Geophysical Research Abstracts
Vol. 12, EGU2010-5754, 2010
EGU General Assembly 2010

Chandler wobble excitation reconstruction and analysis

Leonid Zotov
Sternberg Astronomical Institute of Moscow State University, Russia (wolftempus@gmail.com)

Different methods of geodetic excitation reconstruction from observations of the polar motion are compared. Among them Wilson-Jeffreys filter, Tikhonov regularization, Panteleev corrective smoothing. Reconstruction of Chandler excitation is an inverse problem, aggravated by the strong annual oscillation, which is nearby in frequency band. Special attempts to filter annual oscillation out were undertaken, among them the harmonic model subtraction, Singular Spectrum Analysis (SSA) and Panteleev smoothing. Obtained results compared one with another and with geophysical excitations, such as atmospheric and oceanic angular momentum, El Nino event, solar and lunar tides. Amplitude and phase correlation analysis was performed. Phase change of the Chandler oscillation in the 30-th of the XX century found a partial explanation.

This work is supported by grant of the President of Russia MK-4234.2009.5