

Geophysics

Definition, Scope and Application

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Content

What is Geophysics?

What are the scopes of Geophysics?

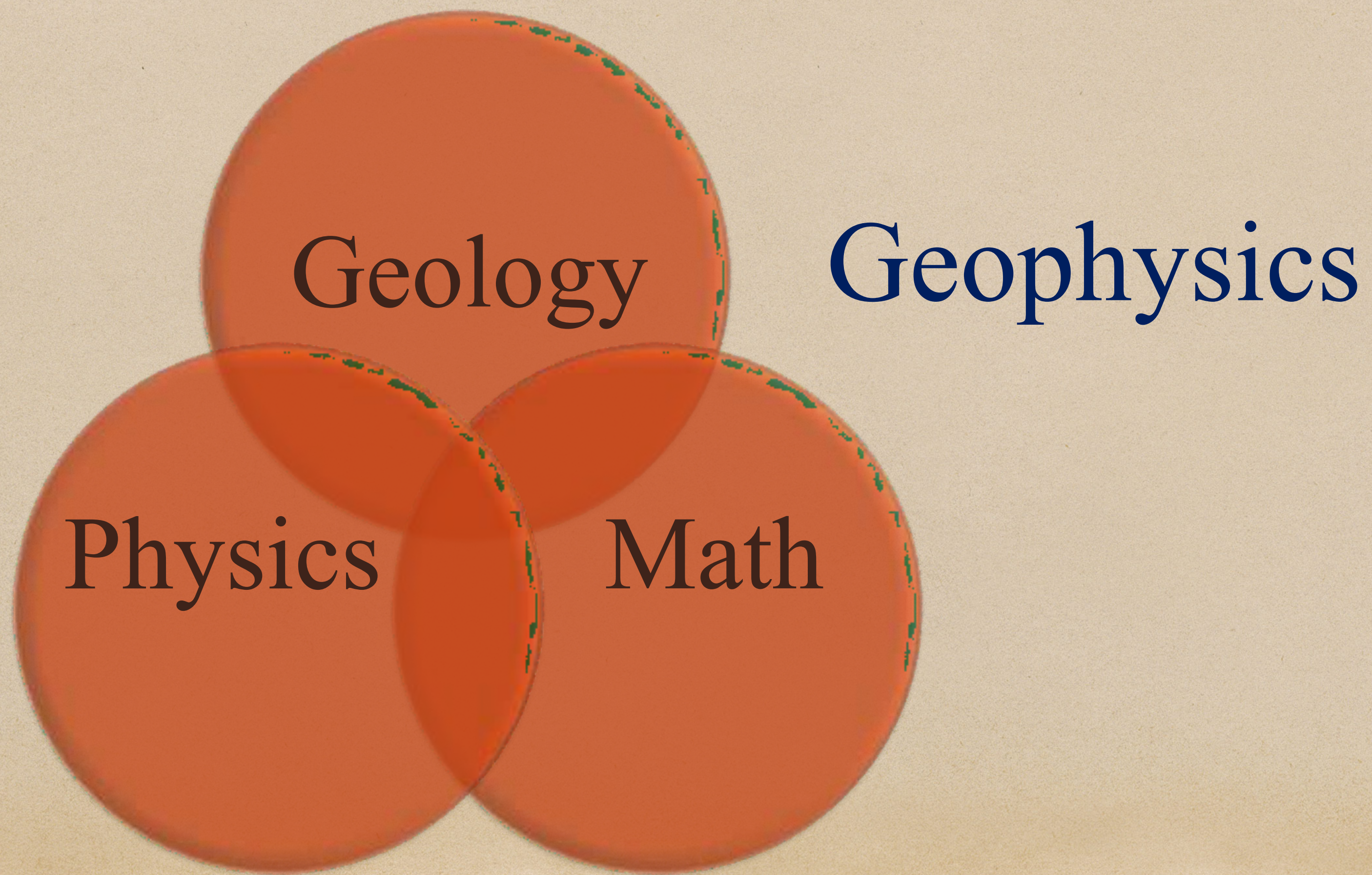
What are the applications of Geophysics?

What is Geophysics?

Geophysics is a natural science deals with the physical process and properties of Earth and its surrounding space environment by using quantitative methods for their analysis.

It is a multidisciplinary subject that characterizes the subsurface by lateral and vertical mapping of physical property variations through technologies.

Multidisciplinary Subject



What is Geophysics?

