

[Eridanus Optics CC](#)

July 2007

More globular clusters in Ophiuchus.

Introduction

The newsletter for June 2007 (www.eridanusoptics.com/NL0706.pdf) described how to get to M10 and M12, two globular clusters in Ophiuchus. On closer inspection of star maps I could find over twenty globular clusters in this rich area and decided more of them could be hunted down.

The school holidays create a perfect opportunity for a beginner to learn star hopping skills and the 13 objects that I could locate can be a nice project. (I included instructions for all the listed globular clusters). Viewing conditions were not ideal. Pretoria's light pollution and the skyglow from the first quarter Moon reduced visibility and image contrast. Most people who view under dark sky conditions as will be experienced in the two weeks after new Moon should therefore have no problem to follow the instructions. I used a 6" Dobsonian, which means that most of the objects described should be visible with smaller instruments from darker sites. Objects appearing in bold print signify that I could identify them under the stated conditions. The Table below lists the various globular clusters in Ophiuchus:

Object	RA	Dec	Mag	Comment
M9	17h 19.27m	-18° 31.82'	9	27000 ly
M10	16h 57.15m	-4° 5.97'	6.6	see www.eridanusoptics.com/NL0706.pdf
M12	16h 47.24m	-1° 56.87'	6.8	see www.eridanusoptics.com/NL0706.pdf
M14	17h 37.61m	-3° 15.12'	9.5	29000 ly
M19	17h 2.63m	-26° 15.94'	8.5	28000 ly
M62	17h 1.21m	-30° 6.73'	6.7	
M107	16h 32.53m	-13° 3.13'	10	21000 ly
NGC 6284	17h 4.48m	-24° 45.88'	8.8	
NGC 6287	17h 5.16m	-22° 42.48'	9.4	
NGC 6293	17h 10.17m	-26° 34.90'	8.2	
NGC 6304	17h 14.54m	-29° 27.73'	8.2	
NGC 6316	17h 16.62m	-28° 8.40'	8.4	
NGC 6325	17h 17.99m	-23° 45.95'	10.3	Searched but not found
NGC 6342	17h 21.17m	-19° 35.23'	9.7	Not searched
NGC 6355	17h 23.98m	-26° 21.22'	9.1	Not searched
NGC 6356	17h 23.58m	-17° 48.78'	8.3	

Object	RA	Dec	Mag	Comment
NGC 6366	17h 38.62m	-23° 54.53'	9.2	Unconfirmed (I saw something that might have been foreground stars)
NGC 6401	17h 27.74m	-5° 4.60'	9.5	Not searched
NGC 6426	17h 44.91m	3° 10.22'	11.0	Not searched
NGC 6517	18h 1.84m	-8° 57.53'	10.2	Not searched
IC 1257	17h 27.14m	-7° 5.65'	12.5	Not searched

Refer to map 1 for the locations of these clusters. Refer to the June 2007 Newsletter for other information on Ophiuchus.

Naked eye objects

This newsletter focuses on telescope targets and no new naked eye objects are identified. For naked eye objects refer to the June 2007 newsletter (www.eridanusoptics.com/NL0706.htm). The names of the bright stars identified in the June newsletter will be used and it may be advisable to have the newsletter available while viewing. Note that Jupiter will move from the indicated position and should not be used as a fixed reference.

Binocular objects

This month's newsletter is dedicated to telescope objects. The brighter objects should however be visible through binoculars. The use of binoculars while working through this newsletter is encouraged, as this will be helpful in finding your way through the star hopping sequences described. Scan the area and create an image of the area you are trying to navigate.

It will be beneficial to know the field of view of your binocular and start using it to navigate through the sky. It is nice when a navigation/interim object is in the field of view along with the target object. This is unfortunately not always possible and you may have to move 'two and a half fields of view' to your target object. You may also have the situation where the target object is for example 5° from a navigation point/star and your binocular has a 5° field of view, then the two objects should be on the border of the field of view at opposite sides.

My telescope's finder scope has a 7° field of view. This helps me to gauge the amount of movement required to find the object. With a 1° field of view of the main telescope (at low magnification), I have a fair chance to find the target object.

