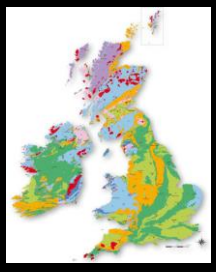
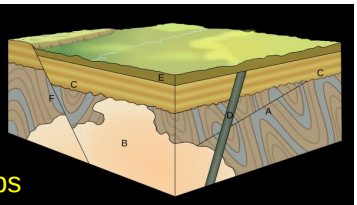
An Introduction To Geological Maps

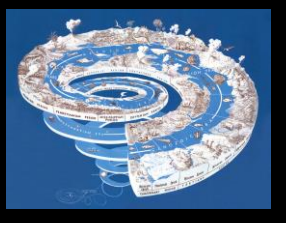


Dr Liam Herringshaw: lgh865@hotmail.com

Final Week!

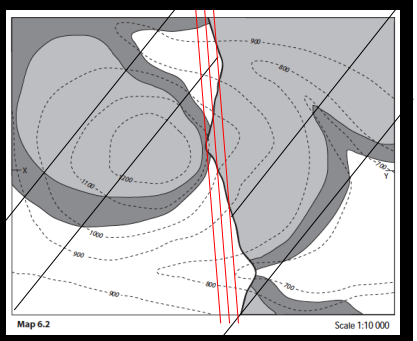


- Geological maps in 4D
- Other types of geological map
- Geological time



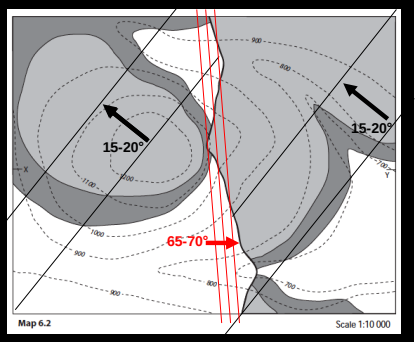
Exercise 4 – part c + d

Strike and dip of beds and fault?



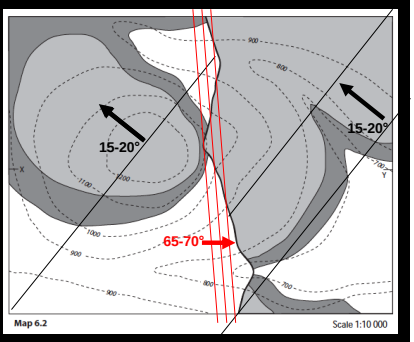
Exercise 4 – part c + d

Strike and dip of beds and fault?



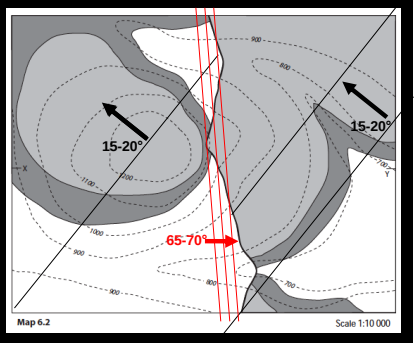
Exercise 4 – part e

What type of fault is it?



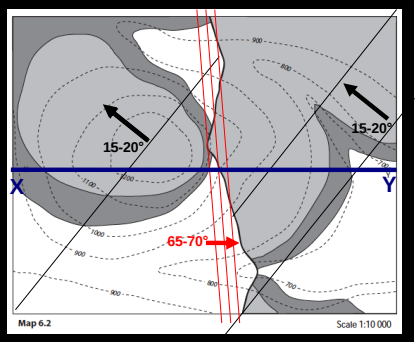
Exercise 4 – part e

An easterly dipping normal fault

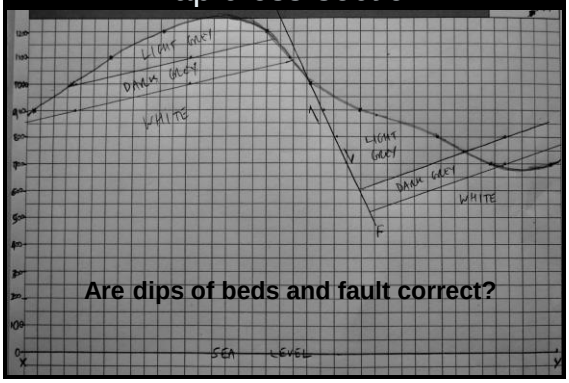


Exercise 4 – part f

Construct a cross-section for the line X-Y

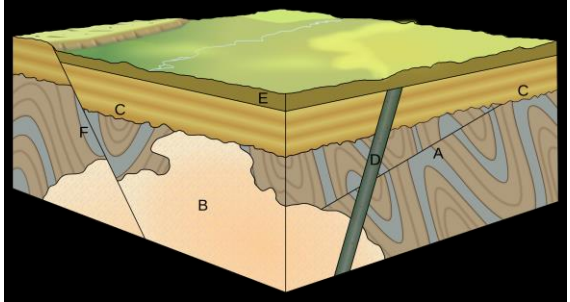


Map cross-section



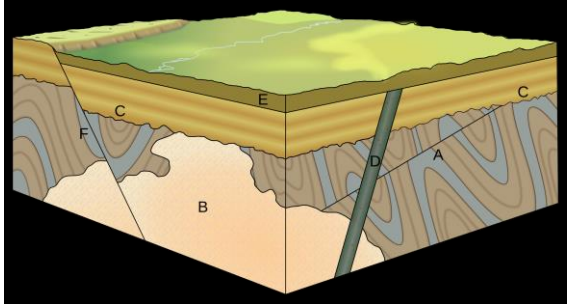
The 4th Dimension

What happened when?



