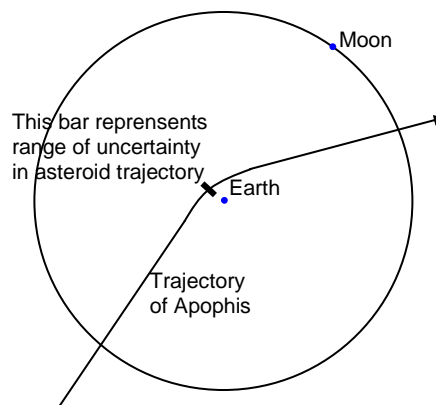


EXAMEN : Baccalauréat général - Série S-SVT ou S-SI	Session 2013
ÉPREUVE : Evaluation spécifique de Langue en section européenne	
<b>PHYSIQUE-CHIMIE en langue ANGLAISE</b>	
Thème : « Mécanique : lois de Newton et de Kepler »	<b>Sujet n°2</b>

### Asteroid Apophis

Asteroid Apophis continues to stay among the top positions on the list of possible impact with the Earth. The asteroid is anywhere from 885 feet to 1000 feet across. It was discovered in 2004 when astronomers became concerned because there was a risk of it impacting Earth in the year 2029. However, further observations determined that the risk of impact was less and in fact the asteroid would miss Earth by 18,300 miles... which is closer than the moon.



There are also other trajectory theories stating that in 2029 Asteroid Apophis will be affected by the Earth's gravity and cause it to be pulled in the direction of Earth when it comes back around on April 13th, 2036...Friday the 13th.

The close approach in the year 2029 will alter the asteroid's orbit, which will make predictions very uncertain without having more data. "If we get radar ranging in 2013 [the next good opportunity], we should be able to predict the location of asteroid Apophis out to at least 2070." said Jon Giorgini. Apophis will pass within 0.09666 AU\* (14.4 million km, 8.9 million miles) of the Earth in 2013 allowing astronomers to refine the trajectory for future close passes.

From <http://asteroidapophis.com/>

AU = astronomic unit

#### Questions:

1. Present and comment on this document.
2. Explain why the trajectory of Apophis will be affected by Earth's gravity?
3. How can science help to protect humans from natural disasters?