THE EARTH'S ACCELERATION AS DEDUCED FROM AL-BIRUNI'S SOLAR DATA

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SUMMARY

In the process of finding the position of Ghazni relative to Baghdad, al-Biruni used about 65 observations of the Sun, mostly measurements of meridian altitudes made at various places. The dates of the observations range from 829 to 1019. They yield an acceleration of the Earth's spin of $-26.5 \pm 5.8$ parts in $10^8$ per century, and they yield a rate of change of the obliquity of $-47.9 \pm 2.0$ sec per century. Al-Biruni also left a few miscellaneous observations of eclipses. These, taken in conjunction with the solar data, yield a lunar acceleration of $-46.4 \pm 6.0$ sec per century per century.
