

DIVISION ON DYNAMICAL ASTRONOMY ABSTRACT FORM

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A Correction to the Earth's Obliquity Rate

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In the standard IAU theory for the orientation of the Earth's equator, the secular obliquity rate arises solely from the motion of the ecliptic, not from the motion of the equator in space. This results from the assumed symmetry of the solar and lunar positions with respect to the mean ecliptic plane over long times and the choice of the dynamical equinox as a reference axis. For the Moon, the symmetry plane is tilted 1.5" with respect to the mean ecliptic plane due to direct and indirect planetary perturbations. These planetary perturbations on the lunar orbit result in torques on the oblate Earth which contribute to both precession and obliquity rates. Small additional contributions arise from planetary torques on the Earth's bulge. The net correction to the obliquity rate is 4).027 "/century and is an observable motion in space.

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Abstract Submitted for the <sup>24th</sup> ~~23rd~~ DDA Meeting, ~~Chicago~~ Santa Barbara, CA

Date Submitted April 9, 1993

Form Version 3/92

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BAAS VOL. \_\_\_\_\_ NO. \_\_\_\_\_ 19\_\_\_\_