The study of the earth by quantitative physical method :

Seismic reflection and refraction

Gravity

Magnetic

Electrical

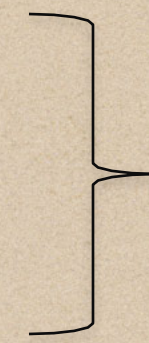
Electromagnetic

Radioactivity methods



Components of Geophysics

Gravity
Magnetics



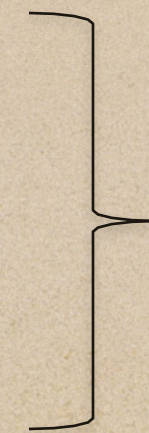
Potential Field

Electrical
Heat Flow
Electromagnetics (EM)



Diffusive Fields

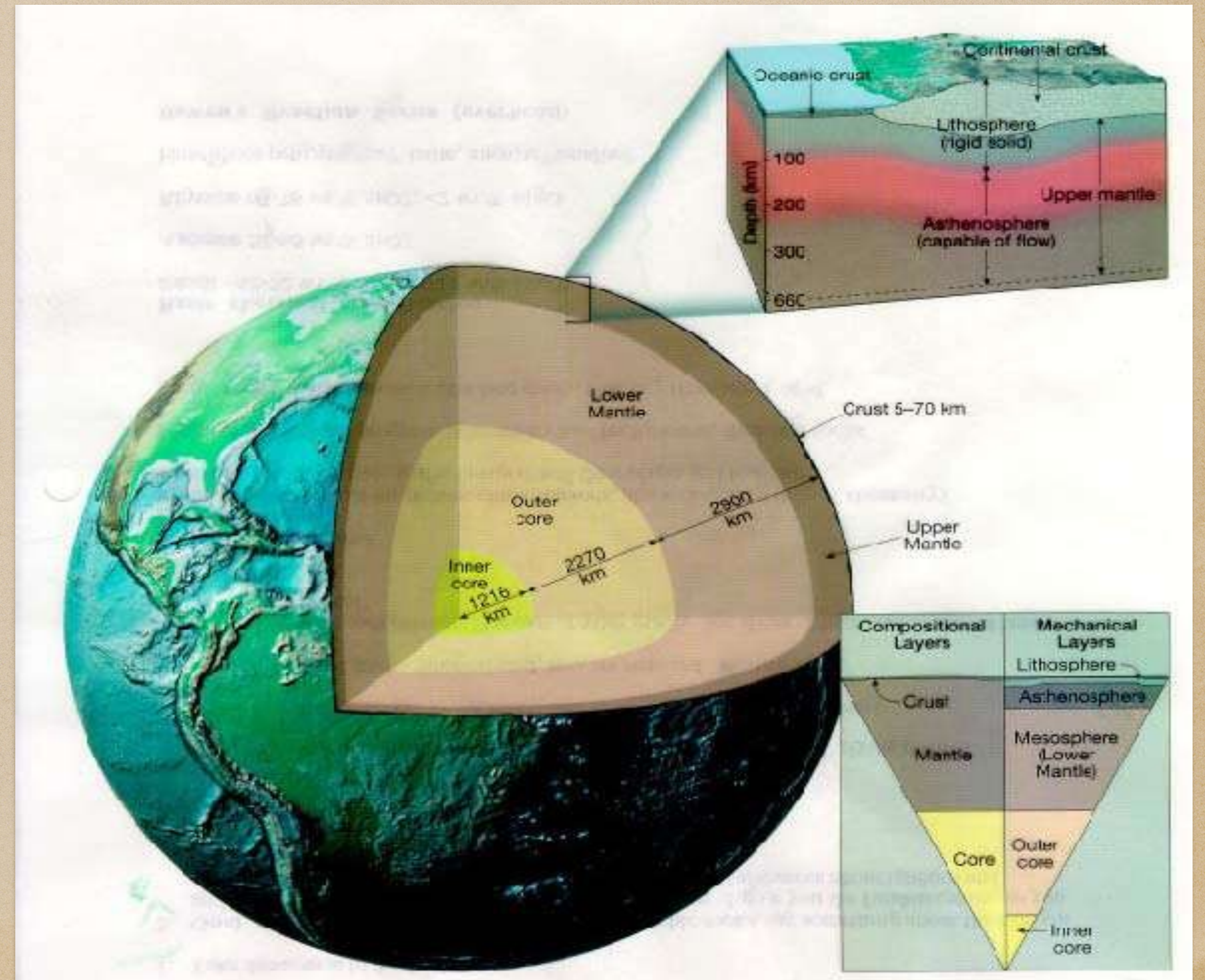
Seismic (Sound Waves)
Radar (EM Waves)



Wave Propagation

What are the scopes?

Geodynamics:
Solid Earth
Tectonics



What are the scopes?

