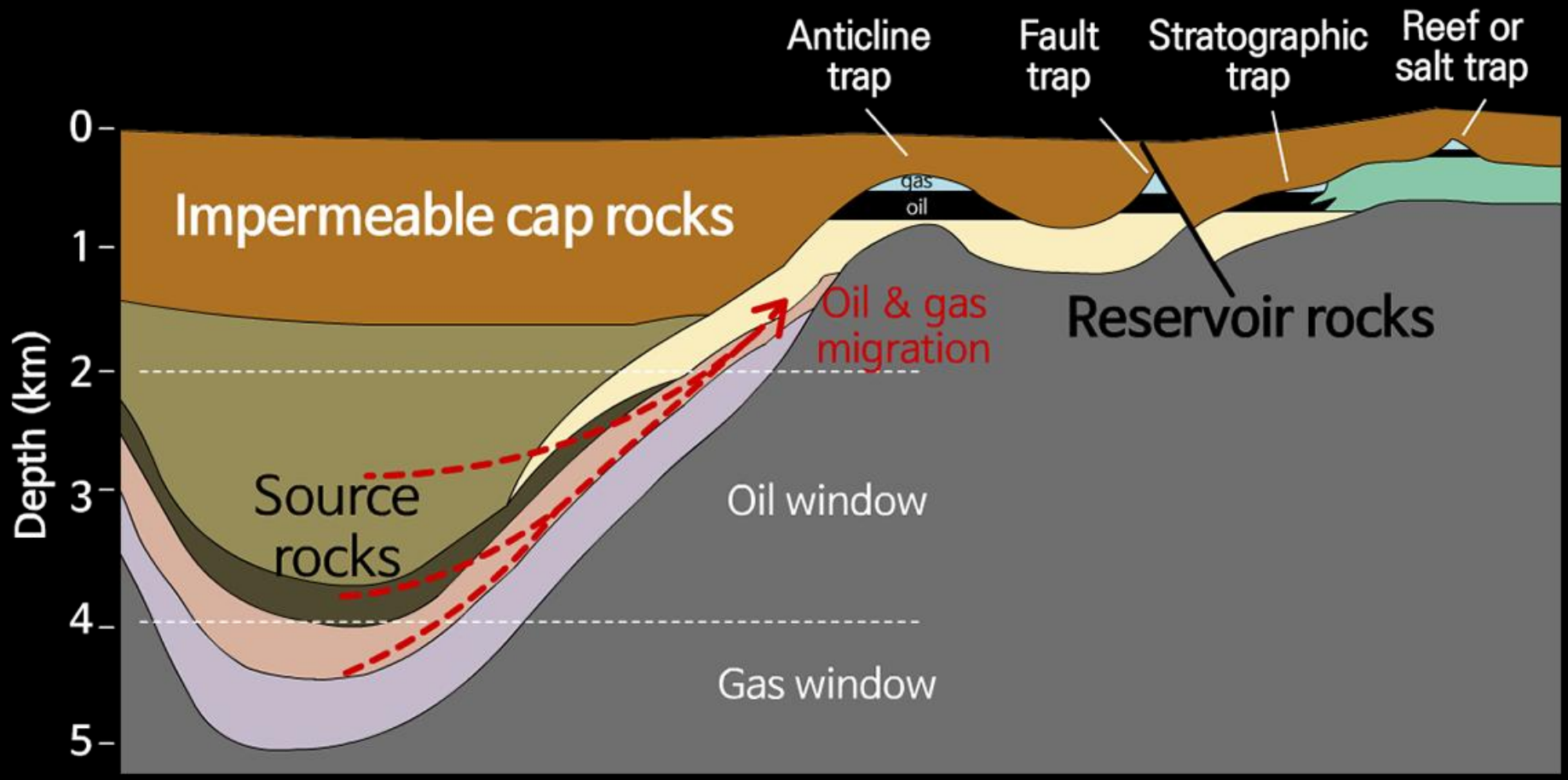
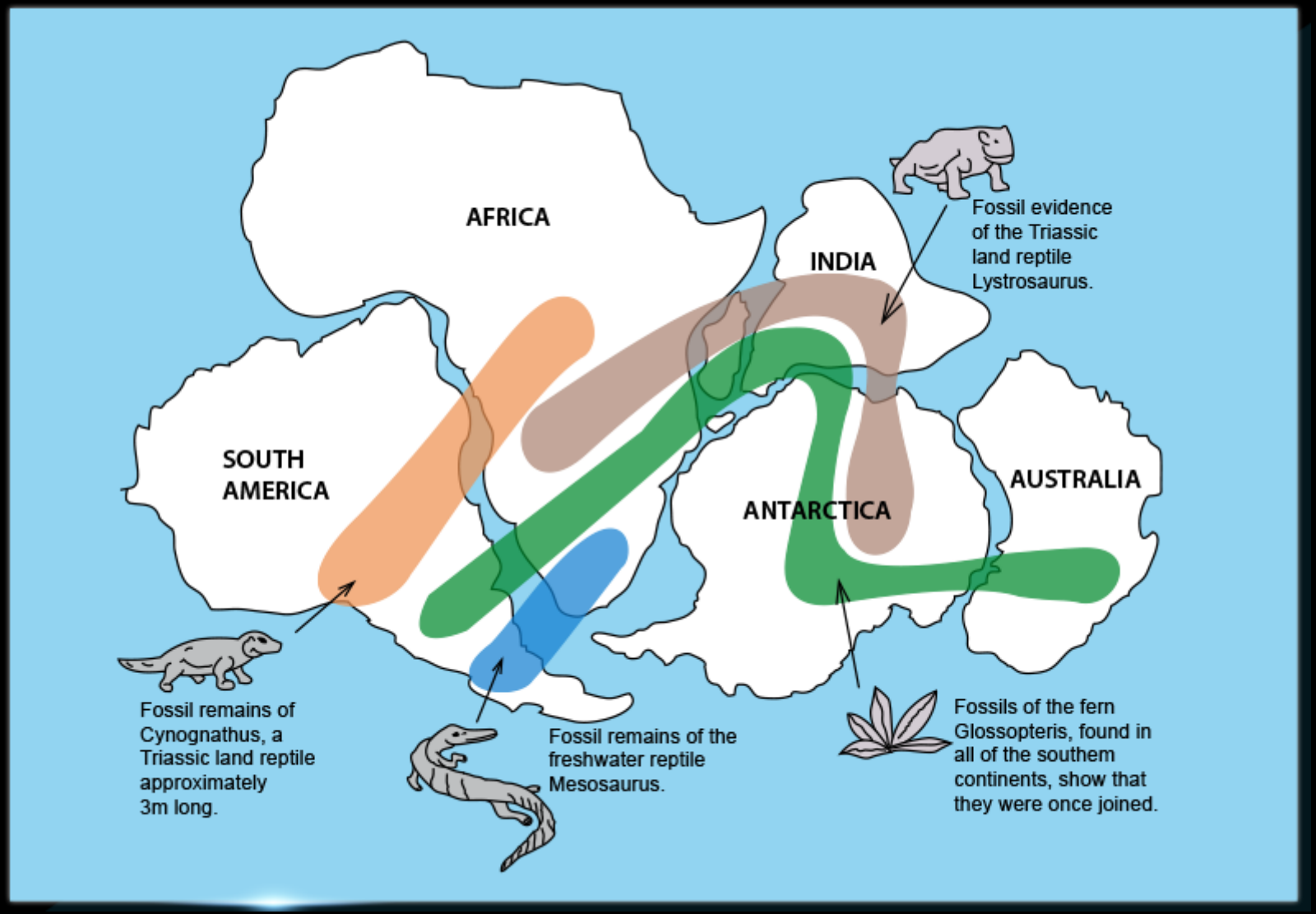
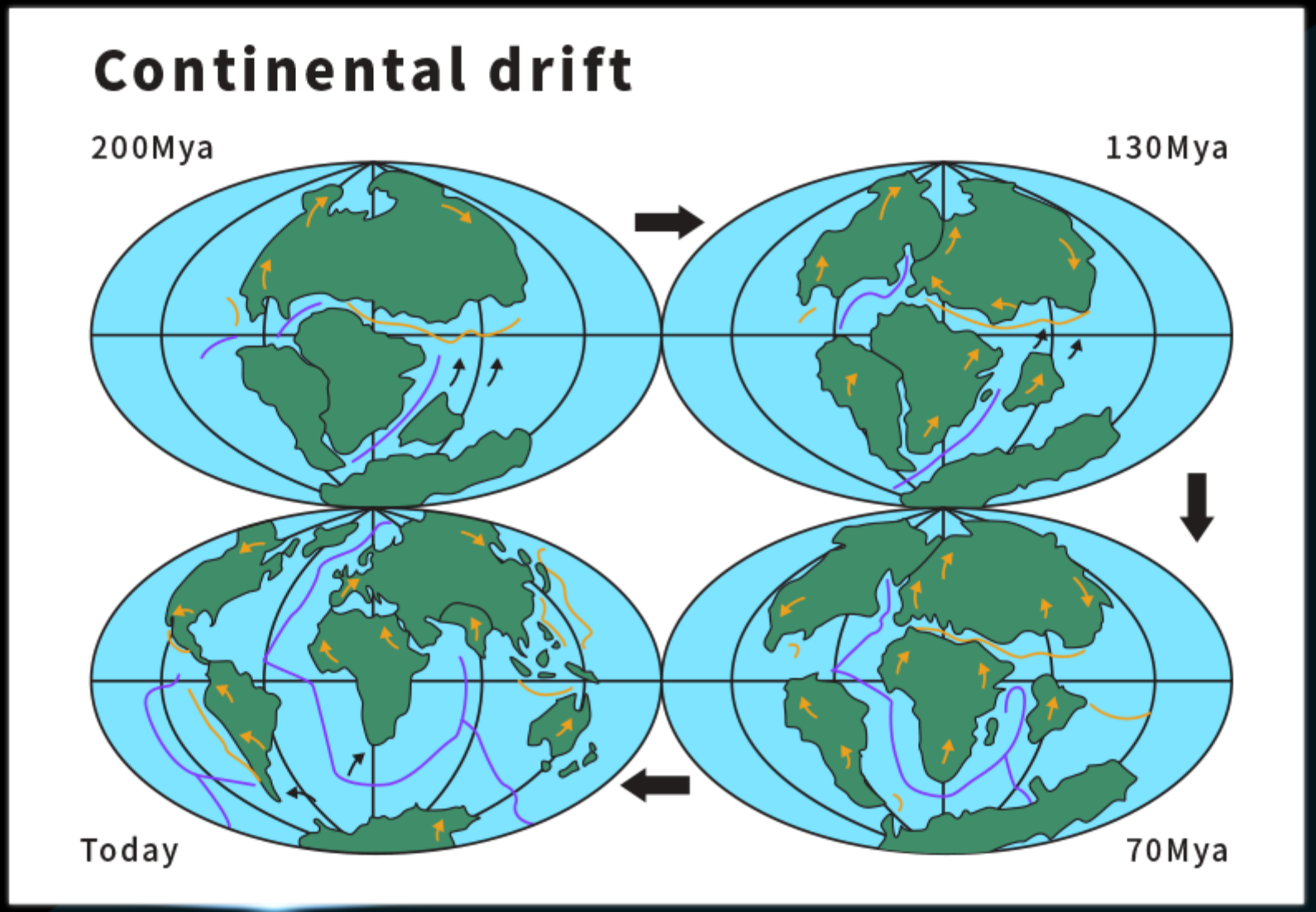
04.01.01 석유의 생성과 이동



