

Re: What time of the year is the moon closest to the Earth??

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- *From:* "dlzc" <dlzc1@xxxxxxx>
 - *Date:* 4 Jan 2007 06:45:46 -0800
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Dear dlham:

dlham@xxxxxxxxxxxxx wrote:

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Thanks Dave

You are welcome. I was surprised I could find the answer that easily.

http://www.fourmilab.ch/images/peri_apo/

This article states that "the moon is at perigee relative to the earth when earth is at apogee relative to the sun and the moon is at apogee relative to the earth when the earth is at perigee relative to the sun."

Can anyone tell me if there is a logical explanation why this "coincidence" occurs?? Why the moon is closest to the earth when the earth is farthest from the sun and visa versa??

Conservation of angular momentum. The *system* of Earth (E) and the Moon (M) is not isolated from the Sun (S). The SEM system angular momentum is constant (ignoring all the other bodies in the solar system). So you can think of M picking up (or holding) some momentum (however briefly) from the SE system.

Three-body problems are always thorny. Hopefully you will get a better / clearer answer from others here.

David A. Smith

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