) Can be 10's of years.

Change in sea level to localised rise or fall in land mass =  
Isostatic change      slow paced change (1000's years)

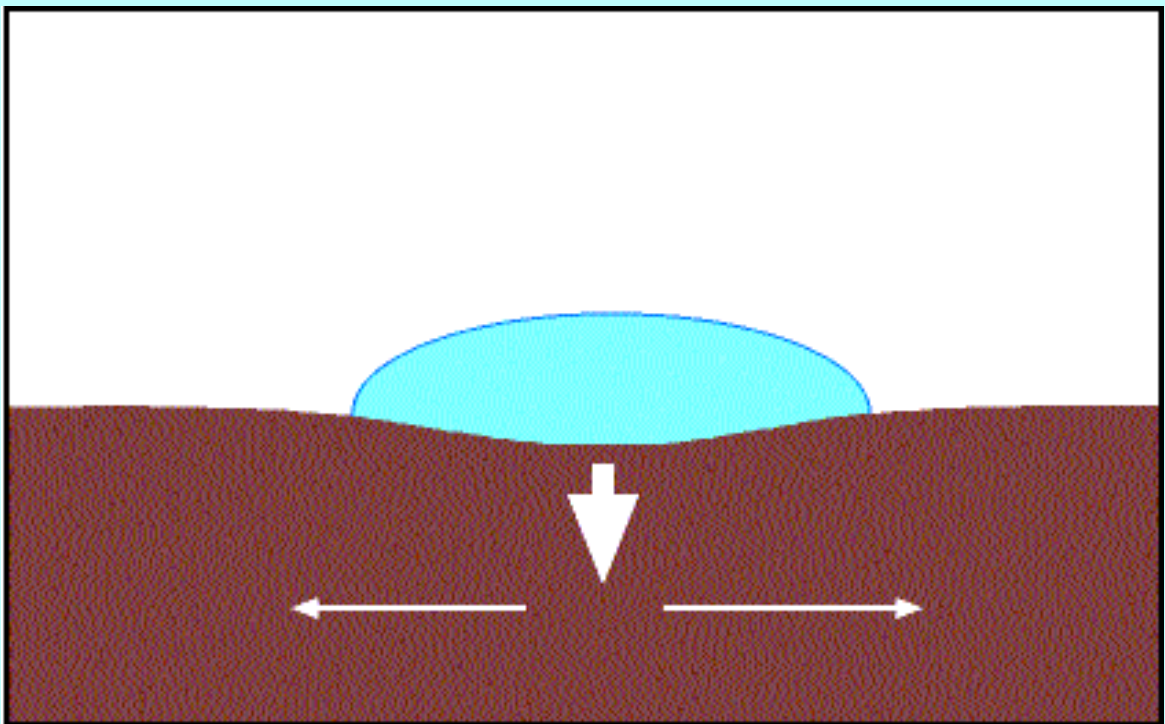


Iceland - you know you want to go..

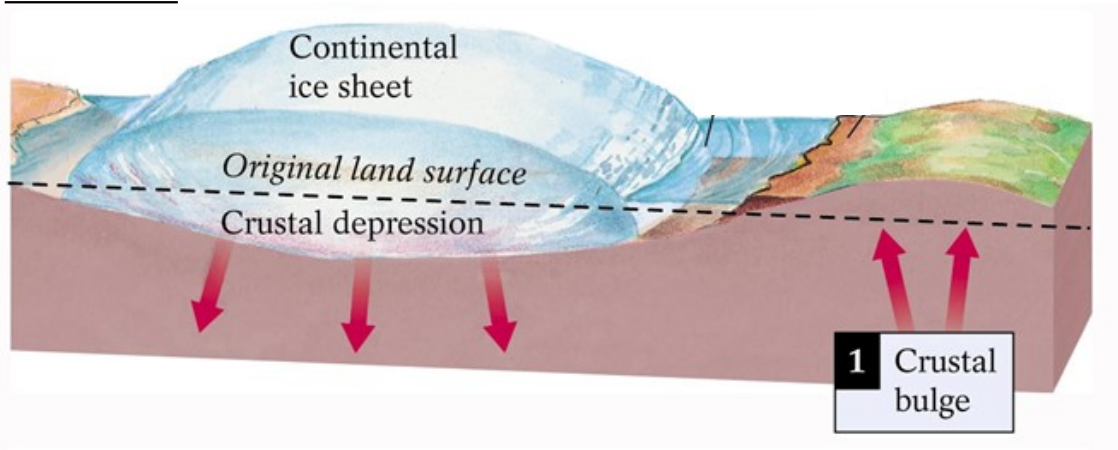
Currently we have polar ice caps and glaciers around the world. (although they are disappearing). Clearly when they melt there is an obvious impact on sea levels. Eustatic rise. This is happening globally.