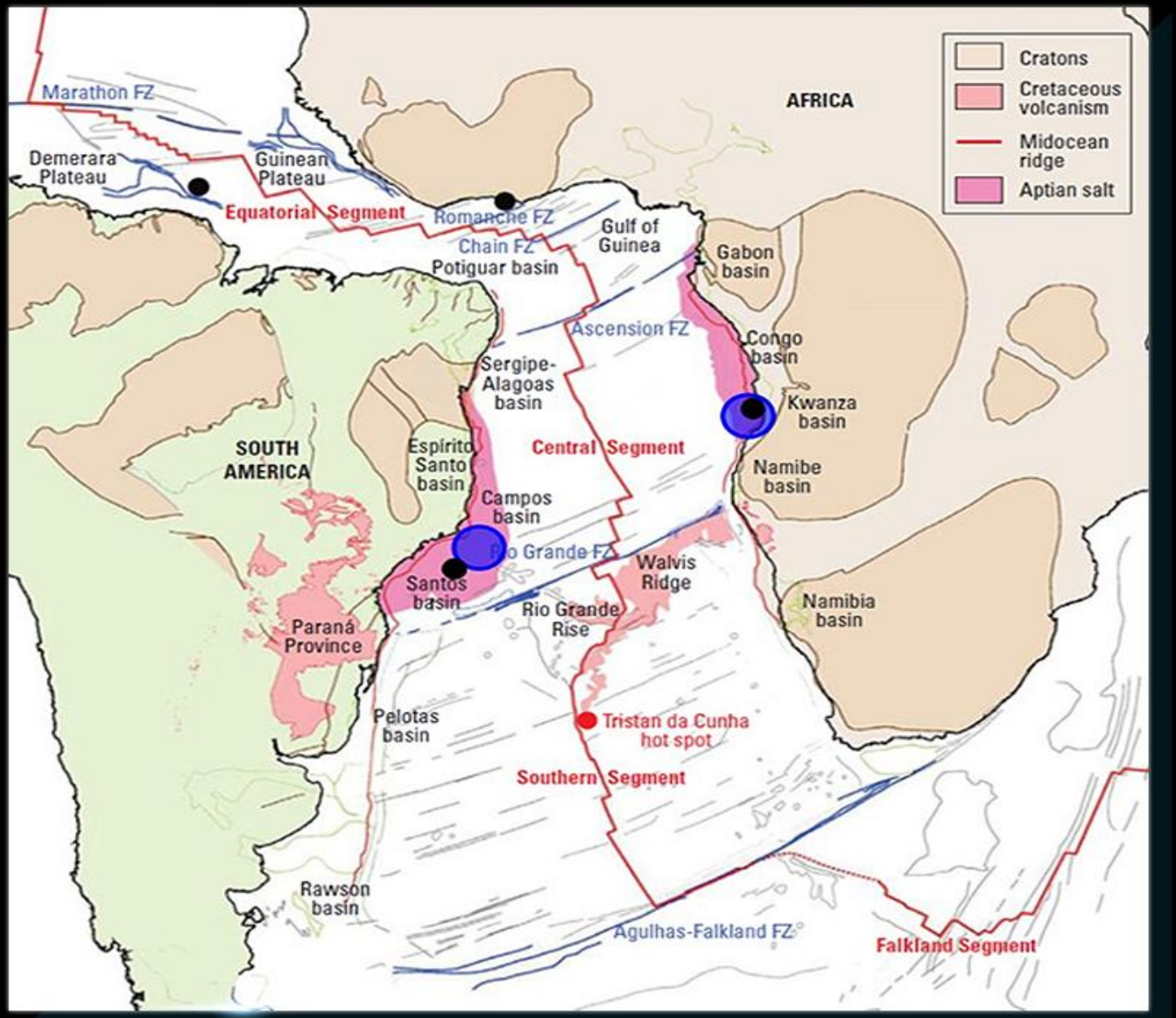
04.01.02 판게아


AFRICA
INDIA
Fossil evidence of the Triassic land reptile Lystrosaurus.
SOUTH AMERICA
ANTARCTICA
AUSTRALIA
Fossil remains of Cynognathus, a Triassic land reptile approximately 3m long.
Fossil remains of the freshwater reptile Mesosaurus.
Fossils of the fern Glossopteris, found in all of the southern continents, show that they were once joined.

