

COREOLIS EFFECT

VERTICAL PLANE.

THIS FORMULA RESULTS IN A GRAVITY MULTIPLIER.

$$f_c = \left[1 - 2 \left(\frac{\Omega V_{x_0}}{g} \right) \cos(L) \sin(AZ) \right]$$

WHERE: Ω IS EARTH'S ROTATION RATE = $.00007292 \frac{\text{RAD}}{\text{S}}$

V_{x_0} IS MUZZLE VELOCITY (ft/s)

g IS GRAVITY = -32.2 (ft/s²)

L IS LATITUDE (DEGREES ABOVE OR BELOW EQUATOR)

AZ IS AZIMUTH OF FIRE (CLOCKWISE FROM NORTH)

FOR EXAMPLE:

IF $MV = 2870$ FPS, $L = 45^\circ$, $AZ = 270^\circ$ (WEST)

$$f_c = \left[1 - 2 \left(\frac{.00007292 \cdot 2870}{32.2} \right) \cos(45) \cdot \sin(270) \right]$$

$$= \underline{1.0092}$$

SO THE "EFFECTIVE" GRAVITY AND RESULTING DROP IS 1.0092 TIMES GREATER. IF YOUR DROP WAS -300" W/O COREOLIS, IT WILL BE $-300 \cdot 1.0092 = -302.8$ " WITH COREOLIS, AN EFFECT OF -2.8"

*NOTE: FIRING EAST ($AZ = 90$) WOULD RESULT IN EXACTLY 2.8" LESS DROP FOR THE ABOVE EXAMPLE.