



The Binocular Sky

December
2012

Newsletter

Introduction

Welcome to the December 2012 *Binocular Sky* Newsletter . The intention of this monthly offering is to highlight some of the binocular targets for the coming month. It is primarily targeted at observers in the UK, but should have some usefulness for observers anywhere north of Latitude 30°N. For this Newsletter to be a useful tool, it needs to have the information that **YOU** want in it; therefore please do not be shy about making requests – if I can accommodate your wishes, I shall do so. There is a printer-friendly version: <http://binocularsky.com/newsletter/201212p.pdf>

The Deep Sky (Yellow text is hyperlinked to charts and more information.)

December marks the welcome return of the *Pleiades* (M45) and the *Great Orion Nebula* (M42) to early evening observation at a reasonable altitude. The *trio of open clusters* in Auriga and *M35* in Gemini are also worth observing. While you are looking at M35, also see if you can identify two smaller open clusters, NGC 2158, which is half a degree to the SE, and the slightly more difficult IC 2157, which is a degree to the ESE. Nearer the Pleiades is *NGC 1647*, which is within the 'V' asterism of the Hyades. It is a sparse cluster and, although it is visible in a 10x50 binocular, it really benefits from a little more aperture and magnification.

The Deep Sky (contd)

The open cluster **NGC 752** is very well placed this month; it is one of those objects that is often overlooked because of its proximity to a more famous object, in this case, the Great Andromeda Galaxy (see below). NGC 752 is a very fine cluster, and easy in 50mm binoculars in which it begins to resolve. Nearby towards Perseus is another fine cluster, **M34**.

Open (also called 'Galactic') Clusters are loosely packed groups of stars that are gravitationally bound together; they may contain from a few dozen to a few thousand stars which recently formed in the galactic disk.

In December, the Milky Way is overhead in the mid-to-late evening. This means that those objects (globular clusters and galaxies) that are outside our galaxy are not as well placed for observation as they are when the Milky Way is low in the sky. Although the bright **M81 (Bode's Nebula)** and **M82 (The Cigar Galaxy)**, are still relatively easy to observe, even in a 50mm binocular, their altitude is such that you are unlikely to get neck-strain when you do so with straight-through binoculars. M81 and M82 can be used as a good demonstration of averted vision: if you have them both in the same field of view, you may see that the core of M81 becomes more apparent if you look at M82.

Two notable exceptions to the generalisation of galaxies being poorly placed on December evenings are The **Great Andromeda Galaxy, M31** and **M33 (The Pinwheel)**, both of which are close to the plane of the Milky Way. **M31** in particular is very easily visible this month and is a naked eye object in moderately dark skies. It is large and bright enough to be able to withstand quite a lot of light pollution (making it available to urban observers). **M33** has a low surface-brightness and benefits from

The Deep Sky (contd)

lower magnification. This generally makes it easier to see in, say, a 10x50 binocular than in many “starter” telescopes.

Galaxies are gravitationally bound “island universes” of hundreds of billions of stars at enormous distances. The light that we see from M31, for example, left that galaxy around the time our ancestors of the genus Homo were just evolving!

Of the globular clusters, **M15** and **M2** are both well placed for observation in December.

Globular clusters are tightly-bound, and hence approximately spherical, clusters of tens, or even hundreds, of thousands of stars that orbit in a halo around almost all large galaxies that have been observed. They are important for two reasons: Firstly, they contain some of the oldest stars in the galaxy, so studying them helps us understand the evolution of stars. Secondly, they are useful as “standard candles” in establishing a distance scale of the Universe, based on the assumption that the brightest stars in any globular cluster will be approximately the same brightness and that the brightest globulars in a galaxy will be approximately the same brightness.

For interactive maps of Deep Sky Objects visible from 51°N, please visit:

http://binocularsky.com/map_select.php

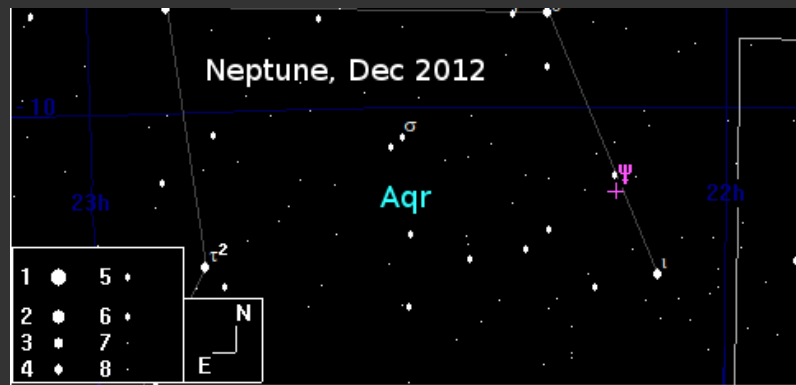
The Solar System

Meteor Showers

The major meteor shower this month is the Geminids (see <http://www.imo.net/calendar/2012#gem>), which peaks on the 13th at 23:30 UT. This year, this usually very reliable shower not only coincides with the New Moon, but peaks just before midnight. The peak has intensified over the last few years, with a **Zenithal Hourly Rate** of between 120 and 160. Most meteors are due to debris left by comets, but the Geminid shower is one of two (the other is the Quadrantid shower, which peaks on January 03) that originates from an asteroid, in this case asteroid **3200 Phaethon**. You can use binoculars to examine the persistence of any ionisation trails from these slow-moving meteors.