Telescope objects

For M10 and M12, refer to www.eridanusoptics.com/NL0706.htm. To find M14, start at the same cluster to the East of Marfik (see **Map 2**):

- From the 19 Ophiuchii (Oph) double star, extend the line through 21 Oph until you reach HIP 83635. This forms a distinctive triangle with HIP 83738 and HIP83853.

- From the HIP83638 triangle a line of stars forms an arc to 41 Oph. From 41 Oph, extend the line through HIP 85307 (3°) about the same length to find M14.

Map 3 should be used for the next set of objects:

- From 41 Oph, Locate HIP85042 and then HIP85365. NGC 6366 is less than $\frac{1}{2}^\circ$ from HIP85365.
- The brave with large telescopes may try to locate IC1257 about 2° from HIP85365.
- Locate Ceralbrai in the bottom left corner of the Map. Gamma Oph is about two degrees away. NGC 6426 forms the third point of a blunt triangle.
- NGC 6517 can be found about half way between Nu Oph and Tau Oph. (Right side of Map 3).

M107 can be located with the aid of **Map 4**:

- Locate Phi Oph. This is the first relatively bright star (Mag. 4.3) you'll find along the line drawn from Han to Antares. (See www.eridanusoptics.com/NL0605.htm on how to identify Antares)
- M107 is about halfway between Han and Phi Oph.

Quite a few objects can be found with the aid of **Map 5**:

- M9 is situated about halfway between Sabik and Xi Oph and less than 1° East of the line connecting these two stars.
- NGC 6342 is just more than 1° to the South of M9. HIP84856 (see Map 6) can be used as an intermediate star with NGC 6342 about $\frac{1}{3}^\circ$ from HIP84856.
- HIP84792 is almost 1° to the North of M9.
- To the East of HIP84792 is a group of stars resembling two brackets (See Map 6)
- NGC 6356 is located just North of Tyc6328-467-1.
- If you extend the line from Sabik to Xi Oph further, you'll find 44 Oph. 51 Oph is to the East of 44 Oph with NGC 6401 about $1\frac{1}{2}^\circ$ further East.
- Theta Oph is to the South-West of 44 Oph. About 1.2° to the North-West is Omicron Oph with NGC 6325 close by.
- NGC 6355 is about 2° South of Theta Oph. This is about $\frac{1}{3}$ of the distance to 45 Oph.
- About 10° to the East of Antares is a distinct grouping of stars. It looks like three pairs of 'double' stars arranged in an arc. (26 Oph and HIP83740 form the two extremes of the arc. M19 is situated inside the arc.
- If you extend a line from M19 through HIP83740, you'll find NGC 6293 about $1\frac{1}{2}^\circ$ from HIP83740.
- About 4° to the South-East of NGC 6293 is NGC 6316. You'll pass through a star that forms part of a rectangle with HIP84175.