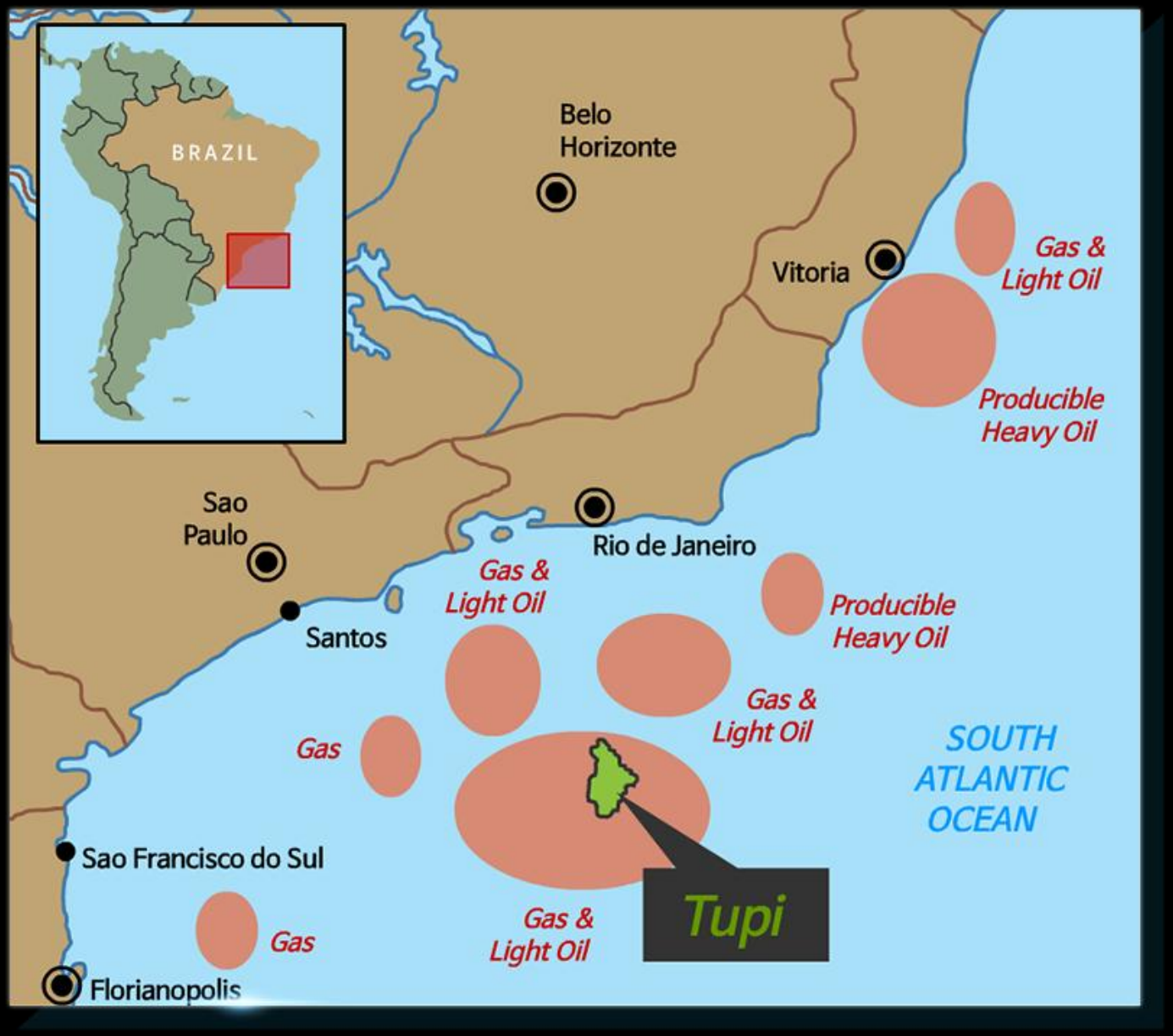
04.01.03 석유의 부존과 지구



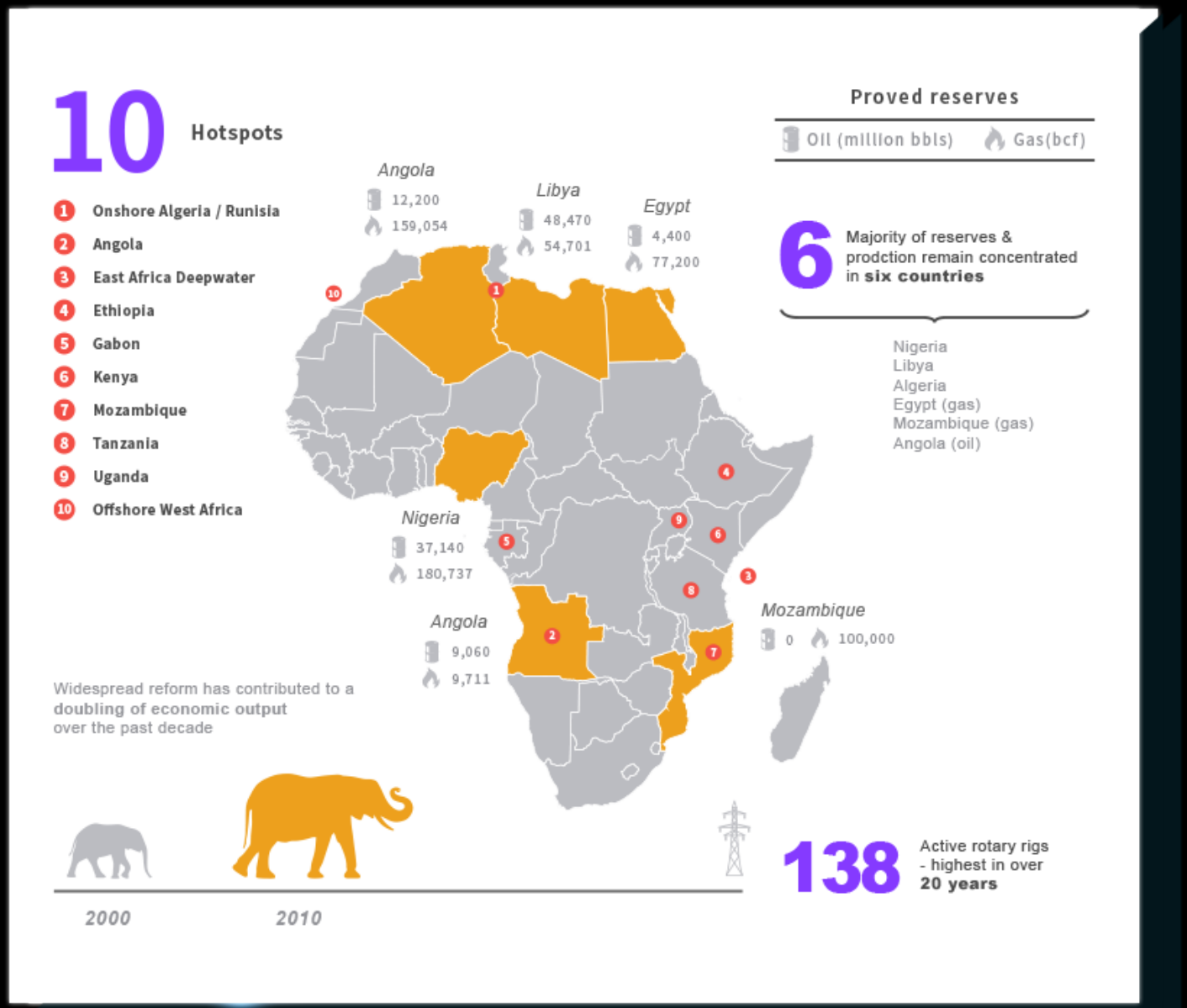
04.01.04 아프리카와 브라질



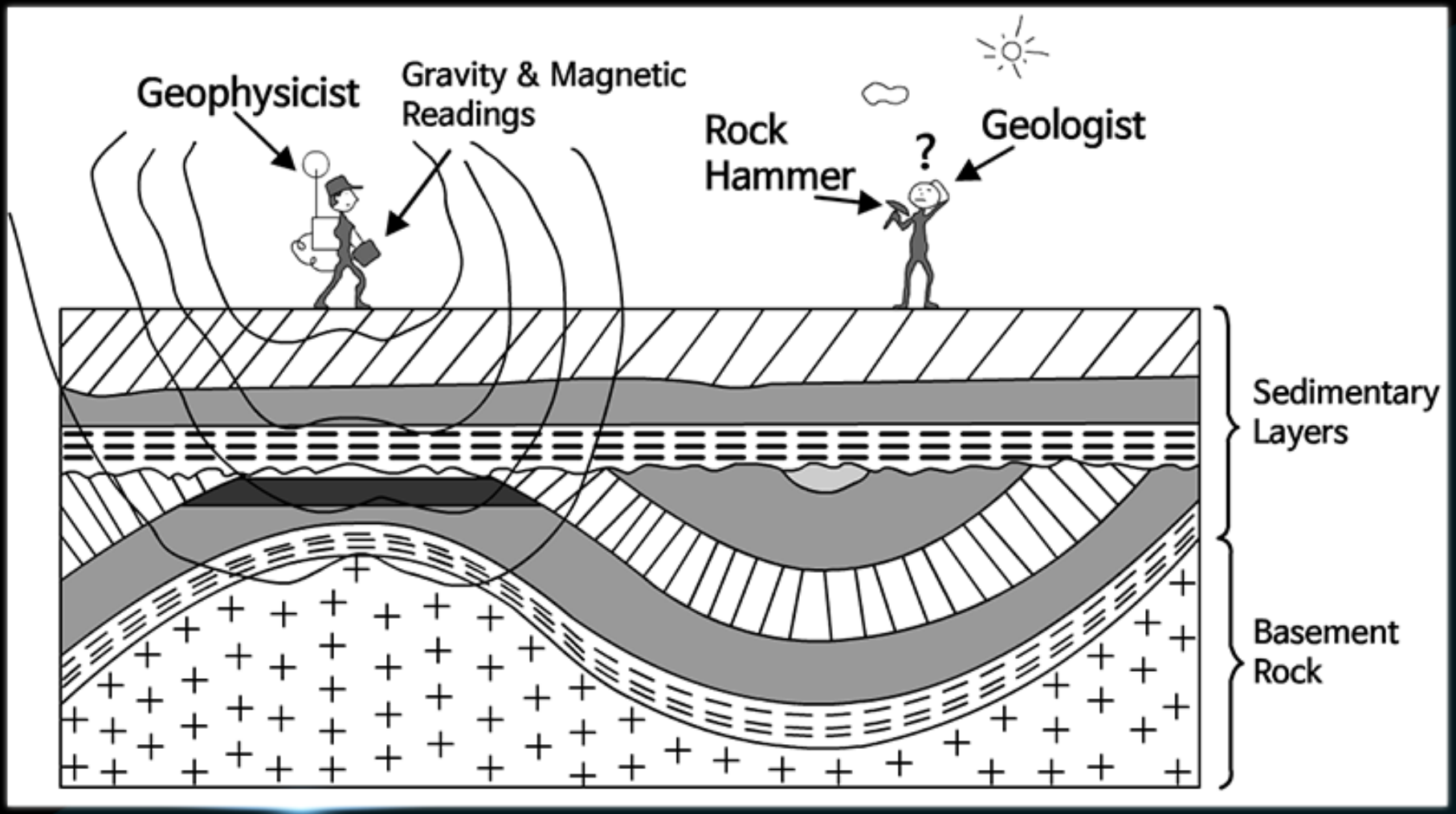
04.01.05 아프리카와 브라질



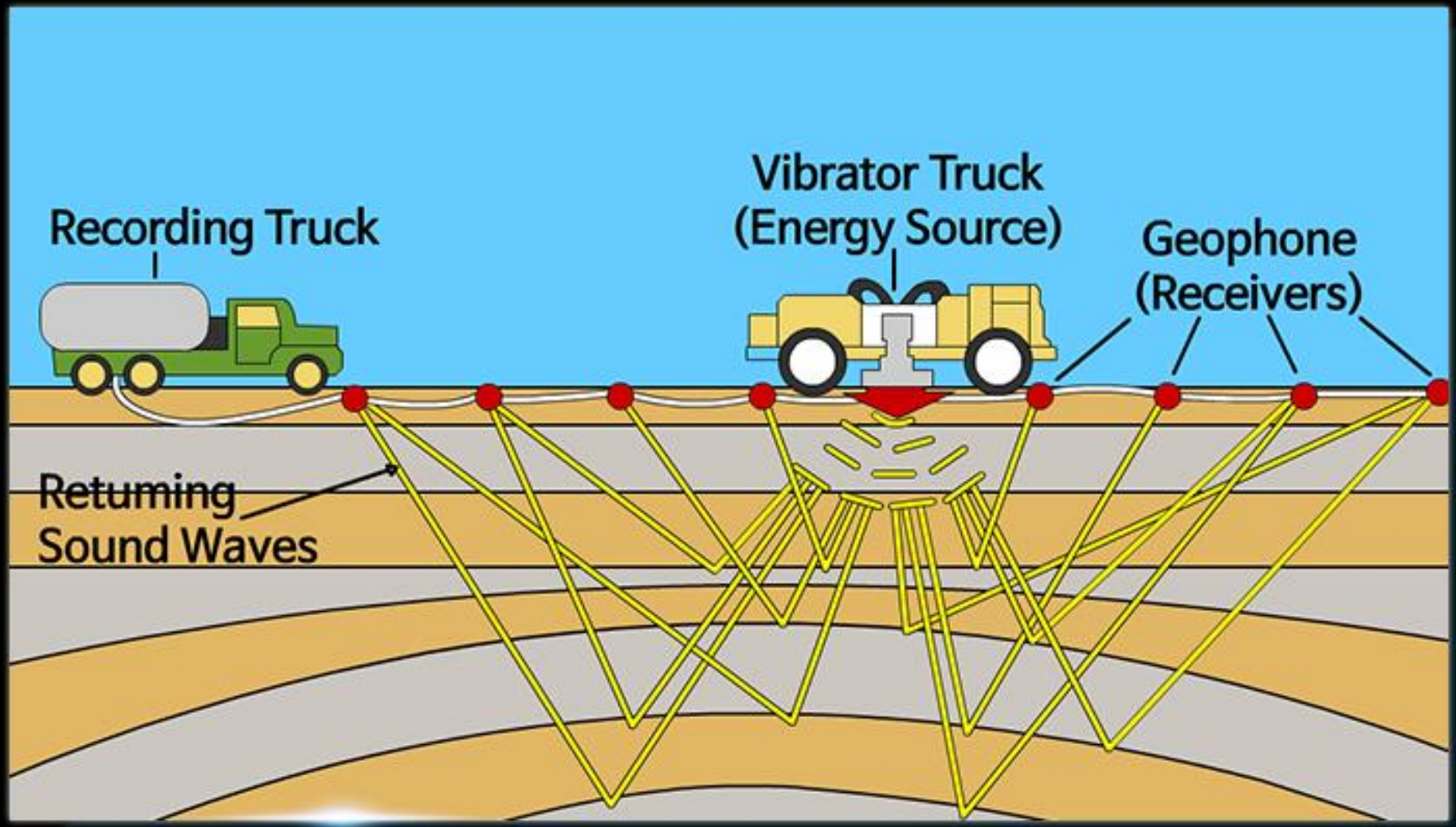
04.01.05 아프리카와 브라질



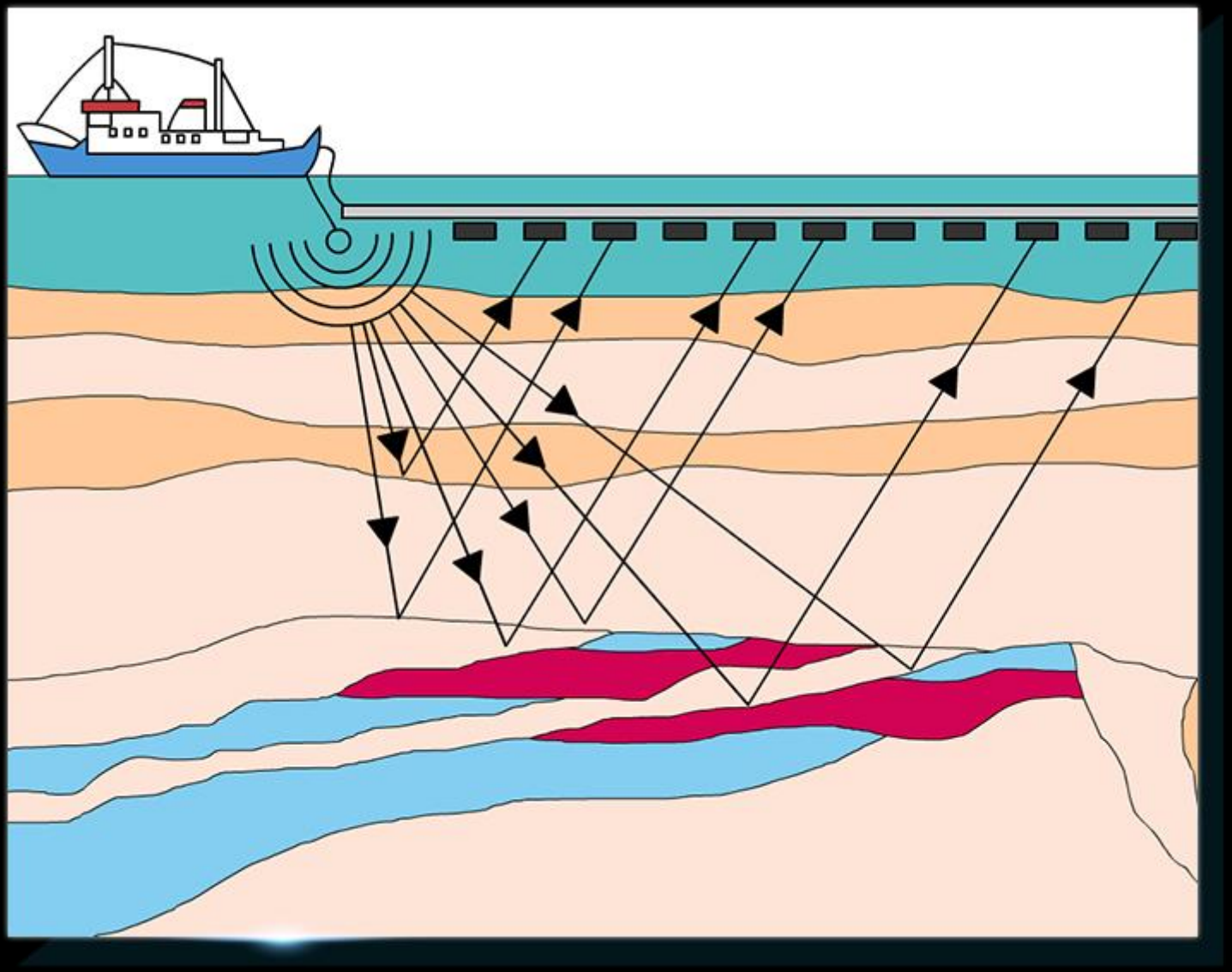
