

Cook's AGPS, LLC. LiDAR Data Services

What is LiDAR?

According to <https://gisgeography.com/lidar-light-detection-and-ranging/> "LiDAR is fundamentally a distance technology. From an airplane or helicopter, LiDAR systems actively sends light energy to the ground. This pulse hits the ground and returns to the sensor."

This allows us to use this 3D point data to create Topographic maps.

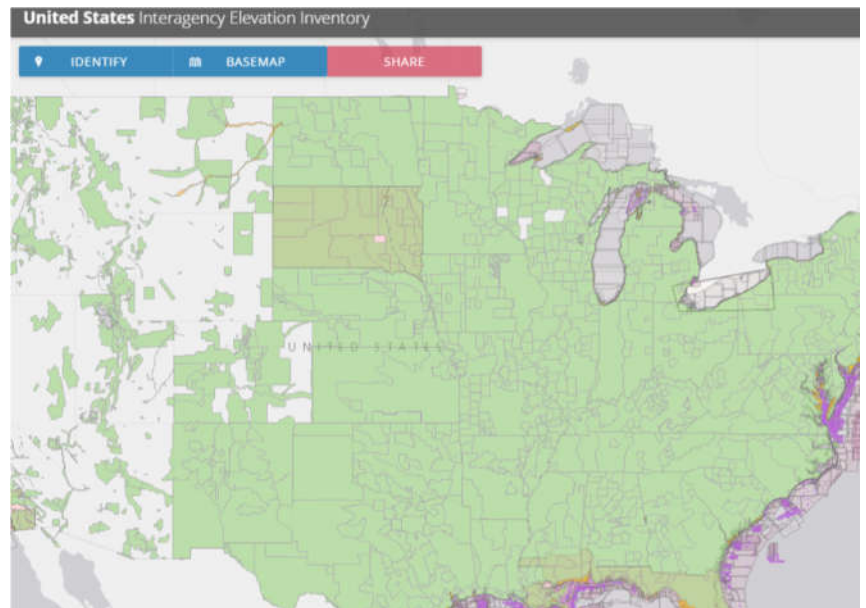
What are the benefits and limitations?

With this rapidly available point data, you have access to elevation data without having to survey the entire field. This will save hours, plus it's available if the field is too wet to drive. With more points than you would collect in a 50 foot swath, there are some data sets that have a point nearly every 2 feet.

Depending on how old the data is, it could be less accurate due to technological advances or, in some cases, the ground may have physically changed in the last several years.

Is LiDAR available in my area?

<https://coast.noaa.gov/inventory/> will show shaded areas of the map and allow you to click on specific areas and see when the data was collected, and the QL (quality level).



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How do I download LiDAR data?

Government agencies that have generated the data often make it publicly available online. However, the process for finding the data for your area, understanding the quality levels, and what coordinate projection the data has, can vary between states and counties, and may change occasionally. Often multiple files will be needed to cover your Area of Interest. Then you will need to use software that allows you to combine files, re-project the coordinates, thin the data (less density and smaller files), and crop to include only your field, and finally export in the proper formats.

Do you have a step by step guide?

Since this can be a lengthy and detailed process that is likely to change, we at Cook's AGPS have found it difficult to put together a comprehensive training manual that would fit all the scenarios. Alternatively, we offer data services to help you avoid the headaches of trying to learn and relearn the process, and simply provide you with AGPS ready data files (inquire for others) and contour maps. Cook's AGPS does not own any of the public data; our cost is to cover the time for sourcing, downloading, converting, and processing. The process takes about same time for 10 acre fields as it does 100 acre fields. For that reason we charge a flat fee per job rather than per acre.

Steps for requesting data

Rather than simply calling with a description of the field, it is more precise if you provide the perimeter of the field. This outline explains the steps in Google Earth™, a free program. Other formats are acceptable too. Please inquire if you have another preference.

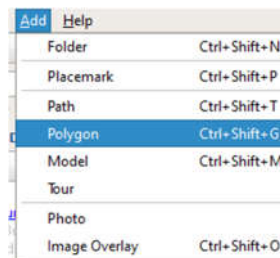
Step 1: Locate the field

1. When you open Google Earth™ you will see the globe
2. Center your mouse on your state
3. Using the mouse scroll wheel start zooming in
4. Keep moving the mouse to keep it centered on the area you want as you scroll.
- 5 Tip: Pressing the "N" key on the keyboard will rotate to keep North up. Also "U" key (for Up) will rotate to a top-down view.