**NOTE: Thermal expansion can also cause sea level rise.**

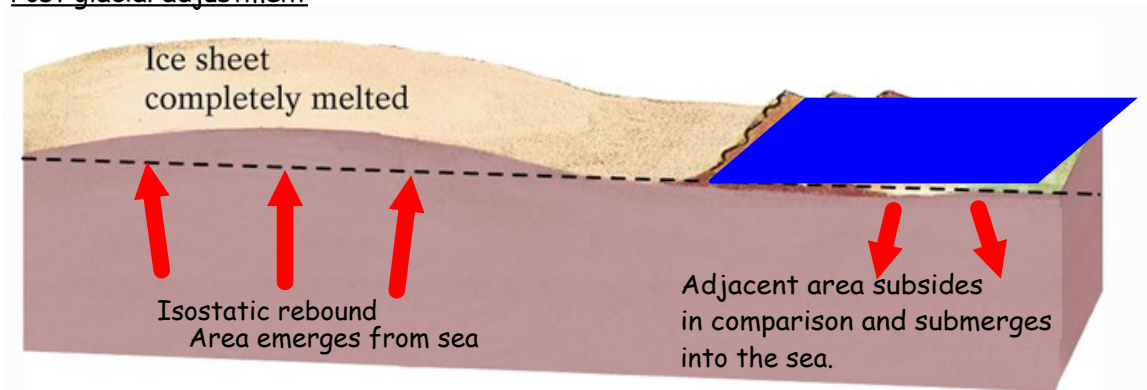
Ice sheets can cause isostatic change...  
as well as eustatic. How?



Glacial Period



Post glacial adjustment



Sea level change is complicated because isostatic and eustatic changes can happen at the same time in some areas.



Sponge re-enactment

Using A3 sheet (composite of pg.s 140-141 Edexcel, Hodder and Pearson books)

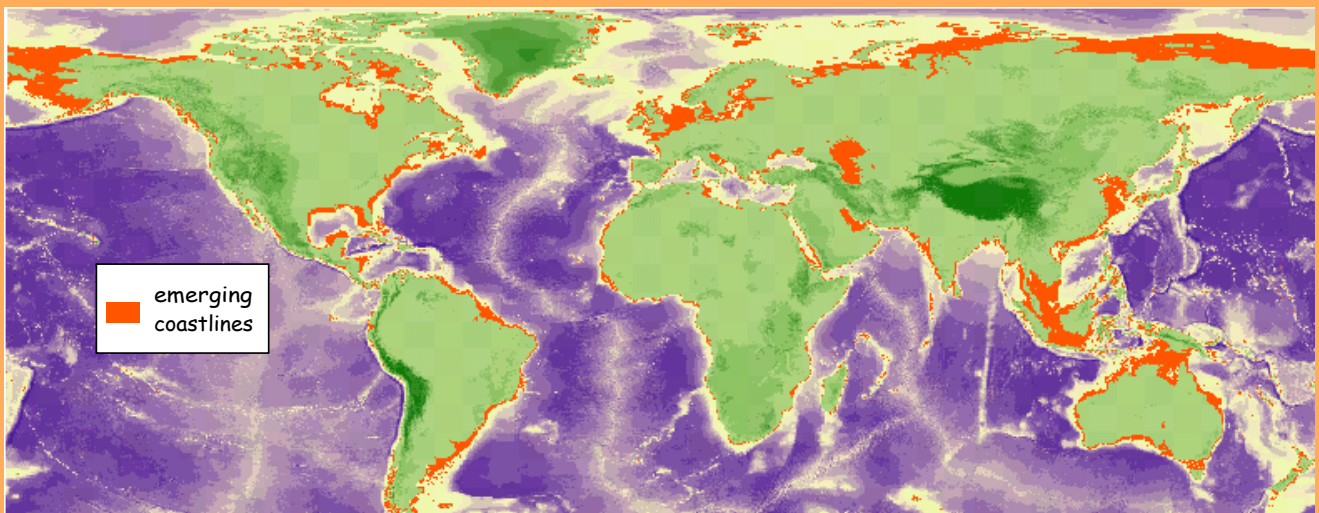
1 - Outline what causes Eustatic sea level change. Why is this currently happening globally?

2 - Outline what causes Isostatic change. Use your copy of the diagrams on the previous slide to help. Stick them in your notes.

3 - Apart from ice sheets what else can cause Isostatic change?

