

Are periodic components of horizontal results of continuous GPS measurements artifacts?

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In 1999 Meeting we reported the correlation of spatial distribution of amplitudes of periodic component of GPS horizontal results and tectonic setting. The results were derived from our analysis on time-series solutions of GPS continuous measurements at 600 site distributed throughout Japan. The data spans from April 1996 to October 1999. We found a very systematic behavior of spatial distribution of non-secular components of crustal deformations. This systematic behavior is in good agreement with tectonic setting of Japan. In this presentation we scrutinize the possible error mechanism of GPS and show no known mechanism can explain such a seasonality having strong correlation with tectonic setting.