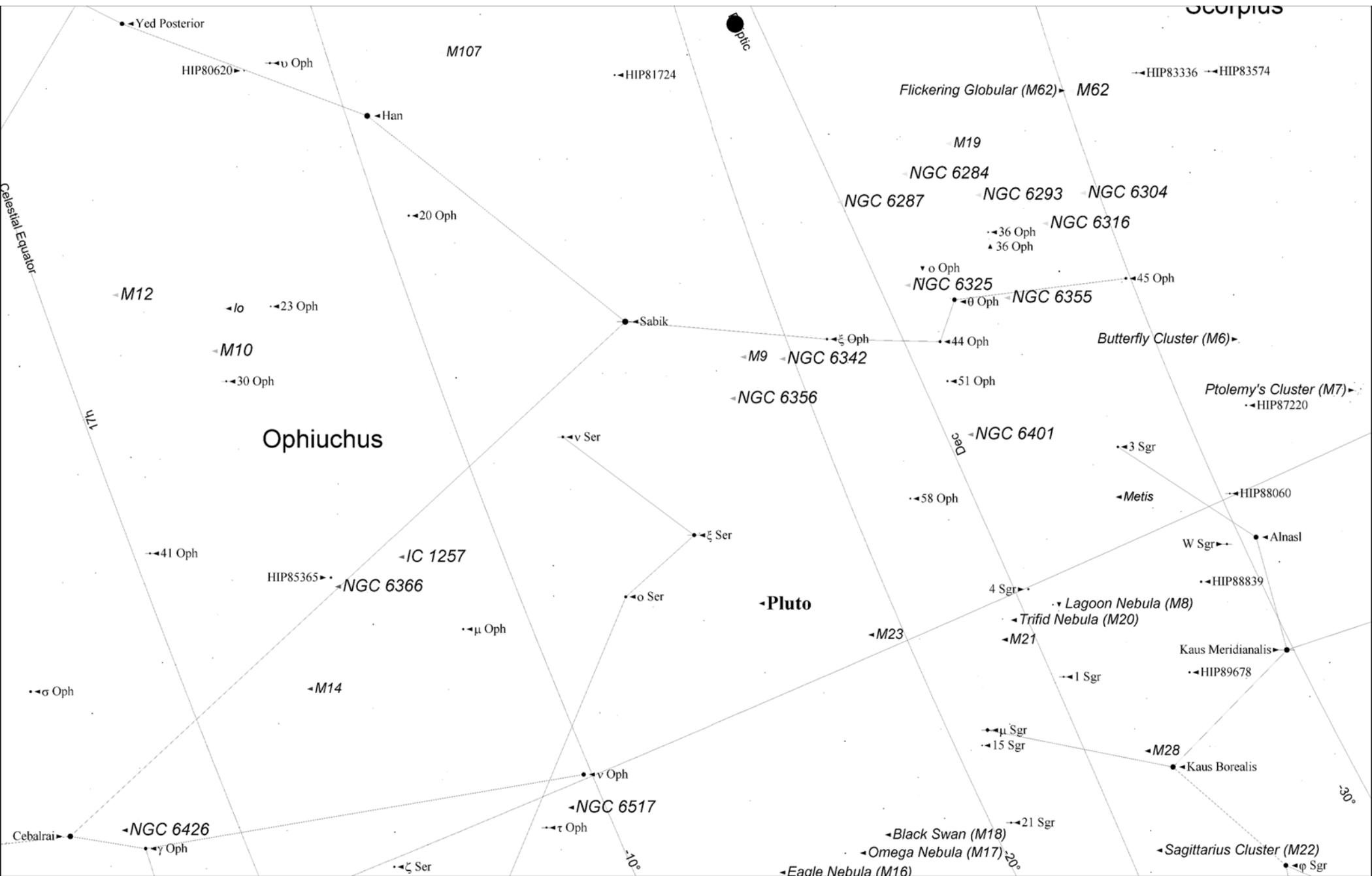
- Extend the bottom line of the rectangle about 4° to the South to locate NGC 6304. NGC 6304 is about $1\frac{1}{2}^\circ$ from HIP84445.
- To locate NGC 6284, you'll have to start again at M19. NGC 6284 is about 3° North of M19. The line connecting M19 and NGC 6284 passes close to the central 'double' star of the arc.
- About $2\frac{1}{2}^\circ$ further North of NGC 6284 is NGC 6287. You'll find two pairs of wide 'double' stars (starhopping lines not drawn) before you'll reach NGC 6287.
- To find M62, start at M19. M62 is about $\frac{2}{3}$ the way (just over 7° to the South) to HIP83336. HIP83336 is the first bright star in the Southern direction (Mag 5).

