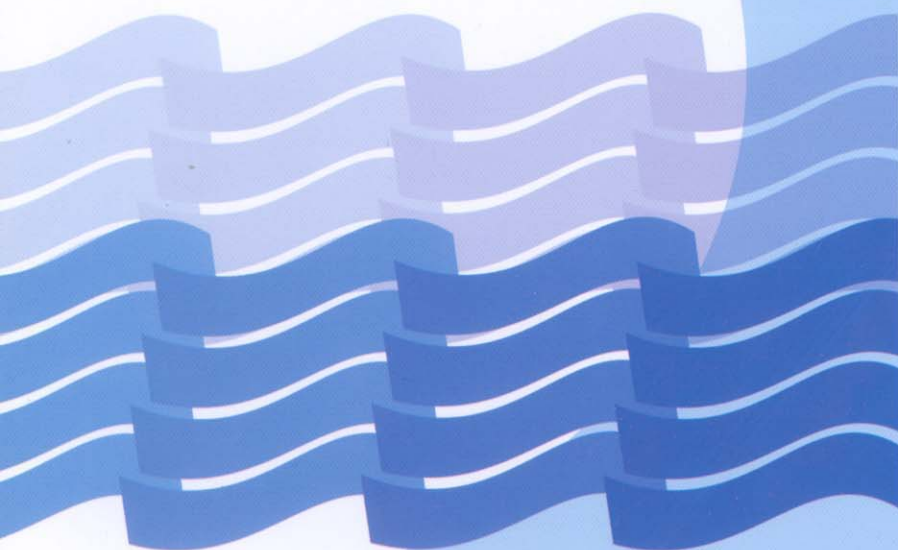




ژئوفیزیک و نقش آن در مهندسی آب ، شناخت روش خود پتانسیل (S.P)



.

.

.

:

-
-
-
-
-
-
-

()

()

:

(SP)

SP

SP

(SP)

()

)

(

)

(

1 Self Potential

2 Spontaneous Potential

(v)

$$V = K \cdot \frac{DP}{\mu\sigma}$$

:

:

P
D
 μ
 σ
K

(Schlumberger , Poldini)

:

()

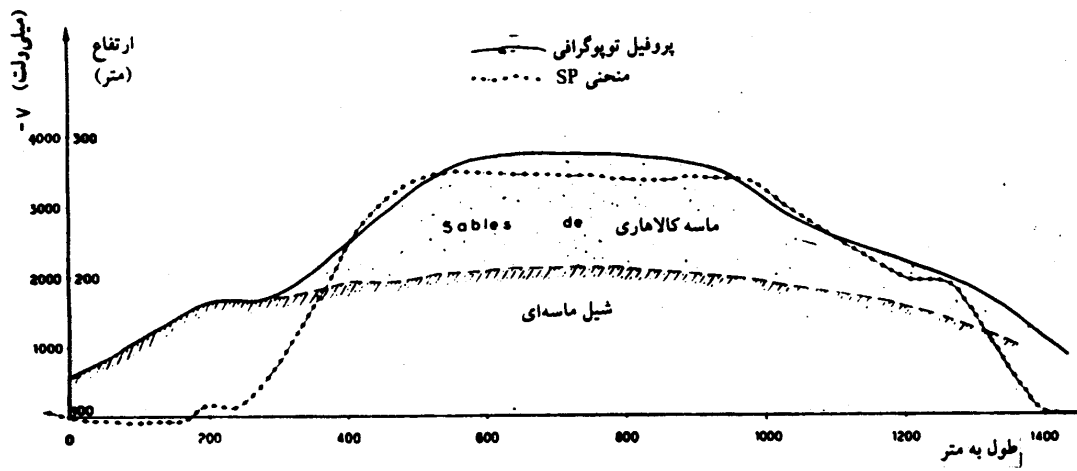
) ()

(

:

:

SP



SP

SP

±

SP

:

-
-

()

:

SP

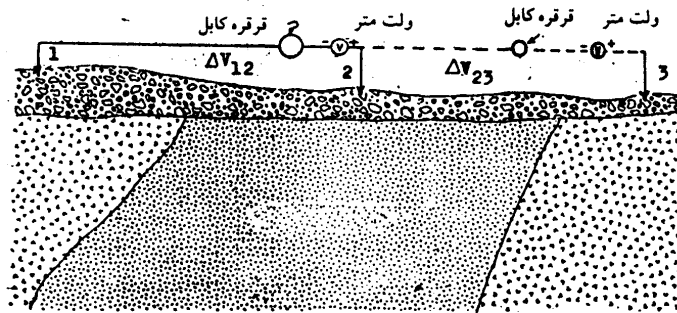
(

$$\left(\frac{\Delta_1 \Delta_2}{2}\right)$$

V)

SP

(Δ



(Leap Frog)

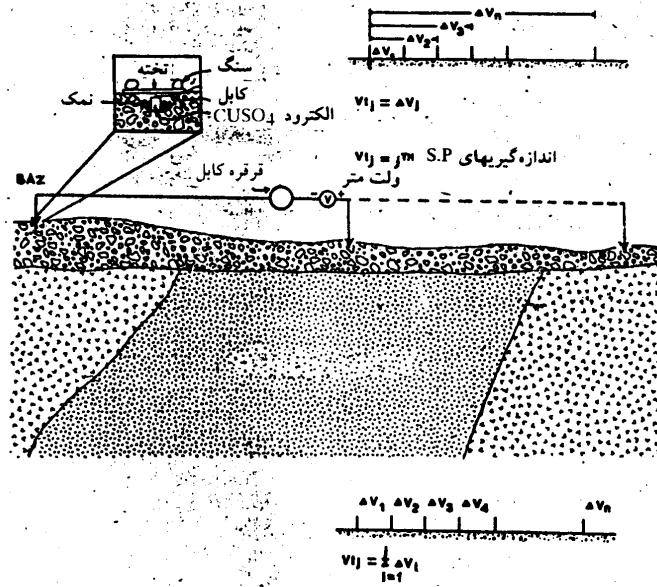
(

Cu So4

()

$$\Delta V$$

$$(\Delta V_1, \Delta V_2, \Delta V_3, \dots, \Delta V_n)$$



()

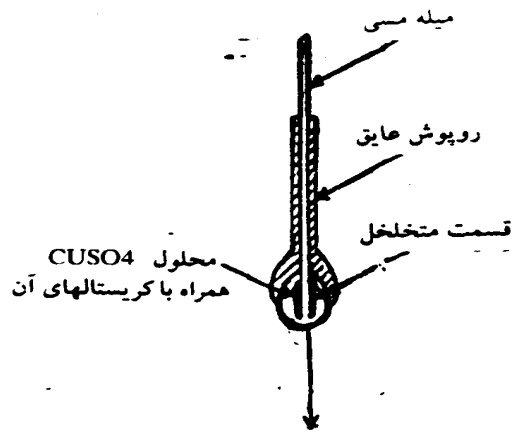
Abem

)

(

()

()



Abem

± mV

()

SP

:

SP

SP

:

:

:

()

:

(EM)

SP

:

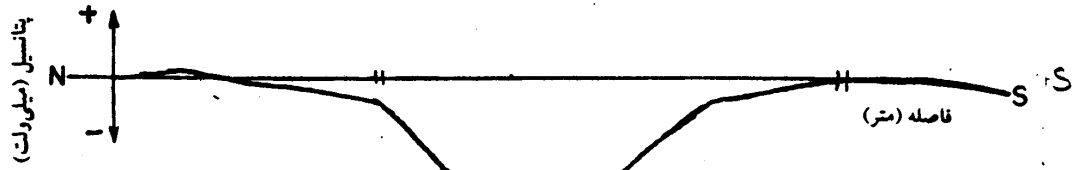
)

(

...

