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How You Measure Matters

PRECISION+



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— AN EMPLOYEE-OWNED COMPANY —

Mel Philbrook

Geospatial Technical Account Manager
Boise, Idaho

- Trimble Certified Mapping GIS and Survey Trainer since 1994
- Recreational/Remote Pilot since 2015
- Providing support and training to Trimble users for over 30 years
- At Frontier Precision since 2012
- US Army Reserves Retired
- Email: mel@frontierprecision.com

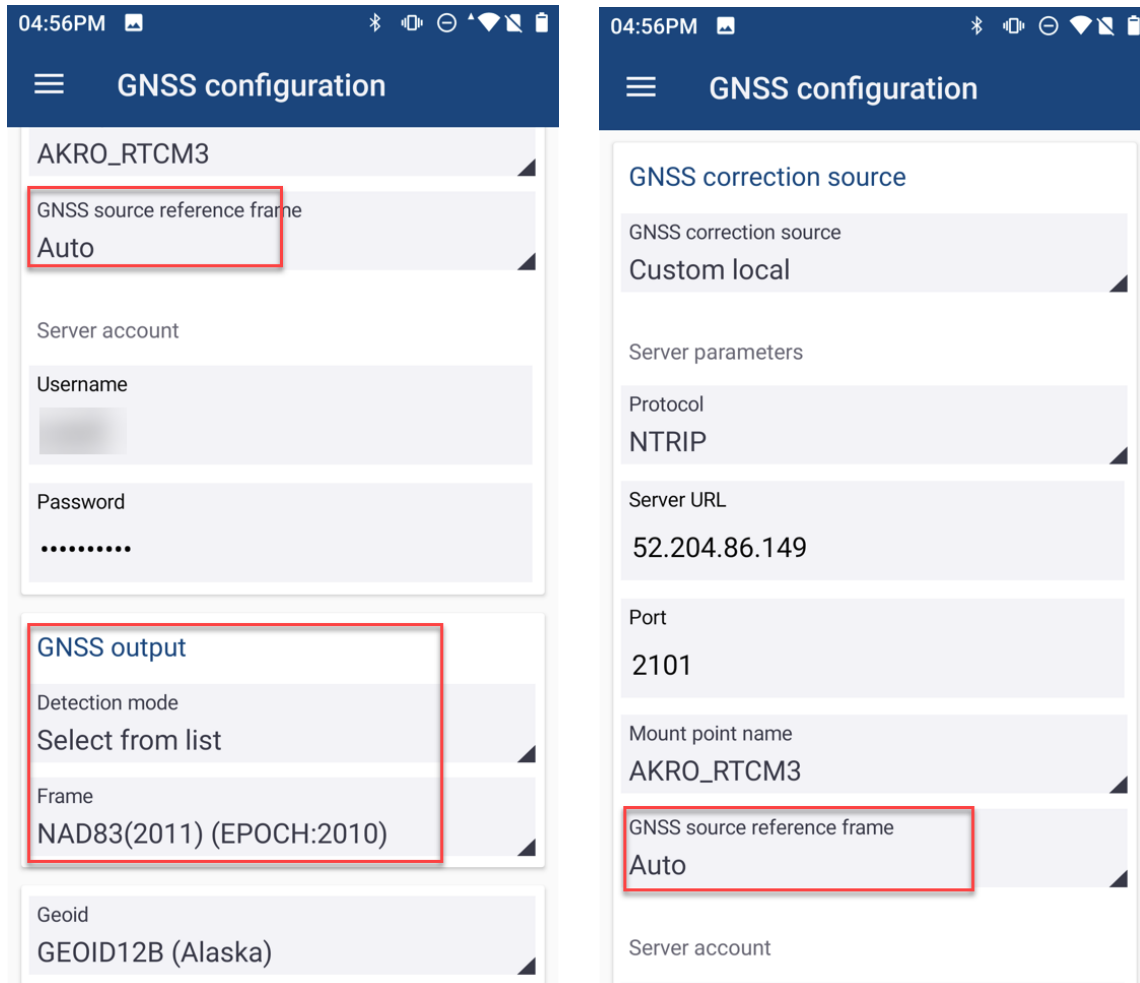


Session Agenda/Objectives

