**StarView**
**Visible Object Listing for:**

| May 15, 2017 | Local Time (Z-4): 21:30 | Lat: 41.5 | Minimum Criteria: Elev: 5° / Mag: 6 Sep: 10 arcmin / Size: 2 arcsec |
|---|---|---|---|
| | Sidereal Time: 11:39 | Lon: -81.5 | |

| Name | Con | Type | Mag | Sep/Size | Elev |
|---|---|---|---|---|---|
| Little Fish | Aur | Open Cluster | 4.5 | 30x75 arcmin | 18° |
| kappa Bootes - Asellus Tertius | Boo | Double Star | 4.5, 6.6 | 13.4 arcsec | 62° |
| Zeta Bootis | Boo | Double Star | 4.6, 4.5 | 0.8, 99 arcsec | 42° |
| Iota Cancri | Can | Double Star | 4.2, 6.6 | 30.6 arcsec | 53° |
| M44 - Beehive Cluster, Praesepe | Can | Open Cluster | 3.7 | 95 arcmin | 47° |
| Eta Cassiopeiae - Achrid | Cas | Double Star | 3.4, 7.5 | 13 arcsec | 10° |
| Delta Cephei | Cep | Star | 4 | | 11° |
| 24 Comae Berenices | Com | Double Star | 5.2, 6.7 | 20.3 arcsec | 64° |
| 35 Comae Berenices | Com | Double Star | 4.91 | 29 arcsec | 64° |
| Alpha Canum Venaticorum - Cor Caroli | CVn | Double Star | 2.9, 5.5 | 19.6 arcsec | 75° |
| Y Cvn - La Superba | Cvn | Star | 5 | | 77° |
| 31 Cygni - Omicron 1 | Cyg | Double Star | 3.8 | | 9° |
| 32 Cygni - Omicron 2 | Cyg | Double Star | 3.98 | | 10° |
| Nu Draconis | Dra | Double Star | 4.88 | 63.4 arcsec | 34° |
| Alpha Geminorum - Castor | Gem | Double Star | 1.9, 2.9 | 4, 71 arcsec | 41° |
| M35 - Collinder 82 | Gem | Open Cluster | 5.3 | 28 arcmin | 21° |
| M13 - Hercules Cluster | Her | Globular Cluster | 5.8 | 20 arcmin | 33° |
| M48 | Hyd | Open Cluster | 5.5 | 54 arcmin | 23° |
| 19 Lyncis - Struve 1062 | Lyn | Double Star | 5.6 | 14.8 arcsec | 47° |
| Epsilon Lyrae - The Double | Lyr | Double Star | 4.6, 5, | 200,150,64 | 15° |

| | | | | | |
|---|---|---|---|---|---|
| Double | | | 6 | arcsec | |
| Caldwell 50 | Mon | Open Cluster | 4.8 | 24 arcmin | 13° |
| Christmas Tree - Cone Nebula | Mon | Nebula | 3.9 | 20 arcmin | 18° |
| M50 | Mon | Open Cluster | 5.9 | 16 arcmin | 10° |
| Beta Perseus - Algol | Per | Double Star | 2.1 | | 5° |
| Double Cluster - Caldwell 14, Chi Persei | Per | Open Cluster | 3.7, 3.8 | 60 arcmin | 14° |
| M47 | Pup | Open Cluster | 5.2 | 30 arcmin | 11° |
| Zeta Ursae Majoris - Mizar | Uma | Double Star | 2.3, 4.0 | 14 arcsec | 68° |
| Alpha Ursae Minoris - Polaris | Umi | Double Star | 2.1, 9 | 18 arcsec | 41° |

End of Listing: 28 of 134 Stars matched criteria

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| Little Fish (Aur) | | |
|---|---|---|
| RA: 5h 18m | Mag(v): 4.5 | Type: Open Cluster |
| Dec: 33d 30m | Size: 30x75 arcmin | |
| Distance: ly | | El: 18° / Az: 299° |
| More than a dozen stars in this cluster. | | |

| kappa Bootes - Asellus Tertius (Boo) | | |
|---|---|---|
| RA: 14h 14m | Mag(v): 4.5, 6.6 | Type: Double Star |
| Dec: 51° 47' | Sep: 13.4 arcsec | SP Class: A8IV |
| Distance: 155 ly | | PA: 236° El: 62° / Az: 55° |
| This is a double star viewable by a small telescope. It's traditional name, Asellus Tertius is Latin for 'third donkey colt'. | | |