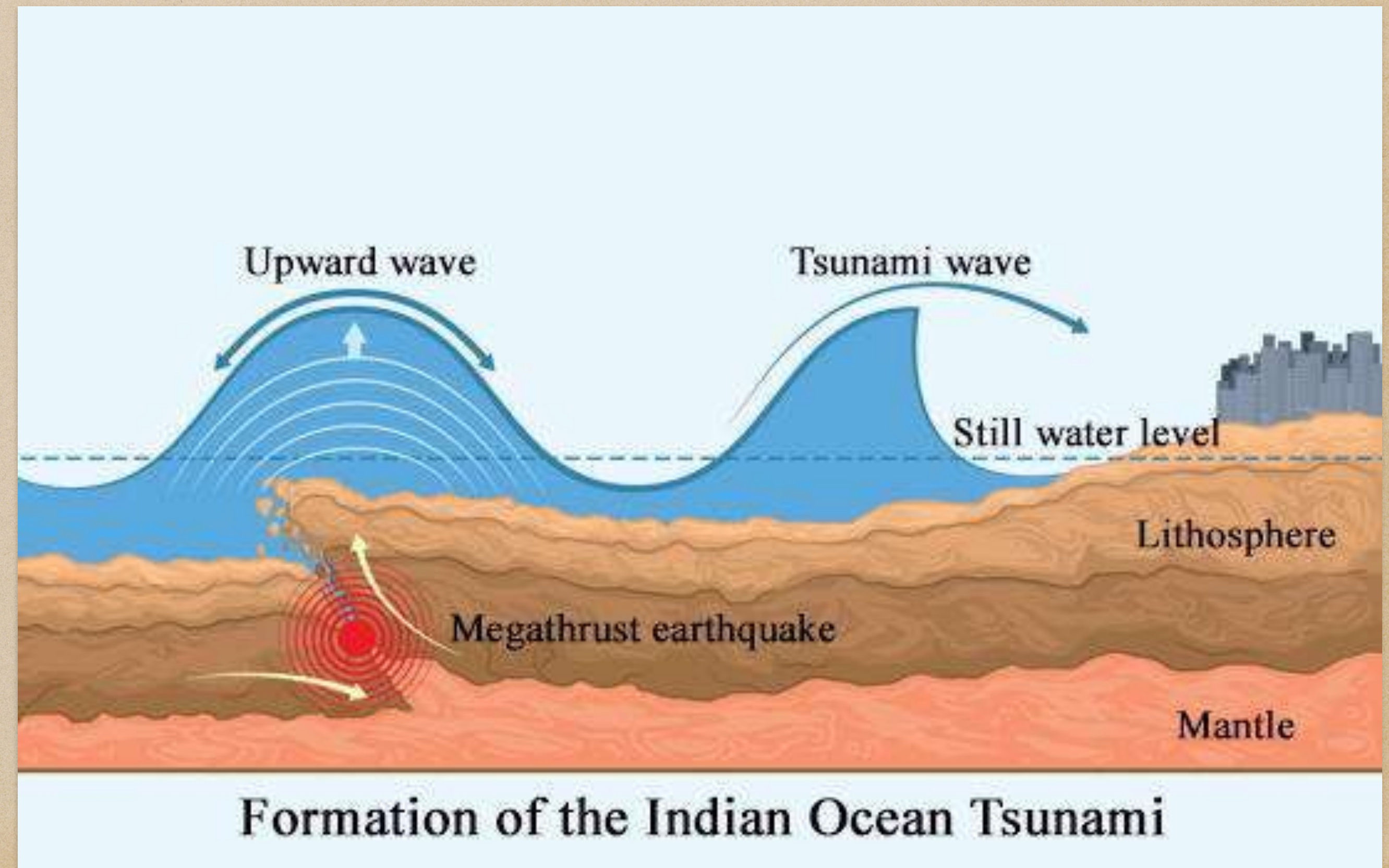
Natural hazard studies :

Earthquakes

Tsunamis

Volcanoes

Landslide



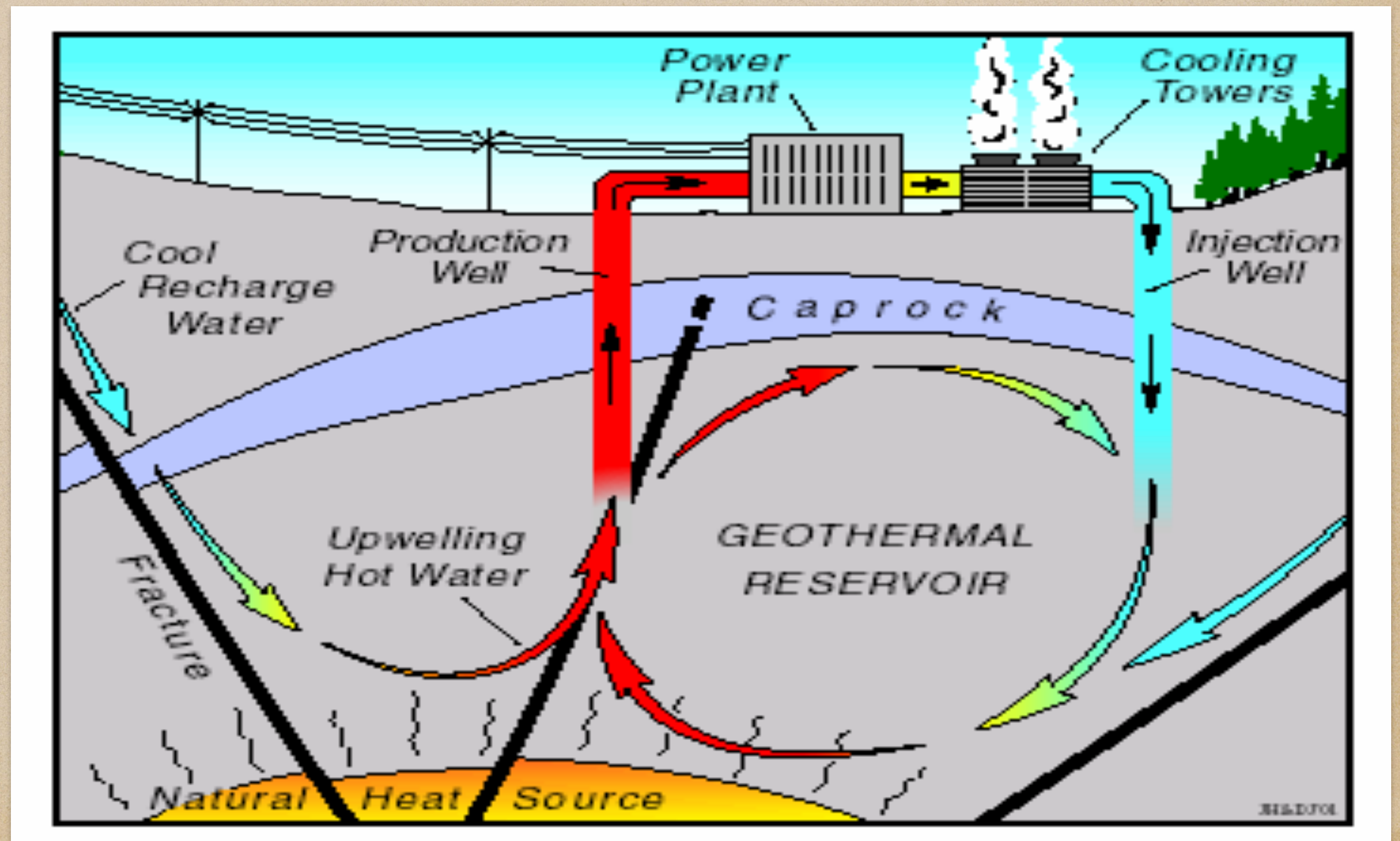
What are the scopes?

