Gauging Angular Distances Visually

by Bill Warren

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In pursuing my primary area of interest, deep-sky observing, I need every resource I can muster to help me in locating the faint fuzzy-wuzzies I'm looking for. The A. L.'s "Observe" series (e.g., *Observe the Messier Objects*) gives locating instructions (but not finder charts) for the various objects; typically, they describe an object's location as being, say, "2^{o} SW of (a given star, Messier, or other familiar celestial object)."

Well, all that's fine and good, but what does it *mean*? It means that, unless you can translate those 2^{o} of sky into something you can understand, you're gonna spend a *lot* of time scanning areas where the object of your attention could not possibly be. I propose to give you two ways of translating angular degrees into something comprehensible.

The "Rule of Pinky" Method. Although somewhat inexact because some people's hands are smaller or larger than others', this method normally will get you within effective scanning range of what you're looking for. Hand size and arm length tend to correlate well.

Theoretically, at least, the sky measures 180^{o} from horizon to horizon; that distance is roughly equal to 180 x the width of your little finger, or pinky, held at arm's length against the sky. If Object X is described as being, say, "one degree N of (a given star or celestial object)," all you have to do is extend your arm fully, place the star at the S edge of your pinky, see where the N side lies, and start your scanning at that point. And that's all there is to it, really. Except…

Unfortunately, not everything in the sky is 1^{o} away from a bright star. Other accepted hand measures include:

*5^{o}= three finger widths (index, middle and ring);

*10^{o}= the width of your balled-up fist (without your thumb);

*15^{o}= the width of your spread index finger and pinky; and

*20^{o}= the width of your spread thumb and pinky.

All of the aforementioned measurements refer to your hand being held at arm's length away from you and against the sky.

This system is especially good for gauging large angular distances, but not so hot for smaller distances. For distances of 4^{o} or less, I prefer to use:

Telrad measurements. This method can be extremely precise, since the three concentric red circles within the Telrad finder are $1/2^{o}$ – a naked-eye Moon-width – 2^{o}, and 4^{o} in diameter, respectively.

To find an object that is located, say, $1/4^{o}$ W of (a given star), simply center the guide star in the smallest red circle and the object will be located about halfway to the W edge of your 25mm or 26mm eyepiece field of view.

If the object is $1/2^{o}$ to the W of your guide star, place the star at the E side of the smallest circle and scan the area around the W edge of that circle.

One degree in the Telrad equals *the diameter of an imaginary circle lying halfway between the 1st (innermost) circle and 2nd (middle) circle.* Place the guide star midway between the 1st and 2nd circles and look in the desired direction toward the point halfway between the 1st and 2nd circles on the other side; *that's* where you should begin scanning.

In like manner, 3^{o} is equal to *the diameter of an imaginary circle lying halfway between the 2nd and 3rd (outer) circles.*

For veteran observers, all this is old news. Still, while I've used hand estimates of angular distances for many years, I didn't get around to using Telrad measurements until I began the Arp Peculiar Galaxies Club and Herschel II Club programs. It was a huge oversight on my part, too, because I've found the Telrad method to be far easier and more precise.

Of course, you can't do it that way with a finderscope. Use the pinky method instead.

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