References

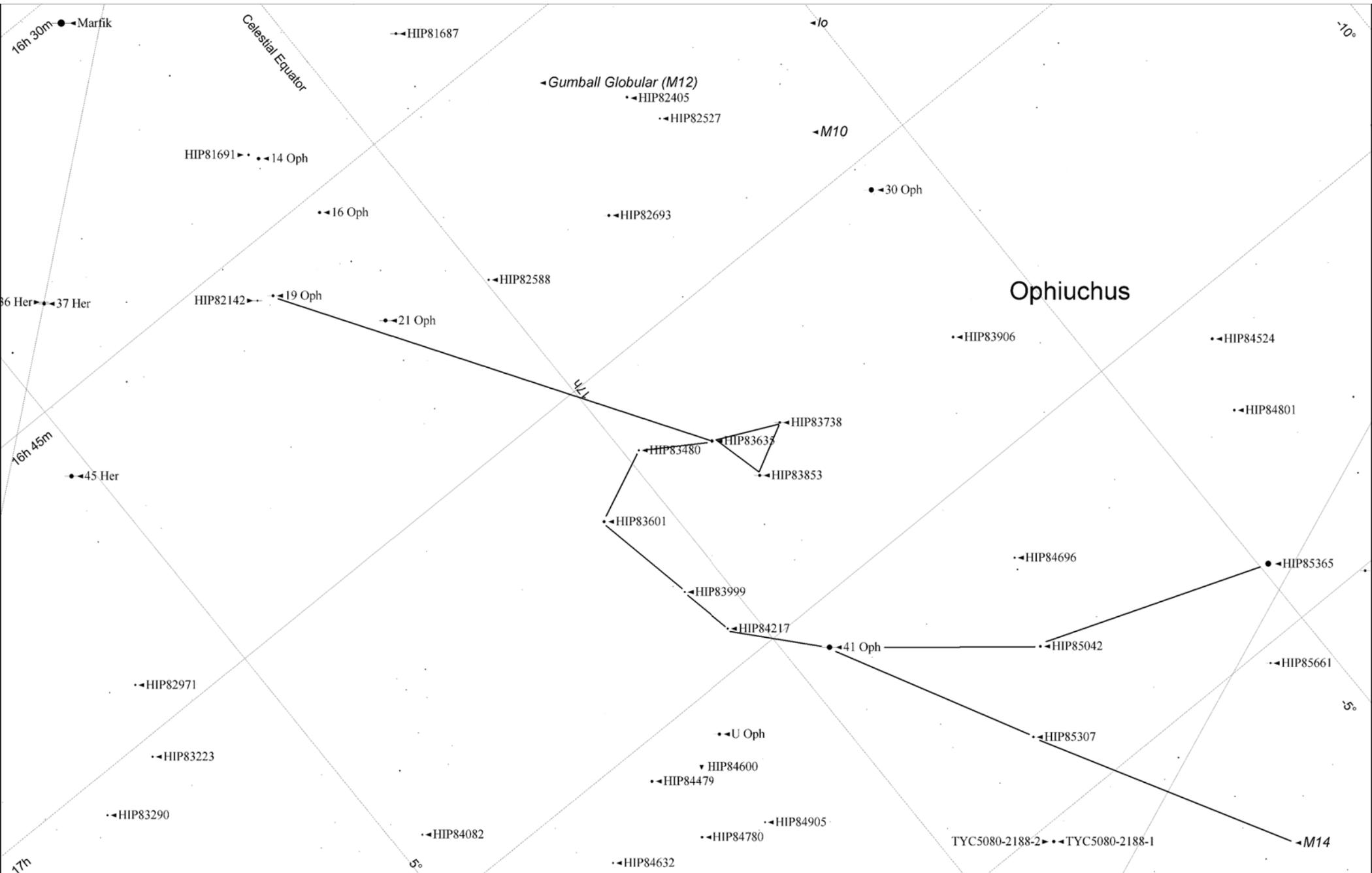
Ian Ridpath & Wil Tirion: Collins Gem – Stars
Sinnott & Perryman: Millenium Star Atlas

Maps Created with Starry Night (Orion Special Edition)