Exploration Geophysics:

Oil and Gas

Geothermal Energy

Mining



What are the scopes?

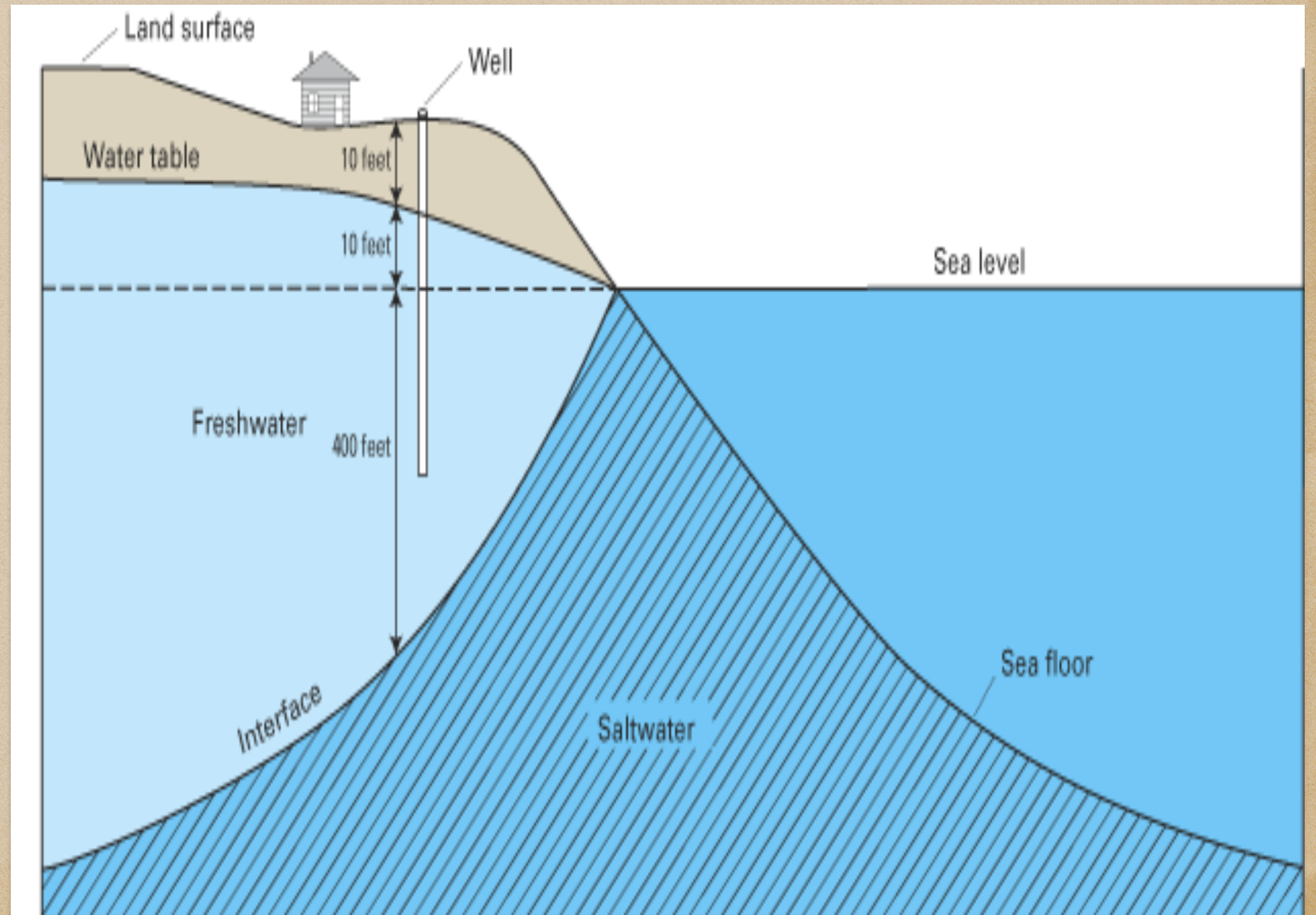
Environmental Geophysics:

Environmental issues

Groundwater

Bed rock

Depth mapping



What are the scopes?

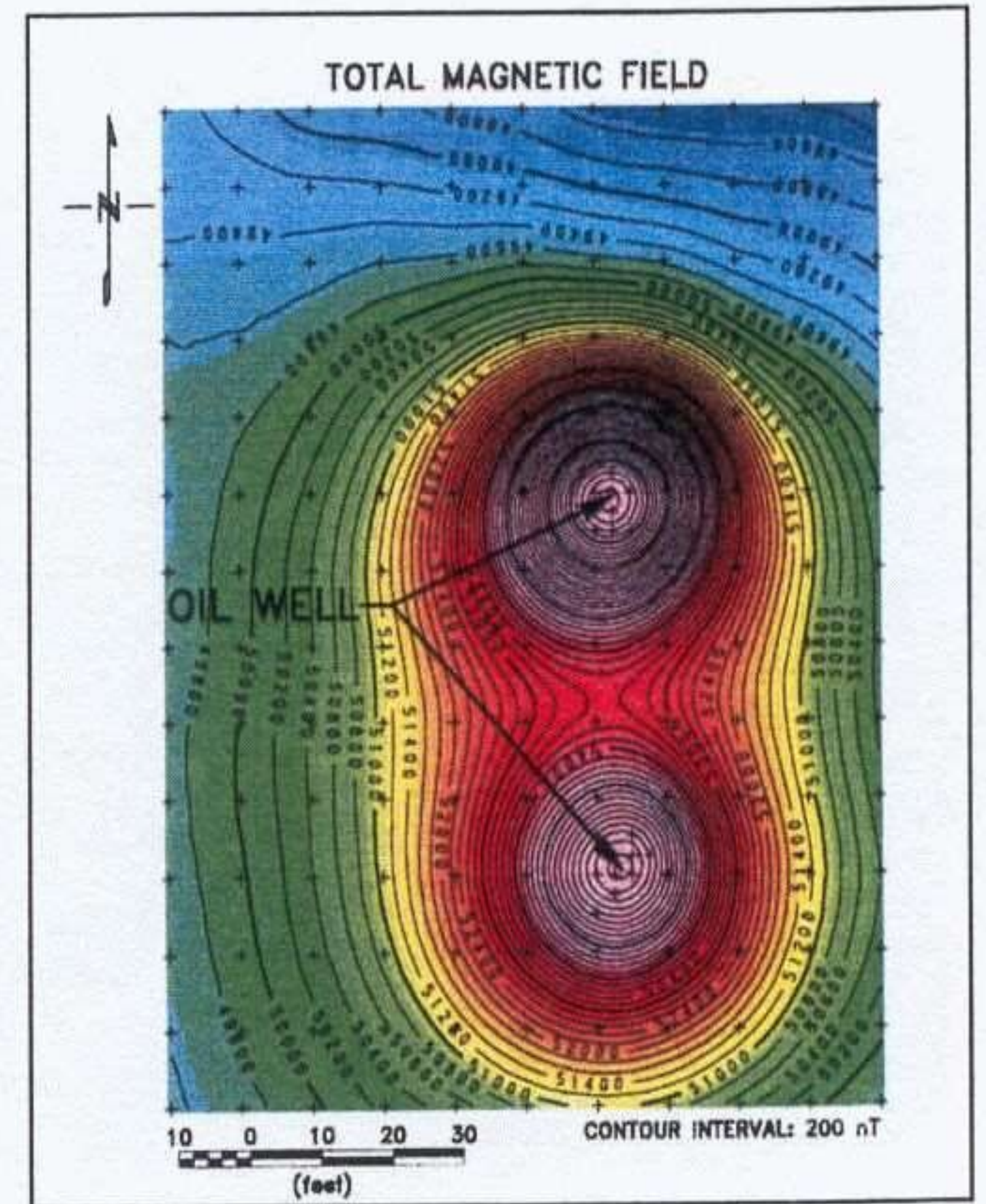
Engineering

Magnetometer Surveys (MS)

