

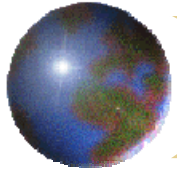
# Aperture

- Aperture will have an influence on the shear strength of joints
- More important, is the influence of aperture on the permeability

Cubic law : 
$$k = \frac{g \cdot e^3}{12 \cdot \mu}$$
 for two parallel smooth plate

地表節理開口寬易受開炸、解壓與風化等因素影響  
利用透水試驗獲得開口寬較地表量測為可靠

思考  $e = 0.5\text{mm} / 0.05\text{mm}$   
對強度影響以及對透水性影響  
有何不同?



# Aperture

內寬	描述	
<b>&lt;0.1mm</b> <b>0.1-0.25mm</b> <b>0.25-0.5mm</b>	<b>很緊密 Very tight</b> <b>緊密 Tight</b> <b>半開 Partly open</b>	<b>閉合型</b> <b>Closed features</b>
<b>0.5-2.5mm</b> <b>2.5-10mm</b> <b>&gt;10mm</b>	<b>張開 Open</b> <b>中寬 Moderately</b> <b>寬 Wide</b>	<b>間隙型</b> <b>Gapped features</b>
<b>1-10cm</b> <b>10-100cm</b> <b>&gt;1m</b>	<b>很寬 Very wide</b> <b>極寬 Extremely wide</b> <b>很空洞 Cavernous</b>	<b>開口型</b> <b>Open features</b>

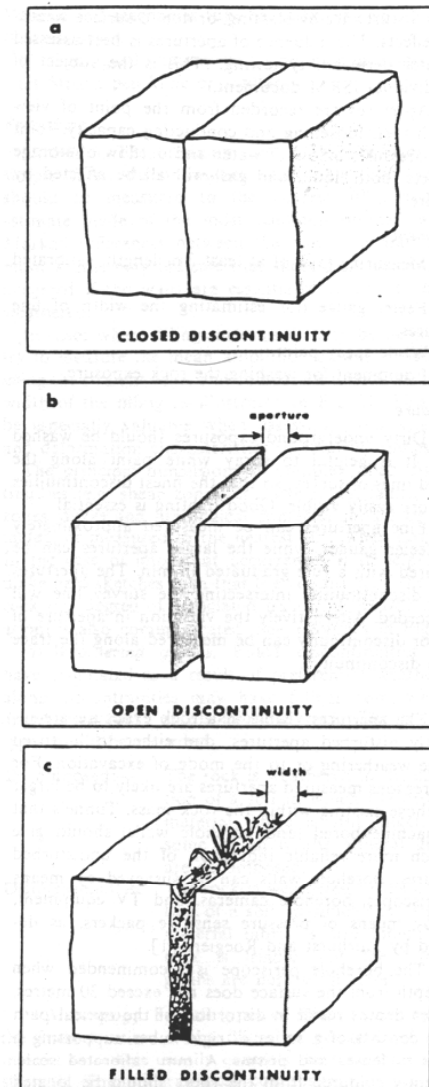
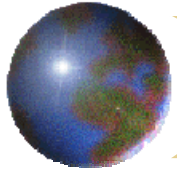
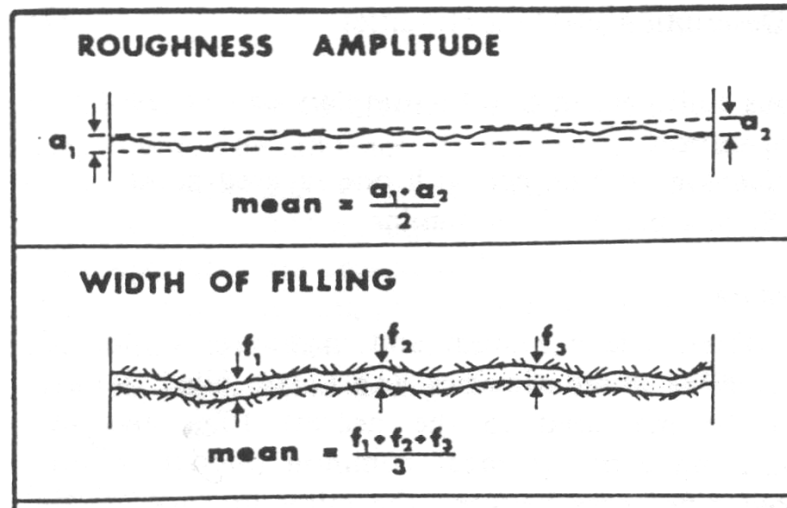


Fig. 21. Diagrams showing the suggested definitions of the *aperture* of open discontinuities and the *width* of filled discontinuities.



# Aperture

- The amplitude of the wall roughness and the thickness of the filling can help to indicate the amount of shear displacement



- In the case of important occurrences, it is helpful to make field sketches such that the condition of the wall rock is also communicated.

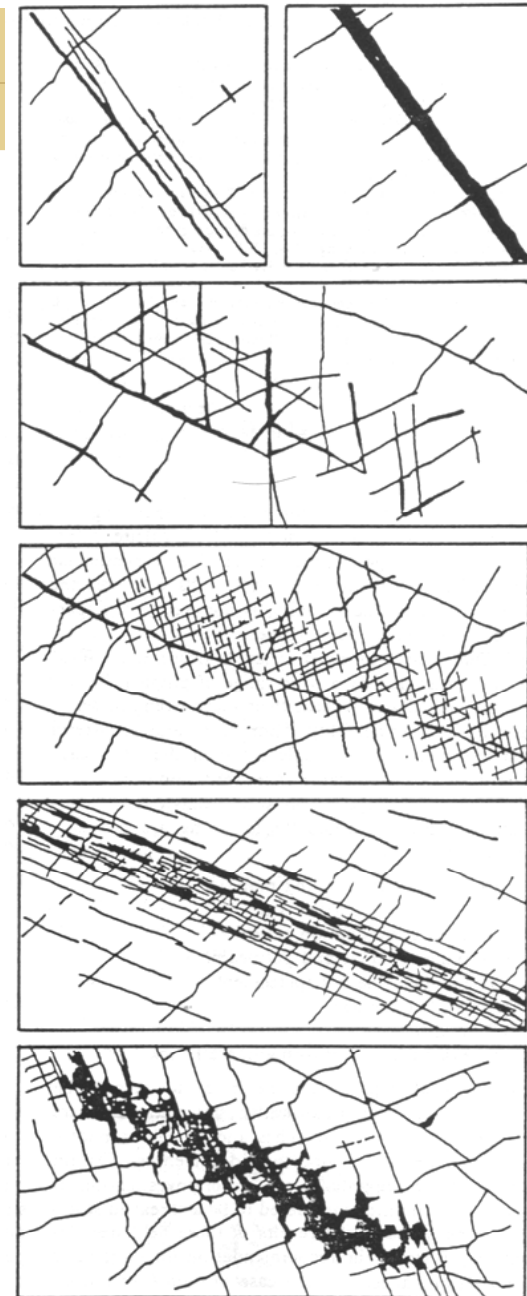


Fig. 23. Examples of field sketches of complex filled discontinuities [1].