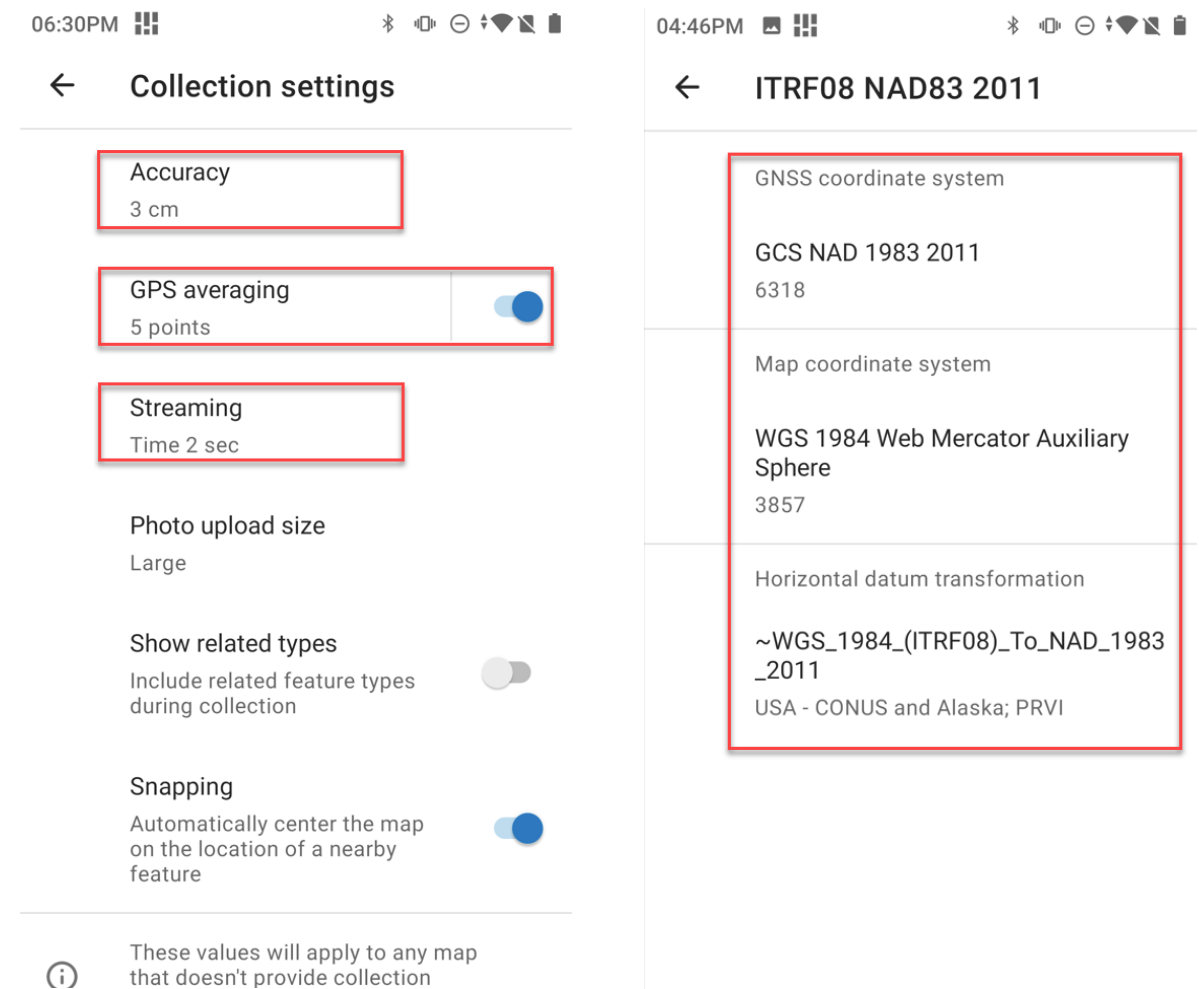
- Understanding manufacture hardware and software settings can impact you “pinning” down positions relative to your GIS
- Understanding Software Precision Estimates versus Real-world accuracy

Hardware and Software Settings

Trimble Mobile Manager



Esri ArcGIS Field Maps



Trust but Verify

04:41PM

Status

GNSS status

Position status

RTK

Location

Latitude: **61°10'46.2052" N**

Longitude: **149°48'54.3163" W**

Altitude

Ellipsoidal height (HAE): 205.12 ft

Orthometric height (MSL): 181.75 ft

Horizontal precision (RMS)

