Eyepieces

Their Magnification and True Field of View

By Dr. Steve Hubbard
with additions by Jim Slight

TRUE FIELD OF VIEW (TFOV)

One of the most important pieces of information to have and understand, is the relationship between the eyepiece, the telescope and the amount of sky you can see through the eyepiece. This is termed as the True Field of View. The aim of this presentation is to equip you with the knowledge of how to work out how much sky you can see with each of your eyepieces.

Your telescope and eyepieces

How to find MAGNIFICATION and TRUE FIELD OF VIEW.

Follow the 5 steps on this presentation.

Use your scope as a guide.

Step 1

Write down the FOCAL LENGTH of your scope.

(It's probably on the nameplate or label.)

Find it on your scope.

Step 2

Find the FOCAL LENGTH of your eyepiece.

It will be marked on it.

Look at each of your eyepieces.

Step 3

Divide the FOCAL LENGTH of the scope by the FOCAL LENGTH of the eyepiece:

This is the MAGNIFICATION.
(ie 1000/25 = 40x)

For each: ? / ? = ? times

Step 4

Find the APPARENT FIELD OF VIEW (AFOV) of your eyepiece.
You will need to look at your paperwork or online or ask!
(AFOV is usually between 50 & 100 degrees, Plossl's are approx 55 degrees.)

Check each Eyepiece AFOV.

Step 5

Divide the
APPARENT FIELD OF VIEW
by the MAGNIFICATION.

This is the TRUE FIELD OF VIEW (TFOV)-
"how much sky you will see".

For each eyepiece:
? degrees / Mag = ? TFOV.

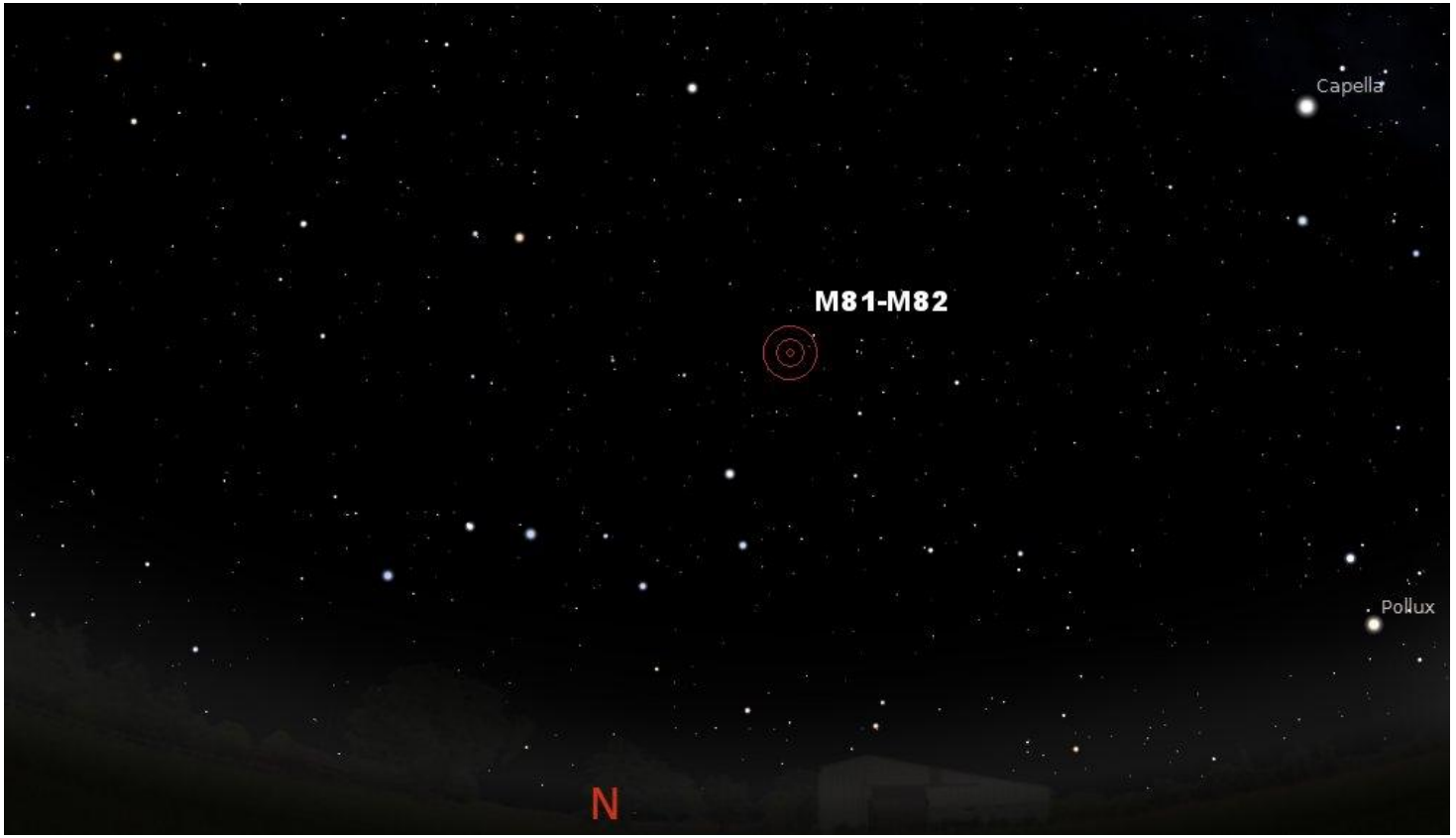
Finally…

Draw a circle of TFOV on a piece of clear acetate (to the same scale as your charts)

Lay it on the chart and slide it around. This is the area covered by your eyepiece and telescope combined.

Examples follow

This is an example of a 5, 2.5 and 1deg circle in the area of the Plough (Ursa Major) when trying to locate M81 & M82
(5 deg circle represents Binoculars of Finder Scope)



Here is the same set of circles showing what you can expect to see using eyepieces of differing TFOV. (same circles different scale map)