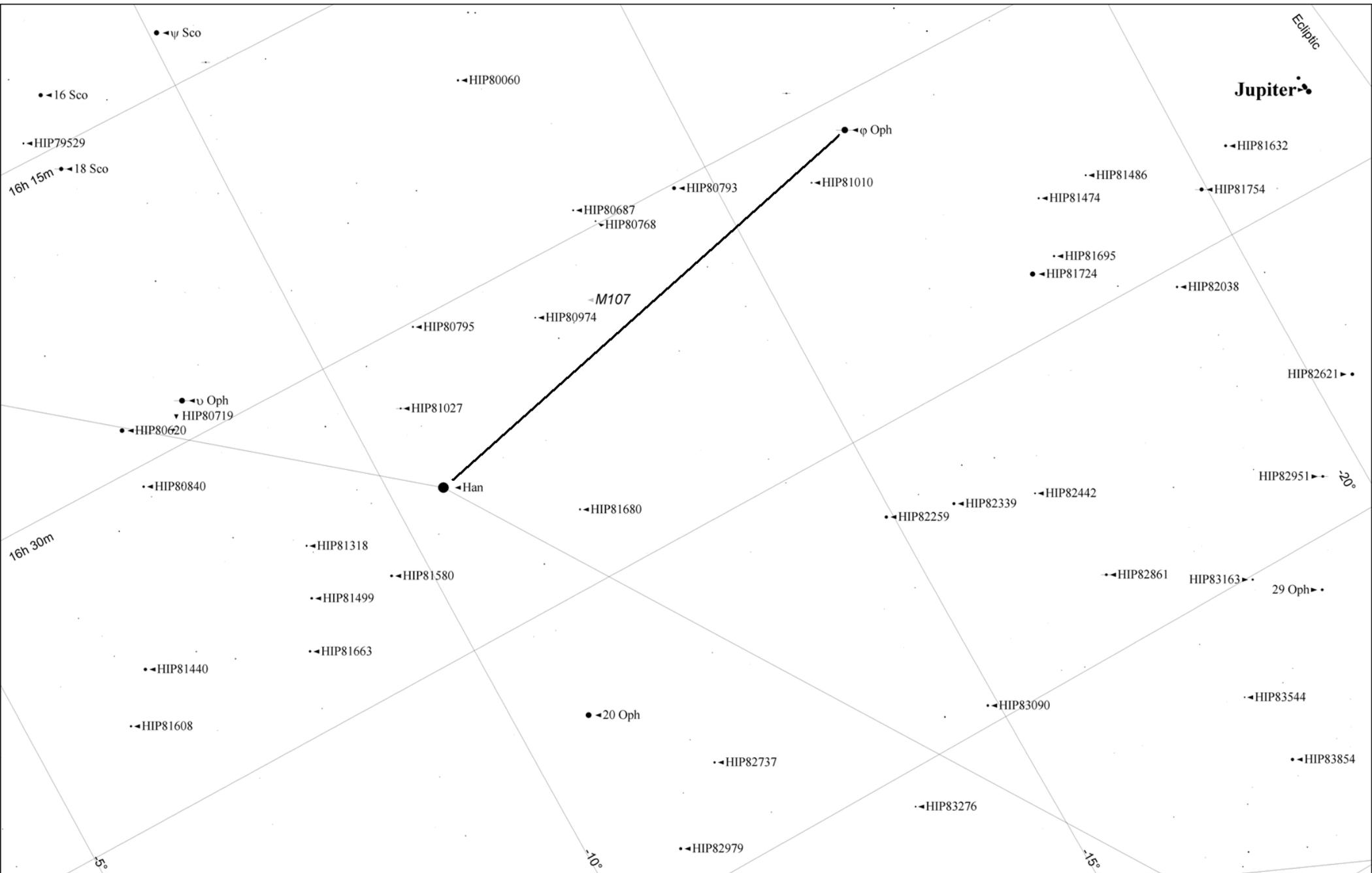
Good luck



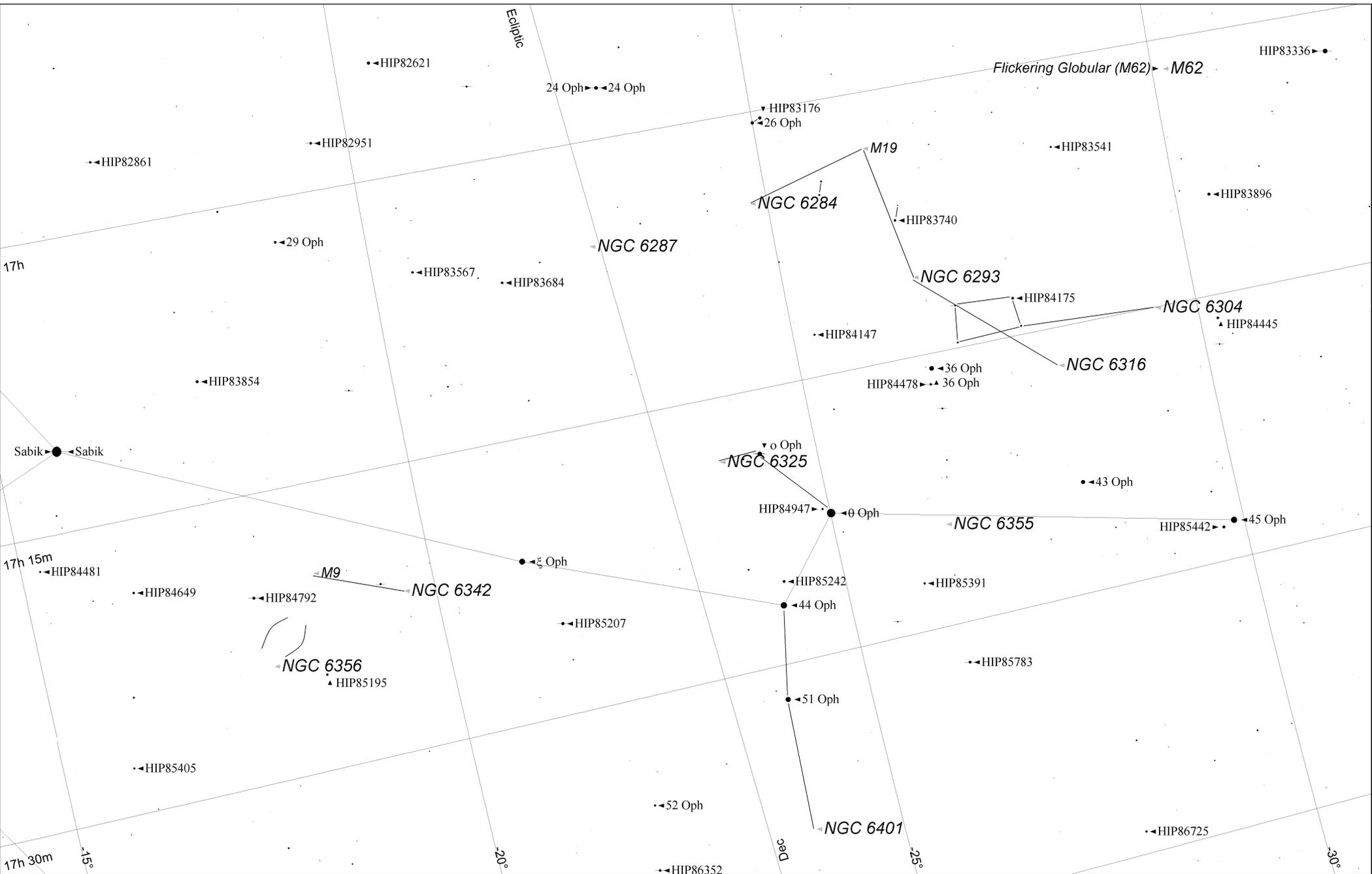
Viewing from Pretoria, South Africa Long: 28° 13' 24" Lat: -25° 43' 29"
 2007/07/04 08:00:00 PM (Local)
 Chart centre (J2000): RA: 17h 26.596m Dec: -16° 11.907'
 Looking: east (50° above horizon)
 FOV: 40°
 Limiting Magnitude: 6.8