()

$\left\{ \begin{array}{l} 1\text{cm} = 20\text{m} \\ 1\text{cm} = 50\text{m.v} \end{array} \right.$



SP

SP

M

SP

$\frac{2\text{m}}{3}$ $\frac{\text{m}}{2}$ $\frac{\text{m}}{3}$

SP

SP

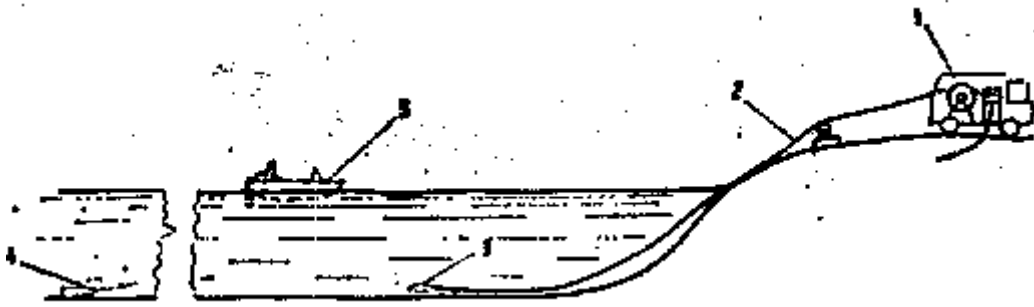
-
-
-
-
-
-

SP

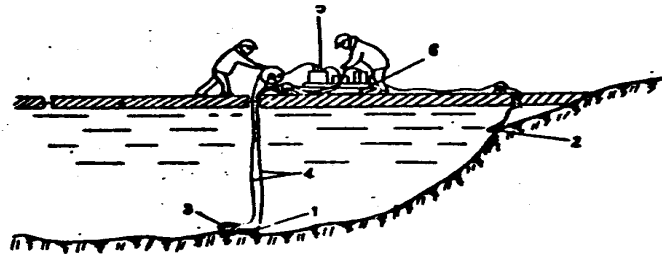
SP

SP

()



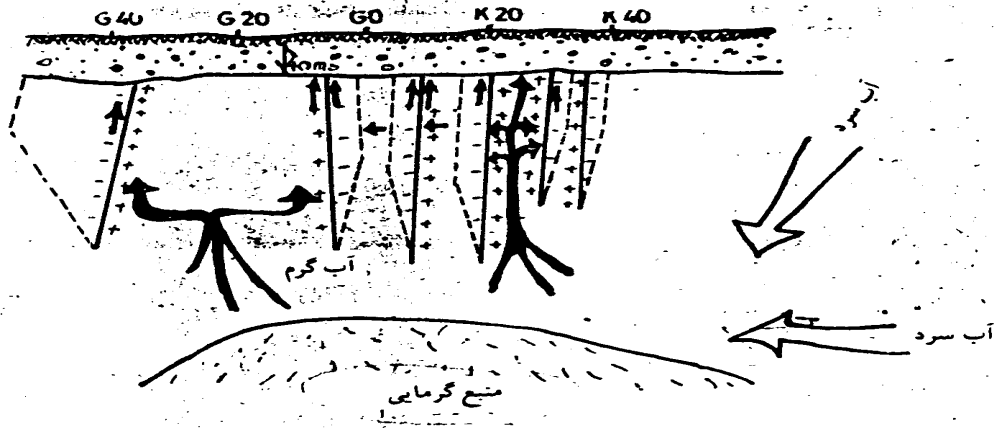
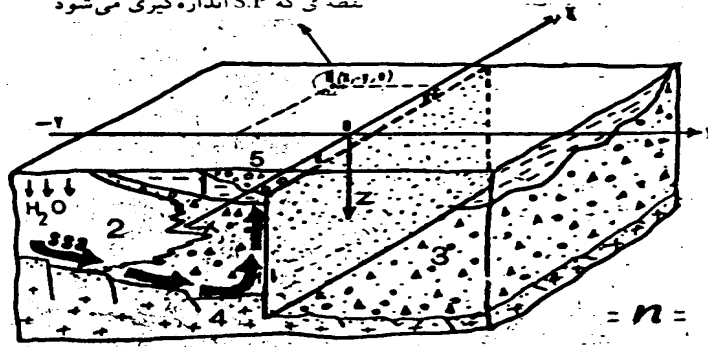
(Ogilvy , Ayed and Bogoslovsky 1969)