0.03 ft

Vertical precision (RMS)

0.05 ft

GNSS Correction Status -

3 sec; 1106 bytes/second; local

Geoid model

GEOID12B (Alaska)

Shared Solution

PID: TT0895
 Designation: 3500 GAAB
 Stamping: GAAB 3500
 Stability: Monument will probably hold position well
 Setting: Copper-clad steel rod without sleeve (10FT+ or 3.048M+)
 Mark Condition: G
 Description: FOUND IN GOOD CONDITION, DESCRIPTION FROM 1975 ADEQUATE FOR RECOVERY WITH ADDITIONAL NOTE MARK IS 51.3FT (15.7M) N OF NORTHERNMOST ATCO TRAILER. DISK RESTING AGAINST INTERIOR SIDE OF IRON PIPE. NO OBVIOUS POINT TO SET ON, USED CENTER OF DISK.
 Observed: 2023-06-05T17:37:00Z [more obs 2023-07-03](#)
 Source: OPUS - page5 2008.25



Close-up View

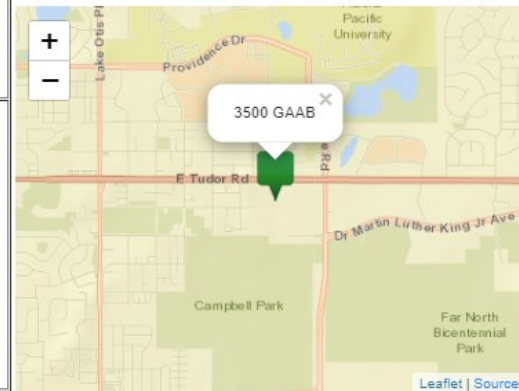
REF FRAME: NAD_83(2011)	EPOCH: 2010.0000	SOURCE: NAVD83 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS
LAT: 61° 10' 46.20544" ± 0.014 m	LON: -149° 48' 54.31630" ± 0.018 m	UTM 6	SPC 5004(AK 4)		
ELL HT: 60.477 ± 0.022 m	X: -2664664.979 ± 0.011 m	NORTHING: 6786040.130m	799513.586m		
Y: -1549932.810 ± 0.015 m	Z: 5565065.317 ± 0.026 m	EASTING: 348636.150m	509947.617m		
ORTHO HT: 53.355 ± 0.085 m		CONVERGENCE: -2.46685833°	0.16200833°		
		POINT SCALE: 0.99988071	0.99990121		
		COMBINED FACTOR: 0.99987125	0.99989175		

