**New England Peaks Lidar**

There has always been an interest in listing peaks by elevation, and these lists have changed over the years as improved or new methods of measuring elevations have evolved. Starting around the mid-2010s, Lidar (Light Detection and Ranging) data became available for the inland New England region. Not only did this technology provide vertical accuracies of 18” or less, but a more preciselocation of peaks and their discerning rise above col became more easily determined with GIS software.

As Lidar data became available, Larry Garland, Cartographer for the Appalachian Mountain Club, endeavored to compile this list of qualifying peaks in New England by registering geographic features on Lidar terrain models. This project was undertaken primarily for cartographic purposes with peak-bagging in mind as a secondary application. To be sure, there are many uses for this data and it may be interpreted and applied in different ways for different purposes.

What qualifies as a peak? Many people refer to the USGS Geographic Names Information System (GNIS) as a resource for identifying peaks. The stated purpose of the GNIS is to standardize nomenclature – what features are called – not necessarily their precise location or elevation. Features in the GNIS are classified by Feature Class Definitions, using such categories as summit, pillar, ledge, bench, cliff, ridge, and range among others. For this project, ‘peaks’ are considered to be singular highpoints, so that some features like ledges, benches, or cliffs are not likely to qualify as peaks. [These features are more appropriately considered to be Points of Interest.] Similarly, ranges and some ridges may not have singular identifiable highpoints (e.g., Presidential Range or Durand Ridge).

Peakbaggers are of course interested in highpoints whether they are identified in the GNIS by name or not. There are many highpoints that are not formally recognized by name. This project includes peaks that rise 200 feet above a neighboring col even if not formally identified by name.

Further, there have been anomalies in the USGS data where features are misclassified and therefore not properly represented. Thus, although the GNIS provides an initial reference for identifying peaks, thorough review of the data must discern what qualifies as an identifiable highpoint.

Lidar data is acquired by the USGS by contracting various service providers under strict specifications. There can be many data collections in a given region and these collections can overlap. For instance, NH had seven Lidar collections over a period of seven years to complete statewide coverage. As time goes on, some areas are being updated with improved technology.

Where different Lidar data collections overlap, there will be differences in elevation values between the different collections. To avoid discrepancies in overlapped areas, the several data collections in NH were ‘mosaiced’ or combined into a singular coveragesuch that variability of elevation in overlapped areas was averaged in order to create a ‘smooth’ terrain model. This could result in assigned elevation values that vary slightly from the raw data in one collection or another.

Considering that pre-Lidar, our best guesses of peak elevations were +/- 40 feet based on contour lines, and that Lidar provides 9”-18” vertical accuracy within a square meter, we have vastly improved our ability to inventory terrain features. And it will continue to improve as technology evolves.