

Climate System II, 2022; Exercise 1:

Evaluate the effect of obliquity on the movement of the Tropic of Cancer

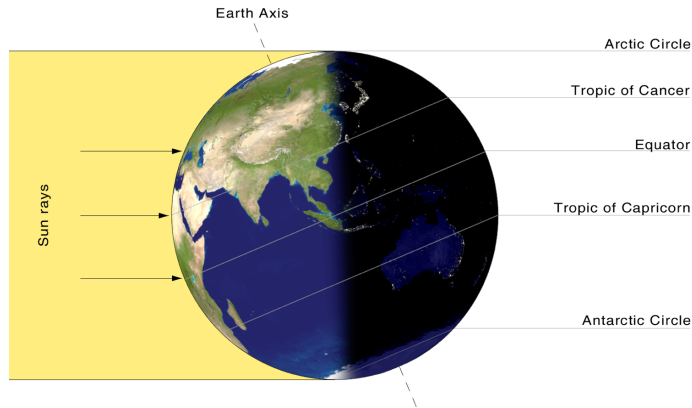


Figure 1: Geometry of our present boreal summer insolation.

The obliquity is the angle between an object's rotational axis and its orbital axis. Earth's obliquity oscillates between 22.1 and 24.5 degrees on a 41,000-year cycle; the earth's mean obliquity is currently 23.4 degrees and decreasing. The Earth radius is 6,371 km. How many meters per year is the movement of the Tropic of Cancer due to obliquity changes?



Figure 2: Highway in Mexico: Position of the Tropic of Cancer.