CONTRIBUTED BY

[joel_cusick](#)
 National Park Service



Horizon View



Leaflet | Sources

The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified this

12:50PM

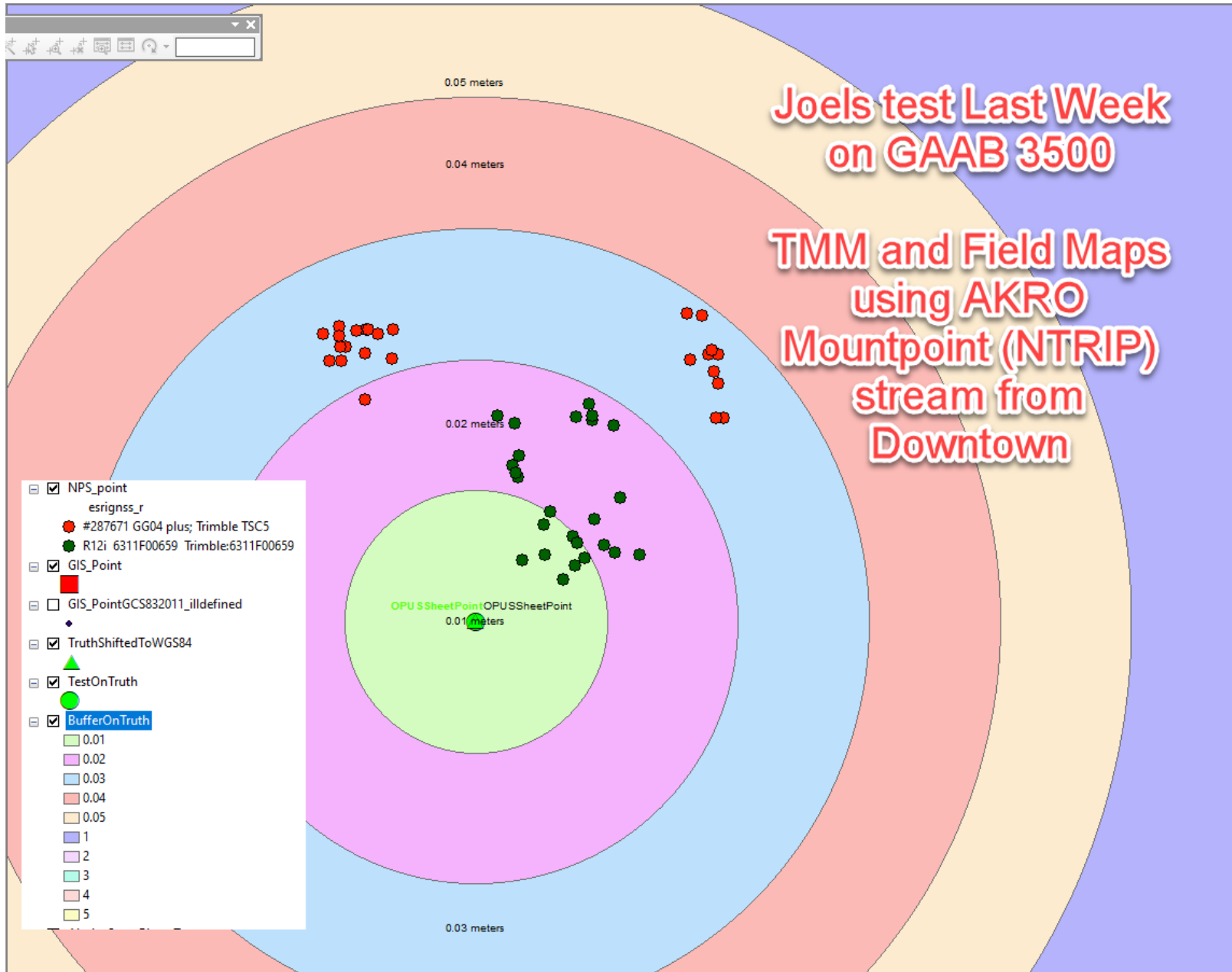
←

GPS accuracy 0.7 cm

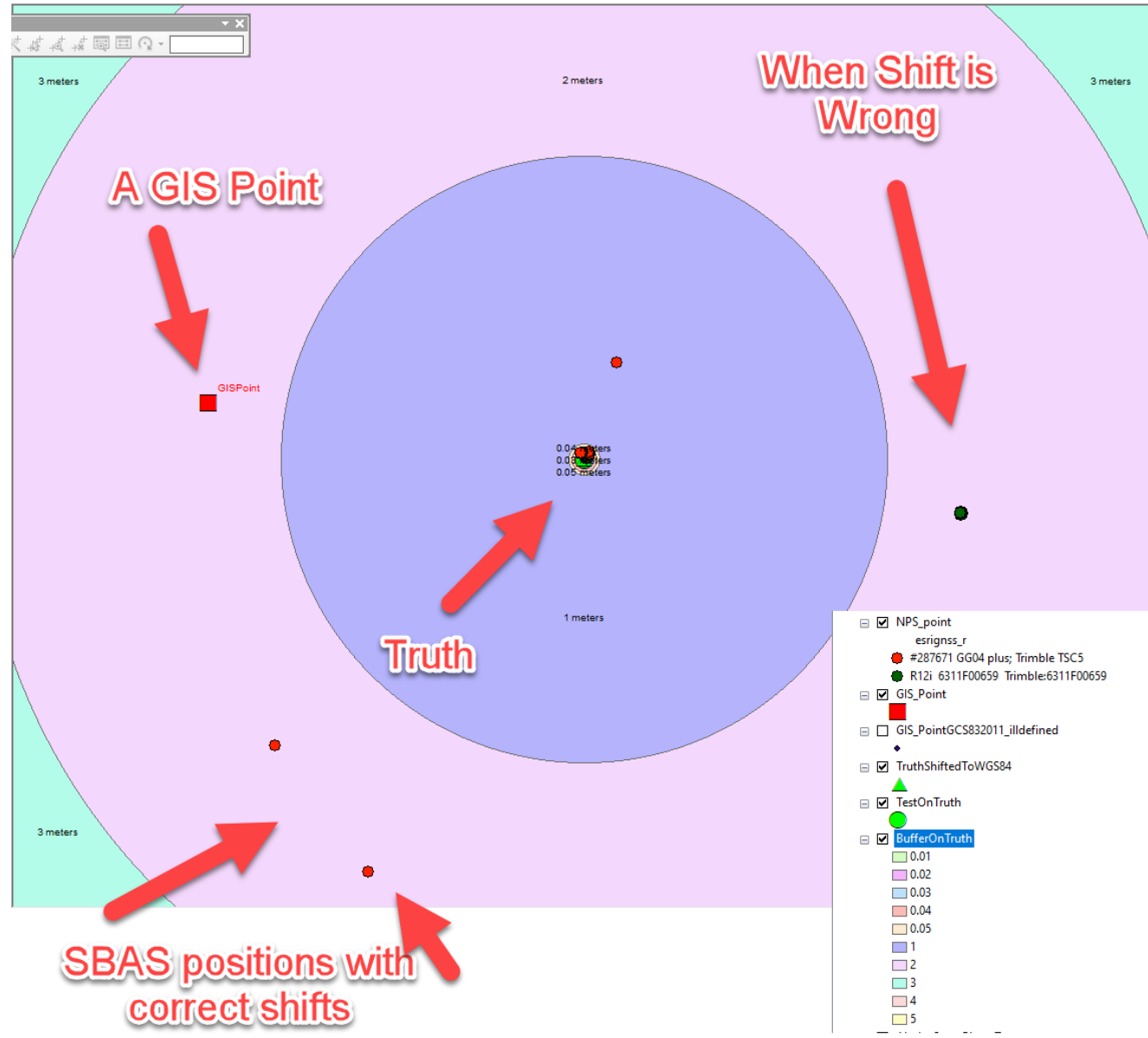
Gruman St

E Tudor Rd