04.02.01 석유가 있는 집을 찾는 것



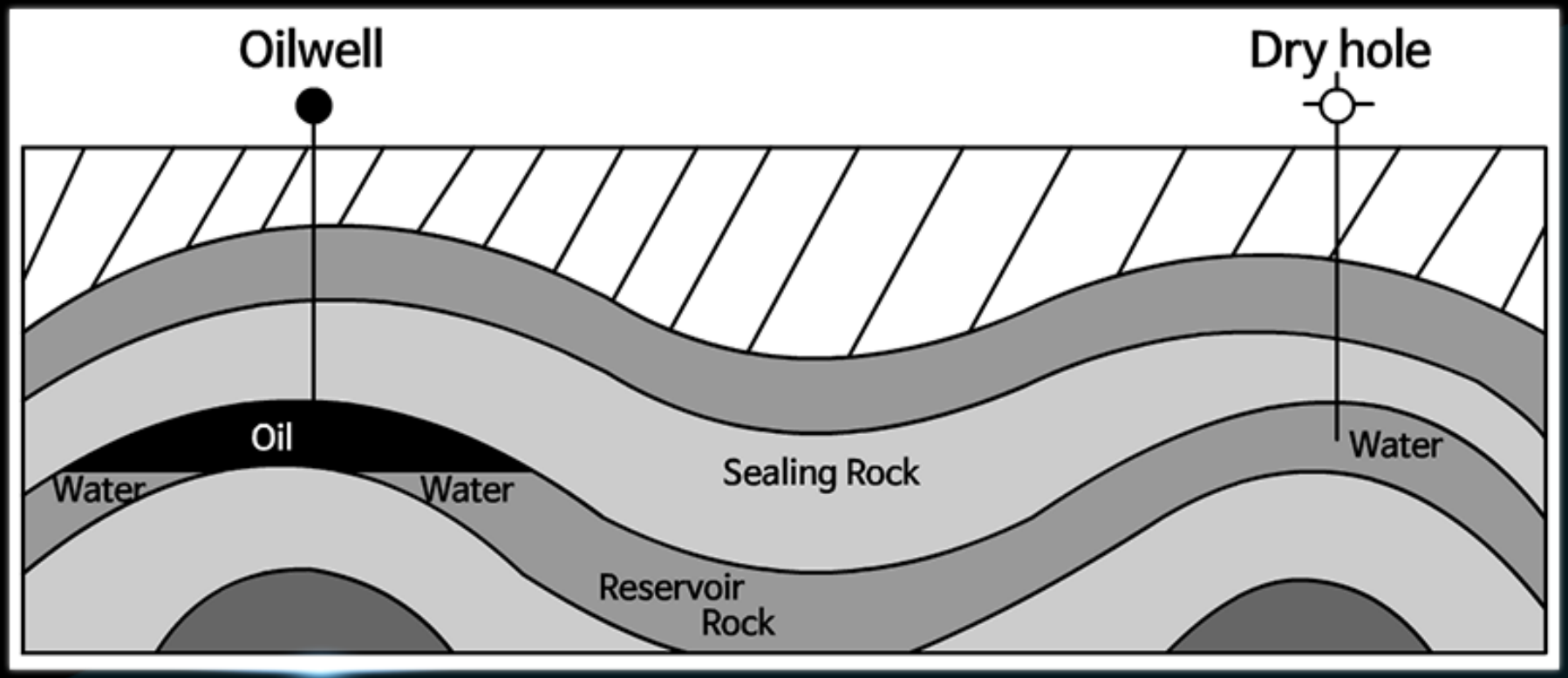
04.02.02 지진파가 돌아오는 시간 측정



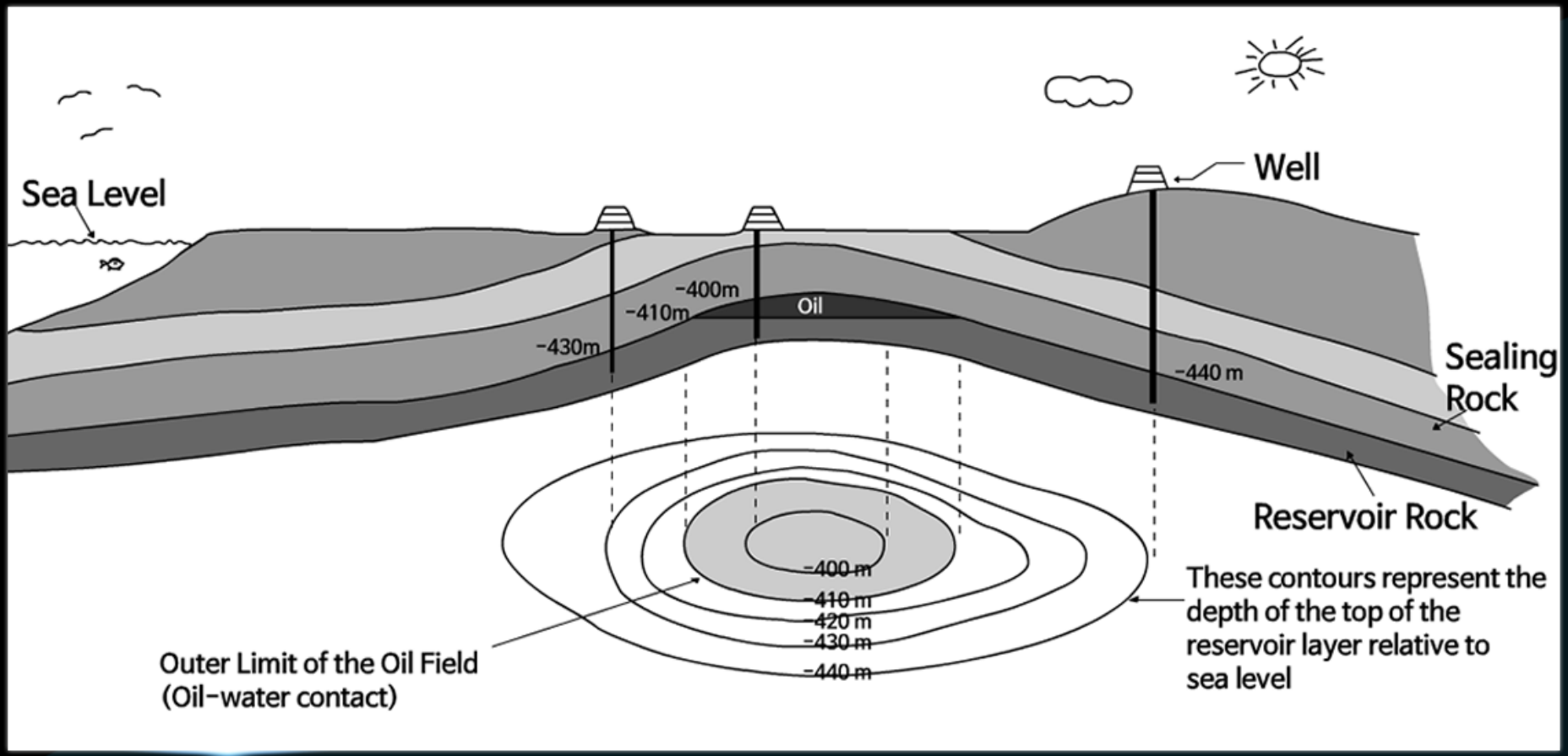
04.02.03 저류층 구조 확인



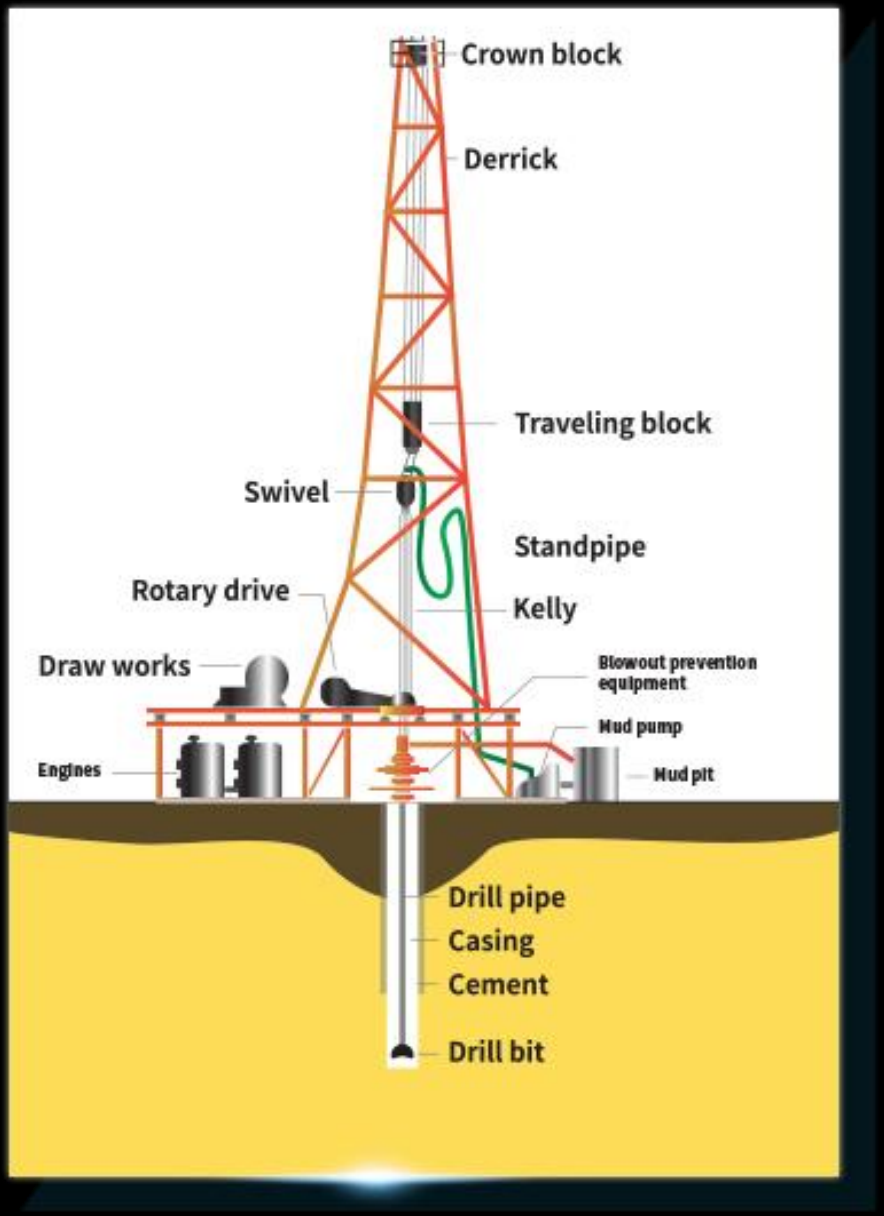
04.02.04 시추위치


Oilwell
Dry hole
Oil
Water
Water
Sealing Rock
Water
Reservoir
Rock

