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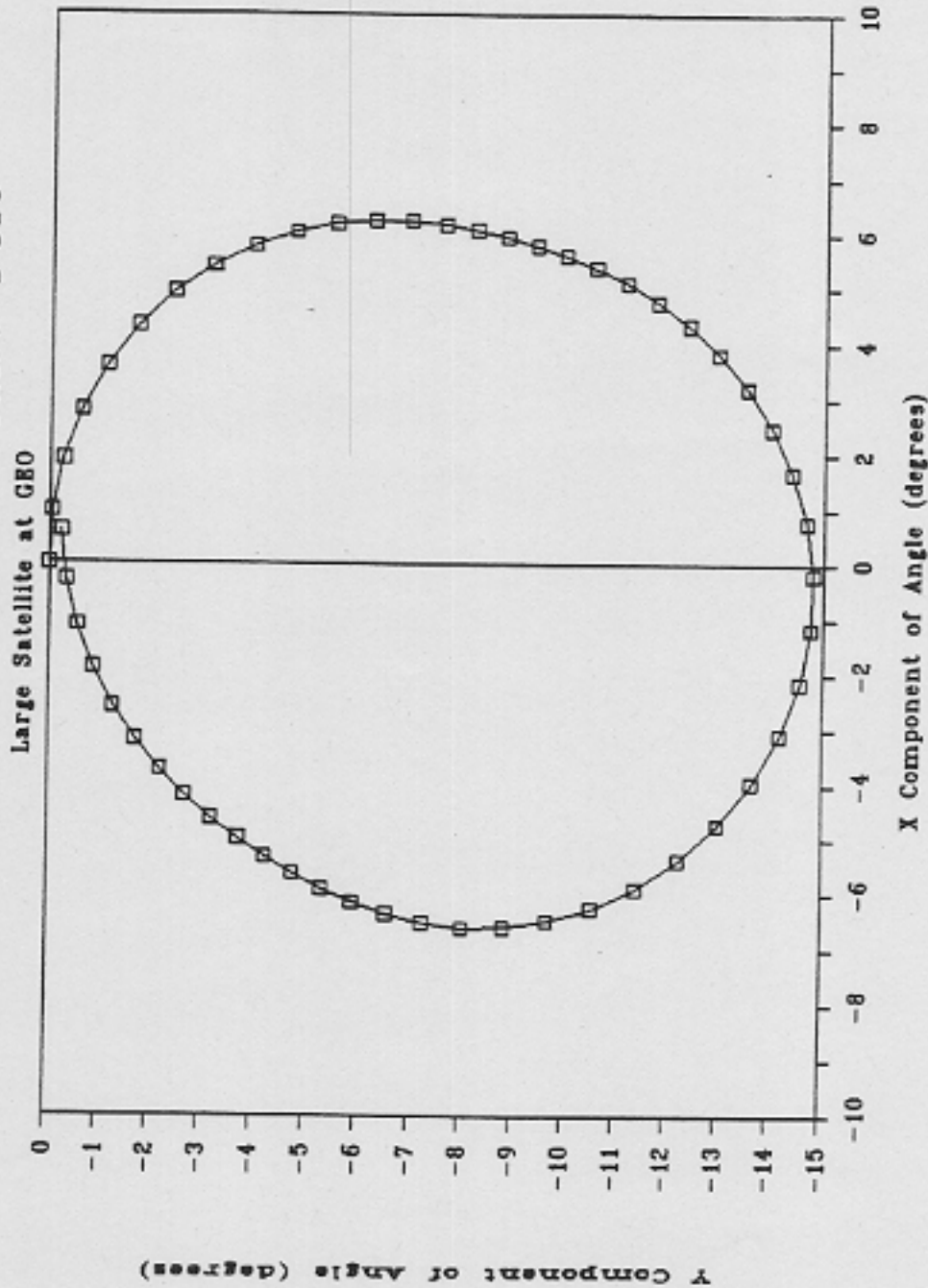
Chart No. 6