Planets

Of the two binocular planets, **Neptune** transits soon after the end of twilight by mid-month, so make it one of your first targets for an evening's observing. It is close to the 5th magnitude **38 Aqr**, which is approximately at the south-

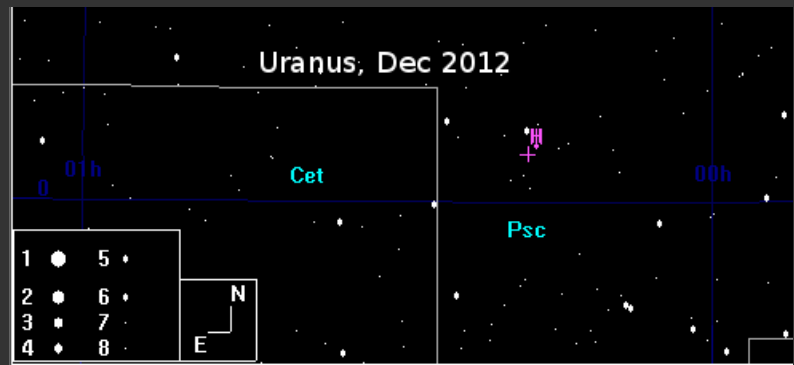


western apex of an equilateral triangle that has σ and θ Aqr as its other apexes.

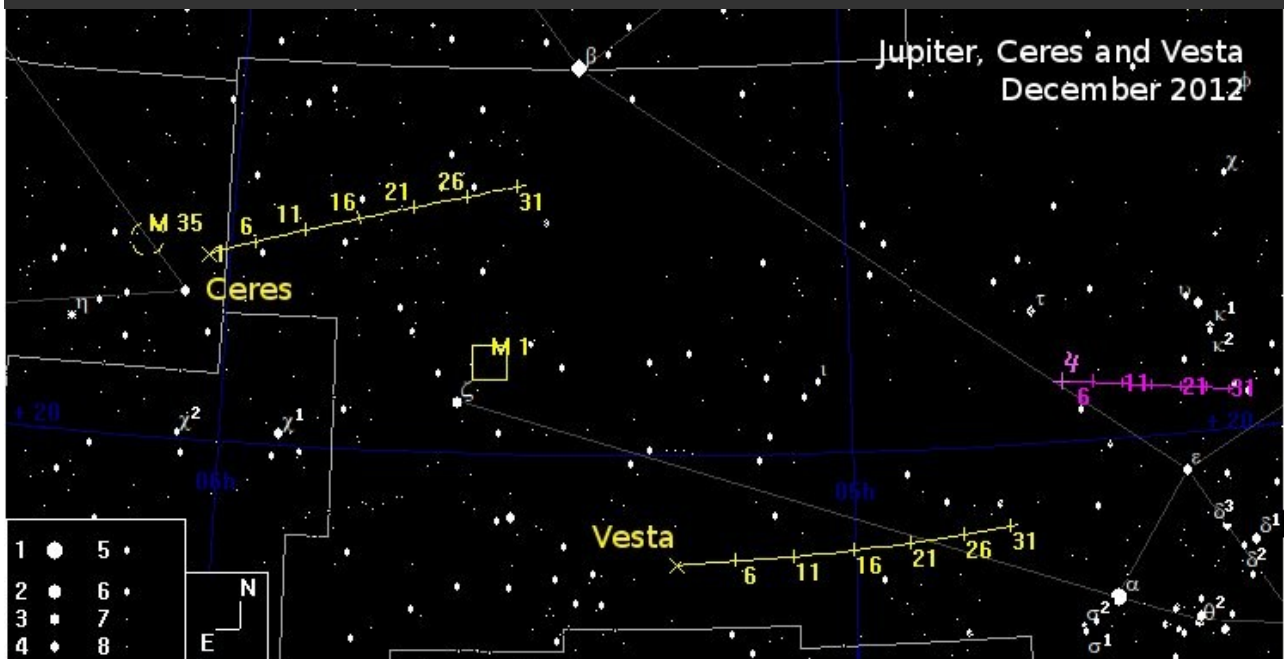
The Solar System (contd)

Uranus transits about two hours later, near the boundary of Cetus and Pisces. It is considerably brighter than Neptune and transits at about 10 degrees

higher altitude, making it much easier to observe, even in very small binoculars.



The asteroids **Ceres** (starts the month at magnitude 7.3) and **Vesta** (magnitude 6.6) are quite near Jupiter this month. You will need binoculars or a telescope to see them. Ceres will be at opposition on the 18th and will be at magnitude 6.7, the brightest it has been since 1989.

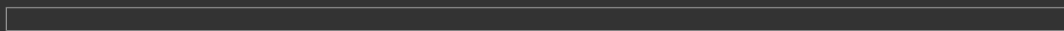


The Moon

Dec 06 Last Quarter
Dec 13 New Moon
Dec 20 First Quarter
Dec 28 Full Moon

Wishing you Clear Dark Skies,

Steve Tonkin for *The Binocular Sky*



Acknowledgments:

The charts in this newsletter were prepared with Guide v9.0 from <http://projectpluto.com>

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