What's Up, Doc?  †  
November, 2019

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This document tells you what objects are visible this next month for many of the Astronomical League Clubs. If you are working on a more advanced club, then I assume you are tracking where your objects are all the time. I have concentrated on common and starter level clubs. This information is based on 9 PM Central Time.

Naked-Eye Clubs

Meteors

<table>
<thead>
<tr>
<th>Shower</th>
<th>Duration</th>
<th>Maximum</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leonids</td>
<td>11/13 to 11/20</td>
<td>11/17 @ 23:00</td>
<td>Major</td>
</tr>
<tr>
<td>Northern Taurids</td>
<td>10/12 to 12/2</td>
<td>11/4 to 11/7</td>
<td>Moderate</td>
</tr>
<tr>
<td>Southern Taurids</td>
<td>9/17 to 11/27</td>
<td>10/30 to 11/7</td>
<td>Moderate</td>
</tr>
<tr>
<td>Andromeids</td>
<td>9/25 to 12/6</td>
<td>11/14 &amp; 11/15</td>
<td>Minor</td>
</tr>
<tr>
<td>Alpha Monocerotids</td>
<td>11/13 to 12/2</td>
<td>11/21</td>
<td>Minor</td>
</tr>
<tr>
<td>Alpha Pegasiads</td>
<td>10/29 to 11/17</td>
<td>11/1 &amp; 11/2</td>
<td>Minor</td>
</tr>
</tbody>
</table>

Constellations, Northern Skies – any night, any time, anywhere, the darker the sky the better.

Last Chance this cycle: Lyra, Vulpecula, Sagitta, Aquila, Capricornus, Piscis Austrinus, Grus.

Transit: Cepheus, Cassiopeia, Lacerta, Pegasus, Andromeda, Pisces, Cetus, Phoenix, Sculptor.

New arrivals: Auriga, Taurus, Orion, Eridanus, Fornax, Phoenix.

Binocular Clubs

Binocular Messier – Monthly highlights include:

Easy – 2, 15, 27, 29, 31, 34, 35, 36, 37, 38, 39, 45, 52, 103.

Medium – 30, 33, 81, 82.

Hard – 1, 32, 56, 71.

Big Binoculars – 72, 77, 110.

Deep Sky Binocular – Monthly highlights include:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 34, 38, 43, 47, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60.

Other Clubs

Messier

In addition to those listed under Binocular Messier, check out: 57, 73, 74, 76.

Caldwell

1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 27, 28, 30, 31, 33, 34, 37, 41, 42, 43, 44, 47, 51, 55, 56, 62, 63, 65, 67, 70, 72.

Double Star

2, 3, 6, 7, 8, 10, 13, 19, 21, 24, 27, 28, 30, 31, 33, 36, 38, 42, 44, 46, 47, 48, 49, 50, 53, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 77, 83, 84, 85, 88, 89, 90.
Other Clubs (of the Solar System)

**Planetary/Solar System** – These are the tasks that can be done this month:
- Mercury and Mars will not be visible during the evening hours.
- Sun – Any clear day is a good time to get those sunspots. Sunset mid-month is at 1725.
- Moon:
  - The Maria requirement can be done any time the moon is visible. Look after 11/4 and before 11/19 for the fullest views.
  - The Highlands requirement can be done at the same time.
  - The Crater Ages requirement is best done on 11/3 and 11/4.
  - The Scarps requirement is best done on 11/5.
- Occultations occur all the time, the bright ones can be found on the internet. Objects disappear on the East side of the moon.
- Venus is in Ophiuchus and sets at 1848 by mid-month.
- Ceres is in Sagittarius and sets at 2037 by mid-month.
- Jupiter is in Ophiuchus and sets at 1927 by mid-month.
- Saturn is in Sagittarius and sets at 2057 by mid-month.
- Uranus is in Aries and is up all night by mid-month.
- Neptune is in Aquarius sets at 0138 by mid-month.
- Pluto is in Sagittarius and sets at 2117 by mid-month.

**Lunar**

Key timings are indicated below:
- New, 11/26
- 4 days, 11/30
- 7 days, 11/4
- 10 days, 11/7
- 14 days, 11/12
- Old moon in new moon’s arms – before 0906 on 11/29, ~10 % illuminated. (72 hr > New)
- New moon in the old moon’s arms – after 0906 on 11/23, ~10 % illuminated (72 hr < New)
- Waxing Crescent – before 0106 on 11/28, ~4 % illuminated (40 hr > New)
- Waning Crescent – after 0906 on 11/24, ~4 % illuminated (48 hr < New)

**The Astronomical League Observing Programs:**

- Analemma
- ARP Peculiar Galaxies
- Asterisms
- Asteroids
- Binocular Double Star
- Binocular Messier
- Caldwell
- Carbon Star
- Comets
- Constellation Hunter – North
- Constellation Hunter – South
- Dark Nebulae
- Dark Sky Advocate
- Deep Sky Binocular
- Double Star
- Earth Orbiting Satellite
- Flat Galaxy
- Galaxy Groups & Clusters
- Galileo
- Globular Clusters
- Herschel 400
- Herschel II
- Local Galaxy Group & Neighborhood
- Lunar
- Lunar II
- Master Observer Progression
- Mars
- Messier
- Meteor
- Multiple Stars
- NEO
- Open Clusters
- Outreach
- Planetary Nebulae
- Planetary Transit
- Solar System Observers
- Sky Puppy
- Southern Skies Binocular
- Southern Skies Telescope
- Spectroscopy
- Sunspots
- Stellar Evolution
- Universe Sampler
- Urban
- Variable Star
- Planetary Transit
- Planetary Transit

* - Although these clubs are not detailed in this “What’s Up Doc?” handout, you can get information on many of their objects by using the “What’s Up Tonight, Doc?” spreadsheet (version 4.1). To get your copy, talk to the Doc, Aaron Clevenson, by sending an email to aaron@clevenson.org. It is also available on the club website.
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