

ISU GPS Post-Processing Evaluation

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An evaluation of the Geographic Information Systems Support and Research Facility's GPS base station was performed using survey and mapping grade Trimble receivers.

Details:

A 2.0 meter range pole with an attached bipod was set up at an arbitrary location in an open area East of Beardshear.

GPS data was collected using a Trimble R8 dual frequency survey grade receiver. That data was post-processed using USDA, IDOT, and NGS CORS sites to calculate the position of the range pole (± 0.01 m). The post-processed point is labeled Fast Static PP and is used as the reference. A RTK point was also collected using the R8 with a cell phone link to the IDOT RTK network.

A Trimble pathfinder proXH was then attached to the range pole and collected single frequency code data. That data was then post-processed multiple times using different base stations to evaluate how ISU's new base station performed. A WAAS point from the proXH receiver is included to demonstrate the level of accuracy of the built in correction.

The coordinates are reported in UTM NAD83 zone 15N meters, elevation is geoid03 meters.

survey method	Northing	Easting	Elevation	delta N	delta E	delta Elev.
Fast Static PP	4652941.91	446419.56	288.96	0.00	0.00	0.00
IDOT RTK	4652941.92	446419.57	288.99	0.01	0.01	0.03
mapping waas	4652943.93	446418.05	287.47	2.02	1.52	1.50
mapping pp isu	4652942.80	446418.78	288.86	0.89	0.79	0.10
mapping pp nstl	4652942.83	446418.65	289.30	0.92	0.92	0.33