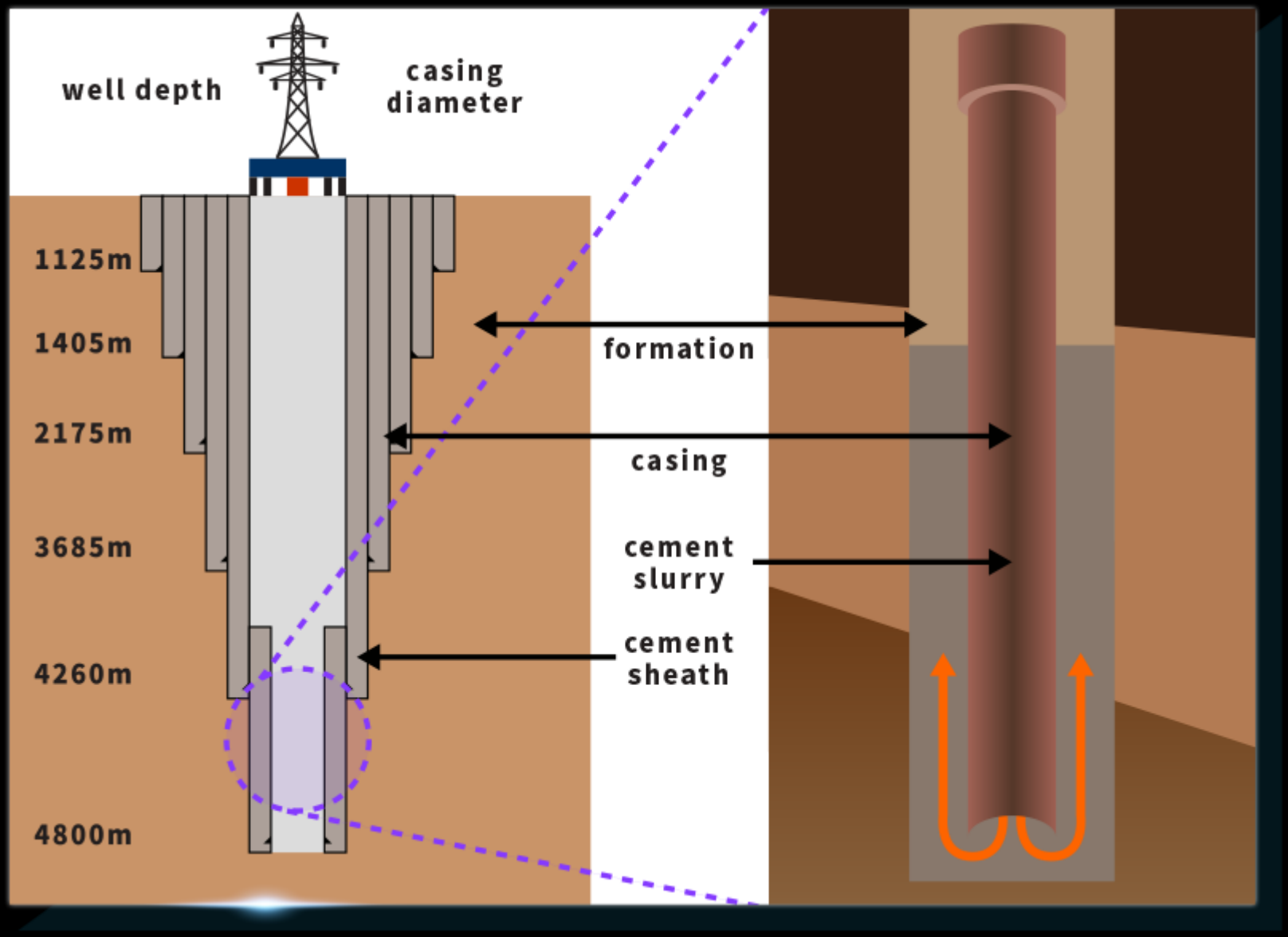
04.02.05 시추위치


Sea Level
Well
-400m
-410m
Oil
-430m
-440 m
Sealing Rock
Reservoir Rock
-400 m
-410 m
-420 m
-430 m
-440 m
These contours represent the depth of the top of the reservoir layer relative to sea level
Outer Limit of the Oil Field
(Oil-water contact)

