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Polar motion prediction by KASI

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Korea Astronomy and Space Science Institute(KASI) recently started researches about Earth Rotation. One of KASI's those studies is analysis and prediction of the Earth's pole position - i.e. polar motion. Fitting temporary coefficients of three main components only - Chandler wobble, annual wobble, and 500 day period term has been studied as preliminary one. Both Xp and Yp are modeled as time series composed of constant off set, linear term, and sine and cosine terms for each three periods. The coefficients are determined by using least square error method for each time span of 6.4 years - which is about the beat period of annual wobble and Chandler wobble. Then the prediction of Xp and Yp are made as direct continuation. This approach has been found stable and been applicable to predicting polar motion up to three years. More elaborate models composed of variable coefficients and other minor components are being tested. So far linearly varying amplitude model has been found to be unstable and quite often divergent.