| Zeta Bootis (Boo) | | |
|---|---|---|
| RA: 14h 41m | Mag(v): 4.6, 4.5 | Type: Double Star |
| Dec: 13° 44' | Sep: 0.8, 99 arcsec | SP Class: A3IVn |
| Distance: 180 ly | Sep (AU): 44, 5500 | PA: 30, 254° El: 42° / Az: 112° |
| A binary star system composed of two giant stars orbiting each other every 124 years. | | |

| Iota Cancri (Can) | | |
|---|---|---|
| RA: 8h 47m | Mag(v): 4.2, 6.6 | Type: Double Star |
| Dec: 28° 46' | Sep: 30.6 arcsec | SP Class: G8II, A3V |
| Distance: 298 ly | Sep (AU): 2785 | PA: 307° El: 53° / Az: 264° |
| Iota Cancri is a double star consisting of a brighter yellow giant and white, dimmer, dwarf star. The brighter star is about 200 times brighter than our | | |

Sun. The distance between these stars is over 2500 AU and takes at least 65,000 years to orbit each other. Even at this distance the brighter star would seem as bright as our Moon. It is sometimes referred to as the "spring Albireo" due to the similar color contrast of the two stars.

| M44 - Beehive Cluster, Praesepe (Can) | | |
|---|---|---|
| RA: 8h 40m | Mag(v): 3.7 | Type: Open Cluster (NGC: 2632) |
| Dec: 19° 59' | Size: 95 arcmin | SP Class: A, F, G, K, M |
| Distance: 525 ly | | Mag: Low El: 47° / Az: 254° |

This is an open cluster containing over 1000 stars with a total mass of over 500 Solar masses. The nebulous area can be seen without a telescope in a dark sky. It was recognized by the ancient Greeks and Chinese and studied by Galileo in 1609 where he resolved 40 stars. This cluster is estimated to be 600 million years old. The center area of this cluster is about 23 light years across. Two planets orbiting separate stars were discoverd in 2012 by ground based telescopes. The Beehive is high over head during winter months.

| Eta Cassiopeiae - Achrid (Cas) | | |
|---|---|---|
| RA: 0h 49m | Mag(v): 3.4, 7.5 | Type: Double Star |
| Dec: 57° 49' | Sep: 13 arcsec | SP Class: G0V, K7V |
| Distance: 19.4 ly | Sep (AU): 76 | PA: 317° Mag: 133x El: 10° / Az: 351° |

Achrid is a binary star system in the constellation Cassiopeia that is about 20 light years from earth. The brighter star is similar to our Sun along with a dimmer magnitude 7 class K dwarf star. It was discovered in 1779 by Sir William Herschel who also discovered the planet Uranus in 1781. He was later appointed the private astronmer to the King of England in 1782.

| Delta Cephei (Cep) | | |
|---|---|---|
| RA: 22h 29m | Mag(v): 4 | Type: Star |
| Dec: 58° 25' | | SP Class: F8, B7 |
| Distance: 887 ly | | El: 11° / Az: 9° |

A binary star that is also a variable star. It varies from magnitude 3.48 to 4.37 over a 5.36 day period. The name of this star is used to describe the class of variable stars, Cepheid Variables, that change brightness over a regular time period.

| 24 Comae Berenices (Com) | | |
|---|---|---|
| RA: 12h 35m | Mag(v): 5.2, 6.7 | Type: Double Star |
| Dec: 18° 23' | Sep: 20.3 arcsec | SP Class: K2III, A7 |
| Distance: 614 ly | Sep (AU): 3819 | PA: 271° Mag: 50x El: 64° / Az: 149° |

The primary star is an orange giant with a blue secondary star. Given the large separation, this is likely an optical double star.

| 35 Comae Berenices (Com) | | |
|---|---|---|
| RA: 12h 53m | Mag(v): 4.91 | Type: Double Star |
| Dec: 21° 15' | Sep: 29 arcsec | SP Class: G8III |
| Distance: 324 ly | | PA: 144° El: 64° / Az: 137° |

A double star with a giant yellow G8 class star.

| Alpha Canum Venaticorum - Cor Caroli (CVn) | | |
|---|---|---|
| RA: 12h 56m | Mag(v): 2.9, 5.5 | Type: Double Star |
| Dec: 38° 19' | Sep: 19.6 arcsec | SP Class: A0, B8p to A7p |
| Distance: 114 ly | Sep (AU): 655 | PA: 229° El: 75° / Az: 96° |