Non

()

تفصی که S.P اندازہ گیری می شود



Ψ

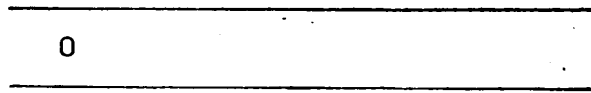
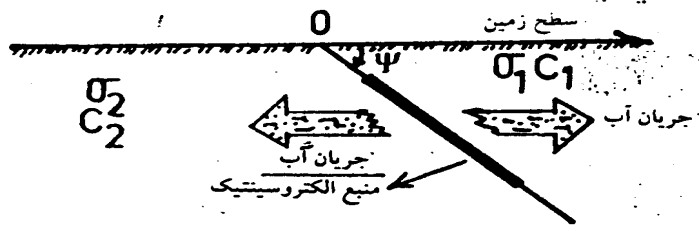
SP

(Rikuu)

M=7.2

(Leap frog)

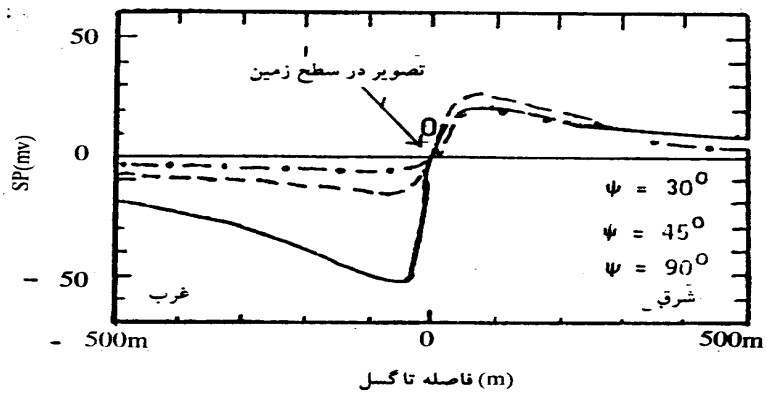
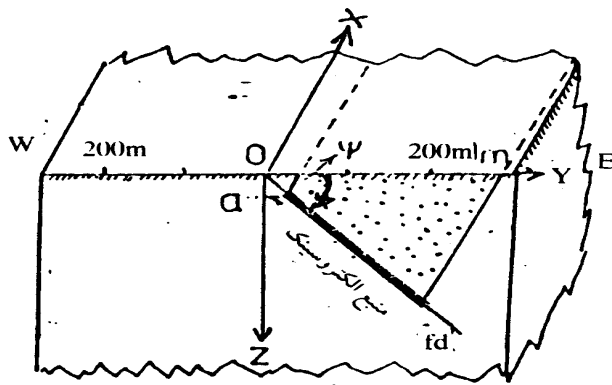
(Gradient)