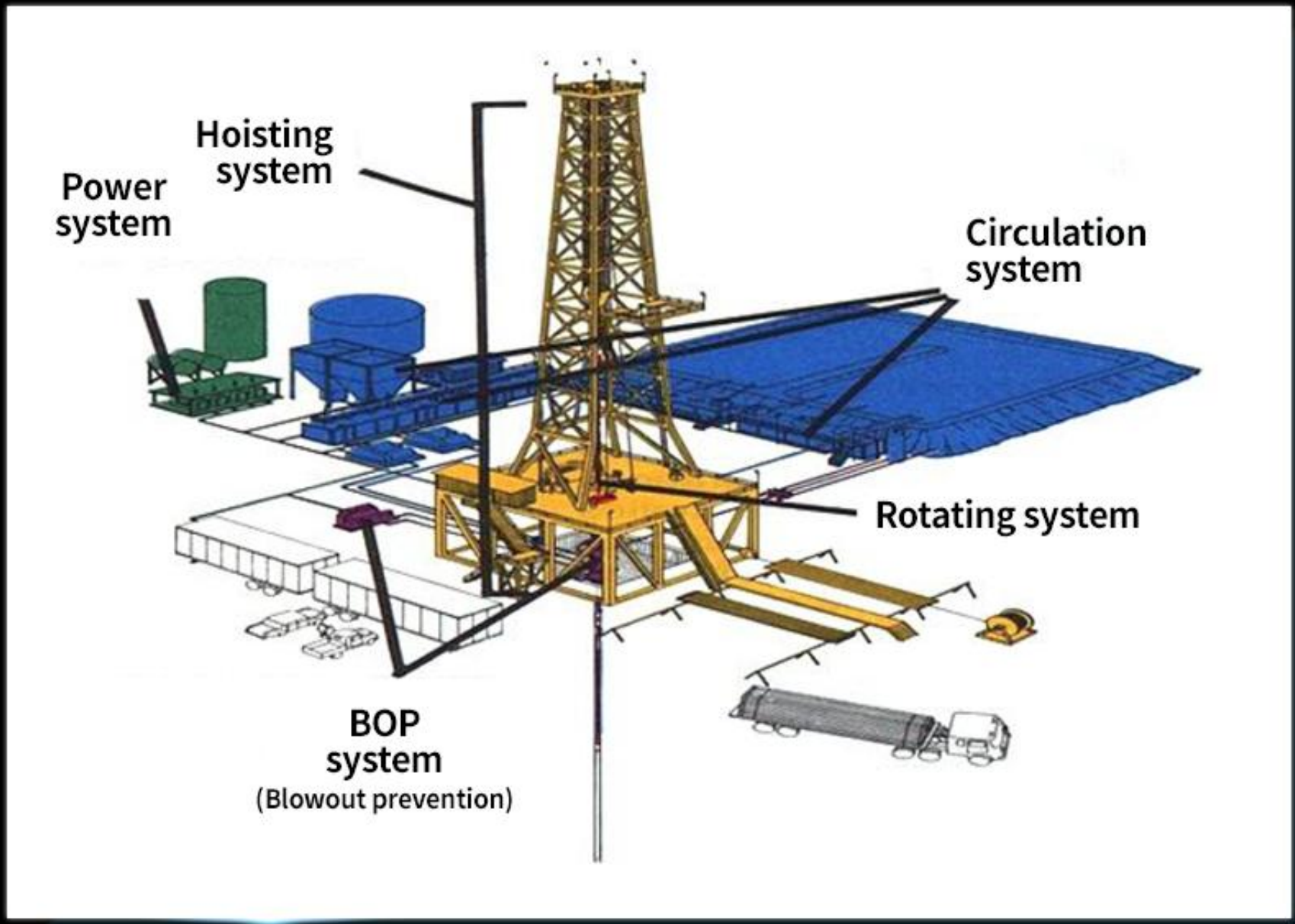
04.02.06 탐사시추


Crown block
Derrick
Traveling block
Swivel
Standpipe
Rotary drive
Kelly
Draw works
Blowout prevention equipment
Mud pump
Engines
Mud pit
Drill pipe
Casing
Cement
Drill bit

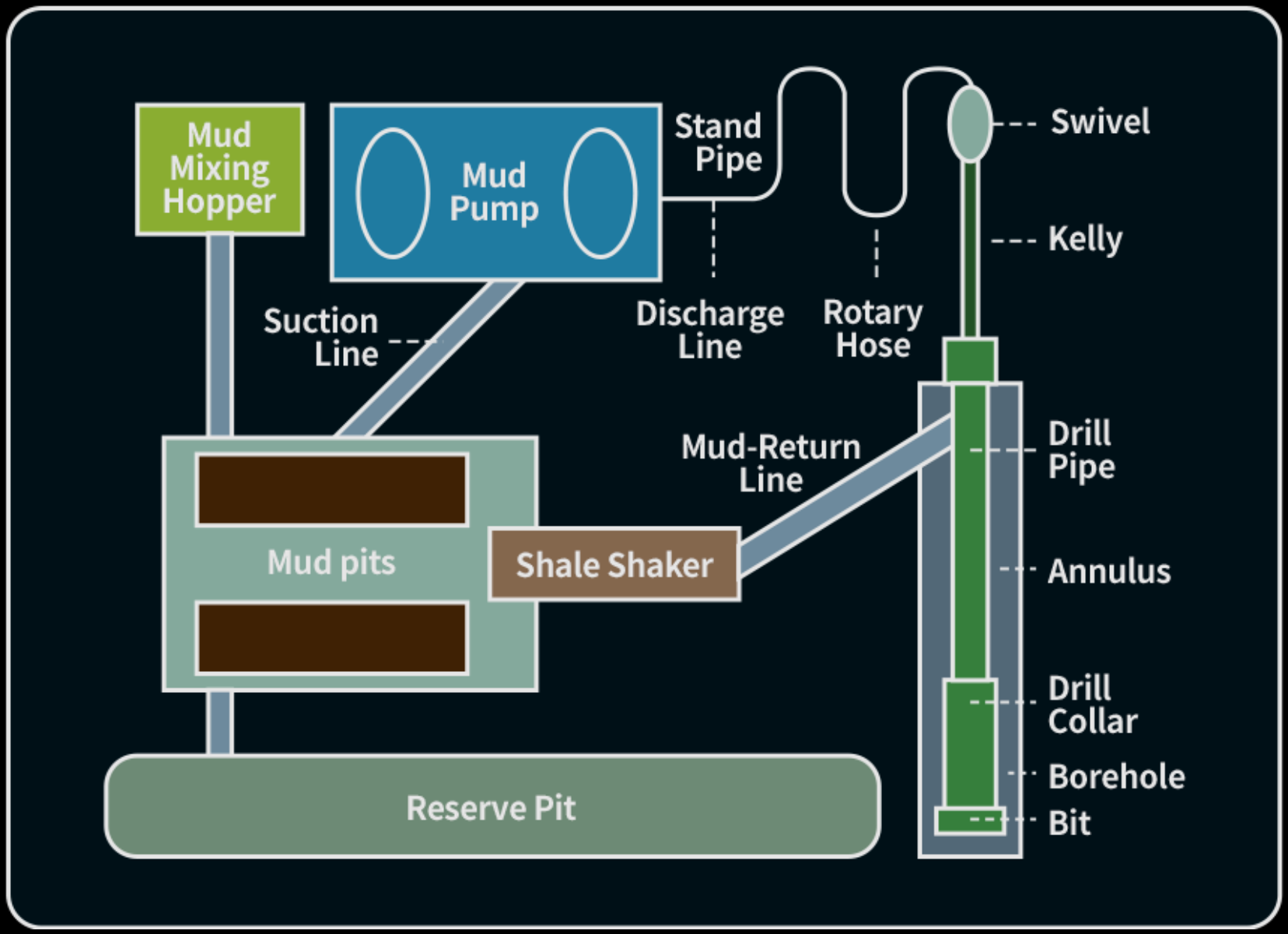
04.02.07 탐사시추


well depth
casing diameter
1125m
1405m
2175m
3685m
4260m
4800m
formation
casing
cement slurry
cement sheath

04.02.08 시추시스템



04.02.09 시추액 순환 시스템



04.02.10 다양한 시추방법

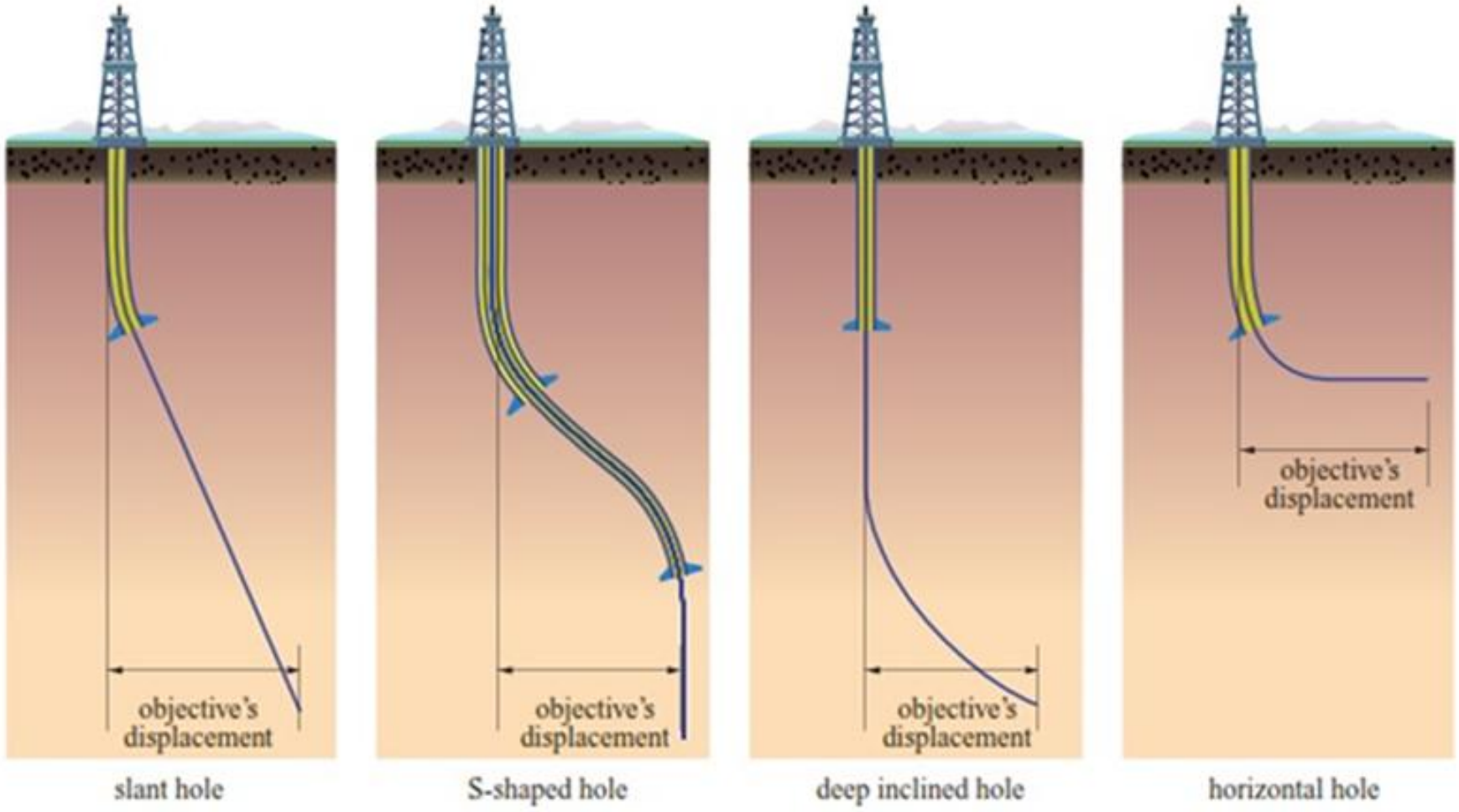
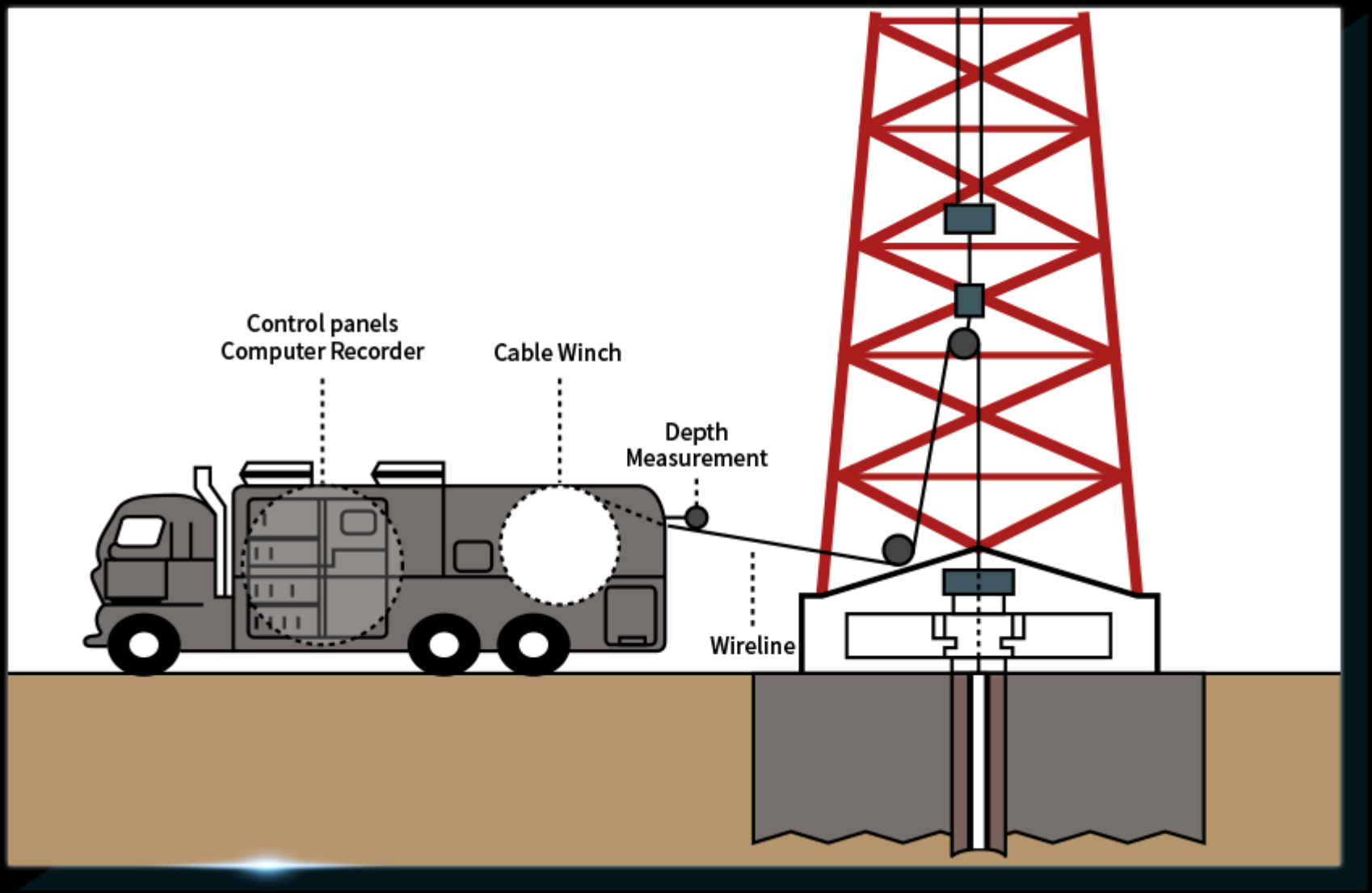


