

# Binocular Universe: Putting Our Best Foot Forward

March 2011

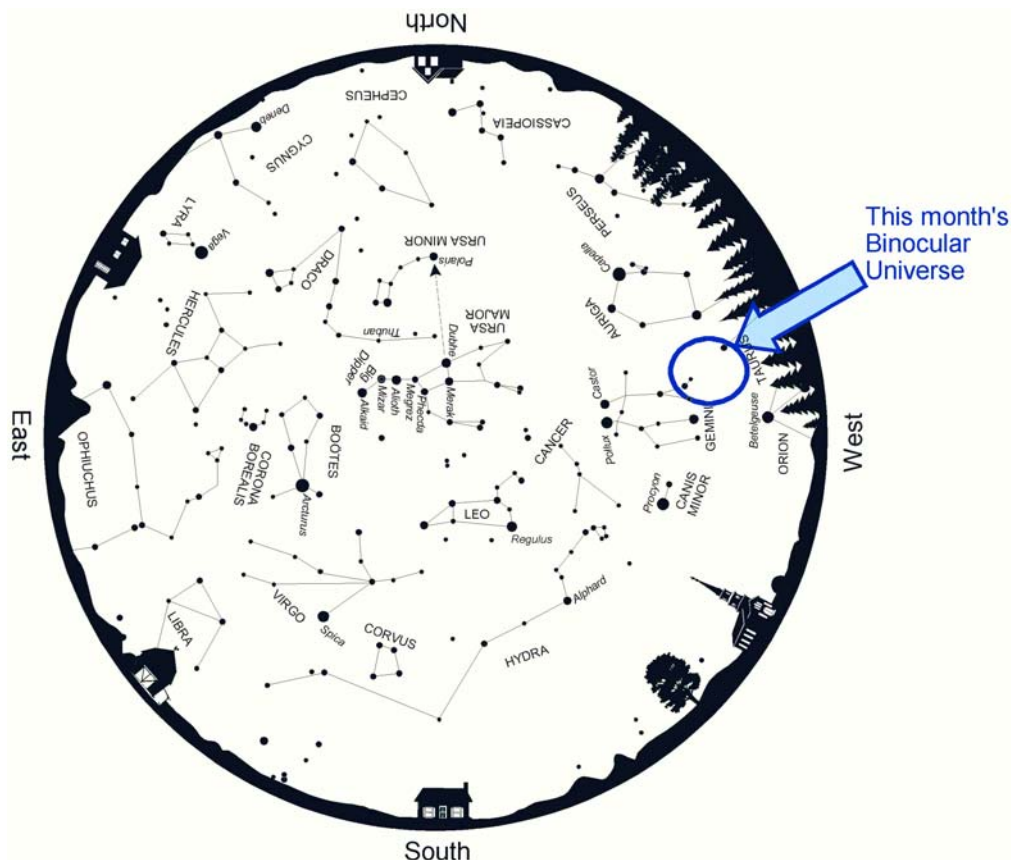


[Phil Harrington](#)

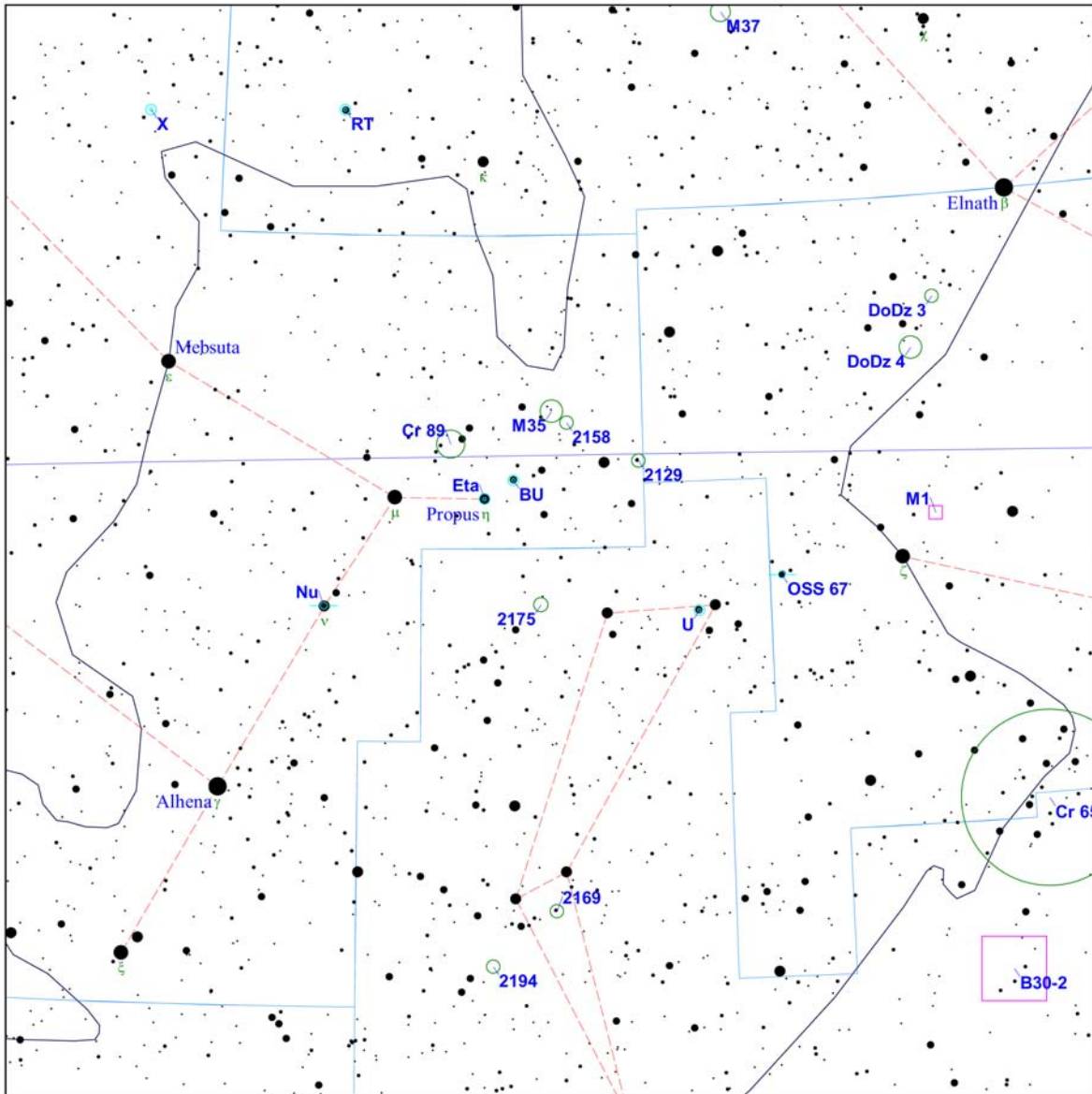
The Vernal Equinox can't come soon enough for me. What a winter it's been here in the northeastern United States. Good riddance!

