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Spectral character of GNSS campaign measuremnets: impressions from an extended global network

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Today we can not take the service of continuously operating GNSS stations to any desired place on the earth surface first, it is costly; second, the ground type might not be suitable to install permanent stations (i.e. such as landslides). Therefore the efforts in understanding characteristics of GNSS campaign measurements will continue in the future. Previously, the spectral character of GPS campaign measurements as opposed to that of the well known continuous measurements was examined from a longitude specific, limited number of stations. In this study, in order to enrich the analysis results, we extend our test area to a global network of IGS stations. JPL time series solutions were used to decimate the continuous data down to monthly sampled GPS campaign time series. Results indicate that fourier analysis of time series gains importance since the monthly sampled data contain periodicities other than typical annual and semi-annual ones. Determining a convenient statistical test method in testing the significance of the trend from monthly sampled data against the trend obtained from the continuous data is also important. In this version of our study, we also included into our analysis vertical campaign time series with R-squares lower than 85%. One fact has been revealed that extending observation session from typical 8 h windows to 24 h alone overcome many problems encounterd in practice including failures in estimating vertical deformation rates.