Cor Caroli is a favorite of amateur astronomers. It is the brighter star of a binary system. The two stars are easy to see in a small telescope even though they are separated by about 650 AU. There is a slight color difference between the two with one reddish and the other blue. The brighter star is 60 times brighter than our sun. Cor Caroli also varies in spectral brightness over a period of 5.5 days. It is believed there is a strong magnetic field that produces starspots of enormous extent causing the change in brightness as the stars rotate. The star was named after King Charles of England in 1660. Cor Caroli means "Charles Heart."

| Y Cvn - La Superba (Cvn) | | |
|---|---|---|
| RA: 12h 45m | Mag(v): 5 | Type: Star |
| Dec: 45° 26' | | SP Class: C |
| Distance: 711 ly | | El: 77° / Az: 66° |

This is a variable star whose brightness varies from a magnitude of 4.8 to 6.3 over a period of 160 days. This star is a bright, red giant "carbon star" with a surface temperature of about 2800K. Near the end of its life, carbon compounds migrate to the outer layer of the star and absorb the shorter wavelength blue light thus giving it such a red color. The radius of this star is about 2 AU which would be from our Sun to beyond the orbit of Mars.

| 31 Cygni - Omicron 1 (Cyg) | | |
|---|---|---|
| RA: 20h 14m | Mag(v): 3.8 | Type: Double Star |
| Dec: 46° 44' | | SP Class: K4 + B4 |
| Distance: 880 ly | | El: 9° / Az: 33° |

31 Cygni is an eclipsing binary star with small changes in brightness over a ten year period. One star is an orange supergiant with a second blue-white

star. The brightness changes are due to one star eclipsing the other.

| 32 Cygni - Omicron 2 (Cyg) | | |
|---|---|---|
| RA: 20h 15m | Mag(v): 3.98 | Type: Double Star |
| Dec: 47° 43' | | SP Class: K4 + B6 |
| Distance: 1100 ly | | El: 10° / Az: 32° |

Similar to 31 Cygni, this binary star system has a super large orange giant with a smaller hot white star in a 3.1 year orbital period. The larger star is almost 2 AU in diameter and takes 9 years for one rotation.

| Nu Draconis (Dra) | | |
|---|---|---|
| RA: 17h 32m | Mag(v): 4.88 | Type: Double Star |
| Dec: 55° 11' | Sep: 63.4 arcsec | SP Class: A6, A4 |
| Distance: 99 ly | Sep (AU): 1900 | PA: 312° Mag: 10-50x El: 34° / Az: 43° |

A double star, with nearly equal magnitudes, and a 44,000 year rotation period.

| Alpha Geminorum - Castor (Gem) | | |
|---|---|---|
| RA: 7h 35m | Mag(v): 1.9, 2.9 | Type: Double Star |
| Dec: 31° 53' | Sep: 4, 71 arcsec | SP Class: A0IV |
| Distance: 52 ly | Sep (AU): 60, 1145 | PA: 61, 164° Mag: 50-100x El: 41° / Az: 279° |

Discovered as a visual binary in 1678, there are three visible stars that orbit with period of 19 hours and 10 days. Each of the two stars are also an eclipsing binary system. A nearby binary system is also gravitationally linked making this a sextuple star system.

| M35 - Collinder 82 (Gem) | | |
|---|---|---|
| RA: 6h 9m | Mag(v): 5.3 | Type: Open Cluster (NGC: 2168) |
| Dec: 24° 21' | Size: 28 arcmin | |
| Distance: 2800 ly | | Mag: Low El: 21° / Az: 284° |

This open cluster is next to NGC 2158, a globular cluster, and makes for a double treat.

| M13 - Hercules Cluster (Her) | | |
|---|---|---|
| RA: 16h 42m | Mag(v): 5.8 | Type: Globular Cluster (NGC: 6205) |
| Dec: 36° 28' | Size: 20 arcmin | |
| Distance: 25k ly | | Mag: Low El: 33° / Az: 68° |

M13 is one of the best examples of a globular cluster with more than 100,000 stars.

| M48 (Hyd) | | |
|---|---|---|
| RA: 8h 14m | Mag(v): 5.5 | Type: Open Cluster (NGC: 2548) |
| Dec: -5° -48' | Size: 54 arcmin | |
| Distance: 1500 ly | | Mag: Low El: 23° / Az: 238° |
| This open cluster has about 80 stars greater than magnitude 13. This cluster is about 300 million years old. | | |

| 19 Lyncis - Struve 1062 (Lyn) | | |
|---|---|---|
| RA: 7h 23m | Mag(v): 5.6 | Type: Double Star |
| Dec: 55° 17' | Sep: 14.8 arcsec | SP Class: B4V |
| Distance: 468 ly | | PA: 315° Mag: 100x El: 47° / Az: 311° |
| A blue double star. | | |

