



Contribution of wideband oscillations of the EOP data excited by the fluid excitation functions to their prediction errors

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The combination of the Fourier transform band pass filter and Hilbert transform was applied to determine wideband dominant oscillations as well as variable amplitudes and phases of monochromatic dominant oscillations in the Earth Orientation Parameters (EOP) data. Next, the model EOP data were constructed using monochromatic oscillations with constant amplitudes and phases computed by the LS method and monochromatic oscillations with variable amplitudes and phases. Another EOP data model consist of dominant wideband oscillations and monochromatic oscillations with constant amplitudes and phases. The EOP data model and the original EOP data were then predicted by the combination of the least-squares extrapolation and autoregressive prediction. Comparison of the predictions errors of the EOP data and the model EOP data, computed at different starting prediction epochs has enabled examination of the influence of wide band oscillations as well as monochromatic oscillations with variable amplitudes and phases on the EOP prediction errors. Prediction errors of the EOP data are mostly caused by dominant wideband oscillations in these data excited by atmospheric and oceanic excitation functions. Variable amplitudes and phases of dominant monochromatic oscillations cannot explain big prediction errors of the EOP data.