



Consistent modelling of the geodetic precession in Earth rotation

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Geodetic precession is the largest relativistic effect in Earth rotation. Up to now the standard procedure was to calculate this effect separately and add it to a purely Newtonian solution. With our rigorous relativistic model (Klioner et al., 2001), we are now able to describe Earth rotation for the first time in a consistent way. We have found that this standard treatment of geodetic precession is not correct. The inconsistency of the standard treatment leads to errors in all modern theories of Earth rotation with a magnitude of up to $200 \mu\text{as}$ when the time span of one century is considered. Therefore, the consistent treatment of geodetic precession is indispensable, since the goal accuracy of modern theories of Earth rotation is $1 \mu\text{as}$.