



## **Earth's pole coordinates prediction**

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Integrating the kinematic Euler and dynamic Euler-Liouville equations, we can obtain an approximate, several-parameter celestial-mechanical model for the Chandler and annual polar oscillations due to the gravitational tidal forces applied by the Sun and Moon. We can reach the required interpolation and forecast accuracy for the polar motion for very long (several years), moderately long (about a year), and comparatively short (10-40 days) time intervals by modifying and adjusting the filtering procedure used.

We were able to forecast the Earth's polar motion for an interval of one to two days using second-order polynomial filtering. The polynomial coefficients-the current position, velocity, and acceleration-were estimated from the IERS measurements. The theoretical accuracy reaches milliarcsecond (centimeter) levels, which are comparable to the effects of irregular geophysical perturbations.