Underground Utility Locating

Underground Void Locating

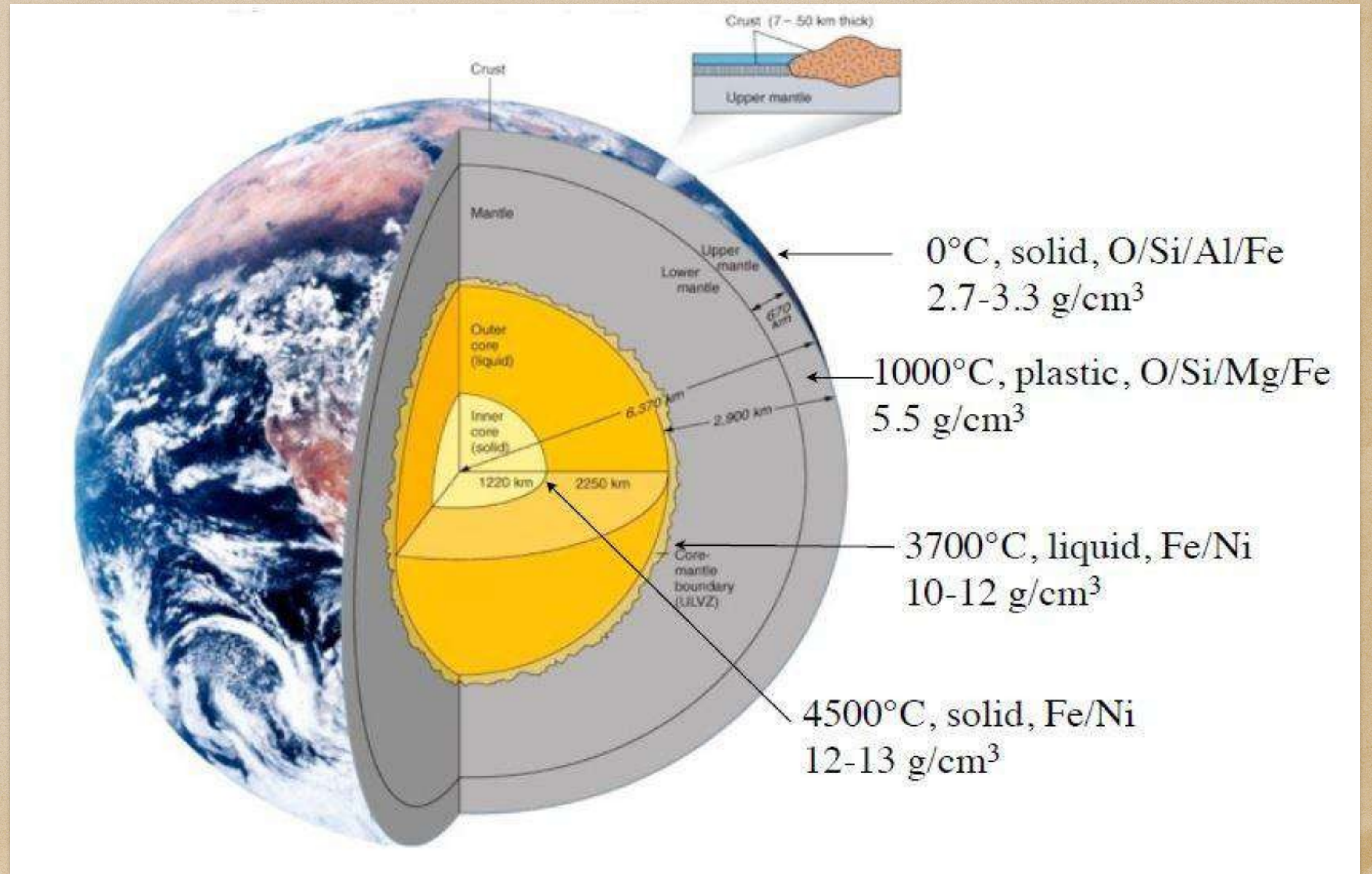
Ground Strength Testing



**Magnetic Survey to Locate
Abandoned Oil Wells**

