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Titel des Beitrags:
Influence of subdaily polar motion model on nutation offsets estimated by very long baseline interferometry

Abstract:
This paper studies the connection between the subdaily model for polar motion used in the processing of very long baseline interferometry (VLBI) observations and the estimated nutation offsets. By convention accepted by the International Earth Rotation Service, the subdaily model for polar motion recommended for routine processing of geodetic observations does not contain any daily retrograde terms due to their one-to-one correlation with the nutation. Nevertheless, for a 24-h VLBI solution a part of the signal contained in the polar motion given by the used subdaily model is numerically mistaken for a retrograde daily sidereal signal. This fictitious retrograde daily signal contributes to the estimated nutation, leading to systematic differences between the nutation offsets from VLBI solutions computed with different subdaily polar motion models. We demonstrate this effect using solutions for all suitable 24-h VLBI sessions over a time span of 11 years (2000--2011). By changing the amplitudes of one tidal term in the underlying subdaily model for polar motion and comparing the estimated parameters to the solutions computed with the unchanged subdaily model, the paper shows and explains theoretically the effects produced by the individual subdaily terms on the VLBI nutation estimates.

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