EPSC Abstracts,
Vol. 4, EPSC2009-113, 2009
European Planetary Science Congress,

The decadal variations in the geophysical processes and the asymmetries in the solar motion about the barycentre

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Abstract

We have shown that the decadal variations in the length of day, variations in the rate of the westward drift of the geomagnetic eccentric dipole, and variations in certain climate characteristics (the increments of the Antarctic and Greenland ice sheet masses, anomalies of the atmospheric circulation regimes, the hemisphere-averaged air temperature, the Pacific Decadal Oscillation, and so on) are synchronized with the changes in the Sun's orbital motion around the barycentre (the centre of mass) of the Solar System.
We have supposed that these correlations occur due to the following reason.

The Sun revolves around the barycentre of the Solar System along the compound curves. The curvature of the Sun's trajectory constantly changes, and the Sun moves with a varying acceleration. Being a satellite of the Sun, the Earth revolves around it and also moves with the Sun around the Solar System's barycentre. Like the Sun, the Earth undergoes the same varying accelerations as the Sun. These accelerations disturb the Earth's orbital revolution and processes in the Earth's shells, producing the decadal fluctuations in the geophysical processes.