Ψ

σ σ
 C C
 0

SP



SP

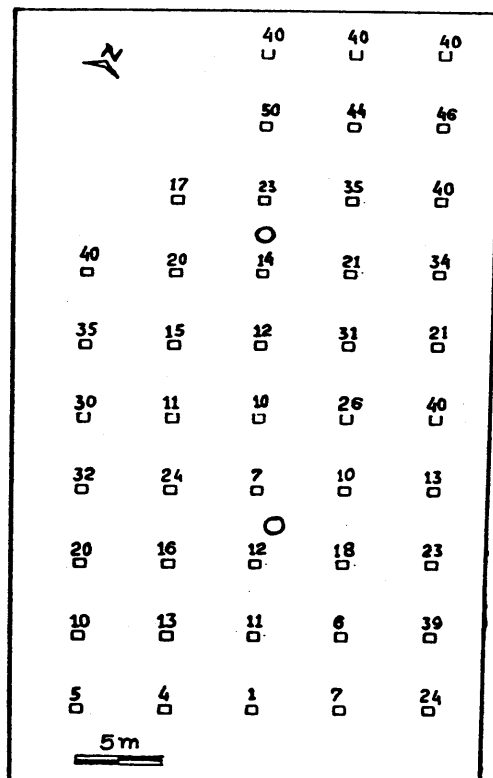
$\Psi = 30^\circ$ 

$\Psi = 45^\circ$ 

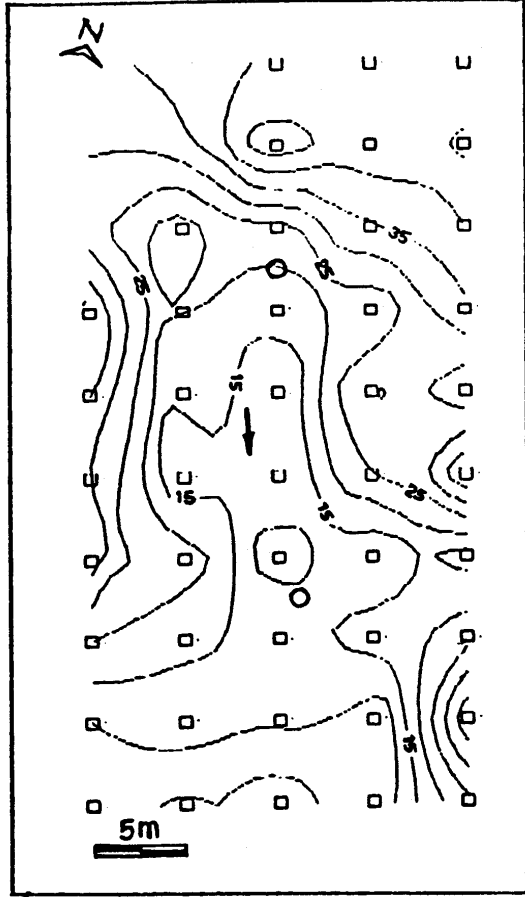
$\Psi = 90^\circ$ 

()

()

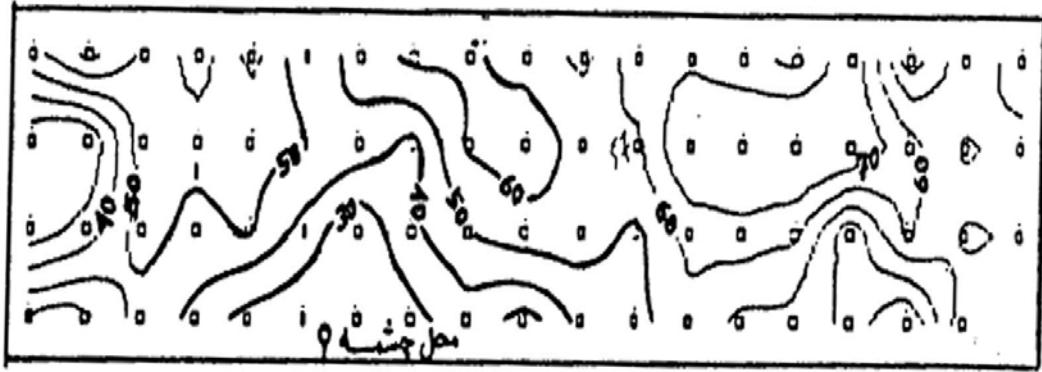


○



□
○
→

(



○

()

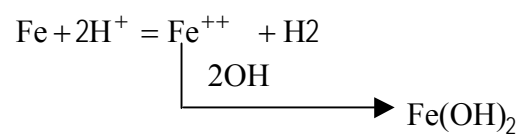
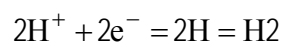
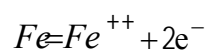
()

()

()

1. Oxidation

2. reduction



:

Ca = Ca ⁺⁺ + 2e ⁻	/
Mg = Mg ⁺⁺ + 2e ⁻	/
Fe + 2OH ⁻ = Fe(OH) ₂ + 2e ⁻	/
Cu = Cu ⁺⁺ + 2e ⁻	/
Zn = Zn ⁺⁺ + 2e ⁻	/

SP

1 Introduction to Applied Geophysics Stanislav Mares, 1984

()

()

DOC. Dr. Ilyas QAGKAR – SP