Assessment of the data quality of permanent GPS sites in South Korea

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As of September 2002, there are 65 operational permanent Global Positioning System (GPS) stations in South Korea (hereafter it is referred as Korea GPS Network, KGN). The data from KGN are being used for a variety of purposes: geodynamics, geodesy, real-time navigation, atmospheric science, and geography. Especially, many of the KGN sites are reference stations for DGPS (Differential GPS). However, there has been no comprehensive and qualitative analysis published to evaluate the data quality. In this study, we present preliminary results of our assessment of the KGN sites. We have analyzed the multipath characteristics at each station using a quality-checking software package called "teqc". Another multipath analysis tool based on post-fit phase residuals was used to check the repeating patterns and the amount of the multipath at each site. The long-term stability of each station was analyzed using the RMS error of the estimated site positions for one year, which should help us to evaluate the mount stability. Other quality-checking tools such as the number of cycle slips per day will be also presented. Based on these series of tests, we will be able to compare the stability and data quality of every permanent GPS station in South Korea. This comparison should enable us to select the best sites for high-accuracy GPS applications.