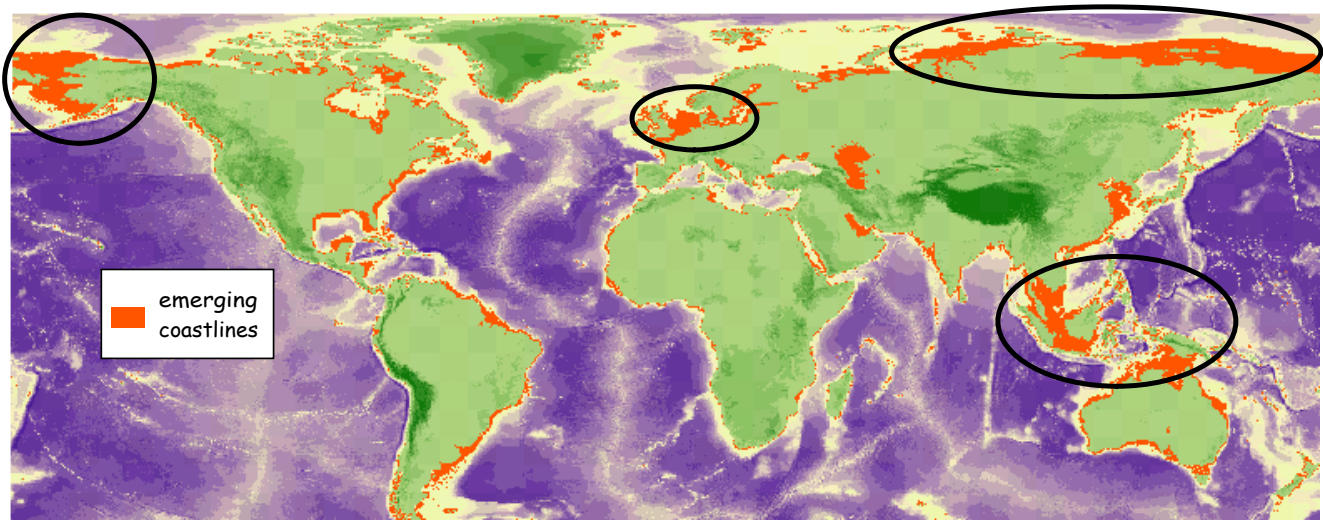
4 - Using the image below. Describe the distribution of emergent coastlines and account for their locations. (6)

Answer Q4 in full. We will look at exam technique here.





Describe the distribution of emergent coastlines and account for their locations. (6)



Two parts to the question. Distribution = big paragraph. Go for the major obvious areas (circled)  
Account for = several paragraphs

In short your answer should have two distinct sections if you are answering the question. Check this.

**Distribution** - Emergent coasts are found all over the world, especially in the north and parts of the Indian ocean. *What is wrong with this?*

**Account for** - In northern Russia ice sheets have only recently melted and retreated towards the north pole whereas around Indonesia there is a great deal of tectonic activity and earthquakes. *What is wrong with this?*

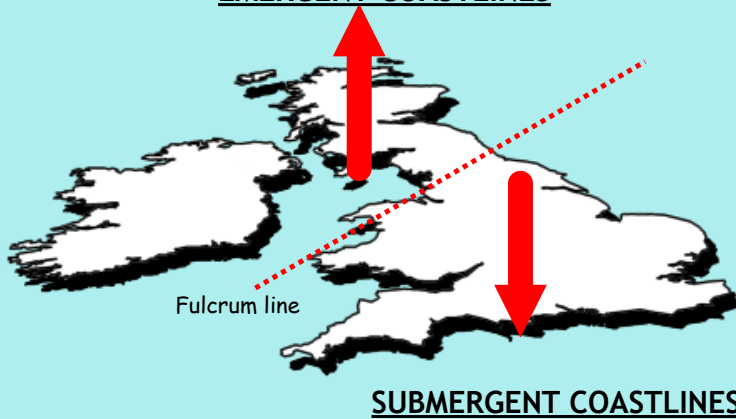
**distribution** - 2 marks, accurate info needed. Place names, compass points. Places located in reference to other regions.

**account for** - 4 marks 1x relevant suggestion and 1 x quality of explanation. x2.

How did your answer compare?

Longer-term sea level changes result from a complex interplay of factors both eustatic (ice formation/melting, thermal changes) and isostatic (post glacial adjustment, subsidence, accretion) and tectonics.

### EMERGENT COASTLINES



**Go on then...Why is Scotland rising by 1.5mm a year in places and southern England subsiding by -1mm.**

### Current isostatic change in the UK