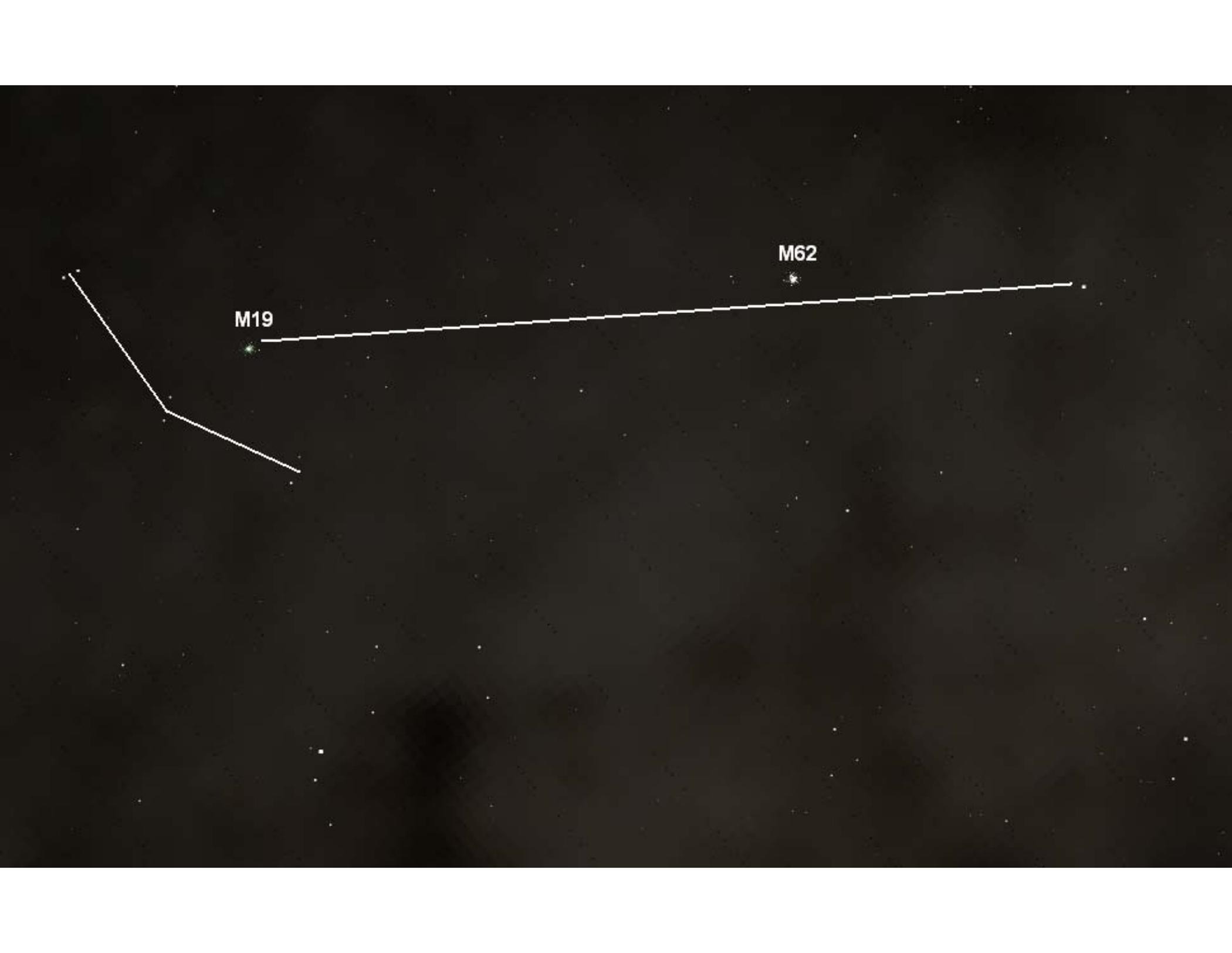
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 2007/07/04 08:00:00 PM (Local)
 Chart centre (J2000): RA: 17h 4.706m Dec: -0° 40.191'
 Looking: north east (47° above horizon)
 FOV: 16°
 Limiting Magnitude: 8.8



Viewing from Pretoria, South Africa Long: 28° 13' 24" Lat: -25° 43' 29"
 2007/07/04 08:00:00 PM (Local)
 Chart centre (J2000): RA: 16h 40.620m Dec: -13° 18.237'
 Looking: east (59° above horizon)
 FOV: 16°
 Limiting Magnitude: 8.8



Viewing from Pretoria, South Africa Long: 28° 13' 24" Lat: -25° 43' 29"
 2007/07/04 08:00:00 PM (Local)
 Chart centre (J2000): RA: 17h 16.403m Dec: -23° 25.361'
 Looking: east (54° above horizon)
 FOV: 17°
 Limiting Magnitude: 8.7



M19

M62