Step 2: Select the Add Polygon tool

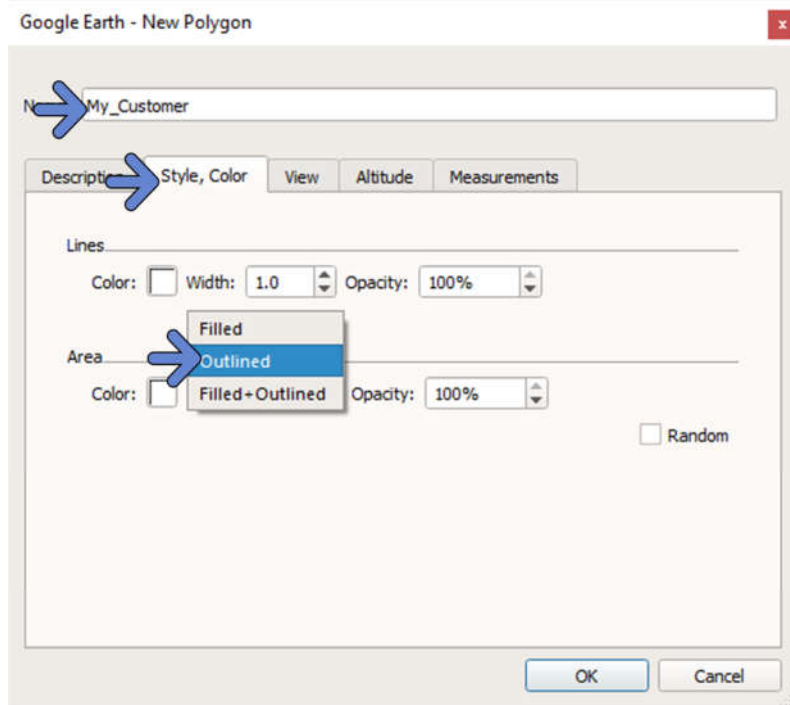


OR

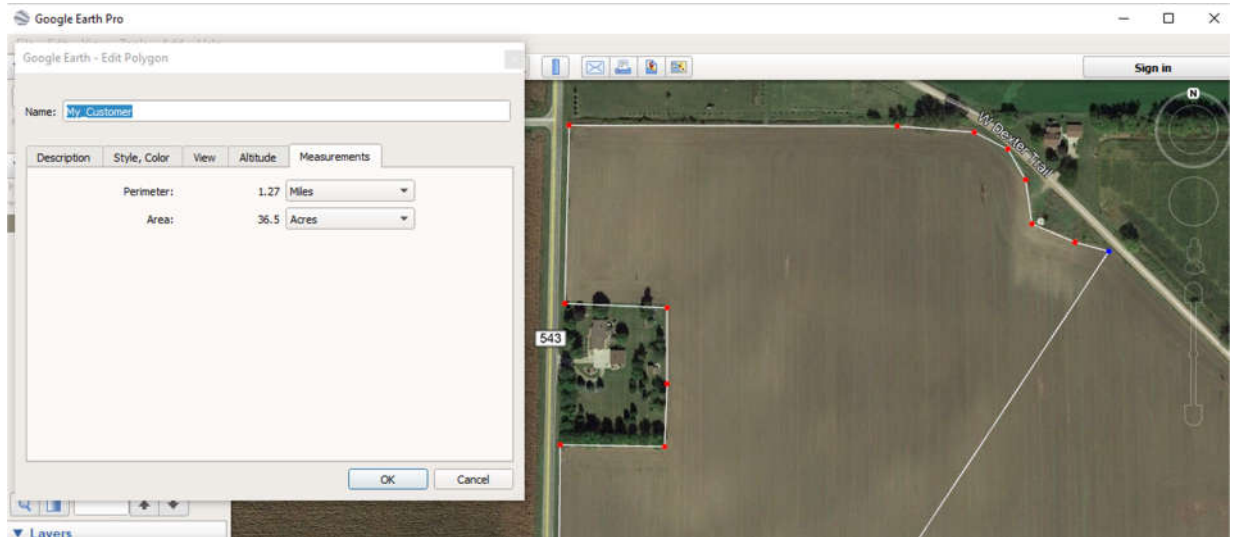


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1. Type a job name in the Name box. This will be the name the result job files will have.
2. (Optional) Select the "Style, Color" Tab, and the dropdown for "Area" and choose "Outlined" instead of Filled+Outlined. This is easier to see the map while drawing rather than white fill.



