

7. Coriolis force

21. November 2024

Problem 1.

Evaluate how approximately the trajectory of a projectile shot to the east in the northern hemisphere changes due to the Coriolis effect. Assume that the distance covered by the projectile is small compared to the Earth radius. Use the Cartesian system with the axis x pointing to the east, y to the north and z upward. Consider the approximation with the forces computed from the velocity of the original parabolic trajectory only (without effects of the Coriolis force).

Problem 2.

Find the Coriolis force acting on an air particle moving in Prague (50°N , 14°E) with the velocity with northward and eastward component, both 10 m/s. Evaluate the size of *all* terms. Does it make sense to omit some terms?