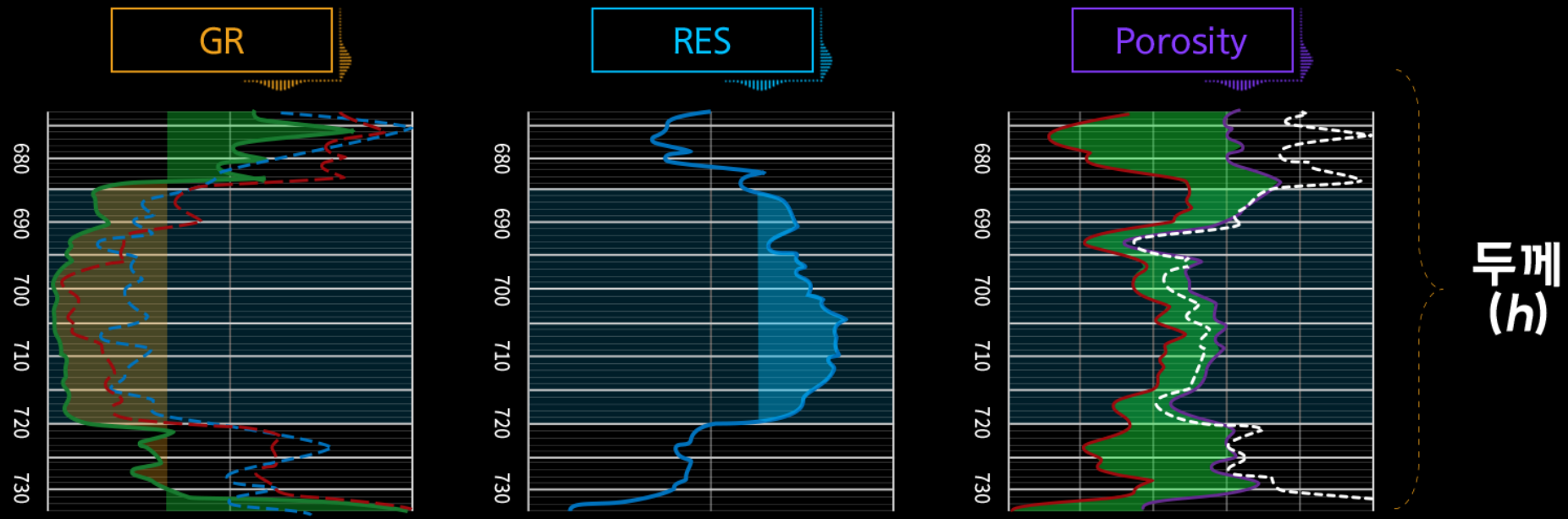
Fig. 1. Main configurations of a directional or horizontal well.

