Mountain School Tech Tips:
A Bit About Mapping Software

I didn't want to title this article *all* about mapping software because I don't know *all* about mapping software packages, but I do know a bit about mapping software packages, as, over the years, I've accumulated quite a few different packages and confess to being one of those map geeks who can happily while away hours looking at maps and planning routes.

The first thing to know about mapping packages is that they come in two different formats: raster and vector. Raster maps are basically scanned NTS[1] maps so they look exactly like your old paper maps except they can be viewed and manipulated (routes plotted, notes added, etc.) on your computer monitor. When you print a raster map, you will get a product with similar quality to a NTS paper map complete with labeled grid lines. Some examples of raster mapping packages are Fugawi, Etopo and TopoTracker.

Vector maps, on the other hand, generate their own contour lines and lack the artwork (shading to indicate trees, glaciers, etc.,) and UTM[2] grid lines that NTS maps have. You can view vector maps on your computer and can print out paper maps, but vector maps are primarily designed to be loaded onto GPS[3] units and printed vector maps are typically poor quality, hard to read, and lack UTM grid lines thus making the taking of bearings or locating yourself by UTM grid reference impossible. An example of a vector mapping package is Mapsource by Garmin.

The second thing to understand about mapping packages is that there are two components: the scanned raster maps and the viewing program. The scanned maps are just that, standard NTS maps scanned and saved in a TIFF[4] or PNG[5] format and thus are identical between raster packages. The viewing program, however differs depending on which mapping package you buy, but all programs (such as Fugawi, Memory Map, Ozi Explorer) share similar capabilities. The things you can typically do with viewing programs are view maps on your computer monitor, draw routes, generate "tracks", create and export waypoints to your GPS, add notes and print sections of the map. See Figure One for a section of map 82F/06 marked up using Memory Map. Some viewing packages are easier to use than others.   Fugawi, for example, has a very simple and easy to use viewing package, while TopoTracker, which uses the Memory Map viewing program, while having all kinds of features available (such as creating 3D images, shading for north aspects, etc.) is difficult to learn how to use.

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1 National Topographic Series, in other words the standard 1:50,000 map formerly produced by the Government of Canada
2 Universal Transverse Mercator, this is the blue grid system on NTS maps used for generating grid references.
3 Global Positioning System, a network of satellites that allows a small hand-held unit to work out your location by the positions of various satellites.
4 Tagged Image File Format
5 Portable Network Graphics

So, how do you know which mapping package is right for you? Well, if you want to do is view maps on your computer monitor to plan trips and then print paper maps to take on the trip with you, a raster mapping package will be most useful for you. Things to consider when selecting a package are how easy the package is to use, and what area is covered by the mapping package. Currently, Fugawi has the best deal out there as it covers all of BC in one package, whereas other raster packages, such as Etopo, split BC up into four different zones and you need to buy all four packages to get coverage of all of BC.

However, if what you want to do is load maps onto your GPS and use this as your sole navigation device, you could consider buying a vector mapping package, but be aware that your printed maps will lack clarity, artwork and UTM grid-lines.

One of the common misconceptions of mapping packages is that you can "zoom in" on the data and effectively increase a 1:50,00 scale map to a 1:20,000 scale map. While you can "blow up" a section of the map and print it at a larger scale (say 1:30,000 or 1:20,000) you are not actually getting more information. The contour interval remains 100 feet or 40 metres (depending on the datum of the map), you will just be seeing a blown-up version of the same map, which, while helpful for aging myopic eyes, does nothing to increase the resolution of the map.

The other thing to think about when buying a package is that both BC TRIM[6] data and NTS maps are now available as free downloads from various sites on the internet. So, you could actually just download maps as you need them if funds are short. However, having your own mapping package is much more convenient and allows you to browse and mark up your maps at your leisure.

Figure 1 is a screen capture from a section of map 82F/06 showing the area around Mount Beattie. I've drawn on a route with a series of waypoints, added a mark to indicate the true summit of Mount Beattie, and also added a note about snow stability. As you can see, this raster map is simply a scanned image of the NTS 82F/06 map.
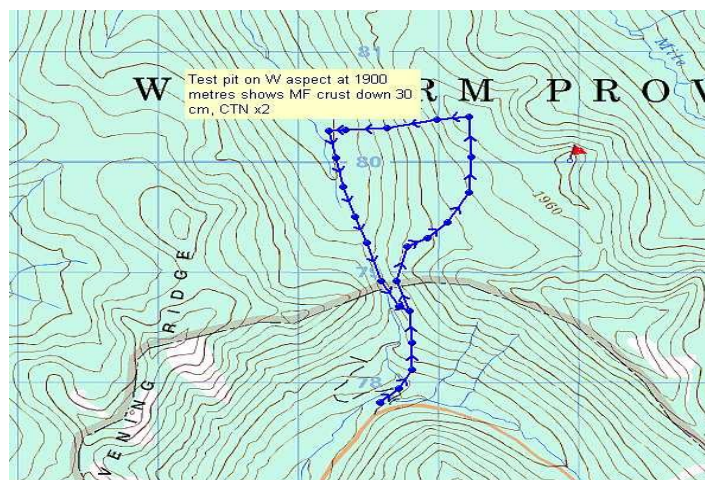

Figure 1: Screen Capture From a Section of TopoTracker