| Epsilon Lyrae - The Double Double (Lyr) | | |
|---|---|---|
| RA: 18h 44m | Mag(v): 4.6, 5, 6 | Type: Double Star |
| Dec: 39° 37' | Sep: 200,150,64 arcsec | SP Class: F1V, A8V |
| Distance: 162 ly | Sep (AU): 10200, 128 | PA: 173, 350, 82° Mag: Binoculars El: 15° / Az: 50° |
| This system contains two sets of binary stars. | | |

| Caldwell 50 (Mon) | | |
|---|---|---|
| RA: 6h 32m | Mag(v): 4.8 | Type: Open Cluster (NGC: 2244) |
| Dec: 4° 56' | Size: 24 arcmin | |
| Distance: 5200 ly | | El: 13° / Az: 265° |
| An open cluster in the Rosette Nebula. | | |

| Christmas Tree - Cone Nebula (Mon) | | |
|---|---|---|
| RA: 6h 41m | Mag(v): 3.9 | Type: Nebula (NGC: 2264) |
| Dec: 9° 53' | Size: 20 arcmin | |
| Distance: 2600 ly | | El: 18° / Az: 267° |
| A very young open cluster with 150 members | | |

| M50 (Mon) | | |
|---|---|---|
| RA: 7h 3m | Mag(v): 5.9 | Type: Open Cluster (NGC: 2323) |
| Dec: -8° -20' | Size: 16 arcmin | |
| Distance: 3200 ly | | El: 10° / Az: 250° |
| This open cluster is about 3,200 light years from earth with a diameters of about 20 light years | | |

| Beta Perseus - Algol (Per) |
|---|

| | | |
|---|---|---|
| RA: 3h 8m | Mag(v): 2.1 | Type: Double Star |
| Dec: 40° 57' | | SP Class: B8V, K0 |
| Distance: 93 ly | Sep (AU): 0.062 | El: 5° / Az: 323° |
| An eclipsing binary star dropping from magnitude 2.1 to 3.4 about every 2.8 days. | | |

| Double Cluster - Caldwell 14, Chi Persei (Per) | | |
|---|---|---|
| RA: 2h 20m | Mag(v): 3.7, 3.8 | Type: Open Cluster (NGC: 869, 884) |
| Dec: 57° 8' | Size: 60 arcmin | SP Class: B0 |
| Distance: 7500 ly | | Mag: Binoculars El: 14° / Az: 339° |
| This open cluster has over 300 blue-white super-giant stars in each cluster. | | |

| M47 (Pup) | | |
|---|---|---|
| RA: 7h 37m | Mag(v): 5.2 | Type: Open Cluster (NGC: 2422) |
| Dec: -14° -30' | Size: 30 arcmin | |
| Distance: 1600 ly | | Mag: Low El: 11° / Az: 239° |
| This open cluster of about 50 stars has two bright orange giant stars that contrast with the other blue/white stars. | | |

| Zeta Ursae Majoris - Mizar (Uma) | | |
|---|---|---|
| RA: 13h 24m | Mag(v): 2.3, 4.0 | Type: Double Star |
| Dec: 54° 56' | Sep: 14 arcsec | SP Class: A1V, A5V |
| Distance: 83 ly | Sep (AU): 345, 16 | PA: 152, 71° Mag: 10-50x El: 68° / Az: 43° |
| Mizar and it's neighbor Alcor are a binary star system that is 80 light years away in the constellation Ursa Major, the Great Bear, otherwise known as the Big Dipper. These stars are found in the middle of the handle of the Big Dipper. In the past, some have used the two stars as a test of your eyesight if you can see both stars. Mizar, the brighter star, is itself a double star, though you won't see this in a telescope. Spectroscopic analysis shows Mizar has two additional stars and Alcor has three. Spectroscopy gives us the color spectrum of each star which astronomers can use to determine if it is coming from a single star or more than one. You are really looking at a total of seven stars. | | |

| Alpha Ursae Minoris - Polaris (Umi) | | |
|---|---|---|
| RA: 2h 32m | Mag(v): 2.1, 9 | Type: Double Star |
| Dec: 89° 16' | Sep: 18 arcsec | SP Class: F7Ib |
| Distance: 325 ly | Sep (AU): 2430 | PA: 218° Mag: 50x El: 41° / Az: 359° |
| The North Star as used in celestial navigation. It has two companion stars | | |

**that orbit at 18 and 2400 AU. Polaris is a 4.5 solar mass F7 yellow supergiant.**