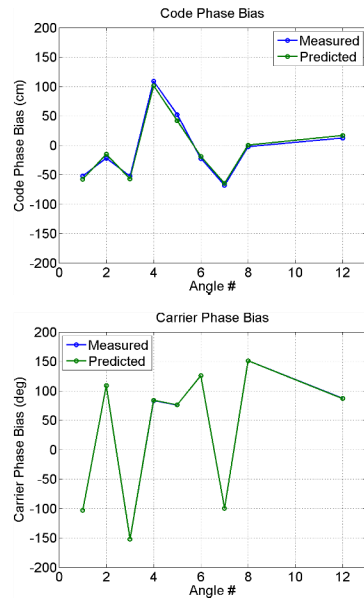


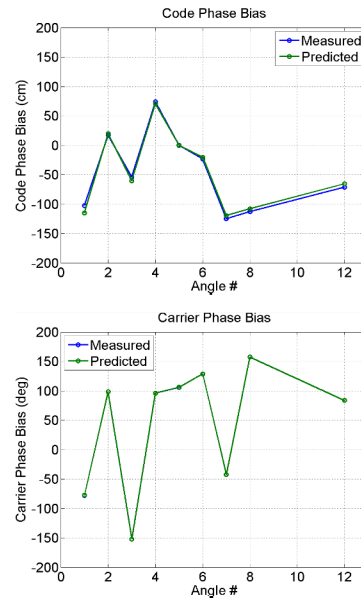
Antenna Induced Biases in GNSS Receiver Measurements

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Sponsor: US Air Force

No Interference Signal



3 Interference Signals



Antennas can introduce significant biases in code and carrier phase measurements obtained from GNSS receivers. For fixed pattern antennas, these biases can be calibrated. The same is not true for controlled reception pattern (adaptive) antennas whose combined pattern varies with the interference signal scenario. We have developed efficient approaches [1] for on-the-fly estimation of antenna induced biases in GNSS receiver measurements. Currently, we are verifying the accuracy of the estimated biases experimentally [2] using digitized data collected using our multi-channel Data Acquisition System as well as with real-world GPS antenna, antenna electronics and GPS receivers [3].

Further Reading:

[1] A.J. O'Brien and I.J. Gupta, "Mitigation of adaptive antenna induced bias errors in GNSS receivers," *IEEE Transactions on Aerospace and Electronics Systems*, Vol. 47, pp. 524-538, January 2011.

[2] Y. Chuang, M. Buchanan, A. O'Brien and I.J. Gupta, "Prediction of Antenna Induced Biases for Precision GNSS Receivers," *Proceedings of ION 2014 International Technical Meeting*, San Diego, CA, January 2014.

[3] A.J. O'Brien, et. al, "Prediction of Antenna Induced Biases in a Real World Anti-Jam GPS Receiver," *2014 Joint Navigation Conference*, Orlando, FL, June 2014.