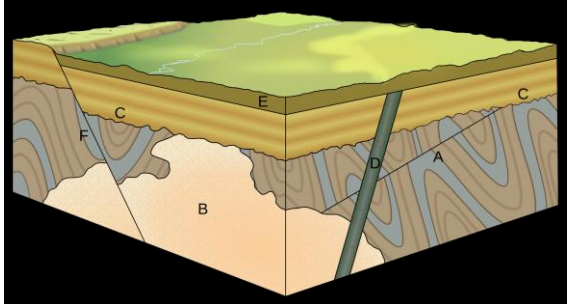
Cross-cutting relationships

What happened when?



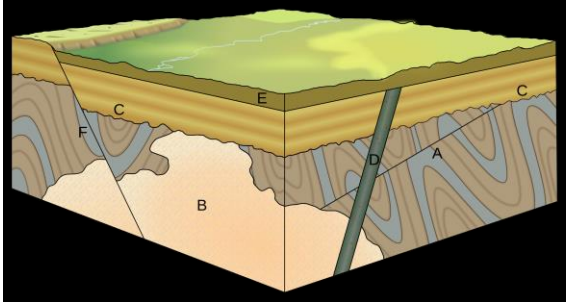
What happened before fault A?

What happened when?



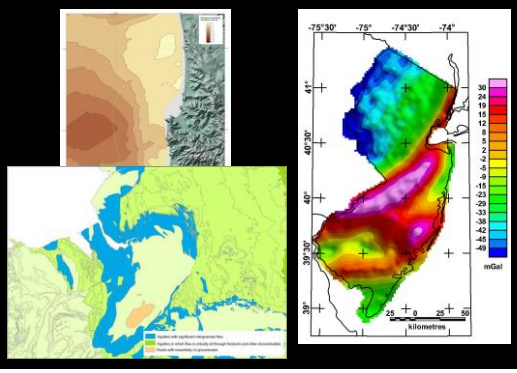
What kind of boundary is C?

What happened when?



What kind of boundary is below unit E?

Other geological maps



Geophysical maps

Magnetic anomaly maps

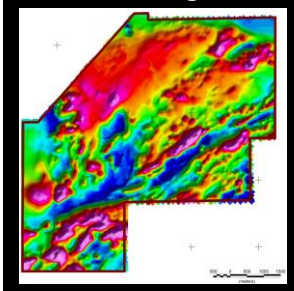
Small, local variations caused by chemistry or magnetism

Gravity anomaly maps

Density deviation from modelled

(-ve signals = granite / thick seds)

Aeromagnetic anomaly maps

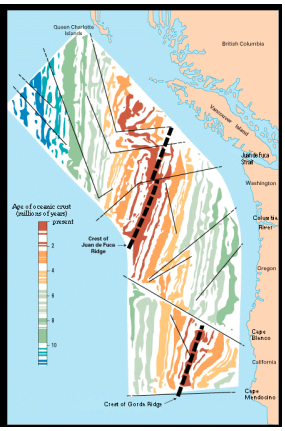


Data gathered by magnetometer in aircraft

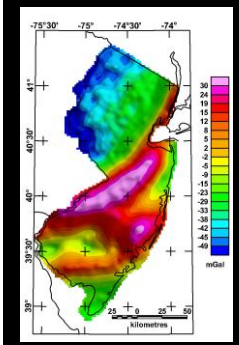
Humber-Trent region:
http://www.largeimages.bgs.ac.uk/iip/mapsportal.html?id=1004819

Mapping magnetic magma

Magnetic anomalies identified in oceanic crust = polar reversals



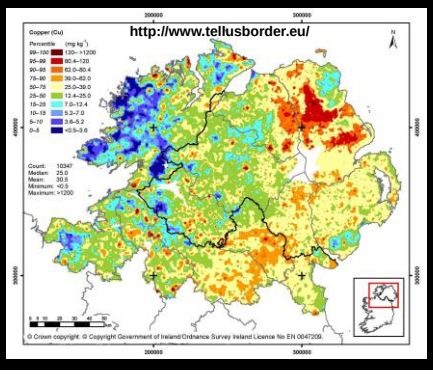
Gravity anomaly maps



Bouguer gravity anomaly map of New Jersey

Humber-Trent region:
http://www.bgs.ac.uk/data/maps/maps.cfc?method=viewRecord&mapId=1159

Geochemical maps



Hydrogeological maps

Aquifer potential

1. Intergranular flow
2. Fracture flow
3. No flow

http://www.largeimages.bgs.ac.uk/iip/hydromaps.html?id=southern-yorkshire.jp2

Carte blanche

Any questions?

Resources (www.fossilhub.org)

Gravity anomaly maps and the geoid:
http://earthobservatory.nasa.gov/Features/GRACE/page3.php

World Digital Magnetic Anomaly Map:
http://geomag.org/models/wdmam.html

BGS Geochemical maps:
http://www.bgs.ac.uk/gbase/geochemicalMaps.html