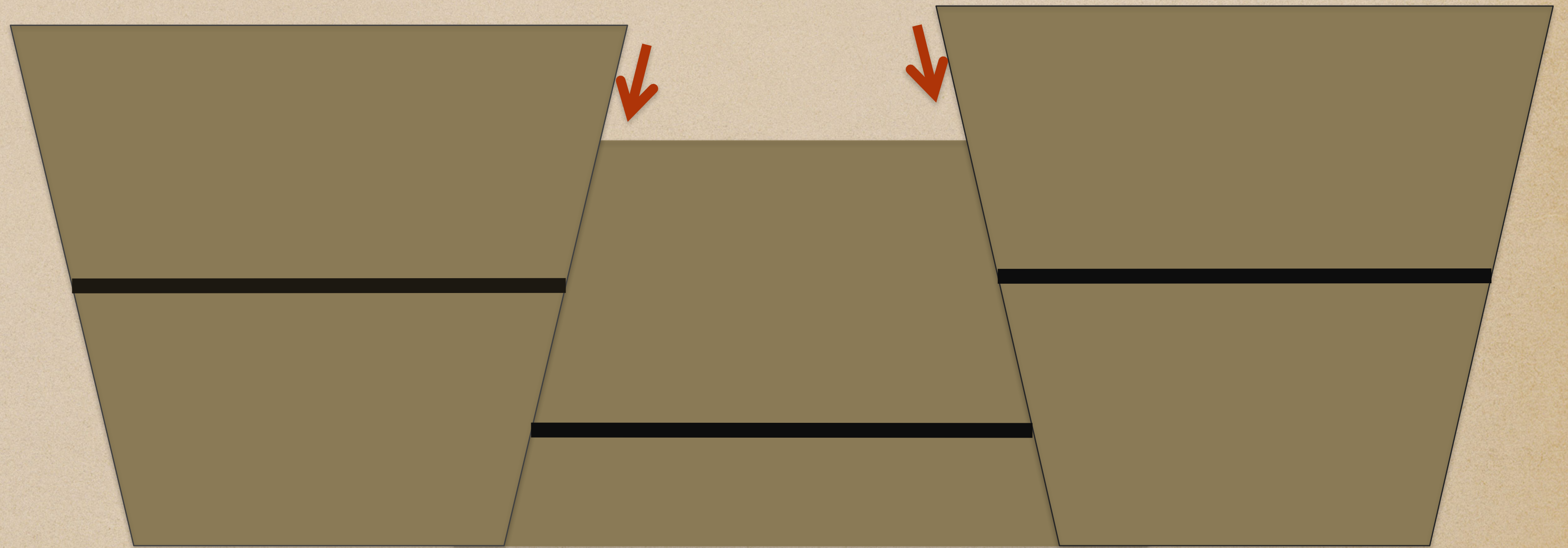
What are the applications?

Shape of the Earth



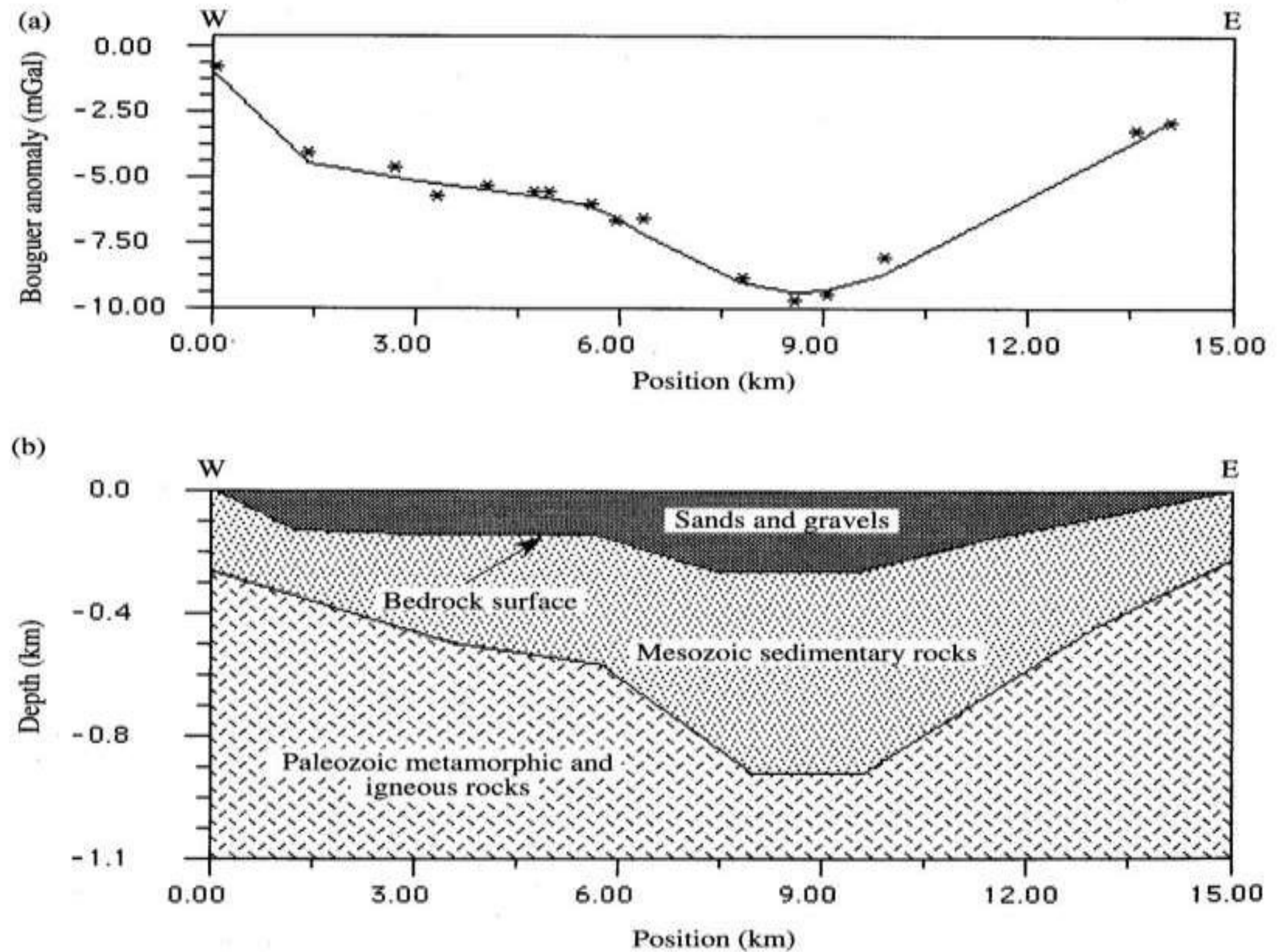
What are the applications?

