Translational movement of the Earth's axis of rotation

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It has been found that the residual (Chandler) motion of the Earth's rotation pole results from the forced translational motion of the Earth's rotation axis relative to the geographic axis. The Earth's rotation axis moves parallel to itself without changing the angle of inclination to the ecliptic plane. The translational motion of the Earth's axis of rotation is caused by the motion of the Earth's center of mass in the Earth's body in the range from 1 to 30 meters relative to the Earth's surface. The motion of the Earth's center of mass in space is due to the motion of the consistent inner core of the Earth in the liquid outer core under the action of the total (internal and external) gravitational field. Formulae for calculation of the trajectory of the Earth's centre of mass from astronomical observations are suggested. The comparison of our calculations and observational data (during the period 1862-1984) on variations in the latitudes of places and acceleration of gravity has shown that they are in good agreement. Our model has been shown to adequately describe the physical process of motion of the Earth's centre of mass inside the Earth's body. Researcher can observe the result of the actual effect of disturbing and restoring forces upon the mass of the Earth's consistent core. A dynamic equilibrium of disturbing and restoring forces determines the spatial location of the Earth's consistent core in the liquid shell of the outer core or the geocentric coordinates of the Earth's center of mass.