

General Geology 1: the basics

2 November 2020

1. Isostasy, topography and vertical movements

1.1 What is isostasy?

1.2 What are the main factors controlling the topography of the Earth?

The image on the side shows the distribution of elevation/bathymetry of the Earth

1.3 Describe the main features and patterns you see and define (on the image) the homogeneous domains

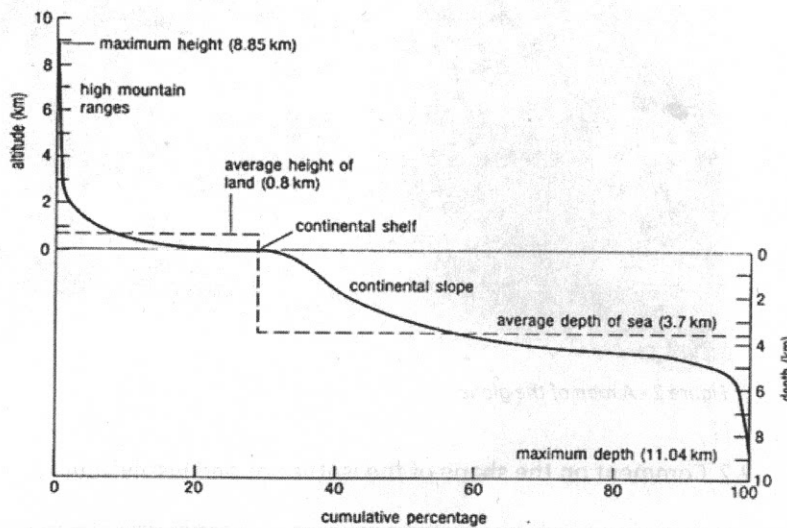


Figure 1 - Topography/bathymetry distribution in the Earth

1.4 What lithospheric configurations do you expect in the subsurface of the homogenous domains? Make drawings in the boxes below

2. Climate

2.1 The picture shows an image of the globe: draw the isotherms over the entire map

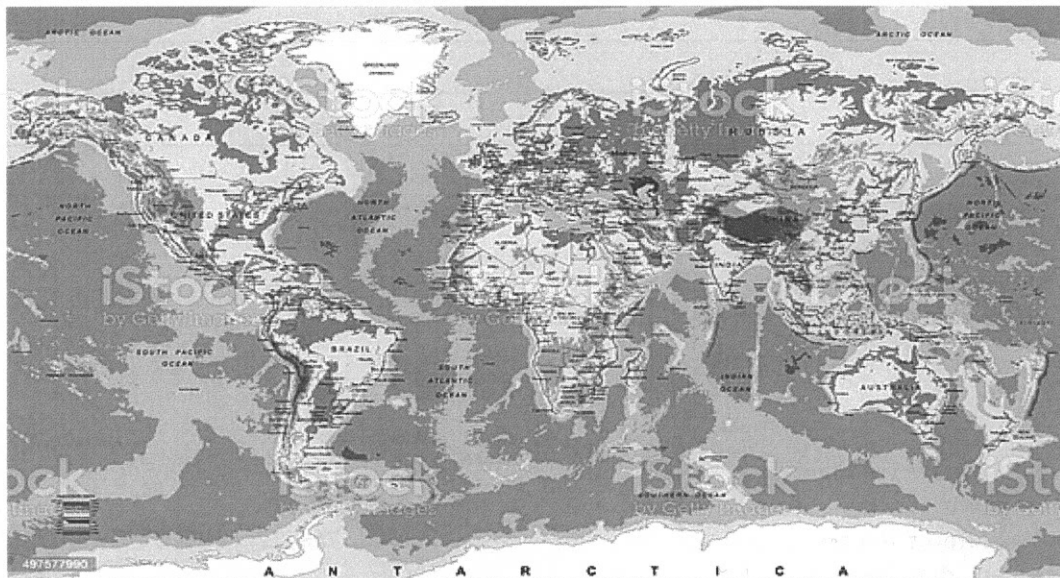


Figure 2 - A map of the globe

2.2 Comment on the shape of the isotherms and justify your choices

2.3 What are the main processes controlling the distribution of temperatures on the Earth?

name _____

student number _____

3. Marine sedimentology

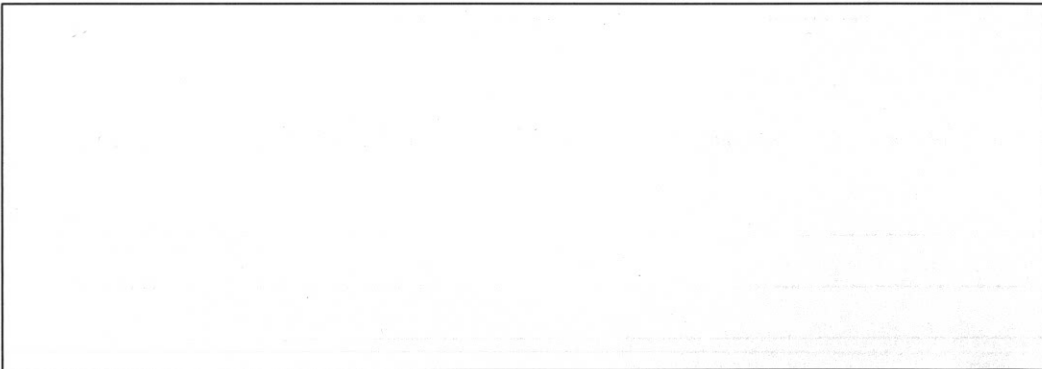
3.1 Rivers are the most important agent transporting sediments to the sea. Depending on the amount of sediments and the regime of currents, **estuaries** or **deltas** can form.

Draw a map view of the two



3.2 Describe the main features of the two maps

3.3 Focus now on deltas. In the box below, draw a **vertical cross section** across a delta, from the fluvial plain to the fully marine domain. Provide horizontal and vertical scales.



3.4 Offshore the coast, one usually finds the **continental shelf**. Provide a brief definition of the continental shelf

name _____ student number _____

3.5 The North Sea surrounded by the UK, Scandinavian countries and the Netherlands, is a well-developed continental shelf. What kind of sediments do you expect to find? How did they form?

4. Deformation

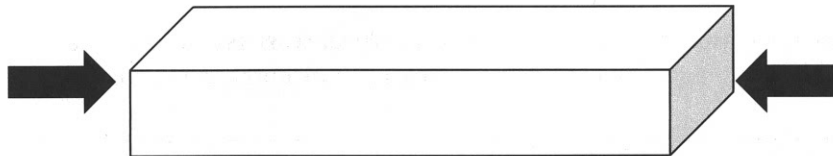
4.1 During the initial stages of deformation, rocks deform producing many structures. During the class we named joints, stylolites and veins. Define the three structure:

Joints: _____

Stylolites: _____

Veins: _____

4.2 Draw them in the block diagram below



4.3 If shortening persists, then deformation will be accommodated by other structures, which ones?