Basin Geometry



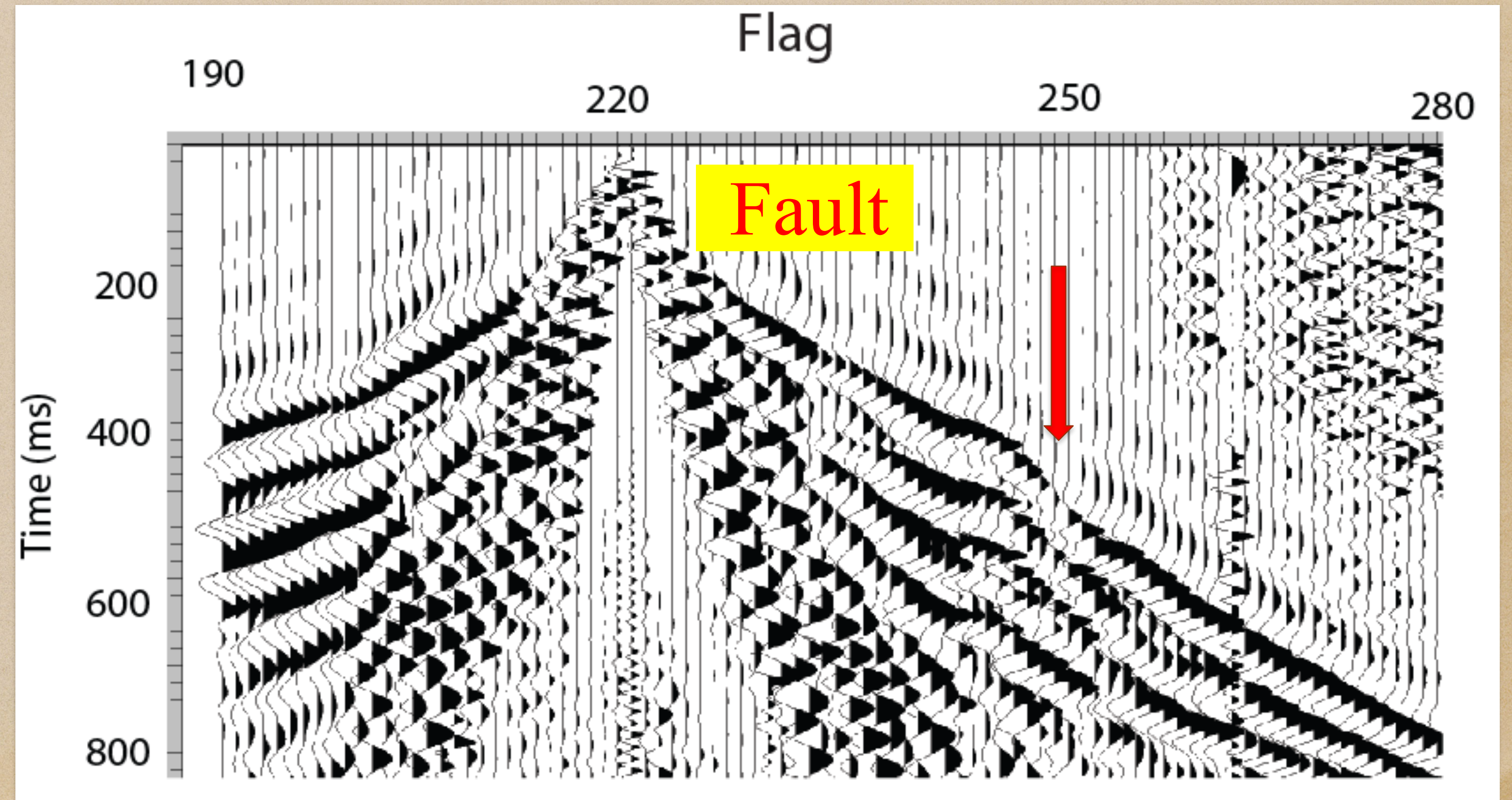
What are the applications?

Bed Rock Depth



What are the applications?

Fault Location



Other Applications of Geophysics

Earthquakes and Tsunamis (Seismology)

Geo thermometry (Heat Flow)

Physical oceanography (Heat, Waves, Tides)

Meteorology (Temperature, Pressure)

Hydrology (Ground and Surface Water)

Exploration

Environmental Engineering

Thank
you
All.