Source : Encyclopedia of Hydrocarbons

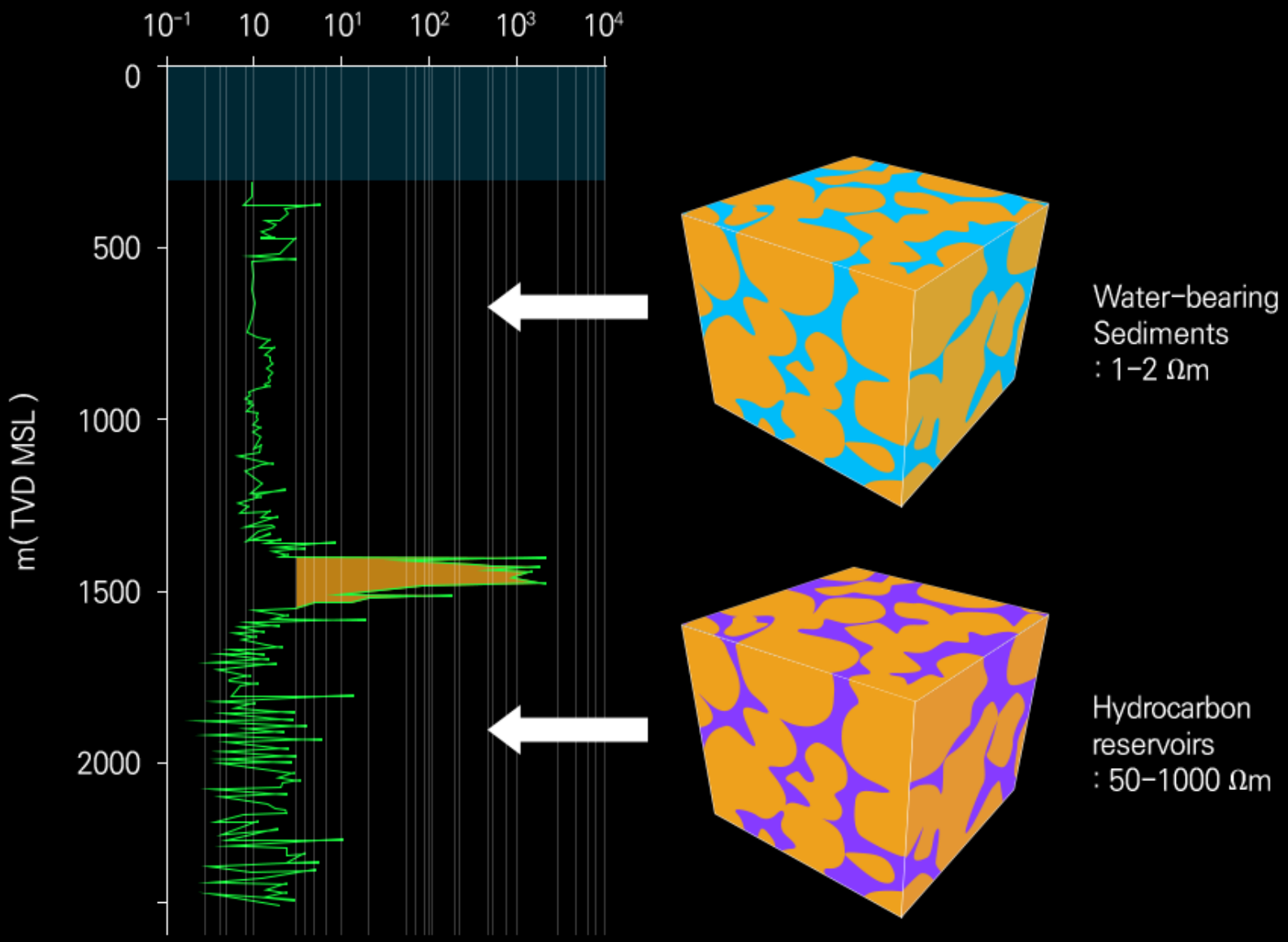
04.03.01 물리검층의 원리



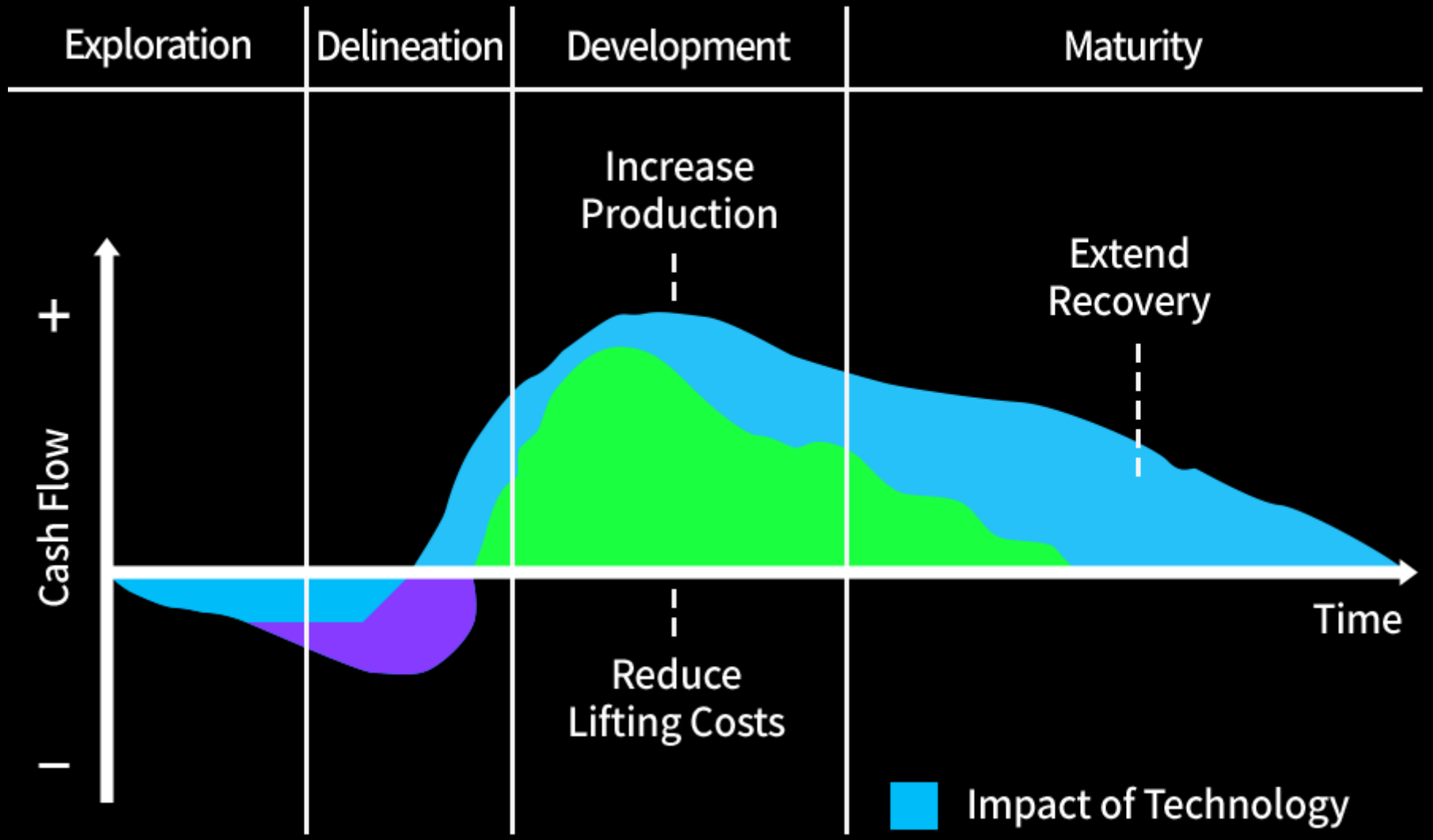
04.03.02 공극이 많은 사암층의 두께



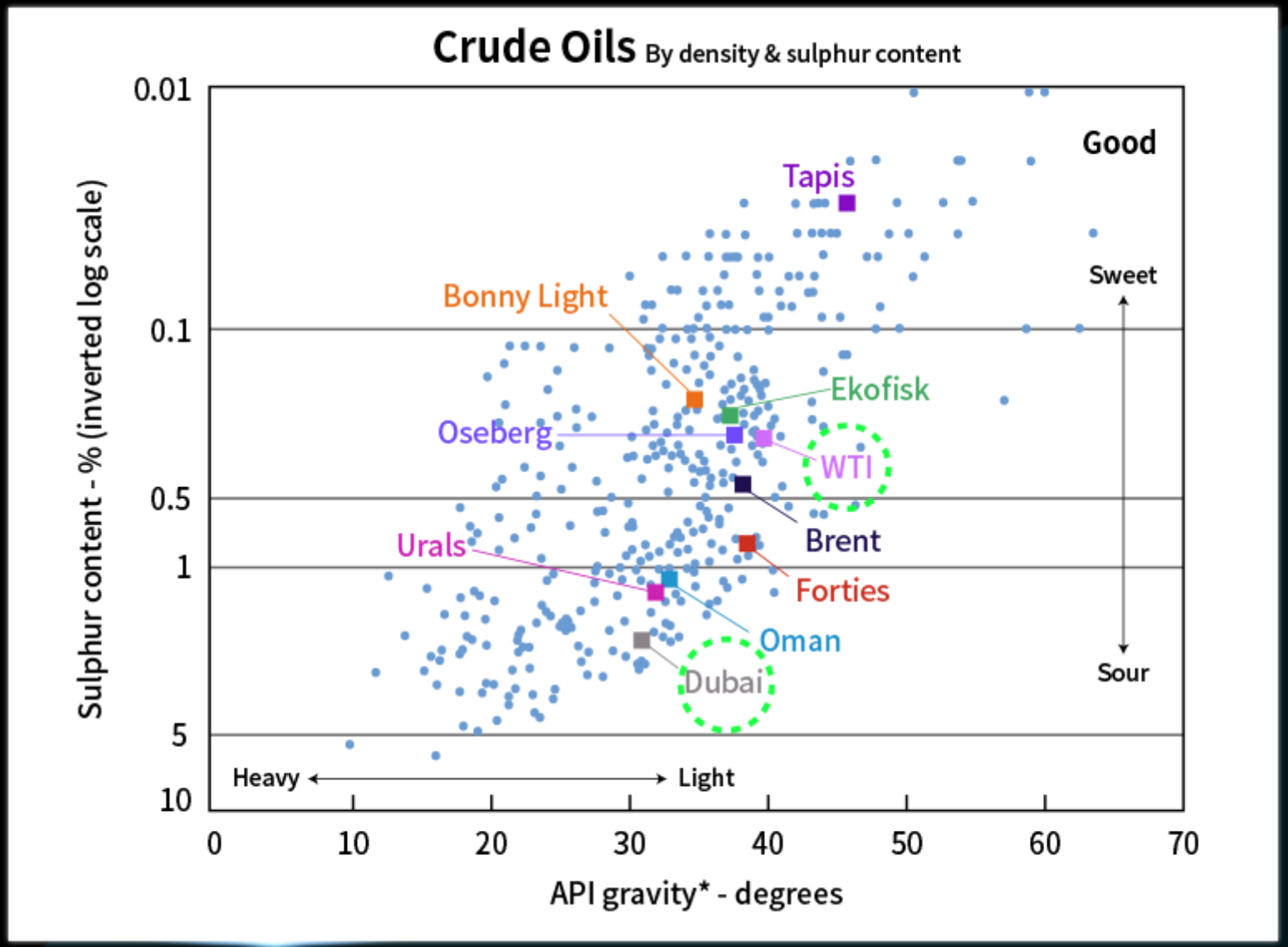
04.03.03 물리검층의 원리



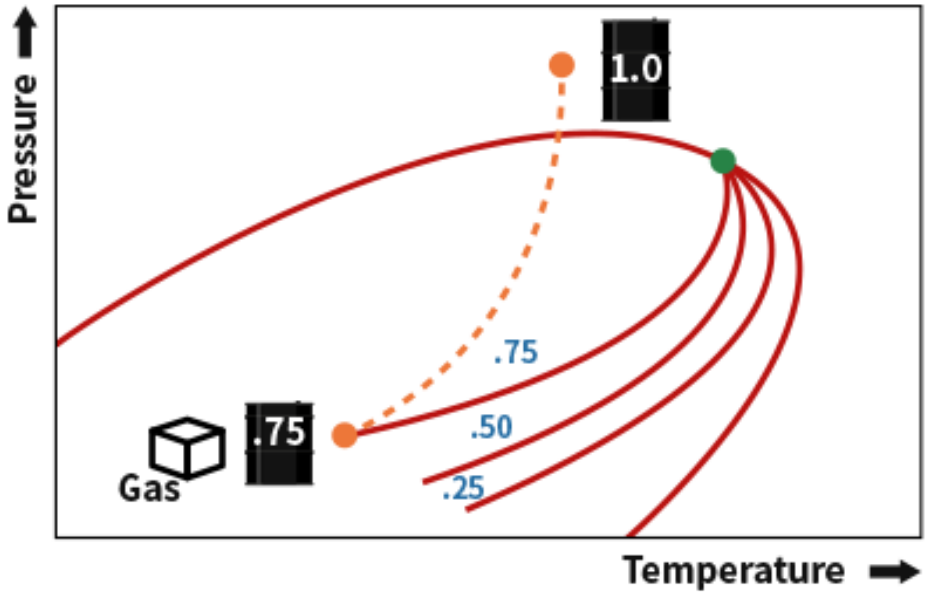
04.04.01 E&P사업의 투자회수 특징



04.05.01 좋은 원유


Crude Oils By density & sulphur content
Sulphur content - % (inverted log scale)
0.01
0.1
0.5
1
5
10
Good
Sweet
Sour
Tapis
Bonny Light
Ekofisk
Oseberg
WTI
Brent
Urals
Forties
Oman
Dubai
Heavy
Light
0
10
20
30
40
50
60
70
API gravity* - degrees

04.05.02 원유최적계수



Shrinkage

$$\frac{1.0 - .75}{.75} = 0.33 = 33\%$$

$$\frac{1.0 - .75}{1.0} = 0.25 = 25\%$$

$$\text{Shrinkage Factor} = \frac{.75 \text{ Stock Tank Volume}}{1.0 \text{ Reservoir Volume}} = .75$$

$$\text{Formation Volume Factor} = \frac{1.0 - .75}{.75} = 1.33$$