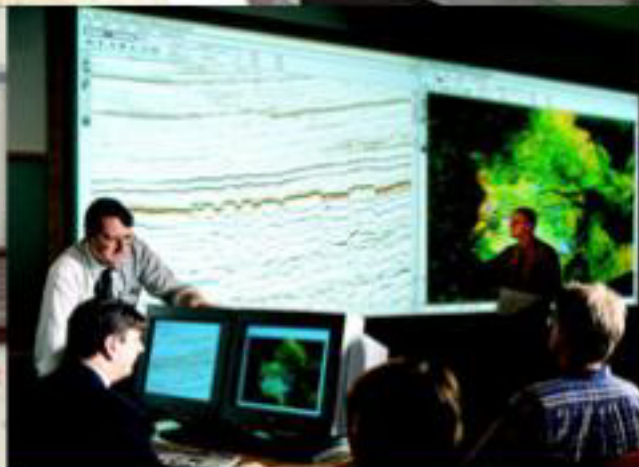
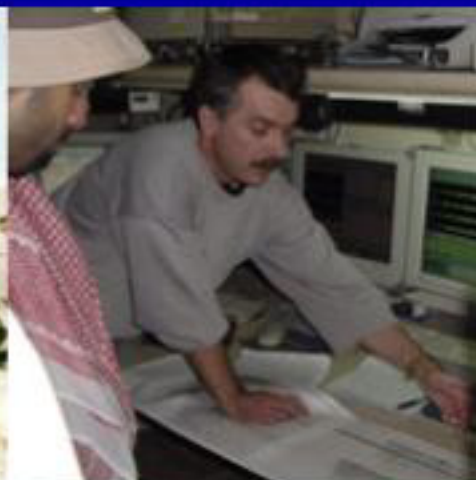
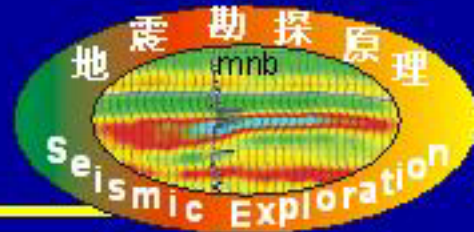


# 地震勘探原理 双语教学材料



联系方式: [maonb@yangtzeu.edu.cn](mailto:maonb@yangtzeu.edu.cn)  
<http://www.sciencenet.cn/blog/毛宁波.htm>

# Exercise 22

- (a) Make a list of the important processing steps in seismic data processing and shortly describe the processing step in one sentence
- (b) Explain spatial aliasing and explain the spatial sampling criterium. (not discussed in 06/07)
- (c) What is the aim of migration?
- (d) What is the relation between the real dip ( $\alpha_{\text{real}}$ ) and the dip in a stacked section ( $\alpha_{\text{stack}}$ ) for a dipping layer? Explain this in detail with sketches of the two dips.

# Exercise 23

Discuss the following differences between the P-wave seismic method and the GPR

- draw a CMP measurement for both cases and show interface waves, air waves, ground wave, reflected and refracted waves. Is velocity generally increasing or decreasing with depth?
- Range of velocities ms or ns, frequencies, Depth penetration
- Air wave velocities for GPR and Seismic
- Longitudinal or Transversal wave propagation
- Common measurement setup
- Typical applications
- Used sources / receivers

## Exercise 24

- You have unmigrated and migrated seismic sections for a particular profile. A planar interface indicates slopes of 25 and 30 degrees before and after migration. Do these values fit with simple geometrical relations? If they do not fit, give an explanation.

## Exercise 25

- On a seismic record, a reflection is seen to extend between two points A and B, where average seismic velocity is 2500 m/s. Termination of the reflection is attributed to faults. Point A is at  $x=100$  m and  $t_0=1.75$  s, and point B is at  $x=1500$  m and  $t_0=1.25$  s. Determine the actual location of faults by computing coordinates for the points A and B after migration.
- Compute the length of reflector segments before and after migration. Which one is shorter?

# Exercise 26

Construct an unmigrated zero-offset section from the geological structure shown in the figure on the next page (Diffractions etc.).