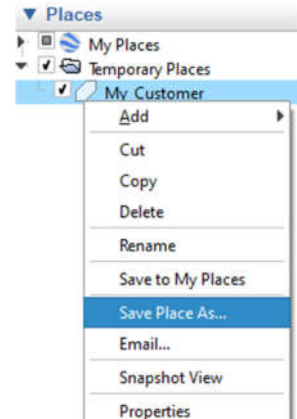
3. Don't OK the "New Polygon" window yet, leave open while drawing.
4. Left click as many points as needed to trace the perimeter



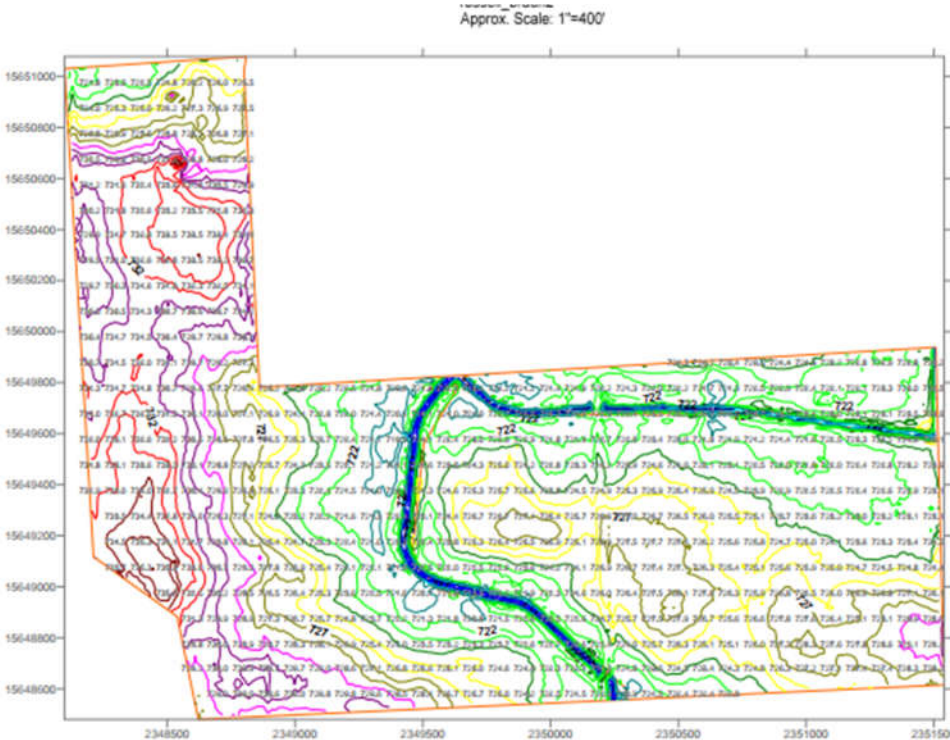
5. Additional tips:
 - *Use the arrow keys on the keyboard to move the map when zoomed in. (can't click and drag)
 - *At any time hover mouse over a dot, then click and drag it to reposition.
 - *The Delete key or Right Click will delete the point that is selected blue (typically the last point)
 - *Select the "Measurements" tab, then set "Area" dropdown to show acres within the polygon.

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6. Press OK to complete the polygon. Next look for the jobname on the left under Places. Then Right click on the name, and "Save Place As"
7. On the next "Save file" dialog choose a place to save or remember where it is going to save.
8. Email the .kmz or .kml file



Data files produced:



- .pdf (pictured above) is a map created in Surfer, ready to print without special software required.
- .srf & .grd are the Surfer files. .bln is the perimeter of the field for use in surfer. (Surfer files are provided so adjustments may be made to the map if you would like. If you do not use Surfer, you will not need these files)
- .dxf contains the contours, just like you'd get out of the pipeprep utility. You will need to import this in your background drawing menu.
- .nez is a 100'x100' grid, not the full set of points like when you topo. This is used to create a nice post map of evenly spaced elevation readings.
- _T.fbg is a 15'x15' grid with more points. This works well for PTL passes in AGPS-Pipe.

Coordinates are typically in UTM Feet, with your local zone. Other projections available on request.