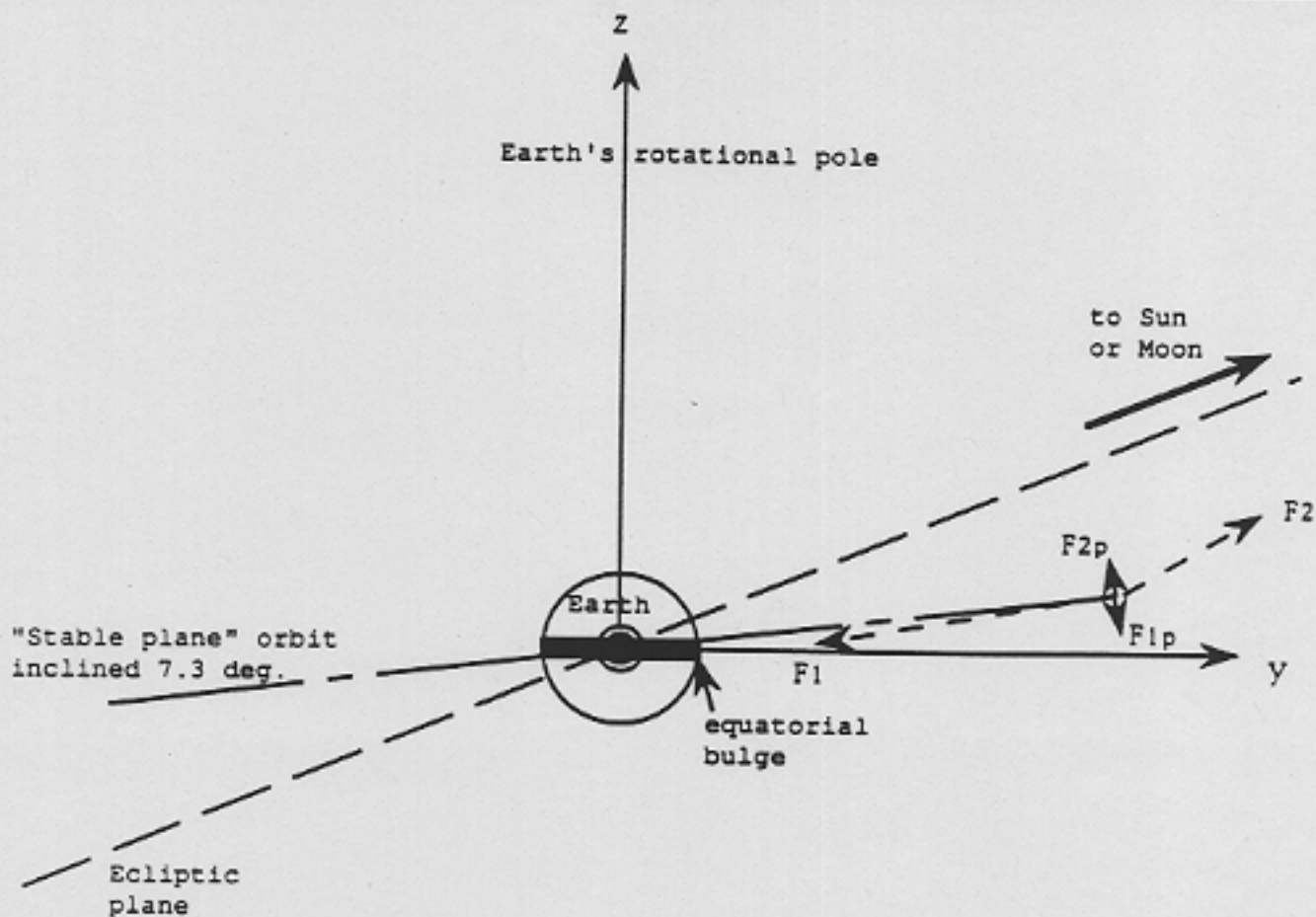
Orbital Debris Project  
NASA/Johnson Space Center  
**GEO In A Cocked Hat**

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### Precession of Orbit Plane Pole





## Notes and legend:

The xy plane is the Earth's equatorial plane.

The x axis is aligned with the vernal equinox and is pointing out of the paper.

$F_1$  is the perturbing force due to the equatorial bulge.

$F_{1p}$  is the out-of-plane component of  $F_1$ . It generates a torque tending to regress the ascending node.

$F_2$  is the perturbing force due to lunar and solar gravity.

$F_{2p}$  is the out-of-plane component of  $F_2$ . It generates a torque tending to advance the ascending node.