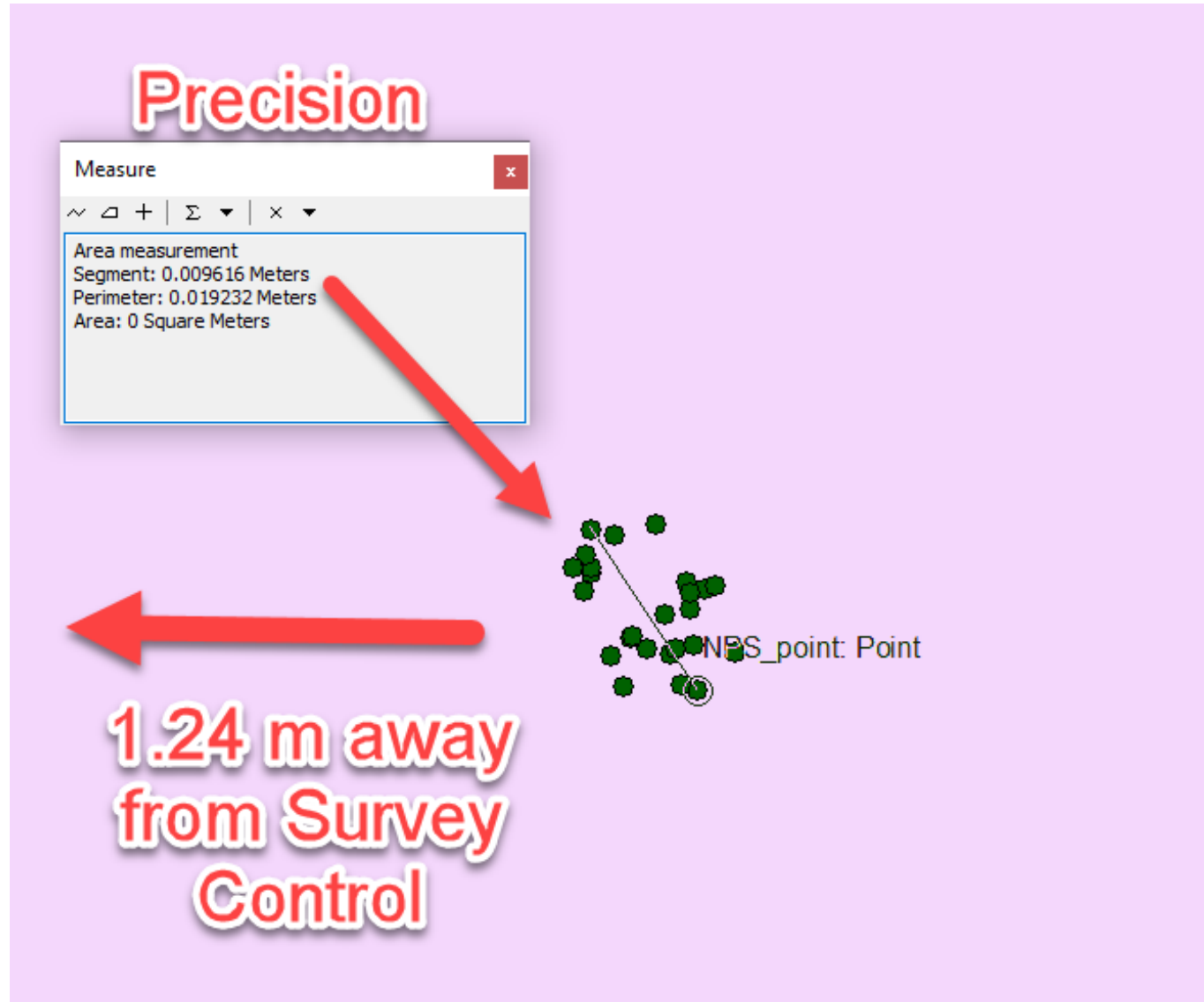
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Examples of hardware and software settings impacts