But before we bid farewell to the winter sky entirely, let's visit some of the binocular objects that lie in and around the constellation Gemini. This month, we find the sky's twin brothers, Castor and Pollux, standing at attention in our western sky, as if to pay homage to those setting constellations.

We kick things off with the constellation's best known deep-sky treasure, **M35**. You'll find this spectacular open cluster at the foot of the twin Castor. Trace his body down from his namesake star toward his ankle and foot, which are marked by an arc of three stars, Mu, Eta, and 1 Geminorum. M35 lies to the northwest of Eta Gem. Its position near Castor's big toe leads me to think of this as the **Soccer Ball Cluster**, since it looks like Castor is about to kick it right between the horns of Taurus the Bull!



*Left: Spring star map, adapted from the author's book, [Star Watch](#).*



**Touring the Universe Through Binoculars Atlas**  
**RA: 6h 8m, Dec: 21d 26m, FOV: 21d, Mag: 7.5**

- |             |                    |           |            |
|-------------|--------------------|-----------|------------|
| ● ≤ 1.2     | ○ Galaxy           | ♿ Mercury | ♇ Pluto    |
| ● 1.2 - 2.4 | ○ Open Cluster     | ♀ Venus   | ☀ Sun      |
| ● 2.4 - 3.6 | ⊕ Globular Cluster | ♂ Mars    | ☾ Moon     |
| ● 3.6 - 4.9 | □ Diffuse Nebula   | ♃ Jupiter | ♁ Asteroid |
| ● 4.9 - 6.1 | ◻ Planetary Nebula | ♄ Saturn  | ☄ Comet    |
| • 6.1 - 7.3 | ⊙ Variable Star    | ♅ Uranus  | ⊛ Unknown  |
| • > 7.3     | ♁ Double Star      | ♆ Neptune |            |

Finder chart for this month's Binocular Universe from TUBA,  
[www.philharrington.net/tuba.htm](http://www.philharrington.net/tuba.htm)

Shining at about 5th magnitude, M35 can actually be glimpsed by eye alone on the darkest nights. But it takes binoculars to expose the true beauty of this object. Even when used under moderate suburban light pollution, most 7x50 and 10x50 binoculars resolve the brightest dozen or so cluster stars against the misty glow from an additional 200 fainter suns that make up this outstanding stellar gathering. The stars that we can see through our binoculars are truly brilliant, with each averaging some 400 times the luminosity of our sun.

Just southwest of M35 is the very rich and very distant open cluster **NGC 2158**. Studies show that M35 is 2,800 light years away, but NGC 2158 is nearly 16,000. That puts it close to the outer fringes of our galaxy.

Although NGC 2158 is listed as between magnitude 8 and 9 in most observing handbooks, I have always felt this is a bit optimistic. I can make it out through my 10x50 binoculars, but only on the best nights. My 16x70s show it more routinely, although still only as a dim glow against a striking star field. What is the smallest binocular that will show this distant swarm? Let's discuss your attempts and successes in this article's forum thread.



