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Good Data Collection Techniques

The ability to collect accurate data in the field is a combination of proper hardware/software settings, good satellite geometry, and using proper techniques. The following list provides some steps to review before heading out in the field.

1. Make sure your field workers have been trained properly in the use of the software and hardware. There are many settings, options, and buttons which can confuse even the most tech savvy field workers if not properly trained. Precision Laser & Instrument offers hourly and daily training. You can come to us or we can come to you to get you up to speed quickly.
2. Make sure the field unit is charged and the newest operating system and firmware is installed.
3. Check the compatibility of your software and hardware and make sure the GPS is connecting properly.
4. Check the quality of the satellite constellations for the times and areas in which you will be collecting data. Try to plan data collection so it is being done during the best satellite conditions for that area. There can be times during the day where certain areas will not receive enough satellites to achieve a lock. This can be done easily using the free "Trimble Planning Software." (see Trimble Planning Support Note)
5. Limit the amount of poor quality GPS readings being collected. The receiver is collecting GPS data regardless of whether positions are actively being collected. This means that if the GPS is active the receiver is actively storing readings from GPS satellites. Do not drop the receiver to your side or cover it if the GPS is active. Deactivate the GPS when the receiver will be in poor GPS conditions if data collection is not required.
6. Collect at least 20 epochs (positions) per feature in good GPS conditions.
7. Try not to stand next to obstructions that can limit GPS signal or increase multipath. These obstructions include buildings, metal fences, bodies of water, parked vehicles, high voltage power lines, etc. These obstructions cause the signal to bounce, taking longer to reach the receiver. Use the offset function when possible.
8. Before collecting data in an area with poor GPS signal or high multipath areas make sure to collect good GPS signal for at least 2 minutes. The best strategy is to stand in an open area for 2 minutes, move into the poor GPS area and collect your feature, then move back out into the open area for another two minutes. In this scenario, collect no more than 5-10 epochs of data to limit the amount of multipath being averaged into post-processing.

9. Before collecting any features activate the GPS receiver and let it run for at least 5 minutes. This allows the receiver to better identify the satellites' orientation providing better accuracy. This is especially true if the GPS receiver travels around and is always looking at different constellations.
10. Make sure that your antenna settings are correct. Double check that the antenna type and height have been set properly.
11. Pay attention to the "In The Field" and "Post Processed" estimated accuracies in TerraSync and GPS Correct for ArcPad . This can be used as a quality control to maintain high accuracy data collection.
12. When using background, import, or waypoint files make sure that the datum and coordinate system are set in the field software to match the file. If the datum and coordinate system vary between the two the collected data will not line up properly.

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