Precision versus Real-World Accuracy



Conclusion

- Know the “**Why**” you are choosing certain software parameters.
- Always better to “**field test**” your settings and GNSS system prior to any project.
- Checking to **NGS Control** is the easiest way to confirm your hitting the manufacture specifications.
- We encourage you “**PIN**” down your data using **ACORN**.
- Using **ACORN** assures that you tied to the “**National Spatial Reference System**”

Shared Solution

PID: TT0895
 Designation: 3500 GAAB
 Stamping: GAAB 3500
 Stability: Monument will probably hold position well
 Setting: Copper-clad steel rod without sleeve (10FT+ or 3.048M+)
 Mark G
 Condition: G
 Description: FOUND IN GOOD CONDITION, DESCRIPTION FROM 1975 ADEQUATE FOR RECOVERY WITH ADDITIONAL NOTE MARK IS 51.5FT (15.7M) N OF NORTHERNMOST ATCO TRAILER. DISK RESTING AGAINST INTERIOR SIDE OF IRON PIPE. NO OBVIOUS POINT TO SET ON, USED CENTER OF DISK.
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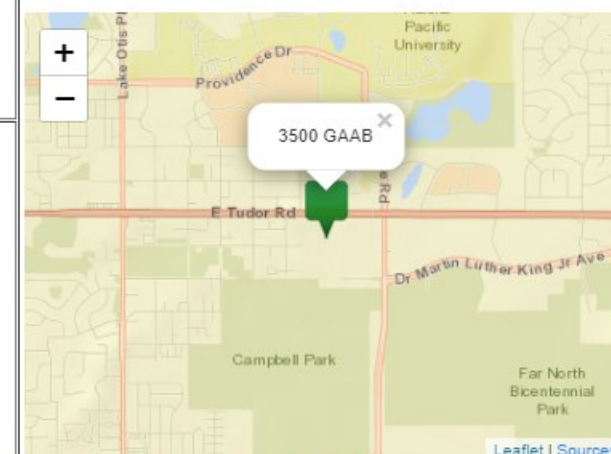
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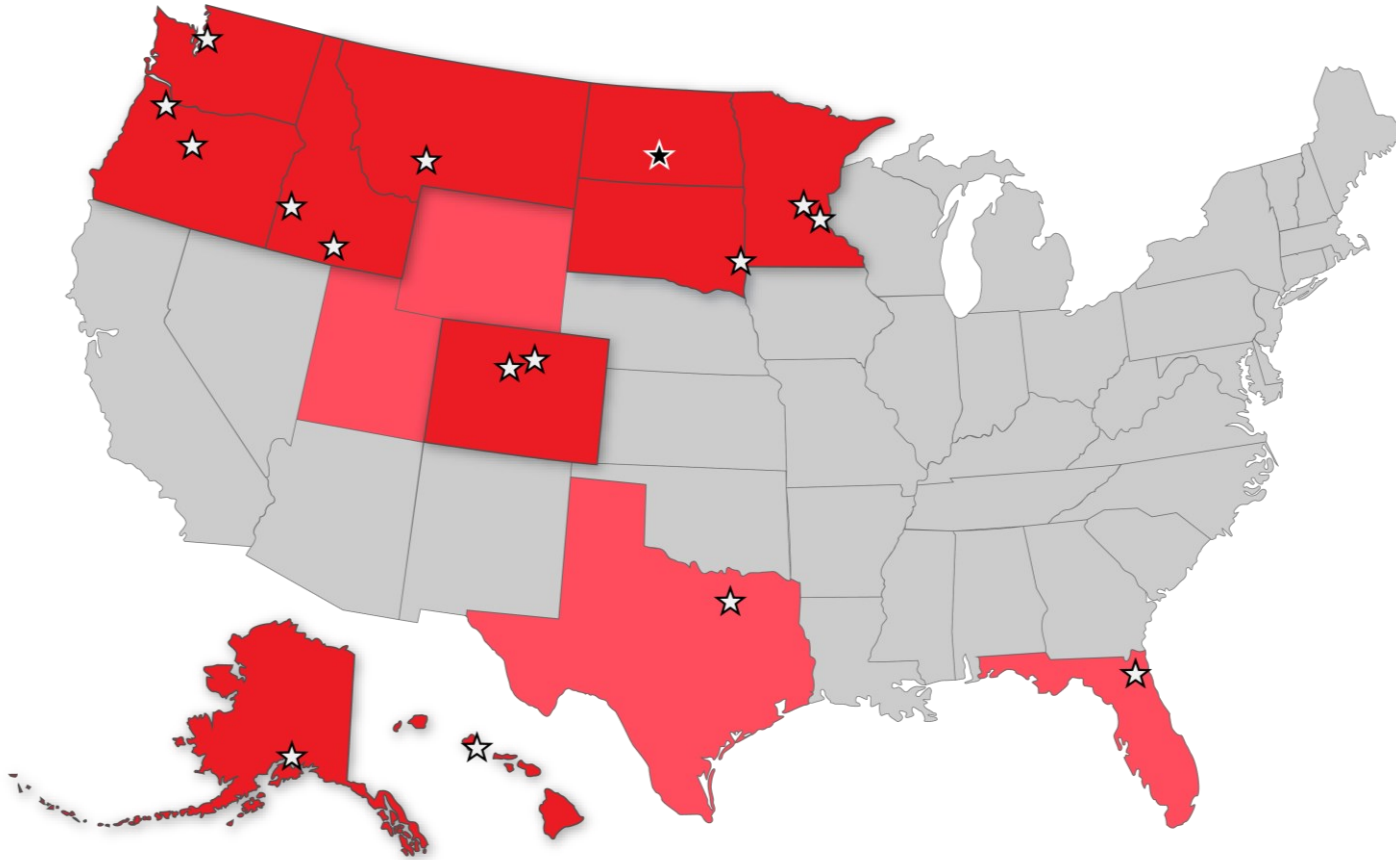
CONTRIBUTED BY

[joel_cusick](#)
 [National Park Service](#)

3500 GAAB TT0895 3N 20230605
 Horizon View



WHEREVER YOU ARE, **WE ARE.**



From our original office in Bismarck, North Dakota, we've grown our footprint thousands of miles in every direction. Today, you'll find us in South Dakota, Minnesota, Colorado, Alaska, Montana, Idaho, Hawaii, Oregon, and Washington. Additionally, Frontier provides service in the states of Wyoming, Utah, Florida, and Texas.

We pride ourselves on offering exemplary customer service; and our industry professionals are here to help you find a solution to fit your needs.

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Thank You for Attending

Any Questions?