*Left: A sketch of M35 and surroundings made by CN member Rony De Laet through his 10x50 binoculars.*

There's a third open cluster in the same binocular field as M35, although few pay it much attention. Lying about midway between M35 and Mu Geminorum, **Collinder 89** (abbreviated Cr 89 on the chart here), is a sparsely assembled collection of some 15 suns. Only four are clearly seen in binoculars: 9, 10, 11, and 12 Geminorum, which shine at magnitudes 6.3, 6.6, 6.9, and 7.0, respectively. While this slender diamond of stars helps define the limits of this obscure open cluster, the lack of any stellar concentration still makes it a difficult object to positively identify.

Speaking of indistinct clusters, have you ever seen **Dolidze-Dzimselejsvili 4**? What's that, you say? Never heard of it, or even the catalog, for that matter? Dolidze-Dzimselejsvili 4 (abbreviated DoDz 4 on the chart here) lies across the border in Taurus. Look for it about 9° west-northwest of Castor's foot and 3.5° north of Elnath (Beta Tauri). There, 70-mm and larger binoculars display a few faint luminaries set in a loose rectangular pattern. In all, Dolidze-Dzimselejsvili 4 hosts about 15 stars from 7th to fainter than 10th magnitude.

Not much is written about the Dolidze-Dzimselevsili catalog of open star clusters, at least not in amateur observing guides and journals. In 1961, Madona V. Dolidze, an astronomer at the Abastumani Astrophysical Observatory in the country of Georgia, published a catalog of 47 open star clusters in the Russian journal Astronomicheskii Tsirkulyar (Astronomical Circular; 224:18-22). These are designated by "Do" on most star atlases.

Five years later, he and G. N. Dzimselevsili published a follow-up list of 11 additional clusters (Astron. Tsirk., 382:7-8). These carry the designation "DoDz" on atlases and in references.

None of the 'Do' or 'DoDz' clusters are obvious in binoculars (or telescopes, for that matter), which is probably why the classical observers of the 18th- and 19th centuries missed them in the first place. But if you know they where they are, they can be fun to try and hunt down. DoDz 4 is fairly easy to discern, but its little neighbor to the northwest, DoDz 3, continues to evade me no matter what instrument I use.

If you are interested in pursuing these and the rest of the 'Do' and 'DoDz' clusters, then an observer's guide written by Pennsylvania amateur Al Lamperti will be of great interest. His 2005 article appeared in issue #138 of the Webb Society's Deep-Sky Observer publication. You can find a PDF copy of the article on his club's, the Delaware Valley Amateur Astronomers, web site [here](#).

Meanwhile, here are some more objects to enjoy within this month's binocular universe that should warm you in the waning days of winter:

Object	Con	Type	R.A.	Dec	Mag	Size/Sep/ Period	Notes
			(2000)				
M37	Aur	OC	5 52.4	+32 33	5.6	24'	*TUB page 97* NGC 2099
RT	Aur	Vr	6 28.6	+30 30	5.0-5.8	3.728 days	Cepheid
2129	Gem	OC	6 1	+23 18	6.7	7'	
2158	Gem	OC	6 7.5	+24 6	8.6	5'	*TUB page 155* SW of M35
M35	Gem	OC	6 8.9	+24 20	5.3	28'	*TUB page 154-155* NGC 2168
BU	Gem	Vr	6 12.3	+22 54	5.7-7.5		*TUB page 155* Irregular
Eta	Gem	Vr	6 14.9	+22 30	3.2-3.9	232.9 days	Semi-Regular
Cr 89	Gem	OC	6 18	+23 38	5.7p	35'	*TUB page 155*
Nu	Gem	**	6 29	+20 13	4.2, 8.7	113"	329°(1924);5103
X	Gem	Vr	6 47.1	+30 17	7.5-13.6	263.72 days	Long Period Variable
Cr 65	Ori	OC	5 26	+16 0	3.0p	220'	*TUB page 191*
B30-2	Ori	Dk	5 29.8	+12 32		80'x55'	3° NW of Lambda
U	Ori	Vr	5 55.8	+20 10	4.8-12.6	372.40 days	Long Period Variable
2169	Ori	OC	6 8.4	+13 57	5.9	7'	*TUB page 194*
2175	Ori	OC	6 9.8	+20 19	6.7	18'	
2194	Ori	OC	6 13.8	+12 48	8.5	10'	
DoDz 3	Tau	OC	5 33.7	+26 29		15'	
M1	Tau	DN	5 34.5	+22 1	8.2	6'x4'	*TUB page 238-239* NGC 1952; Crab nebula
DoDz 4	Tau	OC	5 35.9	+25 27		28'	*TUB page 239*
OSS 67	Tau	**	5 48.4	+20 52	6.1, 8.6	76"	161°(1933);4392

Have a question, a comment, or a suggestion for future columns? I'd love to hear it. Drop me a line at [phil@philharrington.net](mailto:phil@philharrington.net).

And until we meet again under the warming skies of spring, remember that for late-winter stargazing, two eyes are better than one.



#### About the Author:

Phil Harrington is the author of nine books on astronomy, including Touring the Universe through Binoculars and Cosmic Challenge. Visit his web site at [www.philharrington.net](http://www.philharrington.net)

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