Theoretical gravity for ballistics

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Abstract

In this paper, I describe theoretical gravity for ballistics.
The paper ends with "The End"

Introduction

Theoretical gravity for ballistics is different from theoretical gravity for objects of negligible size and small range because theoretical gravity for ballistics varies with both latitude and height.
In this paper, I describe theoretical gravity for ballistics.

Theoretical gravity for ballistics

Theoretical gravity for ballistics is

$$g(\phi, h) = \frac{(2a+b)^2 \left(ae - (ae - bp)\sin^2\phi\right)}{a(2a+b+3h)^2\sqrt{1 + \left(\frac{b^2}{a^2} - 1\right)\sin^2\phi}}$$

where
a is the equatorial semi-axis
b is the polar semi-axis
e is the acceleration due to gravity at the equator
p is the acceleration due to gravity at the poles
$-\frac{\pi}{2} \leq \phi \leq \frac{\pi}{2}$ is the latitude
$0 \leq h << \frac{2a+b}{3}$ is the height

The End