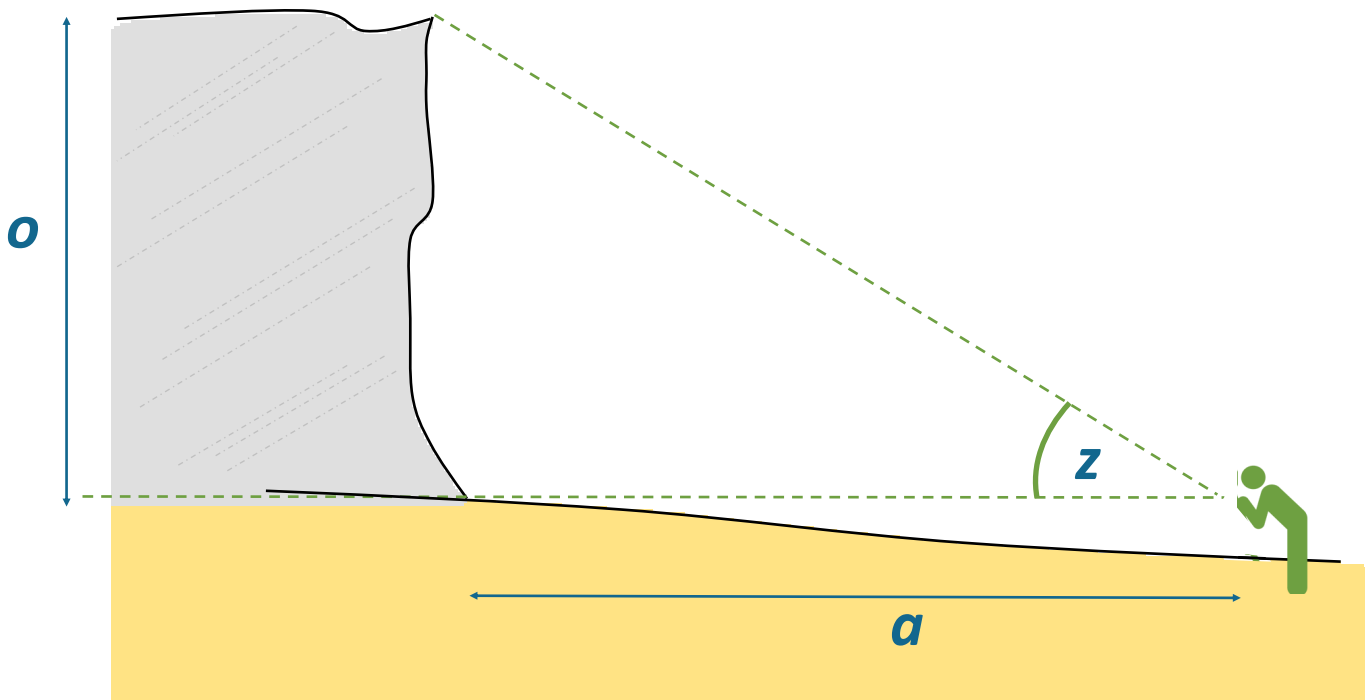


Measuring the Height of a Cliff



The height of a cliff (o) can be measured using a clinometer.

First, the recorder positions themselves so that the clinometer is able to view the base of the cliff at a 0° angle. If the beach is very flat the recorder may have to lie on their stomach to achieve this, but in most cases the beach slopes away from the cliff foot and will allow the recorder to stand.

At this point the recorder needs to mark their position and then measure the distance from this mark to the foot of the cliff (a).

Returning to their marked position, the recorder then measures the angle of the cliff (z) by pointing the clinometer at the highest visible point on the cliff.

The height of the cliff can then be calculated by using trigonometry:

$$\text{Height } (o) = \text{Distance } (a) \times \text{TAN angle } z$$

Worked Example:

A recorder measures the angle of the cliff as 57° at a distance of 35m from the foot of the cliff.

$$\text{Height} = 35 \times \text{TAN } 57$$

$$\text{Height} = 35 \times 1.558$$

$$\text{Therefore the height of the cliff} = 54.53\text{m}$$