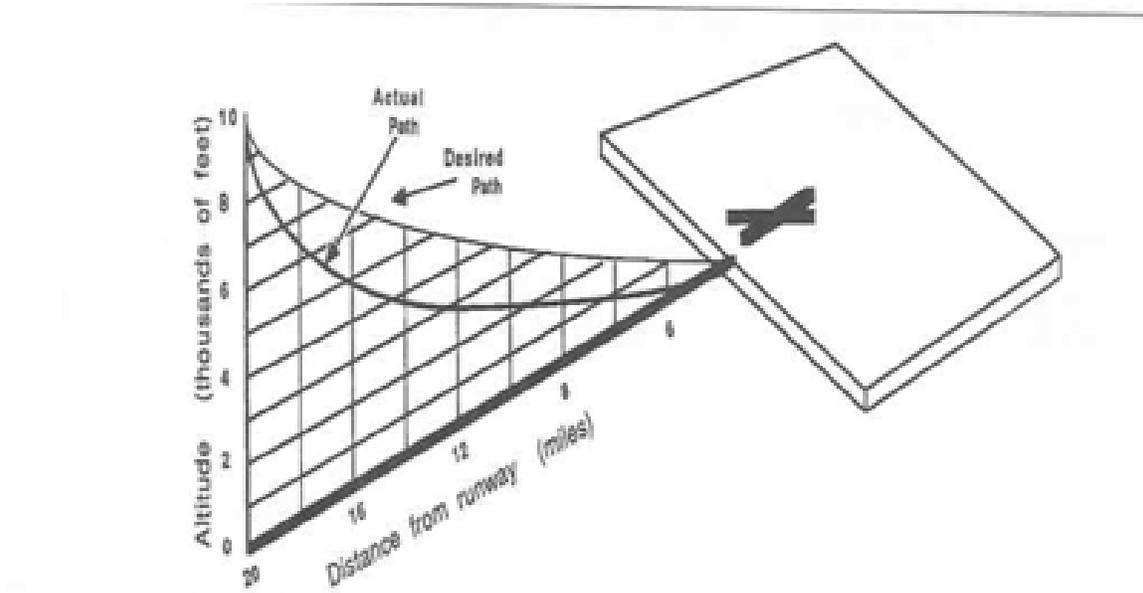


Black Hole Approach

(When outside visual cues are present at night, but flying over water or featureless terrain without ground lighting)



Boeing researchers found that the typical descent on a black hole approach, if continued to touchdown, would result in a landing (impact?) two to three miles short of the runway. You will be fooled if you try to conduct a long, straight-in approach over featureless terrain using only out-the-window references. If you study the VSI, you may notice a larger than normal rate of descent. Your airspeed indicator and VSI measures descent angles. For a three-degree descent, your rate should be five times your ground speed. If you're doing 100 knots across the ground, your rate of descent should be about 500 fpm.

Night Flying versus Visual Rules Flying

When flying over featureless terrain at night an **integrated scan** of out for visual cues and in for airspeed, altitude and rate of descent are critical to situational awareness. VFR flying internationally only exists during daylight hours. You can fly by only outside references during the day and when flying in the clouds you must fly by only instrument references, but at night you must fly by an integrated scan even when clear of clouds. The concept of a SELF CONTAINED PRECISION APPROACH is as follows. If you know your distance from the landing area, you should have certain altitudes you should not be below at those distances. Ie. 500 ft above landing area at 1/2 mile, 300 ft above landing area at 1/4 mile. Below 500 ft agl your rate of descent should be no more than 500 fpm to allow for reaction time due to reduces visual cues and allow warning systems such as the radar altimeter or ground proximity device to provide adequate alerts in time to corrective action.

Slant Range Visibility

SLANT RANGE VISIBILITY from the cockpit during a descent especially at night can decrease as you descend due to mist or haze. In other words, you may be able to see the landing area at 1000 ft and 3 miles, but lose contact with it when you descend lower and become closer due to encountering not fog, but mist or haze conditions which are thicker nearer the ground since you are now looking at a flatter angle to the landing area. A point to note is that Slant Range Visibility can be greater or less than reported visibility on the ground.