Dope with-out a Hand Held Device.   By Jim See

One of our biggest demands in long range shooting is having a bullet with a high BC, most manufacturers do a good job of publishing accurate BC numbers. Once we have our velocity it is pretty easy to create a dope chart off of a computer program, and print a paper chart. I happen to use JBM Calculations and have had great success using paper dope charts. I could use a program on a phone but choose paper because it will never run out of battery life and the way I compile my charts I have a pretty simple way to adjust my data during a match if impact elevations are a little off from what they are expected to be.

After logging on to JBM and clicking on the "calculators" I scroll down to the second group of calculator choices and click on;

Trajectory Cards
A range card for multiple temperatures and altitudes.

Once you bring that up you can make a card with multiple different Altitudes or the equivalent Density Altitudes (DA), (DA is the equivalent Altitude calculated by measuring Temperature and atmospheric conditions that will affect the resistance to the bullet.) I usually do only one Temperature that is within what I expect the temperature to be at the match. You will need to input your data to build an accurate chart which is pretty simple to do. The program also allows you to edit your yardage data points to suit your need.

Alt/DA 0   1000   2000   3000   4000   5000

1000	**-8.2**	**-8.1**	**-8.0**	**-7.9**	**-7.7**	**-7.6**	**1000**
	1.9	1.8	1.8	1.7	1.6	1.6	

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The chart above is my 1000 yard dope for a Density Altitude from 0 feet to 5000 feet, using 140 grain Berger Bullet at 2775 fps. I eliminated the rest of the chart to save space for this article, and will reference the above data shortly. It is then as easy as obtaining the DA on a Kestral, or if you don't have one ask a fellow shooter for the DA. I have used this type of chart for all of the PRS matches I have shot in the last 5 years and continue using them today. I find the JBM derived data to be very accurate, but if something is a little off I have a simple way of utilizing the different density altitudes to my favor.

If during a match I see that my bullets are impacting low using a DA of 2000, with an actual DA of 2000, I just jump down to a 0 or 1000 DA to match up with what your bullet is doing. So if I was using 8 mils and noticed a repeated elevation difference during a stage, and I was sure the effect was not caused by a wind condition, I may jump down to the 0 DA column if I see my impacts were 2 tenths low.

If it works just use that DA column for the rest of your shooting across all the ranges of your chart. Why would your data be off? Well it could be your barrel is suffering from a loss of velocity because of a high round count, or a new barrel that has suddenly speed up. Or it could be you switched lots of powder and didn't validate the speed of the new powder lot in your load. For whatever reason it is pretty easy to recognize your problem and simple jump up or down on the DA spectrum until you see spot on elevation results. By jumping up or down a column or 2 on the DA chart you are simple modifying the projected arc of your bullet to better match whatever caused the error that day. If you were running electronics you would simply modify your velocity inputs to try and match your error.

Be careful on another possible cause of an elevation error, which would be a zero shift on your scope. This is easy to discern from an actual data error in that the change would be equal over all distances. Cross wind jump is another consideration for elevation errors but that is another discussion another day.

So I'm a paper chart guy, have I thought about using an electronic device, very briefly. After attending enough matches and seeing guys call up there 6mm data when that day they are running a 6.5mm, then realizing it 2 or 3 stages later, I am reminded not to change what works.