New GPS Reference Station in Brazil

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Co-located very long baseline interferometry (VLBI) and Global Positioning System (GPS) reference stations were installed near Fortaleza, Brazil in 1993. Both have been important in the realization and maintenance of the International Terrestrial Reference Frame (ITRF). A new generation GPS system was installed in 2005 to replace the original station. Experience gained in the prior 12 years has been used to improve the design of the GPS antenna mount. Preliminary indications are greatly improved data quality from the new station. Simultaneous observations from the nearly half-year of overlapping operation have been used to determine the local tie between the new and old GPS reference points to about 1 mm accuracy. This can be used to update the 1993 survey tie between the original GPS and the VLBI points, although there are questions about the accuracy of that measurement based on a comparison with space geodetic data. A test of removing the conical radome over the old GPS antenna indicates that it has biased the station height by about 16 mm downward, which probably accounts for most of the previous survey discrepancy.