Slope Stability

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Exercise 3

LIMIT EQUILIBRIUM ANALYSES – SIMPLIFIED BISHOP METHOD

Part 1

In Figure 1 the drawing of a dry slope (sandy silt) is given. A circular slip surface delimited by points *A* and *B* is assigned. The origin $O \equiv (0;0)$ of the reference system is chosen to be at the slope toe (point A). Geometry and soil properties are provided in Table 1.

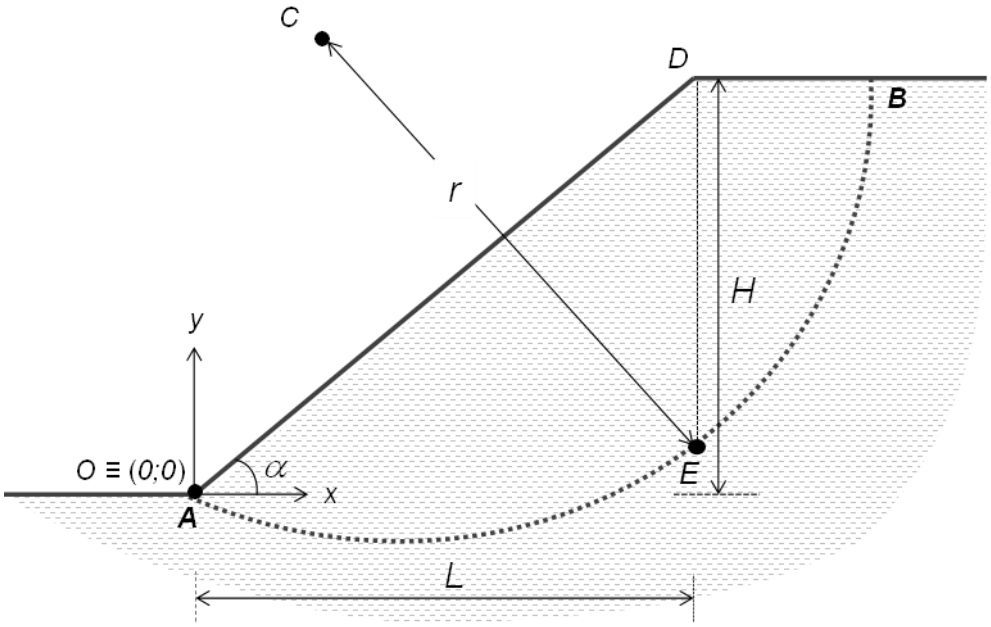

Figure 1 Slope geometry

Table 1: geometry and soil properties of the slope given in Figure 1.

γ_{sat} (kN/m^3)	w_{sat} (%)	α (°)	H (m)	L (m)	x_C (m)	y_C (m)	r (m)	φ' (°)	c' (kPa)
21.0	16.7	30.0	8.0	13.9	7.0	10.0	12.2	22.0	5.0

After dividing the analysis domain in n=20 slices, compute F for the assigned slip surface according to the simplified Bishop's method.

Part 2

Compute F by considering the case of submerged slope (Figure 2). Discuss briefly the result by comparing it to the one achieved in the previous case.

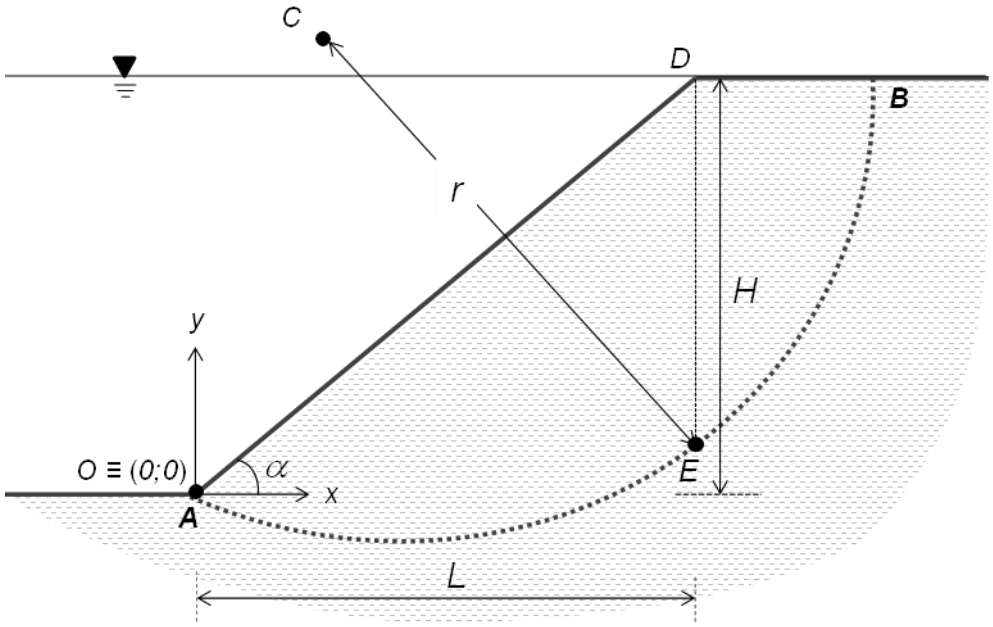

Figure 2 Slope geometry in submerged conditions